GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 1864
ANSWERED ON 14/12/2023

GREEN HYDROGEN MISSION

1864. SHRI DILIP SAIKIA
SHRI SUNIL KUMAR SINGH
SHRI NARANBHAI KACHHADIYA
SHRI SHIVAKUMAR C. UDASI
SHRI RANJEETSINGH NAIK NIMBALKAR
SHRI SUDHAKAR TUKARAM SHRANGARE
SHRI DEVJI M. PATEL
DR. (PROF.) KIRIT PREMJIBHAI SOLANKI
DR. NISHIKANT DUBEY

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

(a) whether there is any specific target set by the Government for Green Hydrogen Mission in terms of production capacity, reduction in fossil fuel imports, investments, job creation and CO2 emissions;
(b) whether there is any specific timeline associated with the targets set by the Government for the Green Hydrogen production mission and if so, the details thereof; and
(c) the details regarding international collaborations and the countries participating in the global clean energy transition, specifically related to the Green Hydrogen production mission?

ANSWER

THE MINISTER OF NEW & RENEWABLE ENERGY AND POWER

(SHRI R.K. SINGH)

(a) & (b) The Ministry of New and Renewable Energy is implementing the National Green Hydrogen Mission, approved by the Union Cabinet on 4th January 2023, with an outlay of ₹ 19,744 crore. The expected outcomes of the Mission, by 2030, are as follows:

i. India's Green Hydrogen production capacity is likely to reach 5 MMT per annum, contributing to reduction in dependence on import of fossil fuels. Achievement of Mission targets is expected to reduce a cumulative ₹ 1 lakh crore worth of fossil fuel imports by 2030.
ii. This is likely to leverage over ₹8 lakh crore in total investments in creating the Green Hydrogen ecosystem and create over 6 lakh jobs, and
iii. Nearly 50 MMT per annum of CO2 emissions are expected to be averted as a result of the various Green Hydrogen initiatives under the Mission.

(c) 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 (c) of the Lok Sabha Unstarred question no. 1864 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: (**5th 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: (**15th 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: (**29th 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: (**28th January, 2021**) To establish the basis for Cooperation in the Area of Renewable Energy	Solar, Wind energy, Hydrogen, Biomass

		ii. MoU between National Institute of Solar Energy (NISE) and The French Alternative Energies and Atomic Energy Commission (CEA) (**10th March, 2018**) To identify research/ demonstration/ pilot project between NISE and CEA in the mutually identified areas	Solar Photovoltaic, Storage Technologies including Hydrogen etc.
		iii. MoU between National Institute of Solar Energy (NISE) and The French Alternative Energies and Atomic Energy Commission (CEA) (**22nd August, 2019**) To work in various areas of Hydrogen Energy and Fuel Cells.	Solar, Storage – battery and Hydrogen
4.	Germany	i. MoU between Solar Energy Centre (SEC) and and Fraunhofer Institut fur Solare Energiesysteme (ISE) (**11th April, 2013**) To implement research/demonstration/pilot in the mutually identified areas of solar energy and Hydrogen & Fuel cells.	Solar Photovoltaic, Solar Thermal, Hydrogen and Fuel Cells
		ii. Joint Declaration of Intent (JDI): (**02nd May, 2022**) 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&D) projects.	Promotion of public and private investment in production, transport and consumption of green hydrogen and its derivatives.
5.	Saudi Arabia	i. MoU: (**10th September, 2023**) To set up a framework for cooperation between the two parties in the field of renewable energy	Renewable energy, Energy Efficiency, Hydrogen, Electricity and Grid Interconnection, Petroleum, Natural Gas, etc.
		ii. MoU: (**8th October, 2023**)	Electrical interconnection, Green/ Clean Hydrogen

		To establish a general framework of cooperation in the field of electrical interconnection, Green/ Clean Hydrogen and Supply.	
6.	UAE	MoU: (**13th 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) (**10th December, 2020**) : The main area of work under this MOU would be to identify research/ demonstration/ pilot projects NlSE 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.