

353/81/2024-NT
Government of India
Ministry of New and Renewable Energy
(Hydrogen Division)

Atal Akshay Urja Bhawan,
Lodhi Road, New Delhi 110003
Date: 8th November 2024

To

The Pay & Accounts Officer,
Ministry of New and Renewable Energy,
New Delhi- 110003

Subject: Scheme Guidelines for implementation of Pilot projects for production and use of Green Hydrogen using innovative methods/pathways in the Residential, Commercial, Localized Community, Decentralized/Non-Conventional, applications, including any new sector or technology not covered in previous Mission schemes – reg.

Sir/Madam,

I am directed to convey the sanction of the President of India for the implementation of the scheme for implementation of Pilot projects for production and use of Green Hydrogen using innovative methods/pathways in the Residential, Commercial, Localized Community, Decentralized/Non-Conventional, applications, including any new sector or technology not covered in previous Mission schemes.

2. Objectives of the Scheme are as follows:
- (i) To support innovative models/technologies/pathways for production of Green Hydrogen including inter – alia floating solar based Green Hydrogen production, biomass based Green Hydrogen production and production of Green Hydrogen from wastewater.
 - (ii) To support the utilisation of Green Hydrogen and its derivatives as fuel for decentralized applications in cooking, heating, off-grid electricity generation, off road vehicles, on a pilot basis



- (iii) To validate the technical feasibility and performance of Green Hydrogen as a fuel for household / residential and commercial appliances including, city gas, local community applications.
 - (iv) To demonstrate safe and secure use of Green Hydrogen and its derivatives in other new sectors.
3. Implementation Methodology: The Scheme will be implemented as per the detailed Guidelines given at Annexure.
 4. The expenditure on this scheme will be met from the budget provisions made under the National Green Hydrogen Mission Head.
 5. This issues in exercise of the powers conferred on this Ministry and with the concurrence of IFD vide their Diary. No. 298 dated 8th November 2024.
 6. This has the approval of Hon'ble Minister of New and Renewable Energy.

Yours faithfully,



Sujit Pillai

Scientist F

Email: sujit.pillai@gov.in

Enclosed: Annexure

Copy to:

1. Secretary, Ministry of New and Renewable Energy (MNRE)
2. All Central Government Ministries and Departments
3. All Members of the Empowered Group under the Mission
4. All Members of the Advisory Group under the Mission
5. CEO, NITI Aayog, Sansad Marg, New Delhi
6. State Nodal Agencies (SNAs) of all States/UTs
7. Major Public Sector Enterprises operating in Renewable Energy/Power Sector 8.
Principal Director of Audit, Scientific Audit-II, DGCAR, I.P. Estate, Delhi-11002
9. Director General (Local Bodies), Office of the Comptroller & Auditor
General, Deendayal Upadhyay Marg, New Delhi

10. Solar Energy Corporation of India (SECI), 6th floor, Plate-B, NBCC office, Block tower-2, East Kidwai Nagar, New Delhi. 110023
11. Indian Renewable Energy Development Agency Limited (IREDA), 3rd floor, August Kranti Bhavan, Bhikaji Cama place, New Delhi-110066

Internal distribution:

1. PS to Hon'ble Minister of New and Renewable Energy and Consumer Affairs, Food and Public Distribution
2. PS to Hon'ble Minister of State for New and Renewable Energy and Power
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Annexure

Scheme Guidelines for implementation of Pilot projects for production and use of Green Hydrogen using innovative methods/pathways in the Residential, Commercial, Localized Community, Decentralized/Non-Conventional, applications, includes any new sector or technology not covered in previous Mission schemes

1. Introduction

1.1. The National Green Hydrogen Mission, hereafter mentioned as the 'Mission', was launched on January 4 2023 with an outlay of Rs. 19744 crores with an aim to make India a Global Hub for production, usage and export of Green Hydrogen and its derivatives. It will contribute to India's goal to become Aatmanirbhar (self-reliant) through clean energy and serve as an inspiration for the global Clean Energy Transition. The Mission will lead to significant decarbonisation of the economy, reduced dependence on fossil fuel imports, and enable India to assume technology and market leadership in Green Hydrogen. Under the Mission, along with other initiatives, the Ministry of New & Renewable Energy (MNRE) proposes to implement pilot projects for production or usage of Green Hydrogen in order to replace fossil fuels and fossil fuel-based feedstock.

1.2. The production of Green Hydrogen via decentralized mode, i.e. rooftop solar, small/micro hydel plants, floating solar, wastewater and biomass utilization will be advantageous for localized applications. In addition to this, use of Green Hydrogen and its derivatives for community-level applications, such as heating, cooking, and off-grid electricity generation or storage, holds immense potential in driving India's decarbonization efforts. By replacing LPG in cooking stoves, diesel in off - grid power generation, and conventional fuels in household heating systems, communities can significantly reduce their carbon emissions and improve air quality. Additionally, utilization of Green Hydrogen-based fuels in new sectors including off-road vehicles, such as those used in construction and mining, offer a sustainable solution in reducing emissions from these energy-intensive sectors.

1.3. In order to evaluate different innovative production pathways for Green Hydrogen and its derivatives and to assess the feasibility of hydrogen utilization in residential and commercial applications in decentralized mode, eligible projects will

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be supported under the Mission. These projects will be implemented by the Scheme Implementing Agencies (SIAs) designated for specific sectors under this initiative.

2. Innovative models for production and utilization of Green Hydrogen

2.1. Para 4.7 of the Mission Document states that Innovative models to source Green Hydrogen through use of decentralized renewable energy generation such as rooftop solar and small/micro hydel plants will also be explored. Decentralised Green Hydrogen production will be advantageous to reduce the requirement of its transportation for end-use. This would also allow for optimal utilization of various resources such as land, water, renewable energy potential etc. Decentralized production may also be explored through Biomass-based hydrogen production systems and Modular electrolyzers connected to rooftop solar or other decentralized RE plants like small hydro etc. To optimize water requirements, the use of industrial or municipal wastewater for hydrogen production, wherever feasible, will also be emphasized.

2.2. Para 3.2 of the Mission Document states that the Mission will support replacement of fossil fuels and fossil fuel-based feedstocks with renewable fuels and feedstocks based on Green Hydrogen. This will include replacement of Hydrogen produced from fossil fuel sources with Green Hydrogen in ammonia production and petroleum refining, blending Green Hydrogen in City Gas Distribution systems, production of steel with Green Hydrogen, and use of Green Hydrogen-derived synthetic fuels (including Green Ammonia, Green Methanol, etc.) to replace fossil fuels in various sectors including mobility, shipping, and aviation.

2.3. The decentralized mode as stated in para 2.1, will also apply to local community-based applications, operated in decentralized modes. Para 7.2 of the Mission Document states that Hydrogen can also be blended to a certain degree in most natural gas networks without requiring significant investments. Older networks will require retrofitting/upgradation of system components, but new and upcoming networks are likely to be compatible with high blend ratios of hydrogen.

2.4. Thrust areas under this scheme will be to provide support for development/ selection/ validation of innovative/viable technologies, for the production and utilization of Green Hydrogen in decentralized local community sector and off-road vehicles, including those sectors not covered by other mission schemes.