



**INDIA'S JOURNEY TOWARDS GREEN HYDROGEN  
ENERGY GENERATION: IMPLEMENTATION OF  
NATIONAL GREEN HYDROGEN MISSION**

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## India's Journey Towards Green Hydrogen Energy Generation: Implementation of National Green Hydrogen Mission

### INTRODUCTION

In the recent past, the global community has witnessed a drastic shift towards sustainable energy in response to the pressing challenges of environmental degradation. India, being a crucial player in the worldwide energy market, aims to become energy independent by 2047 and achieving Net Zero by 2070. Green Hydrogen has emerged as a frontrunner element to aid this transition.

Since India currently imports over 40% of its primary energy requirements, the local production of Green Hydrogen can significantly aid the economy in achieving low-carbon and self-reliant economic pathways. Recognizing this, the Ministry of New and Renewable Energy ('**MNRE**') launched the ambitious National Green Hydrogen Mission ('**NGHM**'/ '**the Mission**') in 2023, for harnessing the existing potential of India to produce Green Hydrogen and for increasing the same in a phased manner. The Mission is a pivotal step in India's journey towards sustainable development and combating climate change as it aims to develop a detailed strategy for building a Green Hydrogen ecosystem and promoting a unified response to the opportunities and challenges in this emerging sector.

### KEY OBJECTIVES OF THE MISSION

Green Hydrogen is understood as *'hydrogen produced using renewable energy, including, but not limited to, production through electrolysis or conversion of biomass.'* The key focus of the Mission, is to develop an ecosystem for effective utilization of green hydrogen and its derivatives by achieving decarbonisation in a phased manner. This in turn would be a significant step towards India becoming a global hub for production, as well as aid India in becoming 'self-reliant'. In furtherance of this, the Mission sets forth a target of production of at least 5 million Metric Tonne (**MMT**) of Green Hydrogen per annum by 2030. To achieve this, the Mission aims to replace and blend fossil fuels with renewable fuels based on Green Hydrogen.

The Mission will also support and facilitate the development of infrastructure for the storage and delivery of Green Hydrogen and its derivatives. This includes constructing port facilities for exporting Green Hydrogen derivatives and developing pipelines for bulk transport. Additionally, producers and consumers of Green Hydrogen and its derivatives will be encouraged to collaborate and pool resources to establish large-scale Hydrogen Hubs.

### IMPLEMENTATION STRATEGY

To optimize the Green Hydrogen Policy, the MNRE has outlined key strategies. These include improving sourcing and production through phased and integrated implementation, focusing on cost reduction in electrolyzers and renewable energy inputs, fostering industry-academia collaboration, scaling up renewable energy capacity, and developing robust infrastructure.

As stated above, the Mission is being implemented in a phased manner. Each phase expands over three years, as follows:

- Phase I [2022-23 to 2025-26]
- Phase II [2026-27 to 2029-30]

All concerned government ministries, departments and institutions will be undertaking coordinated steps towards achievement of the objectives under the Mission. Each of the ministries, such as MNRE, Ministry of Power, Ministry of Road Transport, Ministry of Finance etc. will be

discharging clearly demarcated functions so as to ensure implementation of intricate aspects of the Mission from all corners.

## **CONCLUSION**

The Mission represents a bold step towards achieving sustainable development goals. However, its success hinges on overcoming significant technological, economic, and policy challenges. By fostering innovation, leveraging international collaborations, and ensuring a supportive regulatory environment, India can position itself as a global leader in the green hydrogen economy. As the mission progresses, continual evaluation and adaptation of strategies will be crucial to realizing its full potential and securing a cleaner, more sustainable future for generations to come.