Hydrogen Policy

National Green Hydrogen Mission

- **Overarching Objective**

To make India the Global Hub for production, usage and export of Green Hydrogen and its derivatives. This will contribute to India's aim to become Aatmanirbhar 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.

- **Demand Creation**

Exports: Mission will facilitate export opportunities through supportive policies and strategic partnerships.

Domestic Demand: The Government of India will specify a minimum share of consumption of green hydrogen or its derivative products such as green ammonia, green methanol etc. by designated consumers as energy or feedstock. The year wise trajectory of such minimum share of consumption will be decided by the Empowered Group (EG).

Competitive Bidding: Demand aggregation and procurement of green hydrogen and green ammonia through the competitive bidding route will be undertaken.

Certification framework: MNRE will also develop a suitable regulatory framework for certification of Green Hydrogen and its derivatives as having been produced from RE sources.

Strategic Interventions for Green Hydrogen Transition (SIGHT)
In the initial stage, two distinct financial incentive mechanisms proposed with an **outlay of ₹ 17,490 crore up to 2029-30:**

- **Incentive for manufacturing of electrolysers**
- **Incentive for production of green hydrogen.**

Depending upon the markets and technology development, specific incentive schemes and programmes will continue to evolve as the Mission progresses.
To ensure quality and performance of equipment, the eligibility criteria for participation in competitive bidding for procurement of Green Hydrogen and its derivatives will specify that the project must utilize equipment approved by Government of India as per specified quality and performance criteria.

As of 2025, the Strategic Interventions for Green Hydrogen Transition (SIGHT) scheme under India's National Green Hydrogen Mission (NGHM) has made significant progress:

- In Jan 2025, contracts were awarded for setting up manufacturing capacities for electrolysers in India under the SIGHT Scheme (Tranche-II) to 13 companies[1].
- In March 2025, contracts were awarded for setting up production facilities for green hydrogen in India under the SIGHT Scheme (Mode-1-Tranche-II) to 9 companies, marking a major milestone in the mission's implementation[2].LOAs issue to successful bidders on March 2025.

Pilot Projects

- Outlay of ₹ 455 crore up to 2029-30 for **low carbon steel projects**
- Outlay of ₹ 496 crore up to 2025-26 for **mobility pilot projects**
- Outlay of ₹ 115 crore up to 2025-26 for **shipping pilot projects.**

[1] 173717184442000Rfs_Electrolyser_Result_SECI_TrancheII.pdf
[2] GH2 T-II website result upload.xlsx

- As part of the National Green Hydrogen Mission, the Government has initiated five pilot projects for using Hydrogen in buses and trucks. Earlier the Ministry of New and Renewable Energy had issued guidelines for implementing Pilot projects in the Transport Sector under this Mission[3]Other target areas include: decentralized energy applications, hydrogen production from biomass, hydrogen storage technologies, etc.

Green Hydrogen Hubs With a strategic emphasis on decarbonisation, India is establishing **port-led green hydrogen hubs** across key states to foster a robust green hydrogen ecosystem.

A total of 3,900 acres of land has been earmarked at the Deendayal Port Authority (DPA) and Tuticorin Port Authority for the development of hydrogen manufacturing hubs. These two hubs are projected to attract investments amounting to INR5 lakh crore in the coming years.

1. Paradip Port, Odisha

- At Paradip Port in Odisha, a green hydrogen plant with a production capacity of 500 kilotonnes per annum (kTPA) is under development[4]. The port infrastructure is being enhanced to support a planned handling capacity of 5,000 kTPA of green hydrogen and ammonia, backed by an investment of approximately ₹325 crore[5]. Additionally, a 10 MW renewable energy facility is currently under development to support the hub's operations.
- Paradip is being developed as an export-oriented hub, with a collaborative business model involving both the government—through the Port Authority—and private developers. The initiative has already attracted significant interest, with Memorandums of Understanding (MoUs) signed amounting to a total investment of ₹50,800 crore.

2. Tuticorin Port in Tamil Nadu

- At Tuticorin Port in Tamil Nadu, 501 acres of land have been allocated for the development of green hydrogen infrastructure[6]. While the overall production capacity is yet to be fully defined, a 200 kilotonnes per annum (kTPA) green ammonia plant has been announced by Sembcorp. Additionally, Memorandums of Understanding (MoUs) have been signed with major players including ACME, Reliance Industries, NTPC, and others, indicating strong private sector interest[7].
- The port infrastructure plan includes the development of a green hydrogen pilot bunkering project, along with dedicated terminals and storage facilities for both hydrogen and ammonia. Tuticorin is being positioned as an export-oriented hub, with a collaborative business model involving the Port Authority and private developers.

3. Deendayal Port in Gujarat

- At Deendayal Port in Gujarat, the Port Authority has allocated 3,400 acres of land for the development of a green hydrogen plant[8]. The envisioned capacity for this facility is substantial, with Expressions of Interest (EOIs) invited for the production of up to 7 million metric tonnes per annum (MMTPA) of green ammonia[9].

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[3] Press Release:Press Information Bureau

[4] Paradip Port to be fully mechanised by 2030 - The Economic Times

[5] HOME :: Welcome to Paradip Port

[6] Tamil Nadu set to be 'green hydrogen capital of India' | Chennai News - Times of India

[7] VOC Port earmarks Rs 41,860 cr to position itself as Green Hydrogen hub of India, ET EnergyWorld

[8] At Kandla, 3400 acres set aside for green hydrogen entities - Maritime Gateway

[9] Deendayal Port Gets 13 Expressions of Interest to Develop Green Hydrogen Hub

- To support this scale of production, EOIs have also been issued for the development of a 300 million litres per day (MLD) desalination plant. Additionally, plans are underway to establish 9 gigawatts (GW) of renewable energy capacity to power the green hydrogen operations.
- Deendayal Port is being developed as an export-oriented hub, following a collaborative business model that involves both the government—through the Port Authority—and private sector developers.

Hydrogen Valleys in India

India is also advancing the development of domestic hydrogen valleys—geographically defined areas where hydrogen is utilised across multiple sectors such as mobility, industry, and energy. These valleys encompass the entire hydrogen value chain, from production to end-use applications.

Under the Hydrogen Valley Innovation Cluster (HVIC) initiative, the Government of India has approved funding of ₹50 crore for each of the four upcoming hydrogen valleys[10]. These projects are being implemented through a Public-Private Partnership (PPP) model and are intended for domestic end-use[11]. The development timeline spans from 2024 to 2028.

Pune Hydrogen Valley: This project is led by a consortium with CSIR-NCL (a Government of India institution) as the lead partner, alongside 13 industry collaborators[12]. The valley will employ technologies such as bioethanol reforming and electrolysis to produce green hydrogen, with a target capacity of 0.7 kilotonnes per annum (kTPA)[13].

The demand cluster for this valley includes fine and specialty chemical industries located in the Maharashtra Industrial Development Corporation (MIDC) area of Pune. Planned infrastructure includes hydrogen storage facilities, hydrogen internal combustion engines (H2-ICE), fuel cell electric vehicles (FCEVs), and hydrogen dispensing stations. The primary end-use sectors are the fine chemicals industry and mobility applications.

Kerala Hydrogen Valley

The Kerala Hydrogen Valley is being led by ANERT (Agency for Non-conventional Energy and Rural Technology), a Government of India agency, in collaboration with around 11 partners from industry, academia, and research institutions[14]. The project will employ biomass and electrolysis technologies to produce both hydrogen (H_2) and ammonia (NH_3), with a targeted production capacity of at least 0.5 kilotonnes per annum (kTPA)[15]. Planned infrastructure includes facilities for production, storage, and distribution. The primary end-use sectors are mobility—particularly shipping and road transport.

Bhubaneswar Hydrogen Valley

The Bhubaneswar Hydrogen Valley is spearheaded by IIT Bhubaneswar, in partnership with approximately 10 industry, research, and academic organisations[16]. Similar to other valleys, the project will utilise biomass and electrolysis to generate hydrogen and ammonia, aiming for a minimum production capacity of 0.5 kTPA[17]. Infrastructure development will focus on production, storage, and distribution systems. The key end-use sectors identified for this valley are the steel industry and mobility.

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[10] India offers ₹50 crore each to four hydrogen valleys: Pune, Jodhpur, Bhubaneshwar, Kerala

[11] SchemeId_2294_GuidelinesforHydrogenValleyInnocationCluster_0.docx

[12] www.ph2v.org.in

[13] www.ph2v.org.in

[14] ANERT

[15] ANERT

[16] Hydrogen Valley Innovation Cluster -

[17] Hydrogen Valley Innovation Cluster -

Jodhpur Hydrogen Valley

Led by IIT Jodhpur, the Jodhpur Hydrogen Valley is being developed in collaboration with around 11 partners from the industrial, academic, and research sectors[18]. The project will use biomass and electrolysis technologies to produce hydrogen and ammonia, with a target capacity of at least 0.5 kTPA. The demand cluster includes IIT Jodhpur, AIIMS, and the broader mobility sector. Planned infrastructure encompasses a testing and standardisation facility, skill development centre (SDC), research and development (R&D) facilities, storage infrastructure, hydrogen internal combustion engines (H_2-ICE), fuel cell electric vehicles (FCEVs), and hydrogen dispensing stations. The primary end-use applications are city gas blending and mobility.

- **Enabling Policy Framework**

To facilitate delivery of RE for Green Hydrogen production, various policy provisions including inter-alia waiver of Interstate transmission charges for renewable energy used for Green Hydrogen production; facilitating renewable energy banking; and time bound grant of Open Access and connectivity, will be extended for Green Hydrogen projects.

- **Infrastructure Development**

The National Green Hydrogen Mission, which aims to accelerate the deployment of Green Hydrogen as a clean energy source, will support the development of supply chains that can efficiently transport and distribute hydrogen. This includes the use of pipelines, tankers, intermediate storage facilities, and last leg distribution networks for export as well as domestic consumption.

- **Regulations and Standards**

The Mission will coordinate the various efforts for regulations and standards development in line with the industry requirements for emerging technologies. Work has commenced on establishing a framework of regulations and standards to facilitate growth of the sector and enable harmonization and engagement with international norms.

India recently launched the **Green Hydrogen Certification Scheme of India (GHCI)** under the ambit of the National Green Hydrogen Mission[19]. Announced by the Ministry of New and Renewable Energy (MNRE) in April 2025, the scheme aims to establish a robust and transparent framework for certifying green hydrogen and its derivatives. It is designed to ensure traceability, credibility, and market confidence in green hydrogen produced within the country.

The certification applies to hydrogen generated through electrolysis using renewable electricity and biomass conversion. To qualify as green hydrogen, the production must meet an average non-biogenic emission intensity threshold of 2 kg CO_2 equivalent per kg of hydrogen or lower. Certification is granted following annual verification by an Accredited Carbon Verification (ACV) agency[20]. Notably, the certification is non-transferable and cannot be used for emission reduction credits, ensuring its integrity and purpose-specific use.

This initiative is a significant step towards positioning India as a global hub for green hydrogen production and export, while also supporting domestic decarbonisation goals across sectors such as industry, transport, and energy

- **Research and Development**

A public-private partnership framework for R&D (Strategic Hydrogen Innovation Partnership – SHIP) will be facilitated under the Mission. The framework will entail creation of a dedicated R&D fund, with contributions from Industry and respective Government institutions. These institutions will pool resources

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[18] KPMG Jodhpur HVIC report

[19] Green Hydrogen Certification Scheme of India for Stakeholder Comments | MINISTRY OF NEW AND RENEWABLE ENERGY | India

[20] Green Hydrogen Certification Scheme of India for Stakeholder Comments | MINISTRY OF NEW AND RENEWABLE ENERGY | India

to build a comprehensive goal-oriented Research and Innovation programme in collaboration with the private sector.

- **Skill Development**

A coordinated skill development programme, that covers requirements in various segments, will be undertaken in coordination with the Ministry of Skill Development & Entrepreneurship.

- **Other Components**

In addition to the above, the Mission will also cover Public Awareness, Stakeholder Outreach and International Cooperation.

- **Mission Governance Structure**

An Empowered Group (EG) chaired by the Cabinet Secretary and comprising Secretaries of Government of India and experts from the industry will guide the Mission; an Advisory Group chaired by the PSA and comprising experts will advise the EG on scientific and technology matters; and a Mission Secretariat headquartered in MNRE will undertake the programme implementation.

- **Mission Outlay**

The initial outlay for the Mission will be ₹ 19,744 crore, including an outlay of ₹ 17,490 crore for the SIGHT programme, ₹ 1,466 crore for pilot projects, ₹ 400 crore for R&D, and ₹ 388 crore towards other Mission components.

The Union Budget for 2024-25 has earmarked ₹600 crore for the National Green Hydrogen Mission (NGHM), marking a significant rise from the ₹100 crore allocated the previous year.[21,22]

For detailed information on National Green Hydrogen Mission - Click Here.

[21] How 2024 policy shifts are advancing India's green hydrogen sector | EY - India

[22] Press Release:Press Information Bureau