

UP takes big strides in Green Hydrogen

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Uttar Pradesh’s commitment to advancing clean and sustainable energy solutions in light of global warming and climate change is underscored by the state’s proactive stance towards embracing novel technologies. The landscape of green hydrogen in Uttar Pradesh affirms its pivotal role as a clean energy and industrial fuel, aligning with India’s pursuit of net- zero emissions. Through a combination of administrative and financial initiatives, Uttar Pradesh aims to create an enabling environment for the proliferation of green hydrogen and allied technologies, thereby contributing significantly to India’s journey towards sustainable energy.

Prime Minister Modi while inaugurating India Energy Week 2024 in Goa emphasised that the National Green Hydrogen Mission holds the promise of positioning India as a hub for hydrogen production and export. The Prime Minister expressed optimism regarding the potential of India’s green energy sector to attract investments and drive industrial growth.

In light of this, the Government of Uttar Pradesh’s **‘Green Hydrogen Policy 2024’** drah aims to promote growth and employment in the state while prioritising decarbonization and the state’s contribution to India’s climate goals. The policy shall promote green hydrogen/ ammonia production, market creation, and demand aggregation. The policy aims to ensure a conducive ecosystem in the state to support its ambition to be a leading green hydrogen/ammonia economy.

Scope of the Policy

According to the official draft, the policy will support production, consumption, market creation, and other elements across the green hydrogen/ammonia value chain. Green hydrogen has immense potential for uptake in Nitrogenous Fertilisers, Chemicals, Refineries, Heavy- duty vehicles, Energy storage, Iron & Steel, City Gas Distribution (CGD) and Glass Manufacturing sectors. For building the necessary momentum on policy actions towards a green hydrogen economy in UP, the initial emphasises shall be on Nitrogenous Fertilisers and Refinery. The policy shall also cover other emerging industries and applications of green hydrogen, aligning with the policies and mission of the Government of India.

Vision and Objectives

The vision of the policy is to make Uttar Pradesh a leading green hydrogen/ ammonia economy in India. It aims to provide a conducive green hydrogen ecosystem for new and existing investments, promote inclusive growth, support research & innovation, and implement solutions for the holistic and sustainable development of the state.

Objectives

- Implement and support the Green Hydrogen Mission and green hydrogen-related policies of the Government of India.
- Enable ease of doing business for setting up and promoting Investments in green hydrogen/ ammonia production facilities and green hydrogen-based products manufacturing units.
- Encourage research & innovation in green hydrogen/ammonia production and consumption technologies to reduce the cost of green hydrogen/ ammonia to competitive levels.
- Advance infrastructure development, such as pipeline networks, renewable (RE) capacities, etc., across the green hydrogen/ammonia value chain to promote the emergence of new manufacturing units and hydrogen valleys. Stimulate green hydrogen/ ammonia market creation by providing fiscal and non-fiscal incentives.
- Develop a green hydrogen/ammonia- ready workforce and generate employment opportunities through a skill development programme.
- Reduce green hydrogen costs in the policy period and make efforts to decline it further in the long term.

Targets

- Uttar Pradesh shall be a leading green hydrogen/ammonia producer with 1 million metric ton per annum (MMTPA) by 2028. The following concepts shall be adopted to achieve the targets in the policy:
- To promote the use of green hydrogen in the sectors already using hydrogen/ammonia under the mandate determined by the National Green Hydrogen Mission and Green Hydrogen Policy of the Government of India.
- To establish four Centre of Excellence (COE) to implement Research and Development (R&D) and Innovation activities.
- The current hydrogen demand in the state stands at around 0.9 million tonnes per annum (Mtpa), primarily used in the N-fertilisers, with some demand in the refinery sector. To harness the above- described opportunity, the State shall boost its green hydrogen/ ammonia production and uptake by improving the ease of doing business and advancing industrial infrastructure for a green hydrogen/ ammonia ecosystem.

Improving Ease Of Doing Business

The Government of UP has ongoing initiatives to facilitate investments and businesses in the state. The initiatives range from simplifying procedures to undertaking regulatory reforms for ease of doing business. UP shall undertake the following interventions to facilitate existing and new green hydrogen/ammonia investments:

- UP Government shall provide the facility of a single window clearance platform to prospective investors and entrepreneurs to get online clearances/NOCs from the concerned departments with ease. A single window clearance platform would support new green hydrogen/ ammonia investment projects and existing units to support seamless expansion.
- The government of UP shall undertake the creation of a database on the land bank and water availability and make that available to potential investors.

Development of Green Hydrogen/Ammonia Ecosystem

The green hydrogen/ammonia ecosystem development will need infrastructure advancements across the value chain. The policy shall support infrastructure development by undertaking the following interventions:

- Promote the blending of green hydrogen in various sectors including city gas distribution on a case-to-case basis. The blending guidelines of the Government of India shall apply.
- Promote carbon dioxide recovery units to usage of carbon being produced from biogas plants and other industries.
- Develop green hydrogen/ammonia Industrial clusters/hubs/valleys in the state. The clusters/hub/valley model essentially promotes green hydrogen/ammonia production around consumption centres.
- Provide financial support for technology advancement and adoption, such as electrolyzers, carbon dioxide recovery units, etc., to promote a green hydrogen/ammonia ecosystem.
- Promote the development of hydrogen-ready pipelines to transport green hydrogen/ammonia to feasible distances.
- Expand adequate water supply and electricity transmission infrastructure and demand aggregation across the state to facilitate the development of green hydrogen/ammonia production units.
- Provide adequate land at concessional rates for green hydrogen/ammonia production or renewable energy production units planned for green hydrogen, along with the necessary regulatory support in case of the availability of government-owned land.
- To provide Right of Way (ROW) and to facilitate transportation from production units to consumption centres of Green Hydrogen/ Ammonia and its derivatives.

Driving Research & Development (R&D) And Innovations

- The cost of green hydrogen is a major constraint in its adoption. Therefore, there is a need to encourage innovation to reduce costs over time. Challenges exist related to encouraging demand for green hydrogen in new emerging applications, indigenous manufacturing of electrolyzers, the system’s efficiency, transportation, storage, etc. So, innovation, led by investments in research and development, will help the state and the sector overcome existing challenges.
- To reduce the production cost of green hydrogen and associated products and to develop innovative technologies, two centres of excellence will be established.
- The policy shall support R&D and innovation across the green hydrogen/ ammonia value chain through the establishment of two centres of excellence (CoE) with different academic and research institutions and industries. This will facilitate the development of a sustainable green hydrogen/ammonia ecosystem.
- A one-time grant of up to 100 percent of the cost incurred, subject to a maximum of Rs 50 crores, shall be provided for the establishment of CoEs after approval by the state-level committee based on the quality and usefulness of the project.
- Startups working in this field will be promoted and provided financial support of Rs 25 lakhs per annum for five years. Only those startups affiliated with incubators of any academic institution will be eligible for financial support. Only three incubators will be promoted, and each incubator will have around 10 startups.
- Incubators will be provided with 20 percent of the startup financial support for organising capacity- building programs, hackathons, events, and administrative expenses.

UPNEDA As Nodal Agency

UP New and Renewable Energy Development Agency (UPNEDA) shall act as the nodal agency for the implementation of this policy. The nodal agency shall work to fulfil the targets of the policy by providing fiscal & non- fiscal incentives and through facilitation to developers.