

# India Aims to Produce 5 mt Green H2 by '30

## Unveils policy enabling producers to source renewable energy without paying transmission charges for 25 years

### Our Bureau

New Delhi: India on Thursday announced plans to produce five million tonnes of green hydrogen by 2030 and unveiled a policy that will enable manufacturers to source renewable energy to produce hydrogen or ammonia without paying transmission charges for 25 years.

Reliance Industries (RIL), Larsen & Toubro, JSW Steel, Jindal Steel, NTPC, BPCL and Indian Oil Corp. among others, have announced plans to set up green hydrogen units.

The renewable energy industry is expected to get a lift from the policy as its cost will fall for those producing green hydrogen or ammonia, thereby increasing demand.

Despite the incentives, industry insiders said green hydrogen would cost substantially more than that made from natural gas, and the price would need to fall further for it to be more widely adopted.

### Green Light

**Incentives for use of renewable energy to produce green hydrogen or ammonia**

Manufacturers may purchase renewable energy (RE) or set up plants

No transmission charges for 25 yrs for projects set up before July 2025

Open access within 15 days of application

RE Banking with discom for 30 days

RE from discoms at concessional prices

Priority transmission connectivity

Portal for single-window clearance

Land at ports for bunkers for H2 storage

RIL chairman Mukesh Ambani had last year announced a target to produce green hydrogen at \$1 per kilogram by the turn of this decade.

The policy allows priority transmission, banking with distribution companies, quick open access, and single-window clearance for renewable energy used for green hydrogen or ammonia.

Producers will be given land for storage of such green hydrogen at ports.

"The policy covers several strategic enablers for growing India's Green Hydrogen output, including waiver of inter-state transmission charges, allotment of land in RE parks and credit towards renewable RPO compliance," said Mahesh Palashikar, president, GE South Asia.

ReNew Power chief commercial officer Mayank Bansal said the policy is a good step, although clarity was needed on cross-subsidy surcharge

and additional cross-subsidy surcharge.

ACME Group chairman Manoj K Upadhyay said the policy was the first concrete step in the direction of creating a favourable regulatory environment.

Most domestic oil refiners have announced big plans to produce green hydrogen and some of them have already begun the process to set up small facilities based on captive re-

newable power plants.

Green hydrogen and ammonia are envisaged as future fuels to replace fossil fuels and the production of these is one of the major requirements towards sustainable energy security of the nation, according to an official statement.

### COST ISSUES

The cost of green hydrogen is expected to be ₹350-400/kg against an average ₹140-180/kg from natural gas reformation.

"Waiver of inter-state transmission charges will bring down the cost of power, a key element in the production of green hydrogen. The provision for banking of unconsumed renewable power would also be very helpful," Hindustan Petroleum Corp chairman M K Surana said.

"But these steps will not make green hydrogen commercially viable. The final cost of renewable power for consumers must fall significantly for viable green hydrogen."

ACME Group Newspaper

CLEAN POWER

# Govt unveils first phase of green hydrogen policy

**Waiver of inter-state transmission charges, priority grid connectivity among incentives; VGF, purchase obligations seen in the offing**

FE BUREAU  
New Delhi, February 17

**THE GOVERNMENT ON** Thursday unveiled the first part of the National Hydrogen Policy, offering waiver of inter-state transmission charges for 25 years for projects commissioned until June 30, 2025, and grid transmission connectivity on priority basis.

Power and new & renewable energy minister Raj Kumar Singh said the policy will help lower the cost of producing carbon-free green hydrogen, adding that green hydrogen produced in India will be globally competitive. "We want India to emerge as the export hub for green hydrogen and green ammonia," he said.

Singh also hinted at a viability gap funding mechanism for the sector. The Union power ministry had said earlier that it intended to put green hydrogen consumption obligations on fertiliser producers and petroleum refiners to create a hydrogen value-chain in the country, and bring down the costs of hydrogen production. These incentives could be part of the Part-2 of the policy, which is likely to be cleared by the Cabinet soon.

As per the first part of the policy, companies will have the

liberty to set up capacity to generate electricity from renewable sources such as solar or wind anywhere in the country, by themselves or through a developer. This electricity will be allowed to be wheeled, free of cost, through open access of the transmission grid, to the plant where hydrogen is to be produced.

The government will also allow banking (storage) of excess green hydrogen produced by any company for up to 30 days, in case of capacities which are set up before 2025.

Singh had earlier said that as much as 8,800 megawatt (MW) of electrolyser capacity is required to meet the demand of the obligated industries, if they are mandated to source even 10% of their requirements through domestic green hydrogen. The purchase obligation would be later increased to 20-25%, he had said.

The government is also planning to come up with a PLI scheme for setting up electrolyser-manufacturing capacities to expedite the uptake of green hydrogen. According to experts, such capacity may require investments between ₹15,000 crore and ₹20,000 crore.

Electrolysers are used to make green hydrogen using electricity generated from renewable sources. Prime Minister Narendra Modi had on August 15 last year announced the National Hydrogen Mission as the government explores ways to reduce dependence on imported products such as crude oil and natural gas.

The country currently consumes about around 6 million tonne of hydrogen annually and the government is looking for ways to increase the pen-

### Green benefits

■ **Inter-state transmission charges** will be waived for 25 years for green hydrogen/green ammonia producers for projects commissioned before June 30, 2025.

■ **Green hydrogen/green ammonia plants** will be granted open access for sourcing of renewable energy within 15 days.



■ **Banking** will be allowed for 30 days for renewable energy used for making green hydrogen and ammonia.

■ **Land** in renewable energy parks or in manufacturing zones can be allotted for such plants.

charges to avoid a distorted green hydrogen market," Hemant Malviya, senior programme lead at CEEW, said.

Chandan Kumar Mondol, director commercial of NTPC, told FE. "The waiver of transmission charges for 25 years and the benefits similar to renewable purchase obligations will lead to faster adoption of green hydrogen in the country. However, a lot will depend on how soon the price of green hydrogen comes down from its current \$4.5 to \$5 levels."

State-run NTPC is evaluating a plan to set a \$2/kg benchmark cost for production of hydrogen by 2025-26, said Mohit Bhargava, CEO of NTPC Renewable Energy, at a virtual event ETSolar Power Congress. He, however, added that cost of renewable power and electrolyzers will be important determinants.

Manoj K Upadhyay, founder & chairman of ACME Group, said: "The government would do well to come up with policy measures for initial demand creation by means of mandatory green hydrogen and ammonia purchase obligations and at the same time, an equivalent of PLI scheme for green ammonia to make India competitive globally."

According to Anish De, national head—energy, natural resources & Chemicals, KPMG in India, said: "Though decentralised supply is spoken about, the entire emphasis is on open access. Transmission charges waiver till 2025 is open-ended in terms of capacity". He added that cross subsidy surcharge implications need to be understood especially for third-party developers.

etration of domestic green hydrogen in industries which otherwise import natural gas and ammonia to produce hydrogen.

According to an analysis by the Council on Energy, Environment and Water (CEEW), 50-70% of the cost of green hydrogen comes from the renewable power input costs, a substantial share being from open access charges. "The waiving-off of central open access charges is a good first step in enabling lower cost distributed production of green hydrogen. However, states have their own open access charges ranging from ₹0.27 to ₹3.8 per unit (kWh), also depending on whether it is solar or wind. Therefore, a concerted effort is required to remove the disparity in these

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Power Coverage

# Govt unveils hydrogen policy as India takes aim at fossil fuel

Green hydrogen policy offers cheaper electricity, fee waiver for inter-state power transmission

Ritura Banush & Utpal Bhaskar  
NEW DELHI

The government on Thursday unveiled India's new green hydrogen policy, promising cheaper renewable power, fee waiver for inter-state power transmission for 25 years for projects commissioned before June 2025, land in renewable energy parks, and mega manufacturing zones to help local industries wean themselves off fossil fuels.

The policy, aimed to promote green hydrogen and green ammonia, will also facilitate the so-called 'banking' of green power, where a green power producer can save surplus renewable power with an electricity distribution company for up to 30 days. It also envisages building bunkers near ports to store green ammonia for exports.

India's richest businessmen, Mukesh Ambani and Gautam Adani, have already announced mega green hydrogen projects to decarbonize their businesses.

Green hydrogen is generated by breaking down water in an electrolyzer. The hydrogen produced can be combined with nitrogen to make ammonia, avoiding hydrocarbons in the production process. Green ammonia is used to store



**GOING GREEN**

**POWER POINTS**

- THE policy aims to promote green hydrogen, green ammonia
- RIL and Adani have already announced mega green hydrogen projects
- INDIA has set a target to produce 5 mt of green hydrogen by 2030

energy and in fertilizer manufacturing. India has set a target to produce 5 million tonnes (mt) of green hydrogen by 2030.

"Green hydrogen/green ammonia shall be defined as hydrogen/ammonia produced by way of electrolysis of water using renewable energy, including renewable energy which has been banked and the hydrogen/ammonia produced from biomass," a Union power ministry notification said.

The race towards green energy

assumes significance at a time the ongoing Russia-Ukraine crisis has raised energy costs across the world, hurting in particular India, which imports 85% of its oil and 53% of natural gas requirements.

A shift to large-scale use of hydrogen fuel can help bolster India's geopolitical heft and bolster energy security. India's playbook involves leveraging the country's landmass and low solar and wind tariffs to pro-

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## India working to implement 'green tariff'

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NEW DELHI

India is working on a so-called 'green tariff' for consumers who wish to procure their entire power needs from renewable energy sources, said two government officials aware of the development.

The plan proposes to help electricity distribution companies leverage prevailing low tariffs from solar and wind power projects compared to conventional fuel sources such as coal. India's solar and wind power tariffs had touched a record low of ₹1.99 per unit and ₹2.43 per unit in the past few years before recovering. In comparison, the average power purchase

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# Centre rolls out green hydrogen policy

FROM PAGE 1

duce low-cost green hydrogen and ammonia for exports.

"Green hydrogen/green ammonia plants will be granted open access for sourcing of renewable energy within 15 days of receipt of application complete in all respects," the notification said. *Mint* reported on 10 June about open access facilitation for renewable energy, green hydrogen exports and setting up integrated hydrogen hubs being focus areas of the National Hydrogen Energy Mission.

Open access allows large power users, typically those who consume more than 1MW, to buy power from the open market instead of depending on an expensive grid. However, this has not taken off as state governments have increased standard charges on open access renewable energy projects.

The government will also mandate the use of green hydrogen and green ammonia under the policy in a phased manner, power and new and renewable energy minister Raj

Kumar Singh said on Wednesday. The government plans to bring in Green Hydrogen Consumption Obligation in fertilizer production and petroleum refining, akin to renewable purchase obligations (RPO) as reported by *Mint* earlier.

"There is an increased consensus around the world that concerted steps need to be taken to reduce global warming to levels less than 2°C and, if possible, to cap it at 1.5°C higher than pre-industrial levels. Various countries have pledged their nationally determined contributions to ensure energy transition and reduce emissions. Most large economies, including India, have committed to net-zero targets," the notification said.

India's Green Hydrogen Policy comes when climate action has taken centre stage in India's public policy discourse. At the COP-26 summit in Glasgow last year, Prime

Minister Narendra Modi pledged to make India carbon-neutral by 2070.

"Transition to green hydrogen and green ammonia is one of the major requirements for reduction of emissions, especially in the hard to abate sectors. The government of India have had under consideration a number of policy measures to facilitate the transition from fossil fuel/fossil fuel-based

feedstocks to green hydrogen/green ammonia both as energy carriers and as chemical feedstock for different sectors," the notification added.

Also, green energy consumed for the production of this emission-free fuel will be treated as RPO, and electricity consumed beyond the RPO obligation will count towards compliance of those discoms in whose area such projects are located. RPOs require electricity distribution companies to buy a fixed amount of renewable energy to

cut reliance on fossil fuels.

"Distribution licensees may also procure and supply renewable energy to the manufacturers of green hydrogen/green ammonia in their states," the notification said.

India's total hydrogen demand is expected to touch 11.7 million tonnes (mt) by 2029-30 from the current 6.7 mt. Around 54% or 3.6 mt of India's annual hydrogen consumption of 6.7 mt is utilized in petroleum refining and the rest in fertilizer production. This is, however, 'grey' hydrogen, produced from fossil fuels such as natural gas or naphtha.

The government wants to encourage exports to Japan, South Korea and Europe.

"The government has tried to address some of the key demands of the industry in terms of open access, grid banking and faster approvals for green hydrogen and ammonia projects. We specifically welcome the provisions to set up bunkers near ports for the export of green ammonia," Manoj K. Upadhyay, founder and chairman of renewable energy company ACME Group said in a statement.

**The race towards green energy assumes significance at a time the ongoing Russia-Ukraine crisis has raised energy costs**

# Green hydrogen plan takes off, in a big shift

SHREYA JAIN

New Delhi, 17 February

The government on Thursday launched the country's first green hydrogen policy as part of its energy transition plan. The objective is to reduce fossil fuel usage and increase penetration of green fuels. The policy follows Prime Minister Narendra Modi's announcement about a National Hydrogen Mission last Independence Day.

The new policy provides several incentives for manufacturers, consumers of green hydrogen and green ammonia.

It's a welcome development for the industry, including big businesses such as Reliance Industries (RIL)

and Adani Enterprises. Existing renewable energy generation companies such as ACME group and ReNew Power would also be able to utilise their existing green energy capacity to manufacture green fuels. RIL recently announced setting up a facility to produce green hydrogen. Adani Enterprises announced a new company — Adani Petrochemicals—to ven-

## GREEN PUSH

▶ **Manufacturing zones to be set up** for green hydrogen/ammonia

▶ **Aggregator demand-based tenders** to be issued for procuring green fuels

▶ **Inter-state transmission charges** waived for 25 years

▶ **Open access granted to source renewable energy** from anywhere in the country

▶ **Bunkers to be set up near ports** for storage of green ammonia for export, use by shipping industry



ture into green fuels.

The power ministry, which launched the policy, has proposed to set up manufacturing zones for production of green hydrogen and ammonia. It has also said these manufacturers "shall be allowed to set up bunkers near ports for storage of green ammonia for export / use by shipping."

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paper Coverage

FUEL FACT FILE

# Govt unveils green hydrogen and ammonia policy for clean energy

RAKESH KUMAR @ New Delhi

THE government on Thursday notified the green hydrogen and ammonia policy in which it offers ammonia manufacturers to purchase renewable power from the power exchange. The policy grants open access or permission to power plants to procure electricity within 15 days. It also allows ammonia manufacturers to conserve their unconsumed renewable power for up to 30 days.

“The mission aims to aid the government in meeting its climate targets and making India a green hydrogen hub. This will help in meeting the target of production of 5 million tonnes of green hydrogen by 2030 and the related development of renewable energy capacity,” said a government statement.

The government said hydrogen and ammonia are envis-

aged to be the future fuels to replace fossil fuels. Production of these fuels by using power from renewable energy, termed as green hydrogen and green ammonia, is one of the major requirements towards environmentally sustainable energy security of the nation.

Experts welcomed the policy and said this is the first step in the direction of creating a favourable regulatory and enabling environment for the green hydrogen and ammonia sector. “The government has tried to address some of the key demands of the industry in terms of open access, grid banking and faster approvals for green hydrogen and ammonia projects. We specifically welcome the provisions to set up bunkers near ports for the export of green ammonia,” said Manoj K Upadhyay, Chairman of ACME Group.



## Benefits under policy

- Plants will get access to procure electricity from renewable sources within 15 days
- Ammonia manufacturers can conserve their unconsumed renewable power for up to 30 days
- Waiver of interstate transmission charges for projects commissioned before June, 2025

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Overage