

The
Kolkata Gazette
सत्यमेव जयते
Extraordinary
Published by Authority

AGRAHAYANA 14]

TUESDAY, DECEMBER 5, 2023

[SAKA 1945

PART I—Orders and Notifications by the Governor of West Bengal, the High Court, Government Treasury, etc.

GOVERNMENT OF WEST BENGAL
Power Department

No. 1576-PO/O/C-II/4M-01/2023

Date: 5th December, 2023

WEST BENGAL GREEN HYDROGEN POLICY, 2023

1 PREAMBLE

State's current demand for fossil fuel-based hydrogen is primarily generated from fertilizer industries and refineries which can be substituted with green hydrogen. Green hydrogen is produced through electrolysis powered by renewable energy sources, or through conversion of biomass.

Currently India's hydrogen consumption stands at 5 MMTPA, a substantial portion of which is derived from fossil sources. The "National hydrogen Mission"¹ has set a target to reach domestic green hydrogen production capacity of 5 MMTPA by 2030.

West Bengal has the potential to become a hub for green hydrogen production, given its advantageous position built on the presence of existing steel, sponge iron, fertilizer industries, refineries. Leveraging on the state's extensive base of MSMEs, with approximately 90 lakh units accounting for 14% of India's MSMEs, the state stands as a focal point for green hydrogen and ammonia production. These MSMEs can play a pivotal role in advancing cross-sectoral applications of green hydrogen by contributing to local manufacturing and services across various elements of the hydrogen value chain, including electrolyzers, fuel cells, power electronics, and more.

The state's high potential for green steel production with green hydrogen as a primary reducing agent for iron ore, replacing carbon, can be underscored by the fact that West Bengal recorded total exports of iron and steel amounting to US\$ 1.85 billion, accounting for 14.7% of India's total exports.²

The state boasts of two significant container and bulk handling ports, located in Kolkata and Haldia. Furthermore, there is a new deep-sea port under development at Tajpur. Manufacturers of green hydrogen/ammonia shall have the opportunity to establish bunkers in close proximity to these ports. Additionally, the region possesses abundant water resources, with the potential for conversion into fresh water for green hydrogen production.

¹https://mnre.gov.in/img/documents/uploads/file_f-1673581748609.pdf

²<https://www.ibef.org/states/west-bengal>

The state's strategy is to seamlessly integrate the green hydrogen value chain with carbon-intensive sectors for fostering collective efforts towards promoting sustainability. Green hydrogen can be blended with natural gas and transported through CGD/ PNG network in Kolkata and adjoining districts from production centers to consumption points.

Among various cleaner energy sources, green hydrogen is poised to lead the decarbonization pathway in hard-to-abate sectors such as power generation, iron ore and steel, petrochemicals, transportation, refining, steel, fertilizer.

2 DEFINITIONS

- A. **“Developer”**: A developer refers to companies which specialize in the manufacturing of Electrolyzers, the device used to produce green hydrogen through electrolysis, developer also refers to companies producing Green Hydrogen/ Green Ammonia.
- B. **“Derivatives”**: Derivatives of green hydrogen include end-products produced from green hydrogen in reaction with other chemical compounds such as but not limited to green ammonia, green methanol etc.
- C. **“Electrolyzer”**: An electrolyzer is an electrochemical device that uses electrical energy to split a water molecule (H_2O) into its constituent elemental molecules i.e., Hydrogen (H_2) and Oxygen (O_2), through a process called electrolysis.
- D. **“Energy Transition”**: refers to a revolutionary change in the way energy is obtained and used. Currently, energy transition is driven by the need to address climate change, reduce greenhouse gas emissions, and limit the environmental impacts of fossil fuels and involves a shift from non-renewable sources of energy to renewable sources.
- E. **“Green Ammonia”**: is any ammonia produced using renewable energy sources to power the process of converting nitrogen gas (N_2) and hydrogen (H_2) into ammonia (NH_3) through the Haber-Bosch process. Green ammonia derived from green hydrogen shall have an equivalence factor of 0.1765 kg Green Hydrogen per kg of green ammonia produced.³
- F. **“Green Hydrogen”**: shall mean Hydrogen produced using renewable energy, including, but not limited to, production through electrolysis or conversion of biomass. Renewable energy also includes such electricity generated from renewable sources which is stored in an energy storage system or banked with grid in accordance with applicable regulations as defined in “Green Hydrogen Standard for India” dated 18th August 2023⁴.
- G. **“Green Hydrogen Standard for India”** was published on 18th August 2023, where the emissions threshold of green hydrogen production pathways and nodal authority for accreditation of monitoring, verification and certification agencies is defined.
- H. **“National Green Hydrogen Mission”** was approved by the Union Cabinet on 4th January 2022 to make India the global hub for production, usage and export of Green Hydrogen and its derivatives.
- I. **“National Green Hydrogen Policy”** was published on 17th February, 2022 to promote production of green hydrogen/ammonia both as energy carrier and chemical feedstock.
- J. **“Nodal Agency”**: Department of Power (DoP) shall act as nodal agency responsible for promotion and development of Green Hydrogen/Ammonia in the state.

3 POLICY OVERVIEW

3.1 TITLE OF THE POLICY

This policy shall be known as the ‘West Bengal Green Hydrogen Policy 2023’ (hereafter ‘policy’).

3.2 DURATION

The policy shall come into effect on the date of its notification. It shall remain valid and operational for the 5 years (‘Operative Period’) or until the government amends this policy or notifies a new policy, whichever comes first.

³https://mnre.gov.in/img/documents/uploads/file_f-1687963916599.pdf

⁴<https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/aug/doc2023819241201.pdf>

3.3 SCOPE OF THE POLICY

The policy shall be applicable to electrolyzer manufacturers and producers of green hydrogen and its derivatives according to specifications defined in “Green Hydrogen Standard for India”⁵ and in adherence to “National Green Hydrogen Mission”.⁶

3.4 VISION

To establish West Bengal as a prominent player in green hydrogen/ammonia economy of India.

3.5 MISSION

- a. To facilitate identification of Green Hydrogen demand centers by GIS mapping.
- b. To enable investment for setting up green hydrogen/ammonia production as well as green hydrogen-based products manufacturing units.
- c. To establish a State Centre of Excellence (SCoE) to conduct research and development as well as techno-economic innovation to not just provide the state an advantage in terms of green hydrogen technology, but also to guide other states in India in terms of the same.
- d. To formulate and execute green hydrogen procurement and trade strategies to establish efficient and effective mechanisms for acquiring and exchanging green hydrogen/ammonia resources.
- e. To create employment by leveraging green hydrogen/ammonia development.

3.6 OPERATIONAL GUIDELINES

The nodal agency shall release subsequent detailed operational guidelines and clarifications on the current policy from time-to-time.

4 GREEN HYDROGEN PRODUCTION, STORAGE & TRANSPORTATION

To develop the ecosystem of green hydrogen/ammonia infrastructure advancements shall be required across the value chain. The policy shall encourage infrastructure development through various means, such as:

- a. **Production:** Green hydrogen can be produced from electrolysis powered by renewable electricity or through conversion of biomass. As feedstock, it will play a significant role in ammonia production, iron and steel production, crude oil refining, and methanol production. As an energy carrier, it will find applications in transportation, industrial heat, power generation, and blending with natural gas. The benefits extend to fertilizer production, where sustainable ammonia synthesis facilitated by green hydrogen plays a crucial role. Similarly, the steel sector can achieve lower carbon intensity and cleaner steel production through hydrogen-based direct reduction.
- b. **Storage:** Adequate infrastructure for green hydrogen storage, handling, and bunkering/refueling shall be developed to support various applications, including transportation, industrial processes, and energy transformations involving green hydrogen which can be done by Public-Private Partnership mode.
- c. **Transportation:** Development/ of a robust transportation and distribution infrastructure by establishing pipelines/ blending in existing natural gas pipelines and networks for the efficient transportation of green hydrogen to various demand centers in the state shall be encouraged.

Green hydrogen production, storage, and supply infrastructure shall meet the specific purity, pressure, and volume requirements of different industries and applications as shall be set by relevant national standards.

5 SUBSIDIES, INCENTIVES & FACILITATION OF EASE OF DOING BUSINESS

5.1 FINANCIAL INCENTIVES

For accelerating business, the Government of West Bengal shall provide following incentives to developer of new green hydrogen/ammonia plants or fertilizer units using green hydrogen/ammonia in addition to the applicable Central Government Schemes:

- a. **Land Conversion fees:** The developer will be entitled to 100% waiver on land use conversion tax and waiver of land record mutation fees during the policy operative period.
- b. **Stamp Duty:** The developer of green hydrogen/ammonia will be entitled to 100% exemption on stamp duty and land registration charges during the policy operative period.

⁵https://mnre.gov.in/img/documents/uploads/file_f-1692368402544.pdf

⁶https://mnre.gov.in/img/documents/uploads/file_f-1673581748609.pdf

- c. **Electricity Duty:** The developer will be entitled to 100% waiver of electricity duty during policy operative period.

5.2 EASE OF DOING BUSINESS- NON-FINANCIAL INCENTIVES

- a. To provide uninterrupted 24×7 power supply availability.
- b. To ensure 24×7 uninterrupted water supply.
- c. All NOCs, permissions and clearances will be processed through the Single Window Clearance (SWC) portal of 'Silpa Sathi'.⁷

6 GREEN HYDROGEN/AMMONIA USING RENEWABLE ENERGY:

The State will encourage the production of Green Hydrogen and Green Ammonia through the utilization of renewable energy and/or biomass. This can be achieved through any of the following methods as has been outlined in "National Green Hydrogen Policy" by Ministry of Power dated 17.02.22⁸ and by employing a blend of the following options, as long as the power source is certified by SLDC.

- a. **RE power from DISCOM at applicable Green tariff:** Renewable energy-based power can be procured from WBSEDCL, with the applicable Green Tariff charges as determined by WBERC time to time and as per applicable regulations.
- b. **Provision for Open Access:** The developer of green hydrogen/green ammonia production units shall be granted on receipt of application complete in all respects for availability of round the clock renewable power as per WBERC "Open Access Regulations"⁹ dated 1.08.2022.
- c. **Captive Generation of RE based electricity:** Setting up of renewable energy plants in conjunction with the green hydrogen/ammonia units, whether they are co-located or located separately can be set up by developer or third-party for green hydrogen/ammonia production.
- d. **Procuring from Power Exchanges:** Renewable energy procured from energy exchanges can be utilized for production of green hydrogen/ammonia.
- e. **Banking of RE power:** Green hydrogen / ammonia manufacturer can bank the unconsumed renewable power up to 30 days, with state distribution company in accordance with applicable WBERC regulations and other guidelines.

7 RENEWABLE PURCHASE OBLIGATION

As per the Green Hydrogen Policy notified by the Ministry of Power, Govt. of India, on 17th February 2022¹⁰, Renewable Energy consumed to produce Green Hydrogen/ammonia shall count towards RPO compliance of the producers. The renewable energy consumed beyond the obligation of the producer shall count towards RPO compliance of the DISCOM(s) in whose area the project is located.

8 GOVERNANCE/INSTITUTIONAL FRAMEWORK

8.1 STATE NODAL AGENCY

Government of West Bengal has nominated Department of Power (DoP) as nodal agency for implementation of this "Policy" to promote state's decarbonization effort and provide economic growth and employment in the state. The nodal agency shall be responsible for:

- a. Disbursement of the subsidy/ Central Finance Assistance¹¹ if any related to the projects and be responsible for the equitable distribution of subsidies/incentives to appropriate stakeholders and timely monitoring of utilization.
- b. The implementation of the policy will be reviewed from time to time by the Department of Power and necessary facilitation and course correction shall be undertaken as found necessary to achieve the objectives of this policy.
- c. Redressal of grievances.
- d. Conducting public awareness campaigns on green hydrogen/ammonia.

⁷<https://wbxpress.com/west-bengal-ethanol-production-promotion-policy-2021#:~:text=To%20promote%2C%20facilitate%20and%20financially,3.3>.

⁸https://powermin.gov.in/sites/default/files/Green_Hydrogen_Policy.pdf

⁹<https://www.wberc.gov.in/sites/default/files/Open%20Access%20Regulation%202022.pdf>

¹⁰https://powermin.gov.in/sites/default/files/Green_Hydrogen_Policy.pdf

¹¹As per SIGHT Scheme nodal agency shall collaborate with SECI as implementation agency

- e. Shall form a State's Centre of Excellence (SCoE) for green hydrogen/ammonia industry development and oversee its functions.

8.2 RESPONSIBILITY OF SCoE

- a. Enable development of a green hydrogen/ammonia ecosystem by fostering collaboration with stakeholders, including but not limited to, academic institutions, renewable energy developers, green hydrogen producers, industry consumers, etc.
- b. Lead experimental R&D to overcome techno-economic challenges associated with different components of the green hydrogen/ammonia value chain.
- c. Conduct capacity development programmes to strengthen the capacity of the state and train workforce to transition into green hydrogen/ammonia economy.
- d. Explore green hydrogen/ammonia applications in emerging cases such as heavy-duty transport, energy storage, etc. through technology demonstration and proof of pilot projects.

8.3 HIGH LEVEL STEERING COMMITTEE

A high-level steering committee shall be formed headed by Chief-Secretary of GoWB as Chairperson with representation of concerned administrative departments as may deem necessary through appropriate Government Orders.

The following shall be key role of the committee

- a. Monitoring the implementation of policy through periodic reviews.
- b. Suggest amendments and provide necessary direction to the nodal agency as necessary from time-to-time.
- c. Monitoring financial implications of the incentives and subsidies time to time.

9 POWER TO AMEND

Notwithstanding anything contained in any of the provisions of West Bengal Green Hydrogen Policy, the State Government may at any time:—

- i. Modify, vary, alter, amend, or withdraw any of the provisions made here the policy and such modifications, variations, alterations, amendments, and withdrawal shall be effective from the date specified in the order so made in this behalf.
- ii. Make any relaxation in applying the provisions of this Scheme but such relaxation shall be made on merits of the approved project in each case, as the State Government may consider necessary and appropriate.
- iii. May issue instructions and guidelines to facilitate implementation, to remove anomalies and to clarify the interpretations of the provisions of this policy.

By order of the Governor,

ANJAN CHAKRABARTI
*Additional Secretary to the Government of West Bengal
Power Department*