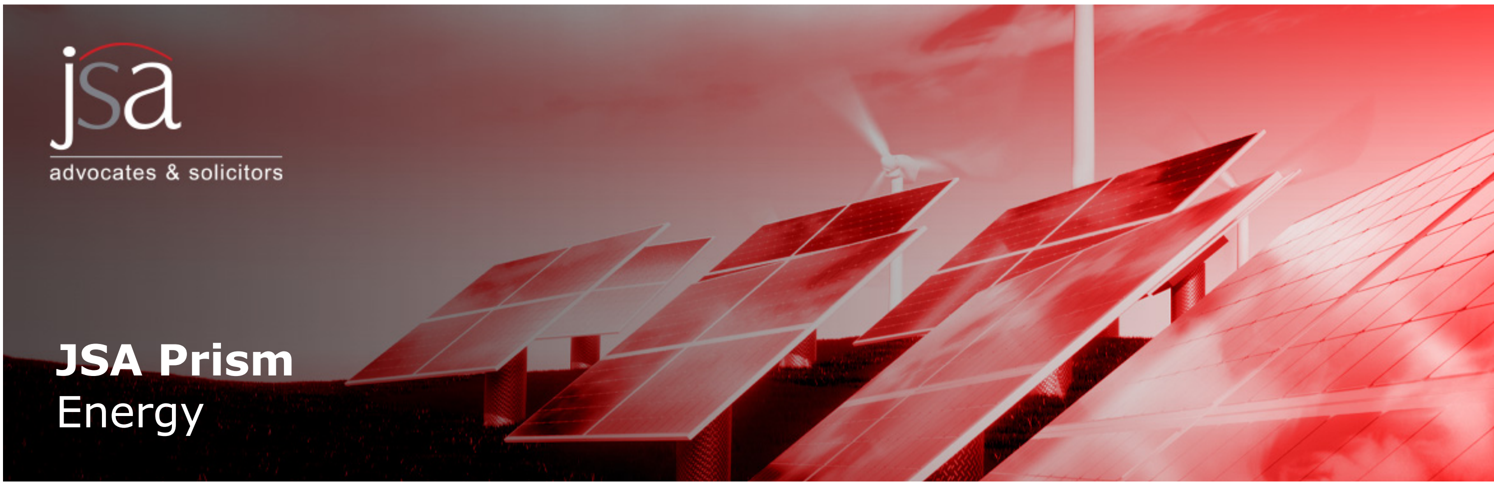

April 2026

Ministry of New and Renewable Energy notifies green ammonia standard and green methanol standard for India under the National Green Hydrogen Mission

The Government of India is implementing the National Green Hydrogen Mission ("**NGHM**"), with an objective to make India a global hub of production, usage and export of green hydrogen and its derivatives. A global demand of over 100 (hundred) million metric tonnes of green hydrogen and its derivatives is expected to emerge by 2030. Aiming at about 10% of the global market, India can potentially export about 10 (ten) million metric tonnes green hydrogen/green ammonia per annum. India's green hydrogen production capacity is likely to reach 5 (five) million metric tonnes per annum by 2030. Around 8000 (eight thousand) tonnes per annum of green hydrogen production capacity has been commissioned in India till February 2026. Under the NGHM, 8,62,000 (eight lakh sixty-two thousand) metric tonnes per annum of green hydrogen production capacity has been awarded. Further, Solar Energy Corporation of India has discovered prices for 7,24,000 (seven lakh twenty-four thousand) metric tonnes per annum of green ammonia supply to fertiliser units, supporting the development of downstream derivatives. Green methanol is also being positioned as a key derivative, particularly for use as a low-carbon fuel in the maritime sector.

The Ministry of New and Renewable Energy ("**MNRE**"), *vide* office memoranda dated February 27, 2026 ("**Notifications**"), has notified the green ammonia standard and the green methanol standard for India under the NGHM. The frameworks establish emission threshold limits for green ammonia and green methanol production.

Salient features

1. **Linkage with green hydrogen standard**: The 2 (two) Notifications define 'Green Hydrogen' by reference to the green hydrogen standard for India notified by MNRE *vide* office memorandum dated August 18, 2023. Green hydrogen means hydrogen produced using renewable energy (including but not limited electrolysis or biomass conversion). Non-biogenic greenhouse gas emissions arising from water treatment, biomass processing, heat/steam generation, conversion of biomass to hydrogen, gas purification and drying and compression of hydrogen gas emissions must not exceed 2 (two) kilograms of carbon dioxide equivalent per kilogram of hydrogen, taken as an average over the last 12 (twelve) month period.
2. **Definitions and scope**: MNRE has defined 'Green Ammonia' as ammonia (NH3) produced using green hydrogen and 'Green Methanol' as methanol (CH3OH) produced using green hydrogen. In the process of green ammonia and green methanol production, renewable energy includes electricity generated from renewable sources which is stored in an energy storage system or banked with the grid in accordance with applicable regulations.
3. **Emission threshold limits**: Total non-biogenic greenhouse gas emissions arising from green hydrogen production, ammonia synthesis, purification, compression, and on-site storage must not exceed: (a) 0.38 (zero point three eight) kilogram of carbon dioxide equivalent per kilogram of ammonia; and (b) 0.44 (zero point four

four) kilogram of carbon dioxide equivalent per kilogram of methanol, both calculated as an average over the preceding 12 (twelve) month period.

4. **Eligible carbon dioxide sources for green methanol**: In the green methanol synthesis process, carbon dioxide may be sourced from biogenic sources, direct air capture, or existing industrial sources subject to revision by MNRE from time to time. Any such revision will apply prospectively, with appropriate grandfathering provisions as determined by MNRE.

5. **Methodology**: The detailed methodology for measurement, reporting, monitoring, on-site verification, and certification of green ammonia and green methanol is to be specified separately by MNRE.

6. **Transition provisions for existing tenders**: Any tender, bid process, or solicitation issued prior to the date of the Notifications may continue to be governed by the terms and conditions applicable at the time of its issuance. However, the procuring entity may, where feasible and with mutual consent of the parties, align such tender with the provisions of the Notifications.

Comparison

While India has established clear definitions and thresholds for green hydrogen, green ammonia, and green methanol, the regulatory approaches vary across jurisdictions. For instance:

1. the European Union, under the renewable energy directive and delegated regulations 2023/1184 and 2023/1185, treats hydrogen as a renewable fuel of non-biological origin, i.e., hydrogen produced via renewable electricity, subject to compliance with sustainability criteria including:

    a) Additionality: Renewable electricity used must come from additional renewable energy capacity. This can be demonstrated through various pathways, including direct connection to renewable installations (where the installation became operational no more than 36 (thirty-six) months before the hydrogen plant), or through power purchase agreements where the renewable energy production installation has not benefited from state or investment aid.

    b) Temporal correlation: Hydrogen is produced at the same time as the renewable electricity is generated, initially on a monthly matching basis (until 2029) and thereafter on an hourly basis. , This ensures that the hydrogen production aligns with actual renewable energy availability.

    c) Geographic correlation: The renewable electricity used for hydrogen production is generated in the same or a connected electricity market (bidding zone) as the electrolyser, ensuring a physical and market link between generation and consumption.

    d) Greenhouse gas emissions savings: Renewable hydrogen must achieve at least 70% greenhouse gas emissions savings over its entire life cycle compared to a fossil reference fuel.

2. in the United Kingdom, under the low carbon hydrogen standard (version 4), hydrogen is defined through carbon intensity thresholds. These require lifecycle emissions not exceeding 20 (twenty) grams of carbon die oxide equivalent per megajoule of hydrogen energy at the point of production. This is supported by a detailed lifecycle emissions calculation methodology and compliance framework.

3. Japan's Basic Hydrogen Strategy indicates a benchmark of 3.4 (three point four) kilograms of carbon dioxide equivalent per kilogram of hydrogen (well-to-production-gate) as a directional threshold for low-carbon hydrogen. The policy scope further extends to hydrogen derivatives, including ammonia and e-methane. In this regard, the ammonia that is produced from hydrogen with emissions of 0.84 (zero point eight four) kilograms of carbon dioxide equivalent per kilogram of ammonia or less, calculated on a gate-to-gate basis (including hydrogen production), is qualified as low-carbon ammonia.

India's green hydrogen standard of 2 (two) kilograms of carbon dioxide equivalent per kilogram of hydrogen is more stringent than Japan's benchmark of 3.4 (three point four) kilograms of carbon dioxide equivalent per kilogram of hydrogen and comparable to the United Kingdom's threshold of 20 (twenty) grams of carbon dioxide equivalent per megajoule. India's green ammonia threshold of 0.38 (zero point three eight) kilograms of carbon dioxide equivalent per kilogram of ammonia is significantly stricter than Japan's low-carbon ammonia benchmark of 0.84 (zero point eight four) kilograms of carbon dioxide equivalent per kilogram of ammonia. Direct comparison with the European Union is challenging as the European Union framework relies on a percentage-based emissions savings approach (70% savings versus fossil fuels) rather than absolute emission thresholds, and also incorporates distinct compliance requirements such as additionality, temporal correlation, and geographic correlation that are not explicitly mirrored in India's standards.

Conclusion

The notification of the green ammonia and green methanol standards marks an important step in operationalising the NGHM by extending emissions-based eligibility criteria to downstream hydrogen derivatives. Ammonia is a critical feedstock for the fertiliser industry and an emerging energy vector, while methanol serves as a chemical feedstock and potential alternative fuel for the maritime sector. The frameworks prescribe emission thresholds. The impact of these standards will depend on the detailed methodologies for measurement, monitoring and certification to be issued by MNRE, as well as the development of domestic green hydrogen production capacity and, for green methanol, the availability of eligible carbon dioxide sources. The standards may have implications for fertiliser manufacturers, chemical producers, shipping companies, renewable energy developers, carbon capture facility operators and project financiers, particularly in relation to technology selection, sourcing strategies, compliance mechanisms and certification requirements. The transition provisions for existing tenders provide flexibility while the linkage to the green hydrogen standard ensures consistency across India’s green hydrogen derivatives ecosystem.

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