

## India: Global Green Hydrogen Leader in the Making



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India is firmly committed to the rapid energy transition, a commitment reinforced by Hon'ble Prime Minister Shri Narendra Modi's interventions, including the COP Summit, where he called for fulfilling 50% of the country's energy requirement from renewable sources by 2030. India has made rapid strides in renewable energy capacity addition, and now is targeting hard-to-abate sectors by mass adoption of green hydrogen.

From becoming one of the first countries to issue a Green Hydrogen Policy, India has come a long way and has become one of the leading nations advocating green hydrogen. Government of India has been extremely supportive towards the cause and has taken significant steps to encourage green hydrogen, including the launch of the National Green Hydrogen Mission, in which a target of 5 million tons of green hydrogen production by 2030 has been envisaged. The Government has allocated Rs 19,744 crores to support that cause.

The International Conference on Green Hydrogen (ICGH-2023), which marked India's first major event on green hydrogen and its derivatives, saw encouraging participation from India and abroad. Green hydrogen is going to significantly alter our energy usage in the coming decade and India must adopt

it at a rapid pace. A lot of credit goes to the organizers including Ministry of New & Renewable Energy, Ministry of Petroleum & Natural Gas, Council of Scientific & Industrial Research, Office of Principal Scientific Advisor (PSA), CII and members of the Industry, who participated wholeheartedly and expressed their views across different sessions on multiple topics.

Green hydrogen presents a massive opportunity to India to become the global manufacturing hub of the 'next oil' and from becoming a net importer of energy to the next exporter. Apart from domestic demand, India should exploit massive international demand, and for that the Government should help domestic developers of GH2 facilities through incentive structures and relaxed approvals/permit procedures so that they can compete internationally. Additionally, it is important to act swiftly, considering the competition from regions like the Middle East and Australia, in order to stay ahead of the curve.

India must consider leveraging mechanisms like Article 6.2 of the Paris Agreement to capture international demand. Article 6.2 allows countries to get into bilateral agreements for the transfer of ITMOs in lieu of low-cost financing/offtake contracts, etc. Large international demand can help the



development of large-scale projects, which can expedite the creation of an ecosystem within India that will be useful in meeting domestic demand as well.

To develop the domestic green hydrogen market, demand creation is a critical part of green hydrogen development. Industry needs a head start, which can be provided by bringing Green Hydrogen Purchase Obligations, especially for sectors like crude oil refining and fertilizer that are the largest consumers of green hydrogen. In addition, there is significant potential for green hydrogen to be used as an alternate fuel/feedstock in sectors like power generation, steel, mobility, aviation, glass, marine, etc.

Financing is another area which needs attention for lowering the cost of production for green hydrogen. Options of low-cost financing by multilateral agencies like World Bank, ADB, etc. should be explored. Similarly, additional revenue from carbon credits sales can be provided through a framework. The Government can also consider minimising hedging costs for domestic developers, taking dollar-denominated debt by creating

special provisions of guarantees through RBI. It can also consider credit enhancement mechanisms to improve the credit rating of the projects, resulting in lowering the borrowing cost for the projects and making them more attractive to investors.

Apart from this, there is an urgent need to escalate efforts to enhance R&D efforts to increase efficiencies of electrolyzers, material, and localisation of manufacturing, which can significantly contribute to cost reduction.

The green hydrogen certification process is another critical area as the requirements will vary across geographies, including EU, Japan and Korea. The Government should empanel agencies that can certify H2 to be green and formulate guidelines in consultation with other countries.

India has massive potential for green hydrogen production at the most competitive cost and if the nation works cohesively, it is definite the country will emerge as a global leader in green hydrogen, including technology, manufacturing and production. ■