

Indian Renewable Energy Sector: Green Hydrogen

**Green Hydrogen policy, a positive step
towards Govt's energy transition plans;
to support significant RE capacity addition**

March 2022



1 Overview of the Green Hydrogen policy



2 Hydrogen demand outlook in India



3 RE capacity estimates to meet Green Hydrogen demand



4 Cost of production of Green Hydrogen



5 Policy and regulatory measures – key monitorables



6 Investment plans announced by various players



With a strong policy intent towards energy transition & sustainability initiatives by the industrial segment, demand prospects for Green Hydrogen should remain favourable in the long run

However, an improvement in the cost competitiveness of Green Hydrogen & implementation of policy & regulatory support/measures remain critical

Incremental RE capacity requirements remain sizeable, to meet the demand for Green Hydrogen in the long run



The policy notified by the Ministry of Power, Government of India (GoI) for Green Hydrogen on February 17, 2022 has various supportive measures for Green hydrogen and thus, remains a positive step, given the GoI's policy push towards renewables & path of net zero energy transition by 2070.



Majority of the hydrogen demand in India pertains to the industrial segment (i.e. refining, fertilisers & chemicals) at about 6 MMT in FY2020, which is projected to grow to 7.3 MMT by FY2025. Even in a scenario of 30% of hydrogen demand being met through Green Hydrogen by 2030, incremental renewable (RE) capacity requirements are estimated to remain significant at about 60 GW. This is over & above the RE addition to meet all India energy requirements.



From the industrial off-taker's perspective, Green Hydrogen is currently estimated to remain costlier by about US\$ 3.5-4/Kg against Grey Hydrogen. The cost competitiveness of Green Hydrogen would remain contingent upon a) the reduction in capital cost & an improvement in the energy efficiency level of electrolyser and c) cost of RE procurement.



Further, round-the-clock (RTC) procurement of renewable energy at cost competitive rate remains extremely critical for improvement in utilisation of Electrolyser. In this context, viability of battery storage & availability of energy banking remains important too. The cost of RTC power with storage component is estimated between Rs. 4-6 per unit, depending on the extent of supply from storage component.



On the policy front, key measures pertaining to the green hydrogen purchase obligation norms as well as the production-linked incentive (PLI) scheme to incentivize / promote the domestic manufacturing of electrolysers are still awaited.



While the announced policy measures in terms of timeline for open access approvals & availability of energy banking remain positive, such norms vary widely across the states by SERCs. Consistency in these norms are required on regulatory front, to enable the open access / banking of RE power.



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Analytical Contact Details



Sabyasachi Majumdar

*Senior Vice-President and
Group Head*

Girishkumar Kadam

*Senior Vice-President and Co-
Group Head*

Prashant Vasisht

*Vice-President and Co-Group
Head*



sabyasachi@icraindia.com

girishkumar@icraindia.com

Prashant.vasisht@icraindia.com



0124- 4545 304

022 – 6114 3441

0124 – 4545 322





ICRA

Analytical Contact Details



Vikram V

Vice-President and Sector Head



Vikram.v@icraindia.com



040- 4067 6500





ICRA

Business Development/Media Contact Details



L. Shivakumar

Executive Vice-President

Jayanta Chatterjee

Executive Vice-President

Naznin Prodhani

Head Media & Communications



shivakumar@icraindia.com

jayantac@icraindia.com

communications@icraindia.com



022- 6114 3406

080 – 4332 6401

0124 – 4545 860





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