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Making green hydrogen cost-competitive

What is the issue?

For India to become a global leader in green hydrogen, production costs has to be reduced significantly.

What are the recent measures regarding green hydrogen?

- India is placing a big bet on green hydrogen to transition away from fossil fuels.
- Recently, the ministry of power issued a policy on green hydrogen.
- The government has waived the central inter-state transmission charges for a period of 25 years for green hydrogen production projects commissioned before June 30, 2025.

What are the outcomes of these measures?

- The cost of power used to produce green hydrogen varies between 50% and 70% of the total cost of green hydrogen.
- It depends on the location of production as well as the source of renewable energy, whether wind or solar.
- Also the open-access charge constitutes a significant portion of the cost of power.
- According to Council on Energy, Environment and Water (CEEW) for states importing renewable power, the waiver is expected to reduce the production cost of green hydrogen production by 17%.

What measures are required to further cut the production costs?

Reduce or eliminate intra-state transmission charges -

- For solar power consumption, UP, Gujarat, and Maharashtra have intra-state transmission charges of 0.25, 0.90, and Rs 2.3 per kWh, respectively.
- This disparity in intra-state transmission charges between different states would distort the green hydrogen market.
- Competitiveness of producers in states with high intra-state charges gets affected.
- So the states should either reduce or eliminate intra-state transmission charges as a top-up to the central policy.
- From example, waiving-off intra-state charges would reduce production cost of green hydrogen
 - in UP by 5%.
 - in Gujarat by 12%.

Higher Renewable Purchase Obligation (RPO) credit -

- RPO's mandates the power distribution companies, electricity consumers to purchase a certain percentage of their requirements from renewable energy sources.
- Unlike mature renewable power markets, implementation of RPO in hydrogen market remains in a nascent stage.
- Also the cost of green hydrogen today is at least twice as much as fossil-based hydrogen.
- Therefore producers and end-users of green hydrogen should be incentivised for taking on the risk for their investment.
- So, Green hydrogen projects commissioned before 2025 should be awarded higher multiple of RPO credit.
- For instance 1.5 times the amount of power consumed to produce green hydrogen.

Significant banking of Renewable Energy -

- Banking of renewable power is done by supplying excess power during peak generation periods into the grid and then withdrawing it during off-peak generation periods.
- Green hydrogen cost depends on the level of utilisation of the electrolyser.
- Electrolysers are devices used to split water into its constituents, hydrogen and oxygen, using renewable power.
- With solar power the electrolyser is utilised only 33% of the time in a year.
- However, green hydrogen production costs could be reduced by up to 40% if solar power is banked and the electrolyser is utilised 95% of the time in a year.
- Centre should allow significant banking of RE in the initial phase of the mission without any monetary implications.

Waiver of inter-state transmission charges -

- Current policy allows waivers for projects set up before June 2025.
- The National Hydrogen Mission is expected to be released this year.
- The Mission is expected to be raise the norms for blending green hydrogen in current fossil-based hydrogen streams and natural gas pipelines.
- These norms can only be implemented starting 2023.
- Since it is incremental blending, the early years would see smaller cumulative volumes compared to higher blend requirements post-2025.
- It is expected to reach 5 million tonnes per annum by 2030.
- Hence, the inter-state transmission charge waiver should be extended beyond 2025 and up to 2030.
- Post 2030 green hydrogen would become commercially viable due to scale of production, advancement in production technology and lower renewable power costs.

Reference

1. <https://www.financialexpress.com/opinion/making-green-hydrogen-cost-competitive-waiver-of-central-transmission-charges-is-a-good-first-step-in-enabling-green-hydrogen-in-india/2439594/>



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