Demand and Supply of Hydrogen

As per IEA's *Global Hydrogen Review 2025*, India's hydrogen demand stands at around 10 MMTPA as of 2024, accounting for nearly 10 per cent of global demand.[1] India registered a 4 per cent year-on-year growth, driven by increased consumption in oil refining, chemicals, and steel sectors.[2] However, almost the entire demand continues to be met through fossil fuel-based sources.

The hydrogen demand is almost evenly split between oil refining and fertiliser sectors, with marginal contributions from chemical production (such as methanol) and steel (annealing).

In 2023, MNRE announced the National Green Hydrogen Mission (NGHM), targeting 5 MMTPA of green hydrogen production by 2030.[3] It is envisaged that emerging applications—such as steelmaking via DRI, transportation, and blending with natural gas—might become significant contributors to green hydrogen demand by 2030.

As outlined in the Strategic Interventions for Green Hydrogen Transition (SIGHT) scheme under NGHM, India is aiming to produce green hydrogen for domestic oil refining and fertiliser sectors. Several measures have been undertaken to increase the supply of green hydrogen in India.

A. Green hydrogen production

Solar Energy Corporation of India (SECI) issued tenders in two tranches (I and II) under Mode I of the SIGHT scheme, collectively accounting for 862 KTPA of green hydrogen production capacity, for which subsidies were awarded by SECI.[4] The tenders also included a separate category for biomass-derived green hydrogen. Of the total 862 KTPA capacity, approximately 3.5 KTPA pertains to biomass-based production. The awarded companies are expected to commence green hydrogen production from February 2027 (Tranche I) and February 2028 (Tranche II). However, the identity of the offtakers remains unclear. The overall tendered capacity represents nearly 8-9 per cent of India's overall hydrogen demand.[5,6]

B. Green ammonia production (fertiliser use)

SECI has successfully awarded green ammonia supply tenders to various project developers in India for the production and delivery of green ammonia to designated fertiliser companies. The total awarded capacity under these tenders is 724 KTPA of green ammonia, which corresponds to an estimated green hydrogen production capacity of 128.5 KTPA. In this case, the offtakers are guaranteed, comprising various state-run fertiliser companies.[7] The tendered capacity is nearly 30 per cent of India's overall ammonia imports in 2024 as per data from World Integrated Trade Solutions.[8] The lowest-cost bid as per the SECI tender is also nearly 37-40 per cent more expensive than the average cost of imported grey ammonia.[9,10]

C. Green hydrogen production (tenders by individual refineries)

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[1] Global Hydrogen Review 2025
[2] Global Hydrogen Review 2025
[3] 2023012338.pdf
[4] NGHM | Solar Energy Corporation of India Limited (SECI)
[5] NGHM | Solar Energy Corporation of India Limited (SECI)
[6] Global Hydrogen Review 2025
[7] NGHM | Solar Energy Corporation of India Limited (SECI)
[8] India Anhydrous ammonia imports by country | 2024 | Data
[9] NGHM | Solar Energy Corporation of India Limited (SECI)
[10] India Anhydrous ammonia imports by country | 2024 | Data

As per IEA estimate, state-run oil refining companies in India have successfully awarded nearly 20 KTPA of green hydrogen production capacity via competitive bidding.[11] The tendered capacity represents barely 0.4 per cent of India's overall demand for hydrogen in oil refining alone.[12]

[11] Global Hydrogen Review 2025
[12] Global Hydrogen Review 2025