Green hydrogen: a key pillar of India's clean energy transition – progress of the National Green Hydrogen Mission

Defence, Energy, Industry & Parliament · 28 October 2026 · https://www.shanmugamiasacademy.in/current-affairs-english/2026/10/28



News

An explainer on green hydrogen's role in India's clean energy transition (28 Oct 2026) compiles government data: the National Green Hydrogen Mission (Jan 2023; ₹19,744 crore) targets at least 5 million tonnes a year of capacity by 2030. Under its 'SIGHT' programme (₹17,490 crore), 15 companies got incentives for 3,000 MW a year of electrolyser manufacturing, and incentives were awarded for 8.62 lakh tonnes a year of green hydrogen output; about 8,000 tonnes a year of capacity was commissioned as of Feb 2026. The 4th International Conference on Green Hydrogen is in Delhi on 2–5 Nov.

Key facts

Mission	National Green Hydrogen Mission – Jan 2023; ₹19,744 crore; nodal – MNRE
SIGHT	Strategic Interventions for Green Hydrogen Transition – ₹17,490 crore (till 2029–30)
Hydrogen hubs	Deendayal (Kandla, Gujarat), V.O. Chidambaranar (Thoothukudi), Paradip (Odisha) ports
Standard	Green Hydrogen Standard (Aug 2023) – ≤2 kg CO_2e per kg H_2 (well-to-gate)

Incentive	25-year inter-State transmission charge waiver for plants commissioned by 31 Dec 2030
Hydrogen valleys	Pune, Jodhpur, Bhubaneswar, Kerala – 4 innovation clusters

Background

- Science: in water electrolysis ($2H_2O \rightarrow 2H_2 + O_2$), hydrogen is released at the cathode and oxygen at the anode, in a 2:1 volume ratio. About 9 litres of demineralised water are needed per kg of hydrogen (MNRE).
- Hydrogen 'colours': grey – steam methane reforming of natural gas (no carbon capture); blue – same plus carbon capture and storage; green – electrolysis using renewable power; pink – nuclear power; brown/black – coal.
- History: Henry Cavendish identified hydrogen as a distinct substance ('inflammable air') in 1766; Lavoisier named it 'hydrogen' (water-former). Haber–Bosch process: $N_2 + 3H_2 \rightarrow 2NH_3$ – green hydrogen gives 'green ammonia', and from it fertilisers such as urea.
- Pilots: 5 steel projects (including a 100% hydrogen injection trial); in transport 27 buses, 43 trucks and 16 refuelling stations; a 1 MW indigenous plant at Kandla port (July 2025). The Green Hydrogen Certification Scheme of India (GHCI) was launched in April 2025. Over 6 lakh jobs and about 50 million tonnes of CO_2 avoided a year are expected by 2030.

Tamil Nadu link: V.O. Chidambaranar Port, Thoothukudi, is one of the three ports MNRE has recognised as green hydrogen hubs, and the mission's shipping pilot – a green methanol bunkering and refuelling facility – was awarded to VOC Port. SPIC's fertiliser plant at Thoothukudi makes urea from ammonia, giving the region local demand for green ammonia.

Shanmugam IAS Academy – your next step

- **Courses:** TNPSC Group 1, 2 / 2A (Prelims + Mains), Group 4, UPSC / IAS – Coimbatore · Madurai · Online – https://www.shanmugamiasacademy.in/fees
- **Books (PDF):** TNPSC PYQ books, UPSC books – https://www.shanmugamiasacademy.in/study-materials
- **Free quiz + daily PDFs:** https://www.shanmugamiasacademy.in/free-pdf-download · All news of this day: https://www.shanmugamiasacademy.in/current-affairs-english/2026/10/28

Admissions – call / WhatsApp: 99941 46662 · 99944 27714 · www.shanmugamiasacademy.in