

* - Hydrogen could play a decisive role in India's Net Zero ambition and in making India Atmanirbhar in energy. Analyse

- The India Energy Outlook 2021 report of the International Energy Agency (IEA) said energy use in India has doubled since 2000, with 80% of demand still being met by coal, oil & solid biomass.

Meeting with this increased demand, India, at the same time, aspires to fulfill its commitments at UNFCCC COP-26, where through the "Panchamrit", including a commitment to reach net-zero carbon emission by 2070

To achieve its targets of 2070, India needs to focus on a smoother renewable energy transition, where Hydrogen could play a decisive role to fulfill its renewable energy target of 500 GW by 2030, announced at COP26.

Importance of Hydrogen

- reduced pollution
- It is lighter, more energy-dense & energy-efficient (2-3 times more than petrol)
- The transportation, iron & steel, and chemical industries will be benefitted.
- When used in fuel-cell, the by product is only water.
- can be produced from biomass, natural gas, nuclear power, & other renewable energy sources like wind & solar energy.
- Grey, Green, Blue, Black/Brown Hydrogen.

India's Hydrogen Capacity & demand

According to TERI, it is anticipated to leapfrog to about 28 Mt in 2050 + 25% export capacity i.e. 35 Mt by 2050. So the capacity requirement is in the range of 192 GW to 224 GW of electrolysers by 2050, assuming all of it as green hydrogen.

Creating a Hydrogen economy is a need; Hydrogen fulfills the three Es of India's energy road map —

- energy security
- energy sustainability
- energy access
- [economic opportunity]

Five-step Strategy

| → DEMAND side | SUPPLY side |
|--|--|
| I - to create initial demand through, industries such as refining & fertilisers | - Investment in R&D to bring cost at par with fossils. Gas it |
| II - Green Steel & Green cement manufacturing industries to be incentivised by govt. policies. | - Sustainable Alternative Towards Affordable Transportation (SATAT) scheme, with a target to produce <u>15 MMT</u> of compressed biogas. |
| III, blending Hydrogen with natural gas by framing blending mandates, regulations & promoting H-CNG stations | - To commercialise & scale-up nascent technologies, VGF Scheme. |
| IV, Promoting FCEVs, Hydrogen fuel stations. | - Bringing electrolysers manufacturing & Hydrogen-based projects under Priority Lending (PSL) |
| V, Introducing the concept of carbon tariff. like European countries | - To reduce cost of electrolysers costs by implementing Production Linked Incentive. |

On the transportation front, ammonia could be promoted. Hydrogen transportation system could be built. by

With Hydrogen, India could lead in achieving Paris Agreement's goals. ~~to limit~~