

Question:

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

Answer:

With the ambitious target to achieve Net Zero by 2070 and, the newly released India's Green Hydrogen Policy, Hydrogen, the lightest and first element on the periodic table which at standard temperature is non-toxic, non-metallic, highly combustible diatomic gas is considered as the new age fuel.

Need for energy transition:

- i) Increasing India's per capita energy consumption.
- ii) Volatility in prices.

Hydrogen as a fuel

i) Hydrogen could play a major role in energy storage, long haul transport, decarbonisation of the industrial sector.

ii) Advantages of fuel cells over battery cells are longer faster fuelling and long driving range. thereby they are ideal ~~for~~ for long haul transportation.

iii) Hydrogen can decarbonise sectors such as iron and steel, aluminium, copper etc. and its also a huge prospect to produce fuels such as methanol, synthetic kerosene and green ammonia.

iv) The only byproduct of hydrogen fuel is water - making the fuel 100% clean.

v) Its considered as an alternative ~~fuel~~ fuel due ~~to~~ its to its ability to power fuel cells in electric vehicles, potential for domestic production, its more efficient than an internal combustion engine



running on gasoline.

## Challenges to transforming to hydrogen fuel:

- i) high cost of hydrogen manufacturing
- ii) availability of electrolyzers
- iii) scarcity of water.
- iv) there is a need to create demand for hydrogen fuel.

## Way forward:

- i) Government can create a demand by using sectors like refining & fertilisers through incentives.
- ii) Green steel and green cement must be incentivised.
- iii) blending of hydrogen with natural gas & promoting H<sub>2</sub> CNG stations.
- iv) Introduction of carbon tariffs.
- v) Investment in R&D must be accelerated.
- vi) Conversion of biogas into hydrogen should be explored.
- vii) Financial support through Viability Gap Funding and ~~Production linked~~ ~~incentive~~ Priority Sector Lending must be done for hydrogen projects and production linked incentives scheme should be ~~done~~ implemented for cost cutting of electrolyzers.
- viii) Infrastructure bottlenecks can be tackled by integrating hydrogen transportation with PM Gati Shakti Master Plan.

Thus with the above methods Hydrogen could transform India from a energy importer to a dominant energy exporter and help in making India 'Atmanirbhar in energy'.