

1. The potential of green hydrogen based vehicular fuel looks promising in the country. Examine.

The global climate change is varying widely due to large carbon emissions by China, USA, EU and India. In India, the transport sectors is the major emittant of green house gases like CO , CO_2 , SO_x , NO_x etc; which cause global warming and air pollution. Thus India is in need to decrease its emission by its INDC as per Paris Climate Change 2015 - Paris deals.

Green Hydrogen Vehicular fuel:

Hydrogen from

- Fossil fuel → Grey Hydrogen
- Carbon capture and storage → Blue hydrogen
- Renewable energy → Green Hydrogen

→ Cleanest method of producing H_2 fuel

→ Expensive method

→ By products: Hydrogen + ~~water~~ oxygen from water.

→ India → Grey hydrogen and blue hydrogen

1. Drawbacks from Electric Mobility:

1. Non achievement of FAME-I target
2. Revising FAME II target by 30% → 2030 due to reduced buying of majority 2 wheelers
3. Thus due to increase charge time of EV, the hydrogen based vehicle is the need of hour as existing petrol bunk can be transformed.

2. Emission from H-CNG is more than Green Hydrogen

1. Delhi H-CNG bus emission - 150g CO₂/km.
2. Green hydrogen ⇒ we only water and no fossil fuel - Hydrogen used.

3. Thus Indian automobile policy has share in R&D to target Paris-2015 INDC.

3. High import of Lithium ion battery - EVs:

1. Lack of Lithium ion battery technology
2. So, India requires need indigenous technology to manage financial outflows
3. Technology Transfer with indigenous production of Green Hydrogen vehicles essential

Future Prospects:

1. India is just in EV and BS 6 transition
2. Hence India can quickly switch towards renewable Green hydrogen fuel vehicles with Australia, Spain joint co-operation agreement.