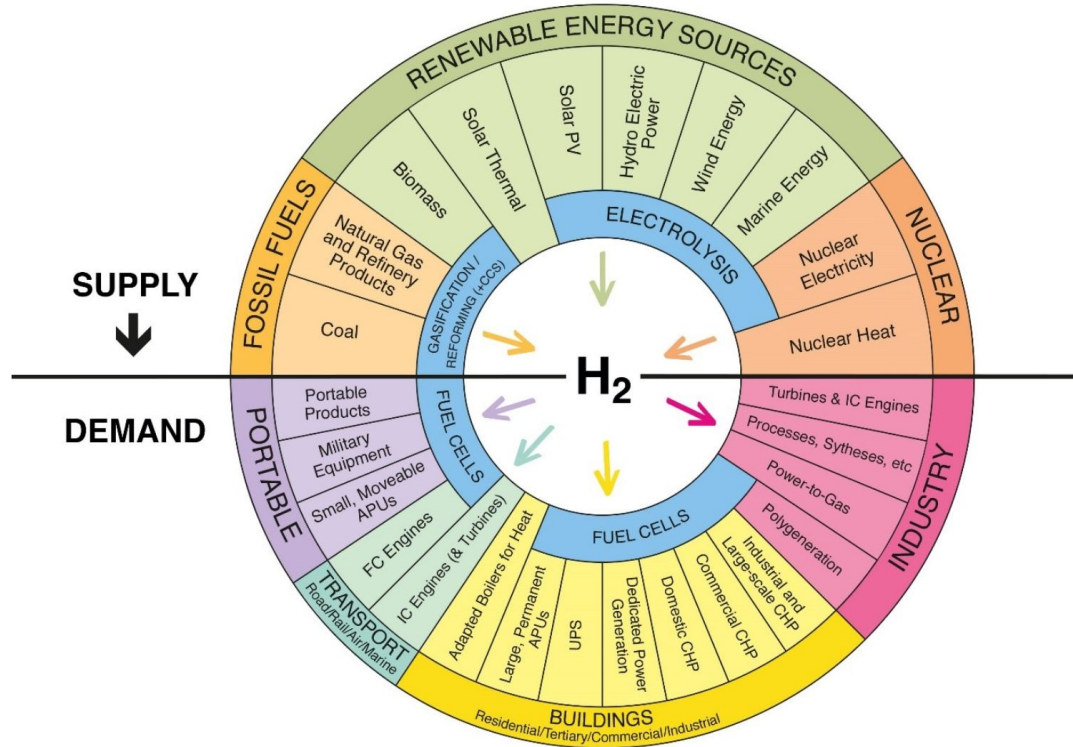




Macroscopic Analysis of Hydrogen Economy in India

CSTEP
24th February 2022

H2 Application



Demand Areas



Fertiliser }
Refineries } (*~57 Mt of CO₂*)

City Gas Distribution

Diesel Abatement*
(*3.5 Mt of CO₂*)

Steel (*~70 Mt CO₂*)

Freight

Resource Requirements



Energy

Land

Water

Materials

~ 55- 60 BU per Mt of Green H₂

~30-35 GW of installed capacity

Excess RE capacity availability in Southern Region by 2030: 53 GW

Resource Requirements



Energy

Land

Water

Materials

~ Upstream Land requirements: 4-5 acres/MW for Renewables

~ 11 acres/GW for Electrolysers

Resource Requirements

Energy

Land

Water

Materials

~Feed Water: 9 liters feed water per kg of H₂ ⇒ 9 Million m³/annum

~Raw Water: 2- 4 times per kg of H₂

Resource Requirements



Energy

Land

Water

Materials

Key Materials:

Nickel (Alkaline Electrolysers)

Platinum, Iridium (PEM Electrolysers)

Zirconium, Yttrium (SOEC)



Thank you