National Green Hydrogen Mobility Project

Green Hydrogen Mobility Project - India's first National Hydrogen Mobility project to be set up in Ladakh.

- NTPC REL signed a Memorandum of Understanding with the Union Territory of Ladakh to set up the country's first National Hydrogen Mobility Project in the region.
- The signing of the MoU was also marked with the inauguration of NTPC's first solar installations in Leh in the form of solar trees and a solar carport.
- NTPC Renewable Energy Ltd. (NTPC REL) is a 100 percent subsidiary of NTPC Maharatna PSU.

National Hydrogen Mobility Project

1. The NHMP is in line with the Prime Minister's vision of a "carbon neutral" Ladakh
2. The project will enable NTPC to help Ladakh develop a carbon-free economy based on renewable sources and green hydrogen.
3. The green hydrogen project is another step towards achieving a low carbon footprint.
4. To start with the National Hydrogen Mobility Project, NTPC has plans to ply five hydrogen buses in the region and will be setting up a solar plant and a green hydrogen generation unit in Leh.
5. With this, Leh will be the first city in the country to implement a green hydrogen-based mobility project. This would be zero emission mobility in the true sense.
6. The project comes in the backdrop of India's green hydrogen push, National Hydrogen Energy Mission - NHEM wherein the government is considering a proposal to make it mandatory for fertilizer plants and oil refineries to purchase green hydrogen as part of plans to cut the nation's dependence on fossil fuels.
7. Green hydrogen energy is vital for India to meet its Nationally Determined Contribution (INDC) Targets and ensure regional and national energy security, access and availability.
8. To elevate its energy transition efforts, India is working towards electrification of the economy by developing action plans for greening of electricity.

NTPC REL - Subsidiary of NTPC

1. NTPC has been aggressively pushing for greening its portfolio.
2. It has been promoting usage of green hydrogen-based solutions in sectors like mobility, energy, chemical, fertilizer, steel etc.
3. IT has revised its target of achieving 60 GW renewables capacity by 2032, almost doubling the earlier target.
4. NTPC has commissioned India's largest floating solar project of 10 MW at Visakhapatnam.
5. NTPC Ltd has already floated a global expression of interest for setting up two pilot projects:
    - a standalone fuel-cell based backup power system and
    - a microgrid system with hydrogen production using electrolyzers.

What is Green Hydrogen?

1. Hydrogen, when produced by electrolysis using renewable energy, is known as Green Hydrogen. Check out the difference between Renewable and Non-renewable Sources on the linked page.
2. Green hydrogen gas is produced by splitting water into hydrogen and oxygen using an electrolyzer that may be powered by electricity generated from renewable energy sources.
3. Green Hydrogen has no carbon footprint. Hydrogen that is in use these days is the primary source.
4. Organic materials such as fossil fuels and biomass are used for releasing hydrogen through chemical processes.
5. Application of Green Hydrogen is in sectors such as chemicals, iron, steel, fertilizer and refining, transport, heating, and power.

Green Hydrogen Benefits

- Green hydrogen can be generated without any harmful emissions If renewable energy (e.g. from Solar panels) is used to generate electricity for electrolysis of water.
- It is a clean-burning molecule, which can decarbonize a range of sectors including iron and steel, chemicals, and transportation.
- To meet intermittencies (of renewable energy) in the future Green Hydrogen acts as an energy storage option.
- Renewable energy that cannot be stored or used by the grid can be channelled to produce hydrogen.
- Hydrogen is a clean energy source that only emits water vapour and leaves no residue in the air, unlike coal and oil.
- Green Hydrogen can be used for long distance mobilisation such as in railways, large ships, buses or trucks, etc.