Green Hydrogen Policy

This editorial is based on **"Our Green Energy Policy Needs A Close Relook"** which was published in Livemint on 04/03/2022. It talks about the Green Hydrogen Policy and the challenges associated with its effective implementation.

For Prelims: Green Hydrogen Policy (GHP), Green Hydrogen, Grey Hydrogen, Net Zero Emissions by 2070.

For Mains: Green Hydrogen as a Fuel - significance and challenges, Green Hydrogen Policy (GHP) and India's target of net zero emissions by 2070, Roadblocks to effective implementation of the Green Hydrogen Policy.

Recently, the **Ministry of Power (MoP)** announced a **Green Hydrogen Policy (GHP)**. Industry participants have largely welcomed it, for it fits in well with the **climate-action thrust of India's budget for 2022-23.**

The policy has set a target of **5 million tonnes per annum (MTPA) of green hydrogen production by 2030,** more than 80% of the current hydrogen demand in the country.

It is a **watershed moment in India's energy transition journey,** and by doing so, India has become the **18th country to release a comprehensive Green Hydrogen Policy.** Ammonia and Hydrogen are seen to be the future fuels to replace fossil fuels.

What is the Green Hydrogen Policy?

- Under the policy, the government is offering to set up **manufacturing zones for production**, connectivity to the **ISTS (Inter-State Transmission System)** on priority basis, and **free transmission for 25 years** if the production facility is commissioned before June 2025.
- This means that a **green hydrogen producer will be able to set up a solar power plant** in Rajasthan to supply renewable energy to a green hydrogen plant in Assam and would not be required to pay any inter-state transmission charges.
    - Besides, producers will be allowed to set up **bunkers near ports for storage** of green ammonia for export by shipping.
- Manufacturers of Green hydrogen and ammonia are allowed to **purchase renewable power** from the power exchange or **set up Renewable Energy (RE) capacity** themselves or through **any other developer, anywhere.**
- It provides facility for producers to **bank any surplus renewable energy generated with discoms** (power distribution companies) for upto 30 days and use it as required.

What is the Significance of the Policy?

- India’s largest oil refiner, Indian Oil Corp (IOC) estimates that GHP measures will **reduce the cost of green hydrogen production by 40-50%.**
- Fuels like Green Hydrogen and Green Ammonia are vital for any nation's **environmentally sustainable energy security.**
- India has already committed to achieving **net-zero carbon emissions by 2070**, and green hydrogen will play a **significant role as a disruptive feedstock** in India's transition from oil and coal.
- The GHP lays a solid **foundation for developing a competitive green hydrogen sector** in India.

What are the Challenges Associated?

- **Charges on Transmission:** Producing 1kg of green hydrogen takes about 50kWh of electricity (with electrolyser efficiency of 70%).
  - While India boasts one of the world’s lowest average costs of RE generation, it **levies a plethora of charges on wheeling and transmission** of electricity between the points of generation and consumption.
- **Lesser Cost-Effective than Green Hydrogen**: In cases where the green hydrogen is produced from a remotely-located RE plant, the landed cost of power determines the cost of output which ranges from ₹3.70 to ₹7.14 per kWh.
  - At this rate, green hydrogen will be made at a cost of about ₹500 per kg, which is **nearly 3.5 times the cost of** grey hydrogen.
  - So the **landed cost of RE from a distant source will need to at least be halved** to make green hydrogen competitive vis-a-vis grey.
- **Reluctance of States**: Many public sector electricity utilities are **unwilling to let go of their monopoly in power distribution.** The RE-rich states are either moving away from allowing RE banking or introducing regulations to restrict this facility.
  - **Gujarat** allows settlement for banked solar power only between 7am and 6pm and **levies ₹1.5 per unit** as its banking charges for ‘high-tension’ consumers.
  - **Rajasthan** permits banking of up to 25% of RE generation and settlement on an annual basis, but **levies a 10% charge, among the highest in India.**
  - Tamil Nadu and Andhra Pradesh **do not allow RE banking.**
  - Also, **most states do not permit banked energy to be drawn during the peak hours.**
- **Lesser Margins for Producers:** The GHP **omits to mention any waiver of ISTS losses for green hydrogen** and ammonia projects.
  - Also, it provides for discoms to procure and supply RE to makers of green hydrogen/ammonia at the cost of procurement with **only a small margin determined by the SERCs.**
  - This margin may **not be enough incentive for discoms** to procure and supply RE to green hydrogen makers on a long-term basis.
- **Unwillingness of Industries:** Industrial sectors such as chemicals, fertilisers, steel and refineries are unlikely to transition to low carbon alternatives because of the **higher associated costs**. Such industries might not find the transition viable with **no incentives to reduce emissions.**

What Steps Can Be Taken?

- **Role of State Governments:** The measures announced in the GHP would require the **active cooperation of state governments** (including allotment of land in RE parks and proposed manufacturing zones) and the relevant SERCs.
  - The RE-rich states shall **implement the GHP’s banking provisions** and **levy uniform charges,** otherwise, it may not help green hydrogen producers much.
- **Role of Central Government:** To get the cooperation of RE-rich states, the Centre may consider **providing concessional finance to the discoms in such states** to clear their dues to power generators, and in return require them to **waive the aforementioned surcharges** for open-access RE projects and **cap RE-banking charges at the level specified in the GHP.**
- **Demand Generation:** While large refiners like Reliance and IOC have plans to set up green-hydrogen production facilities, other manufacturers and RE developers would be hesitant to commit large-scale investments in the absence of demand generators.

    - The GHP measures beside enhancing the supply of green hydrogen at competitive rates shall also **aim to make moves to stimulate demand.**
- **Incentivising Industries:** Hydrogen-purchase obligations or other demand boosters are required to **support the creation of a green hydrogen ecosystem.**
    - The Centre may consider incentivizing **petroleum refiners and fertiliser makers** to make and use green hydrogen by **offering subsidies linked to their level of its utilisation** as feedstock.
    - This would further India's goal of achieving its net-zero emissions target by 2070.

Drishti Mains Question

Discuss the significance of the Green Hydrogen Policy in achieving India's target of net zero emissions by 2070.
