PLI Scheme for Polysilicon Manufacturing

Prelims: *Current events of national and international importance | Economy*

Why in News?

Recently, The Union Ministry of New and Renewable Energy (MNRE) is examining a Production Linked Incentive (PLI) scheme to support domestic polysilicon manufacturing,

- **Polysilicon –** An ultra-pure form of silicon used as the fundamental raw material for solar photovoltaic cells and semiconductor microchips.
- Produced primarily through chemical purification processes like the Siemens process
- **Starting Feedstock –** Polysilicon chunks or rods are melted to form large blocks or single crystal cylinders.
- **Ingot and Wafer Creation –** These solid structures are sliced into thin silicon wafers, which become the base of photovoltaic cells.

> ***Ingot*** *is a large, solid cylinder-shaped block of purified, single-crystal silicon;* ***Wafer*** *is a thin, flat, circular slice cut from that ingot.*

- **Usage–** Not limited to solar; also used in semiconductors.

Polysilicon PLI Proposal

- **Target –** support **10 GW capacity**.
- Treated as a **separate industry** since polysilicon is also used in semiconductors.

> *India has 213 GW module capacity, 32 GW cell capacity, but fully dependent on China imports for polysilicon.*

Current Status

- Downstream manufacturing (cells, modules, ingots) expanded rapidly.
- Polysilicon remains the **missing link** in domestic solar supply chain; scheme size, structure, and participants not yet disclosed.
- **Separate from Solar PLI –** Polysilicon support will be **independent** of this scheme; existing solar PLI boosted **cells, modules, and ingots**.
- **Expected addition – 100 GW cell capacity** and **80 GW ingot/wafer capacity** in coming years.

Renewable Tariffs

- **Solar Energy Corporation of India (SECI) Renewable Energy –** Round the Clock (RE-RTC) bid discovered tariff at **Rs. 5.25/unit;** Tariff nearly matches **nuclear power costs**.
- Provides **90% assured power availability**; solar contributes 50% daytime supply.
- Developers integrated **solar, wind, and storage** for reliable supply.

RE-RTC – *It is a power supply model that delivers continuous, uninterrupted clean electricity 24 hours a day, 7 days a week.*

- **Green Hydrogen and Emerging Fuels** – Government creating markets for green hydrogen, ammonia, methanol; Pilots in fertiliser, refineries, shipping, transport, steel.

Regional Energy Trade

- Cross-border cooperation with **Bhutan and Sri Lanka**.
- Focus on **regional electricity market** linking solar, wind, and hydropower.

Reference

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