# India’s Solar Power Dream

**For Prelims:** Renewable Energy, Production Linked Incentive (PLI), Domestic Content Requirement (DCR)

**For Mains:** Challenges to Indian Solar Power Industry and Government Initiatives to Resolve them, India's achievements in renewable energy sector, India's renewables energy targets

## Why in News?

Government of India has set the target to **expand India’s renewable energy installed capacity to 500 GW by 2030.**

- India is also targeting to reduce India’s total projected carbon emission by 1 billion tonnes by 2030, reduce the carbon intensity of the **nation’s economy by less than 45% by the end of the decade, achieve net-zero carbon emissions by 2070.**

## What is the Present Status of Renewable Energy in India?

- **The total installed capacity for renewable energy in India is 151.4 GW.**
  - The following is the breakup of total installed capacity for Renewables:
    - Wind power: 40.08 GW
    - **Solar Power: 50 GW**
    - Biopower: 10.61 GW
    - Small Hydro Power: 4.83 GW
    - Large Hydro: 46.51 GW
  - **Present Solar Power capacity:**
    - **45 solar parks** of aggregate capacity 37 GW have been approved in India.
      - Solar Parks in Pavagada (2 GW), Kurnool (1 GW) and Bhadla-II (648 MW) are included in the top 5 operational solar parks of 7 GW capacity in the country.
      - The **world’s largest renewable energy park of 30 GW capacity solar-wind hybrid project is under installation in Gujarat.**

## What are the Challenges?

- **Heavily Dependent on Imports:**
  - India doesn't have enough module and PV cell manufacturing capacity.
    - The current solar module manufacturing capacity is **limited to 15 GW per year, whereas the domestic production is around 3.5 GW only.**
      - Further, out of the 15 GW of module manufacturing capacity, **only 3-4 GW of modules are technologically competitive** and worthy of deployment in grid-based projects.
- **Raw Material Supply:**
  - The silicon wafer, the most expensive raw material, is not manufactured in India.
  - It currently imports 100% **silicon wafers** and around 80% cells.

- Further, other key raw materials, such as **silver and aluminum metal pastes for making electrical contacts, are also almost 100% imported.**

## What are Government Initiatives?

- **PLI scheme to Support Manufacturing:**
  - The Scheme has provisions for **supporting the setting up of integrated manufacturing units of high-efficiency solar PV modules** by **providing** Production Linked Incentive (PLI) **on sales of such solar PV modules.**
- **Domestic Content Requirement (DCR):**
  - Under some of the current schemes of the **Ministry of New & Renewable Energy (MNRE)**, namely Central Public Sector Undertaking (CPSU) Scheme Phase-II, **PM-KUSUM**, and Grid-connected **Rooftop Solar Programme** Phase-II, wherein **government** subsidy **is given, it has been mandated to source solar PV cells and modules from domestic sources.**
    - Further, the government made it mandatory to procure modules only from an **Approved List of Manufacturers (ALMM)** for projects that are connected to state/ central government grids.
- **Imposition of Basic Customs Duty on import of solar PV cells & modules:**
  - The Government has announced the imposition of **Basic Customs Duty (BCD)** on the import of solar PV cells and modules.
    - Further, it has imposed a 40% duty on the import of modules and a 25% duty on the import of cells.
    - Basic custom duty is the **duty imposed on the value of the goods at a specific rate.**
- **Modified Special Incentive Package Scheme (M-SIPS):**
  - **It's a scheme** of the **Ministry of Electronics & Information Technology.**
    - The scheme mainly provides a **subsidy for capital expenditure on Pv cells and modules – 20% for investments in** Special Economic Zones (SEZs) **and 25% in non-SEZ.**

## Way Forward

- As India is making significant progress in the development of solar PV modules, but for it to become a manufacturing hub, it will require more policy interventions like developing home-grown technologies which could, in the short-term, work with the industry to provide them with trained human resource, process learnings, root-cause analysis through right testing and, in the long term, develop India's own technologies.
- This would further require substantial investment in several clusters which operate in industry-like working and management conditions, appropriate emoluments, and clear deliverables.

## UPSC Civil Services Examination Previous Year Question (PYQ)

### ***Prelims***

**Q. The term 'Domestic Content Requirement' is sometimes seen in the news with reference to (2017)**

**(a)** Developing solar power production in our country.
**(b)** Granting licenses to foreign T.V. channels in our country.
**(c)** Exporting our food products to other countries.
**(d)** Permitting foreign educational institutions to set up their campuses in our country.

**Ans: (a)**

**Exp:**

- National Solar Mission was started in 2010 which aims at deploying solar power across the country

and also mandates to ensure development across the entire value chain. Hence, developing domestic manufacturing capacity across the value chain is also one of the thrust areas of the Mission.

- **To ensure the development of domestic manufacturing, provision of 'Domestic Content Requirement' was introduced under the Mission.** The provision required the solar energy producer to use locally manufactured cells. Subsidies were offered to those developers who would use domestic equipments.
- However, India lost the case against the US at WTO as the body ruled that India's Domestic Content Requirement provisions were inconsistent with the international norms.
- **Therefore, option (a) is the correct answer**

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## ***Mains***

**Q.** India has immense potential of solar energy though there are regional variations in its developments. Elaborate **(2020)**

**Source: IE**