



India's Largest Floating Solar Power Project

For Prelims: Floating Solar Project, Solar Panels

For Mains: Benefits and challenges of Floating Solar Panels

Why in News?

Recently, the final 20 MW of the 100 MW Ramagundam [floating solar PV](#) project's commercial operation date was recently announced.

- With this, the **100 MW Ramagundam floating solar PV project in Telangana** is declared operational from 1st July 2022.
- It is the **largest project of its kind in India**.

What are Floating Solar Panels?

- These are Photovoltaic (PV) modules mounted on platforms that float on water reservoirs, lakes, and where conditions are right seas and oceans.
- **These platforms are typically moored on calmer bodies of water, such as ponds, lakes or reservoirs.**
- These installations are relatively quick to construct, silent to run and require no land levelling or removal of vegetation.



What are its Key Highlights of Ramagundam Project?

- It is endowed with advanced technology and Environment-friendly features.
- The project spreads over **500 acres of the reservoir**. Divided into 40 blocks, each having 2.5 MW.
- Each block consists of **one floating platform and an array of 11,200 solar modules**.
- **The solar modules are placed on floaters manufactured with HDPE (High-Density Polyethylene) material.**
- The entire floating system is anchored through special **HMPE (High Modulus Polyethylene)** rope to the dead weights placed in the balancing reservoir bed.
- This project is unique in the sense that **all the electrical equipment** including inverter, transformer, HT panel, and SCADA (Supervisory Control and Data Acquisition) **are also on floating Ferro cement platforms.**

What are the Environment Benefits of the Project?

- **Limited Land Required:**
 - From an **environmental point of view**, the most obvious advantage is the **minimum land requirement** mostly for associated evacuation arrangements.
- **Reduce Water Evaporation Rate:**
 - Further, with the presence of floating solar panels, the **evaporation rate from water bodies is reduced**, thus helping in **water conservation**.
 - Approximately 32.5 lakh cubic meters per year of water evaporation can be avoided.
- **Efficient in Reducing Co2 Emission:**
 - The water body underneath the solar modules helps in maintaining their ambient temperature, thereby improving their efficiency and generation. Similarly, while **coal consumption of 1,65,000 Tons can be avoided per year; Co2 emission of 2,10,000 tons per year can be avoided.**

What are the Related Challenges?

- **Expensive to Install:**
 - **More money is required to install floating solar panels** than a traditional PV system.
 - One of the main reasons is because the technology is relatively new, thus requires specialized knowledge and equipment.
 - However, as the technology advances, its installations costs are also expected to drop.
- **Limited Application:**
 - Many floating solar installations are large-scale, and **they provide electricity to large communities, companies, or utility companies.**
 - Hence, choosing rooftop installation or ground-mounted solar is more practical.
- **Understanding of Water-bed Topography:**
 - Developing floating solar projects requires a **thorough understanding of water-bed topography** and its suitability for setting up anchors for floats.

What are the other Solar Energy Initiatives?

- **Solar Park Scheme**
 - Plan to build a number of solar parks, each with a capacity of nearly 500 MW, across several states.
- **Rooftop Solar Scheme**
 - To harness solar power by installing **solar panels** on the roof of the houses.
- **Atal Jyoti Yojana (AJAY):**
 - The AJAY scheme was launched in September 2016 for the installation of **solar street lighting (SSL)** systems in states with less than **50%** households covered with **grid power** (as per **Census 2011**).

Source: PIB

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