



India's Biggest Floating Solar Power Plant

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Why in News

India's **biggest floating solar power plant** by generation capacity (100MW) is being developed by the **National Thermal Power Corporation Limited (NTPC)** at **Ramagundam in Peddapalli district of Telangana**.

The project is in line with India's commitment to attain the target of 175 GW of installed **renewable energy** capacity by 2022 including 100 GW of solar installed capacity.

Key Points

- **Floating Solar Plants:**

- It refers to the **deployment of photovoltaic panels on the surface of water bodies**. They are a **viable alternative to land-based solar arrays** with applications in India.

There are a **large number of major reservoirs in the Southern Region** which provides a huge opportunity to go for renewable energy in the floating solar method.

- **Projects Coming up in India:**

- The thermal plant at **Ramagundam** would be one of the renewable (solar) energy plants being developed by NTPC with an installed capacity of 447MW in the Southern Region and the entire capacity would be commissioned by March 2023.
- The renewable energy plants that are likely to be commissioned in the next three months are 25MW floating solar plant at **Simhadri thermal power plant** near **Visakhapatnam** and 92MW floating solar plant at **Kayamkulam** in **Kerala**.

- **Advantages:**

- **Address Land Acquisition Issues:** The key challenges that face renewable energy plant owners are land acquisition, grid connectivity, regulations and off-take.

Floating solar plants balance high population density and competing uses for available land. The land can be used for other purposes, such as farming or construction.

- **Cooling Effect:** The bodies of water exert a **cooling effect**, which improves the performance of solar photovoltaic panels by 5-10%.

Over time, this translates into **significant cost savings**.

- **Other Advantages:** Reduced grid interconnection costs, reduced water evaporation, improved water quality, and reduced **algal blooming**.

- **Challenges:**

- **Increased Cost:** Engineering and construction costs are usually higher than those of a ground-mounted solar farm.

- **Safety Issues:** Since floating solar involves water and electricity, more consideration must be given to cable management and insulation testing than on land, especially when cables are in contact with water.

- **Degradation and Corrosion:** A floating solar plant has moving parts that are subject to constant friction and mechanical stress.

- Systems that are poorly designed and maintained could suffer from catastrophic failures.
- The installation is at risk of degradation and corrosion due to moisture, especially in more aggressive coastal environments.

- **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.

- **Other Solar Energy Initiatives:**

- **National Solar Mission** : Solar energy has taken a central place in India's **National Action Plan on Climate Change** with the **National Solar Mission** as one of the key Missions.
- **INDCs target:** It targets installing 100 GW grid-connected solar power plants by the year 2022.

This is in line with India's **Intended Nationally Determined Contributions (INDCs)** target to achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources and to reduce the emission intensity of its GDP by 33 to 35% from 2005 level by 2030.

- **Launch of ISA:** The launch of the **International Solar Alliance (ISA)** was announced by the Prime Minister of India and the President of France in 2015, at the **21st session of the United Nations Climate Change Conference of the Parties (COP-21)** in Paris, France.
- **Government Schemes:** Such as **Solar Park Scheme, Canal bank & Canal top Scheme, Bundling Scheme, Grid Connected Solar Rooftop Scheme** etc.
- **One Sun One World One Grid:** India has an ambitious cross-border power grid plan '**One Sun One World One Grid**' that seeks to transfer solar power generated in one region to feed the electricity demands of others.

National Thermal Power Corporation Limited

- NTPC Ltd. is a **central Public Sector Undertaking (PSU)** under the Ministry of Power.
- It is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India.
- It aims to provide reliable power and related solutions in an economical, efficient and environment-friendly manner, driven by innovation and agility.
- It became a **Maharatna company** in May 2010.
- It is located in New Delhi.

Source: TH