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Floating Solar in India: The Now & How of It

To keep pace with India's RE commitments, the Solar Energy Corporation of India (SECI) invited expressions of interest from prospective developers in 2017 to implement 10 GW of floating photovoltaic (FPV) systems by 2022. However, as of July 2019, India has been able to add only about 2.7 MW. Currently, large-scale projects worth ~1.7 GW are under development, which are expected to contribute significantly to the 2020 target. This includes the National Thermal Power Corporation's (NTPC's) 100 MW FPV plant in Telangana, India's largest FPV project. Given its tropical climate, India has the potential to deploy 280 GW of FPV capacity by utilising just 30% of medium and large water bodies, amounting to an area of 18,000 km2. Despite this, FPV has not taken off due to high capital cost, lack of bathymetric data (which assesses depth and topography of water bodies), and technical and environmental issues.

Measures for FPV Implementation

To increase the uptake, the government should identify FPV potential of water bodies, design robust strategies and explore indigenous manufacturing parallelly (see Figure 1). This would ensure the cost-effectiveness of future FPV projects.

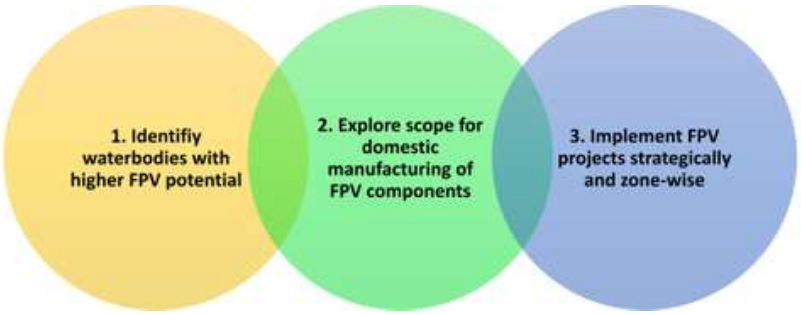

FIGURE 1: STEPS FOR INCREASING FPV PENETRATION IN INDIA

Additionally, for efficient deployment of FPV projects, bathymetric data of water bodies is a must. These surveys help identify optimum locations for anchors and mooring to place floating platforms. They also help assess the overall techno-commercial feasibility of FPV projects. At the moment, this kind of data is unavailable.

The identified water bodies can be classified as small-, medium-, or large-scale based on their suitability for FPV implementation. This classification would help the government aggregate the capacity based on size or scale and float tenders in a particular zone or state for strategic implementation. This will ultimately bring down the overall capital cost by achieving economies of scale, offer opportunities to the developers, generate jobs, and dramatically increase the FPV uptake.

Government should also assess the feasibility of indigenous manufacturing of all FPV system components, with a strong focus on floating structures. Floating structures made of high-density polyethylene are a significant cost component in FPV plants. India generates a huge amount of plastic scrap every year. In 2018–19, according to the Central Pollution Control Board, 3.3 million metric tonnes of plastic waste was generated in India, with a large amount of polyethylene, which can be recycled and used in the domestic manufacturing of floating structures. Right now, this technology is still at a nascent stage.

If India wants to become a leader in renewables, it should develop a strong manufacturing base alongside developing robust FPV implementation strategies.