


THE  HINDU

# Business Line

# 'Generating electricity is important but not at the cost of the marine ecosystem'

**Gyanesh Chaudhary, MD and CEO of Vikram Solar, which set up the country's first-ever floating solar plant, on the challenges he faced**

**PREETI MEHRA**

**How was Vikram Solar's floating plant in Rajarhat, Kolkata, conceived?**

Vikram Solar commissioned India's first floating solar plant with an aim to accelerate the adoption of efficient and innovative technologies which can address the issue of land scarcity (for energy generation purpose). The key objective of this project was to explore water bodies, which are otherwise unutilised.

**What were the challenges that you faced in its execution, both in keeping it afloat and as a manufacturer of solar modules? The solar plant had to be suitably designed not just to stay afloat,**

but to withstand strong wind force and high humidity levels.

In India, solar PV modules are installed facing southwards to absorb the maximum solar radiation and maximise energy harvesting. Anchoring the whole platform was also an issue.

Another challenge was to develop a solar module that could sustain harsh environmental conditions, specially the humidity over a water body.

The task for us was to select the right power electronics for our modules so that it will provide its optimum performance and have a long life in humid conditions.

The generation of electricity was important but not at the cost of destroying sustainability of the

marine ecosystem. It was kept in mind that damage to the ecosystem in the water body should be nil.

**How exactly does the installation work?**

The installation is completely flexible, and consists of 10 units of 1kW floating modules, each made out of tubular unsinkable fibre

glass modules, which make up the floating pontoon itself. The floating modules are made out of fibreglass to withstand corrosion and minimise maintenance costs.

The hollow sections are filled up with PU Foam to make it unsinkable in case of any leakage. The pontoon is designed to guarantee a balanced structure platform supporting the photovoltaic mod-



ules, inverter, junction boxes and lighting arrestor. There are provisions (walk way) for inspection and O&M (operations and maintenance) activities. The platform is capable of taking the load of four to six persons for O&M activity without any threat of sinking.

It is designed to withstand turbulence and harsh weather conditions during a storm.

The system is anchored to the bottom of the lake with provision of automating adjustment with the increase or decrease of water level to a few meters. The plant is connected to the grid by using a submersible cable.

**What is the life of such as installation and how much energy can it generate every year?**

The overall system is designed to last more than 25 years and produce a minimum 14 MWh/year.

Solar panels installed on the

floating platform anchored by a suitable anchoring mechanism are naturally cooled, resulting in enhanced power production.

**The floating solar plant installed by you is situated in a lake. Can it also be located in other water bodies such as rivers and seas? Yes, probably going ahead, this floating solar technology can be deployed in a big-sized water body/lake.**

But one needs to take some measures that will help implementation of the same.

The grid line should be as close as possible to the water body. The water body should be secured, so as to avoid any theft of the panels and materials of the plant.

Also the water should not be very turbulent which might fasten the

degradation of the platform and disrupt the power generation mechanism.

And lastly, saline water body should be avoided while building such a floating solar power plant.

So, installing floating solar plant on rivers and sea might not be a good idea with the current technological innovation power electronics. But R&D is going on and some solutions will come out.

