Turn Water into a Solar Opportunity

Maximize your benefits with SolarEdge

Floating PV (FPV) systems, also known as floatovoltaics, are floating PV power plants—an emerging form of PV system that is gaining traction around the world. Using these water-deployed solar systems, PV modules are placed on natural or artificial water bodies such as lakes, fishponds, irrigation reservoirs and hydroelectric dams.

Interest in FPV plants is growing due to a decline in PV module costs, and the ambitious renewable energy goals set by many countries diversifying their energy portfolios. Additionally, FPV offers a great opportunity as a cost-effective renewable energy investment in areas where land is scarce or unsuitable for ground based PV systems.

The SolarEdge Floating PV solution is built to maximize the energy production of the system and to enable easier operation and maintenance.

The Benefits of Floating PV

Dual Use of Water Bodies

Maximizes efficiency of water use, by combining aquaculture or hydropower reservoirs with solar PV power production

Increased Production and Revenues

Yields more PV energy compared to ground-based systems, mainly in warm regions, due to water's natural cooling effect

Environmentally Beneficial

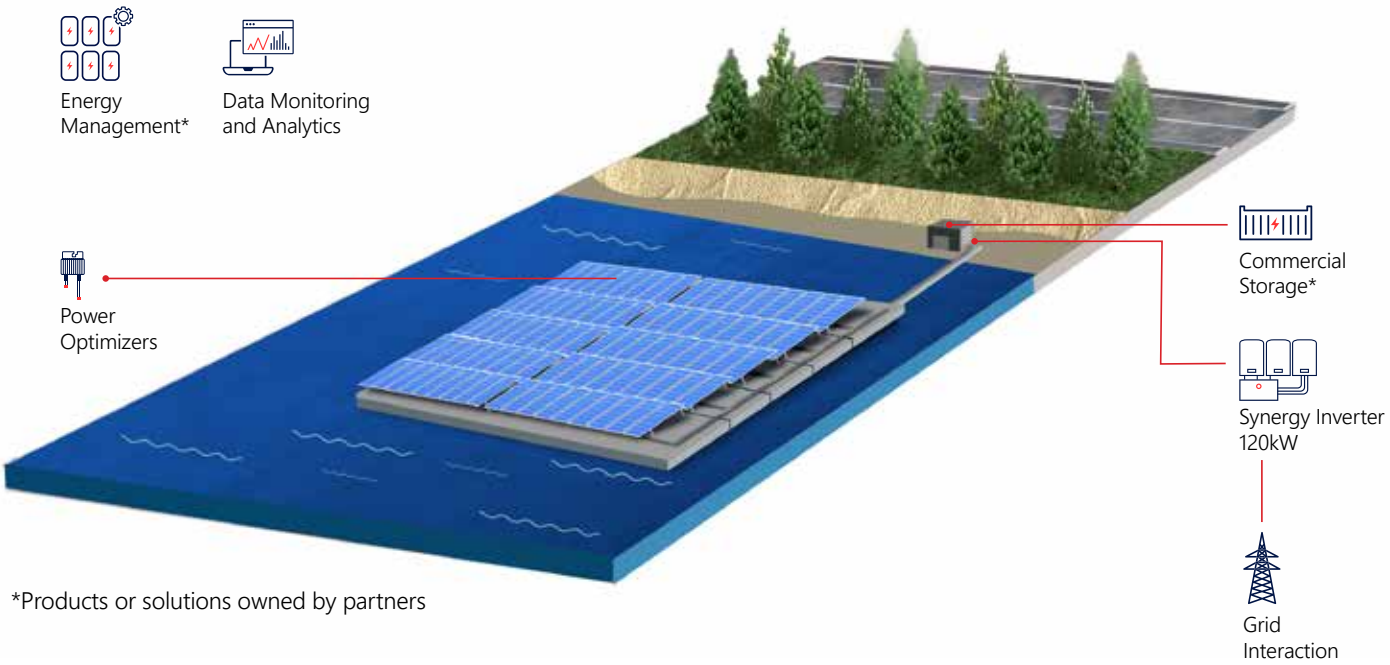
Conserves water by reducing algae and evaporation

Increase Value with SolarEdge Floating PV Solution

When selecting FPV system components, there are several considerations to explore for maximizing ROI. These components directly impact energy output, operation and maintenance on water, and personnel safety. In addition, the durability and reliability of these components is critical since FPV systems are intended for use for at least 20 years.

The SolarEdge Floating PV solution maximizes the benefits of floating PV systems for system owners, installers, and O&M providers.

Floating PV Solution



*Products or solutions owned by partners

The Benefits of SolarEdge Floating PV Solution

- Increased Production
- Safety
- Easier Operation and Maintenance
- Reliability

Increased production

Module mismatch is unavoidable in any PV installation. However, in FPV systems this is particularly prominent due to various environmental effects, such as constant movement of the water, bird droppings, fluctuating temperatures, and potential induced degradation (PID) of PV modules. Furthermore, when using bifacial PV modules, module mismatch is increased even more.

To maximize energy production and ROI, mitigating module mismatch related production loss is imperative. This is achieved by connecting one SolarEdge Power Optimizer with every two modules, making the PV modules independent from one another. Underperforming modules are isolated from all other modules on the string so performance is unaffected, increasing energy yield, and resulting in higher revenues.

Safety

Floating PV installations are potentially more prone to safety hazards because they are installed on water. Ions and impurities turn water into a good electricity conductor, and therefore it's important to take precautionary measures to prevent short circuiting.

SolarEdge's advanced PV systems meet the industry's most stringent safety standards required by governments and insurance companies. Their safety features reduce electrocution risk on water, protecting people, assets and the surrounding ecosystem.

SafeDC™

Built-in feature that ensures a safe work environment for installation and maintenance crews accessing the system, which is particularly critical in aquatic environments. The SafeDC™ automatically reduces the DC module voltage—which remains high during the daytime—to a touch-safe level within up to 5 minutes, to minimize electrocution risk.

SolarEdge Sense Connect

Detects arc faults about to occur, and prevents them by shutting down the inverter. Arc faults, once they have occured, are identified by the arc detection and mitigation feature, which shuts down the inverter. In both cases, the installer is notified automatically, with pinpointed information.

Easier Operation and Maintenance

Operation and maintenance pose a greater challenge in FPV systems as compared to ground-mounted or rooftop PV systems because they require access by boat. Therefore, to simplify complications, it is recommended to keep the amount of equipment on the floating structure to a minimum. Inverters, when placed on floating structures in the water, require special racking and shading elements to protect them from direct sunlight. In cases of RMA, accessing the inverters may require special instrumentation. Finally, inverters are exposed to higher humidity due to continuous evaporation and splashing water which can increase corrosion and shorten product lifetime. With the long-string capability of SolarEdge's solution, the inverters can be placed on shore, providing easier O&M and reducing costs over the system's lifetime.

Certain components such as the PV modules, combiner boxes, cables and others must be placed on the floating structure. To simplify maintenance tasks, the SolarEdge Floating PV solution includes a module-level Monitoring Platform. With pinpointed automatic system alerts and remote troubleshooting which is critical for floating PV systems where physical access is difficult, it limits the site visits and reduces time spent onsite during each visit.

Reliability

Whether it's installed on natural or artificial water bodies, robustness of all PV system components is critical for ensuring uninterrupted power production. SolarEdge PV inverters are highly resistant to the harsh aquatic conditions of floating PV plants. The inverters can operate at humidity levels of up to 95%. The SolarEdge solution has a wide operating temperature range of -40°C to +60°C for inverters, and 40°C to +85°C for Power Optimizers. They are dust and waterproof certified with IP65 rating and are resistant to ammonia—a metabolic fish waste related product commonly present in fishponds.

Floating PV Installations Around the World

7.1 MW, Floating PV plant, Israel

2 MW, Lingewaad Floating Solar Park, The Netherlands

1.8 MW, Flotovoltaic Fongshan Reservoir, Kaoshiung, Taiwan

252 kW, Kelseyville Waterworks Floatovoltaic, USA

About SolarEdge

SolarEdge is a global leading innovator of smart energy solutions that power our lives and advance sustainability. SolarEdge developed a ground-breaking intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. Today, the company offers numerous smart energy management solutions for PV, storage, EV charging, UPS, and grid services.

SolarEdge is approved by major banks, insurance companies and financial institutions worldwide with over 50% of Fortune-100 companies have SolarEdge Technologies on their rooftops.

Bankable

Nasdaq-traded company, world's #1 solar inverter company in revenue*, with over 5.5M inverters installed in 140 countries

Expert

More than 15 years of proven know-how in efficient energy production and management

Network

Cultivates local networks of vendors, EPCs, installers, insurance companies, investors, banks

Innovative

Developer of state-of-the-art technologies with 538 awarded patents

*Excluding China; Including China, #1 inverter company globally by revenues 2018-2021 and #2 in 2022. Source: IHS PV Market Tracker Q2 '23

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