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Can Floating Solar Panels Replace Ground-Mounted & Rooftop Solar Systems?

By Neelanjana Gautam, November 2016 —

Floating solar, commonly known as "floatovoltaics," typically involves installing solar panels on pontoons that rest on the surface of a water body.

Solar energy is the cleanest and the most abundant renewable energy source available, and the U.S. has some of the richest solar resources in the world, according to the [Solar Energy Industries Association](#).

With renewables set to revolutionize the energy industry, the U.S. solar market faces both challenges and opportunities. It's in the process of finding viable ways to scale up production and drive down manufacturing and installation costs to synthesize the pool of knowledge and expertise required to address climate shifts.

Every action has an equal and opposite reaction — Newton's third law makes an interesting case out of climate change and human responsibility. The onus lies on us as we vow to discard harmful, dirty sources of energy and turn toward sustainability and clean energy enterprises. Sustainable Silicon Valley is part of the solution, generating the necessary environmental buzz and call to action.

Solar technology has already taken California by storm and is increasingly becoming an international player. Although shrinking living spaces, high prices, and unavailability of land get in the way of some large-scale installations and solar farms, floating solar panel technology is set to make waves within the renewable energy industry.



Sheeplands, UK, 200 kWp

Ciel et Terre makes solar float and brings the first Hydrelia© Floating PV system to California

Established in 2006 as a renewable Independent Power Producer (IPP), **Ciel et Terre** has been fully devoted to **floating PV solar** since 2011. The company pioneered the first specific and industrialized system — **Hydrelio**© — to make solar panels float on water, focusing on criteria such as cost-effectiveness, safety, longevity, resistance to winds and waves, simplicity, drinking water compliance, and optimized electrical yield.

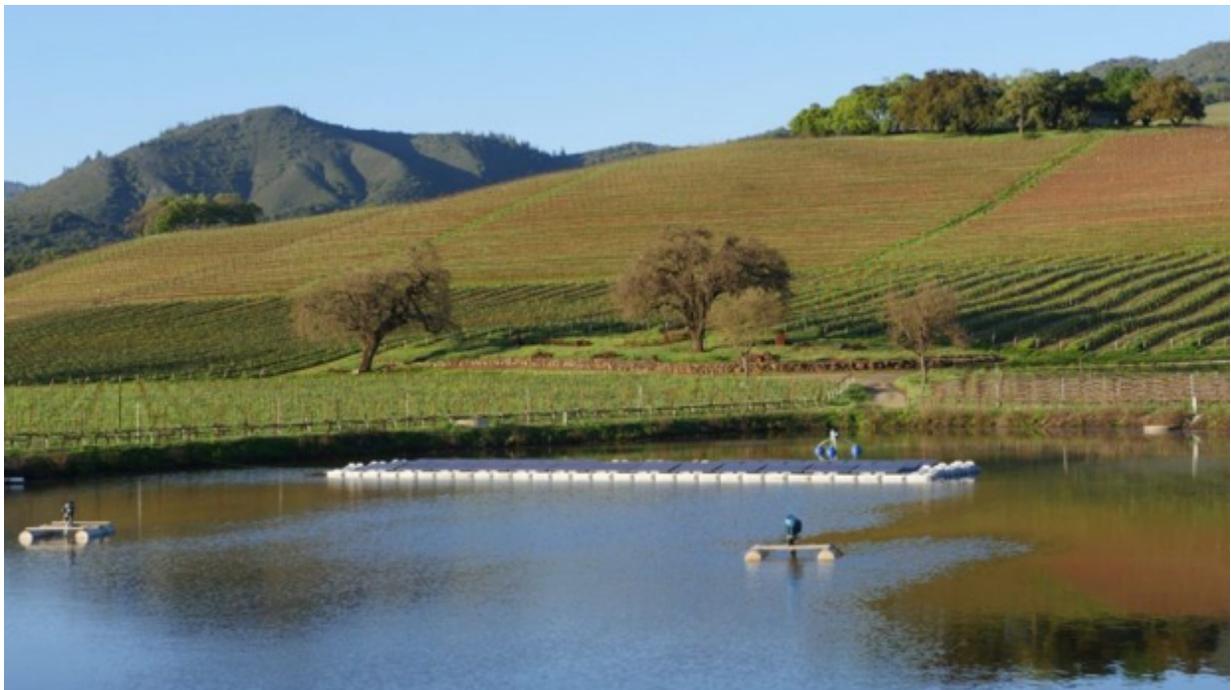
And now, it brings the floating photovoltaic (PV) technology to the U.S. with a new team in Petaluma, California, and a manufacturing facility in Georgia to provide a system that is entirely made in America. The innovative design of the floating Hydrelio© platform allows standard solar PV panels to be installed on large man-made bodies of water, such as industrial reservoirs, dams, and irrigation ponds.

Where can you install panels? Is it cost-effective?

Organizations that can particularly benefit from the solar-water marriage include wineries, dairy farms, fish farms, mining companies, and water-intensive facilities and organizations like wastewater treatment plants, irrigation districts, and water agencies that cannot afford to waste resources. Even if you have as little as 3 acres of fresh water, you can turn to floating PV power.

The cost of leasing water for solar installations is lower than that of land. In addition, the increased efficiency of floating PV panels makes them potentially more competitive than many renewable energy technologies, such as wind (high land costs) and hydropower (high environmental costs).

California wine counties Napa and Sonoma are embracing the entrepreneurial innovation, making floatovoltaic a niche aquatic asset in a power-packed market.



Benefits of Floatovoltaics

- Floatovoltaics is a novel cleantech design engineered for water bodies, thus saving land for farming and other uses.
- It could be an effective instrument where drought conditions wreak havoc on ecosystems, as it aids in water conservation by reducing losses through evaporation.
- The technology presents no danger or risk to surrounding habitats or wildlife when implemented.
- Furthermore, the solar panels operate more efficiently and produce more energy due to the natural cooling effect of the water.
- Shielding water bodies from the sun also minimizes the growth of organic matter like algae.
- Acts as corollary power supply when installed on a dam used for hydropower.

It is estimated that by 2020, solar will provide more than 3.5% of U.S. electricity, and by 2050 will generate more than 10% of the world's energy. Countries where Hydrelia® has already been deployed are looking to achieve similar renewable energy generation goals to reap the economic and climate benefits associated with solar, without sacrificing valuable land resources.

As an alternative to rooftop installations, floating solar is taking off in other parts of the world with floatovoltaic projects now being considered an emerging clean energy solution.

Countries pioneering the technology

Japan has been a frontrunner in floatovoltaics, given its plentiful water resources compared to limited land reserves. Ciel et Terre has designed and implemented over 40 MW of floating solar power across 20 plants in Japan, including the world's largest floating PV project under construction on the Yamakura Dam, with 50,904 floating solar panels.



Ciel et Terre's latest project in Isawa, Japan, 632 kWp

Similarly, the technology is making waves in countries as diverse as Australia, Brazil, China, England, India, South Korea, and the United States.

"Floating PVs will be the new driving force to a cleaner Earth," says Bernard Prouvost, Founder and Chairman of Ciel et Terre International. "Hydrelio is the most efficient alternative means of providing renewable energy to the millions while never disrupting the natural aesthetic environment it is placed in. Other countries have witnessed the great benefits; now it's time for the U.S., too."

BY [NEELANJANA GAUTAM](#) IN [BLOGS](#), [ENERGY](#)

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