

Intersolar Europe Restart 2021
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INTERSOLAR EUROPE TREND PAPER: FLOATING PHOTOVOLTAICS

Munich/Pforzheim, July 13, 2021: Floating PV systems are gaining momentum. They are often referred to as the third pillar of the global solar market. Local potentials are currently being investigated in more than a third of all countries worldwide, and it is estimated that almost 400 systems with a total capacity of around 3 gigawatts (GW) are already in operation in more than 40 countries. Experts expect annual global growth of more than 20 percent over the next five years, with two-thirds of this coming from markets such as China, India, South Korea, Taiwan, Thailand, and Vietnam.

However, for about three years now floating PV systems have also been increasingly implemented in Europe. In view of the enormous potential, this is not surprising; Dutch researchers were able to identify, for example, 25 GW on inland waterways and 45 GW on the sea. The Fraunhofer Institute for Solar Energy Systems in Freiburg recently found that there is a technical potential of up to 56 GW on German open-cast lignite lakes alone.

Despite this impressive potential, the construction of such plants in Germany, for example, is still very hesitant. On the one hand, there is often a lack of experience, on the other hand, this is mainly due to the general conditions: Water bodies place special demands on design, materials, system components, operational management and environmental compatibility. The latter, i.e. long-term, ecological compatibility, is a basic prerequisite for the approvability of floating solar systems in many European markets.

Floating PV plants gain attractiveness and political acceptance

In the future, however, the commitment of European industry to this still manageable niche is expected to change significantly. The main driver will be the avoidance of land use conflicts with agriculture, which increasingly sees large ground-mounted systems as a threat to their already dwindling agricultural land. In this context, it is worth mentioning that floating PV plants allow more megawatts (MW) per hectare than on land due to their system design options. The Netherlands, for example, has had a first project built that makes the most efficient use of the space between a highway interchange. Furthermore, although dependent on the location, the natural cooling effect of the water increases the yield performance of floating solar plants by several percent and thus their economic efficiency. Furthermore, no less important in view of intensifying climate change, the reduction in water evaporation causally generated by such systems makes an important contribution to climate protection.

In terms of business models, two trends are currently emerging: On the one hand, conventional standing waters such as quarry lakes are being used. Here, the electricity generated is used directly to extract gravel and process it locally. On the other hand, reservoirs are also being increasingly used. The seasonal low water level only allows a lower power generation, this can be partly compensated by the floating solar system. Furthermore, by sharing the already existing electrical infrastructure of the reservoir, the CAPEX, i.e., capital expenditures, of floating solar systems are reduced and thus become more attractive as an investment in itself. To stimulate the German market, next April there will be so-called innovation tenders also for floating solar plants. A total of 50 MW is up for disposal with a permissible plant size of up to 2 MW each.

Floating PV "Made in Europe"

Companies and national research institutes all over Europe are increasingly turning their attention to floating solar systems, which have so far been used almost exclusively on inland waterways. To counteract the deficit of concrete project experiences and to support the still relatively slow development, several EU projects such as FRESHER or DESTINY have been initiated in the past two years. In parallel, there are so-called industry cluster projects, such as the "Marine Floating Solar Technology Innovation Project" in Belgium or the "Joint Industry Project" managed by DNV, which recently published a 150-page action guide. In Germany, the three-year PV2Float research project was recently launched under the joint auspices of Fraunhofer ISE, RWE and BTU Cottbus-Senftenberg. In addition to concrete projects, there are parallel efforts to advance the necessary standardization. In this context, modules, junction boxes, connectors and cables are currently the focus of these efforts.

Maritime / Off-Shore Floating PV - Off to new shores

However, Europe-wide efforts in the area of floating solar plants are not limited to standing inland waters. Numerous companies, especially in the Netherlands and Norway, which have been active in the off-shore sector for decades, are currently implementing the first pilot projects of floating solar plants in the vast open sea. In this context, researchers from the University of Utrecht have recently calculated in a computer-aided simulation that solar modules on the sea achieve on average up to 13 percent and in some months even up to 18 percent higher yields compared to ground-mounted systems on land. One approach to how offshore solar arrays could be used in the future is currently being researched in a pilot project within the „Flemish Blue Cluster“. Specifically, it is being investigated to what extent offshore solar plants can be combined with offshore wind farms. The trick is that the available space between the wind turbines and the existing grid infrastructure is to be used by floating solar plants, which increases the efficiency of land use and yield performance proportionally.

Floating PV at Intersolar Europe Restart 2021 and the accompanying trade conference

This year, Intersolar Europe will take place from October 6 to 8 as Intersolar Europe Restart 2021 at Messe München as part of The smarter E Europe Restart 2021. As a driving force for the industry, Intersolar Europe Restart 2021 will be dedicated to the dynamic field of floating solar photovoltaics in the halls of Messe München.

Exhibitor Intersolar Europe Restart 2021:

- BayWa r.e. AG
- Fraunhofer Institut für Solare Energiesysteme ISE
- Sungrow Power Supply Co., Ltd.
- Zimmermann PV-Stahlbau GmbH & Co. KG

Intersolar Europe Conference – Floating Solar Farms:

- ["Global Trends and Prospects"](#)
- ["Technical Aspects Above and Below the Surface"](#)
- ["Near-Shore/Maritime and Off-Shore Developments – A Glimpse into the Future"](#)

Weitere Informationen finden Sie im Internet unter:

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