Mooring Floating PV systems - FAQ

One of the most commonly overlooked and under evaluated component of a floating PV system is the anchoring, or mooring, system. Have you ever asked yourself the following questions? If not, maybe you should!

Q: Are ropes and cables really enough to keep the array stationary? What about during storms?

A: In some cases, yes. When placed in bodies of water with relatively low water level variation and wind, the use of ropes or cables can sometimes be appropriate. In those cases, what must be considered is the life span of the material that is being used to ensure that you don't end up with a mooring system that needs to be replaced within a few years of operation.

In storm prone areas however, strong winds can cause an uneven distribution of force on certain points of the array. If the system is attached with just ropes and cables, there is not enough dampening of these forces; which can lead to broken attachment points on the floats. This creates a chain reaction that can overturn entire lines of floats and damage the solar panels.

Q: Why can't ropes and cables sufficiently handle moderate to high water level variation?

A: Ropes and cables are not elastic. If they elongate, they will never return to their original length. As a result, there will be slack in the line, and slack lines are dangerous in a mooring system since the application can start moving horizontally. In order to handle significant water level variation, the mooring lines must be able to both increase and decrease in length depending on the position of the floats. Non-elastic components such as ropes and cables cannot do this.

Q: Should I assume that a "turn-key provider" for floating PV systems will provide the best mooring solution?

A: Certain turn-key providers have partnered with Seaflex, the world-leading provider of elastic mooring systems. These providers can therefore provide highly technological mooring products as part of their turn-key proposals. Unfortunately, other providers often have standardized mooring solutions and only offer the most low-cost, low-tech options. Therefore, it is important to know

what type of questions to ask to ensure that you secure your array in a way that will hold and last.

Q: As a floating PV system customer, what questions should I ask about the mooring system?

A: It depends entirely on where you are building an FPV system, and what the potential risks are. But in general, the following questions should always be asked:

- Will it be secured with an elastic mooring system?
- What is the life span of the components used?
- How does this system handle natural or man-made water level variations as well as storm winds?
- What level of maintenance is needed to keep the system working properly?
- Does the system have a warranty?

Ultimately, it is crucial not to overlook the anchoring component when designing a floating PV system. Investments in solar panels and floats are often quite large, which means that it is very important to properly secure and protect these components against harsh environmental conditions. FPV industry leaders understand the importance of this and will use Seaflex instead of ropes and cables.

At Seaflex we have supplied customized, site-specific mooring systems designed by our in-house engineers to locations all around the world since 1987. Floating solar systems secured with Seaflex have survived hurricane-strength winds, and we have documented references dimensioned for 35-meter water level variations and 90-meter depths. We have the products, knowledge, and experience to securely moor your application.

If you have questions about how to properly moor a floating solar application, please do not hesitate to contact your Seaflex sales representative or by sending an email to FPVmooring@seaflex.net.

For information on Seaflex products, services, and references, please visit www.seaflex.net