

# PIONEERS IN FLOATING SOLAR SYSTEMS SINCE 2008



## **Our Mission**

To **preserve the world** by using existing water bodies in our planet to generate renewable **solar energy** in a more efficient way, while at the same time **protecting** scarce **water** and precious **land**.





# MORE THAN JUST A TREND....

### FLOATING SOLAR SYSTEMS A GREAT OPPORTUNITY 10 YEARS OF CONSTANT EVOLUTION

# FIRST INSTALLATION AGOST, SPAIN 2009





# What is a floating Solar power plant?





# Schematic representation of a typical large-scale floating PV



Source: Solar Energy Research Institute of Singapore (SERIS) at the National University of Singapore (NUS).



# ENVIRONMENTAL BENEFITS

### **Environmental benefits**





- Increases ~10-15% photovoltaic power performance compared to fixed ground solar systems thanks to cooling effect
- Produces renewable energy linked to closer power consumption
- Reduces water evaporation by ~80% as the system acts as a protective ceiling of the water
- Improves water quality, therefore reducing infrastructure maintenance costs (algae and microorganisms maintenance)
- Preserves land for agriculture, livestock or forestry. No need to use fertile soil to install a regular power plant
- Reduces visual impact and takes advantage of non productive areas like water reservoirs.

https://youtu.be/Meu-INAMDfE



## Irrigation water reservoir-raft compatibility



- The system is compatible with the particular geometry of any reservoir
- Rafts adapt to the changes of water level, even when it is emptied.
- Possible to install on the slopes of the irrigation reservoir
- Anchors can be fixed on every side of the raft with no need for underwater anchors.
- The lining system of the reservoir is protected from solar radiation while the HDPE material and rounded corners of the raft prevent any damage to the cover sheet.







## **Key components of Isifloating 4.0**

PHOTOVOLTAIC PANEL (NOT INCLUDED) Power range: 250-400 W p 60-72 power cells

Length: 1.650 - 2000 mm Width: 980 - 1046 mm

#### MAINTENANCE PLATFORM

Same modular float covered with plastic top HDPE Material Non slipping surface

FLOATS CONNECTION

PIN Connection (PAL + fiber

M aterial HD PE

reinforced)

#### MODULAR FLOAT

Injection plastic manufacturing Blue HD PE Material UV Stabilized + antioxidant Inclination 5° Size: LLLOx935x370 mm Buoyancy: 2.4 kN (240kg) per each PV module Max wind speed: LB0 km/h

QUICK CLIP FIXING

M aterial ALUMINUM 6063 T6 Universal Fasteners AISI 306

# isifloating

# Key ratios of a standard 1 MW plant with 350w solar panels in Spain

Dimension	Value		
Number of panels	2.858		
Water area needed (mts2)	7.294		
Number of floats	5.716		
Manufacturing time (days)	5,0		
Number of 40' containers	7		
Installation time (days)	16,7		
Cleaning time (days)	3,8		
Water saved (m3/year)	8.752,8		
CO2 savings ( kg CO2/year)	580.870		
Number of homes powered in a year	500		



# Installation process (https://youtu.be/s3YFUPcqE9Y)





# Cleaning and maintenance process (https://youtu.be/0pYtpzDVITQ)





# PROJECTS ACROSS DIFFERENT INDUSTRIES FOR THE COMMON GOOD



# **Connected to grid C.R. Virgen de la Paz (Agost)**



#### ENERGY PRODUCTION FOR SALE CONNECTED TO THE GRID

	SITE	Irrigation water reservoir		
Ŷ	LOCATION	Agost Alicante Spain		
	APPLICATION	Sale of energy- Financed by Caja Rural		
4	PEAK POWER	320 K w		
$\bigotimes$	FLOATS	760 units		
	YEAR	2009		



![](_page_15_Picture_5.jpeg)

# Direct solar pumping. C.R. Lorca

MODERNIZATION OF IRRIGATION SYSTEM. ISOLATED PHOTOVOLTAIC GENERATOR SYSTEM FOR WATER SUPPLY PUMPING STATION

	SITE	Irrigation water reservoir		
Ŷ	LOCATION	Huerto Chico. La Hoya. Murcia. Spain		
	APPLICATION	Solar pum ping		
4	PEAK POWER	400 Kw		
	FLOATS	3080 units		
	YEAR	2076		

![](_page_16_Picture_3.jpeg)

![](_page_16_Picture_4.jpeg)

![](_page_16_Picture_5.jpeg)

# Self consumption pumping (PPA). Winery Concha y Toro. Chile

PHOTOVOLTAIC GENERATOR SYSTEM FOR WATER SUPPLY PUMPING STATION

![](_page_17_Picture_3.jpeg)

![](_page_17_Picture_4.jpeg)

![](_page_17_Picture_5.jpeg)

## Direct solar pumping. C.R. Mérida

IRRIGATION SYSTEM. ISOLATED PHOTOVOLTAIC GENERATOR SYSTEM FOR WATER SUPPLY PUMPING STATION

![](_page_18_Picture_2.jpeg)

![](_page_18_Picture_3.jpeg)

![](_page_18_Picture_4.jpeg)

![](_page_18_Picture_5.jpeg)

# Industries that could benefit from Isifloating solar technology

Industry	ll hy is floating solar good for the industry?	preservation needs	needs	Size
Energy	Hydroelectric systems with close access to electric grid lowering costs and possibility to com plem ent current production			
Mining	Use of tailing dams to generate energy to power pump systems, heavy machinery, or electric vehicles			
A griculture	W ater pumping and preservation of water for irrigation purposes preserving land for agriculture or leasing the water			
Fish Farming	bodies			
Wineries	Energy generation far from electric grid taking advantage of water			
W ater m anagem ent	ld ater pumping and preservation of water for irrigation purposes preserving land for wines			
Solar Developers	W ater preservation as it is m ain asset while generating renewable energy			
isifloating	W ater replaces land and less competition to lease water. Alson many times close to the water exits available capacity to	)		

connect to the grid

# **Frequently asked questions**

### Question

- L. C an the floats dam age the lining system ?
- 2. Do the anchors affect or dam age the slopes?
- 3. Does the system interfere with the work and/or infrastructure of the water reservoir?
- 4. Does it affect the cleaning of the reservoir (W hen is it done)?
- 5. Can the system be removed?

![](_page_20_Picture_7.jpeg)

#### Answer

- No. The floats are made of HDPE and have rounded corners. It can stay directly over the lining system (on the bottom and on the slopes) with no danger of scratching it, neither during the installation nor during the operation of the system.
- No. We use on shore anchors with very low horizontal charge since the panel is only at 5 degrees of inclination.
- No. The design of the system avoids the need to enter or exit the water or the use of additional parts. There is a single access point for easy control and transit.
- When only part of the reservoir is covered by the system cleaning can be made in a two step process by moving the raft to the unoccupied side. In case the whole reservoir is covered cleaning robots can be used. In cases where there is large mud accumulation the installation of the system is not recommended.
- Very similar to the installation process, in case part of the system must be removed each panel and raft can be uninstalled one by one.

# **Contact us**

www.isigenere.com

![](_page_21_Picture_2.jpeg)

isifloating@isigenere.com

C/ Chapaprieta Nave 5. P.ILa Casilla 03460 - Beneixama (Alicante)

![](_page_21_Picture_5.jpeg)

<u>www.linkedin.com/company/isigenere/</u>

![](_page_21_Picture_7.jpeg)

**isifloating** FLOATING SOLAR SYSTEM

www.youtube.com/user/ISIGENERE

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