



SANDROVE

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**DESIGN ENGINEERING MANUFACTURING INSTALLATION
MAINTENANCE**

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SANDROVE

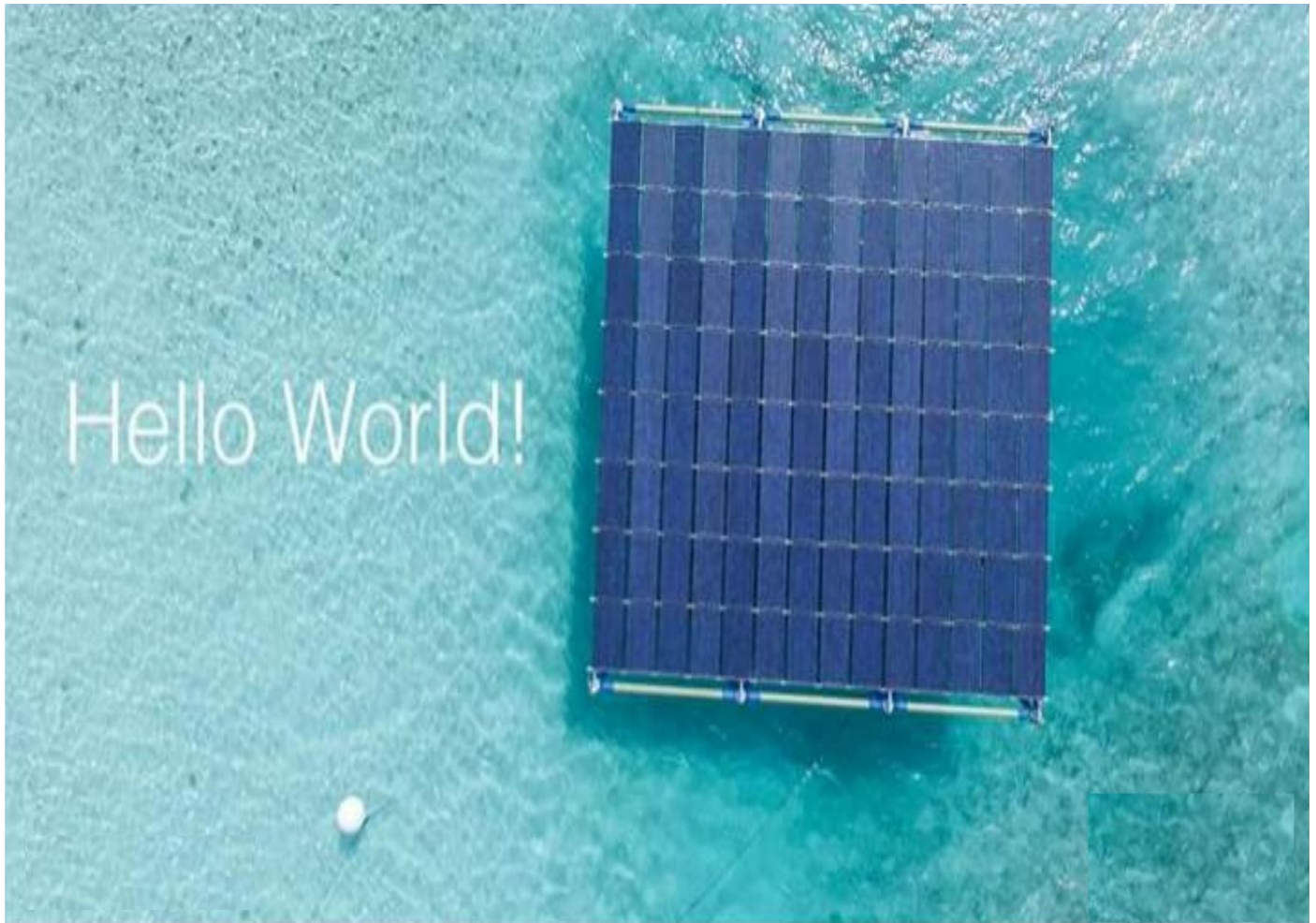
**RENEWABLE ENERGY (SOLAR) DIVISION
PROFILE**



The European Way to Green Energy in Sub-Saharan Africa



Did you know that shortage of land prevents some island nations, coastal cities, and riverine communities from meeting their energy demand with solar power? Sandrove has a solution – world's first solar system at sea:



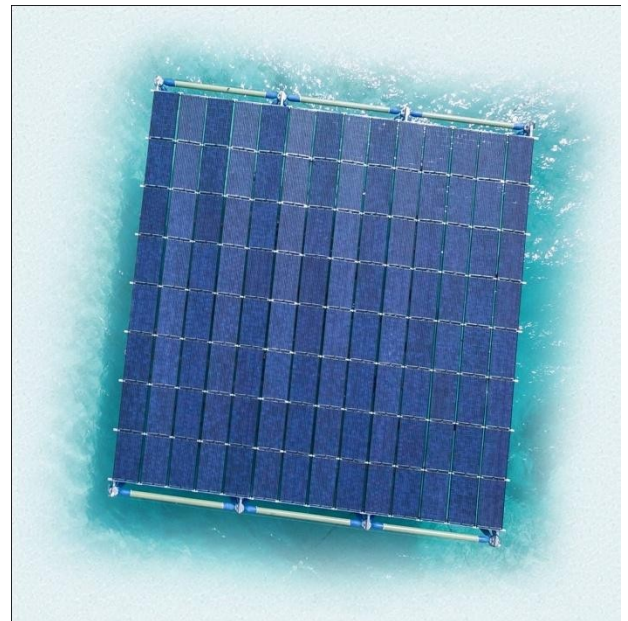


In 2014, Sandrove in collaboration with our foreign partners launched the world's first floating solar solution for the sea. Sandrove Lagoon is a commercial renewable energy product that creates space for solar panels on the sea surface. Learn about the features below. Contact us for a floating solar system that suits your needs.

“We wanted to bring solar energy to places where there is no space on land for the panels. So we put them on the seawater”.

Patent-Pending Floating Solar Structure

The development of the unique floating solar platform took more than four years of computer simulations, tests, and trials with the help of Vienna University of Technology. The platform can survive waves of tropical shallow water lagoons, as well as the currents, tides, extreme UV, humidity and is corrosion-proof.



MARINE GRADE SOLAR SOLUTIONS

ROOFTOP SYSTEMS & COMPLETE SERVICE

Sandrove Lagoon consists of separate floating platforms of 196m² that can be arranged in a system of any required size. Each platform is equipped with 25 kW of marine grade solar panels.



Small islands nations and riverine communities in the tropics of Sub-Saharan Africa often do not have enough space on land for solar panels.

This limits clean energy production. Our marine solar power utilizes the surface of the sea to unleash the potential of solar energy in the tropical regions of the world.



5-10% Higher Production Than Rooftop Equivalent

The solar panels on floating solar platforms give a 5-10% higher output than rooftop systems in the same geographical region. This is due to the cooling effect of water and additional light reflections from the water surface.

Performance For 30 Years

Working with electronics in the tropical marine environment is a challenge. We, therefore, searched for high-quality components, subjected them to stress testing and selected only the best for our systems. We use heavy-duty, high-performance panels developed specifically for tropical marine regions, and our systems have a lifetime of around 30 years.

Integration Into Diesel Power Grids and Complete Service

We work with our clients every step of the way; Sandrove assembles, installs, performs grid integration, monitoring and maintenance of systems. To guarantee grid stability we analyse the existing electrical grid and design hybrid diesel-solar systems accordingly. Correctly sized hybrid systems account for diesel generator efficiency, and can generate extra savings by allowing generator shut down during the sunny hours of the day.





Seaside Rooftop: Corrosion Proof Solar Systems

Harsh tropical climate can damage conventional solar panels and shorten their lifetime substantially. We use specially sealed panels and materials to ensure system longevity. Our rooftop systems are available separately or in combination with Sandrove Lagoon. For more information, please contact us.





The size of this particular floating solar platform is 15 x 15 meters. Solar farms do require a relatively large unshaded area for substantial power production. In small island countries and riverine communities like the Niger Delta Region of Nigeria, the land is often too precious to be used for large solar farms, however, the sandy lagoons can provide more than enough space for the solar panels. This is where out floating solar power plant becomes useful.



27th of May, 2015 was the day when we plugged in our second floating power plant into the power grid of Gili Lankafushi: World's Best Hotel in 2015 (TripAdvisor). This luxurious resort in the Maldives is also famous for its environmental projects, and we are pleased that they have put their trust in our technology!

The platform took us just over a week to install. No heavy machinery was involved – just the assembly team, a few divers and a whaler boat.



The power produced by Sandrove solar power plant is transferred to the island via an underwater cable that is buried in the sand. On the island's power grid. In the attached picture above we have pointed out the area where the cable is (red).

Sandrove power plants float on the surface of the sea, so they move slightly in response to the waves. They are however moored to the seabed with a special anchoring system so that the movement is limited and the solar platforms do not float away.

The purpose of sea walls is to absorb the full force of the waves. Unlike seawalls, Sandrove Lagoon technology does not absorb the full forces of the waves. Instead, our platform allows the waves to pass through, minimizing the force transfer to the structure and extending its lifespan. So far, in our extensive stress testing, the floating platforms withstand waves up to 2 meters. We are also in the process of developing a new product with higher wave tolerance.

Our Services

Financing & Savings

We offer a financing option where Sandrove installs & operates a solar system at client's premises and sells solar electricity to the client. In tropical islands, solar power is cheaper than diesel power, generating savings.

Installation

System components are pre-assembled by our Technical Partners in Austria. Our team members also install the systems on-site to ensure the quality of our products and a hassle-free experience for the clients.

Monitoring and Maintenance

Our equipment allows us to monitor every Sandrove system via live Internet feed. When required, we react swiftly and skilfully to any problems that arise, in order to ensure reliable system performance.

Design & Dimensioning

We design and dimension our systems on an individual basis. We first analyse the existing electrical grid and then design a solar system accordingly, to guarantee grid stability and maximum efficiency.

Grid Integration

We integrate solar power into your existing power grid with a hybrid solution. This is particularly beneficial to diesel generator users – during the sunny hours generator(s) can be switched off, saving diesel.

Permits

Where applicable we are happy to guide and support our clients with any necessary permits and paperwork required for installation of our products.

1kW_p – Seaside Rooftop,
Baa Atoll, Maldives

Nominal Capacity: 1kW_p

Project Launch Year: 2016

Location: Maldives

Type: Seaside rooftop

Grid setup: Off-grid

Battery Storage: 6kWh



This small off-grid solar system was installed on a tiny private island, and can supply both 12V DC as well as 230V AC appliances. The system provides clean electricity to the two workers who live and take care of this island.

**3 kW_p –
Measurement
Platform, Baa
Atoll,**

Maldives

Nominal Capacity: 3kW_p

Project Launch Year: 2014

Location: Maldives

Type: Floating/temporary
structure

Grid setup: None. Only
for measurements.

Battery Storage: None



This is a test platform that was assembled to carry out specific tests with solar panels. It was a temporary structure; therefore it did not feature our patent-pending floating technology, rather a wooden frame was used.

On this platform, a variety of solar panels was exposed to the elements and treated with different maintenance regimes. The performance of the floating solar panels with different maintenance regimes was then compared to the performance of an analogous rooftop system located on the same island.

The resulting data from this project allowed us to select the best solar panels for our floating systems, and we have also found that overall, the panels perform up to 10% better on the water than on the roof, due to the cooling effect of the sea.

**96kW_p – Sandrove Lagoon,
Baa Atoll, Maldives**

Nominal Capacity: 96kW_p
Project Launch Year: 2016
Location: Maldives



This modular marine-grade solar photovoltaics plant is our most recent installation in the Maldives. *More information is coming soon...*



2.8kW_p – Seaside Rooftop,
Addu High School, Maldives

Nominal Capacity: **2.8kW_p**
Project Launch Year: **2014**

Location: **Maldives**

Type: **Seaside rooftop**

Grid setup: **Grid-connected**

Battery Storage: **None**

Funded by UNDP/GEF Small Grants Programme, this is a demonstration solar system project, which was initiated by Addu High School in partnership with a local NGO “Veshi”. Our foreign technical partners installed this corrosion-resistant, heavy-duty system. During the installation work our foreign technical partners team engaged the school pupils in the process through several workshops on solar technology.



People often worry about the visual [#impact](#) of large-scale floating solar power parks. At a distance of 1km a 1.2MW [#Sandrove](#) [#floating](#) [#solar](#) power park would look like this (visualization above).

Space is one of the most precious resources of small islands. Floating solar energy systems can provide people with clean energy beyond the limitations of land.



15kW_p – Sandrove Lagoon, Baa Atoll, Maldives

Nominal Capacity: 15kW_p

Project Launch Year: 2014

Location: Maldives

Type: Floating

Grid setup: Solar-Diesel hybrid

Battery Storage: None

This is the first commercial Sandrove Lagoon platform in the Maldives, and the first marine floating solar platform in the world. The patent-pending floating technology is very stable in the waves characteristic of tropical lagoons. Moreover, the platform is very rigid which ensures the safety of the solar panels. All components of the system are corrosion proof, ensuring the 30 year lifetime of Sandrove Lagoon.

Sandrove Lagoon also has a close proximity to the water, which makes it less visually intrusive, especially when viewed from a distance.

Contact Us:

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