

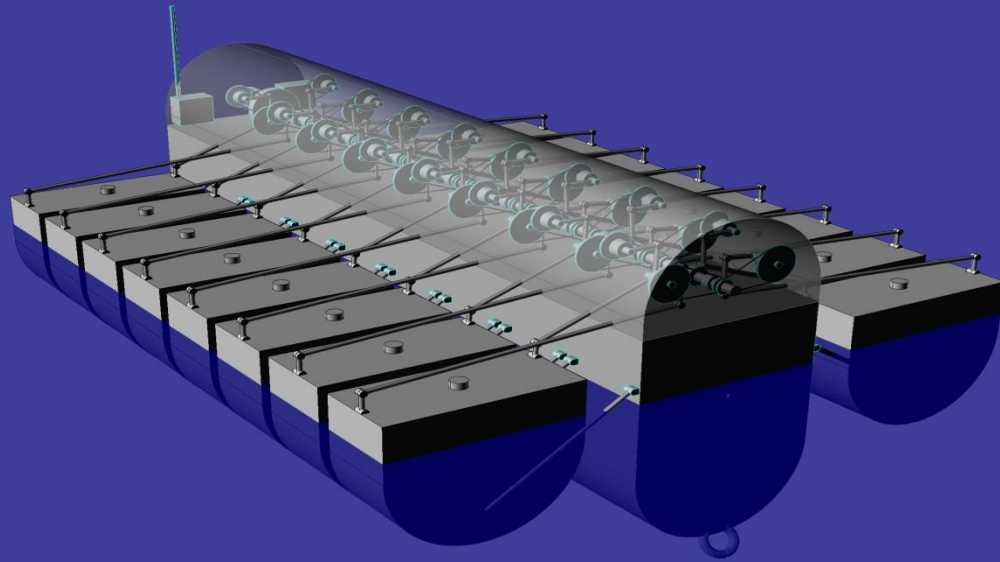
# TRIMARAN GREEN ENERGY

PHOTORIA LTD is proud to  
present you TRIMARAN  
A unique cost-effective,  
environmental friendly technology  
that generates renewable energy  
from sea waves

# DESCRIPTION

Boat with floats that converts the various forces of sea waves to smooth mechanical rotary motion producing electricity through electric generator.

# TRIMARAN GREEN ENERGY



# CHARACTERISTICS OF THE MACHINE

- It works perfectly exploiting the totally erratic behavior of sea waves and regardless of whether they are small or big (all other competitive machines claim to operate large waves)
- Exploits the roll of floats and the central board, thanks to their design and the position of the center of buoyancy, center of gravity and of metacentric.  
Also comes with special water tanks to increase the phenomenon of rolling, to maximize the torques and also to save energy beyond the allowed movements of floats due to the settings of the system.  
Is like having a group of rocking chairs that can not be left idle by the biggest to the smallest waves of the sea in whatever form is given to us.
- We can vary the speed of the machine and thus make them suitable to work with all type of generators, inverter and converter (such as the sluggish wind turbines or multiterm as common generators)

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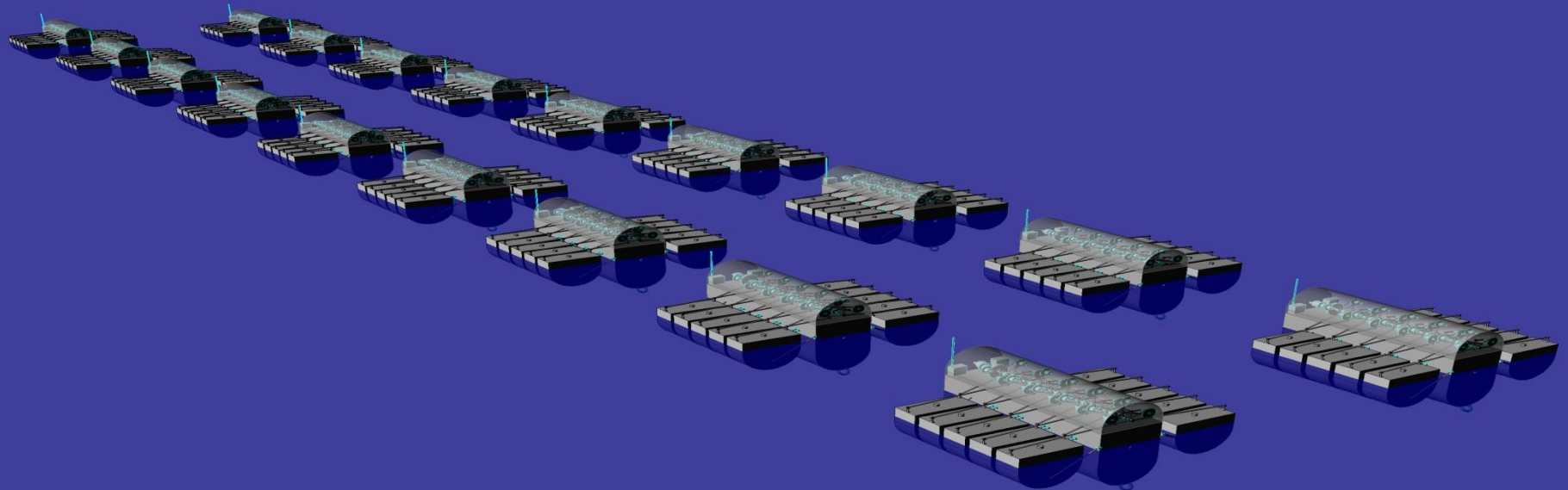
- We do not use clutches and ratchets to rotate the axle bearings, but only one way bearings and so the engine is quiet and doesn't lose degrees of rotation in every movement. In other words, is more efficient.
- The trimaran can be expanded in size. It can grow in many ways. Growing up the main vessel, the number of floats, the surface of floats and the length of the conversion movement arms in the main vessel.
- The trimaran is a simple green machine power. The construction involves simple steel constructions. Industrial materials are available commercially with excellent specifications.

# TRIMARAN GREEN ENERGY

- Because the various sections are repeated, we can easily and with little manpower create a mass-production.
- Trimaran is a machine that produces 6 moves from a wave rather than one.
- The trimaran is relatively light construction, cheap to maintain, unsinkable and electronically controlled remotely.
- Placed close to the coast resulting in a small length of wire transfer of power and thus resulting fewer losses. Moreover it is equipped with an electronic monitoring and remote alarm system for any malfunctions.
- Since last in some countries place wind turbines in the sea, the trimaran can be placed together and cooperate with them with great benefit to the producer.
- The system design is such that with the dismantling of the floats can be transported by road or by boat.

# APPLICATIONS

The trimaran may be combined with other similar and create multi-megawatt energy park



# TRIMARAN GREEN ENERGY

- Water desalination plants to meet energy needs
- Hydrogen production units
- Pumping stations and drilling platforms for air gas and oil
- Hatcheries
- Power generation in remote islands



# ENVIRONMENTAL IMPACT

It is totally ecological and produces no exhaust gases, solid, liquid or gaseous pollutants.

Doesn't create noise and is completely silent.

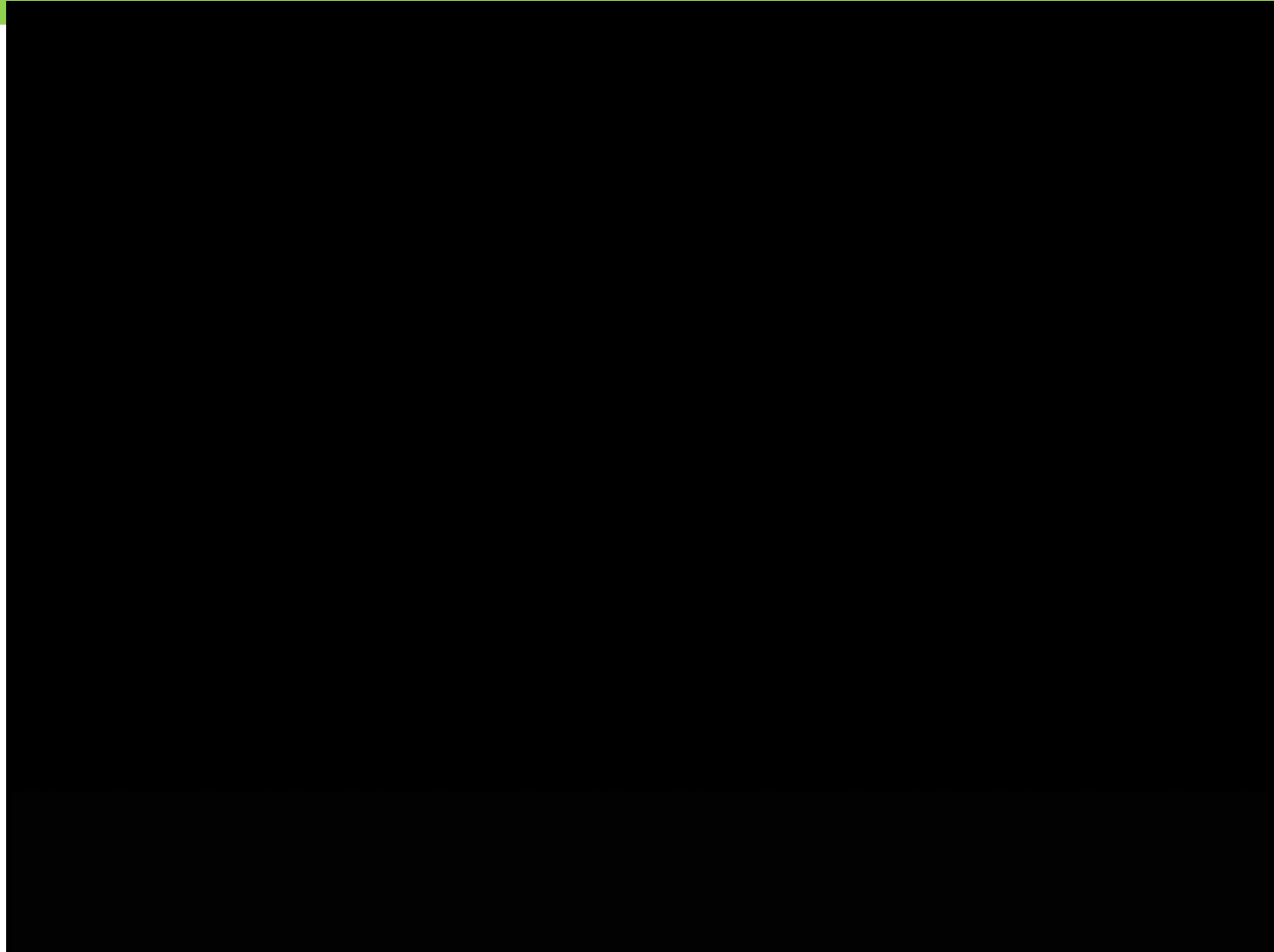
Due to low profile does not create visual pollution. Furthermore, it is an elegant structure.

Doesn't create problems in shipping and fishermen because it is placed near the coast and is fully marked

# ADVANTAGES

- The system produces ample power with minimal expense and without waste.
- Requires less production cost and installation of competitive systems (photovoltaic and wind turbines).
- Have minimal maintenance and operating costs.
- The size of unit production is variable because it can grow or shrink the main vessel, the size and number of floats or the length of the arms so that we can adapt to our needs
- We exploit an enormous source of energy that operates 24 hours a day all times.
- Place at all coastal waters and even in rivers or lakes.
- Doesn't requires land areas and given the vast coastline have better opportunities to assist in the distribution network.

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## TO WHOM IT MAY CONCERN

In order to enable any possible investor to have a good overview of the system, the main “bullet points” of a 1 MW Trimaran System are presented, as follows:

General:  Energy Source Category: 100 % Renewable Energy (RES)  Source: Sea Wave movement  Min. height of sea waves necessary: 30 cm, output adapted to local sea wave height

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- Output:  Project output = 1.000 kW = 1 MW  Production = 4.818.000 kWh  Very Profitable with high IRR % and NPV  Predictable output - since there are well known wave heights measurements all over the world  No power reduction by the time (as for example with PV)  Unlimited life, if under correct maintenance  Unlimited power source (sea waves)  No influence of environmental factors, such as temperature, humidity, dust, wind, sky clearness or even earthquakes, on the production

# TRIMARAN GREEN ENERGY

- ENVIRONMENTAL
- CO2 emissions saved =  $CD * Q = 3.131,70$  tons per year
  - o With CD for Heavy Fuel Power Plants in Europe =  $0,650$  kg CO2 per kWh produced
  - o  $Q =$  Production of Trimaran per year =  $4.818.000$  kWh
  - o Saved CO2 emissions =  $0,650 * 4.818.000$  kg CO2 =  $3.131,70$  tons CO2 per year
  - No fuel, no gases
  - No leakages in solid or liquid form, not sinkable, no water pollution
  - No noise
  - No negative influence on sea life
  - No land necessary, especially important for

# TRIMARAN GREEN ENERGY

- DESIGN & PRODUCTION  Easy to transport or to move from one place to another  Easy to install  Easily expandable just connecting units together  Easy and environmental friendly manufacturing, only assembling moving and non-moving, ready-made, parts  Can be installed and operated either close to the sea shore or far away, in the open sea.

# Operation

- In the event of large waves – over 10 meters, the system automatically entering to a lock up mode – halting operation to terminate power generation temporarily. When sea waves height return back to normal level (<10 meters) the system unlock and continues its operation normally.



# TRIMARAN GREEN ENERGY

- You can have a lifetime guarantee for the mechanism (electronic and mechanical equipment, without the need for employees or additional expenses) with only 120,000 euros per year per MW, by giving the services to the PHOTORIA LTG group of Companies

# CONTACT

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