

PowerBuoy

PowerBuoy is a power station for generating electrical energy from wave power. It is a point absorber or buoy, currently in-use or in-planning at 9 locations around the world, but primarily within Australia and the United States.^[1]

It generates power using a hydroelectric turbine. PowerBuoys®, can be connected to the electrical grid by power transmission cables or can operate autonomously in a deep water environment. PowerBuoys are manufactured by Ocean Power Technologies (OPT) in Pennington, New Jersey.

The rising and falling of the waves offshore causes the buoy to move freely up and down. The resultant mechanical stroking drives an electrical generator. The generated wave power is transmitted ashore via an underwater power cable.

An OPT power station benefits from a deep water emplacement and has a very low "surface profile", meaning it is barely visible from shore. They also have a small horizontal footprint and have been designed to be scalable. As such, they are ideal for wave farms.

OPT power stations have been designed for extreme wave conditions. Sensors on the PowerBuoy continuously monitor the performance of the various subsystems and surrounding ocean environment. Data is transmitted to shore in real time. In the event of very large oncoming waves, the system automatically locks up and ceases power production. When the wave heights return to normal, the system unlocks and recommences energy conversion and transmission of the electrical power ashore.



PB150 PowerBuoy with peak-rated power output of 150 kW.

Development

- Autonomous Power Systems^[2]
- Utility Scale Power Systems^[3]
- Mark 3 PowerBuoy^[4]
- Mark 4 PowerBuoy - The PowerTower^[5]

References

- [1] (<http://www.nytimes.com/2012/09/04/us/project-aims-to-harness-wave-energy-off-the-oregon-coast.html>) New York Times September 4, 2012
- [2] Autonomous Power Systems (<http://www.oceanpowertechnologies.com/power.html>)
- [3] Utility Scale Power System (<http://www.oceanpowertechnologies.com/products.html>)
- [4] 866kw per unit peak rated Power System (<http://www.oceanpowertechnologies.com/mark3.html>)
- [5] 2.4mw per unit peak rated Power System - The PowerTower (<http://www.oceanpowertechnologies.com/mark4.html>)

External links

- Official website (<http://www.oceanpowertechnologies.com/index.html>)

Article Sources and Contributors

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