

Wave-Powered Electricity Generation Device

**Technology
Description:**

The wave energy conversion system captures wave motion using a buoy and rope/cord, translating it to rotational movement through a guide system. A torsion spring stores and releases energy during wave cycles, ensuring a constant power source. The system offers customizable depth placement, accommodating specific energy needs. Vertically integrated small generators provide scalability and redundancy without increasing mass. Power splitting gearboxes, one-directional clutches, and a flywheel optimize power conversion efficiency. Energy is stored in batteries and can be used to charge devices. This technology brings benefits such as cost savings, modularity, and environmentally friendly power generation.

Inventors:

Gregory Browne, Christopher Meninno, William Michaud, Nicholas White, Daniel MacDonald, Mehdi Raessi

Applications:

- Environmental Monitoring Networks.
- Marine Research and Exploration.
- Aquaculture and Mariculture Facilities.

Benefits:

- **Efficient Power Conversion:** The technology incorporates power splitting gearboxes, one-directional clutches, and a flywheel to optimize power conversion efficiency. These features smooth the motion of the generators, improve torque transmission, and enhance the overall performance of the system.
- **Customizable Depth Placement:** Unlike conventional spar systems, this technology allows for easy customization of the device's penetration depth. By adjusting the length of the ropes/tethers, the system can be positioned near the surface for surface energy capture or deeper for specific applications such as docking underwater vehicles or minimizing the need for long-distance travel.
- **Cost Savings:** The innovative wave energy conversion system offers cost savings compared to traditional point absorber technologies. By using a rope/tether instead of heavy spars, deployment costs are reduced as specialized crane vessels are not necessary.

Patent Status:

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Wave energy converter

**For more
information:**

Catherine L. Ives, Ph.D.
Office of Technology Commercialization and Ventures
University of Massachusetts Dartmouth
cives@umassd.edu