USE OF WAVE ENERGY TO OBTAIN KINETIC ENERGY

Nenad STANISAVLJEVIĆ, Aleksandar SAVIĆ
Institut of Transportation CIP, Nemanjina 6/IV, 11000 Belgrade, Serbia
University of Belgrade, Faculty of Civil Engineering, Bulevar Kralja Aleksandra 73, 11000 Belgrade, Serbia

Advantages of wave energy

1. Zero emissions

Inherently, wave energy does not emit greenhouse gasses when generated, like fossil fuels do.

2. Renewable

Like all alternative energy sources, wave power is renewable.

3. Enormous energy potential

The amount of kinetic energy that is exerted in a wave is huge - that energy then gets captured by wave energy converters to produce electricity.

4. Reliable energy source

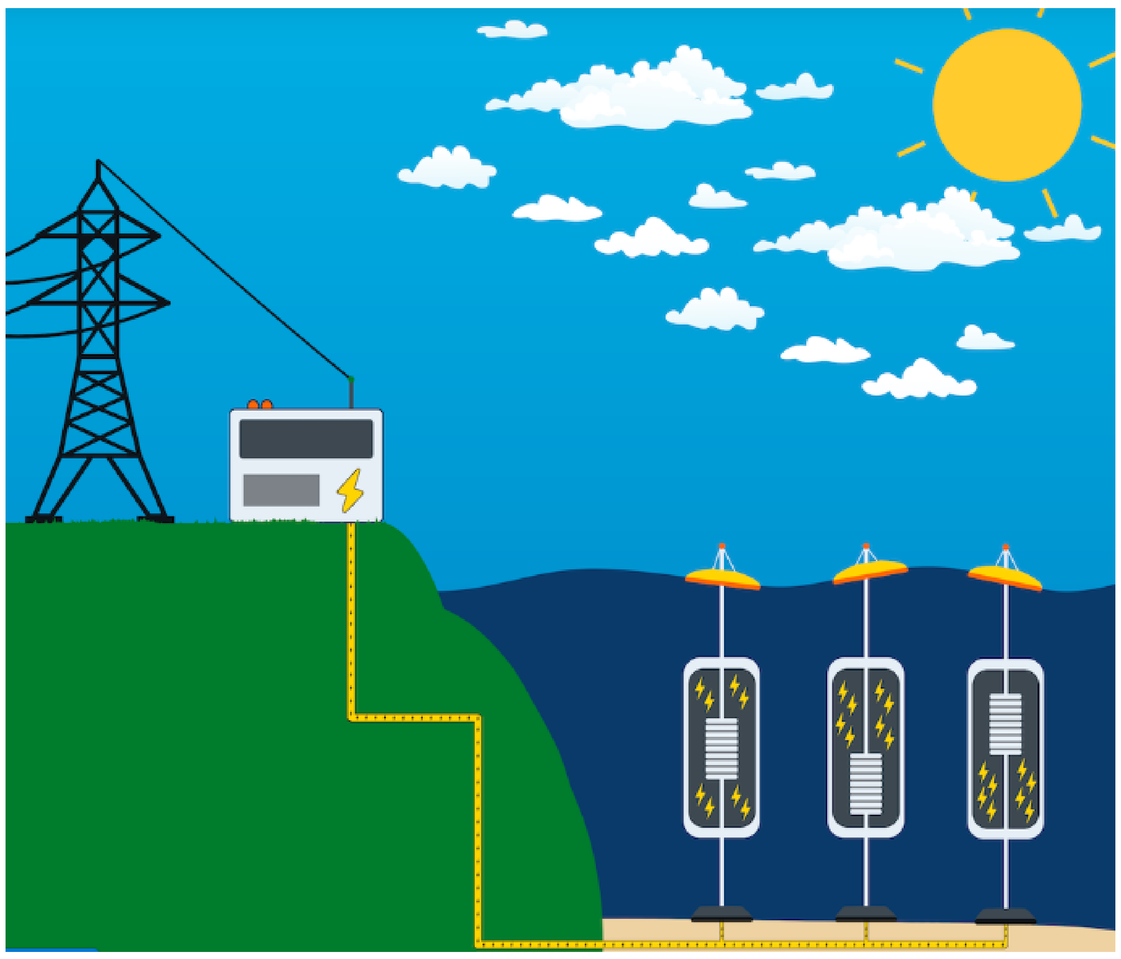
Waves are hardly interrupted and almost always in motion. This makes electricity generation from wave energy a more reliable energy source compared to wind power, since wind is not constantly blowing.

The future of wave energy

For many ocean-bordering countries, wave energy could be a great addition to the renewable energy mix.

Waves would provide 24/7 energy that could be harnessed for clean electricity generation. Because wave energy is still in its early stages, it remains expensive to install and the potential environmental disadvantages are not yet fully known.

The bottom line is that wave power has enormous global potential. However, the industry needs more funding and research to finalize the technology involved so that countries and utilities can begin adding wave energy to their renewable energy arsenal.



Materials and technology of the concrete energy wave concept with respect to the energy efficiency

We should use alternative materials that have less impact on the environment. Those alternatives may already exist. Among them is a material called ECOncrete, developed as environmentally friendly concrete. It is made using a mixture that is almost entirely made from by-products and recycled materials, meaning that no carbon is released to produce this material. This mixture is combined with slag (about 70%) which gives this material a high chloride resistance which is suitable when used in saline environments.

Unlike traditional concrete, which is highly alkaline, bio-block concrete has a pH value close to that of seawater, which helps promote the growth of marine species such as crabs, molluscs, clams, mussels and oysters. A relatively neutral pH value of bio-blocks is achieved if portland cement is replaced by slag.

"The pH level of seawater is about 8, which is suitable for the development of marine organisms," says Leung. "However, classic concrete has a pH of 12-13, which is not favorable for the colonization of marine life. Therefore, environmentally acceptable materials for installation in seas and oceans must have a pH value of 9 to 10."