

Assignment

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Unit Question Ocean Power Technologies (OPT) is one of the American power companies aiming at harvesting the Ocean's power. It was faced with financial constraints at the Oregon coastline which greatly steered it to deploy its machine. According to Ms Batten, the OPT failure at Oregon was because they relied on the first generation technology which was rendered older at the time.

Question 2

From the video clip, we learn that the world has had deficiency of enough energy supply and perhaps the idea of ocean power (Racks and Rake wheel) could be a solution. The concept here is that fluid current converters can be used to tap inexhaustible kinetic energy by use of fundamental mechanical rack and wheel device. The energy can entirely be derived from the ocean and wind currents to produce electricity. The whole idea here is prudent as it can save the non-renewable energy into extinction.

Question 3

Reactive loading control is an optimal control approach entailing the adjustment of the primary converter dynamic parameters to ensure that all frequencies absorb maximum energy. These primary converters includes, inertia, the spring constant and the energy absorbing damping. Optimal power absorption dictates that the rate of kinetic energy radiated from the device be equal to the energy absorption rate and the primary converter feels no reactive force in such a scenario (Drew, Plummer and Sahinkaya). This control is important in widening of the wave energy converter (WEC) efficiency range on each side of the resonant range. On either side of the resonant frequency the spring of the device goes into a deflection caused by the wave force, or the overall frequency is reduced by accelerating the

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inertia. Reactive loading control also cancels some of the undesirable inertia or stiffness by introducing a phase shift into the power-take-off (PTO) force (Drew, Plummer and Sahinkaya).

Works Cited

Drew, B, A R Plummer and M N Sahinkaya. A review of wave energy converter technology. Academic. Bath: University of Bath Press, 2009. Print.