

1. A billionaire wants to open a hotel on Lake Balaton that is 100% self-sustainable. You have been given €25 Million to spend on renewable energy. What would you spend it on and why?
2. A wave energy company has a device, which extracts energy using the heaving motion of a floating buoy, that is cylindrical in shape. The company has been granted a permit in a location where the wave climate is dominated by waves with a 10 second period (i.e. 0.1Hz peak frequency). How would you decide what the radius and draught of the cylindrical buoy should be? Give values for the radius and draught.
3. You have designed a floating WEC. Propose a control system (using diagrams to illustrate your idea), which could increase the WEC's chances of survival in an extreme storm.
4. Propose, a collocation of multiple MRE devices (using diagrams to illustrate your idea), and list the cost benefits/savings of your idea.
5. List the different renewable energy resources in the marine environment and rank them in terms of their average energy density.
6. Describe 3 different examples where multiple sources of marine renewable energy can work together in co-location.
7. List the types of marine renewable energies that are derived from the Sun, and briefly explain how the Sun creates these.
8. The power in fluid flow is:  $P=\rho Av^3$ .  
For which types of marine renewable energy systems is this equation relevant and why?  
Discuss the implications of each term in this equation on those marine renewable systems.