

Written evidence submitted by George Busby (CGE0072)

Wave power

Wave power could be a major contributor to meeting our clean growth emissions reduction targets. It does not produce any pollutants and can bring significant environmental benefits.

The most effective way to capture and store wave energy is by building reservoirs with one way openings in their sides at sea. Waves force water through the openings to raise the water level in the reservoir. The resulting head of water above sea level can be used to generate electricity using low head turbines.

The reservoirs can be supported by piles in shallow water or by floats in deep water. If an extra layer with one-way openings was added to the sides of ships pressurised water could be captured and directed to propel the ship forwards or generate electricity. There is massive potential ship fuel savings by utilising wave energy.

The reservoirs convert the kinetic energy of waves into stored potential energy. Electricity output is smoothed and can be maximised at times of peak demand. The reservoirs block the forward momentum of waves and so are effective breakwaters. They could be a cost-effective solution to the problem of coastal erosion.

The reservoirs are able to survive the large forces of stormy seas because they are an open structure and the force of the waves is absorbed by water in the reservoir and not by the structure itself. The turbines will be sited on the sheltered side of the reservoir for easy maintenance access.

The bigger the reservoirs the lesser amount of energy loss through overflowing. Storage of water can be maximised at high tides to take advantage of tidal energy. If the seaward facing walls of tidal lagoons were replaced by small reservoirs electricity output could be increased by using wave and tidal power and construction costs probably reduced.

The ability of the reservoirs to store energy makes them more efficient than other wave power devices.

I think it is important that the committee is aware of this method for capturing wave energy and that it could be rapidly developed and contribute to our energy needs.

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Wave power generator

