

OFF-SHORE RENEWABLE ENERGY

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ABSTRACT

In the past few years, there has been substantial growth in the renewable energy field. Much of this increase will come from offshore renewable energy through offshore wind turbines (OWTs), floating solar photovoltaics (FPVs), and wave energy converters (WECs), with power plants covering hundreds to hundreds of thousands of square miles.

While a few isolated devices may not significantly affect the atmosphere and upper ocean, the effects of a major deployment on local to regional physical and biological processes are, for the most part, unknown. For example, offshore wind turbines primarily affect the wind field, inducing shear stress gradients at different length scales, floating photovoltaics modify the heat flux on the water surface, and wave energy generators considerably influence the wave dynamics. The focus of this invited session is to bring together scholars in the fields of renewable energy, ocean circulation and biology to understand the impact of offshore energy harvesting on the ecosystems.