Abstract Format

Technologies reshaping the electricity supply industry
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OCEAN ENERGY: THE NEW FRONTIER IN SOUTH EAST ASIA

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Abstract

The declining availability of traditional sources of energy and the harmful effects of fossil fuels have spurred the development of various forms of renewable energy. Ocean Renewable Energy (ORE) technology is relatively new. Energy can be harnessed from the temperature difference between the cold bottom and warm surface water (OTEC), the tidal range fluctuations, tidal streams flow, ocean waves and the salinity gradient between salty and fresh water.

The present ORE development in South East Asia is mainly focussed on resource assessment and development of laboratory and small scale prototypes of the various devices. Indonesia and the Philippines are embarking on larger scale projects. Because of the low tidal and wave resources large scale grid connected projects are very challenging. Most pockets of high tidal streams are located far from national grids connections while the regions of high tidal streams speeds are normally restricted channels making arrays impossible. For wave energy devices, the resource-device matching is crucial. Conflicting uses of the sea restrict also large scale arrays. Therefore it is more practical to tailor development towards small local grids for remote islands or coastal communities around the region. On the other hand, OTEC seems to be the most promising for base load. There is a need for establishment of a sound policy environment and institutional framework including legal, environmental, economics, as well as funding mechanisms for pioneering R&D initiatives.