

Abstract

We have evaluated major potential for wave energy, ocean thermal energy, ocean current energy, tidal current energy and tidal range energy in Japan. Potential values of these ocean energies were estimated in the form of marine physical energy, installable energy and annual energy production. At first, we have calculated marine physical energy by using only public domain data which were observed or simulated by national agencies. Secondly, we have calculated installable energy and annual energy production by assuming geographical constraint, utilizable energy constraint, power coefficient and capacity factor of power-generating facilities. Total marine physical energy in Japan is estimated to be 1,327 GW. And we have suggested that total annual energy production extracted from ocean energy is from 82 to 260 TWh/year within Japanese sea area where the distance from the shore is less than 30 km.