Environmental criteria for site selection of wind power projects in South Korea

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Wind energy represents the leading source of renewable energy in many developed countries. South Korea has recently introduced large-scale programs to promote the transition from fossil fuels and nuclear power to renewable energy as a source of power. The Korean government has set an energy policy goal to increase the ratio of renewable energy to 20% by 2030. To this end, it is necessary to supply renewable energy facilities with a total capacity of 48.7GW including 30.8GW of photovoltaic power generation and 16.5GW of wind power generation by the target year. Accordingly, we should plan now for the regulation of the location to meet this developing need. However, in South Korea, forests cover 63% of the country's land area so that there is a limit to find a location for the installation of large-scale power generation facilities without occupying forest lands. For example, it is mainly located in forests or farmlands where land costs are relatively low, resulting in a decrease in forest resources and negative impacts on ecosystems and landscapes. Renewable energy expansion planning should ensure that environmental criteria, of the type outlined in this study, are given appropriate considerations in onshore wind power project site selection. Many of the more problematic wind power sites are best left mountainous forest under the natural conditions, because the environmental or related social impacts are likely to be unacceptably high. Obviously, no plans are likely to be more environmentally desirable in those cases. The alternatives for onshore wind power siting considered the environmental criteria to achieve the goal of wind energy will be suggested.