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SUSTAINABILITY ASSESSMENT FOR SOLAR PLANT AND WIND POWER PROJECTS FOR CON CO ISLAND, QUANG TRI PROVINCE, VIETNAM

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Abstract

Clean Development Mechanism (CDM) Programme mentioned in Article 12 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change is one of the main initiatives of the world community to limit greenhouse gas (GHG) emission. In Vietnam, solar plant and wind power development are two important resolutions to address the impact of climate change and GHG reduction. To evaluate the sustainability of these projects, a solar plant and wind power project on Con Co Island, Quang Tri province, Vietnam is taken as a case study. The analytic hierarchy process and multi-criteria assessment are applied as the main measurement instruments. Scenario I provides the sustainability scores of composite sustainable development index (I_{CSD}: 0.509) for the solar plant and for the wind plant (I_{CSD}: 0.490). In Scenario II both power projects score high (the solar plant I_{CSD}: 0.86 and the wind power I_{CSD}: 0.838). The multi-indicator assessment allows evaluating the two projects on the island. The results of this study indicated that, these projects help to reduce the environmental pollution and improve the local life. In addition, it raises the awareness of decision-makers about the values of the energy systems as part of the CDM.

Key words: analytic hierarchy process, clean development mechanism, solar plant, sustainability assessment, wind power

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