

Fabrizio Carlevaro and Vincent Deodat

ASSESSING PUBLIC POLICY SUPPORT TO WIND POWER GENERATION IN REUNION ISLAND

Carlevaro Fabrizio, Geneva School of Economics and Management (GSEM),
University of Geneva, UNI-MAIL, Boulevard de Pont d'Arve, 40, CH-1211 Genève 4

E-mail : fabrizio.carlevaro@unige.ch

Deodat Vincent, Center of Economics and Management of the Indian Ocean
(CEMOI), University of Reunion, Avenue René Cassin 97715 Saint-Denis, France

E-mail : vincentdeodat@yahoo.fr

Overview

For a remote tropical island such as Reunion the use of renewable energy represents a reliable opportunity to depart from a polluting and costly energy system based on fossil fuels. For this purpose, massive investments had been realized in photovoltaic power plants over the past ten years to raise the share of renewable energy in power generation. Nevertheless, despite attractive feed-in-tariffs, wind power plants remain a marginal part of the share of installed renewable power capacity. A methodology taking account of both the availability of sites for the installation of wind farms and the spatial distribution of wind resource has been developed in order to assess the interest of promoting wind power plants by public policy in Reunion.

Methodology

An approach in terms of scenarios has been used to assess the impact of modifying the regulations that govern the operation of wind power plants to limit the negative amenity generated by this activity on protected natural areas and residential housing. Focus is given alternatively on the protection of local biodiversity, of residential housing and of wind power generation. For each scenario, we quantify the wind power peak generation capacity that can be installed in Reunion using a Geographic Information System (GIS). Then, we estimate the average unit cost of wind power generation at each site where a wind farm can be installed, using a techno-statistical model. As a result, for each territorial public policy scenario, we identify the theoretical wind power peak generation capacity that can be set up under the present feed-in-tariff policy. Reciprocally, for each public policy scenario we identify the appropriate level of the feed-in-tariff necessary to attain a some objectives of wind power generation.

Results

This methodology is presently under implementation and results will be presented at the Milano AIEE Energy Symposium.

Conclusions

Reunion Island presents together with a complex topography due to its volcanic origin an important ecological capital to preserve. As a consequence, the exploitation of wind resource is facing a strong constraint of access to protected natural areas and residential housing which can be softened only by a political decision. The aim of this work is to provide information helping Reunion's policy makers to assess the impact of the environmental and social constraints on the cost of wind power generation. Provisional results show that for a territory like Reunion the level of feed-in-tariffs have to be set jointly with an appropriate territorial public policy in order to attain ambitious levels of wind power generation.

References

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