

Potential for Development of Wind Park sites in the South-West of Iran (Khuzestan and Kohgelay-Boyerahmad Provinces)

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Abstract:

Wind is a clean and available natural resource throughout the world and is also an inexhaustible source of energy. The use of wind energy is economical and has led to one of the most successful growth markets on an international level. For instance the European Union is proposing 40,000 MW (equivalent to annual electricity production of 10^{11} KWh) of installed wind energy capacity by the year 2010. Germany, Spain and USA are the first three countries that are on the forefront in developing their potential. The installed capacity in the aforementioned countries is about 12 , 4.83 and 4.64 MKW to date , respectively.

KWPA¹ as the main regional utilities, responsible for the production of energy in the South-West of Iran had inaugurated studies in the field of renewable energy two years ago and one of the largest projects in this regard was the development of a wind map for the Khuzestan and Kohgelay-Boyerahmad provinces. The aim of this study is to find the necessary potential for the development of wind parks in the aforementioned provinces. In order to carry out this study 5 wind measuring devices have been installed in 5 locations to automatically measure wind parameters at every 2 sec. These measurements are being carried out at 2 elevations (10 and 30 m) from ground surface. By using the data obtained and analyzing the data by means of the KLIMM mathematical Model Currently wind conditions at each elevation are being simulated and the next stage would be the designing of a wind map for these provinces. After preparation of the digital map, suitable locations with the necessary potential will be designated for the building of wind farms.

The primary results of the study show that favorable wind conditions can be expected near the shore-line in the south-east part of Khuzestan. Mean wind speed at this area is about 8 to 10 m/s at 30 meter above ground-surface.

It is also of note that the shallow depths along the shore-line in the region also provides suitable conditions for the development of offshore wind farms for electricity production; this is largely due to the fact that wind speeds offshore are somewhat higher than those on land and environmental restrictions are more relaxed than those for onshore locations. These two factors taken together give a large potential resource and this is important in the current energy policy context which envisages significant renewable energy developments to reduce CO₂ production.

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