

Economic feasibility of a 11-MW wind powered reverse osmosis desalination system in Morocco

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ABSTRACT

In Morocco, the wind is an abundant resource in nearly all the coastal regions. In this context, an 11 MW wind powered reverse osmosis connected to the grid was planned in the Tan-Tan town. The purpose of this work is to investigate whether the wind powered reverse osmosis desalination system is economically feasible in this town. In this study, assessments of the wind power potential in Tan-Tan using Weibull functions were made. The Weibull parameters were calculated using the Standard Deviation method from the measured data. For the assessment of the levelized water cost, an Excel calculation tool was developed. The research finds that the wind powered reverse osmosis desalination system is not economically feasible in Tan-Tan due to its low wind potential. The mean annual wind speed of this town was calculated to be 5.19 m/s at a height of 9 m above the ground.

Keywords: Desalination; Reverse osmosis; Wind energy; Cost; Morocco

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