

## Decision Support System for Optimal Placement of Wind Turbines in Electric Distribution Grid

**Authors :** Ahmed Ouammi

**Abstract :** This paper presents an integrated decision framework to support decision makers in the selection and optimal allocation of wind power plants in the electric grid. The developed approach intends to maximize the benefice related to the project investment during the planning period. The proposed decision model considers the main cost components, meteorological data, environmental impacts, operation and regulation constraints, and territorial information. The decision framework is expressed as a stochastic constrained optimization problem with the aim to identify the suitable locations and related optimal wind turbine technology considering the operational constraints and maximizing the benefice. The developed decision support system is applied to a case study to demonstrate and validate its performance.

**Keywords :** decision support systems, electric power grid, optimization, wind energy

**Conference Title :** ICREE 2020 : International Conference on Renewable Energy and Environment

**Conference Location :** Toronto, Canada

**Conference Dates :** July 16-17, 2020