Modeling and Optimal Sizing of a Wind Energy System for the Electrification of an Algerian Territory.

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Abstract : Wind energy is a renewable energy promoting diversification energy independence of our country. So, wind power is probably the most promising sustainable energy resource. This paper makes easy the task of the assessment models of the power systems for a multitude of applications through a mathematical formulation which gives the stages of wind energy conversion system. Many decisions about the configuration of the system should be made, parameters optimized and losses due to wake effect reduced, a task that Homer takes in hand. It simulates the operation of a system by making energy balance calculations for each of the 8,760 hours a year.

Keywords : Homer, mathematical formulation, wind turbine output power