Aerodyn Theory Manual (Paperback)

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.AeroDyn is a set of routines used in conjunction with an aeroelastic simulation code to predict the aerodynamics of horizontal axis wind turbines. These subroutines provide several different models whose theoretical bases are described in this manual. AeroDyn contains two models for calculating the effect of wind turbine wakes: the blade element momentum theory and the generalized dynamic-wake theory. Blade element momentum theory is the classical standard used by many wind turbine designers and generalized dynamic wake theory is a more recent model useful for modeling skewed and unsteady wake dynamics. When using the blade element momentum theory, various corrections are available for the user, such as incorporating the aerodynamic effects of tip losses, hub losses, and skewed wakes. With the generalized dynamic wake, all of these effects are automatically included. Both of these methods are used to calculate the axial induced velocities from the wake in the rotor plane. The user also has the option of calculating the rotational induced velocity. In addition, AeroDyn contains an important model for dynamic stall based on the semi-empirical Beddoes-Leishman model....

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