1. Record Nr. UNINA9910747598303321

Autore	Hafez Wessam Arafa
Titolo	Power Quality Enhancement of Wind Energy Systems / / by Wessam Arafa Hafez, Adel A. Elbaset
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-43243-6
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (206 pages)
Altri autori (Persone)	ElbasetAdel A
Disciplina	621.312136
Soggetti	Renewable energy sources Wind power Electric power distribution Energy policy Energy and state Electric power production Renewable Energy Wind Energy Energy Grids and Networks Energy Policy, Economics and Management Electrical Power Engineering Mechanical Power Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Wind Energy Conversion System -- Power Quality and Grid Code Issues of Wind Energy Conversion System -- Modeling of an Egyptian Electrical Network-Connected Wind Energy System -- Harmonic Improvement of an Electrical Network-Connected Wind Energy System -- Voltage Stability Enhancement of an Electrical Network Based Wind Energy System Using STATCOM -- Economic Evaluation of Electrical Wind Energy -- Conclusions and Suggestions for Future Work.
Sommario/riassunto	The continuous increase of wind power penetration levels in Egypt makes wind a critical component of power generation in the grid. Studying wind power quality issues and the interaction between wind

turbines and the grid is necessary and imperative. The authors present research on power quality and grid code issues, harmonics and wind power, voltage stability improvement using STATCOM, control techniques for active power filters, and the economics of electrical wind energy. The simulation for all of the studies presented is carried out in a MATLAB/Simulink environment using the Simulink power system toolbox. The book also presents case studies on an electrical network-connected wind energy conversion system and gives an overview of the feasibility of having wind power plants in several regions in Egypt, along the Gulf of Suez, on both sides of the Nile, the Mediterranean Sea, and South Upper Egypt. Presents an overview of wind power generation technology; Includes case studies; Examines the economics of wind energy. .