

Can hydraulic wind power system improve the utilization rate of wind energy?

Hydraulic wind power system with multi-fan and multi-generator combined operation, and the application of digital hydraulic technology can help to improve the utilization rate of wind energy and increase the power generation, which is a worthy research direction.

What is a hybrid wind power generation system?

The hybrid configuration applies the combination of mechanical transmission and hydraulic transmission to the wind power generation system with the high efficiency of mechanical transmission and the flexibility of hydraulic transmission.

How hydraulic equipment is needed for wind power generation?

First of all, the high power development trend of wind power generation requires supporting hydraulic systems. At present, there are few hydraulic equipment that can meet this requirement, especially megawatt level hydraulic pumps and hydraulic motors.

What is hydraulic wind power technology?

Hydraulic wind power technology replaces the original gearbox with flexible transmission, which can effectively absorb wind speed pulsation and impact, smooth power transmission, reduce grid impact, as well as have the advantages of reducing cabin weight and construction cost to meet the needs of large-scale wind power development.

How to promote the application of hydraulic wind turbine?

In order to further promote the application of hydraulic wind turbine, the research and development of high power hydraulic components is particularly important, especially the development of megawatt-level, low-speed, and high-torque hydraulic pump and hydraulic motor.

How to track the point of maximum power in interconnected wind turbines?

In order to track the point of maximum power, Farbood et al. proposed a Takagi-Sugeno (TS) fuzzy model for the interconnected wind turbines, and then designed a parameter varying model predictive control (PVMPC) approach.

DOI: 10.1002/we.2420 Corpus ID: 214054802; Combined constant speed control method for a wind generator equipped with hydraulic energy storage @article{Han2020CombinedCS, title={Combined constant speed control method for a wind generator equipped with hydraulic energy storage}, author={Xiaoxia Han and Liejiang Wei and Yong-bao Feng and Gang Wang ...

DOI: 10.1016/J.RENENE.2021.02.044 Corpus ID: 233883995; Study on the direct and indirect effectiveness of wind power policy: Empirical evidence from 30 provinces in China @article{Song2021StudyOT,

title={Study on the direct and indirect effectiveness of wind power policy: Empirical evidence from 30 provinces in China}, author={Yan Song and Jun Ting Liu ...

An approach to smoothing the fluctuations of large-scale wind power is investigated using vehicle-to-grid (V2G) systems. First, an energy management and optimization system is designed and modeled. By using the wavelet packet decomposition method, the target grid-connected wind power, the required electric vehicle (EV) power, and supercapacitor ...

DOI: 10.1016/j.asoc.2018.07.027 Corpus ID: 52812853; Wind power prediction with missing data using Gaussian process regression and multiple imputation @article{Liu2018WindPP, title={Wind power prediction with missing data using Gaussian process regression and multiple imputation}, author={Tianhong Liu and Haikun Wei and Kanjian Zhang}, journal={Appl. Soft Comput.}, ...

DOI: 10.17775/CSEEJPES.2016.00051 Corpus ID: 113922891; Robust unit commitment for large-scale wind generation and run-off-river hydropower @article{Chen2016RobustUC, title={Robust unit commitment for large-scale wind generation and run-off-river hydropower}, author={Yue-Chun Chen and Feng Liu and Wei Wei and Shengwei Mei and Naichao Chang}, ...

[35] Wei Wei, Liu Feng, Mei Shengwei, Dispatchable Region of the Variable Wind Generation, IEEE Transactions on Power Systems, 2015, 30 (5): 2755-2765. [36] W. Wei, F. Liu and S. Mei, "Offering Non-Dominated Strategies Under Uncertain Market Prices," IEEE Trans.

DOI: 10.1016/j.apenergy.2023.121006 Corpus ID: 257815712; Complementary operation with wind and photovoltaic power induces the decrease in hydropower efficiency @article{Cheng2023ComplementaryOW, title={Complementary operation with wind and photovoltaic power induces the decrease in hydropower efficiency}, author={Qiang Cheng and ...

Wei Yao [email protected] ... Ju Liu. State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, 430074 Wuhan, People's Republic of China ... Utilisation of the ESS to reduce the impact of high penetration wind power generation on frequency stability is widely studied [20-26]. In ...

In order to obtain easier and faster wind turbine models, a simpler method is used to describe the wind-rotor aerodynamic characteristics by many researchers, which means the extracted power from wind and wind-rotor aerodynamic torque is deduced from the approximate expression of the power coefficient. For actual running wind turbines, it will ...

However, future power scenarios and roadmaps promote offshore power plants as an alternative and additional power generation source, especially in some regions such as the North and Baltic seas.

Depending on whether the PDT of is exactly known, the uncertain WPG can be depicted by the two methods

presented in the following subsections.. 2.1 WGR with exactly known PDT. When PDT of is exactly known, the WGR, which is also referred to as uncertainty set in robust optimisation literature [20, 33], can be constructed with a certain confidence level .

This book addresses the uncertainties of wind power modeled as interval numbers and assesses the physical modeling and methods for interval power flow, interval economic dispatch and interval robust economic dispatch. ... Shiyu Liu, Wei Yuan, Zhaohong Bie, Bo Zeng, "A Two-Stage Robust Reactive Power Optimization Considering Uncertain Wind ...

DOI: 10.1063/5.0166061 Corpus ID: 264366718; Wind power forecasting based on SCINet, reversible instance normalization, and knowledge distillation @article{Gong2023WindPF, title={Wind power forecasting based on SCINet, reversible instance normalization, and knowledge distillation}, author={Mingju Gong and Wenxiang Li and ...

The selection of variables, including wind speed, wind direction, air density, turbulence intensity, and so on, was based on their direct impact on the power generation and mechanical stress of WTs. These environmental factors are crucial for assessing WT ...

DOI: 10.1016/j.apenergy.2019.114239 Corpus ID: 214244317; Multi-plan formulation of hydropower generation considering uncertainty of wind power @article{Yang2020MultiplanFO, title={Multi-plan formulation of hydropower generation considering uncertainty of wind power}, author={Yuqi Yang and Jian-zhong Zhou and Guangbiao Liu and Li Mo and Yongqiang Wang ...

A short-term wind power forecasting method with strong characterization ability to accurately understand future new energy generation conditions so as to ensure power systems" reliability and safety and the application of artificial intelligence technology for improving short-term wind power forecasting accuracy is promoted. The reliability and safety of power systems ...

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