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Name	Bin Li	
Affiliation	Tianjin University	
Invited Keynote Lecture		
Presentation Title	Key Techniques of Transmission System for Offshore Wind Power	
Abstract (Approximately 200 words)	<p>The development and utilization of offshore wind energy resources is the critical path for energy structure reformation. With saturation development of the near offshore wind energy resources, large-scale deep-sea offshore wind farms have been becoming significant trends in recent years. The voltage source converter based high-voltage DC transmission system has unique technical advantages such as long transmission distance, small transmission losses, and better performance in power control compared with the conventional AC transmission methods. Therefore, it is confirmed as one of the best feasible solutions to explore offshore wind power in deep-sea areas. However, the converter topologies, primary equipment composition, and fault ride-through requirements are extremely different in comparison with the onshore transmission network. To address the issues above, this presentation investigates the precise characteristics of the whole fault process in power transmission system. Moreover, the influence of control strategies on fault characteristics is analyzed quantitatively. Typical protection principles for the transmission lines are analyzed in detail. Furthermore, the risks and challenges of protections in the offshore transmission system are discussed. Then, the single-ended distance protection principles respectively based on the traveling-wave natural frequency and time-domain line-model iteration, which are not dependent on the line boundary elements, are introduced.</p>	
Biographical Sketch (Approximately 200 words)	<p>Bin Li, professor, doctoral supervisor. Supported by the National Natural Science Foundation for Distinguished Young Scholars of China, selected into the National Millions of Talents Project of China, and Elsevier China Highly Cited Scholar. He obtained the second prize of National Technology Invention Award of China (2020, ranked 2nd), Tianjin Technological Invention Special Award (2021, ranked 1st), et al. He has been authorized 46 Chinese invention patents and 2 American invention patents. As the first author, he has published 1 monograph in Chinese and 1 monograph in English, participated in the writing of 3 monographs. He has published more than 180 papers as the first author, of which 75 are indexed by SCI and more than 100 are indexed by EI. Currently, he is the Executive Vice Dean of the Graduate School of Tianjin University, the Director of the International Science and Technology Cooperation Base for Distributed Energy and Microgrids of the Ministry of Science and Technology of China, the Director of the Tianjin Key Laboratory of Power System Simulation and Control, and the Deputy Director of Key Laboratory of Smart Grid of Ministry of Education of China.</p>	