Stanford University

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Civil and Environmental Engineering
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Stanford SmartGrid Seminar

Risk-Constrained Multi-Stage Wind Power Investment

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Abstract: When deciding on wind power investments, three major issues arise: the production variability and uncertainty of wind facilities, the eventual future decline in wind power investment costs, and the significant financial risk involved in such investment decisions. Recognizing the above important issues, this presentation proposes a risk-constrained multi-stage stochastic programming model to make optimal investment decisions on wind power facilities along a multi-stage horizon. The proposed model is illustrated using a clarifying example and a case study.

Bio: Antonio Conejo, a professor at the Universidad de Castilla-La Mancha, Spain, joined The Ohio State University's departments of ISE and ECE in January 2014. His areas of expertise are electric energy systems and the mathematical tools for decision-making in energy systems. He has contributed to the current design of electricity markets and to the development of methods and policies for their efficient operation. His interests include devising ways to enable a large-scale integration of renewable sources in electric energy systems. He is editor-in-chief of the IEEE Transactions on Power Systems, an IEEE Fellow, and chair of the IEEE PES Power System Operations Committee. He has published more than 150 papers in SCI journals and is the author or coauthor of books published by Springer, John Wiley, McGraw-Hill and CRC. He has been the principal investigator on many research projects.