



PSERC WEBINAR

Mobilizing Grid Flexibility for Renewables Integration through Topology Control and Dynamic Thermal Ratings

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The rapid penetration of renewable resources into the electricity supply mix poses challenges for the efficient dispatch of resources due to the inherent uncertainty and variability of such resources. Hence, in order to accommodate large amounts of renewables it is necessary to account for their output uncertainty and mobilize the flexibility of the system embedded in conventional generation, demand side resources and the transmission grid.

In this talk we formulate a stochastic unit commitment optimization in which we expand the traditional recourse actions that are available to mitigate the adverse effect of renewables variability. In particular we include in these recourse actions, topology control through transmission switching and dynamic line ratings that account for the heating and cooling of transmission lines. We will demonstrate the potential gains from such recourse actions through test cases and discuss heuristic approaches for alleviating the computational burden resulting from such a formulation.

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He was a member of the California ISO Market Surveillance Committee and a consultant to various private and government organizations in the US and abroad, including the Public Utility Commission of Texas (PUCT) and the California Public Utility Commission (CPUC). He holds a Ph.D. in Engineering Economic Systems from Stanford University and is a Life Fellow of the IEEE, Fellow of the Institute for Operations Research and Management Science (INFORMS) and is a member of the US National Academy of Engineering.

