

Robustness: The Missing Ingredient in Generation Scheduling

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Abstract-

This article highlights robustness as an essential factor to cope with the ever-increasing levels of uncertainty in generation scheduling under significant renewable energy penetration, as is the case in Brazil and Spain. To that end, robust generation scheduling is framed within the different optimization-based approaches that are available for uncertainty handling. In addition, the suitability of robust optimization to accommodate practical security criteria in generation scheduling is also emphasized. Interestingly, this article points out the existence of an effective algorithm allowing the discovery of critical or so-called umbrella scenarios, which paves the way for the implementation of robust generation scheduling in industry practice.

Index Terms- Renewable energy sources , Job shop scheduling , Uncertainty , Processor scheduling , Stochastic processes , Probabilistic logic , Robustness , Power industry , Security , Optimization

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Citation:

Alguacil, N.; Arroyo, J.M.; Barroso, L.A.; Street, A. "Robustness: The Missing Ingredient in Generation Scheduling", IEEE Power and Energy Magazine, vol.23, no.3, pp.31-43, June, 2025.