

**Title:** Optimal Offering Strategies for Wind Power Producers Considering Uncertainty and Risk

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**Abstract:** This paper provides a two-stage stochastic programming approach for the development of optimal offering strategies for wind power producers. Uncertainty is related to electricity market prices and wind power production. A hybrid intelligent approach, combining wavelet transform, particle swarm optimization and adaptive-network-based fuzzy inference system, is used in this paper to generate plausible scenarios. Also, risk aversion is explicitly modeled using the conditional value-at-risk methodology. Results from a realistic case study, based on a wind farm in Portugal, are provided and analyzed. Finally, conclusions are duly drawn.

**Author Keywords:** Artificial Intelligence; Forecasting; Risk Analysis; Stochastic Programming; Uncertainty; Wind Power

**KeyWords Plus:** Value-at-Risk; Generation; Systems; Penetration; Markets; Search

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