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Market power assessment and mitigation in hydrothermal systems

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Abstract-

The objective of this work is to investigate market power issues in bid-based hydrothermal scheduling. Initially, market power is simulated with a single stage Nash-Cournot equilibrium model. Market power assessment for multiple stages is then carried through a stochastic dynamic programming scheme. The decision in each stage and state is the equilibrium of a multi-agent game. Thereafter, mitigation measures, especially bilateral contracts, are investigated. Case studies with data taken from the Brazilian system are presented and discussed

Index Terms- Game theory, hydroelectric-thermal power generation, power generation economics.

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