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Optimal Forward Trading and Battery Control Under Renewable Electricity Generation

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Highlights

- a model of optimal forward trading in presence of renewable generation is developed and treated as a Markov decision problem
- due to specific formulation as stochastic switching with linear state dynamics, novel numerical methods become applicable
- recently developed sub-gradient based methods are applied and an efficient solution method is obtained
- solution is examined by duality method. Distance to optimality is estimated and an excellent numerical quality is confirmed
- sound algorithmic approach is illustrated with author's numerical implementation using R package, which is publicly available on CRAN
- full source code listing is provided, similar problems in risk management investment, capacity allocation can be treated by practitioners through adaptation of our algorithms and scripts

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