Risk Averse Decision Making for Unit Commitment Under Uncertainty in AC Grids via Stochastic Semidefinite Programming

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Abstract: In this talk we address unit commitment under uncertainty of infeed from renewables and customers' power demand in alternating current (AC) power systems. The presence of uncertain data leads us to (risk averse) two-stage stochastic programs. To solve these programs to global optimality a recent semidefinite programming approach to the optimal power flow problem is used. This results in specific mixed integer semidefinite stochastic programs whose structure is analyzed and for which a decomposition algorithm is presented.

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