Optimal energy management of an industrial consumer in liberalized markets

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Abstract-

This paper presents an optimization model for mid-term management of a thermal and electricity supply system of an industrial consumer under liberalized energy markets. Electricity is supplied from the electric grid or from a gas engine, while therma energy is satisfied through a boiler or the mentioned gas engine. The objective is to minimize the overall annual energy supply costs in oder to make otimal contracting decisions. Mixed-integer linear programming is applied to solve the problem since binary decision and oeration variables have been employed. A realistic case is presented to illustrate the model capabilities.

Index Terms- Cogeneration, contracts, industrial plants, liberalized energy markets, mixed-integer linear programming (ILP)

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