Industrial Experience in the Deployment of Real Time Online Energy Management Systems

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Abstract

This paper presents real industrial examples in which the whole utilities system of a production site (i.e., steam, fuels, boiler feed water and electricity) is optimized with a real time online, industrially well established software.

Experiences gained during more than 20 years of industrial projects deployed worldwide are commented. Main project steps are explained and critical details to be taken into account to assure successful use and proper technology transfer are presented.

The optimization objective is the overall utilities system cost reduction and takes into account the constraints associated with the existing equipment, fuels and electricity pricing and contracts, including emissions limits, quotas and rights. The energy management system models are executed and optimized at a scheduled frequency, fed with online, real time data, flowing into and out the program using the standard OPC protocol.

Besides the optimization, Key Performance Indicators (KPIs) are also calculated and sent back to the Site Plant Information System or DCSs for Operations and Management use.

Application examples and results corresponding to projects implemented worldwide in refineries and chemical plants are presented and commented.

Keywords: energy costs reduction, real time optimization, energy management

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