Petrochemistry-2013

OMICS Group Conferences
Accelerating Scientific Discovery

World Congress on
Petrochemistry and Chemical Engineering

November 18-20, 2013 Hilton San Antonio Airport, USA

Development of an energy management system for a naphtha reforming plant: A data mining approach

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Abstract

Despite the industrial sector accounts for about a quarter of total final consumption worldwide and great efforts have been carried out to reduce its energy use in the last decades, there are still substantial opportunities to improve industrial energy efficiency. Among those opportunities, energy management systems (EMS) are one of the most successful and cost-effective ways to significantly reduce energy use, energy costs and environmental impact without affecting production and quality. This paper will describe the development of an energy management system for a naphtha reforming plant by the use of a data mining approach. The paper will show how these techniques have been applied to identify key influence variables on energy consumption and to develop an energy performance model of the plant. Energy baseline and energy targets will be derived for the assessment of achieved and potential energy savings. Plant results will show how savings may be achieved after the implementation of the EMS by tracking and adjusting performance against energy targets.