Energy and Production Planning for Process Industry Supply Chains

This thesis addresses industrial energy issues from a production economic perspective, which during the past decade has become more important due to rising energy prices and increased environmental concern. The energy intensive process industries studied in this thesis exemplify the importance of introducing a strategic perspective on energy, an appropriate approach for planning, as well as the possibilities of including energy issues in a production and supply chain planning model.

The thesis aims to provide models, methods and decision support tools for energy related production and supply chain planning for process industries as well as for other energy intensive industries. The overall objectives are to analyze the strategic importance of energy management, production and supply chain planning, and the opportunities provided when energy is included in a production and supply chain planning model. Three different studies are carried out, analyzed, and presented as in this thesis, and the findings direct a special concern to the strategic dimension of energy, a proper utilization of the energy system, and the quest for finding alternative revenue. Through improved production and supply chain planning, process industries can become more agile and gain competitive advantages. To include energy while using production and supply chain planning as a tool for decision making, opens new doors to profitable operations in the process industries.