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IT-based Architecture for Energy Market-oriented Optimization at Multiple Levels in Production Processes

by

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Abstract

Given the increasingly volatile prices on the power markets, it becomes economically more and more important for companies to develop and realize flexible strategies for energy consumption. A steady adaption of production processes which considers current power prices can take place on several levels of the automation pyramid, where each level has its own characteristics and requirements. In this paper, we present an optimization architecture based on an IT-platform, which meets the challenges of complex multilayered production processes. We introduce layer-specific optimization strategies as well as an associated information flow, which facilitates creating holistic and well-coordinated optimizations.

Keywords: Energy-flexibility; Demand Response; Production process optimization