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Simulation-based analysis of energy flexible factories in a regional energy supply system

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Abstract

In a decentralized and renewable energy system, reliable and economical solutions are necessary to adjust power demand to a volatile power supply by photovoltaic and wind energy plants. A high potential for the balancing of short and medium-term power supply fluctuations is seen in energy flexible factories. To leverage this potential, monetary incentives and technological enablers have to be developed. Apart from that, the ecological and social aspects of energy flexible factories have to be considered in transdisciplinary research, to achieve a broad public acceptance. To assess the complex interrelations between the technical, political, legal and social sector, a clear and accessible base for discussions is necessary. This paper presents an approach for a simulation based-analysis of energy flexible factories with focus on high applicability and comprehensibility for stakeholders from different disciplines. This paper presents the general structure of the simulation model including the operation module for the energy flexible region Augsburg.

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