

# Preface

Processing trade and industry consume more than half of the electric energy in Germany. Producing enterprises expend up to and sometimes even more than 10% of their total cost on energy. The steadily increasing energy demand with limited fossil resources and the tendencial cost and investment intensive renewable energy will inevitably lead to further increases in expenditures on energy in manufacturing companies. Together with the strong perception of an environmentally friendly behavior among customers, employees and society energy is developing into the most important strategic competitive factor. Therefore, companies increasingly consider the economical use of energy. The potential savings are enormous: up to 30% or about 10 billion euro in Germany annually.

The model factories for energy efficiency production of the Fraunhofer Institute in Munich/Augsburg and Bayreuth and of the Universities in Erlangen-Nuremberg, Amberg/Weiden, Ansbach, Coburg, Hof and Schweinfurt/Wuerzburg are targeting the long-term objective to produce energy self-sufficient methods, technologies to optimize energy consumption in production and to minimize the heat loss in the laboratory halls, as well as strategies for adapting the energy consumption to the offer and procedures for decentralized renewable energy are developed and implemented in the Green Factories. The Green Factories in Bavaria combine up the research skills of all relevant fields for energy efficient production, e.g. mechanical engineering/manufacturing technology, electrical engineering, information technology, process engineering, materials science and economic science. They also consider all major types of energy, e.g. for motion, illumination, information processing, manufacturing processes and thermal control. Furthermore, Green Factories address the use of energy in production, logistics and administration. With clear focus on energy efficiency in the production and state-wide, interdisciplinary collaboration, these Green Factories are aiming to expand into an international research network. In the model factories for energy-efficient production, innovative industrial partners should have the opportunity to present and to develop advanced techniques and technologies for energy-efficient production together with scientists from the participating research institutions in the available laboratories and production areas. They also allow for intensive networking and to pass on knowledge effectively to users and students.

This unique concept of collaborative research between industry and universities guarantees an efficient research and a fast and more efficient transfer of the results into the economy.

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