Preface

The currently discussed Climate Protection Plan 2050 should shows how Germany could achieve the goal of substantial greenhouse gas neutrality. Beside basic objectives, it contains concrete proposals. So the energy to be converted by 2050 should be covered by renewable energy generation plants completely. Furthermore, 2030 electric driven vehicles shall dominate our transportation systems. However, processing trade and industry consume more than half of the electric energy in Germany. The steadily increasing energy demand with limited fossil resources and the strongly volatile and investment intensive renewable energy will inevitably lead to further increases in overcapacities in conventional power generation, which lead to high stand-by cost. Together with the strong perception of an environmentally friendly behavior among customers, employees and society, energy is developing into one of the most important strategic competitive factors.

The model factories for energy efficiency in production of the Fraunhofer Institutes in Augsburg and Bayreuth and of the Universities in Erlangen-Nuremberg and in Munich, as well as the Universities of Applied Sciences Amberg/Weiden, Ansbach, Coburg, Deggendorf, Hof, Ingolstadt, Nuremberg and Schweinfurt/Wuerzburg are targeting together the long-term objective of energy self-sufficient production plants. These Green Factories Bavaria develop technologies to optimize energy consumption and to minimize the wastage of resources in production and laboratory. Strategies for adapting the energy consumption to the supply and procedures for decentralized renewable energy generation 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 processes, 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, the Green Factories address the use of energy in production, logistics and administration in more than 35 research projects. With clear focus on energy efficiency in production, the Green Factories are aiming to expand into an international research network, which currently consists of more than 80 companies and 20 research institutes in named universities with more than 40 active scientists. In the model factories for energy-efficient production, innovative industrial partners 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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