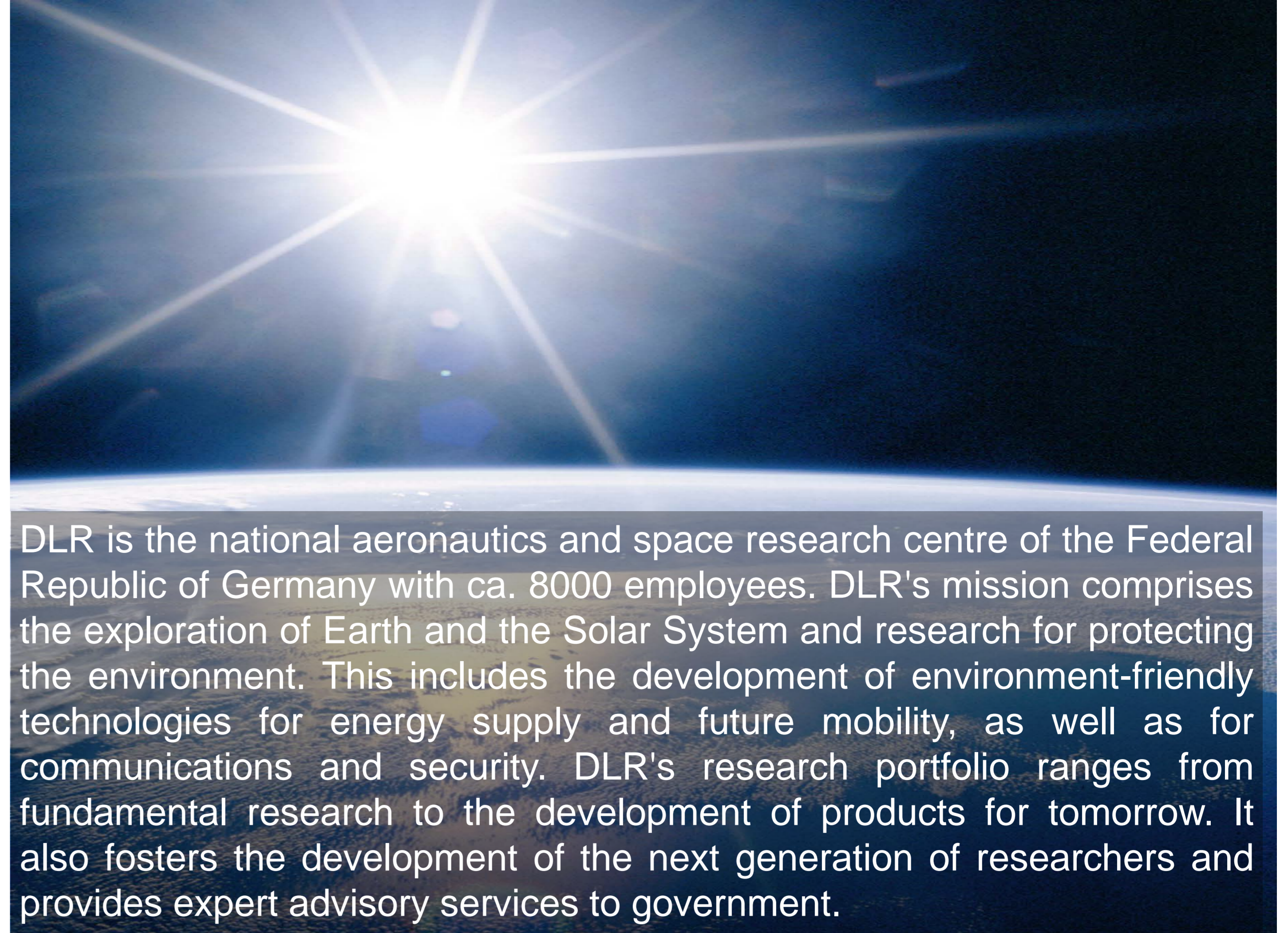




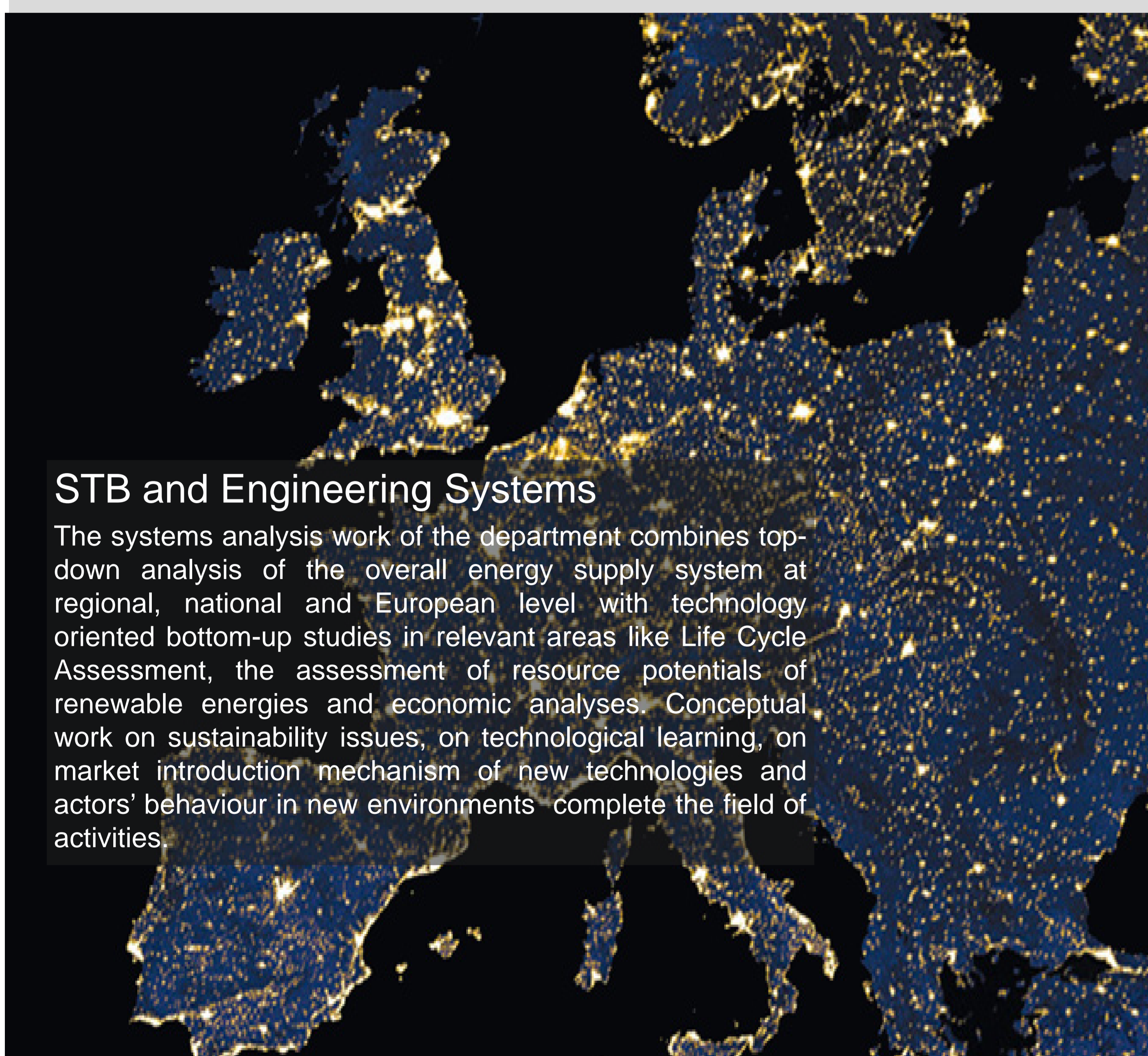
**Deutsches Zentrum
für Luft- und Raumfahrt**
German Aerospace Center



DLR is the national aeronautics and space research centre of the Federal Republic of Germany with ca. 8000 employees. DLR's mission comprises the exploration of Earth and the Solar System and research for protecting the environment. This includes the development of environment-friendly technologies for energy supply and future mobility, as well as for communications and security. DLR's research portfolio ranges from fundamental research to the development of products for tomorrow. It also fosters the development of the next generation of researchers and provides expert advisory services to government.

STB

Department of Systems Analysis and
Technology Assessment



STB and Engineering Systems

The systems analysis work of the department combines top-down analysis of the overall energy supply system at regional, national and European level with technology oriented bottom-up studies in relevant areas like Life Cycle Assessment, the assessment of resource potentials of renewable energies and economic analyses. Conceptual work on sustainability issues, on technological learning, on market introduction mechanism of new technologies and actors' behaviour in new environments complete the field of activities.

WHO ARE WE?

Because of the inherent inertia of the energy system, any decisions taken in the energy sector have particularly long term impacts. Opportunities offered by new technologies and potential negative consequences on the environment and on society can be identified in time by provident and pro-active decision making. A pre-requisite for such a course of action is a thorough understanding of complex systems, which allows decision makers to find a balance between the technical and economic possibilities of today, and the long term development perspectives. Our mission is to develop tools and methods that cover the techno-economic and social aspects of energy systems transitions for better comprehension of the underlying complexity.

FOCUS AREAS

- I. Technical-economic-environmental analyses of the deployment of emerging energy technologies
- II. Development of concepts for sustainable energy systems by means of scenarios techniques
- III. Investigation of market introduction and implementation strategies for new technologies and structures in the energy field
- IV. Conceptual work on the advancement of scientific system analysis methods with regard to the specific qualities of renewable energies and decentralized supply structures

WHAT MAKES US UNIQUE

The department provides methods and tools which support problem solving in the field of energy related systems analysis and technology assessment. Specific knowledge is generated which can guide decision makers from science, policy and industry to identify long term research priorities, and to establish a framework supporting sound energy-, environmental- and research-policy. For this we are developing simulation models using methods of

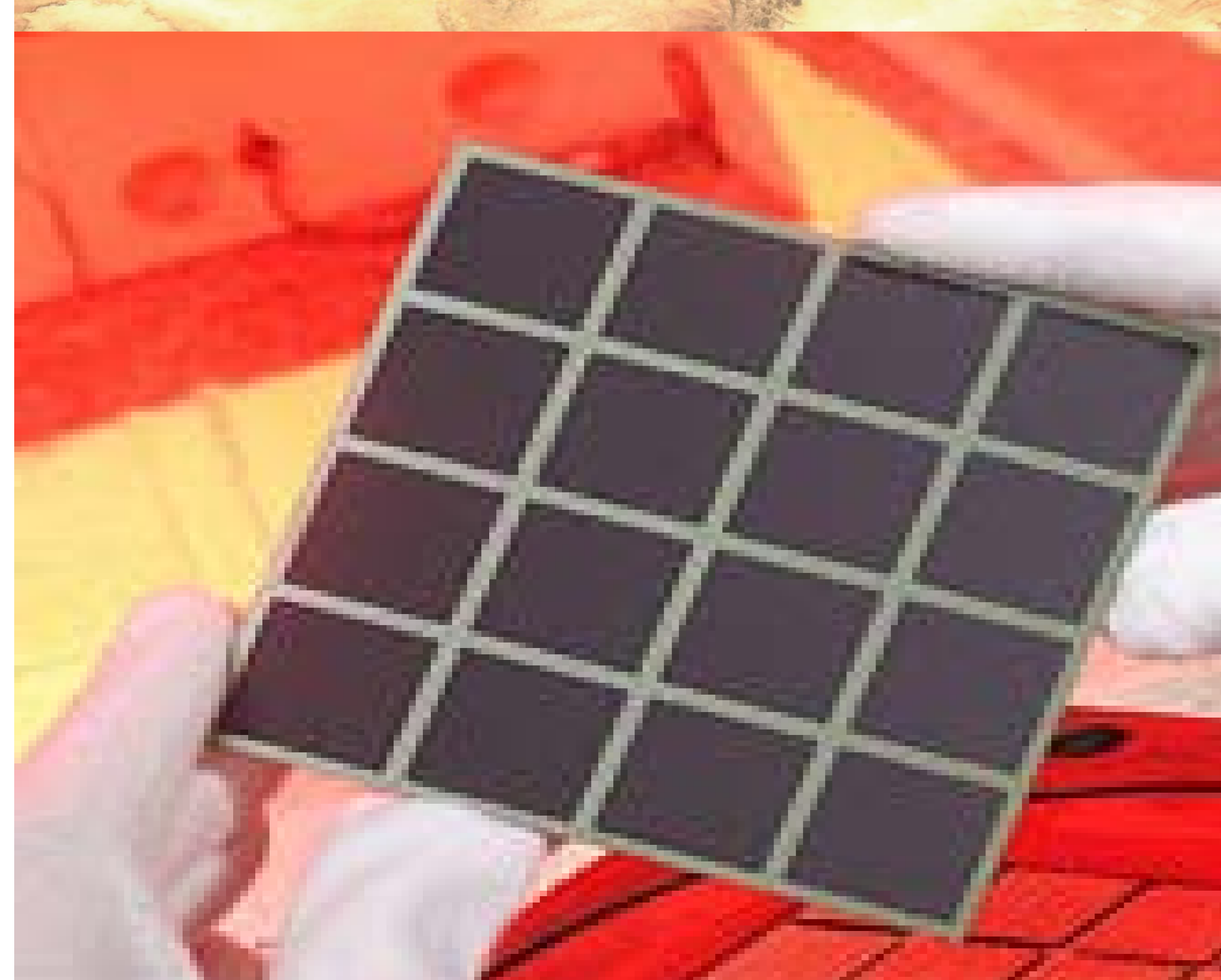
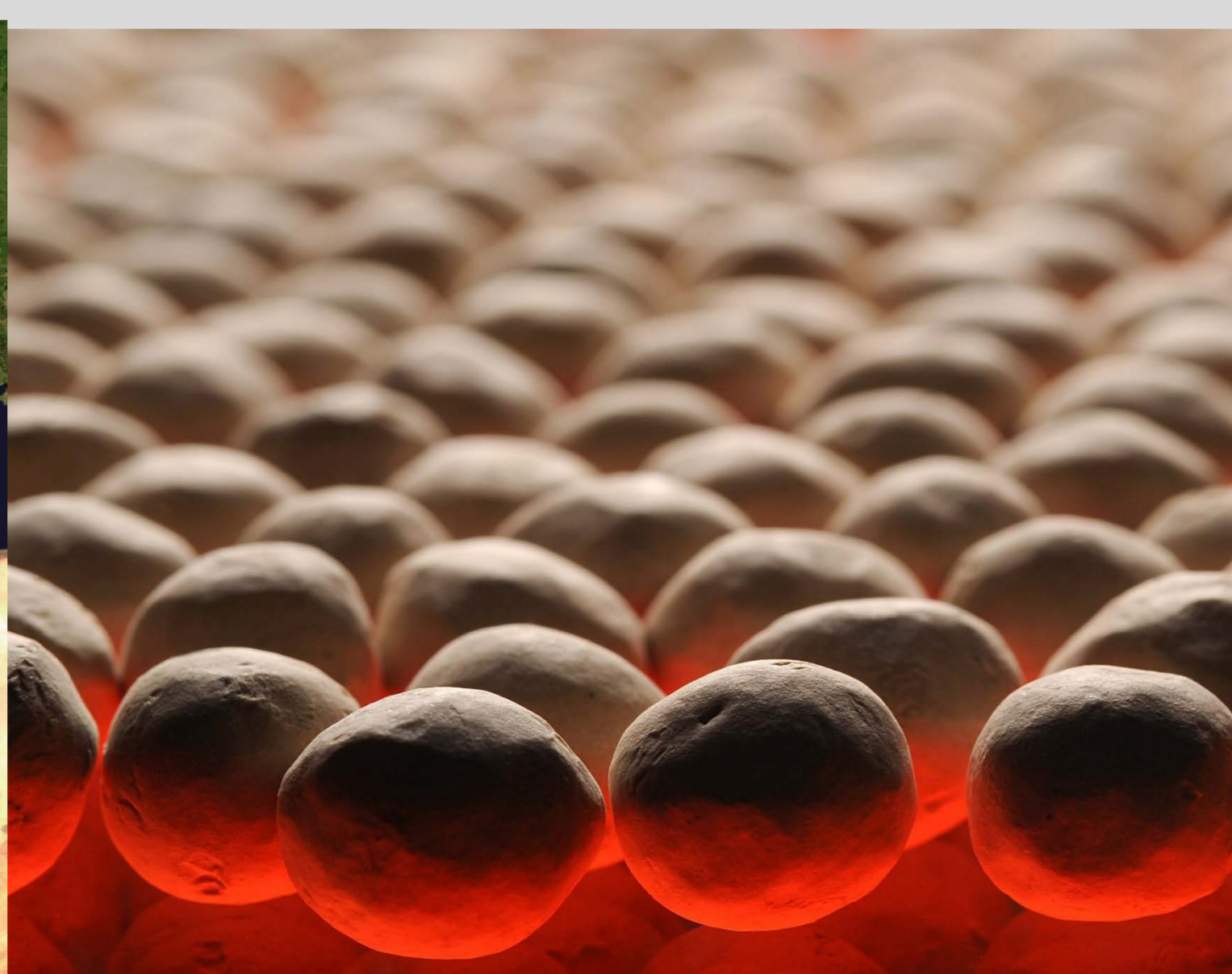
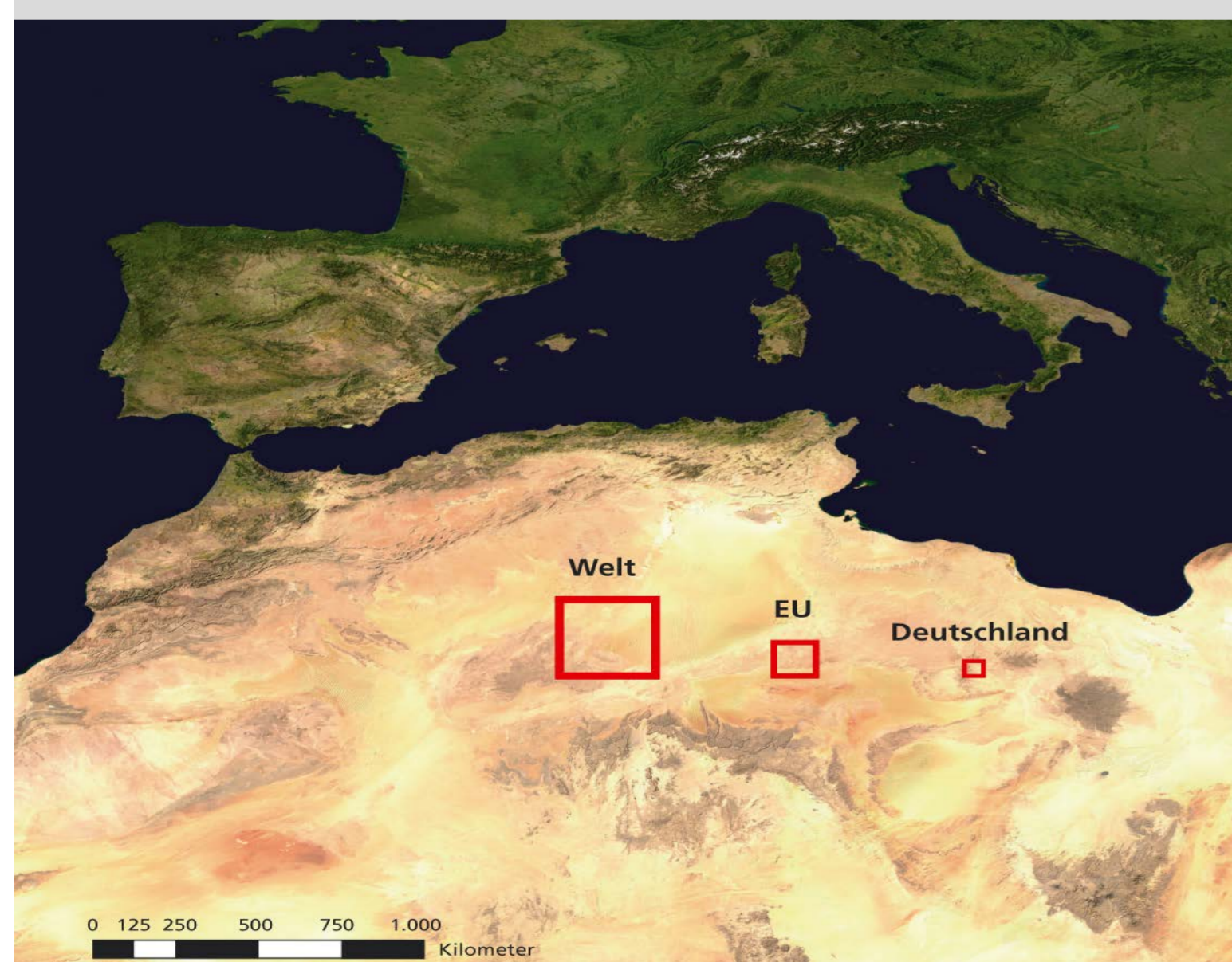
- Optimization of energy systems using satellite resource data
- Agent based modelling for policy impact analysis
- Comprehensive scenario analysis using cross-impact-balance matrix
- System dynamics modelling

DEPARTMENT FACTS

- 25 academic staff
- 7 PhD students
- Member of Smart Grids Platform BW, ...

TT

Institute of Engineering Thermodynamics



WHO ARE WE?

The Institute of Engineering Thermodynamics at the German Aerospace Center does research in the field of efficient energy storage systems that conserve natural resources and next generation energy conversion technologies. The spectrum of activities ranges from theoretical studies, to laboratory work for basic research and to the operation of pilot plants. These experimental and theoretical studies are accompanied by systems analysis studies. A tight network with the University of Stuttgart -especially with the Institute of Energy Storage- at the University of Ulm is existing.

FOCUS AREAS

- With its strategic, long-term research and developmental work in the field of energy engineering, the institute makes a major contribution to ensuring power supplies that conserve natural resources and thus to sustainable development for our society.
- Systems Analysis and Technology Assessment
 - Electrochemical Energy Technology
 - Thermal Process Technology
 - Computational Electrochemistry

WHAT MAKES US UNIQUE

A major characteristic is the interdisciplinary collaboration of the departments, so that skills and synergies are utilized to the full extent for project work. The Institute and its activities are very well integrated in national and international research networks.

- Theoretical studies
- Systems analysis studies
- Laboratory work for basic research
- Operation of pilot plants

INSTITUTE FACTS

- Staff 164
- 136 scientific and technical staff
- 50 PhD students
- Research sites in Stuttgart, Cologne, Ulm, Hamburg