

## Smart Energy Solutions & Renewable Energy for Industry, Cities, Districts and Buildings

### General

Power markets fundamentals

Modelling and analysis of energy markets

### Energy System Integration

Distribution

Storage (Power to x, CAES)

Conversion thermal to electrical or vice versa

Conversion of heating to cooling or vice versa

Development of smart energy solutions

### Energy Efficiency & Renewable Energy

Consulting & engineering for renewable energy concepts

Hydrogen energy technologies (e.g. metal hydrogen storage)

CO2 reduction catalysis for energy storage

In-situ material surface analysis (e.g. photoelectron, synchrotron X-ray)

Integration of renewable energy sources

Systems integration to make use of water energy as heat.

Concepts for energy systems in residential, public and industrial context:

- Developing, financing and implementing of district heating installations

- Sustainable city development

- eea Consultant (European Energy Award)

Integration of solar thermal power and micro gas turbines.

Integration of high temperature fuel cells and micro gas turbines.

Biogas use in micro gasturbines, gas engines and and fuel cells.

District heating systems based on low temperature systems considering different end consumer needs.

Integrated energy concepts for blocks of buildings city centers making use of locally available renewable energy sources as hydro power and geothermal energy.

Energy efficiency analysis and improvement of industrial processes in combination with production rate increase.

Low temperature waste heat recovery systems and process integration.