

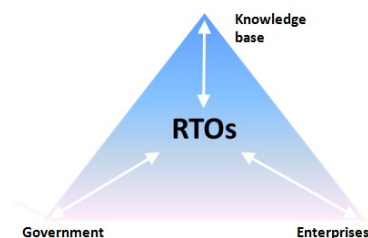
Vorstellung Energy Department

10.07.2013, Kick-Off Workshop
KWK-Allianz Österreich

Ralf-Roman Schmidt

AIT - Austrian Institute of Technology

- **Ownership structure**
 - 50.46% **Republic of Austria** (through the Federal Ministry for Transport, Innovation and Technology)
 - 49.54% **Federation of Austrian Industries**
- **Employees: 1, 069 (901 plus 168 freelancer)**
- **Total revenues: 119,4 mill. euros**, of which
 - Contract research revenues (incl. grants): 60.7 mill. Euros
 - Financial support of partners: 40 mill. euros
 - Other revenues: 18.7 mill. Euros



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AIT Austrian Institute of Technology - Structure



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USP Energy Department

- The Energy Department is changing technological challenge into competitive advantage.

Our USP is...

- *...Holistic scientific understanding of energy systems combined with technological excellence in design, optimization and diagnosis of components and subsystems.*
- *Innovation is pushed from changes on system level or breakthroughs in enabling technologies*

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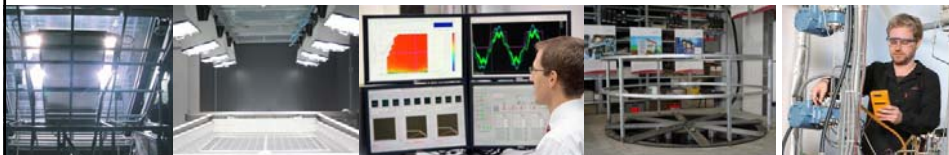
Energy Department – the Team

- **Highly interdisciplinary:**
Architecture, Automation Engineering, Building Technology, Economics, Civil Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Mathematics, Physics, Power Engineering, Process Engineering, Urban Planning...
- **Multicultural:**
Austria, Brazil, Bosnia Herzegovina, China, Croatia, Czech Republic, Germany, Egypt, France, Great Britain, Hungary, India, Iran, Italy, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland
- First **Principal Scientist** in AIT: Peter Palensky
- **Highly motivated:**
more and more joined by high potentials



AIT Energy Department – Research Infrastructure

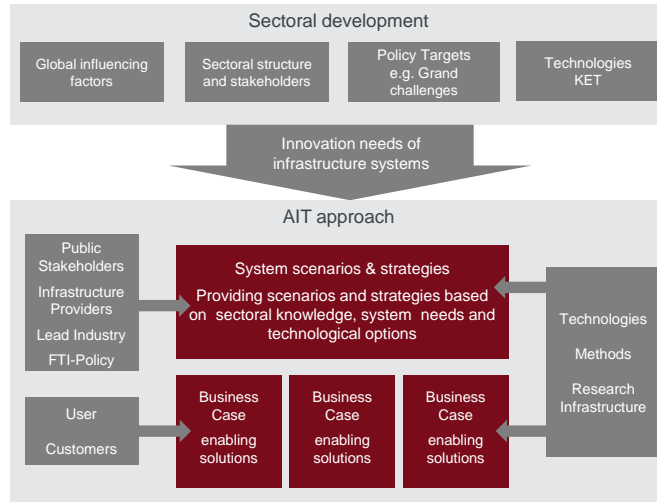
- Solar thermal
- Heat pump, Absorption, Thermophysics and Kinetic
- High Voltage
- High current
- SmartEST (Smart Electricity systems and Technologies)
- Photovoltaics



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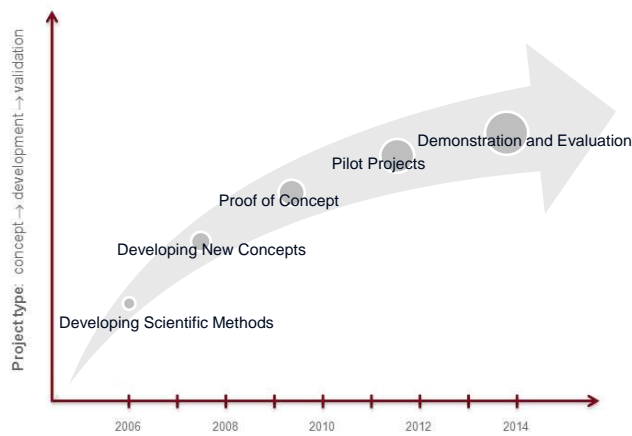
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Innovating infrastructure systems

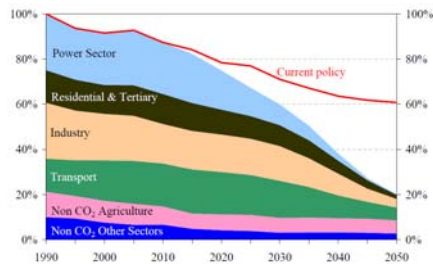


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Driving Innovation in specific Research Fields



Policy Background - European climate policy targets



Source: EC, Low Carbon Economy Roadmap 2050

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- European 20-20-20 targets
 - Reduce GHG-emissions by 20%
 - Increase share of renewables in EU energy consumption up to 20%
 - Achieve an energy - efficiency target of 20%
- Roadmap 2050
(..for a low Carbon Economy)
 - 80% GHG reduction
 - Boosting the economy by technology innovation

AIT Energy position

- Strong emphasis on energy-efficiency and renewables (follow the „sustainable path“)
- Guiding radical innovations for future (urban) energy systems
- Enabling „smart energy infrastructure“
- From passive to active systems
- From centralised towards decentralised generation
- From static to dynamic systems
- From singular/local implementation to large-scale city-wide deployment
- Multi-technology perspective and integrated system approach

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Leading Positioning in Europe

- Agenda Setting in the Research Fields
 - Smart Cities and Smart Grids
- Advisory role for EC
 - E.g. Horizon 2020, Roadmap 2050, Education and Training Initiative,...
- European Energy Research Alliance (EERA)
 - ExCo Member, Joint Programme Coordinator and participant
 - JP Coordinator Smart Cities → Creating Research Community (200 pyr/yr)
 - JP Smart Grids, JP Photovoltaics, JP Energy Storage
 - Driving processes towards international collaborations (e.g. EU-China Urbanisation Partnership)
- FP 7 key – projects with key - consortia
 - Bringing Austrian Stakeholder in FP7 key-projects



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Research Areas Energy Department

Energy Department

AREA 1: Integrated Energy Systems

Smart Cities and Regions

Complex Energy Systems

Principal Scientist Research Group

AREA 2: Energy Infrastructure

Smart Grids

Thermal Energy Systems

Energy in Industries (Principal Scientist Research Group)

Smart Buildings

Photovoltaics

Area 1 - Integrated Energy Systems

- Scientific method driven and long term perspective
 - Scientific excellence in co-simulation of complex energy systems
 - Achieve impact through method and tool driven development
 - Increase scientific visibility through high-level publications
 - Driving scientific culture within department
- Stakeholder and market driven aspects
 - Department-wide coordination of trans-disciplinary projects
 - Pulling together department know-how in large-scale projects
 - Analysis of integrated infrastructure systems from a meta-level
 - Increase department's international visibility in target markets (e.g. China)
 - Deliver innovative concepts for future energy systems on city and regional level
 - Scientifically based advice and recommendations for decision makers

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Area 2 - Energy Infrastructure

- Turning technological challenges into competitive advantages for infrastructure operators and related industry
 - Rapidly cope with infrastructure breakovers
 - Speed up of market entry of new energy technologies
 - Methods and tools (numerical simulation as well laboratory infrastructure) for technology integration in existing and new infrastructure systems
- Create impact on infrastructure level through high-level demonstration projects

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Our
employees
are the
key to
our
success!



AIT Austrian Institute of Technology

your ingenious partner

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