Building of Tomorrow

Highlights of the
Austrian Research and Innovation Programme

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Austrian Society for Environment and Technology

Highlights of Austrian Building Technology
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HAUS der Zukunft

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Bundesministerium für Verkehr, Innovation und Technologie

Overall aims of the research programme Building of Tomorrow

low energy solar house

passive house

ecological building materials and systems

renewable energy sources

energy efficiency

renewable raw materials, building ecology

Haus der Zukunft

user and service aspects

comparable costs

new buildings

retrofitting

From 2009 to 2012 – Building of Tomorrow PLUS

PLUS buildings as generators of energy

PLUS strengthening technological leadership

PLUS from the building to the settlement

PLUS from single to series manufacturing

PLUS visible demonstration projects

PLUS intensified international networking

PLUS know-how transfer and education

Building of Tomorrow

Results of the R&D-Programme 1999–2012

- 8 calls for proposals
- 63,3 Mio EUR project funding
- More than 450 research projects:
  - Applied research, technology and components
  - Basic research on socio-economic issues
  - Research on tools and normative aspects
  - 62 demonstration projects
- International cooperation within ERA-Net Eracobuild and IEA -EBC

Schiestlhaus

Ecological alpine refuge, Hochschwab area, Styria (2153 m)

- Autarkic building maintenance
- Collection of rain water from roof
- Warm water/flat thermal collectors integrated in the façade
- Electricity generated by 70 m² of façade integrated photovoltaic panels

Makartstraße

Renovation to Passive House standard, Linz, Upper Austria

- renovation of a multi-storey-building from the 1950s
- use of prefabricated wall units
- central element of the facade system is a special solar comb, which is mounted on the outside wall in form of a panel (gapsolar)
- controlled ventilation with single room ventilators

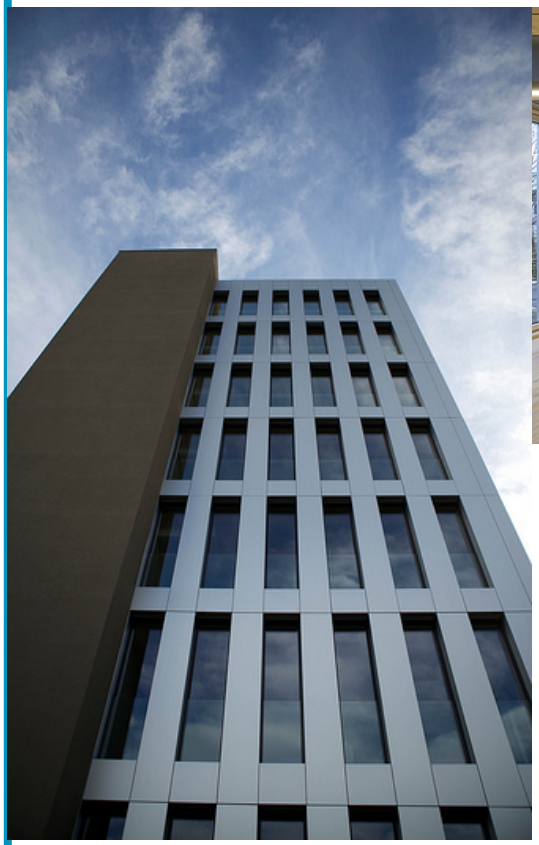
ENERGYbase

Passive House office building Vienna

- 4,500 m² offices
- 1,500 m² labs
- 100 % heating and cooling with RES
- 400 m² PV, ca. 42 000 kWh/a
- Humidity management with plants

LifeCycleTower

Hybrid Wooden Building up to 30 floors



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Project Manager: Michael Zangerl, Cree by Rhomberg

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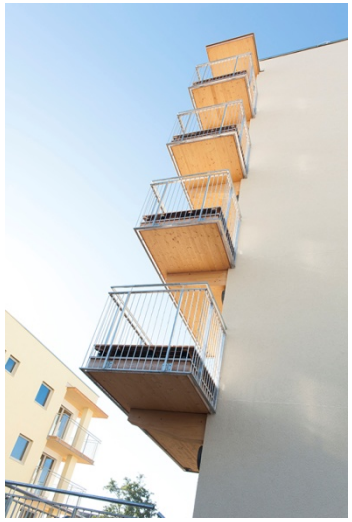
Energy Plus Network

Reininghaus Süd, Graz



Source: Nussmüller Architekten

- Passive House standard, built in wood and clay
- Almost all apartments sold
- Construction works to be finished in December 2015
- Monitoring for the first two buildings starts in early 2014

„Energy Plus“ Office / Vienna

Refurbishment to energy plus standard of the

University of Technology Vienna

- Drastically reduced energy demand
- Biggest façade integrated PV facility in Austria

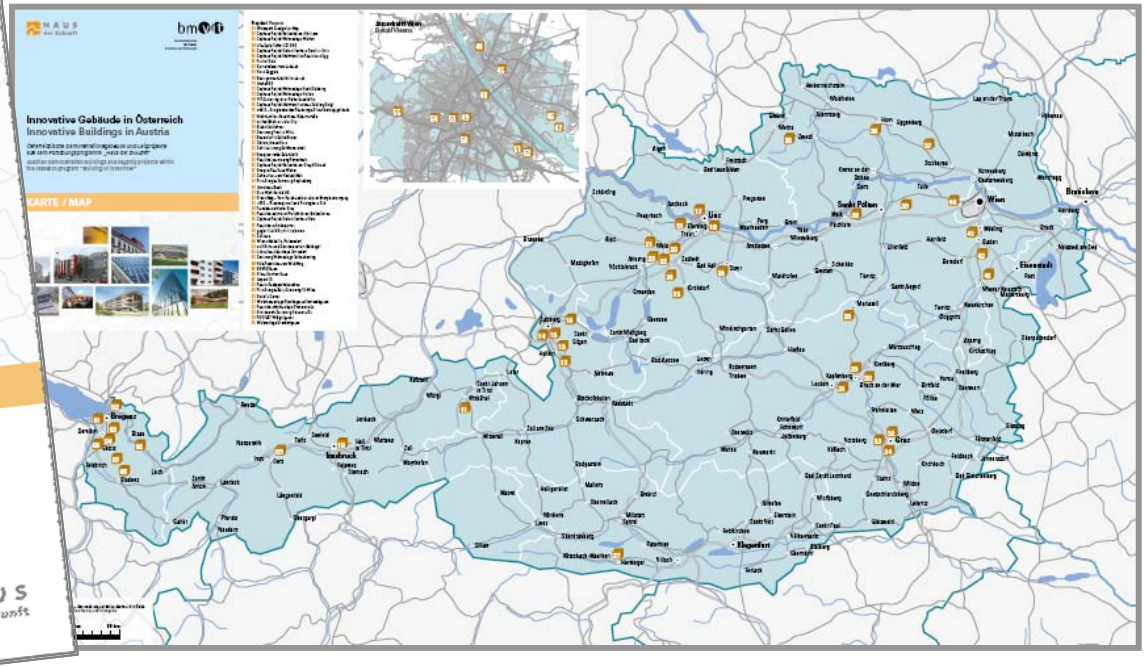
Project Manager: Helmut Schöberl, Schöberl & Pöll GmbH

Energy plus renovation in Kapfenberg

Source: AEE INTEC

- Renovation of a residential building with prefabricated façade elements, concept and technology development, demonstration
- Works ongoing until April 2014

Project Manager: Karl Höfler, AEE Intec



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Smart City Project Graz Mitte

- Areal of 400 hectares close to train station
- Retrofitting-Area
- Solar cooling
- Solar updraft tower
- Smart City Coaching
- Smart heat grids
- Integrated façade technologies

Urban Restructuring Lehen (Salzburg)

Project Manager: Inge Strassl

New Quarter in Vienna – aspern+ Die Seestadt

Project Manager: Peter Hinterkörner, Christoph Pollak

New BMVIT research and innovation programme “City of Tomorrow”

Aims

- Development of resilient cities and districts with high resource and energy efficiency, increased use of renewable energy and high quality of life
- Optimisation and adaptation of the urban infrastructure and extension of urban services
- Strengthening Austrian technology leadership and international competitiveness

STADT der Zukunft

Vision of the City of Tomorrow

- High attractiveness for residents and economy
- Safe energy supply and highly resilient systems
- Maximal conservation of resources
- Minimising impacts of greenhouse gases
- Use of renewable resources from the city and its surrounding
- Smart grids (thermal, electric, gas)
- Combination of energy, mobility and information technologies
- Integral energy and mobility planning
- Energy efficient interactive buildings and mobility systems

Special features of the programme

- Focus on neighbourhoods, districts and cities
- Strategic choice of key areas and topics
- Technologies and parts of technological systems
- Development of contributions to planning and processes
- Interdisciplinary methods and ways of working
- Connectivity: national (Climate and Energy Fund, aws), international (SET-Plan, JPI Urban Europe), thematic (mobility, ICT)

Time horizon and budget

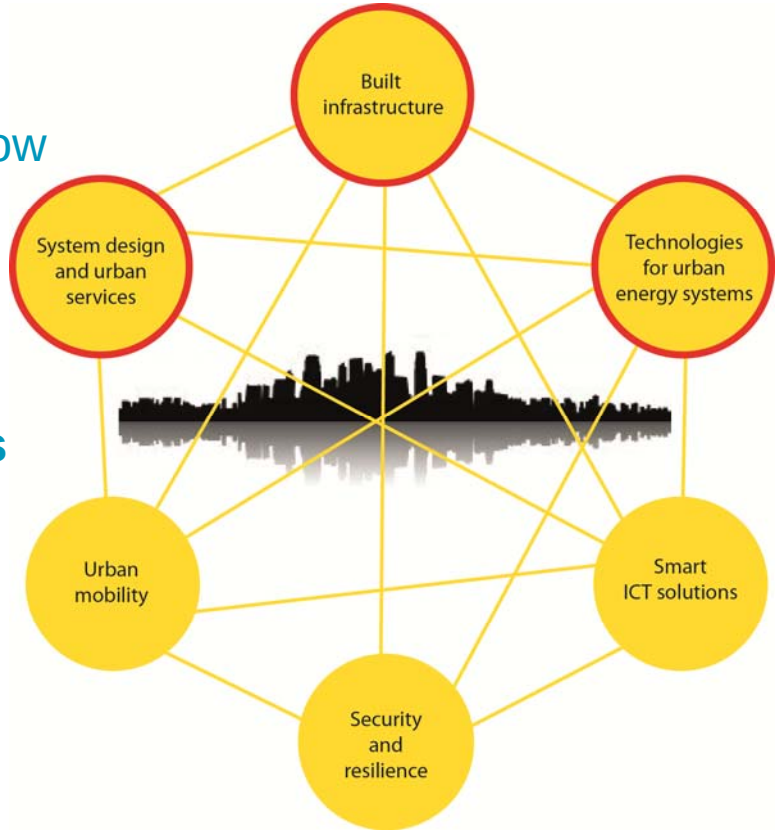
- Duration: min. 5 years
- budget 40 Mio. EUR
- about 8 Mio. Euro per year
- Spectrum of technology and technological systems, enhancement of topics (e.g. mobility)

1. Call for proposals

- Start: 26. September 2013
- Deadline: 30.01.2014
- budget: 9,8 Mio EUR

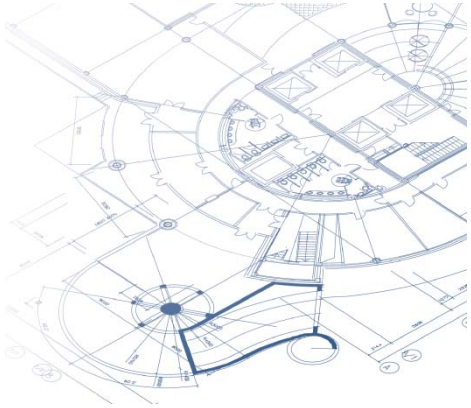
Topics

- Multitude of topics for the city of tomorrow
- System technologies and necessity of development in regard to energy
- 3 thematic areas for 1st call:
  - **System design and urban services**
  - **Built infrastructure**
  - **Technologies for urban energy systems**
- Participation and inclusion of residents and users



Area 1: System design and urban services

1. Integrated energy concepts and system design
2. Energy und resource oriented urban planning
3. Methods for developing smart technology-service-systems and innovative business models
4. Accompanying research for urban management



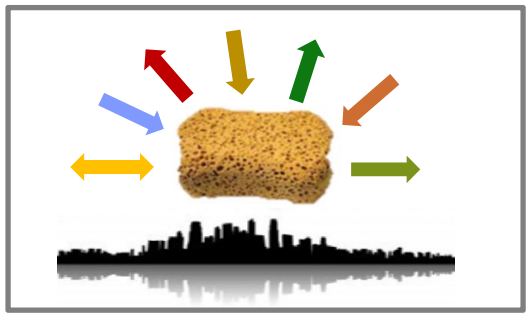
Area 2: Built infrastructure

1. Optimisation and modernization of buildings, settlements and quarters
2. Optimised development of settlements
3. Assessment and design of urban metabolism



Area 3: Technologies for urban energy systems

1. The city as ‚energy sponge‘
2. Energy management in districts
3. On-site conversion technologies for renewable energy in the urban context



Further information

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