Contribution of

City of Tomorrow
Building of Tomorrow^{PLUS}
Building of Tomorrow

to a sustainable economy - from an international perspective

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Building/City of Tomorrow: targets

- Contribute to a sustainable economy
- In the building sector / construction industry
- Focus on new buildings, modernization, districts and cities

- Strategic choice of key areas and topics
- Develop innovative Technologies and building standards
- From basic research to demonstration
- Innovation in planning and processes
- Interdisciplinary methods and ways of working
- International cooperation: SET-Plan, JPI Urban Europe, ERA-net erabuild and eracobuild, mobility, ICT, IEA-EGRD expert group, IEA-EBC

source: bmwift, hugolacasse
Building/City of Tomorrow: facts

- Building of Tomorrow started in 2000
- More than 450 research projects funded:
  - Applied research, technology and components
  - Basic research on socio-economic issues
  - Research on tools and normative aspects
  - International cooperation within ERA-Net Eracobuild and IEA –EBC

Programm manager: ÖGUT; Funding organisation: FFG

Programme owner:
Building/city of Tomorrow: outcome

Investment

- Total costs: 1,03 billion EUR (4,152 billion AED / 435,1 million OMR) – related to the programme
- Total costs, public funding: 138 million EUR (556,3 million AED / 58,3 million OMR)

Outcome

- 55 demonstration projects build or under construction
- Numerous innovative technologies developed by private companies
- Novel building concepts and know-how
Energy plus renovation

- Renovation of a residential building with prefabricated façade elements, concept and technology development, demonstration
Innovative office building

Technological highlights:
- Plusenergie building
- PV-Fassade
- Energy management – smart grid
Plus energy office building

Innovation and Technologies:
- Austria’s largest energy surplus office building; technical and economical feasible
- Thermal quality: going beyond Passive House standard
- Focus on energy efficiency of office devices
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
Solar technology – modernization and new buildings

Innovation and technology
- energy demand for heating: factor 7
- Innovative Solar facade
- prefabricated roof and facade elements

source: BIG

source: AEE INTEC
Solar technology – buildings and settlements

- optimized building envelope,
- superimposed add-on façade combining functions such as energy generation, providing shade or green façade

Solar settlements:
- Solar orientation
- Traffic reduction
- Smart Grids

source: MA 27, BMVIT
source: www.eco.at
Energy Plus Network

- Passive House standard, built in wood and clay
- Almost all apartments sold
Energy surplus cluster Graz

- Building in passive house standard,
- timber construction and use of clay;
- Energy cluster of residential buildings with office and business complex.

Source: City Building Department Graz / ECR Team
Source: AEE INTEC / Nussmüller Architects ZT Ltd
Solar village Aspern - Vienna

- Open space and microclimate
- Energy supply and consumption cross-linked between several buildings
- Erecting demonstration projects as "beacon projects", e.g. aspern IQ
- Quality monitoring accompanying the planning stage, and central monitoring of energy consumption
- Development and use of simulation tools for district planning

source: www.aspern-seestadt.at
Results from an international perspective

Programme “Building of Tomorrow” – “City of Tomorrow”

- Exemplary programme for Europe
  - Few R&D programmes for building research in OECD
  - Target oriented approach
  - Broad range of instruments (R&D, demonstration, regulation, training)
  - All reports published on www.nachhaltigwirtschaften.at
- Leading programme in the European Research Area
- Combines innovation and stability at the programme level
Results from an international perspective

Main outcome:

- Leadership in energy efficiency – building technology
- Highest number of Passivhouses/very efficient buildings worldwide
- New Standard for buildings - regulation towards very low energy buildings
- New technologies and products for PV, solar cooling etc.
- Innovative companies and consultants – “green jobs”
- Education and training for professionals
- Decrease in CO2-emissions from buildings
Thank you for your attention!

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