Case Study – Smart City Wien

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Implementation of the Smart Specialisation Strategies (S3)
7 April 2016 Ljubljana, Slovenia
Area: 415 km²; 50% green space
Population: 1.8 m inhabitants
Growth: + 9.4% over the last 10 yrs
Projection: 2 million by 2025

The challenges
- Climate change, urban heat
- Limited space and resources
- Population growth, migration
- Slow economic growth, difficult framework conditions
- Affordable living
Key Figures: Energy and CO₂

Gross Domestic Consumption (GWh) 40 648
Final energy consumption (GWh) 36 793

Gasoline (final energy) 35 %
Electricity (final energy) 22 %
Gas (final energy) 19 %
1200 km District heating (final energy) 16 %
Renewables (final energy) 6 %

Primary Energy (Watt / capita) ~ 3.000
CO₂ eq per capita ~ 5.5 t
- without Emission Trading Sector ~ 3.1 t
“The best quality of life for all inhabitants of Vienna, while minimizing the consumption of resources, realised through comprehensive innovation.”
AMBITIOUS CLIMATE & ENERGY TARGETS

Indicators 2030 2050

Primary Energy per Cap. 2.000 W

Share of Renewables 20 % 50 %

Reduction of final energy consumption 40 % (2005)

CO₂ per Capita

Share of cars 15 % < 15 %*
THE FRAMEWORK STRATEGY IS COMPLEMENTED BY SECTORAL PROGRAMMES AND DETAILED CONCEPTS
A Smart City rethinks governance

- integrates its policies and planning
- implements in partnership with private sector and citizens.
New Topic: „Smart Energy Planning“ (starting with)

→ Energy concepts for large new city developments
→ Energy criteria for larger projects
→ Modelling of energy demand
→ Renewable energy and waste heat sources

Seestadt aspern, 8,500 flats, 20,000 people
DENSIFICATION – USING FORMER RAILWAY STATIONS, FACTORY SITES,..
Urban energy sources: waste heat & „on-site“ renewable energy
New online tools to support urban energy planning

https://www.wien.gv.at/stadtentwicklung/energieplanung/stadtplan/
Lifecycle cost principle as game changer for investment decisions

![Graph showing lifecycle cost principle comparison]
A Smart City involves its people: Citizens’ participation in the move towards more RES

- 22 sites
- 6,000 citizens
- >27 million €
A Smart City rethinks mobility and puts environmental friendly modes first.

2015: First time more annual tickets for public transport than cars in Vienna.
New campus of Vienna University of Economics and Business

- Groundwater usage for heating and cooling
  - 3.2 MW Heating and Cooling capacity
  - 150 l/s (12°C)

- Cooling
  - direct use of groundwater
  - high efficient

- Heating
  - Heat pump raises temperature level
  - Waste heat usage of IT infrastructure
  - District heating connection
Renovation of the Vienna University of Technology - Plus energy office building

- Low energy consumption: 56 kWh/m²
- Energy recovery systems:
  - server waste heat
  - Elevator
- 2,200 m² PV system
Best practice: Social Housing – „Breite Furt“

- approx. 700 flats
- + large business areas
- integrated energy concept: solar heating, waste heat, heat pumps & storage
- - 70% natural gas

BUWOG
Image rights: IMMOFINANZ Demophon Immobilienvermietungs GmbH
New Project: Wooden Skyscraper „Hoho Wien“ in Aspern Vienna’s Urban Lakeside

- 24 floors
- 84 m high
- mainly commercial use
- start of construction in spring 2016
- completion in about 2 years
- approx. EUR 65 million investment

http://www.hoho-wien.at
Innovation as key: Constant developing & testing of new approaches

- Aspern Vienna’s Urban Lakeside (National) – lab for energy and mobility in new built environment
- Liesing – e-mobility services for businesses
- DigitalCity Wien – https://digitalcity.wien
- SMARTER TOGETHER (H2020) – Lighthouse district for the built environment (2016-2020) www.smartertogether.eu
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Thank you!