


# Case Study – Smart City Wien

Waltraud Schmid  
Energy Center Wien / TINA Vienna GmbH  
[waltraud.schmid@tinavienna.at](mailto:waltraud.schmid@tinavienna.at)

Implementation of the Smart Specialisation Strategies (S3)  
7 April 2016 Ljubljana, Slovenia





**Area:** 415 km<sup>2</sup>; 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



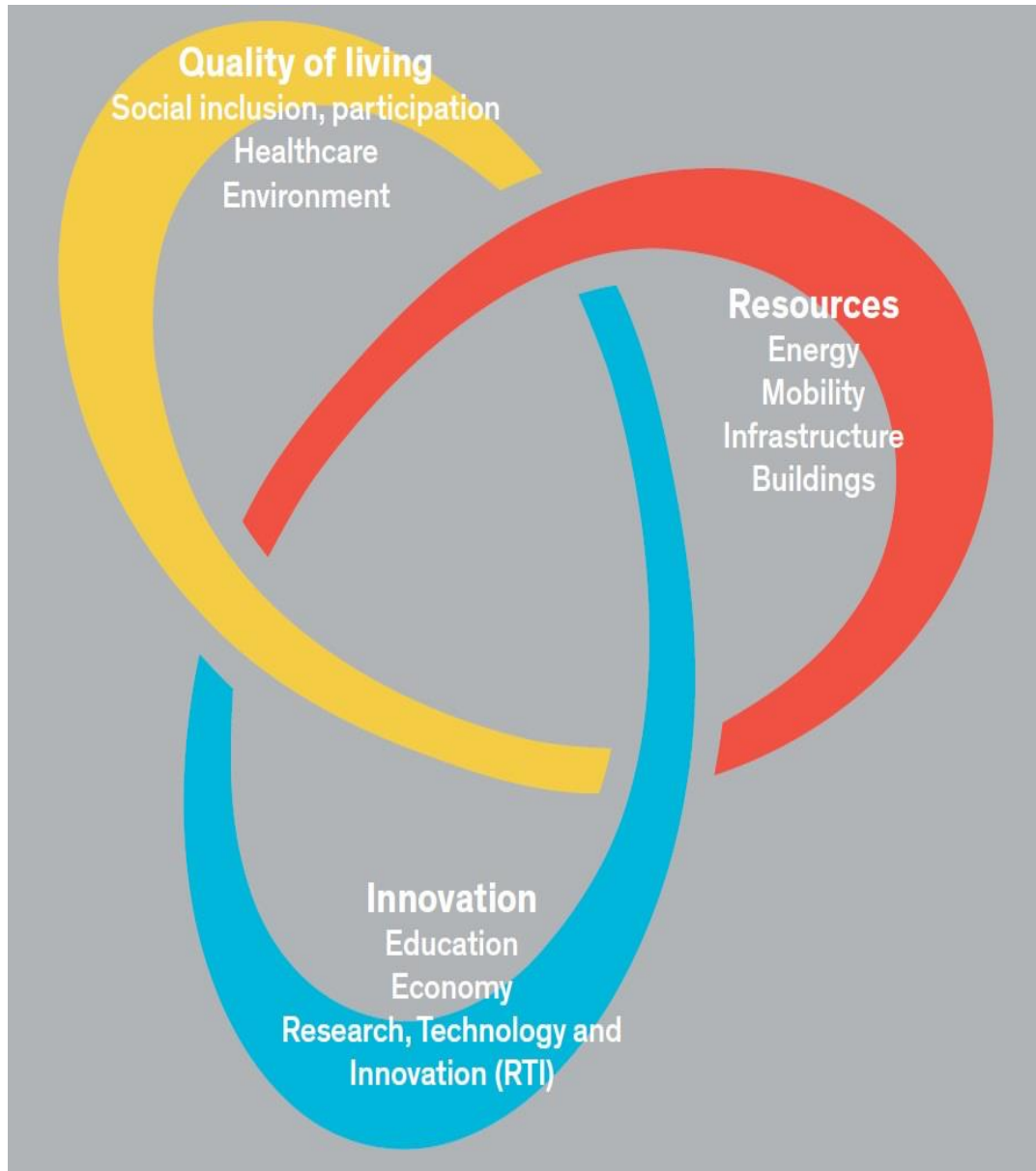
## Key Figures: Energy and CO<sub>2</sub>

|                                  |        |
|----------------------------------|--------|
| 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 |
| CO <sub>2</sub> eq per capita     | ~ 5,5 t |
| - without Emission Trading Sector | ~ 3,1 t |

# Smart City Wien Framework Strategy



*"The best quality of life for all inhabitants of Vienna,*

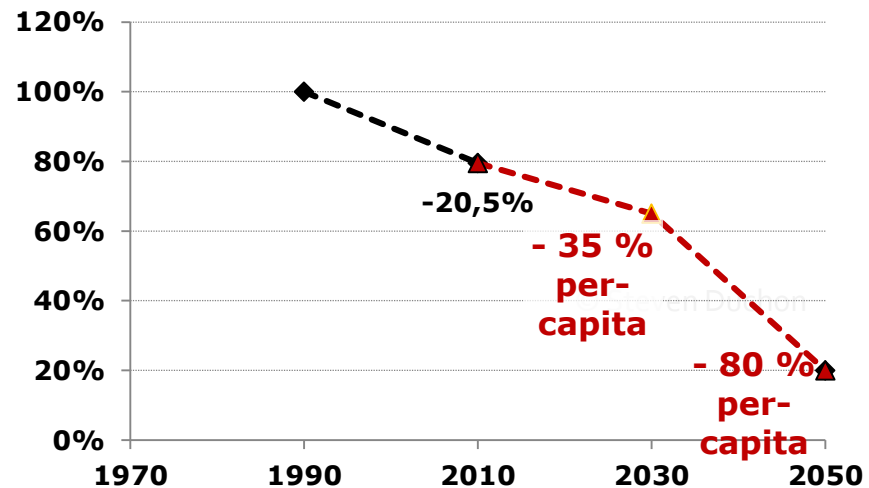
*while minimizing the consumption of resources, realised through comprehensive innovation."*



# 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) |
| CO <sub>2</sub> per Capita            |      | 1 t         |
| 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.**





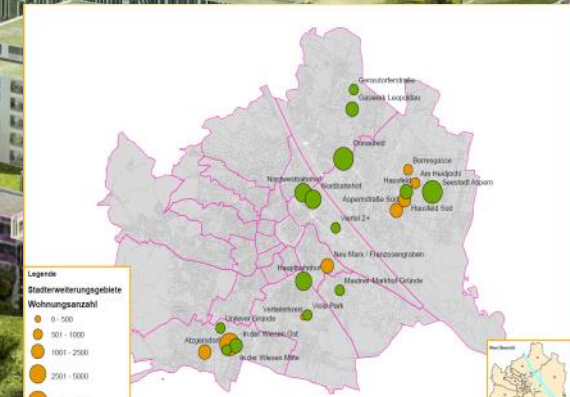
# STEP 2025

## *Urban Development Plan*

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

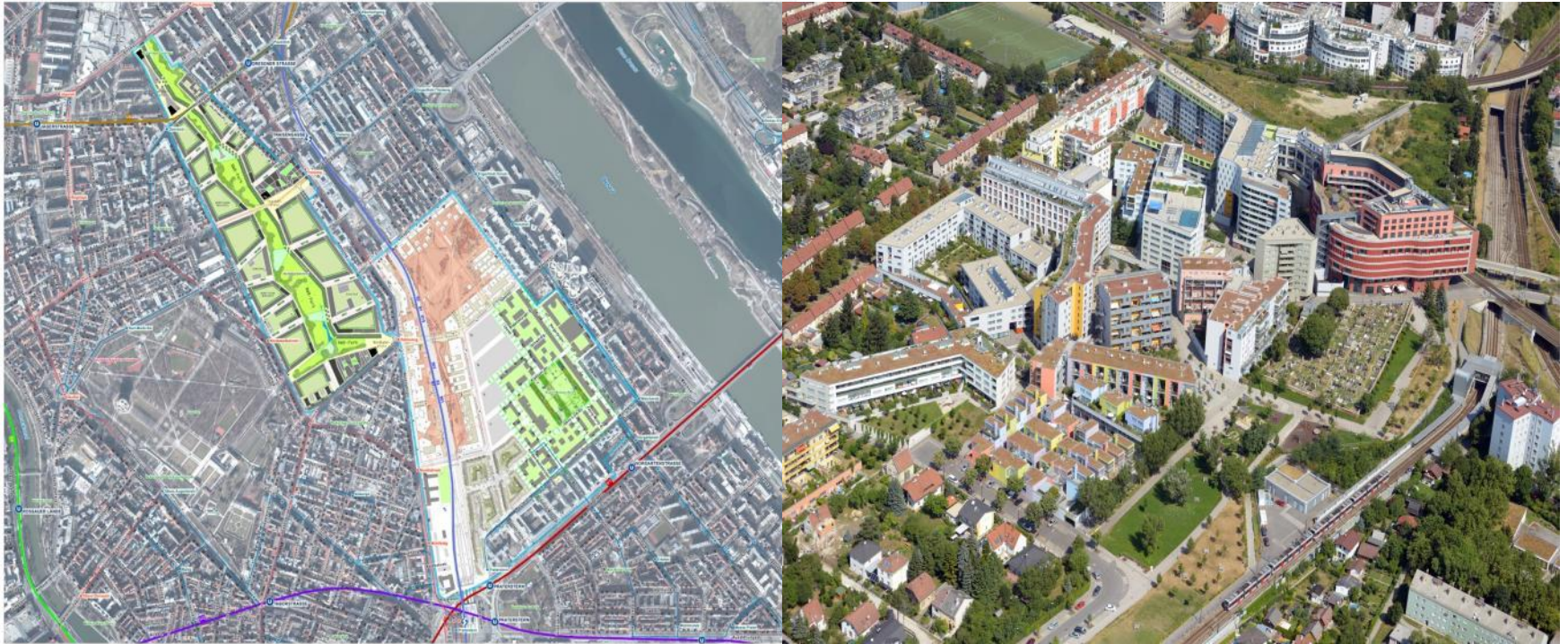
Seestadt aspern, 8.500 flats, 20.000 people





# DENSIFICATION – USING FORMER RAILWAY STATIONS, FACTORY SITES,..

9

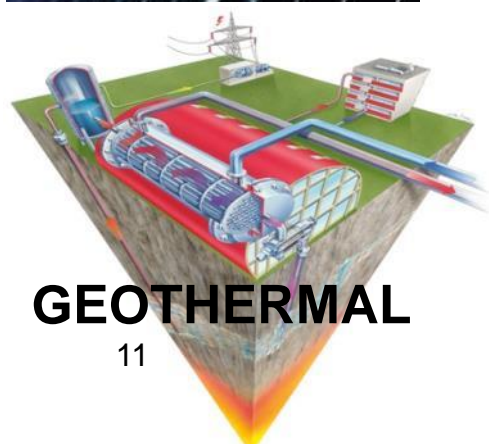






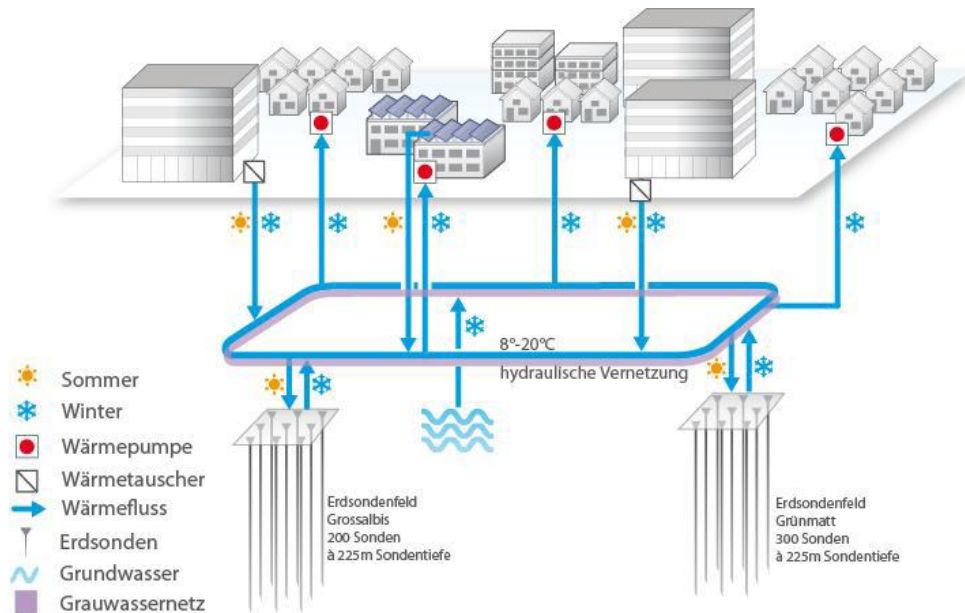


# Urban energy sources: waste heat & „on-site“ renewable energy



**GEO THERMAL**

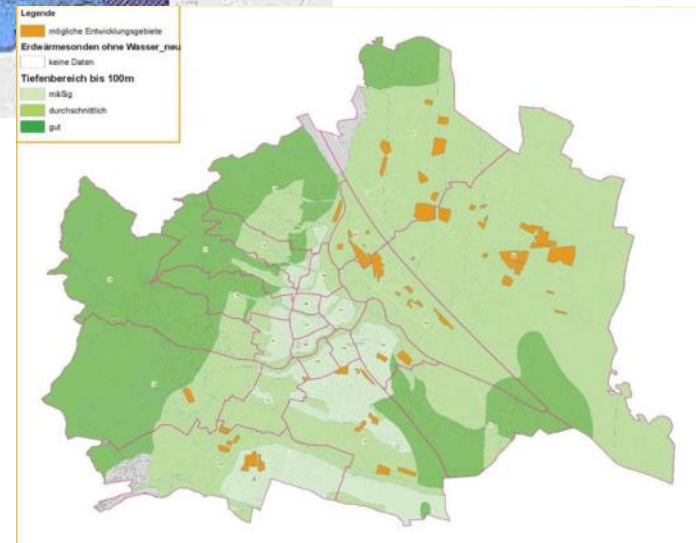
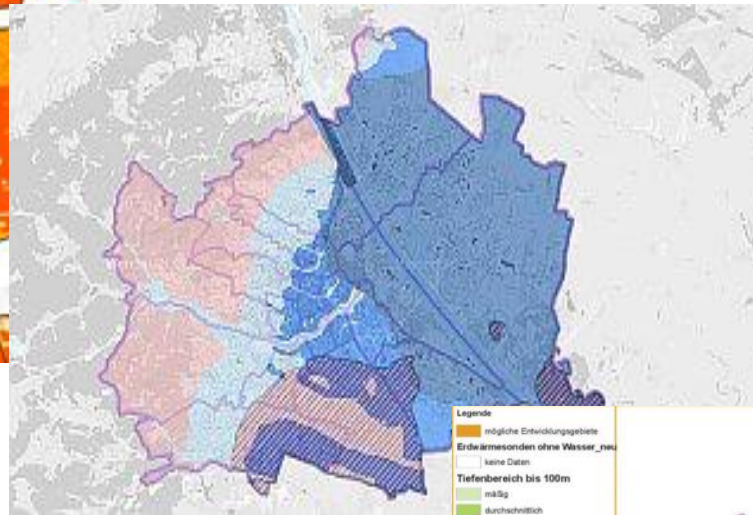
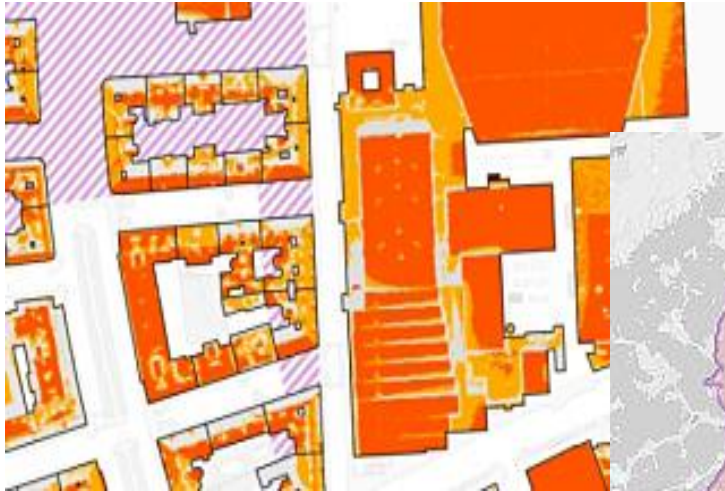
11





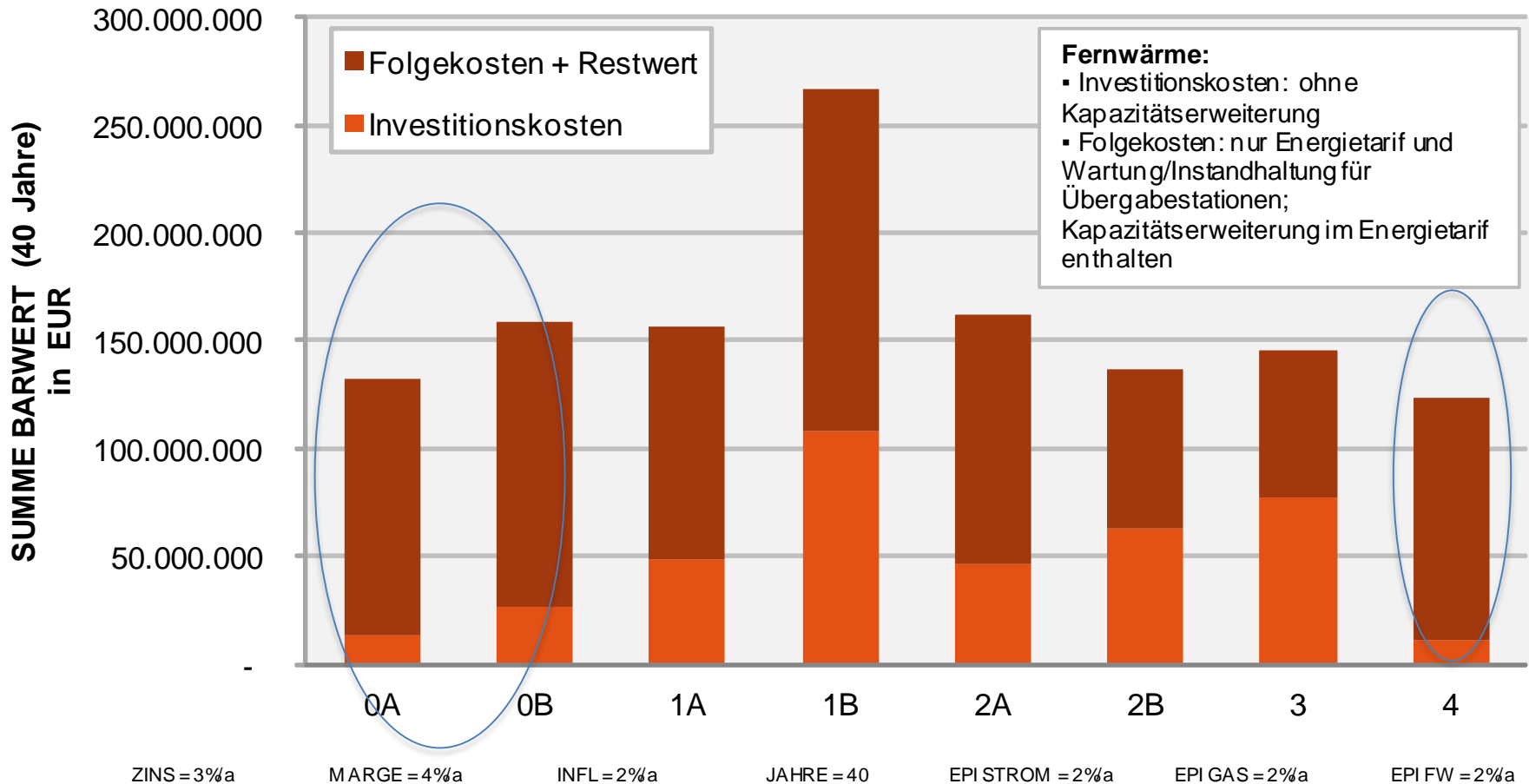
# New online tools to support urban energy planning

12





# Lifecycle cost principle as game changer for investment decisions





# A Smart City involves its people: Citizens' participation in the move towards more RES





# A Smart City rethinks mobility and puts environmental friendly modes first

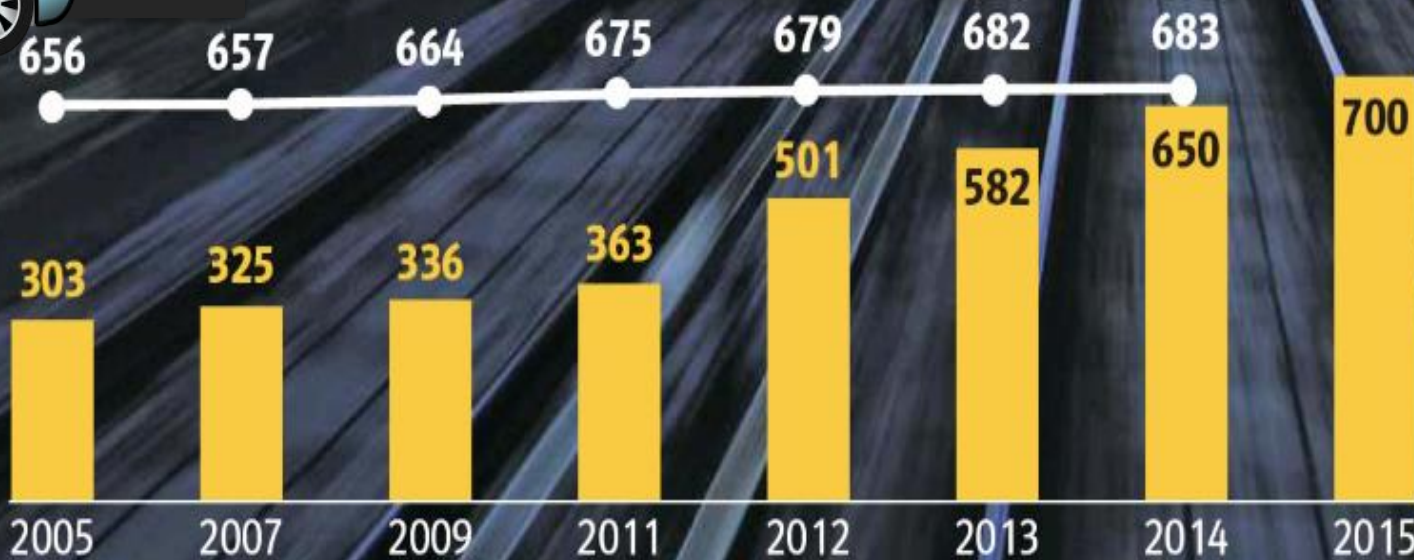
2015: First time more annual tickets for public transport than cars in Vienna



Pkw-Bestand



Jahreskartenbesitzer



Zahlen in Tausend, gerundet | PKW-Bestand: für 2015 noch keine Zahlen verfügbar

Quelle, Foto: Wiener Linien Grafik: Schimper **KURIER**




# 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/m<sup>2</sup>
  - Energy recovery systems:
    - server waste heat
    - Elevator
  - 2.200 m<sup>2</sup> 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



19

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

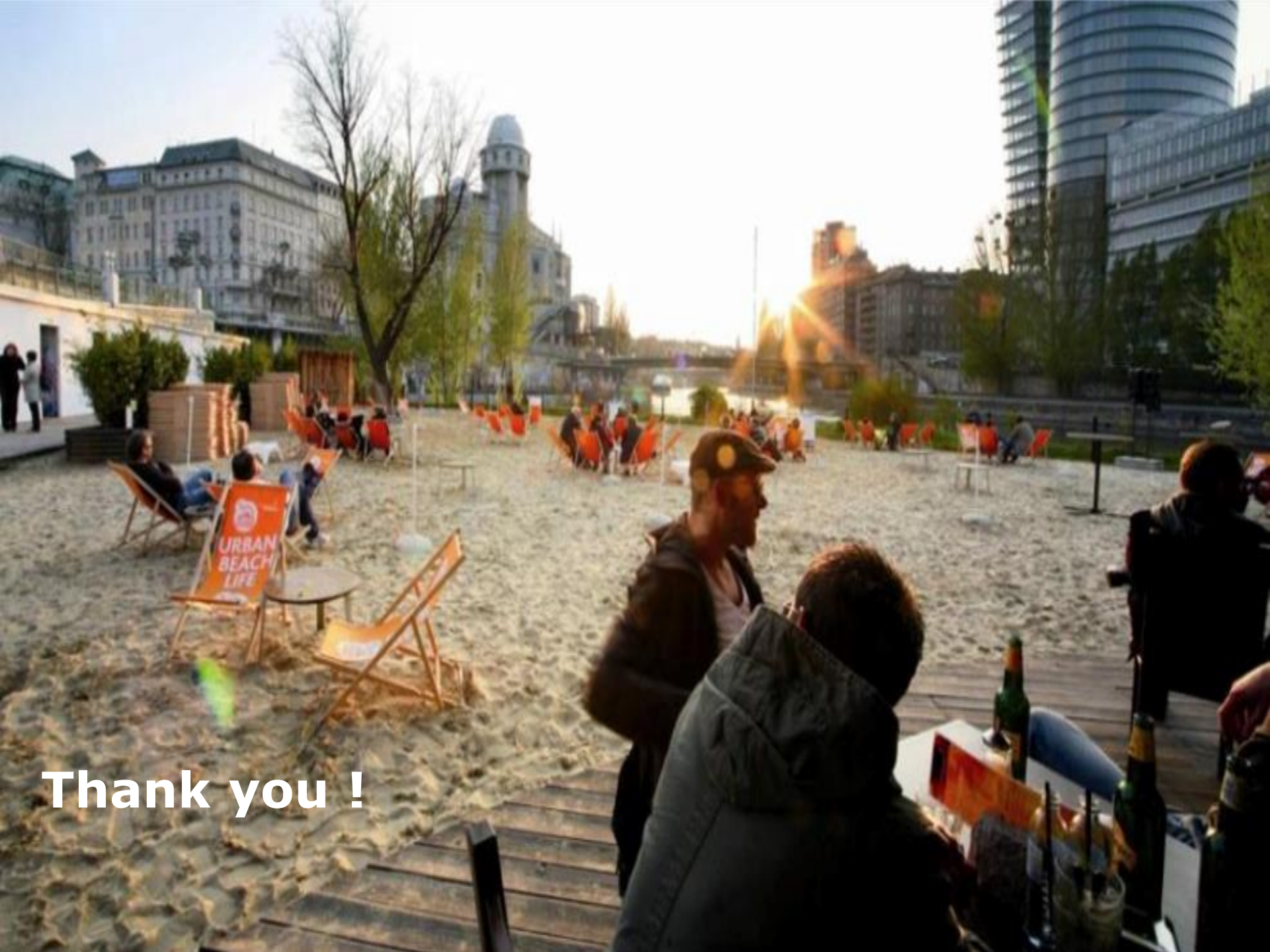


# Innovation as key: Constant developing & testing of new approaches

- 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>
- URBAN LEARNING (H2020) – Urban Planning Governance (2015-2017)[www.urbanlearning.eu](http://www.urbanlearning.eu)
- SMARTER TOGETHER (H2020) – Lighthouse district for the built environment (2016-2020)[www.smartertogether.eu](http://www.smartertogether.eu)
- .....







**Thank you !**