IRENA - Energy Community Workshop , 04.03.2016

Energy in Vienna

Herbert Ritter

Facts_Strategies_Intiatives

SMART CITY WIEN

Vienna! ahead
Energy Planning
City of Vienna

MA 20 AS SERVICE PROVIDER

2 main objectives

PR

Increasing energy efficiency

Utilising and optimizing decentralised RES

Management of the SEP

Providing knowledge, information, contacts

Smart energy planning

Monitoring of energy related concepts

Initiation pilot actions / projects

Adminstration of the ecoelectricity fund scheme

Input to framework design

OVERVIEW

- Facts, figures and challenges
- Strategies, targets, programms
- Initiatives

VIENNA: STATUS QUO

- Vienna is changing & growing
- Most livable city
- Population: 1.8 million inhabitants (2014)
- Area: 415 km²; almost 50% green areas
- Growth: + 9.4% over the last 10 years

VIENNESE POPULATION DEVELOPMENT

ENERGYFLOW IN VIENNA 2014: EFFICIENT BUT STILL FOSSIL!

Gross domestic consumption
40.648 GWh **100 %**

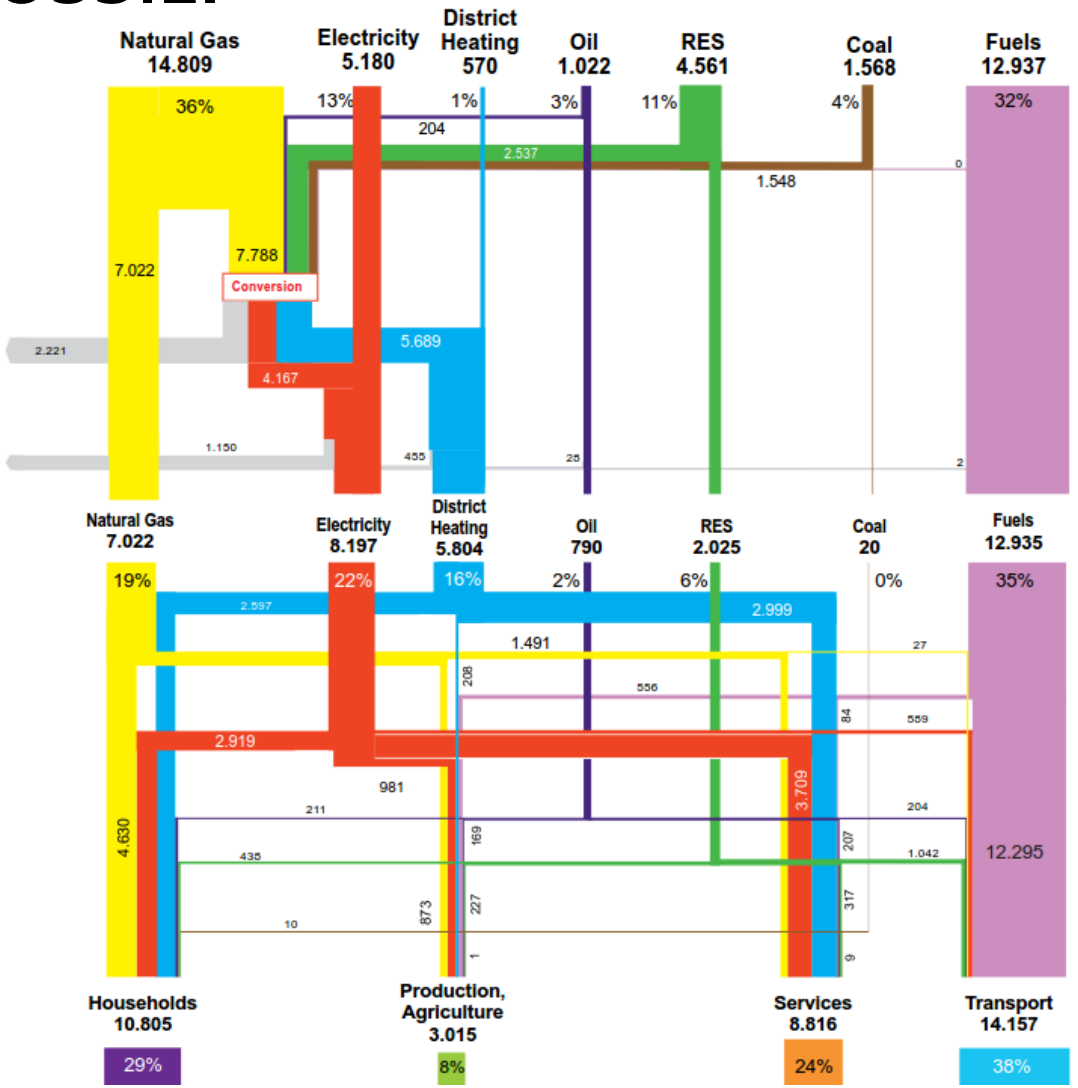
Conversion losses 5,5%

Non energetic consumption
1.634 GWh 4,0%

Final energy consumption
36.793 GWh **90,5%**

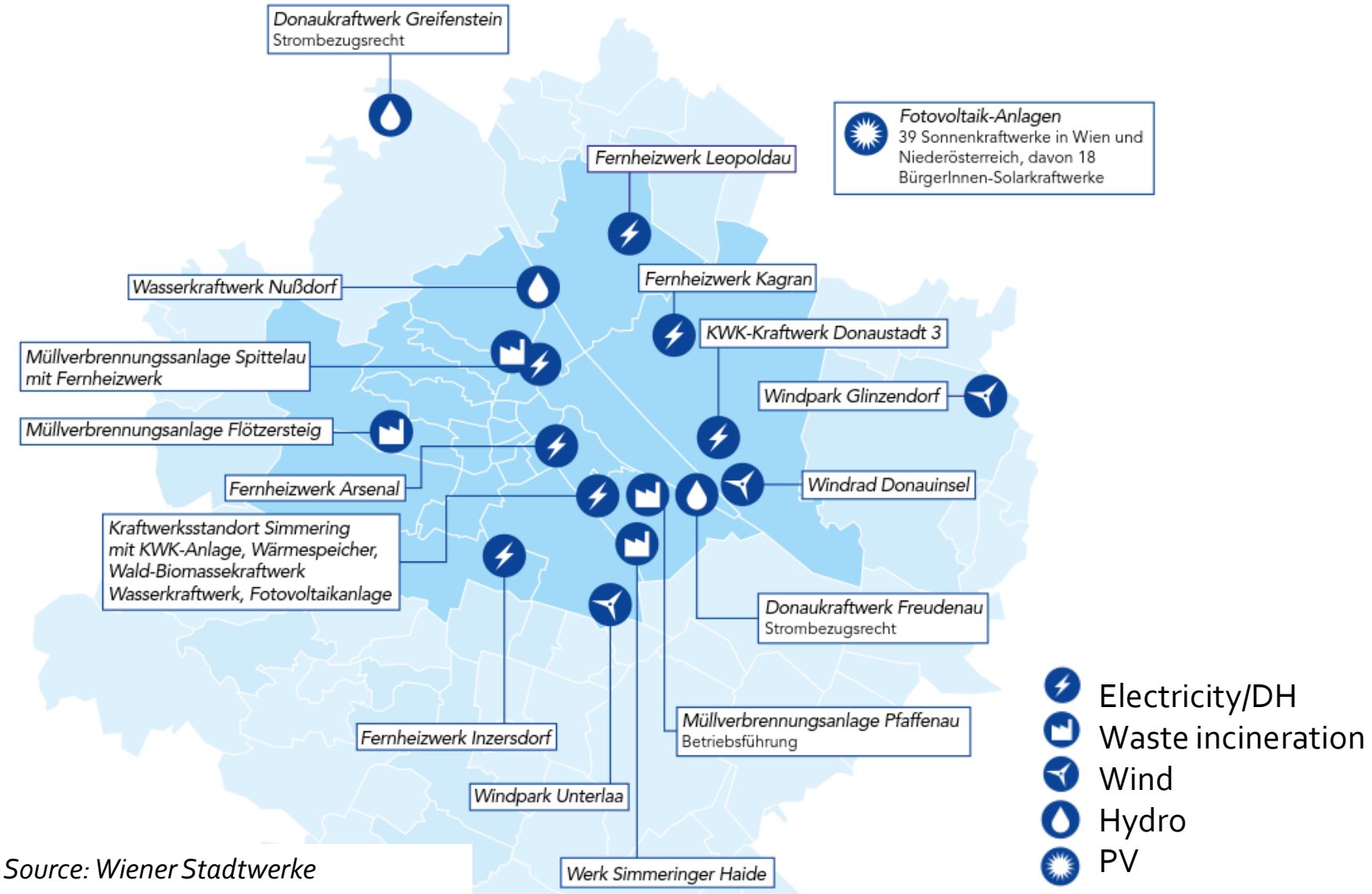
Units:
1 GWh=10^6 kWh
1 GWh=3,6 TJ=3,6*10^12 J (Joule)

Final energy consumption by sector
36.793 GWh **90,5%**



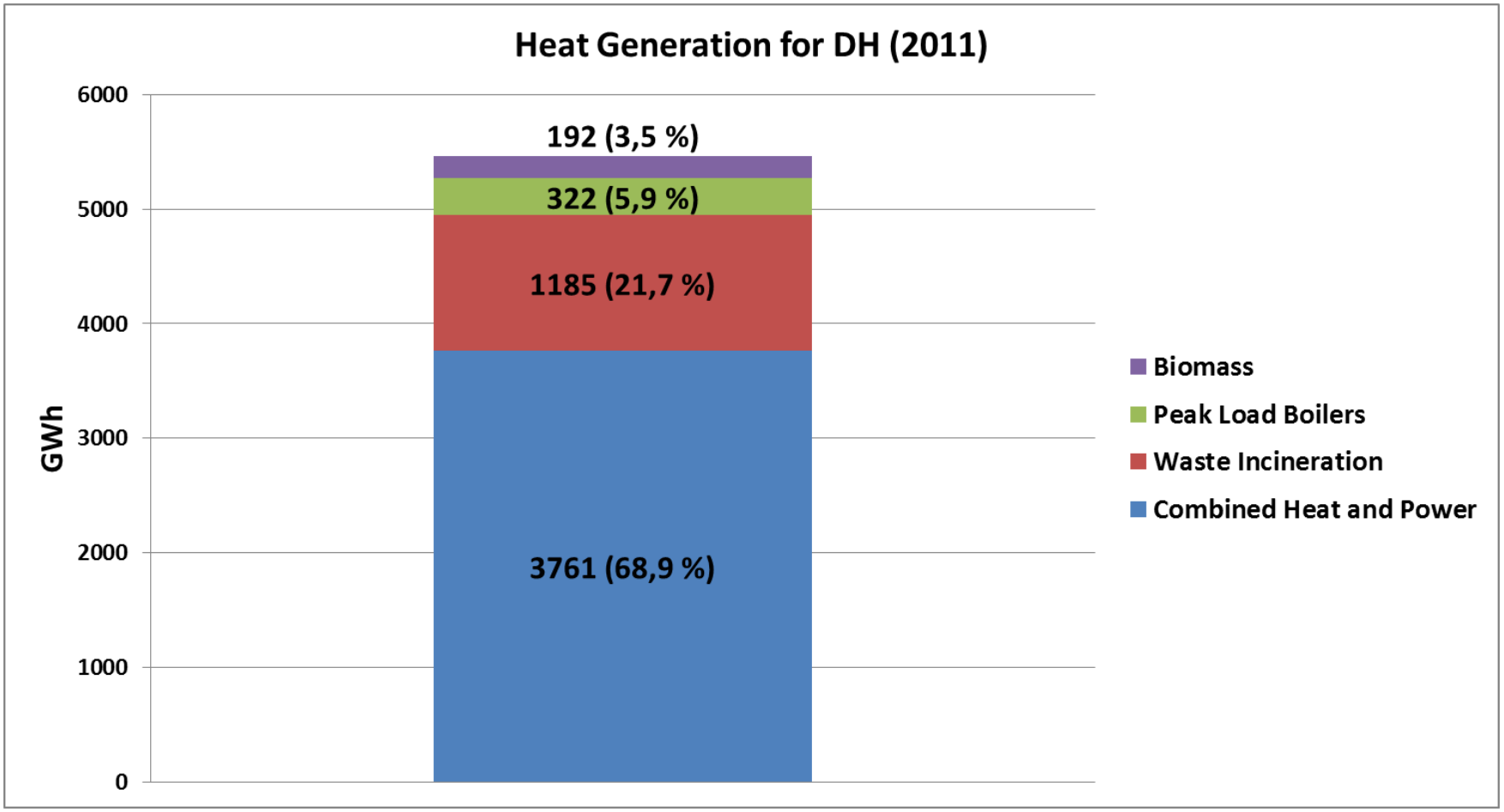
Source: Statistik Austria

ENERGY GENERATION IN VIENNA



Source: Wiener Stadtwerke

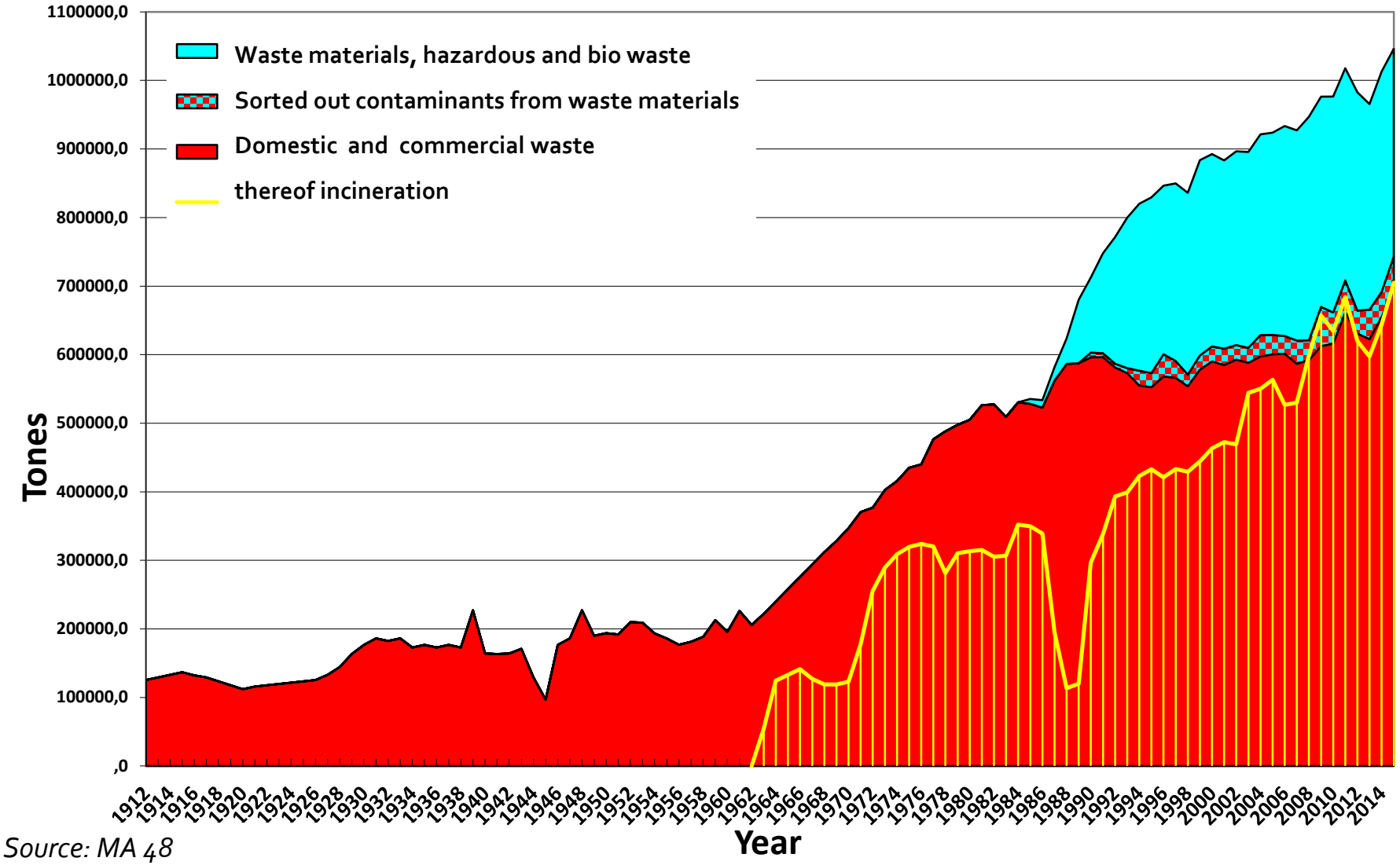
DISTRICT HEATING IN VIENNA



DH grid length : ~ 1200 km

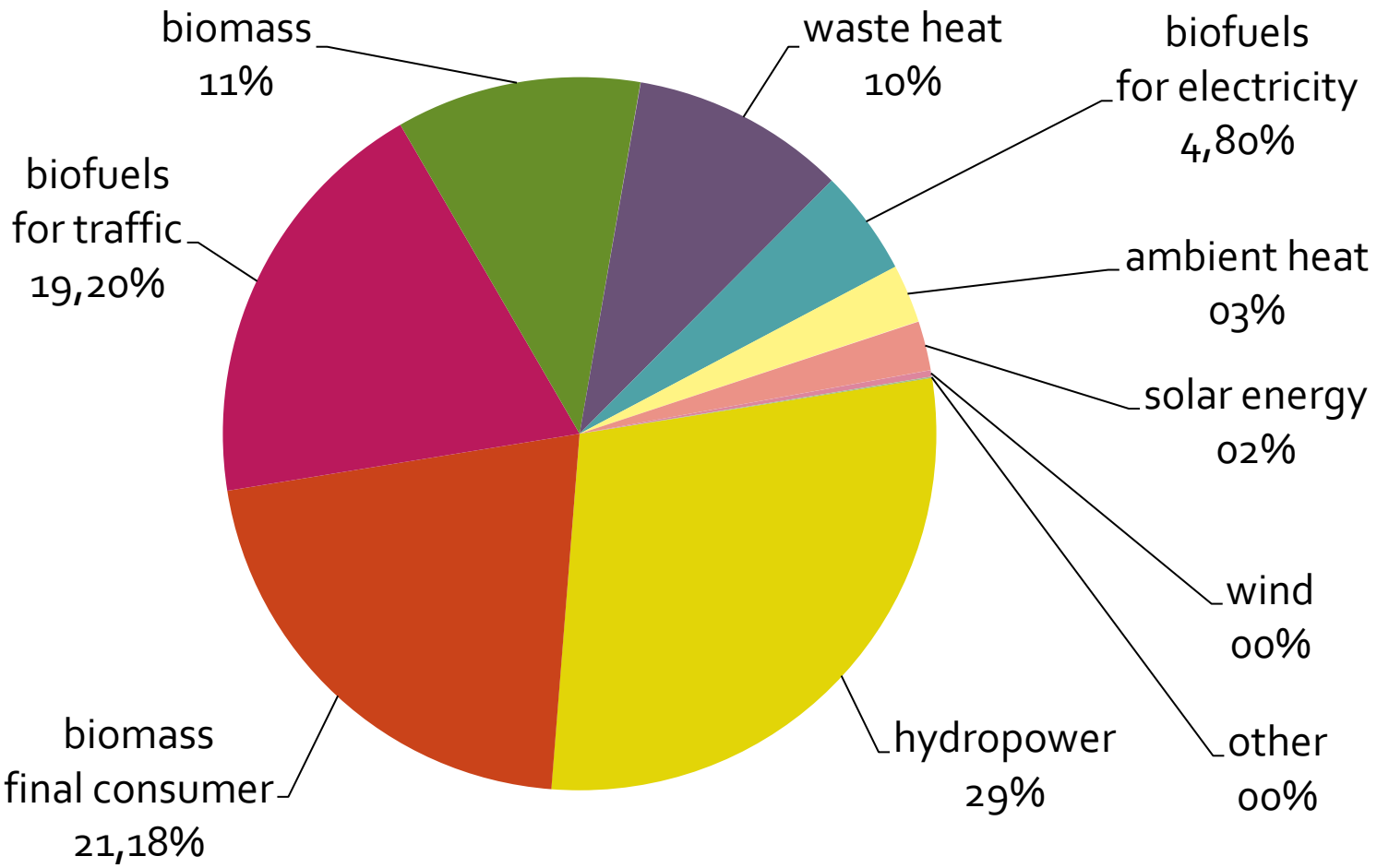
Source: Wiener Stadtwerke

WASTE COLLECTION AND RECYCLING

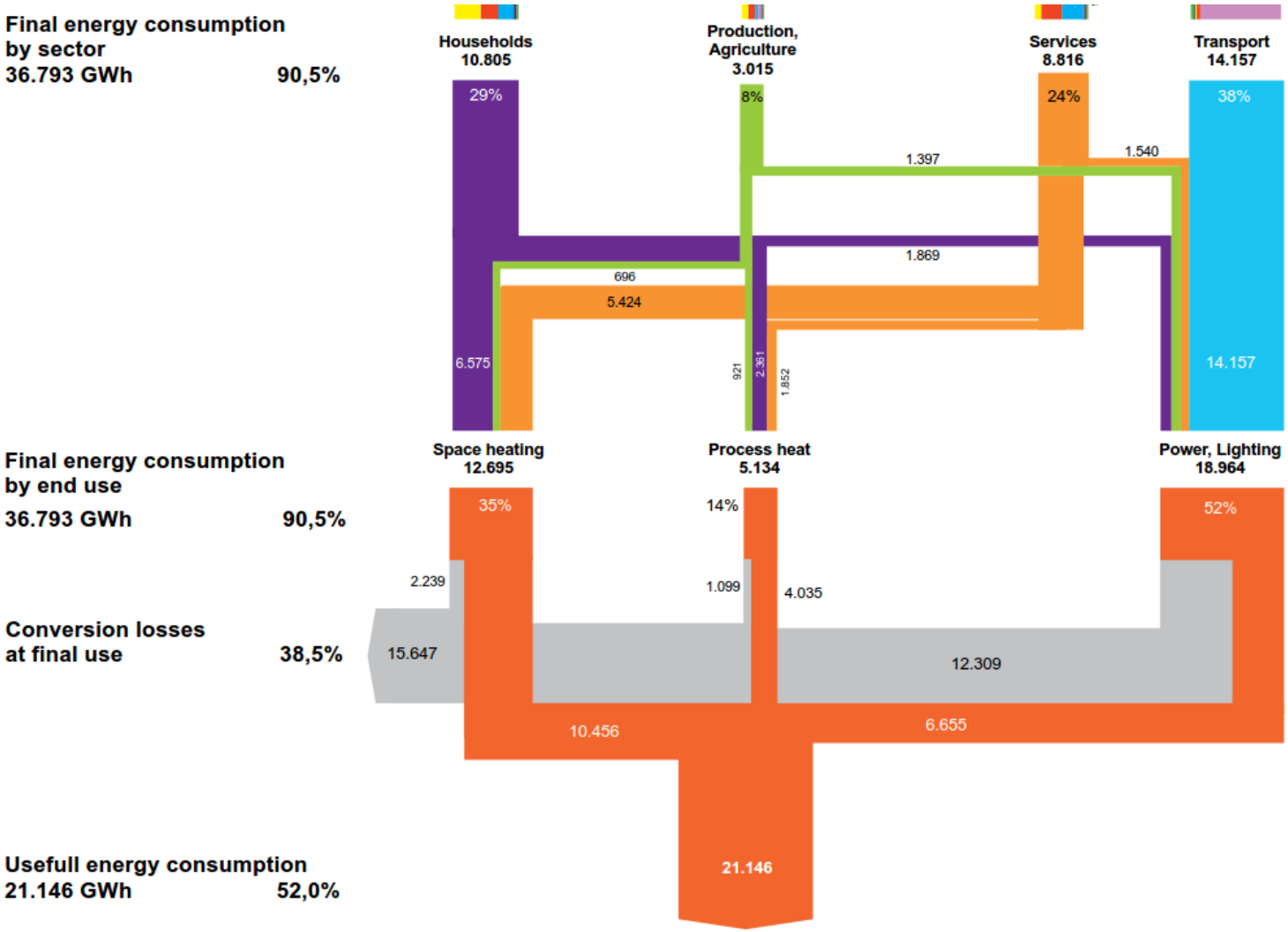


Source: MA 48

RENEWABLE ENERGY IN VIENNA

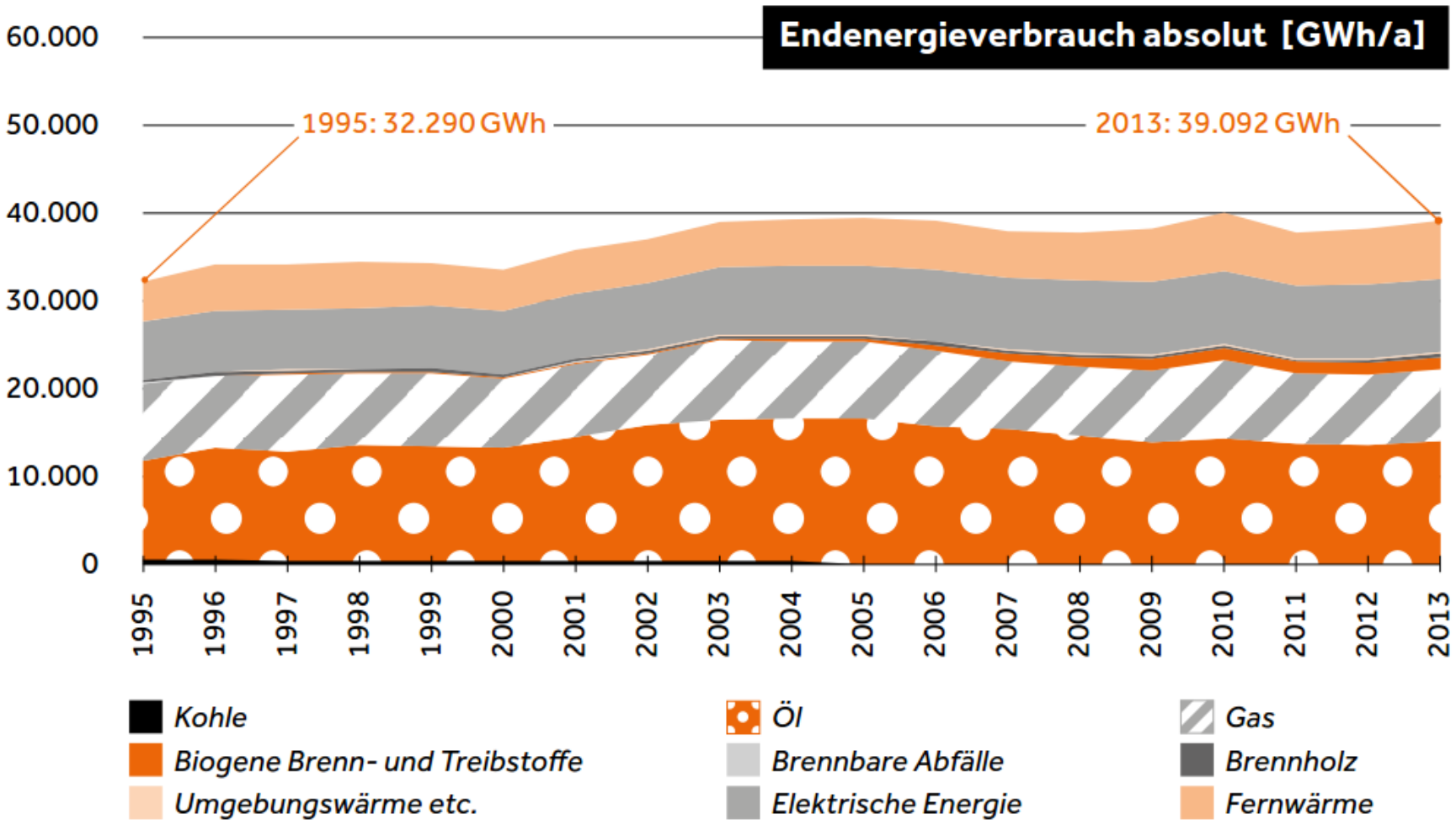


ENERGYFLOW IN VIENNA 2015: EFFICIENT BUT STILL FOSSIL!

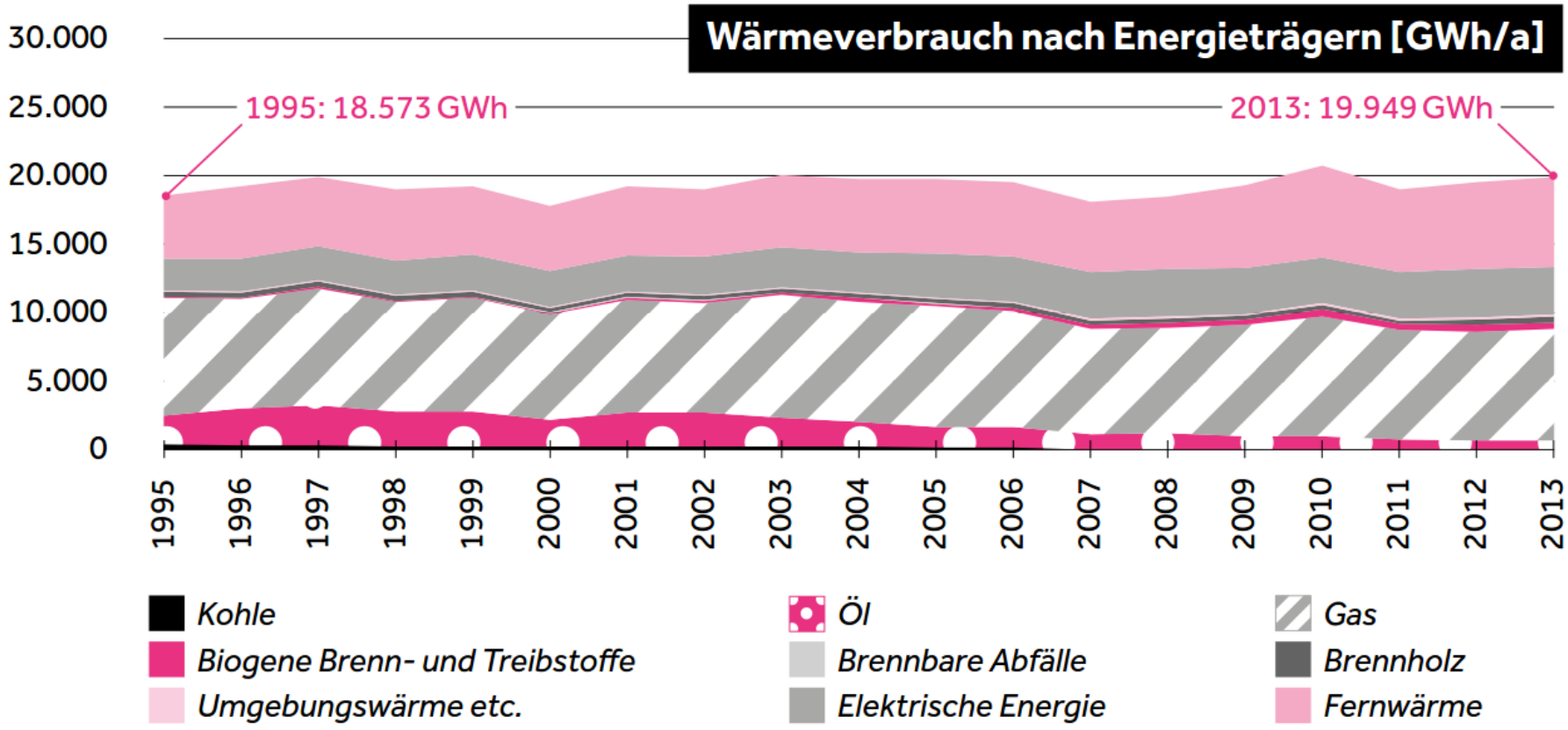


Source: Statistik Austria

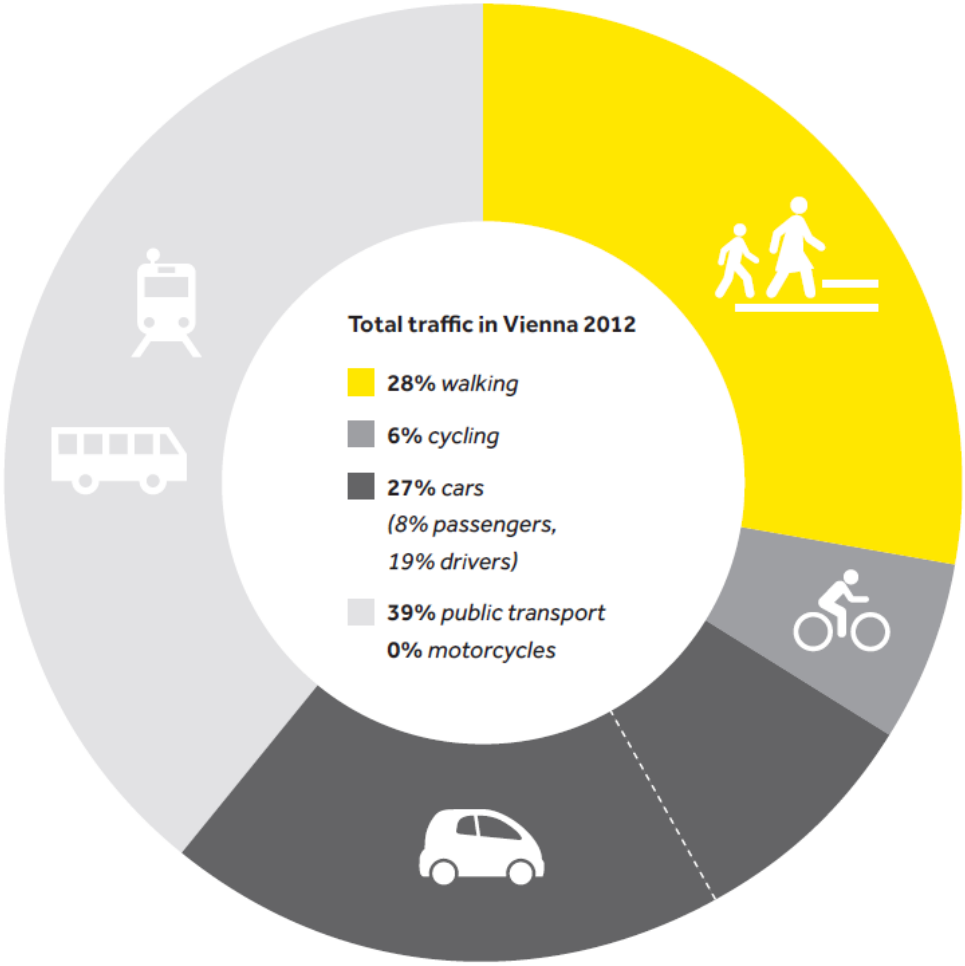
FINAL ENERGY CONSUMPTION



HEAT CONSUMPTION



MODAL SPLIT


Total traffic in Vienna 2012
28% walking
6% cycling
27% cars
(8% passengers,
19% drivers)
39% public transport
0% motorcycles

CHALLENGES OF A METROPOLIS

- Deal with urbanization
- Counteract/deal with climate change
- Secure and affordable energy supply

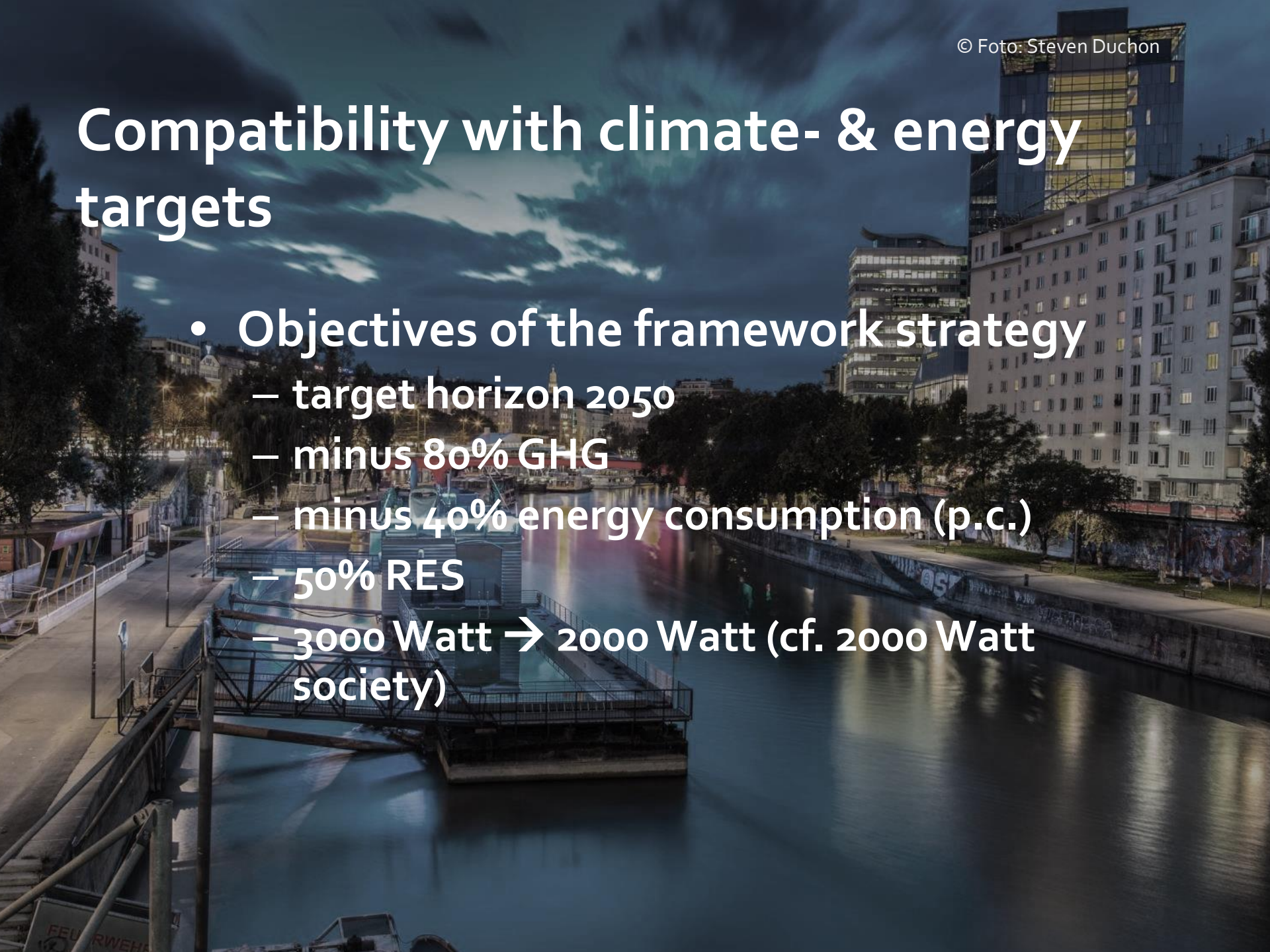
KEY QUESTIONS

- How can we use energy more efficient in the city?
- How can we use more renewable energy sources in and for the city?
- How can we design a future oriented and sustainable energy system? Where do we use which kinds of energy sources?

SMART CITY WIEN

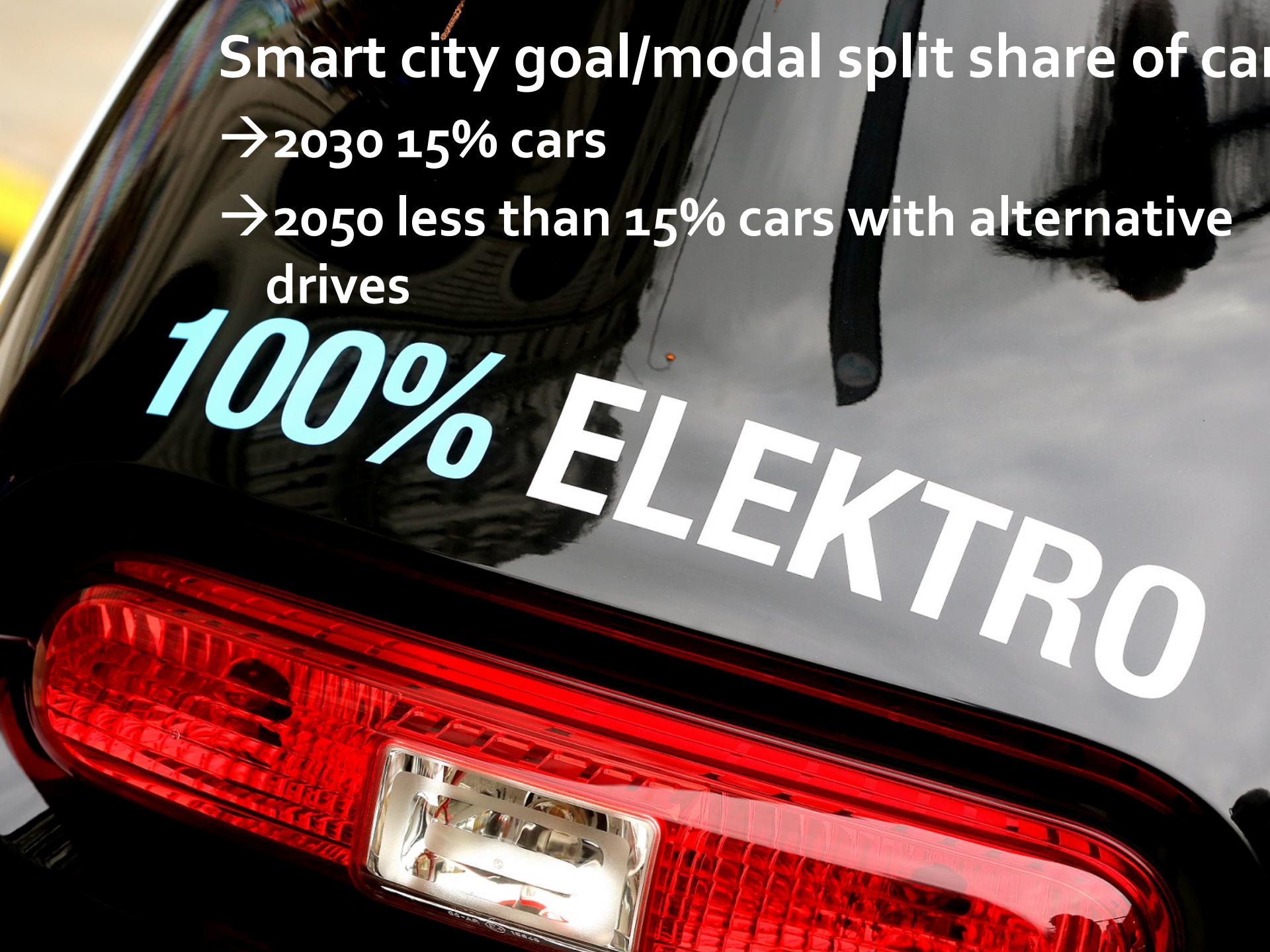
Framework Strategy

Key goal for 2050 of Smart City Wien: Highest possible resource preservation together with optimum quality of life for all citizens. This can be achieved through comprehensive innovations.



Compatibility with climate- & energy targets

- Objectives of the framework strategy
  - target horizon 2050
  - minus 80% GHG
  - minus 40% energy consumption (p.c.)
  - 50% RES
  - 3000 Watt → 2000 Watt (cf. 2000 Watt society)



Smart city goal/modal split share of car

→2030 15% cars

→2050 less than 15% cars with alternative drives

SEP

Urban Energy Efficiency Programme (SEP) 2006 - 2015

SEP - STRUCTURE OF MEASURES

Sectors	Starting points for measures				
	Technical energy efficiency			Influence on behaviour	
	Building quality with new buildings and refurbishment	Building equipment	Appliances & applications	Investment decisions	Use
Households Private services Public services Industry/manufacturing Agriculture					
Traffic & Transport (public and private)					

new SEP (SEP 2030) is in development

NEW BUILDINGS

» Excellent efficiency using renewables and waste heat on site for heating and cooling. «

Comprehensive building codes

2014 - Obligation for non-residental buildings:
use of renewables on site : 1 kW/100 m²
0,7 can be done by better efficieny

Heating systems allowed:
district heating : heat pumps :
renewables : chp : gas with solar

Guide for planners

BUILDING STOCK IS THE KEY TO SUCCESS!

- VIENNESE BUILDING-SUBVENTION AND HOUSE-RENOVATION LAW (WWFSG 1989)
- THEWOSAN-PROGRAM FOR ENERGETIC RENOVATION OF BUILDINGS


RAP
Renewable
Action Plan
Vienna

RAP-RENEWABLE ACTION PLAN VIENNA

RAP – **R**enewable **A**ction **P**lan

important potentials

- **Deep geothermal energy**
- **Photovoltaic & solarthermal energy**
- **Ambient heat & near-surface geothermal energy**
- **Import of RES**

15/21%

2030

STEP 2025

Urban Development Plan

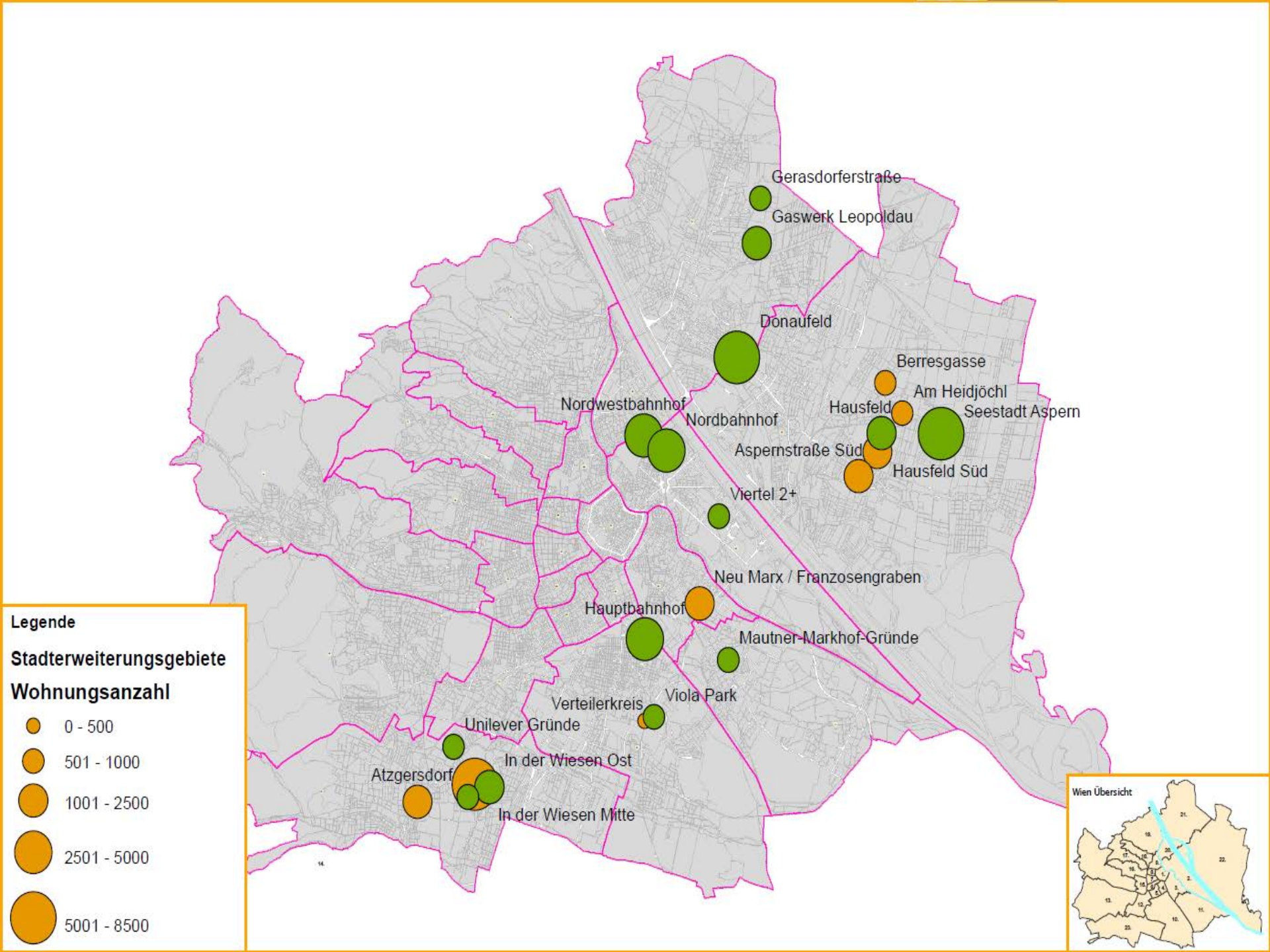
New Topic: „Smart Energy Planning“ (starting with)

→ Energy concepts for large new city developments

→ Energy criteria for larger projects

→ Modelling of energy demand

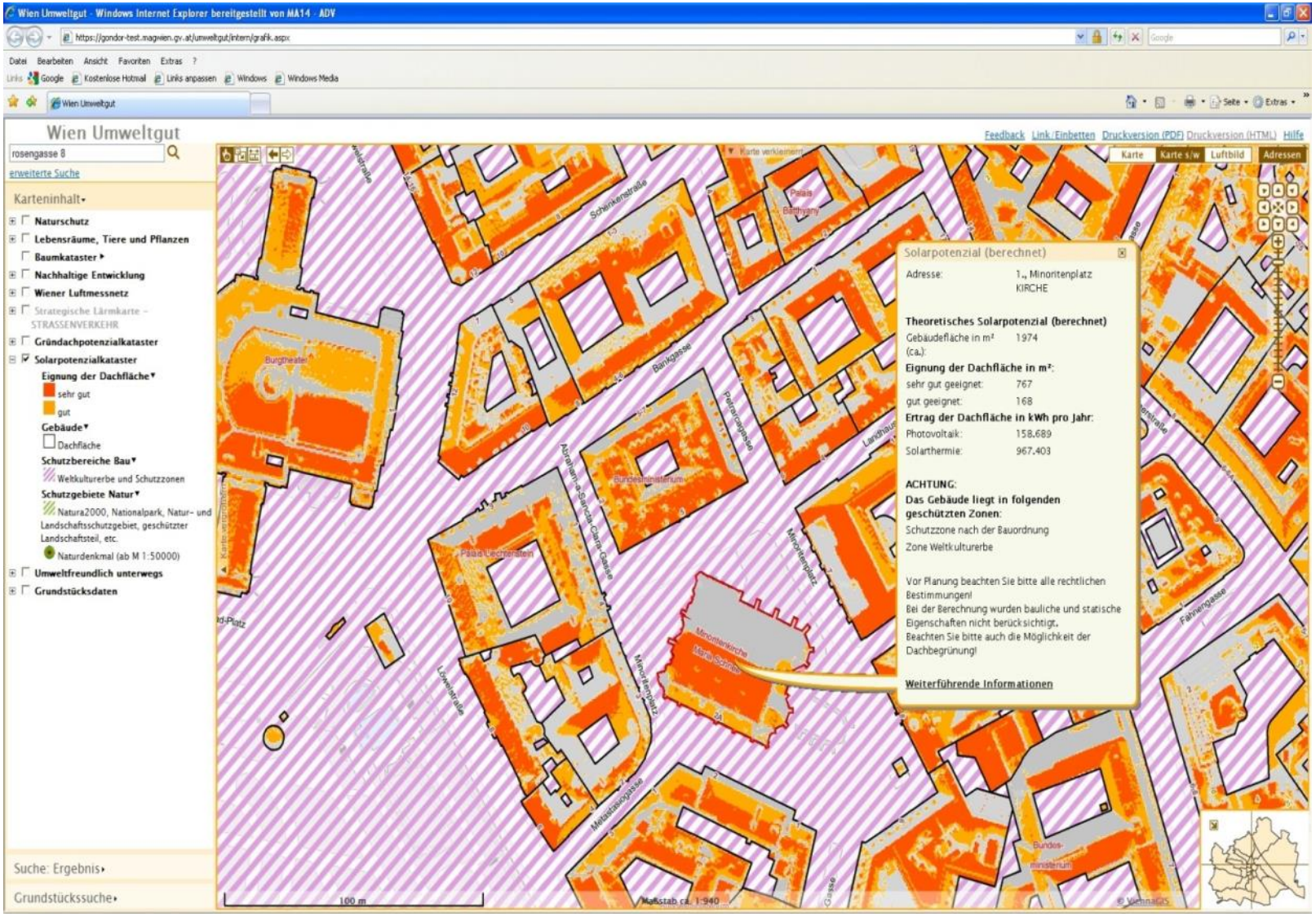
→ Renewable energy and waste heat sources


Gerasdorferstraße
Gaswerk Leopoldau
Donaufeld
Berresgasse
Am Heidjöchl
Hausfeld
Seestadt Aspern
Nordwestbahnhof
Nordbahnhof
Aspernstraße Süd
Hausfeld Süd
Viertel 2+
Neu Marx / Franzosengraben
Hauptbahnhof
Mautner-Markhof-Gründe
Viola Park
Verteilerkreis
Unilever Gründe
In der Wiesen Ost
Atzgersdorf
In der Wiesen Mitte
Legende
Stadterweiterungsgebiete
Wohnungsanzahl
0 - 500
501 - 1000
1001 - 2500
2501 - 5000
5001 - 8500
Wien Übersicht

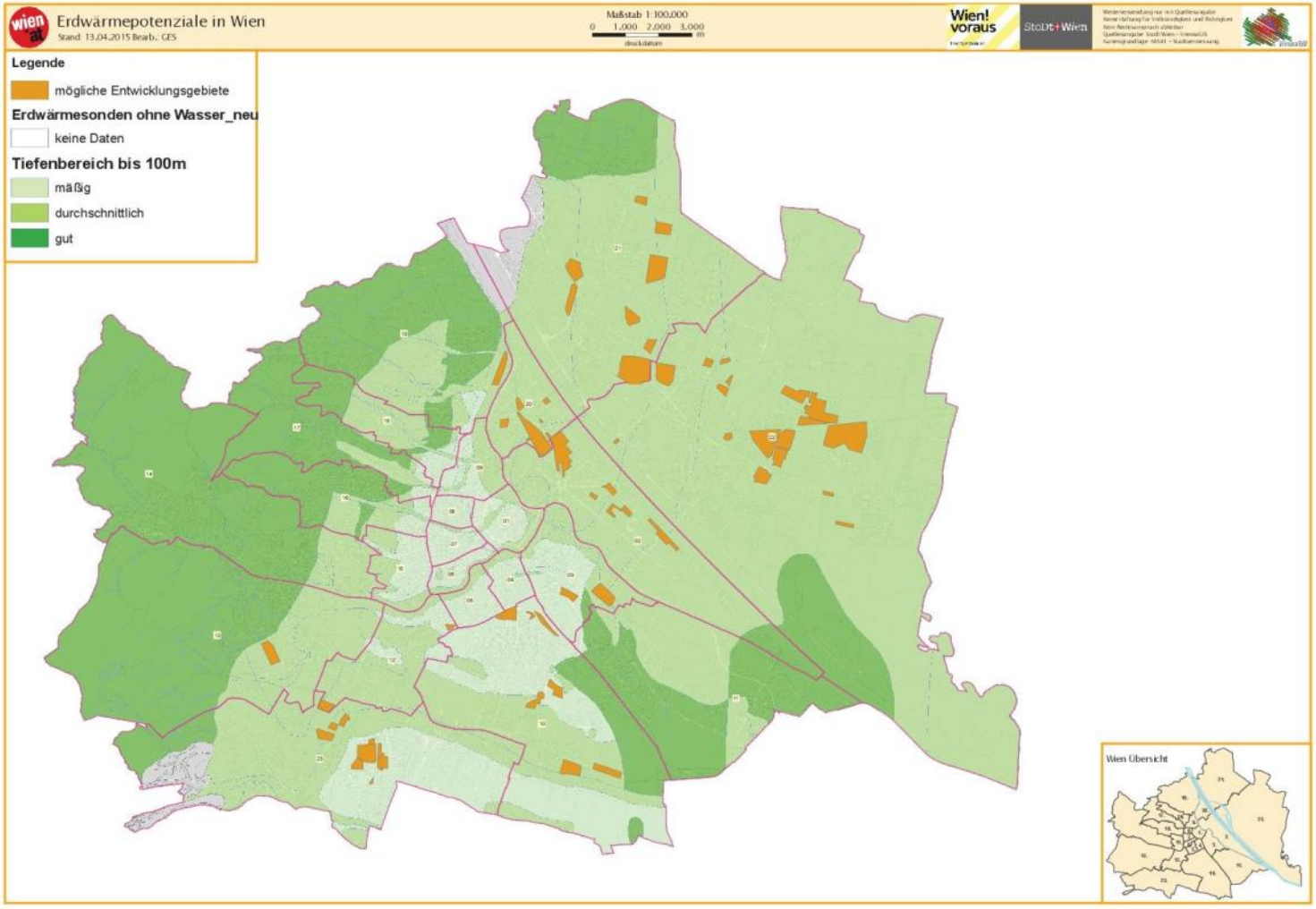
ASPERN SEESTADT (8.500 FLATS, 20.000 INHABITANTS)

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

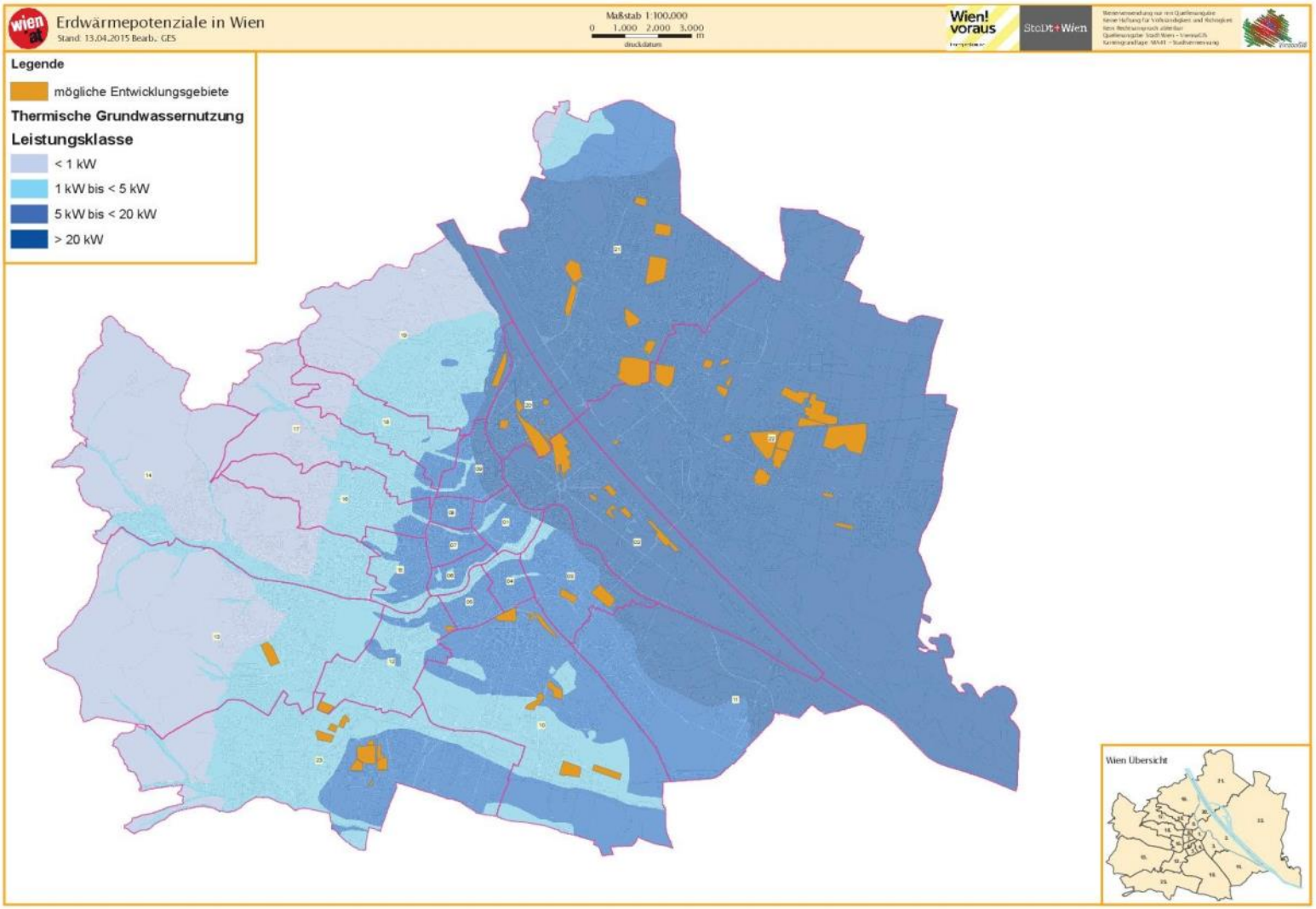
SOLAR POTENTIALS



NEAR-SURFACE GEOTHERMAL POTENTIALS



GROUNDWATER POTENTIALS



WARP UP

- Reduce energy demand and use resources more eco-efficiently!
- Find solutions for the building stock!
- Improve infrastructure for smart mobility – public transport – space for cycling and walking – e-mobility!
- Develop a longterm energy plan (until 2050) for heating and cooling based on needs and resources!
- Produce energy from renewables and use waste heat on site/Use and store cheap electricity from renewables!

Energy! ahead

Energy Report of the City of Vienna