

Decarbonising Heat: **What does it mean in reality in cities?**

Bernd Vogl, Chief Energy Planner



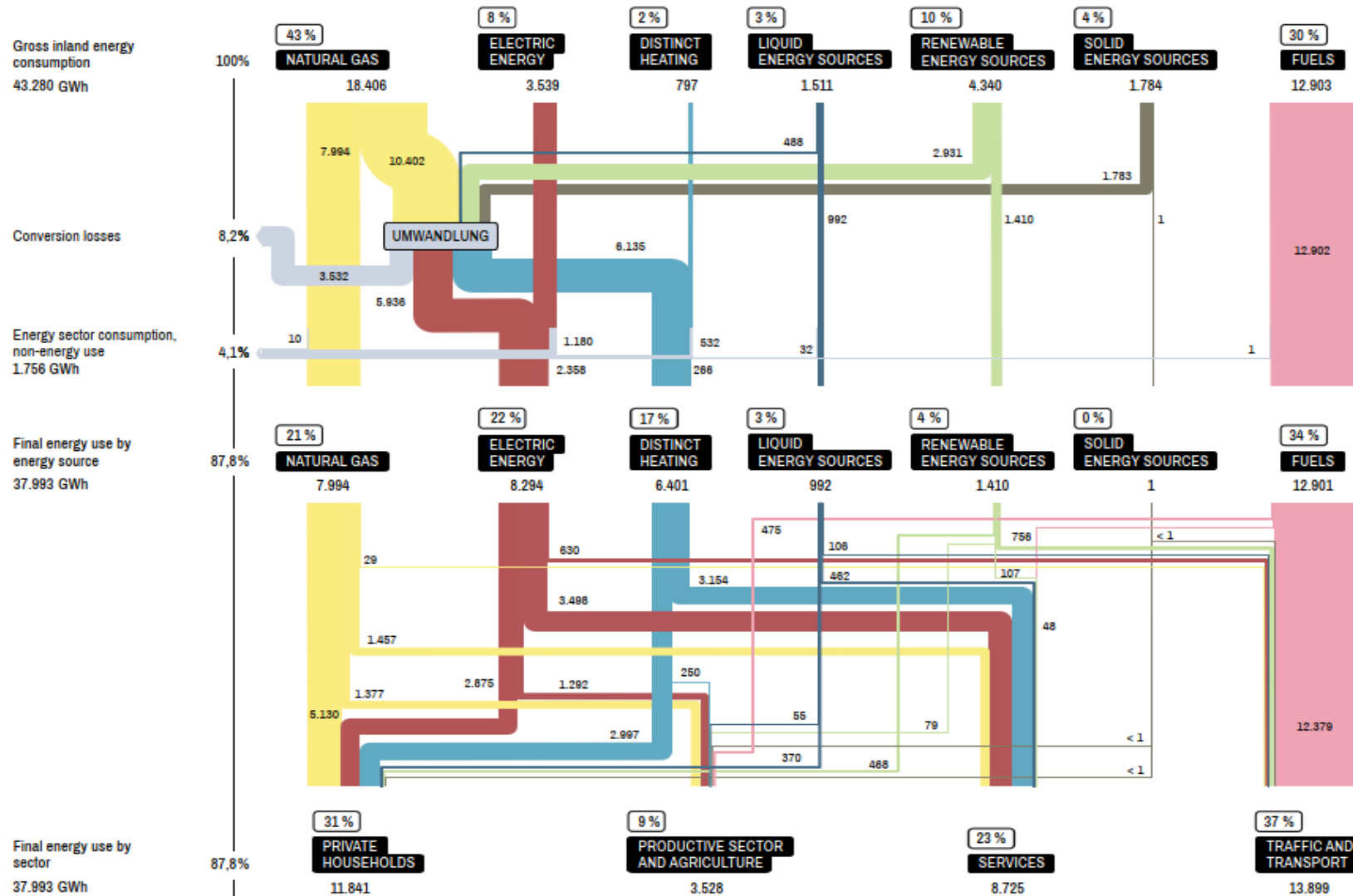


CITIES ARE KEY



ENERGY FLOW VIENNA 2017

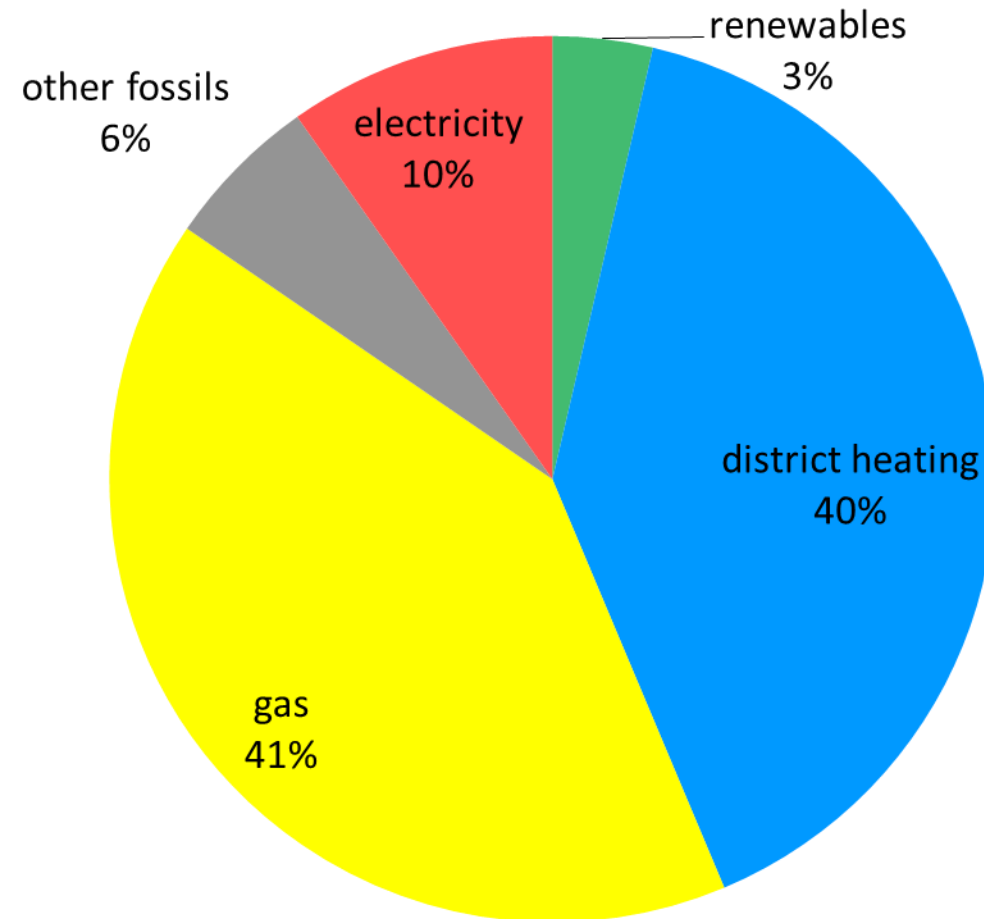
Data as of December 2018



Energy sources for space heating

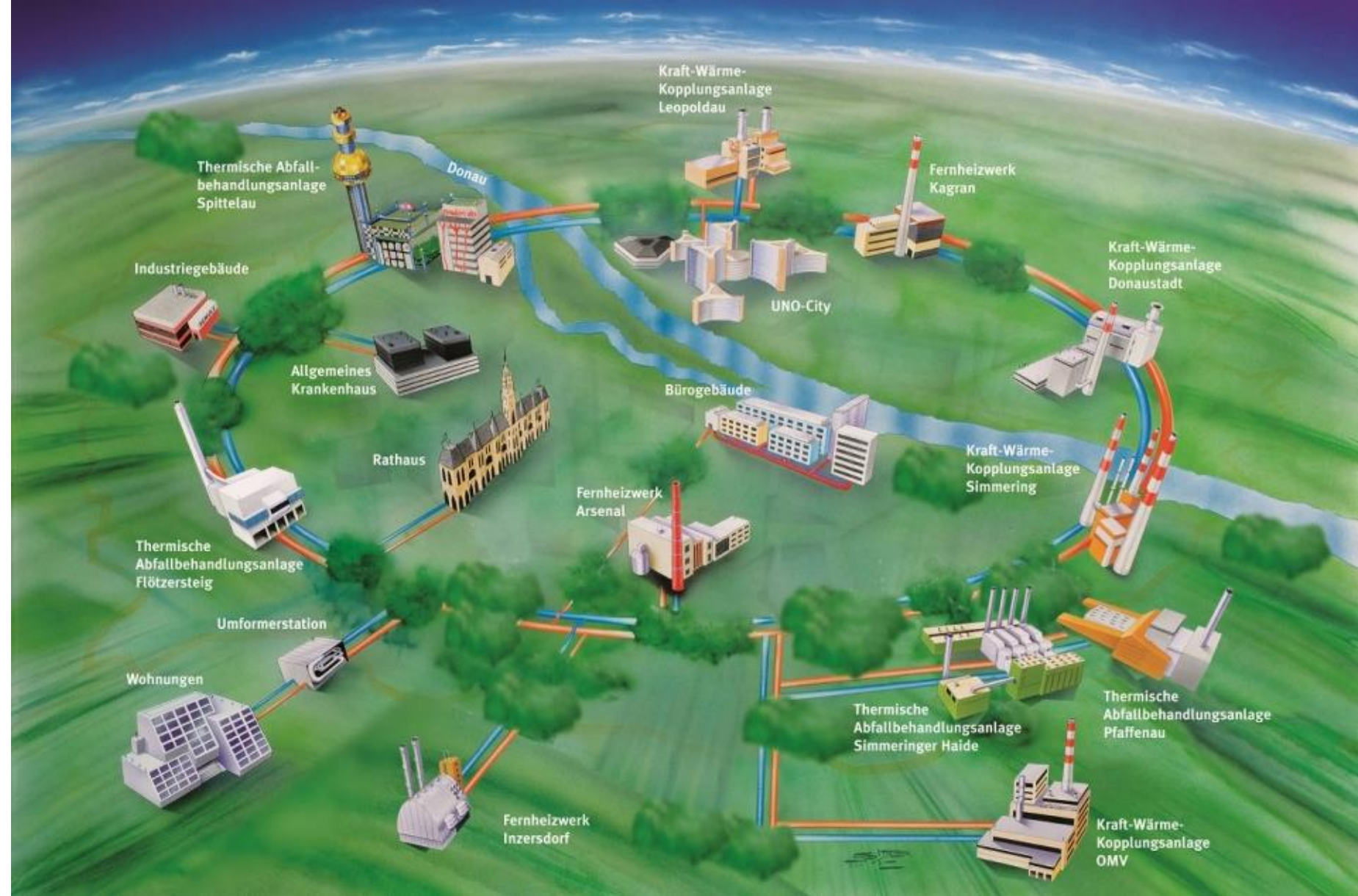
Energy consumption for space heating in 2016 – 13 311 GWh/a

Renewables	486	GWh/a
District heating	5325	GWh/a
Gas	5446	GWh/a
Electricity	1300	GWh/a
Other fossils	754	GWh/a



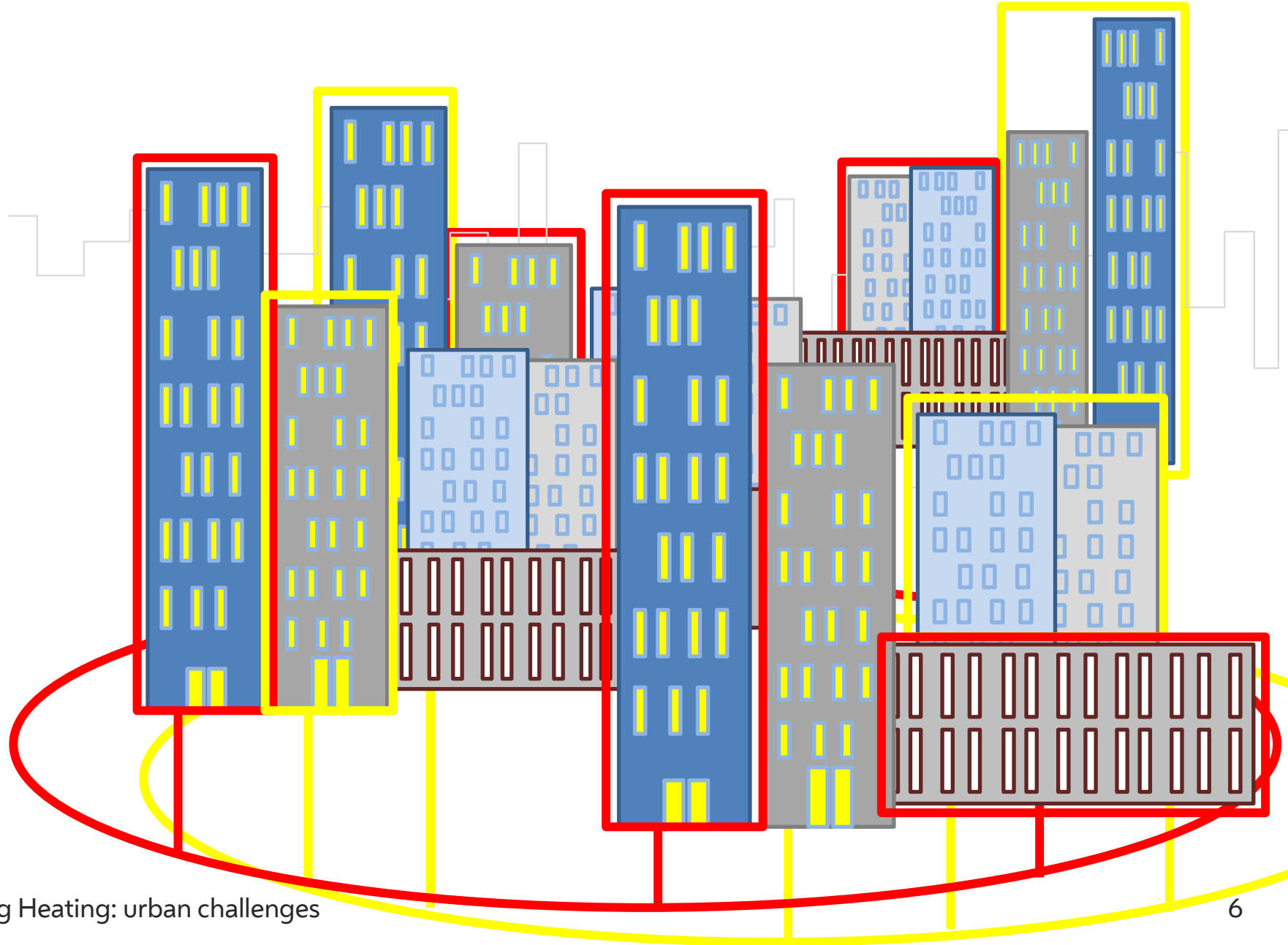
Viennese district heating system

- 1200 km total length
- High-efficient Cogeneration of heat and power
- Waste incineration
- 350.000 households + 6.500 large customers



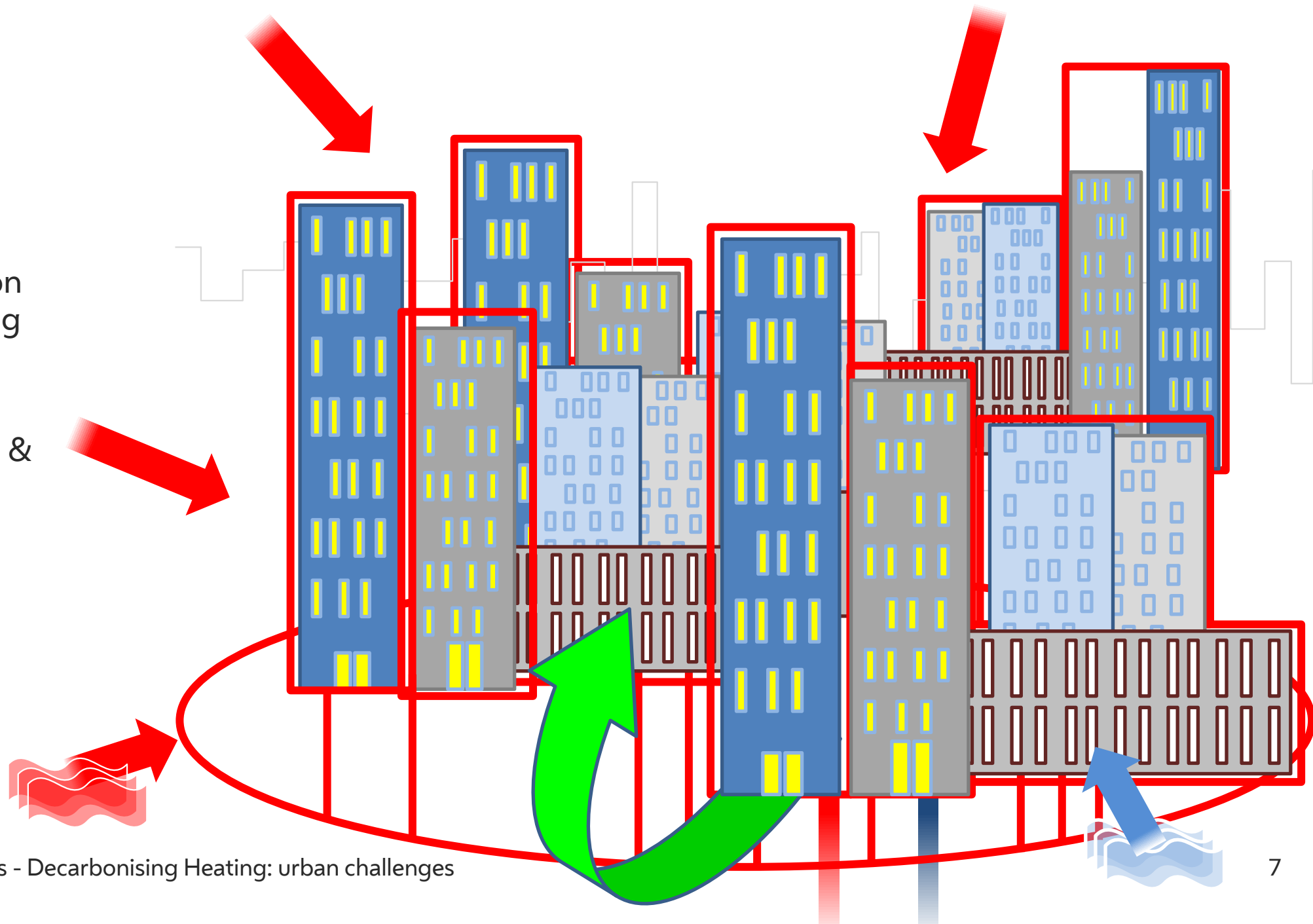
Viennese district heating system

- Connection density in built city is only 40 %
- High gas supply rate

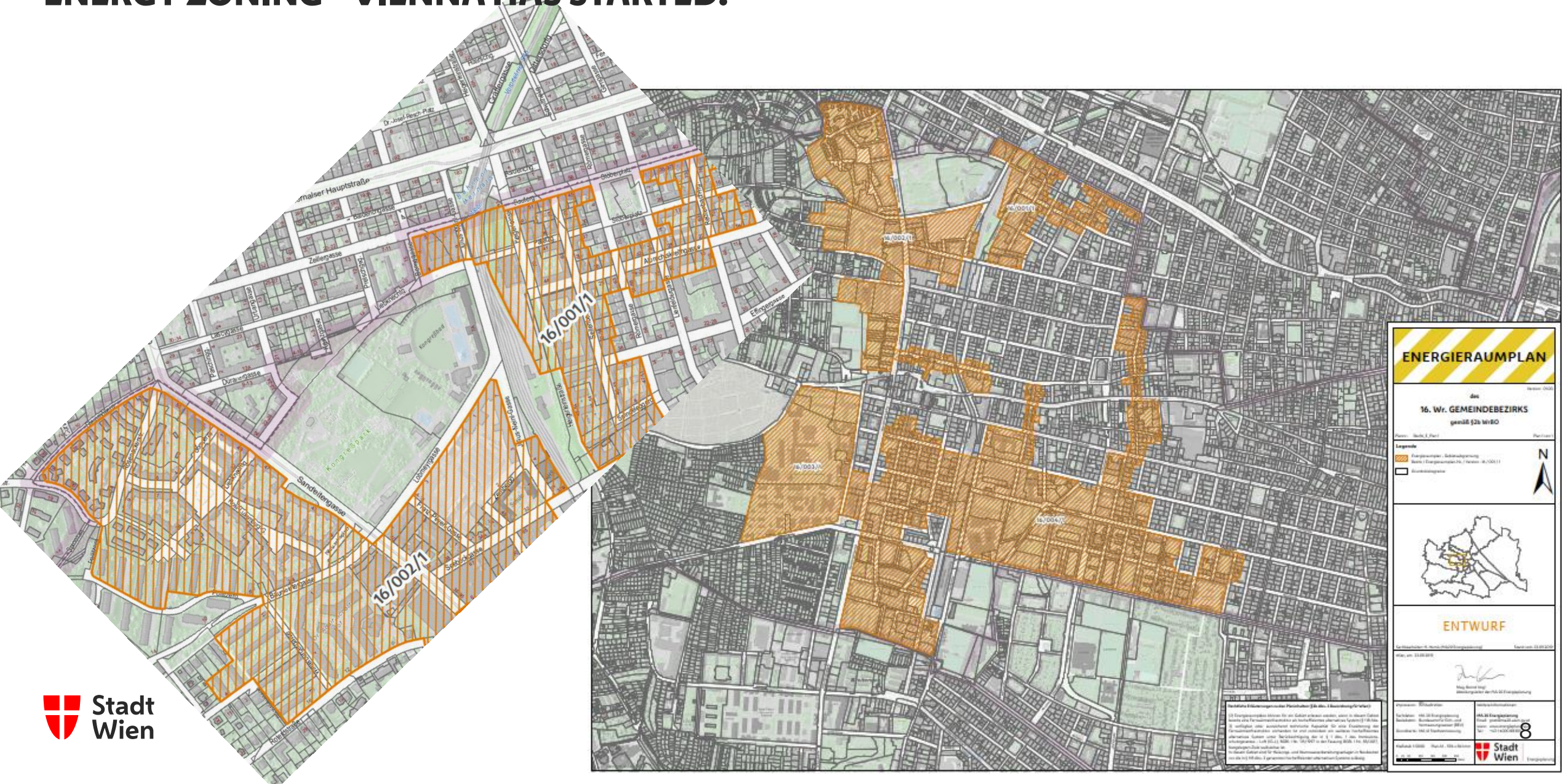


Viennese district heating system

- Increase connection density for existing buildings
- Integration of renewable sources & waste heat

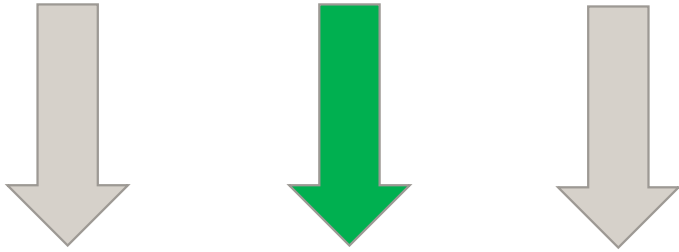


WHAT'S NEEDED FOR DECARB HEATING? ENERGY ZONING – VIENNA HAS STARTED!



Alternatives to fossil energy for existing buildings

> 400.000 Apartments with gas heating (in Vienna)



District heating – Heat Pumps – Green Gas



Alternatives to fossil energy for existing buildings

Solutions are needed!

Kick off to focus on finding solutions in December 2019

City of Vienna - Energy Planning

City of Vienna - Technical Urban Renewal

Universities and Research Institutions

Heat Pump association

Heat Pump industry



**Innovation project:
Convert 100 buildings to renewable
energy as an example**

100 old buildings to renewables!

1. innovation is needed!
2. new approaches for refurbishment
3. partnerships are crucial
4. different types of buildings
5. subsidies
6. a lot of interest!



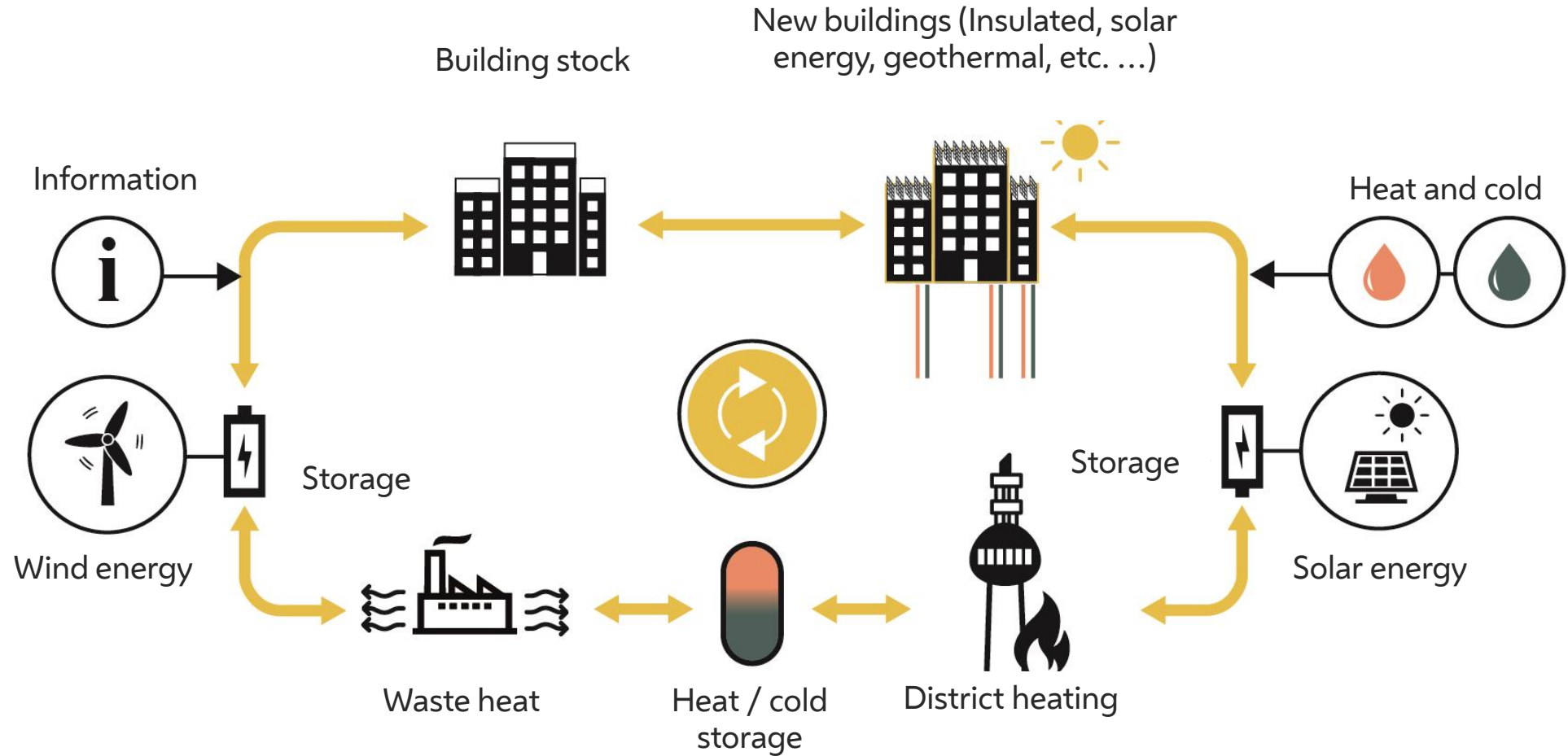
Renewables for a typical old Viennese house, Geblergasse

- Base load geothermal / heat pump
- Peak load (around 20%) natural gas
- Switch to floor heating / cooling
- Waste heat from cooling for regeneration of soil



© MA20/Alexandra Kromus

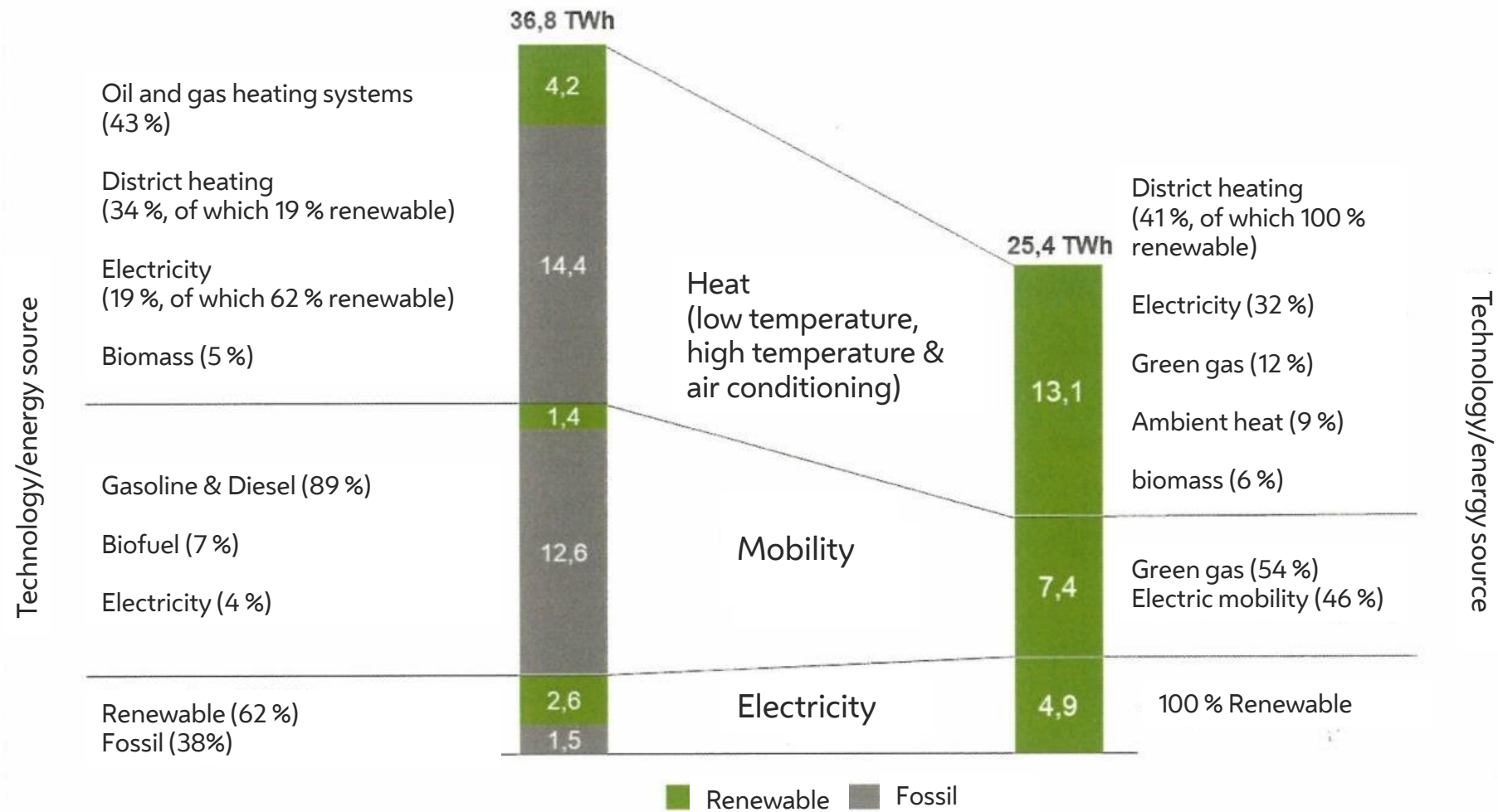
The City of ~~tomorrow~~ today



Heat supply of the future - efficient,
renewable and integrated

Decarbonization path

1. convert district heating systems
2. buildings as part of the new energy system
3. gas/hydrogen from renewable sources
4. Electricity and renewable gas for mobility



Quelle: Ecofys & Wien Energie (2017)