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# What does it take to decarbonise the 5<sup>th</sup> largest city in the European Union?



We supply 2 million people with electricity, gas, heating and cooling

**1.25 billion euros investment by 2026**

Electric charging stations  
every 400 metres

Excellent credit rating  
confirmed by “AA” rating

Austria’s largest  
solar power producer

Our power plants stabilise the grid  
– up to 240 times per year

**Austria’s  
leading energy  
provider**

Energy from 900,000 tonnes of waste

31 citizen power plants

District heating for more than 420,000 households

**2,297 employees**

One new photovoltaic system every week

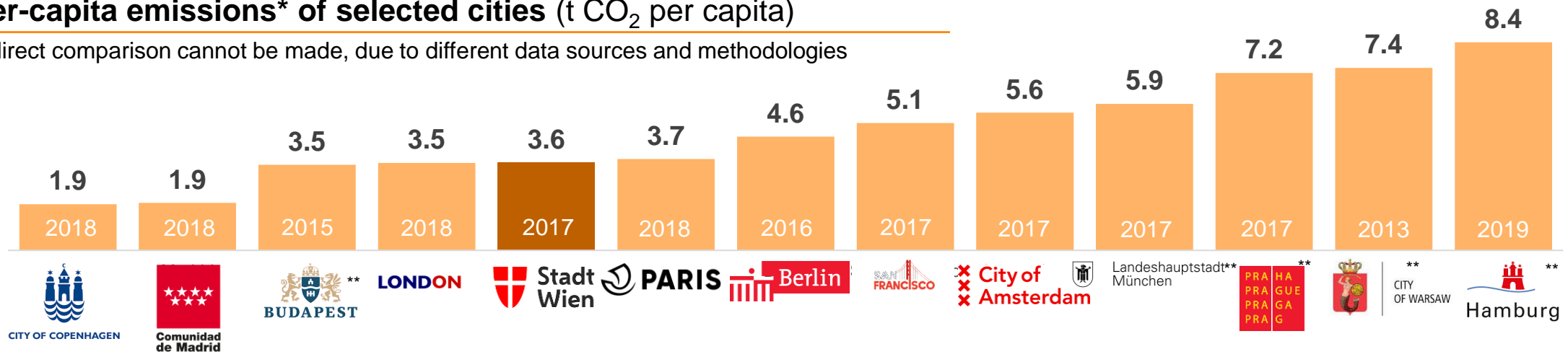
# In comparison to other cities, Vienna is well positioned, both nationally and internationally

## Per-capita emissions by state (t CO<sub>2</sub> per capita in 2019)



## Per-capita emissions\* of selected cities (t CO<sub>2</sub> per capita)

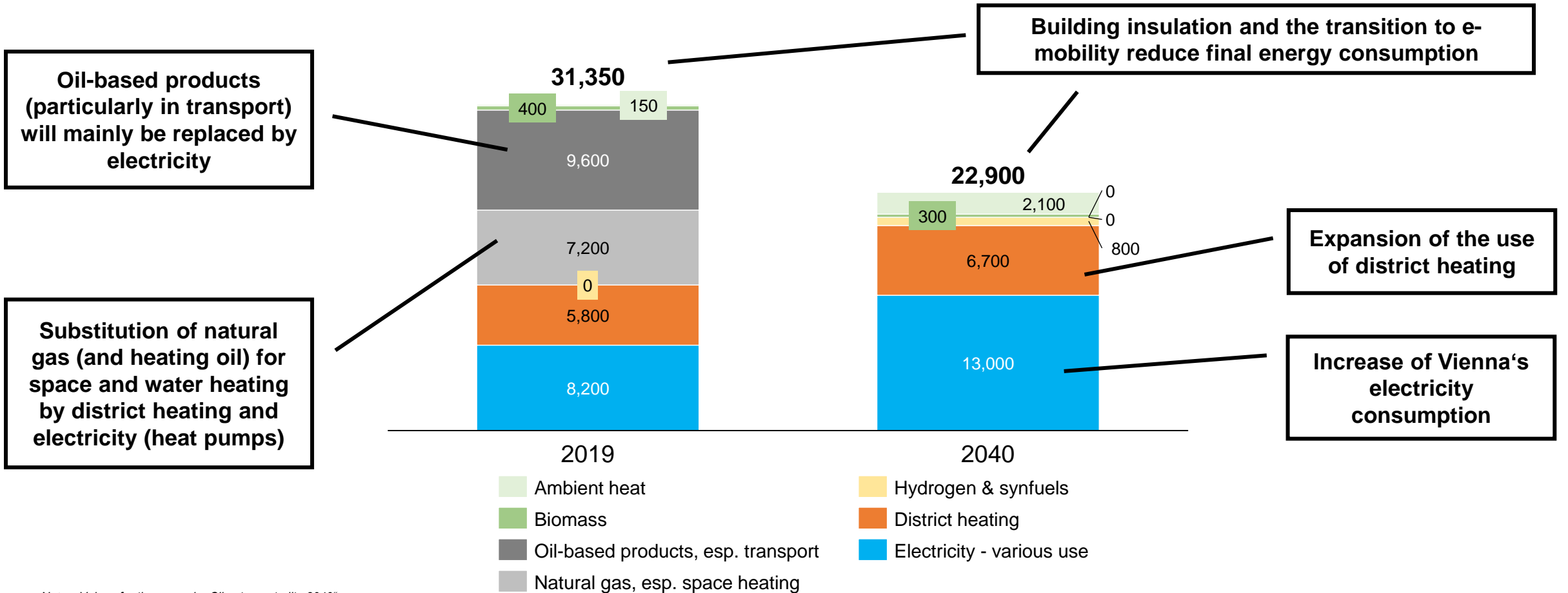
A direct comparison cannot be made, due to different data sources and methodologies



\* Including the EU ETS, as well as buildings, transport, industry and waste, \*\* data for the waste sector are not available

# Climate neutrality by 2040: reduction of energy use and fuel switching

**Final energy consumption in Vienna [GWh p.a.]**  
(values rounded to 50 GWh)



Note: Values for the scenario „Climate neutrality 2040“

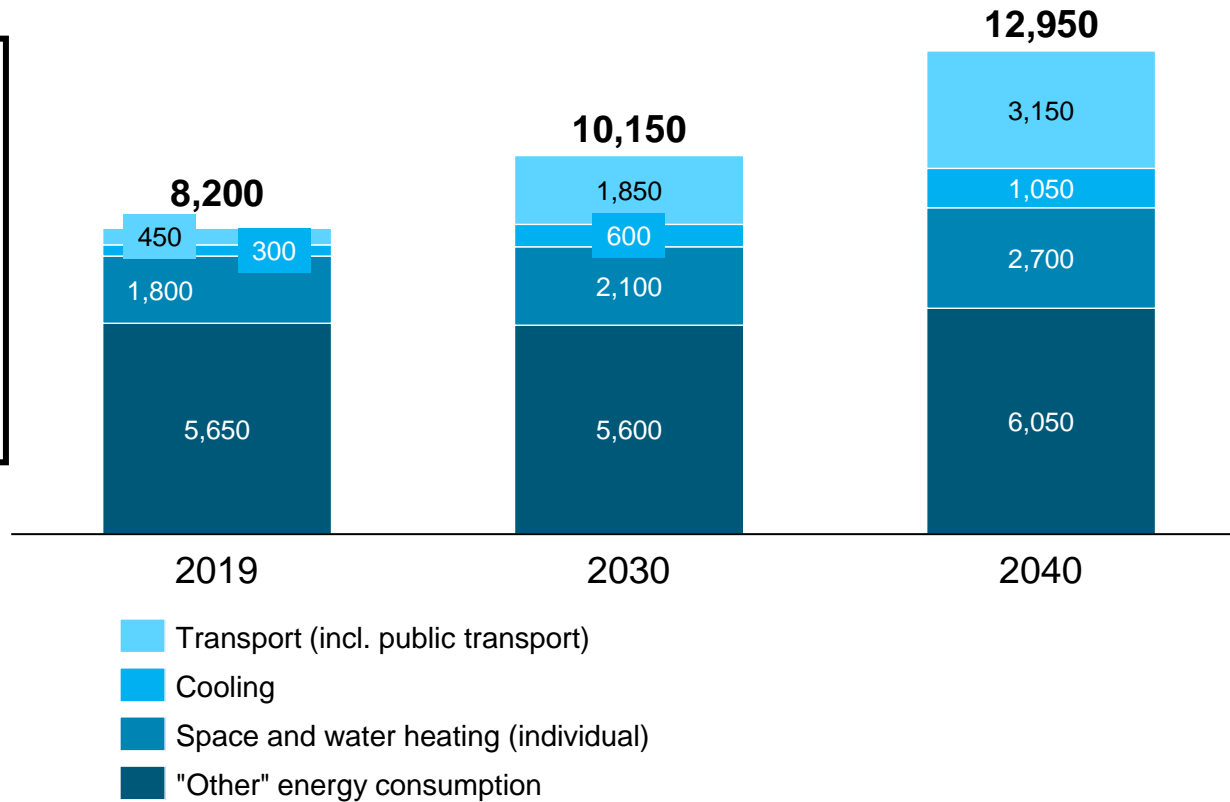
Source: Compass Lexicon analysis based on Statistik Austria, 2020a (for 2019) and based on study assumptions (2040)

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# Vienna's electricity consumption increases by more than 4 TWh by 2040

**„Climate neutrality 2040“:**  
**Electricity consumption by application [GWh]**  
(Values rounded to 50 GWh, sums above the rounded values do not always correspond to the rounded sum values)



Import needs increase significantly since the decline in generation in Vienna's thermal power plants cannot be compensated for

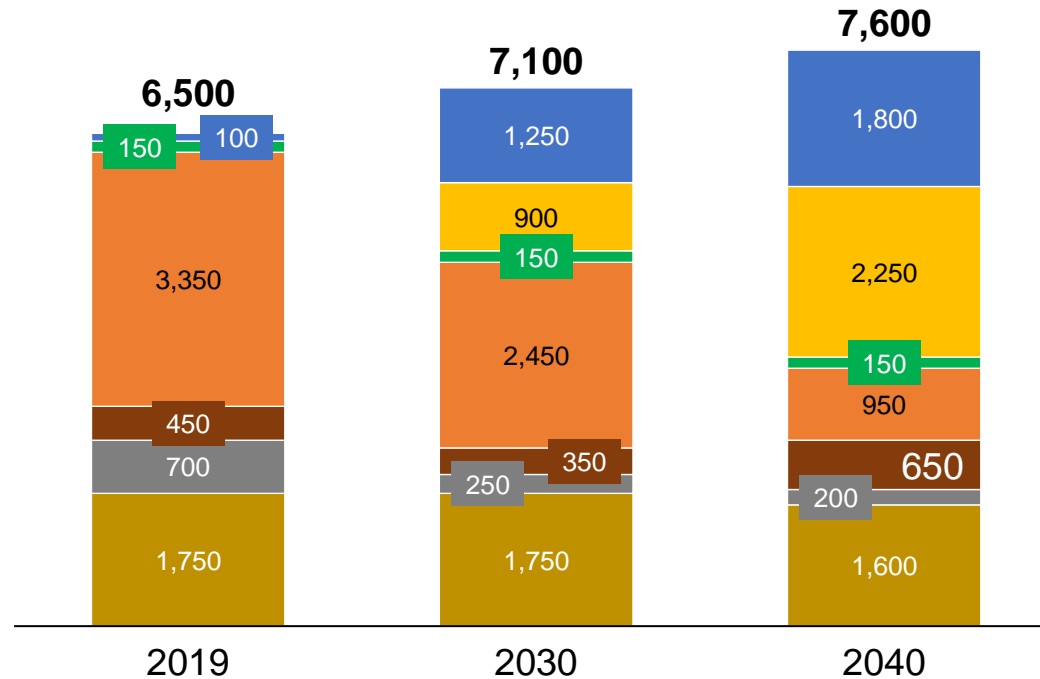
One third of Vienna's final electricity consumption is needed for transport

The use of demand side management will be essential to reduce peak loads

# District heating is essential for achieving decarbonisation

## „Climate neutrality 2040“: Generation of district heating [GWh]

(Values rounded to 50 GWh, sums above the rounded values do not always correspond to the rounded sum values)



Geothermal energy and large-scale heat pumps generate 55% of district heating by 2040

In 2040, 56% of heat demand is covered by district heating

Generation increases by 18% by 2040

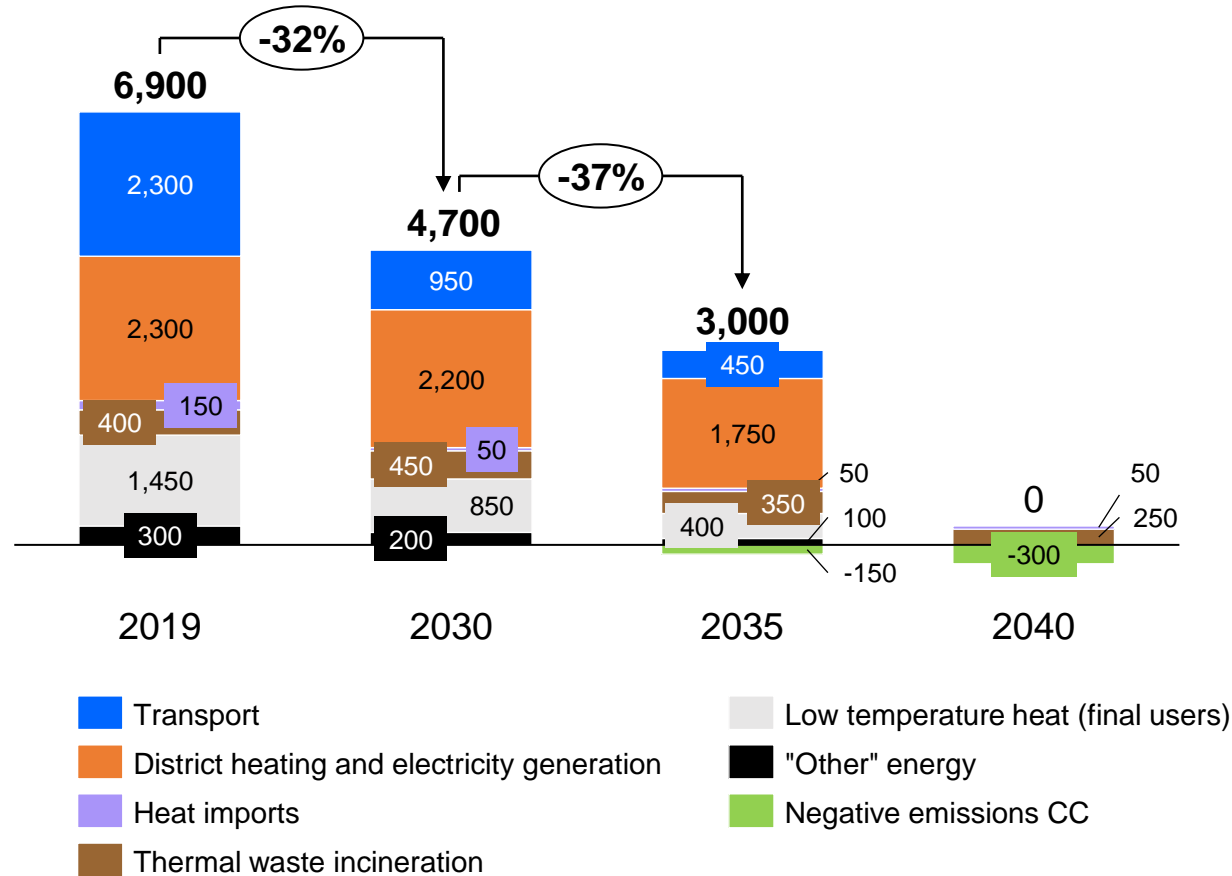
- Heat pump + Power-to-heat
- Natural gas heating plant
- Geothermal energy
- Heat imports
- Biomass heating plant
- Thermal waste incineration
- Natural gas combined-power-and-heat (CHP)

# The adoption of e-mobility, district heating, heat pumps and carbon capture make zero emissions by 2040 possible

„Climate neutrality 2040“: CO<sub>2</sub> emissions by segment [kt p.a.]  
(values rounded to 100kt)

Transport is completely electrified

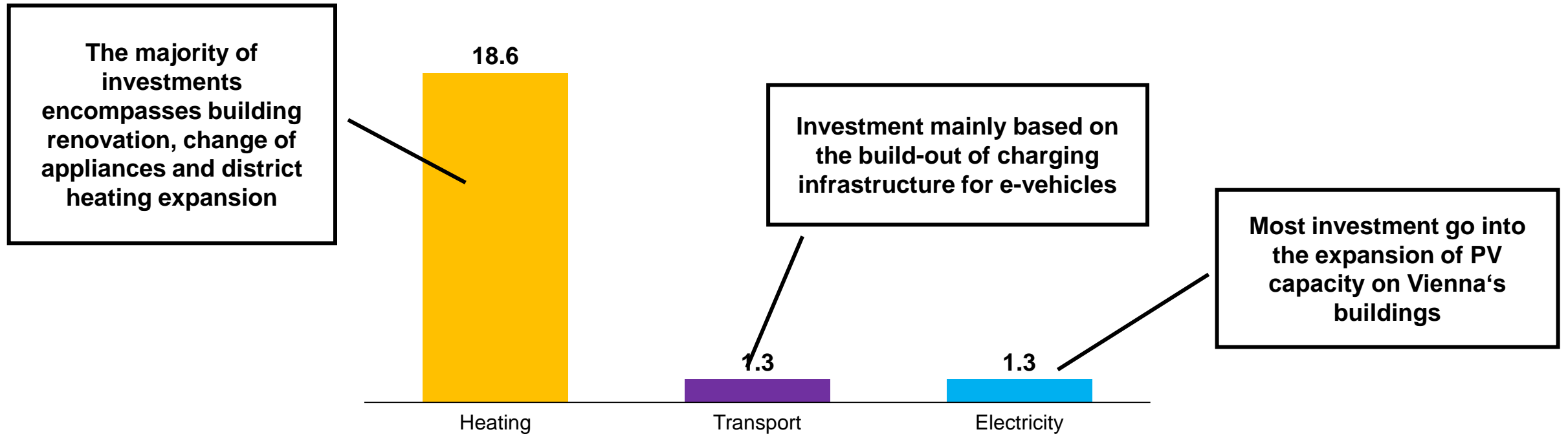
Waste incineration plants are fitted with carbon capture



From 2040 onwards, power plants are entirely fuelled by green gases

# 21.2 billion to achieve for climate neutrality in 2040

## Investment in the Viennese energy system to achieve climate neutrality by 2040 [EUR<sub>2021</sub> bn] (in the sectors included in the study excl. electricity grid)



Notes: Values for the scenario „climate neutrality 2040“; results rounded to 100 mln EUR<sub>2021</sub>; values correspond to the non-discounted sum over the years 2022 to 2040  
Investment needs in the electricity grid were not separately analysed, nevertheless necessary grid charges were included.

Source: Compass Lexecon based on study assumptions



~2 billion to phase out gas

# Full Power for the Climate

## Wien Energie invests close to two billion euros to phase out gas



Wien Energie will invest a total of 1.8 billion euros for climate protection by 2028:

- 500 million euros in renewable **heating projects & circular economy**
- 740 million euros in the **expansion of renewable power generation**
- 190 million euros in **environmentally friendly cooling supply & district heating expansion**
- 240 million euros in **digitisation, electromobility and telecommunications**
- 130 million euros in **security of supply**

# Milestones for climate neutrality in 2023



## ***Europe's most powerful large-scale heat pump***

(ebswien sewage treatment plant):

- **56,000 households** will be supplied from mid-2023.
- 110 MW capacity in **full expansion by 2027**.

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## ***Vienna's first deep geothermal plant:***

- construction starts in 2023 - scheduled commissioning in 2026
- Annual savings potential of 325,000 tonnes of CO<sub>2</sub> at full expansion (2030)

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## ***Worldwide first test of blending 15% hydrogen in existing infrastructure:***

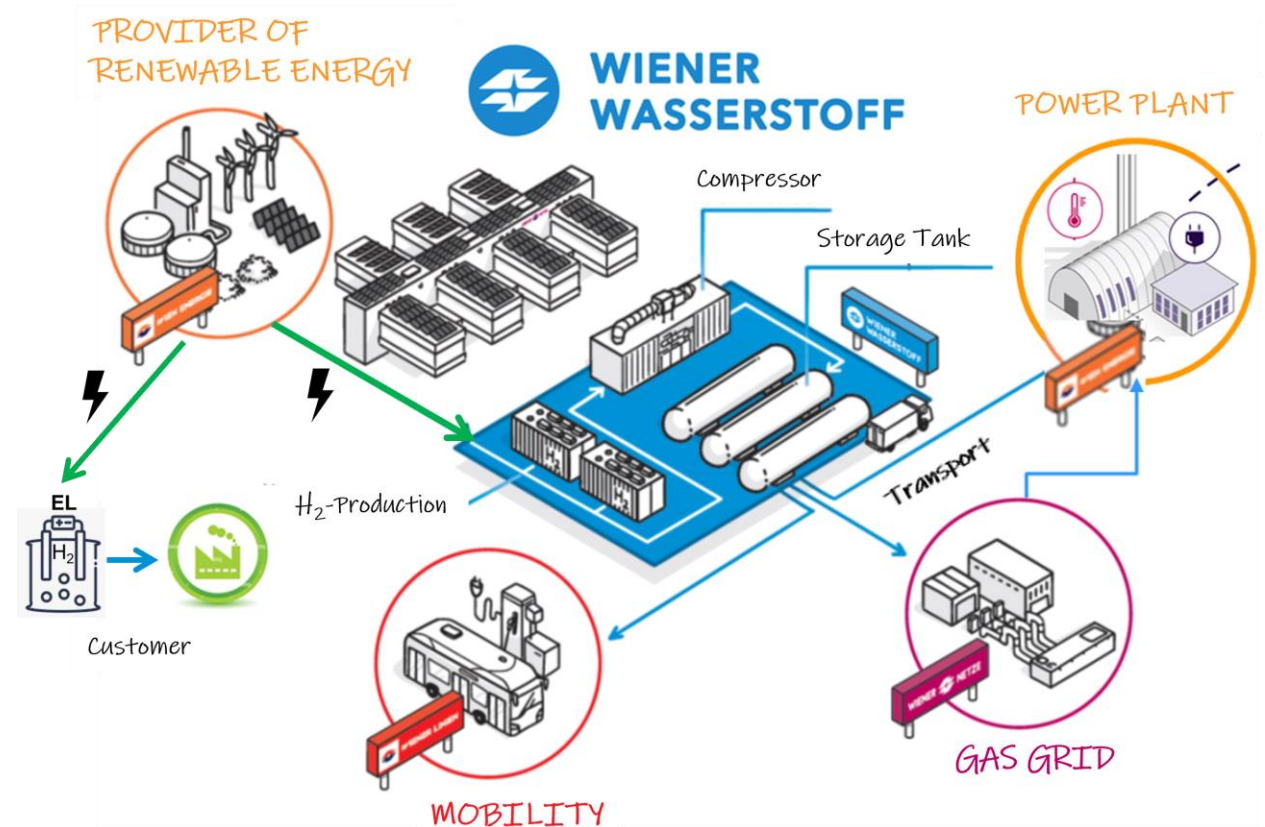
- Pilot project converting one of AT's largest gas turbines in a CHP station to run partly on H<sub>2</sub>
- Annual saving potential of 33,000 tonnes of CO<sub>2</sub>

# Hydrogen Strategy at Wiener Stadtwerke

Bringing future technology hydrogen to market maturity as first fully integrated solution

**WE** cover and optimise the **entire value chain**

- Production of renewable energy
- Green hydrogen (EE H<sub>2</sub>) production
- Provide EE H<sub>2</sub> concepts & products to:
  - mobility customers
  - industry partners
- Supply of our power plants
- Feeding-in to existing gas grid



# Green Hydrogen at Wien Energie

## Flagship Projects: Hydrogen-Mobility



2020



2021



2022 - 2023

- Establishment of a green H<sub>2</sub> production infrastructure in Vienna
  - Construction of a second H<sub>2</sub> refuelling station in Vienna Simmering
  - First external customers refuel commercial vehicles
- 
- Establishment of H<sub>2</sub> refuelling infrastructure in Vienna Leopoldau for busses of WIENER LINIEN and partners
- 
- Testing of a hydrogen fuel cell bus of WIENER LINIEN

# What does it take?

- a precise plan and a roadmap for its step-by-step implementation
- full commitment of the management
- full commitment of the shareholders

*Wer, wenn nicht wir.*



**WIEN ENERGIE**

WIENER LINIEN | WIEN ENERGIE | WIENER NETZE | WIENER LOKALBAHNEN | WIPARK | WIEN IT  
BESTATTUNG WIEN | FRIEDHÖFE WIEN | UPSTREAM MOBILITY | FACILITYCOMFORT | GWSG

**WIENER STADTWERKE GRUPPE**

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