

# Phasing Out Gas – Heating and Cooling Vienna 2040

Thomas Kreitmayer -

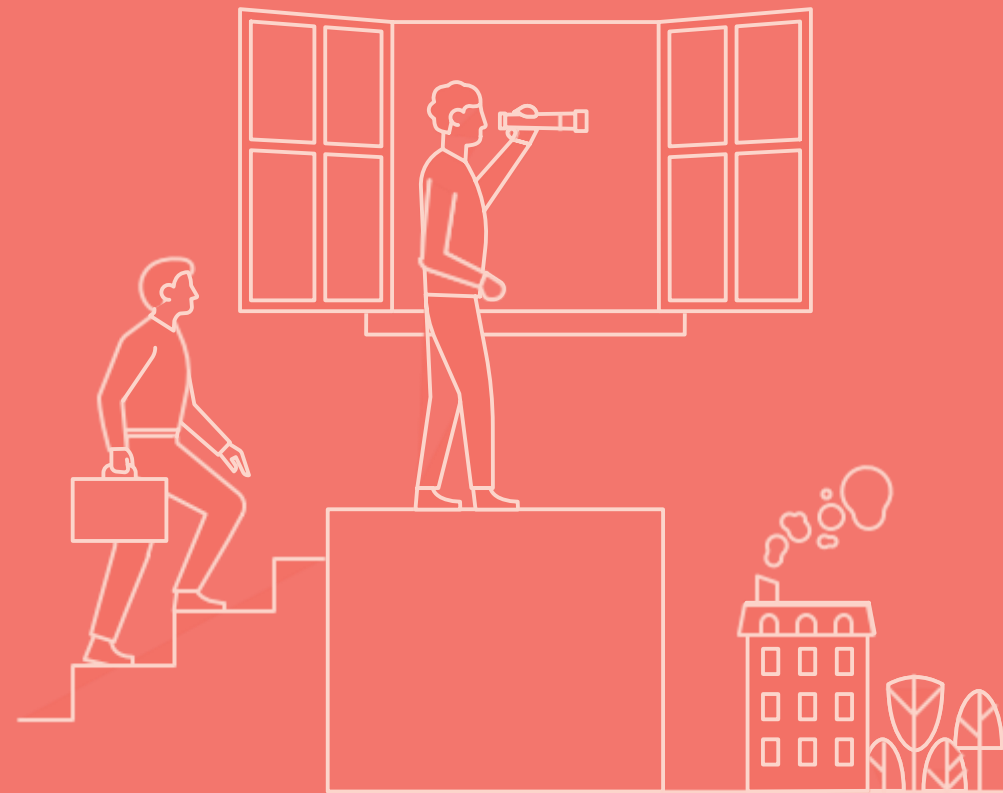
23.05.2024



# Vienna's vision

- **100% environmentally friendly energy for heating and cooling.**
- Especially **closely/densely built-up areas** are supplied by **centralised district heating**.
- **Centralised district heating** is largely supplied from renewable sources & waste heat.
- **Renewable building solutions** are used in **less densely built-up areas**
- **Green gas** is to be used for **industry and power plants only**.

Challenge...



# Households that need to be converted

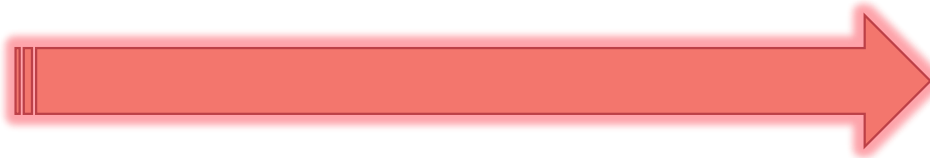
Austria-Vienna

Austria

~ 1.500.000 households heated by fossil fuels

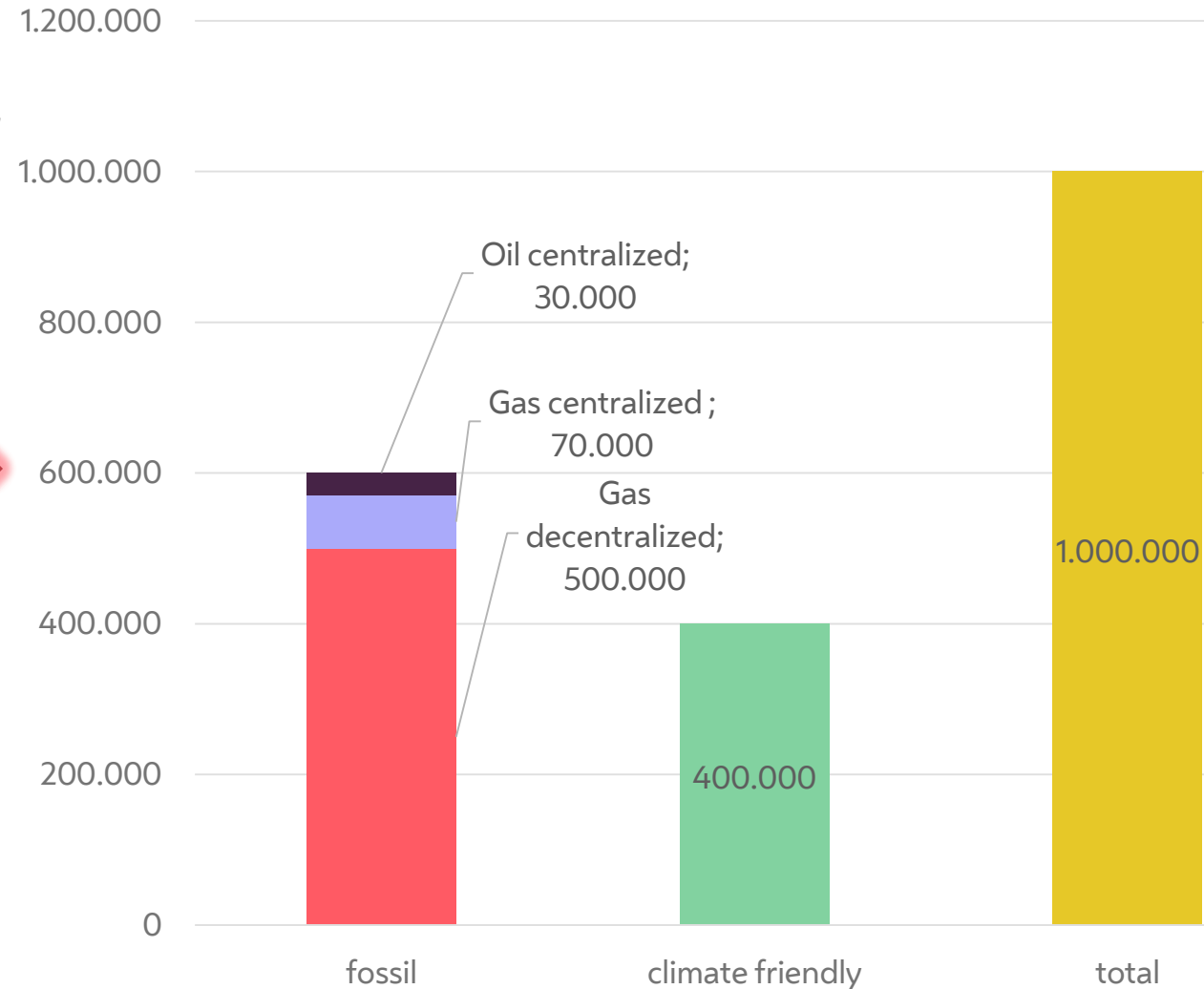
- ~600.000 Oil
- ~900.000 Gas

Vienna



~ 600.000 households heated by fossil fuels

- ~500.000 Gas (decentralized)
- ~70.000 Gas (centralized)
- ~30.000 Oil (centralized)









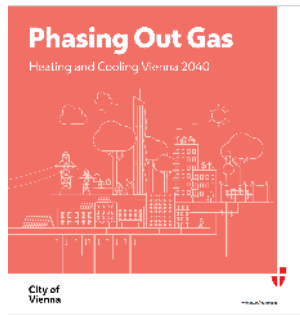


at Wied Christ... ruf...



# Programme „Phasing out Gas“

Implementation in two phases

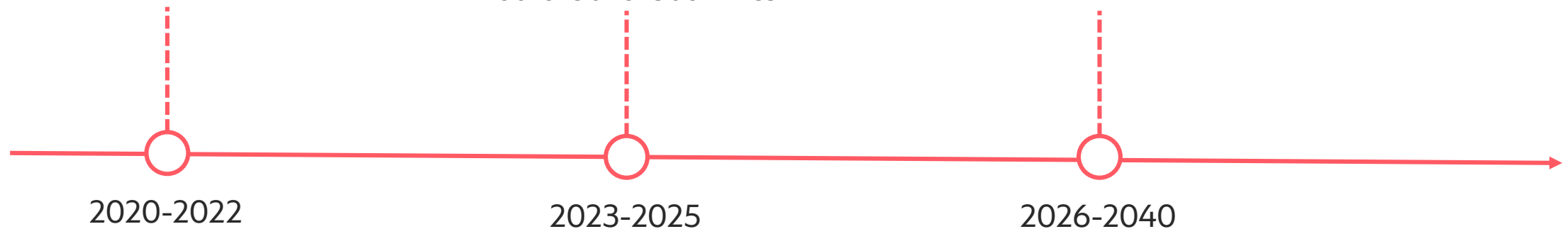


## Phase 1

- Built-up of framework conditions
- Adaptation of processes
- Market stimulation
- Pilot implementations
- Public relations activities

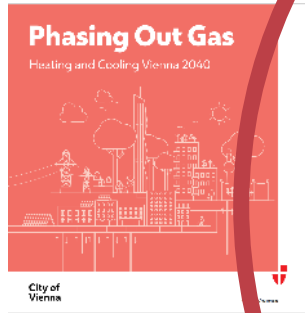
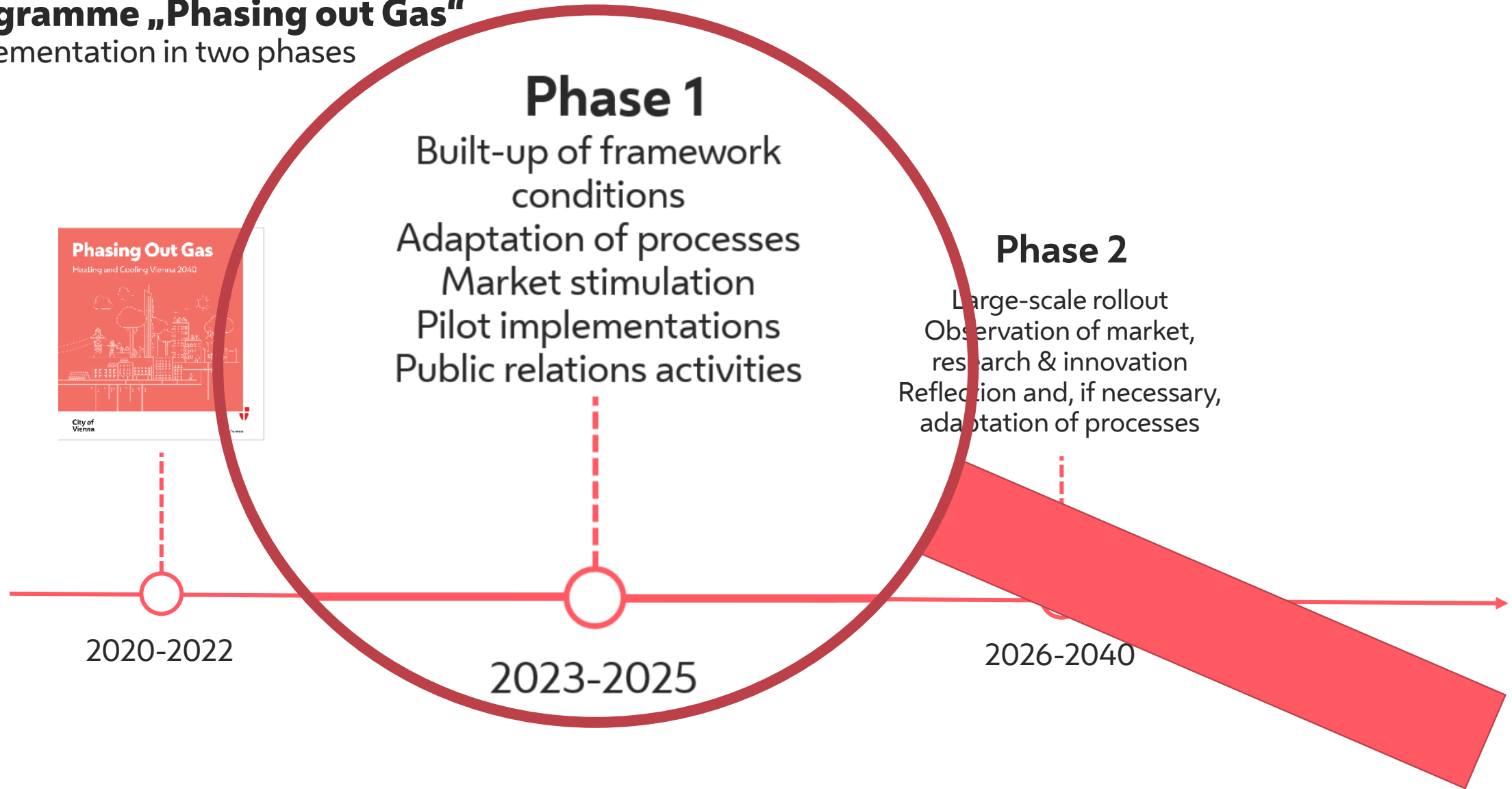
## Phase 2

- Large-scale rollout
- Observation of market, research & innovation
- Reflection and, if necessary, adaptation of processes



# Programme „Phasing out Gas“

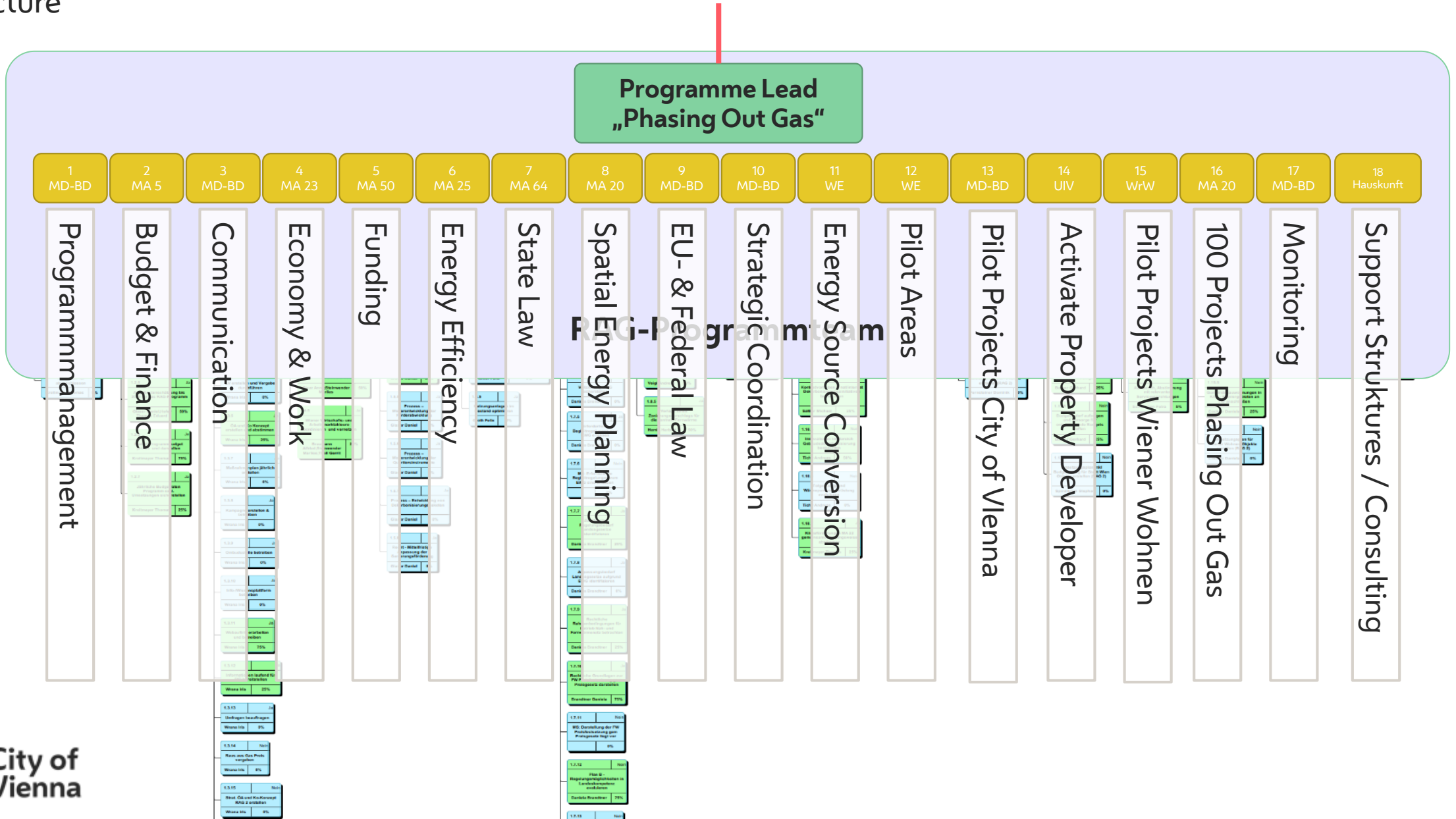
Implementation in two phases





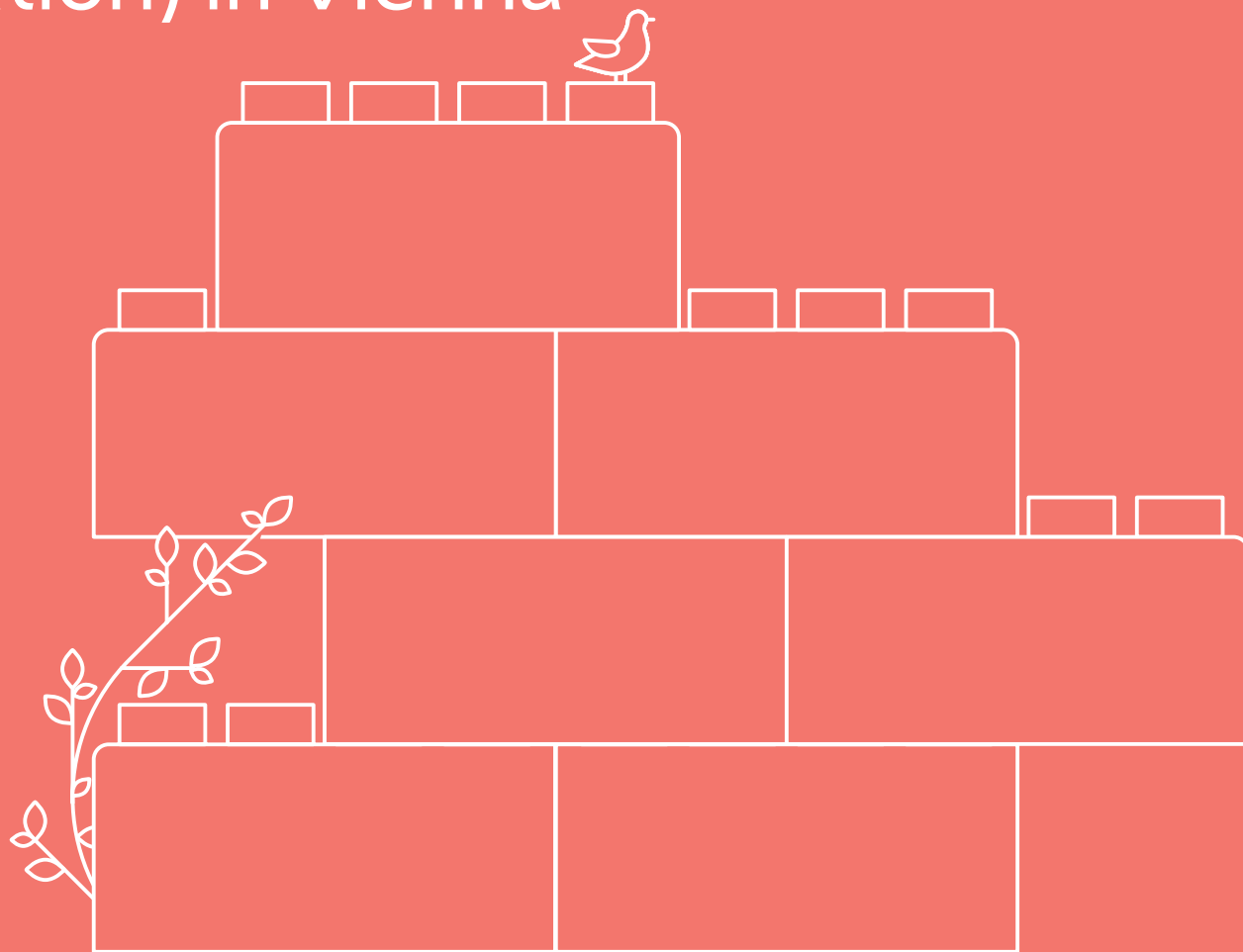
# Programme „Phasing out Gas“

## Structure



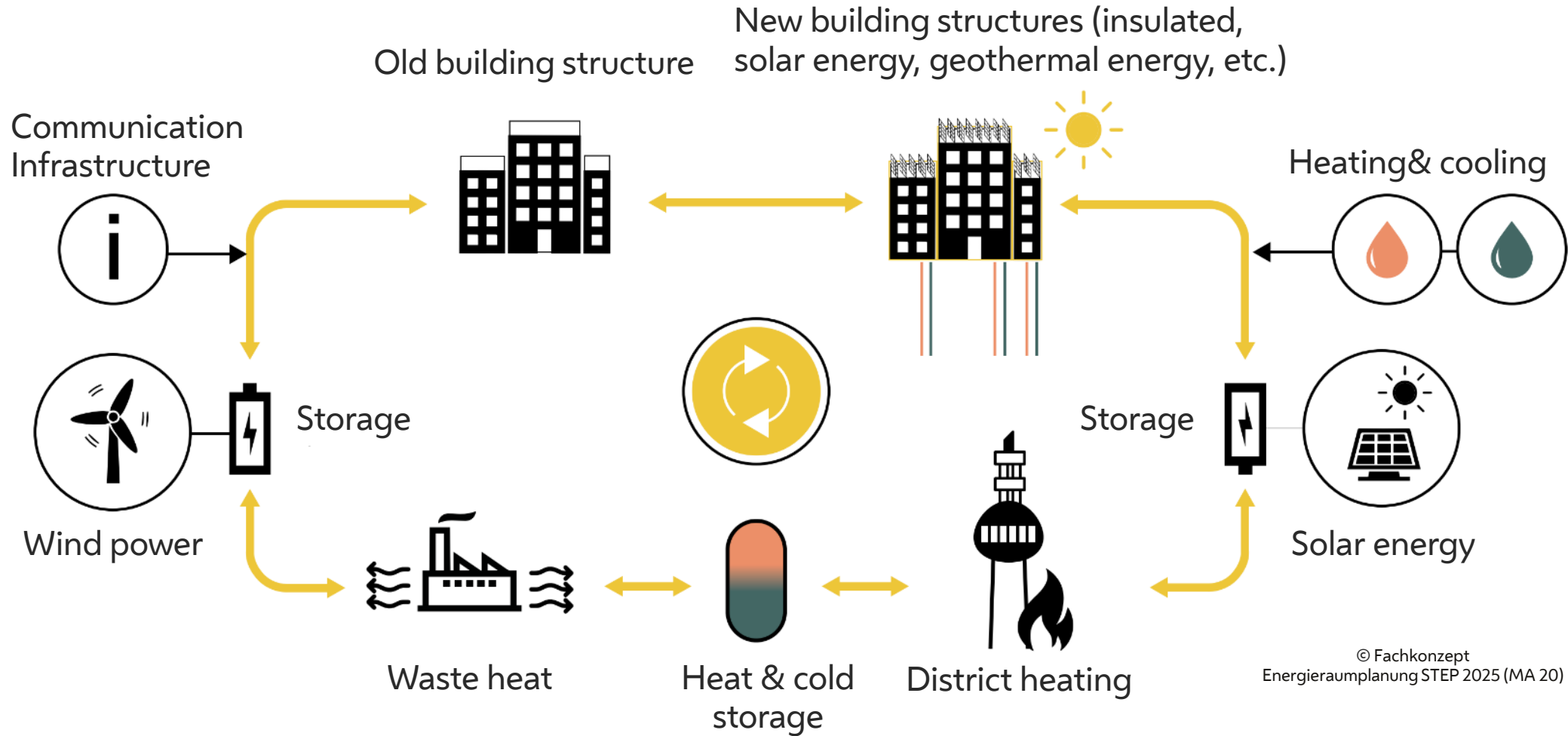


# The central building blocks of the heating transition (decarbonisation) in Vienna





# Tecnical solutions



© Fachkonzept  
Energieraumplanung STEP 2025 (MA 20)



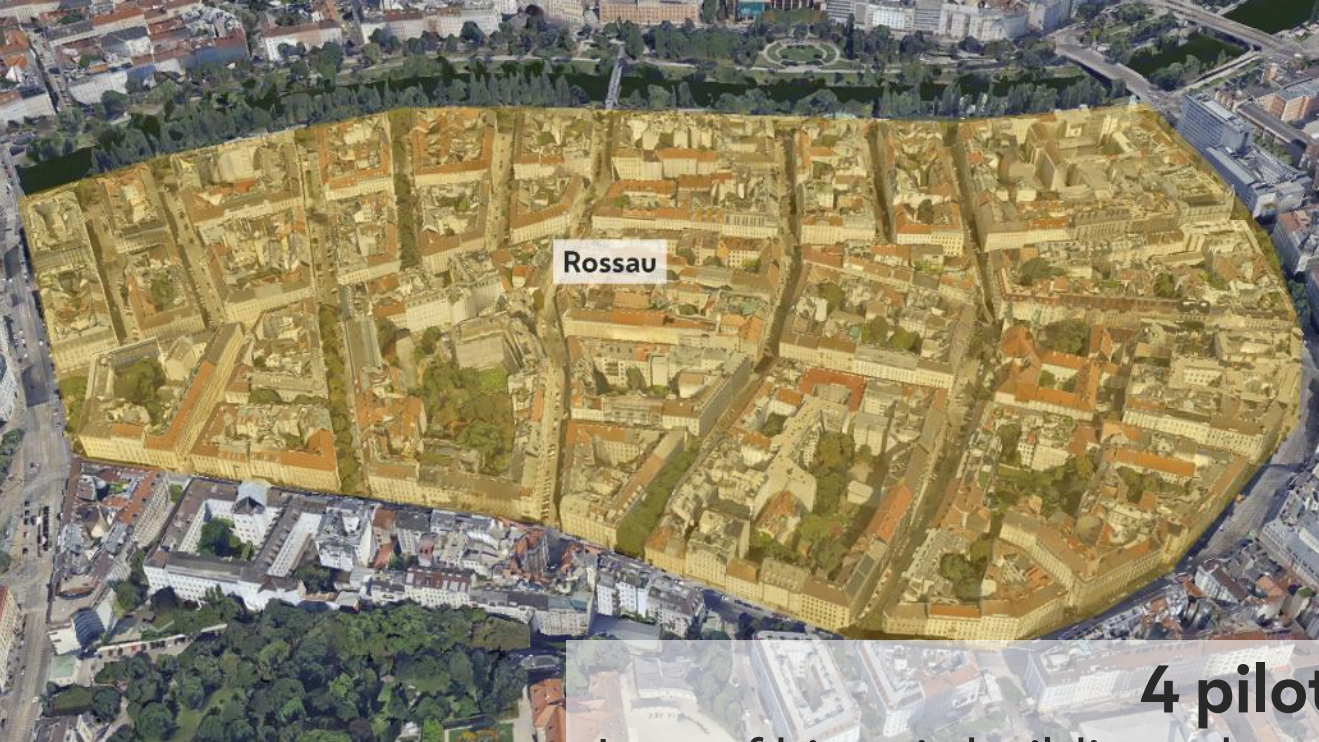
# District heating

- Heating networks are the **energy system of the future** in large parts of the city.
- Currently around 1.300 km in total length
- Particularly advantageous in
  - the densely built-up city
  - for buildings in need of extensive refurbishment
- The use of waste heat and renewable location resources is becoming increasingly environmentally friendly.

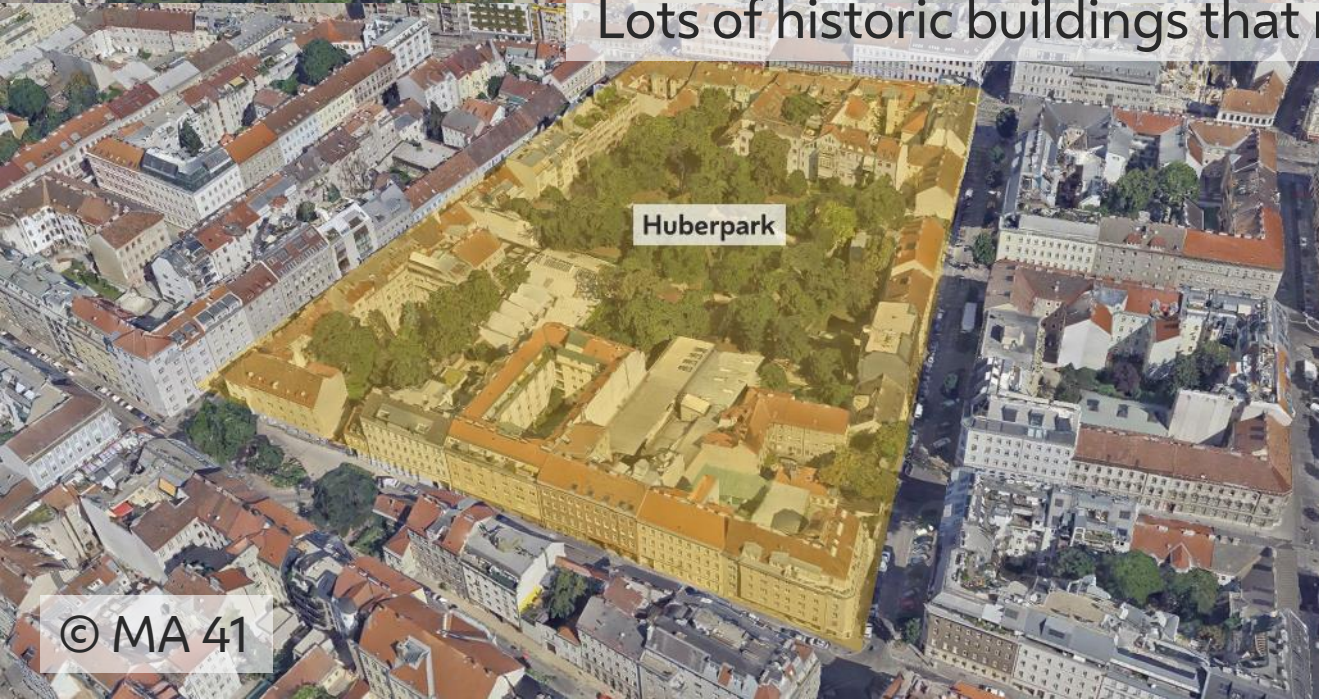


© Wien Energie





**4 pilot areas**  
Lots of historic buildings that need to be carefully renovated





## Heat pump solutions

where no district heating is available

Especially outside of district heating areas  
phasing out gas will mean getting into  
electricity.

Retrofitting of the electricity grid necessary!

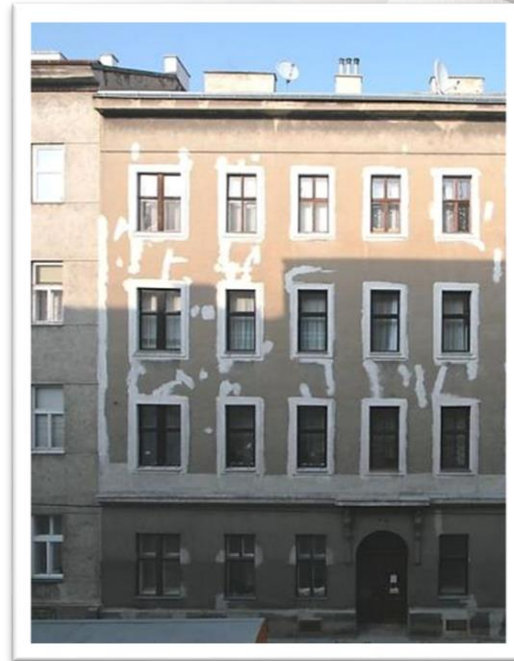


# Energy efficiency

## Thermal refurbishment

### Example in Vienna/Eberlgasse

- 1. refurbishment of a Wilhelminian style house to passive house standard
- Refurbished under inhabited condition
- Ground water – heat pump
- PV-system
- heating demand over 90% reduced



© Stadt Wien/Fürthner



# Energy efficiency

## Thermal refurbishment

### Example in Vienna / Geblergasse

- Cross-building solution: energy network
- Centralization
- Heating & cooling
- Solar energy



© Zeininger

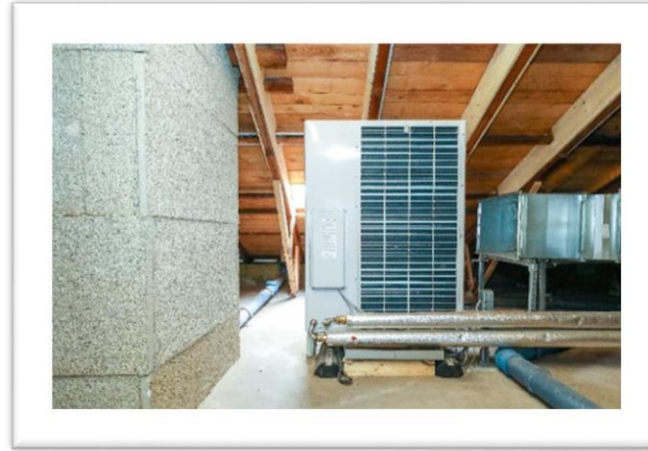


# Energy efficiency

## Centralization

### Example in Vienna / Miesbachgasse

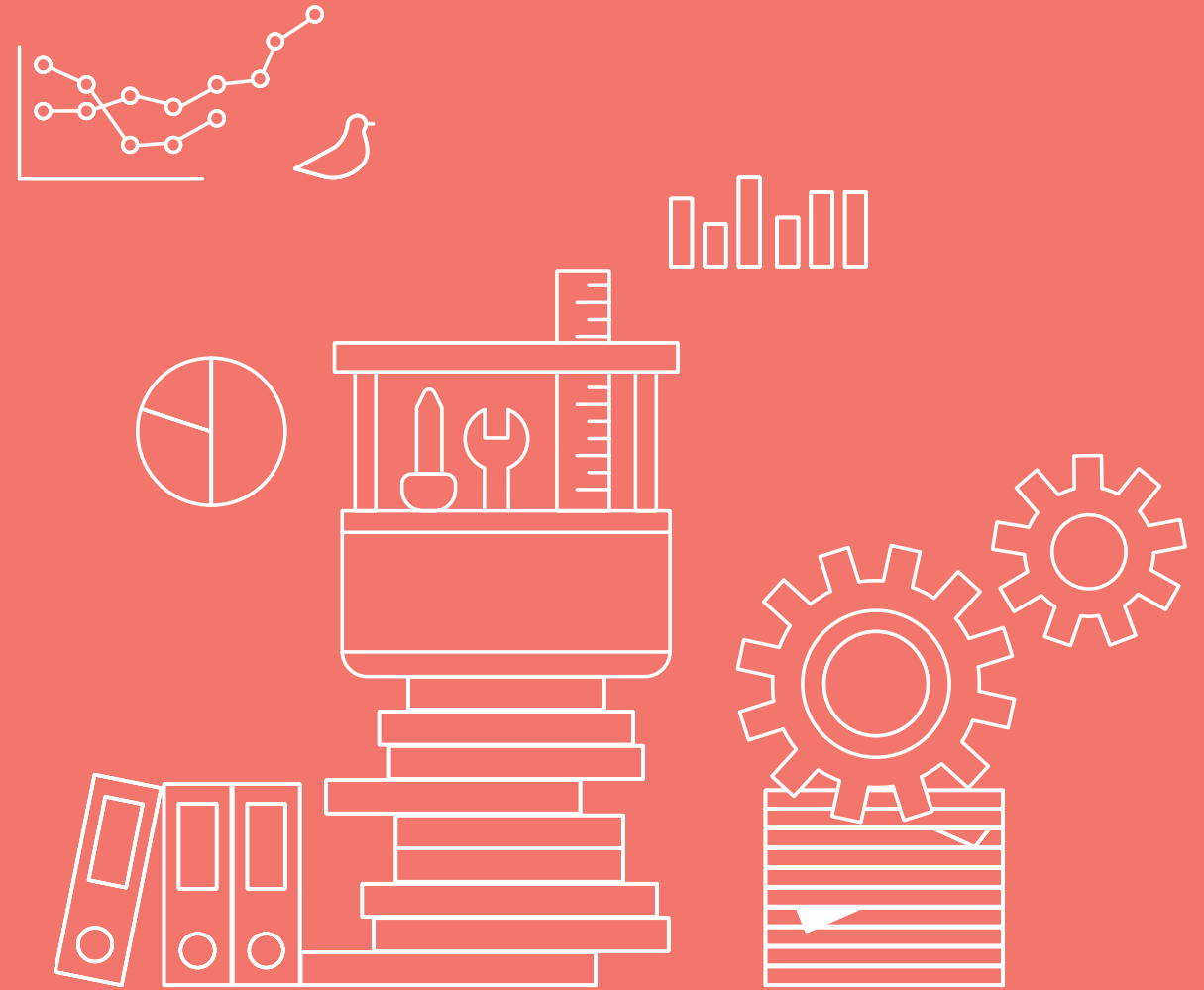
- Central heating system (air-heat pump) in the loft
- heating water distribution through the chimney
- connected to the existing radiators of the apartment
- DHW with electric boilers
- Solar energy



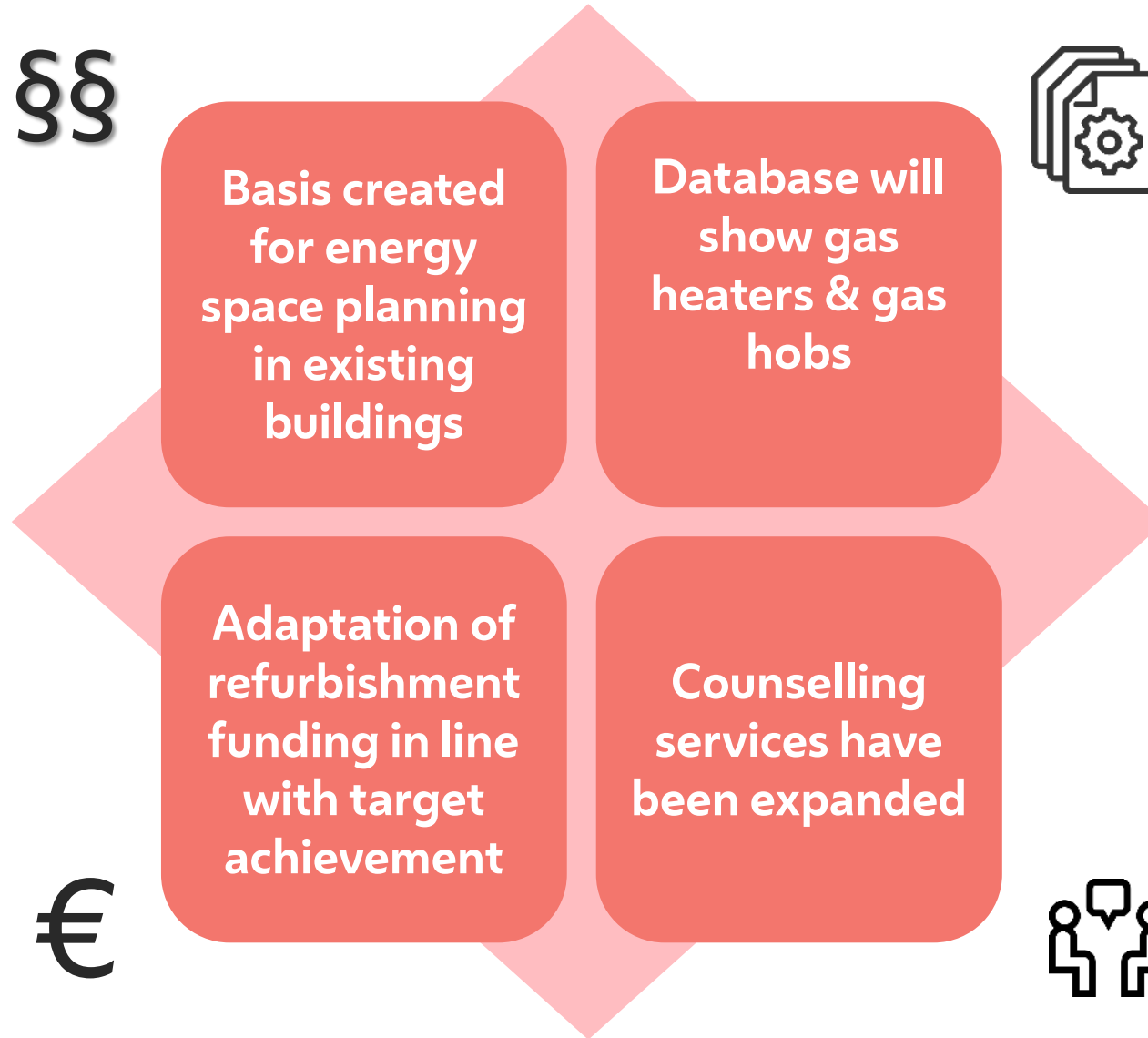
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# What has been achieved



# Framework conditions and legal framework conditions are created





# The Viennese perspective on heat supply

Vienna Heating Plan 2040

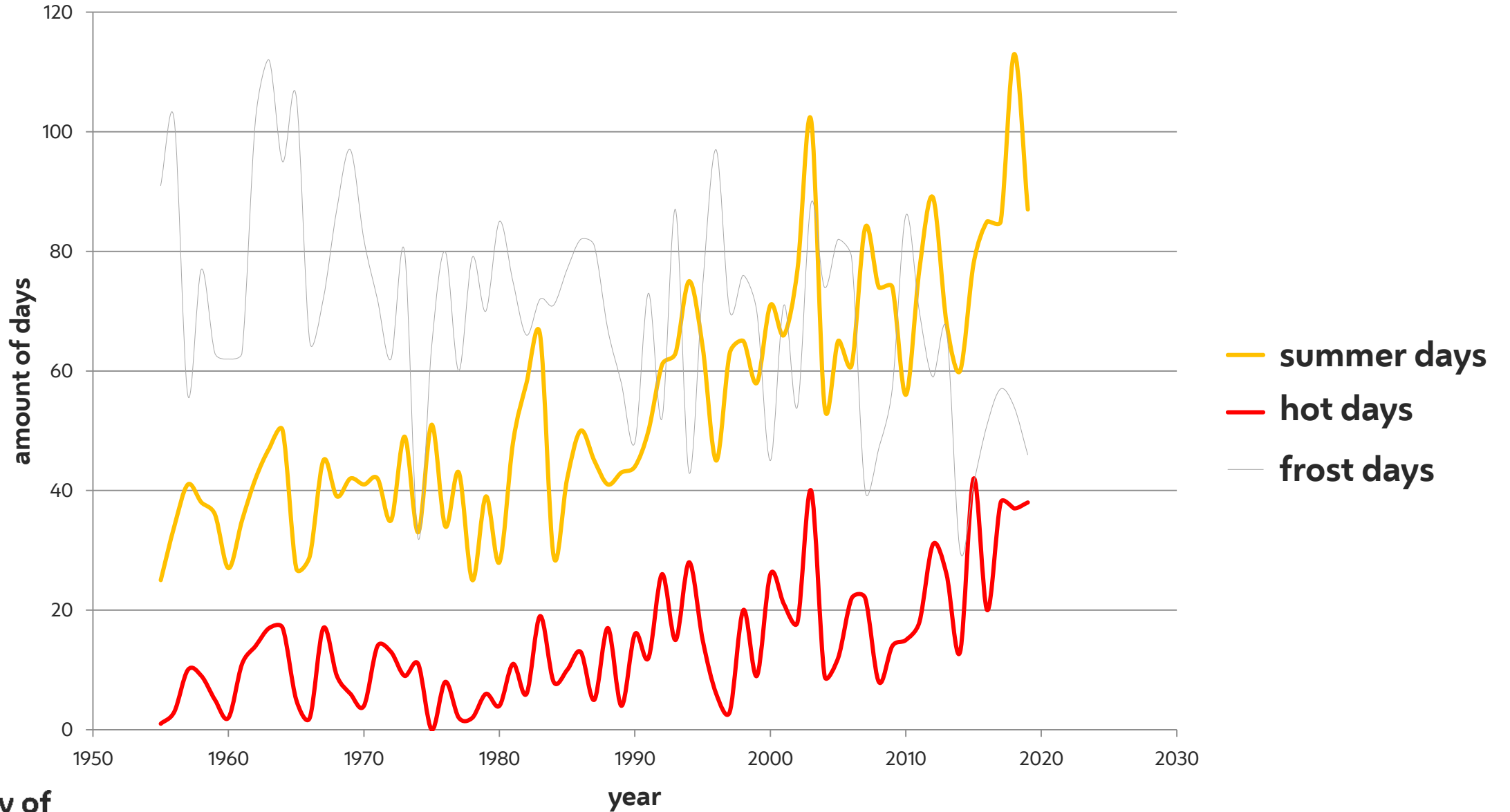
*Climate friendly  
individual solutions*

*Phasing into  
district heating!*



© wien.gv.at/wearmeplan

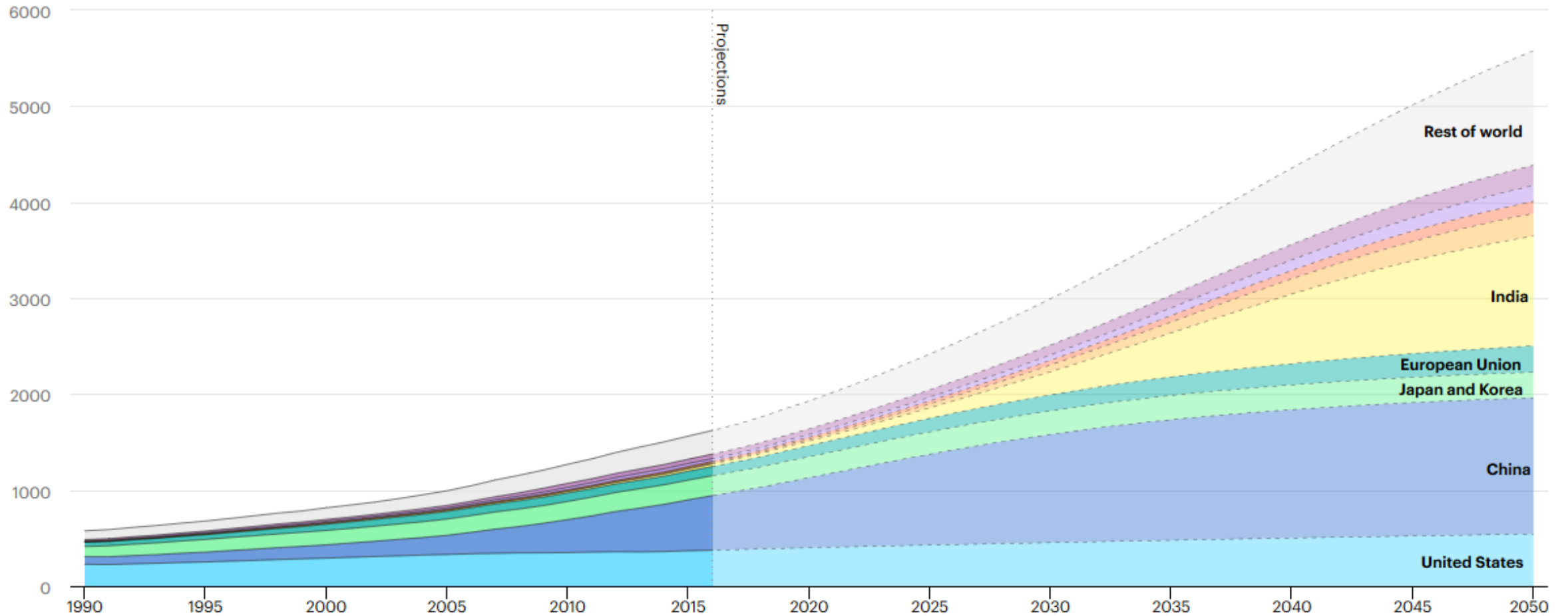
# Climatological Knowledge Days Vienna 1955 - 2019





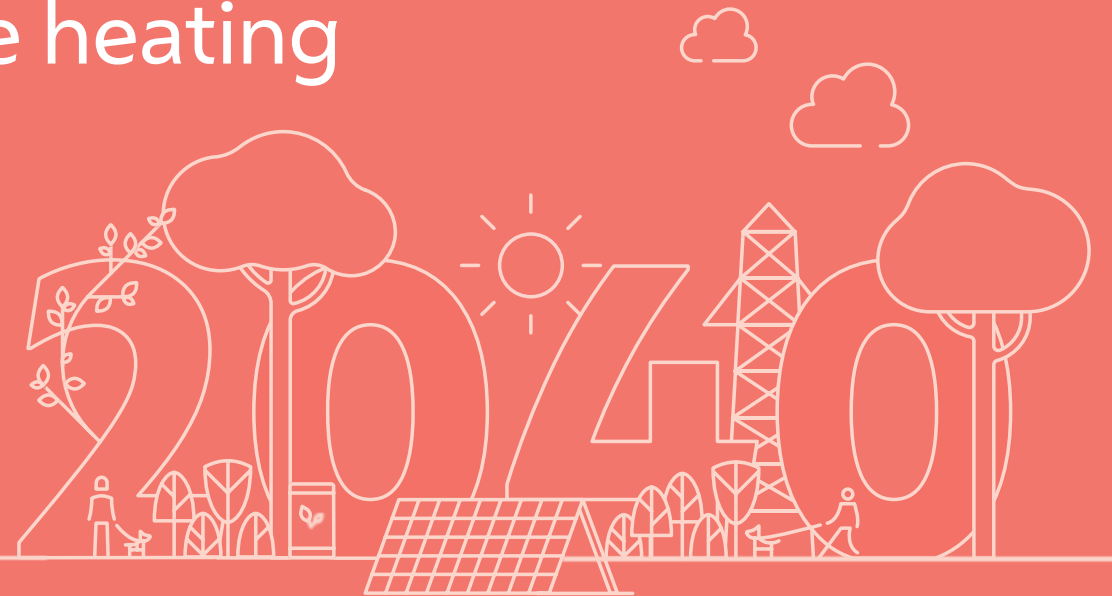
# Global stock of air conditioning units, 1990-2050

IEA – The Future of Cooling



IEA, Global air conditioner stock, 1990-2050, IEA, Paris <https://www.iea.org/data-and-statistics/charts/global-air-conditioner-stock-1990-2050>

What will we need to achieve the heating transition in Vienna?





**~70 000  
Buildings to  
refurbish**

**circular  
economy**

Consulting

Planing

**~600 000  
Households to  
be converted in  
Vienna**

~ 400 000  
Gas floor  
heating systems  
~ 40 000  
SFH

**+ ~4 000 km  
power cables**

**+ ~420 km  
District heating  
pipes**

Deep geothermal  
energy

Large heat pumps

Planing

Roadworks

**Sector coupling  
Electricity:heat**

**E-mobility**

Charching  
stations

+ ~3 000  
Transformer  
stations

**Solar energy  
offensive**

800 MWp until  
2030

## In Focus till 2025

### Next steps

- Strategic **district heating expansion** in 4 pilot areas
- **100 gas-free buildings** (residential)
- Conversion of **municipal properties** in preparation
- Targeted **communication** and public relations work



*“The future depends on what you do today” (M. Gandhi)*

**Thank you for  
your attention!**

