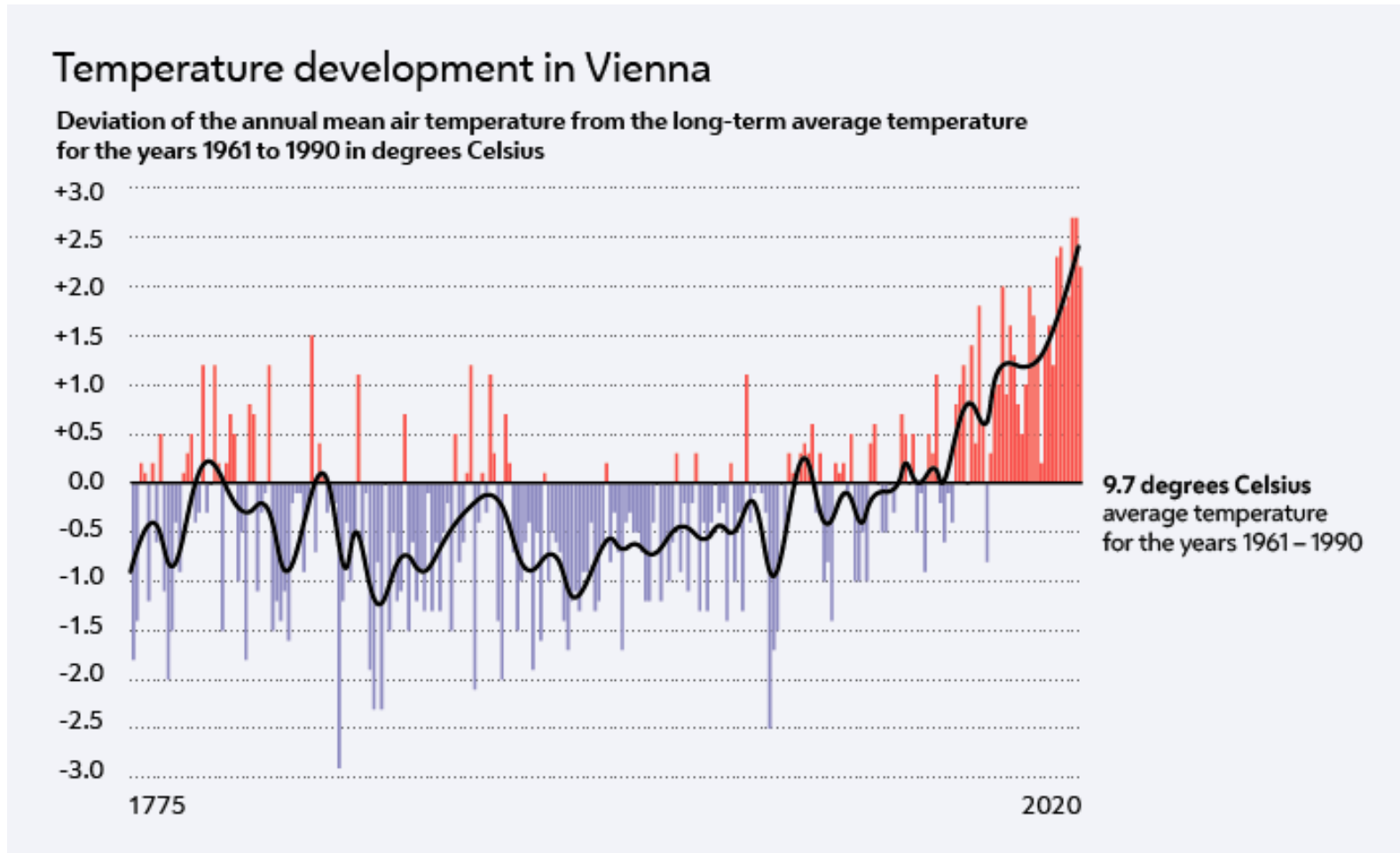


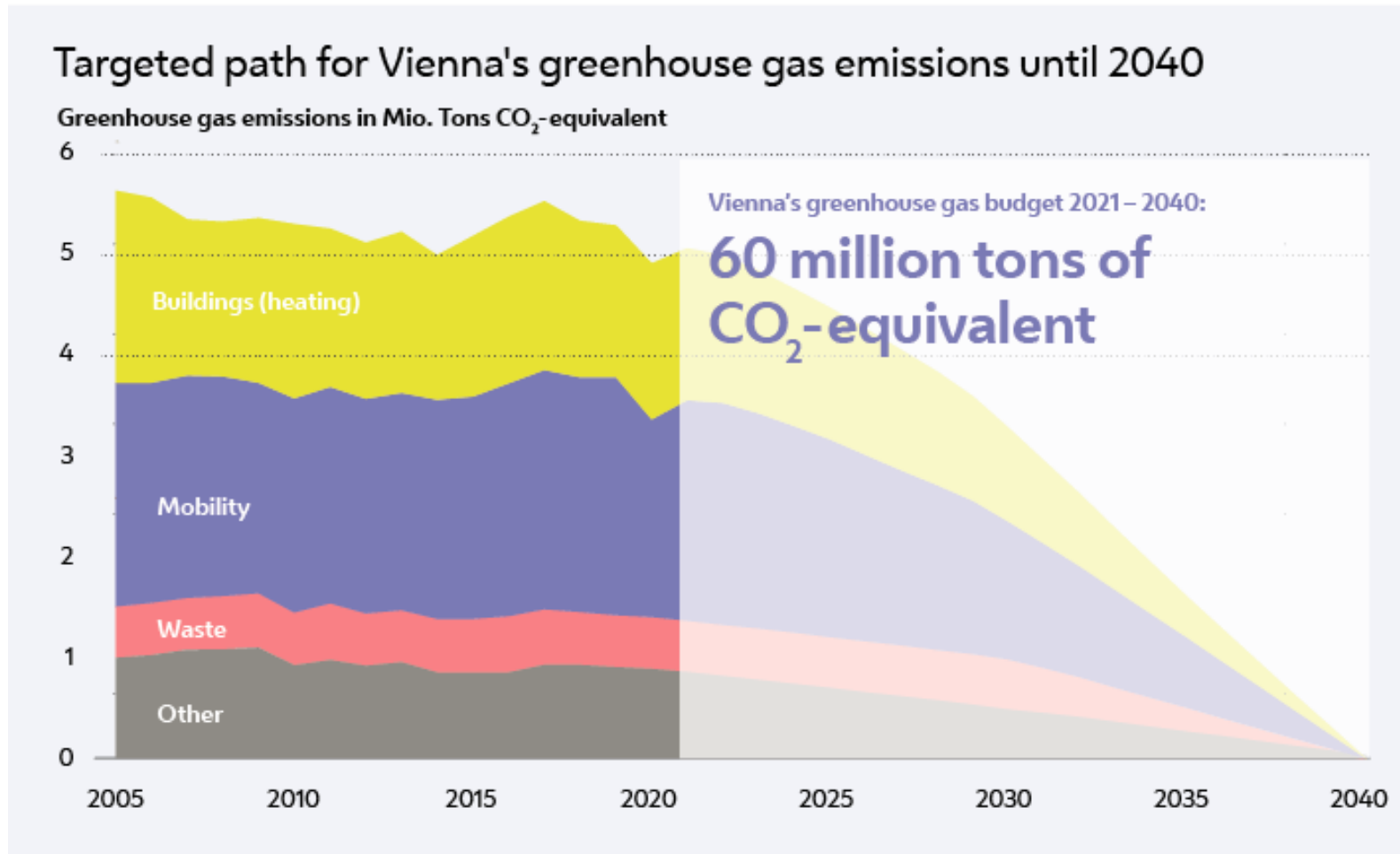
How to decarbonise heating in Vienna by 2040

Jürgen Czernohorszky, Vienna Executive City Councillor for Climate, Environment, Democracy and Personnel
Michael Strebl, CEO Wien Energie

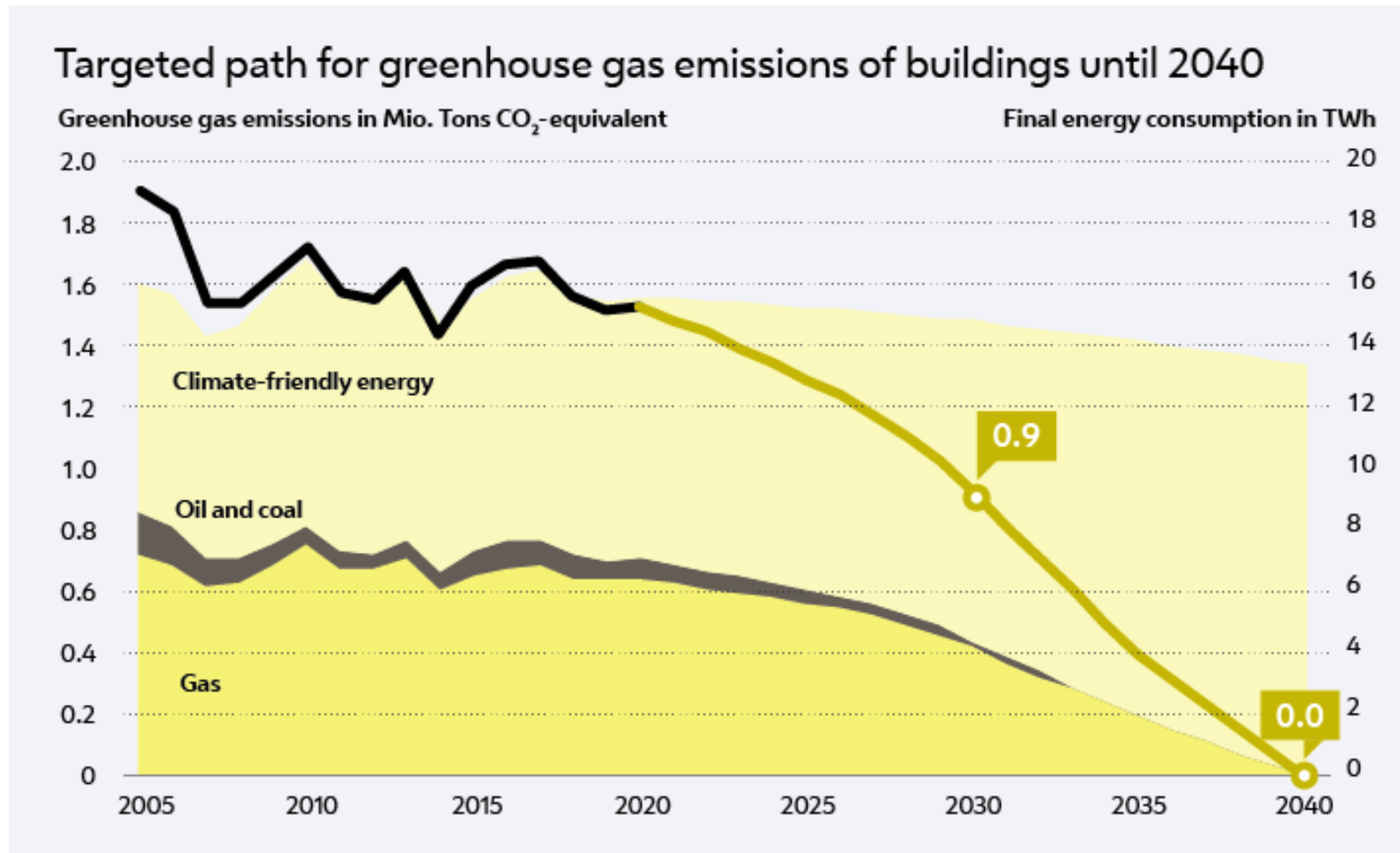
The mean temperature in Vienna is now more than 2°C above the long-term average



The Viennese Climate Roadmap foresees no more than 60 Mn t CO₂ emission to 2040



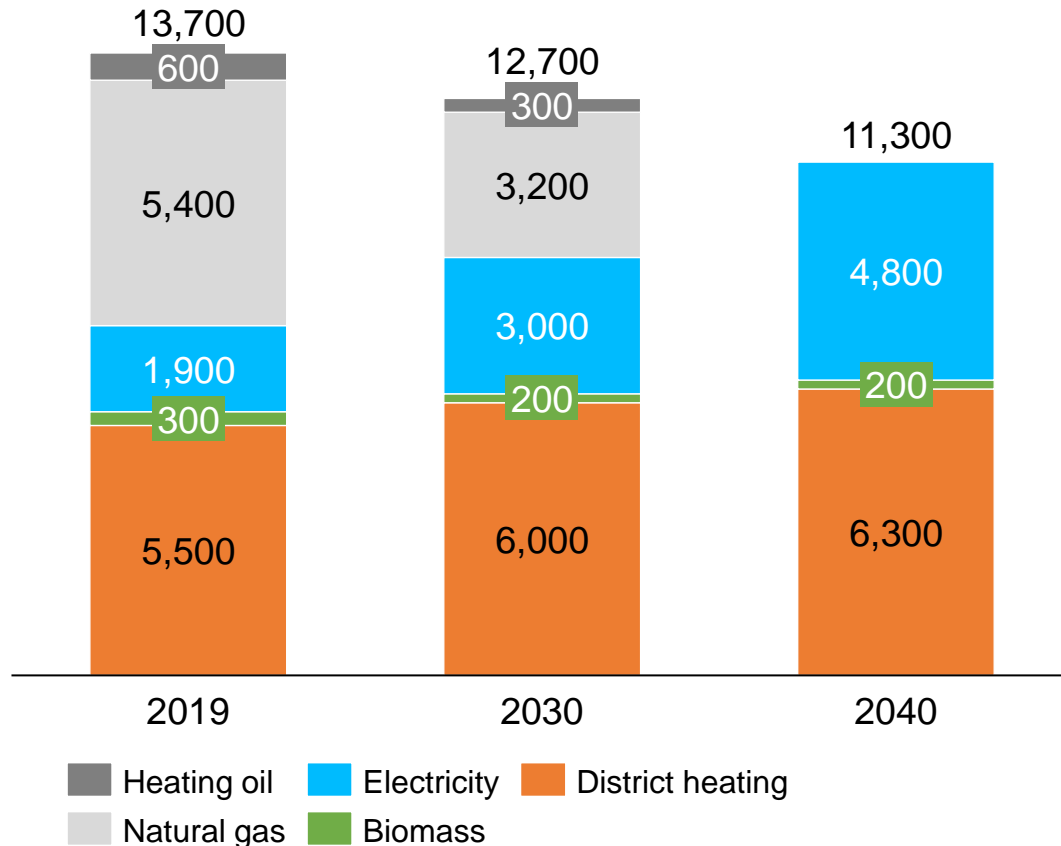
We are working on a detailed plan to decarbonize the building sector



Our decarbonisation study shows that demand for useful energy decreases while natural gas is displaced

„Climate neutrality 2040“: Useful energy demand for heating [GWh]

(Values rounded to 100 GWh, sums above the rounded values do not always correspond to the rounded sum values)

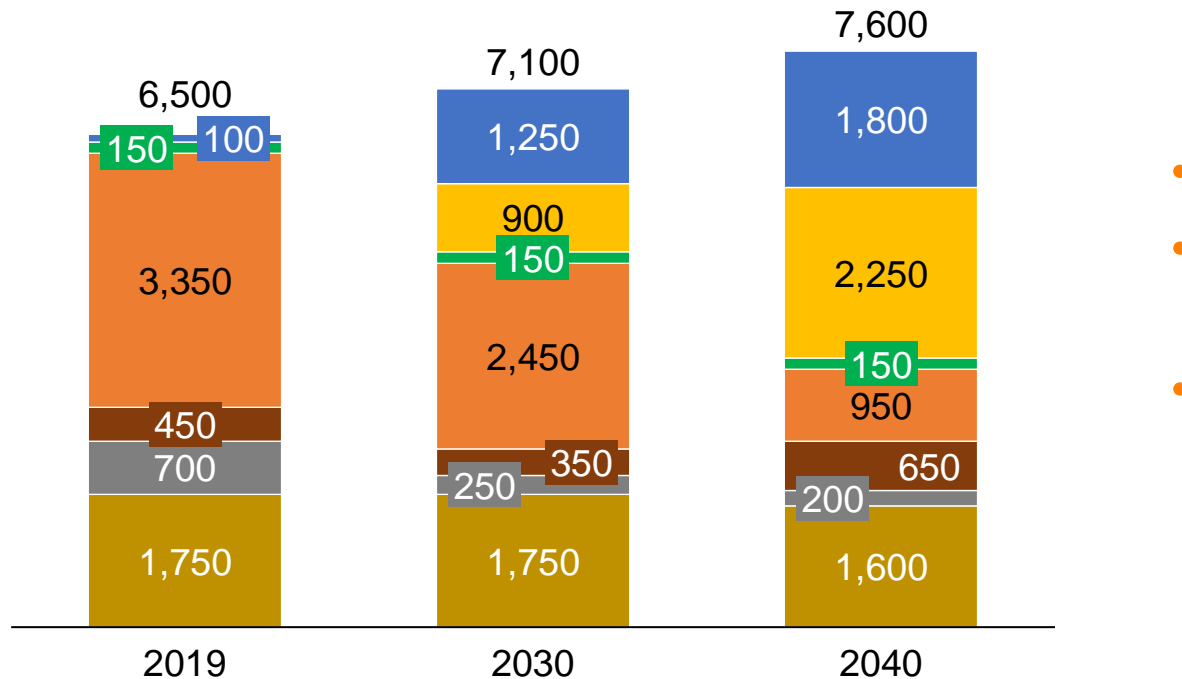


- Population growth leads to increased demand
- The renovation rate and climate effects more than offset population growth
- Accordingly, useful energy demand for heating decreases by 18% by 2040

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)

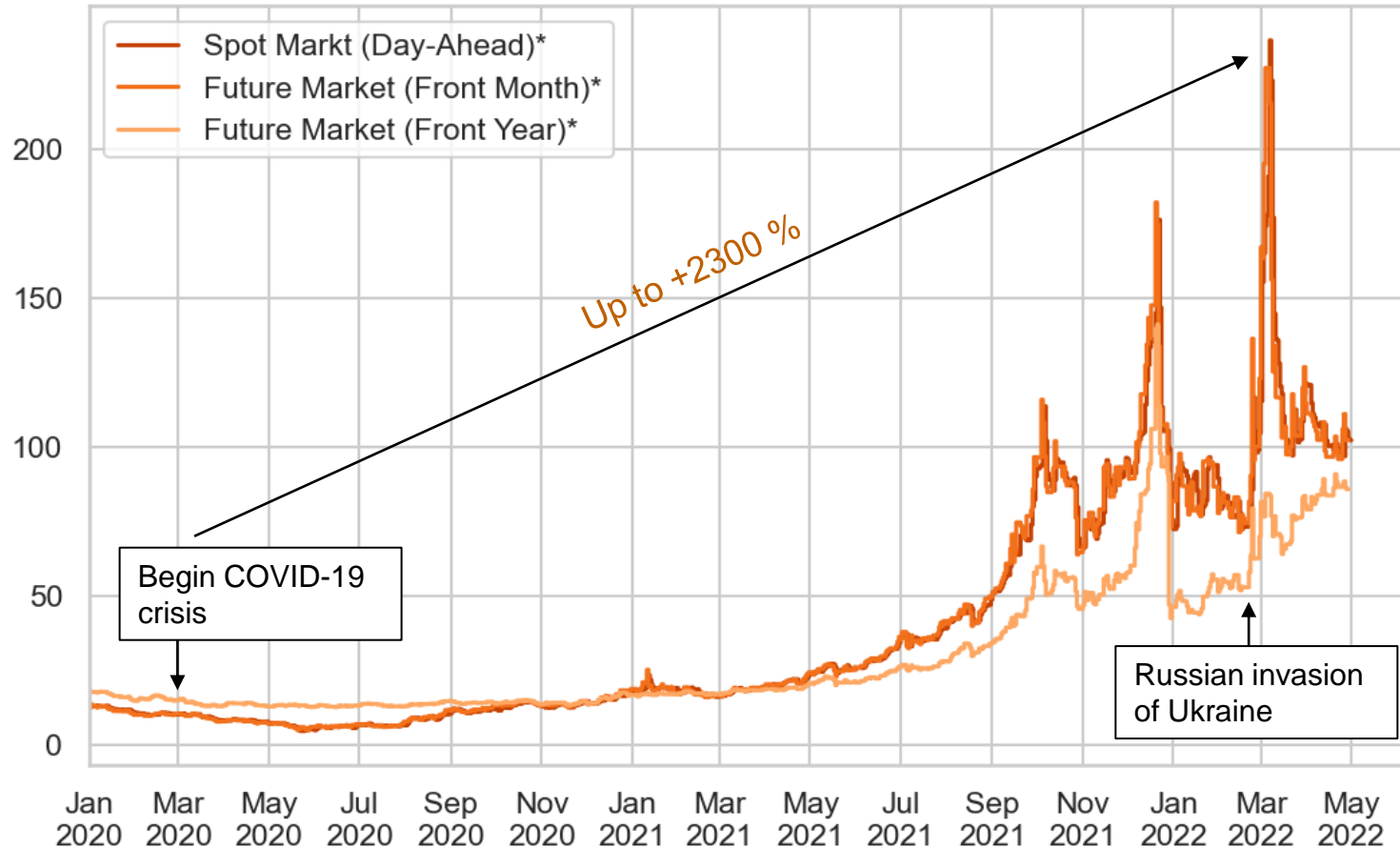


- Generation increases by 18% by 2040
- In 2040, 56% of heat demand is covered by district heating
- Geothermal energy and large-scale heat pumps generate 55% of district heating by 2040

Recent price volatility emphasises the need to improve resilience via decarbonisation

Natural Gas Market Prices (CEGH)

EUR/MWh



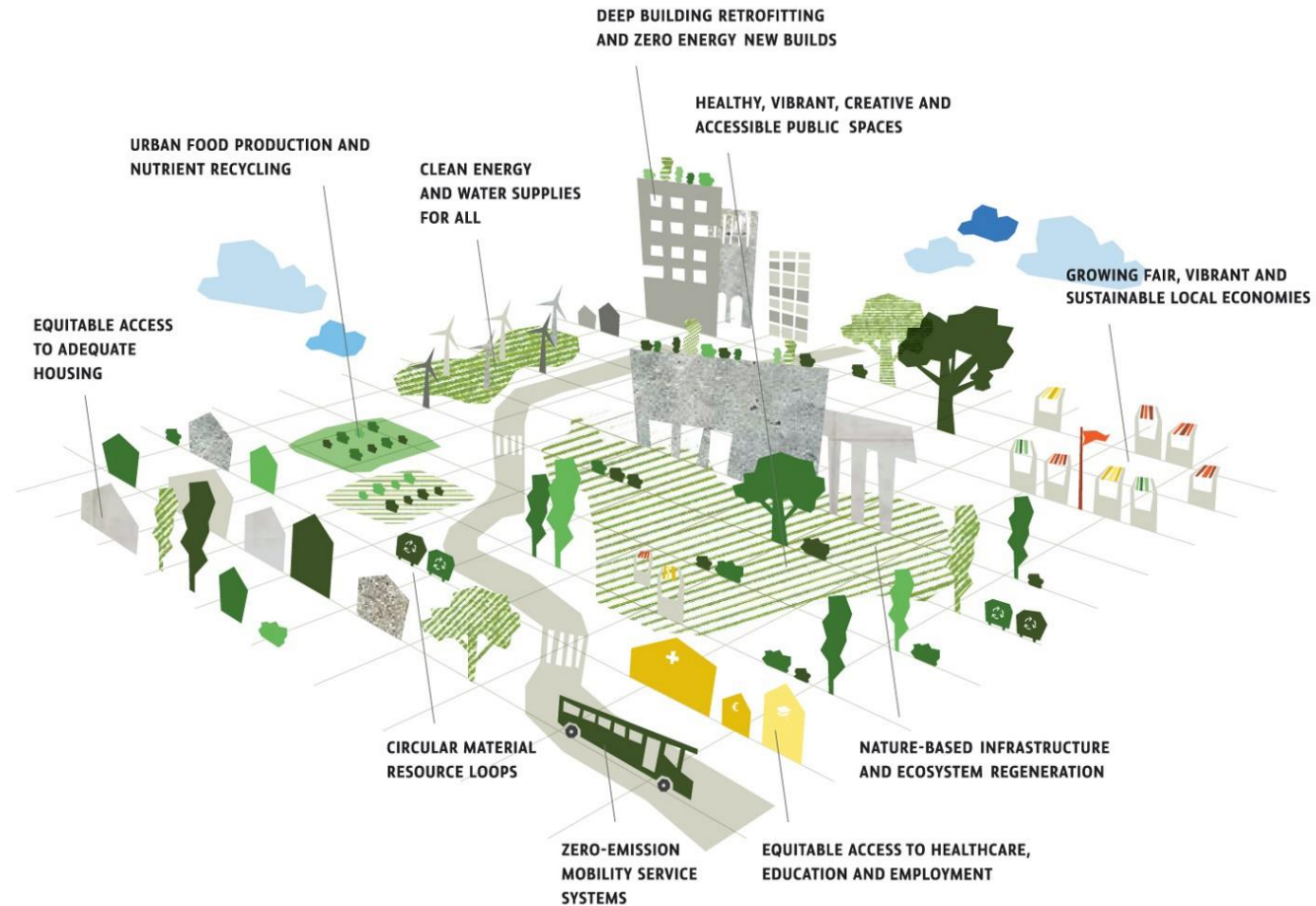
* PEGAS and EEX, daily average

Source: Reuters; Visualization: Wien Energie EWS

- **Rising demand meets reduced supply**
- Post-COVID economy leads to higher demand for gas
- **Decreased supply:**
 - Non-commissioning of Nord Stream 2
 - Shortage of LNG gas (liquefied natural gas)
- **Gas storage** filled below average for the time of year
- **Russian invasion of Ukraine:**
 - High political uncertainty
 - Risk of a possible gas supply stop
 - Demand to be paid in rubles
- Panic buying of market participants

The Green New Deal for the City of the Future brings the different elements together

City of the Future



SMART Block Geblergasse – a successful pilot project for renewable heating



Under the Vienna Photovoltaic Program 800 MW will be installed by 2030

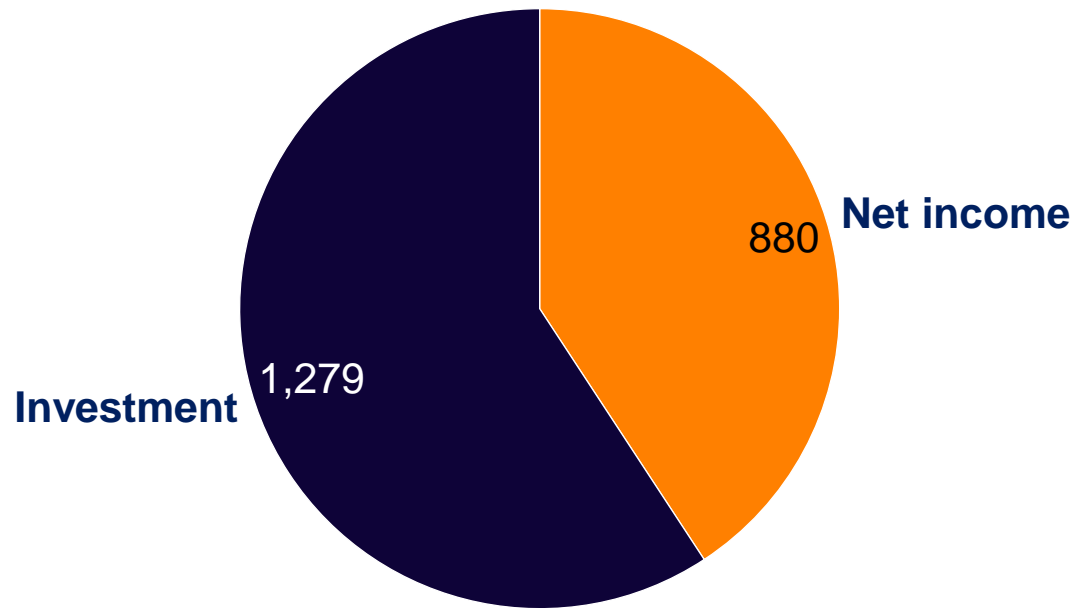


Energy recovery turned Vienna's wastewater treatment plant energy positive

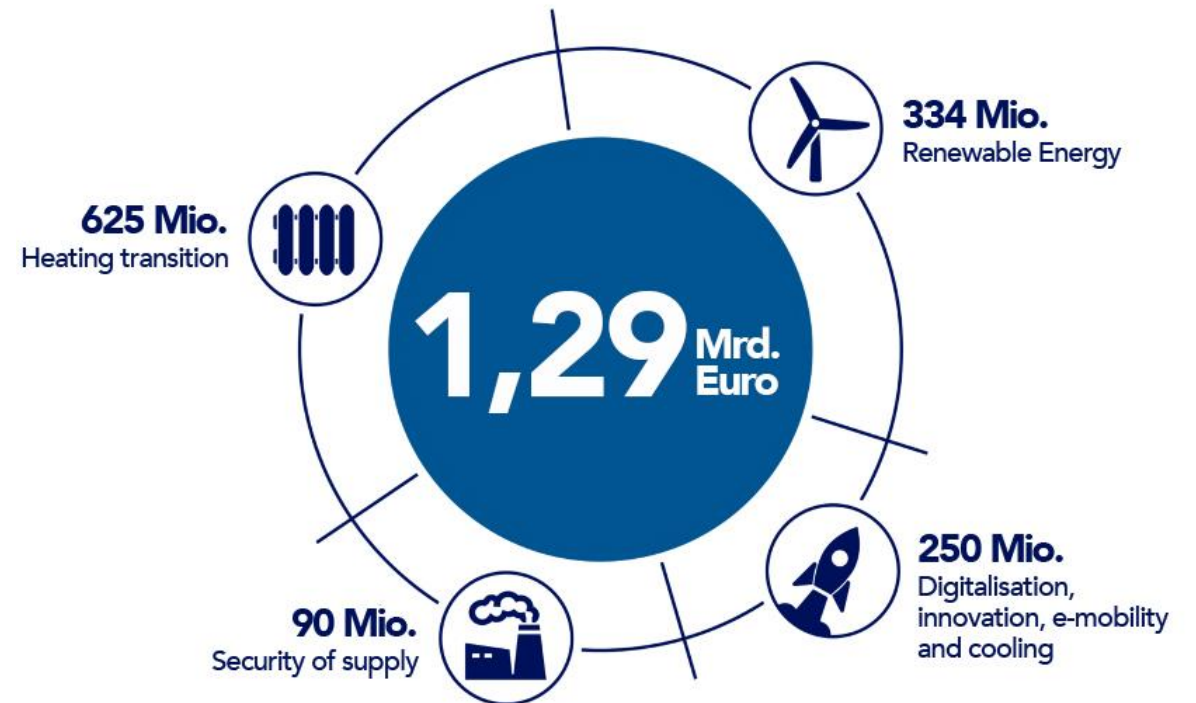


Wien Energie invests more than a billion Euros in CO₂ neutrality

Past income and investment 2017-2022 (Mio. Euros)



Future investment to 2027 (billion Euros)

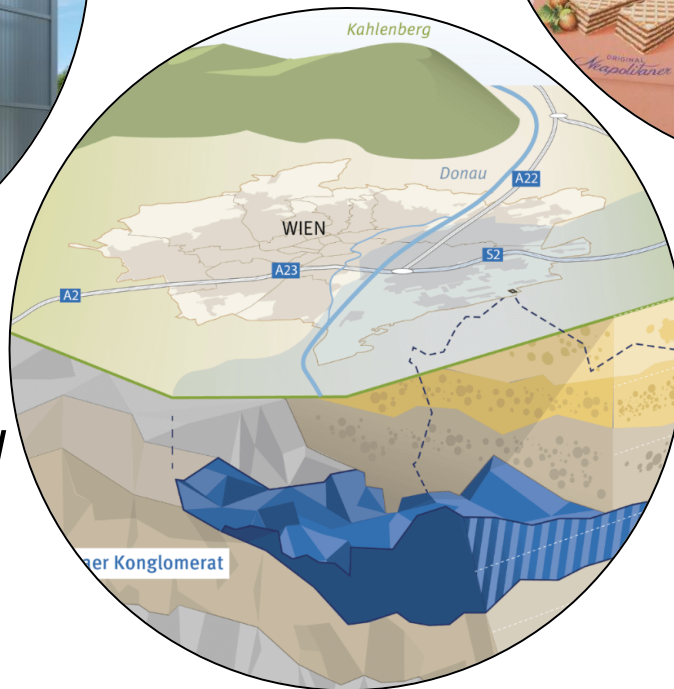


Wien Energie is taking action for achieving zero emissions by 2040

Large-scale heat pump waste water treatment plant Simmering



Ground survey and test wells for deep geothermal energy



Industrial waste heat from Manner waffle production



First hydrogen test in the operation of Donaustadt gas turbine



Wien Energie is going to present a city benchmarking study



- Overview of the current state of play in terms of climate action
- Exchange of best practice example
- Foster collaboration among European cities

May 2022

Clean heating to the rescue

3rd DecarbCities Conference, Vienna

Dr Jan Rosenow

The Regulatory Assistance Project (RAP)®

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An iceberg floating in a blue ocean under a blue sky with white clouds. The visible tip of the iceberg is on the left, and the much larger, submerged part is on the right. The water is a deep blue, and the sky is a lighter blue with scattered white clouds. The horizon line is visible in the distance.

Electricity

Heat

1 Clean heating and Russian gas





FLITE-FUEL

SORRY

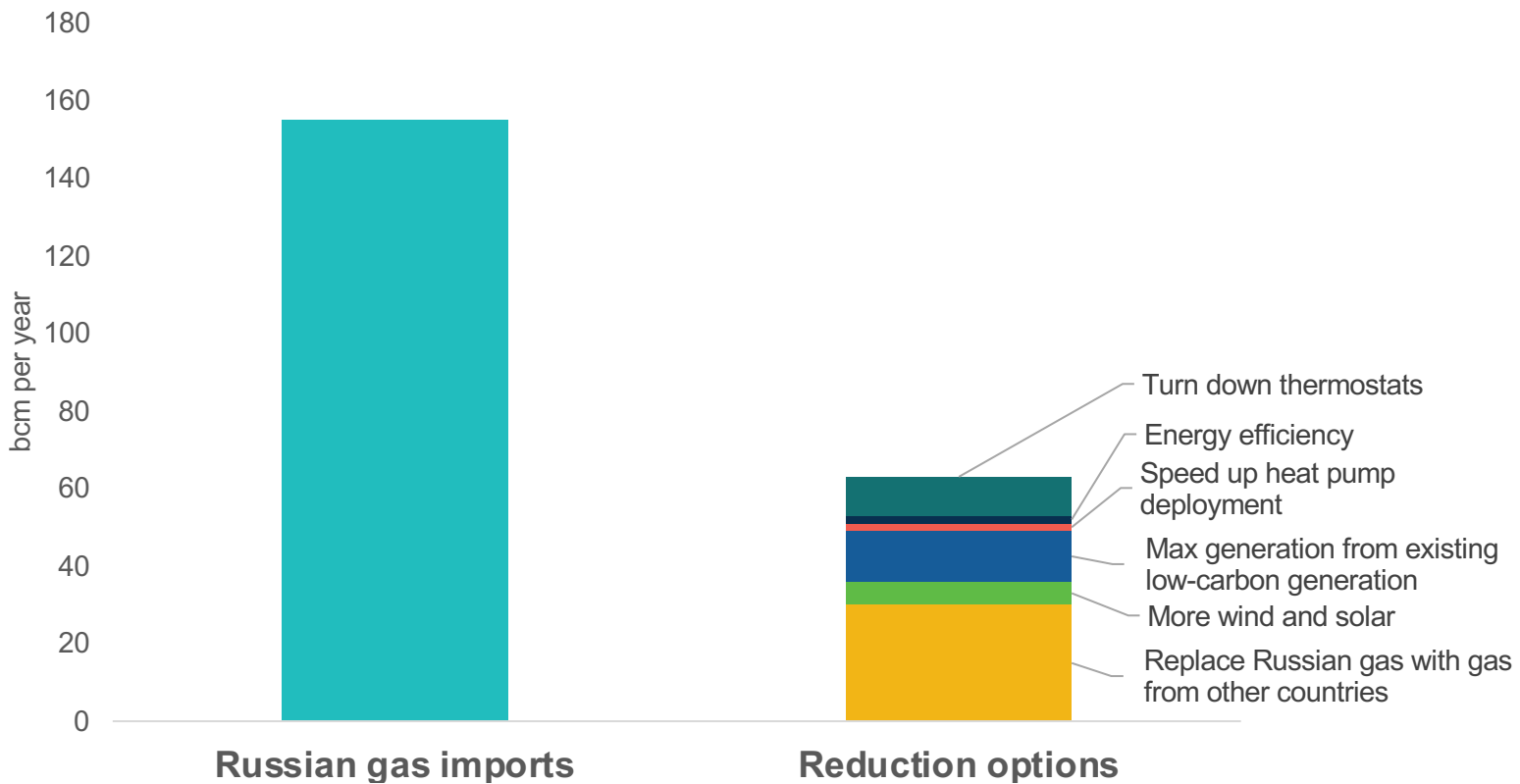
NO

GAS

SIXTY-SIX

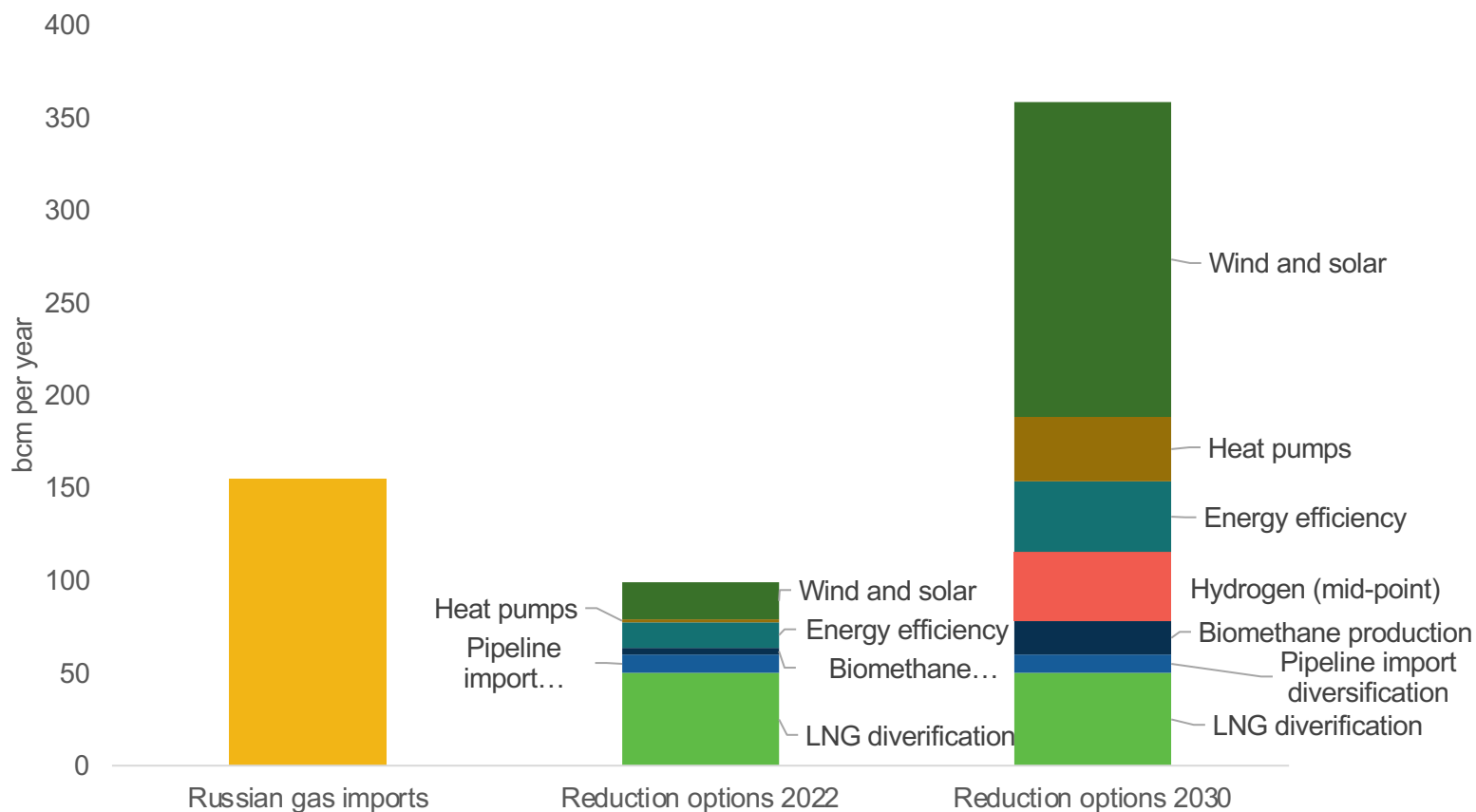
Replacement options for Russian gas imports in IEA 10-point plan

Options to cut Russian gas imports to EU this year



Source: RAP analysis based on IEA 2022

Replacement options for Russian gas imports in RePower Europe

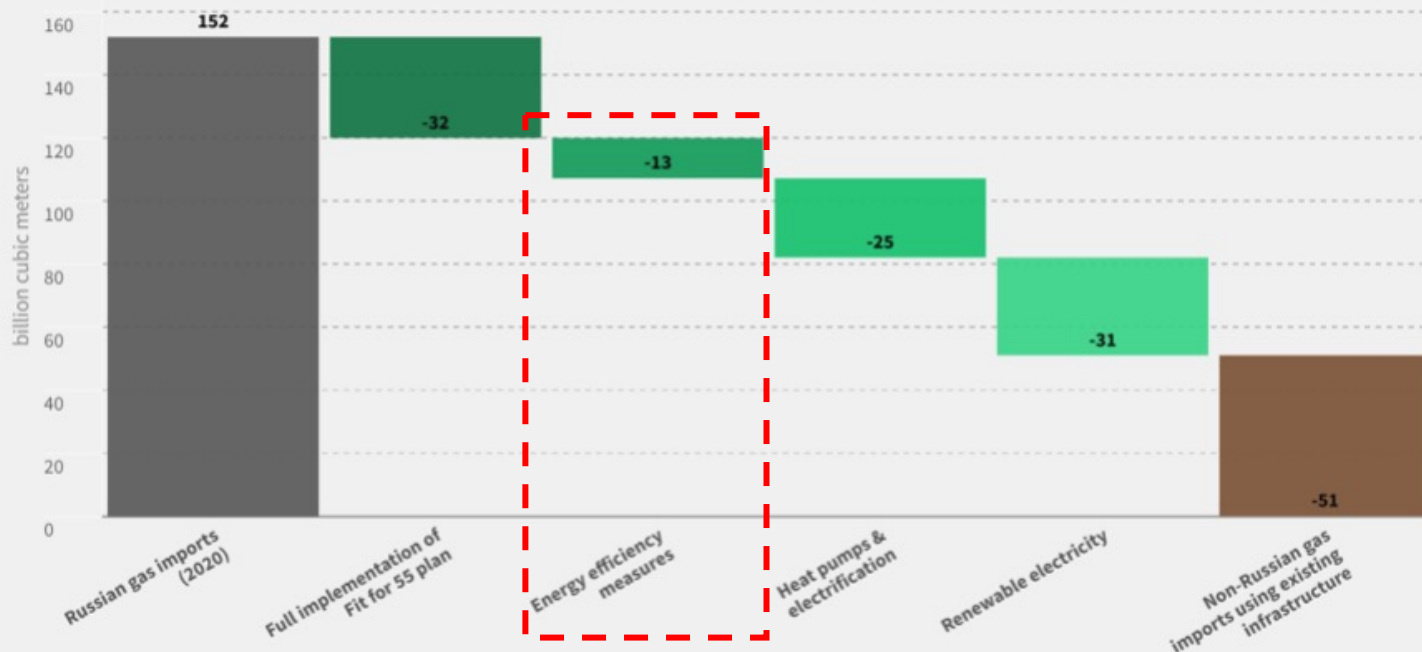


Source: RAP analysis based on EC 2022

Energy efficiency can cut Russian gas by 17% by 2025

Clean solutions can replace 66% of Russian gas imports by 2025

Russian gas imports cut by 101 billion cubic meters through implementation of Fit for 55 plus additional clean energy measures

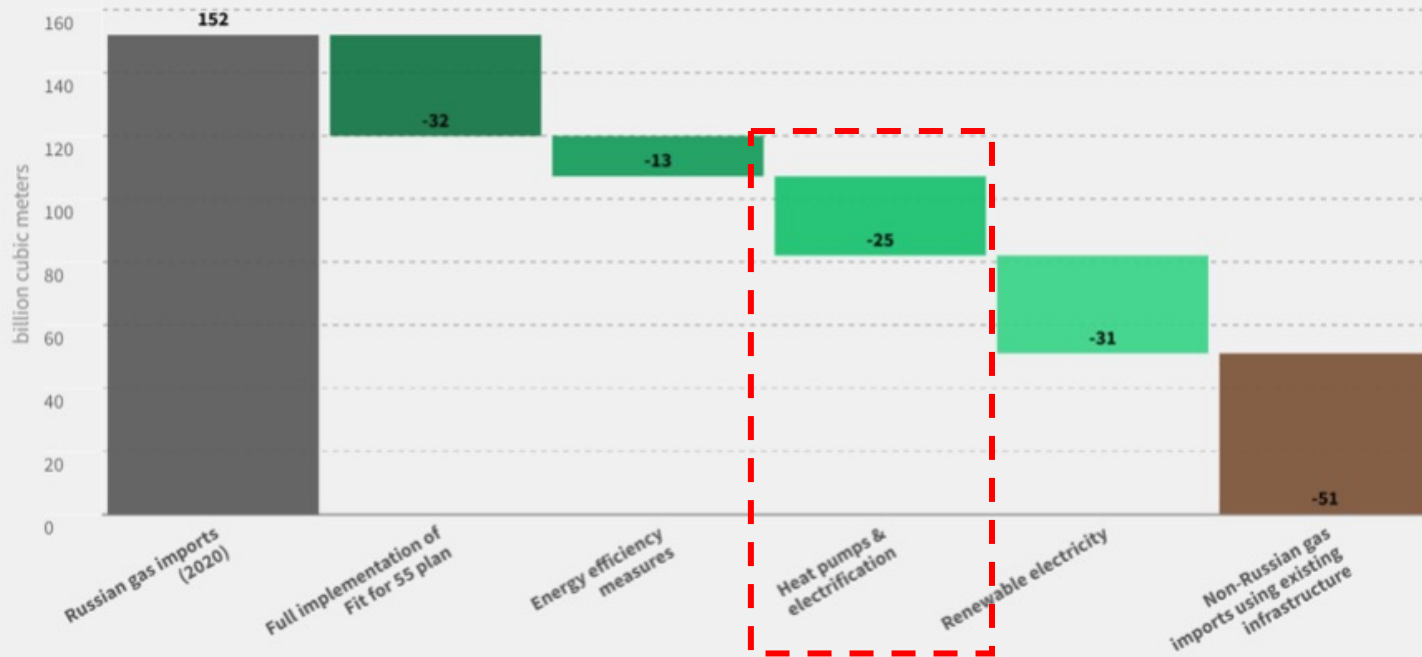


Sources: Analysis by Bellona, E3G, Ember and Regulatory Assistance Project (RAP) • EU Fit for 55 plan - MIX scenario

Electrification can cut Russian gas by another 23% by 2025

Clean solutions can replace 66% of Russian gas imports by 2025

Russian gas imports cut by 101 billion cubic meters through implementation of Fit for 55 plus additional clean energy measures

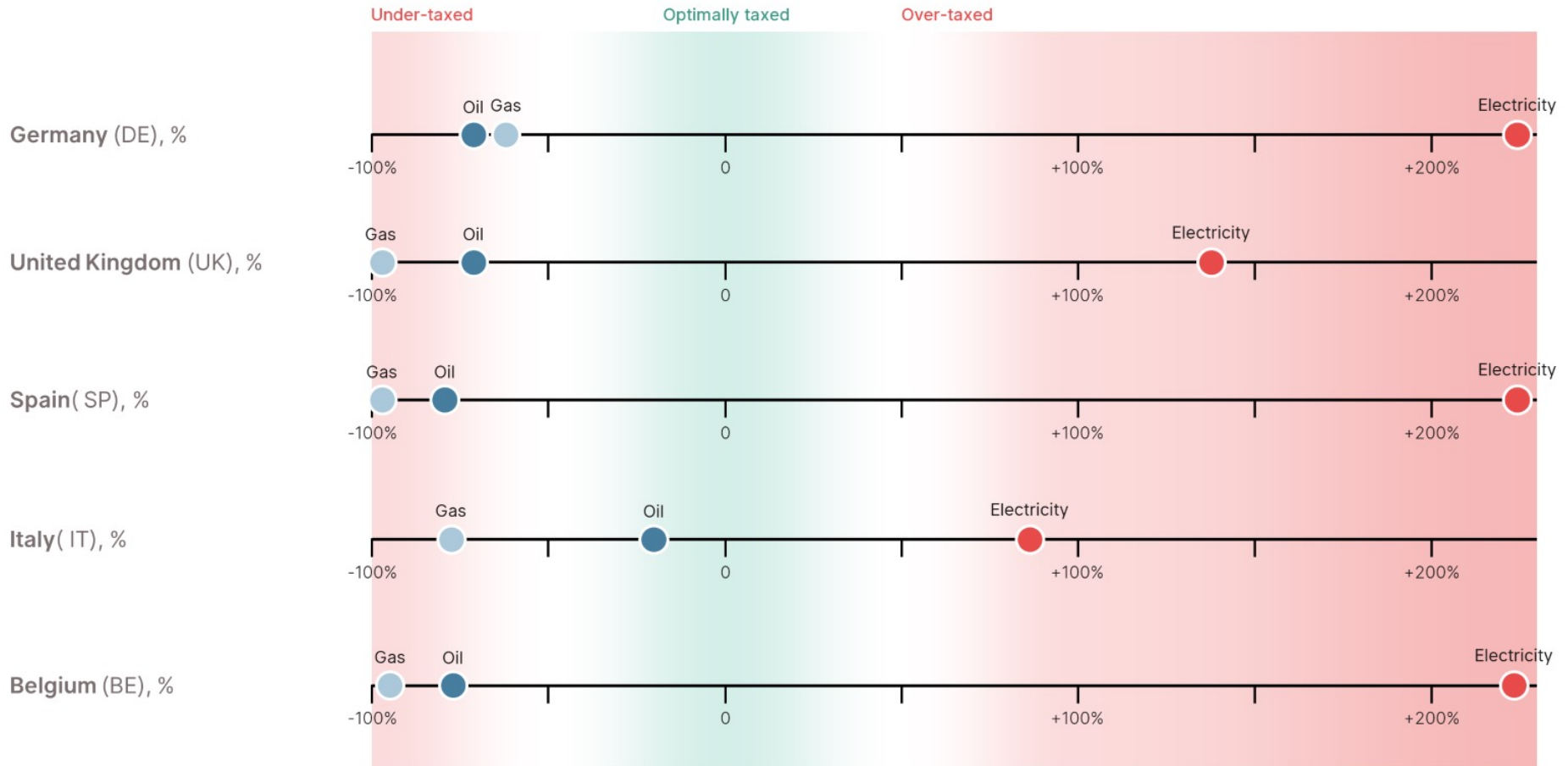


Sources: Analysis by Bellona, E3G, Ember and Regulatory Assistance Project (RAP) • EU Fit for 55 plan - MIX scenario

2 Economics have changed



Starting point is challenging



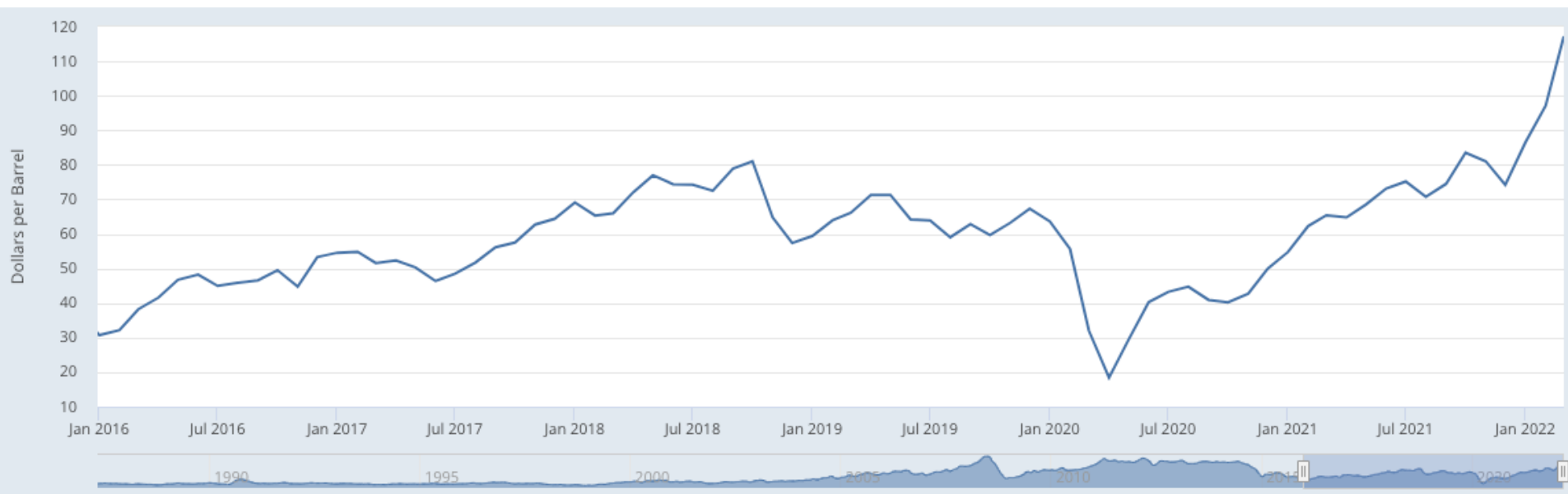
Source: RAP forthcoming

Gas prices up ~5x compared to pre-pandemic levels



Source: Trading Economics

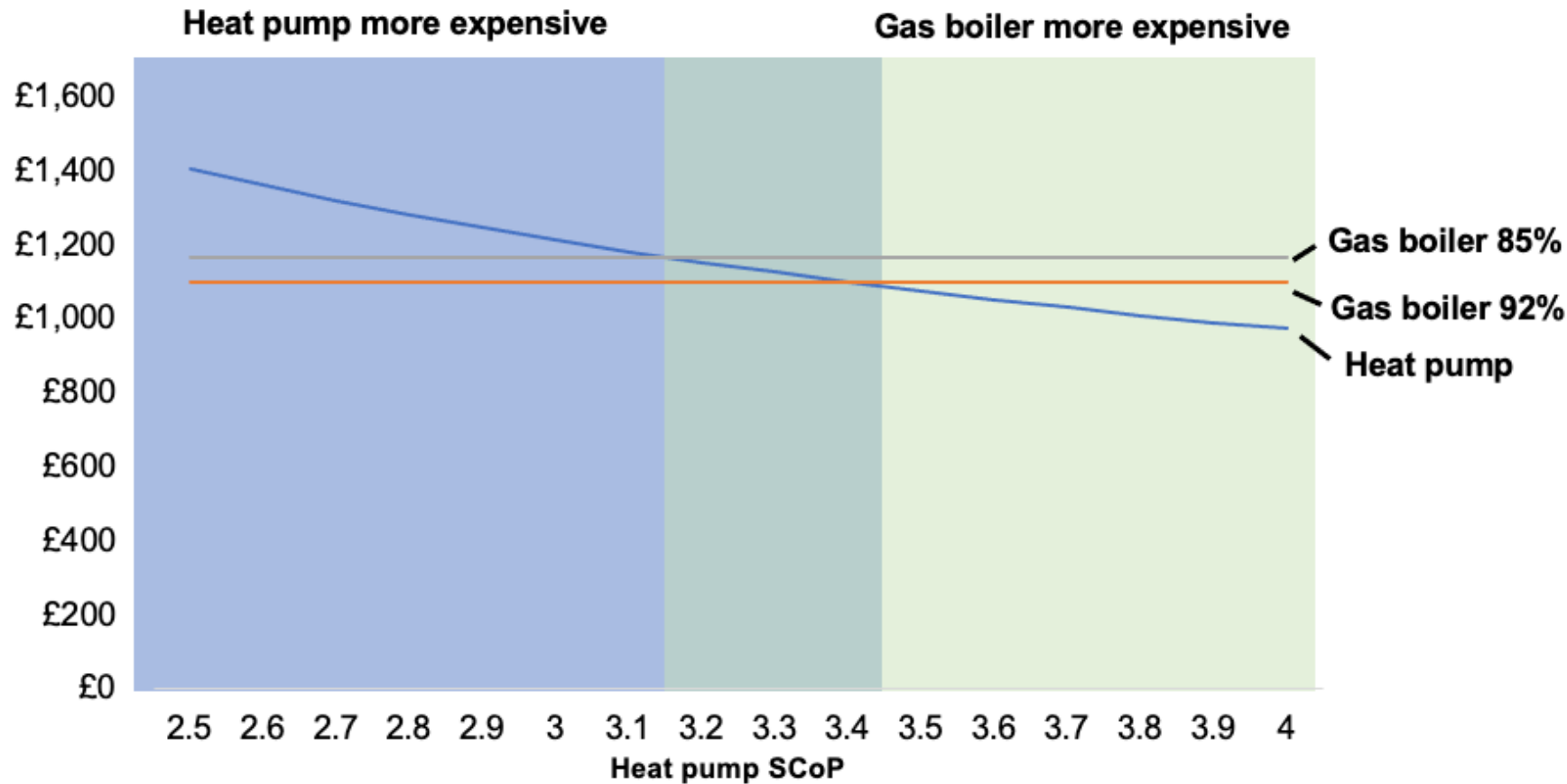
Oil prices up ~2x compared to pre-pandemic levels



Source: EIA 2022

Economics fundamentally changed

Example: UK, total cost of ownership



Assumptions: Heat demand: 10,204 kWh; Cost gas: 7.37p/kWh; Cost electricity: 28.34p/kWh; Gas standing charge: £0.27/day; CAPEX heat pump: £10.5k, incl. VAT, £10k, with BUS grant £5k; CAPEX gas boiler: £2.7k; Lifetime heat pump: 20 years; Lifetime gas boiler: 15 years

Source: RAP analysis

3 What next?



Key measures



- Stop funding new fossil fuel heating systems and redirect to clean heating now
- Stop installing fossil heating in new buildings now and in all buildings as soon as possible



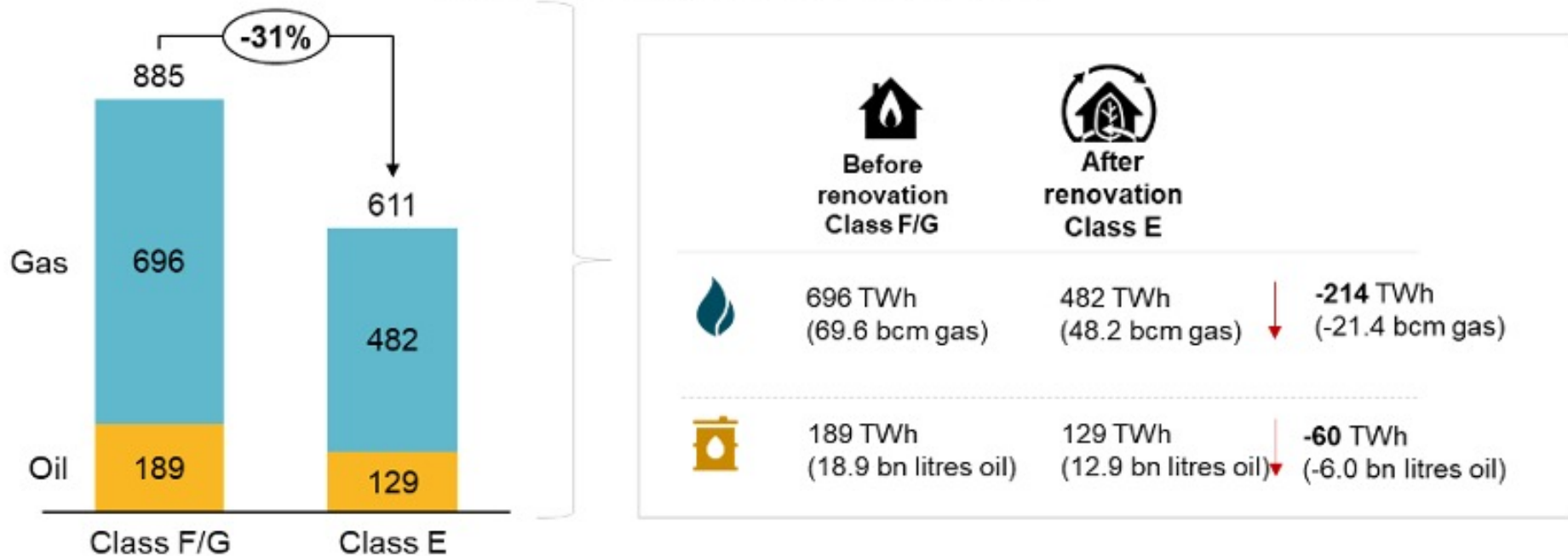
- Bring forward minimum energy performance standards in EPBD
- Require worst buildings to be upgraded (F&G) earlier
- Introduce target for D&E rated buildings



- Commit significant funding at EU and national level for energy efficiency and electrification
- Reform taxes and levies on energy

Example: EPBD current proposals

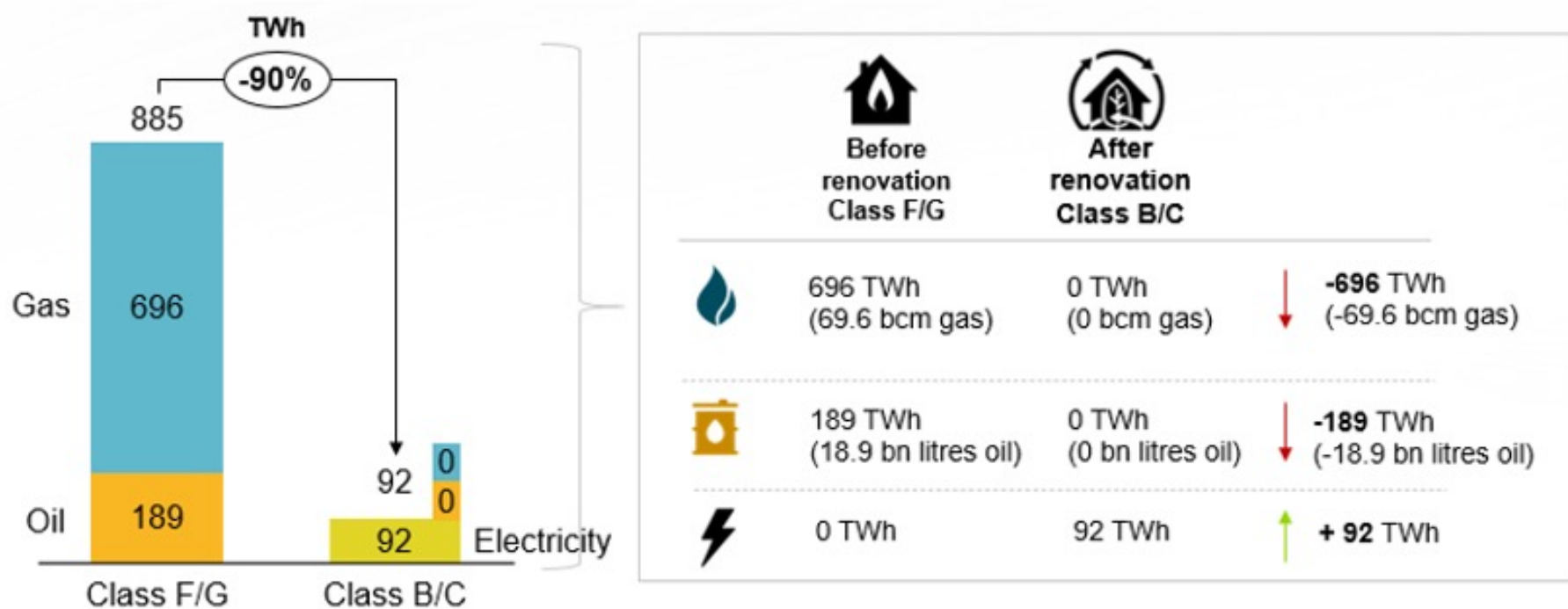
Energy savings in oil and gas consumption by 2030 after renovation of the F and G classes buildings to E level (in TWh)



Source: Guidehouse 2022

What if we increased ambition?

Energy savings in oil and gas consumption by 2030 after renovation of the F and G classes buildings to B/C level (in TWh)



Source: Guidehouse 2022



Jan Rosenow

@janrosenow



“We bought this really expensive car.” “Oh great, very nice car!”

“We got a new luxury kitchen.” “I like your marble worktop.”

“We got our home insulated.” “What’s the payback on that?”

9:05 PM · May 2, 2022 · Twitter for iPhone

View Tweet analytics

405 Retweets **56** Quote Tweets **2,868** Likes

About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org



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DecarbCities conference

Session "Solutions to decarbonise multi-family buildings: let's do it!"

CENTRALIZING OF INDIVIDUAL GAS FLOOR HEATERS

Daniela Huber – dwelling stock management / SOZIALBAU AG

SOZIALBAU AG is the biggest non-for-profit housing association in Austria.

- 120,000 inhabitants (about 7% of vienna) in
- 53,000 dwellings
- 6.000 of which are still heated with individual gas floor heaters (about 400,000 in vienna!)



Photo 1: central heating in the attic

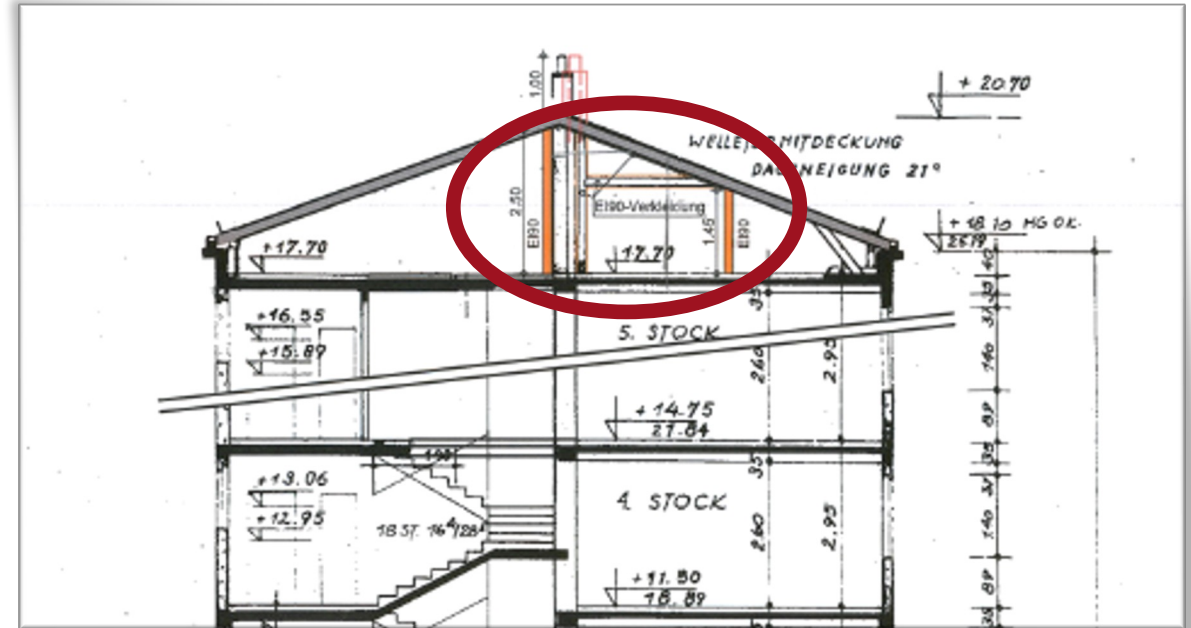
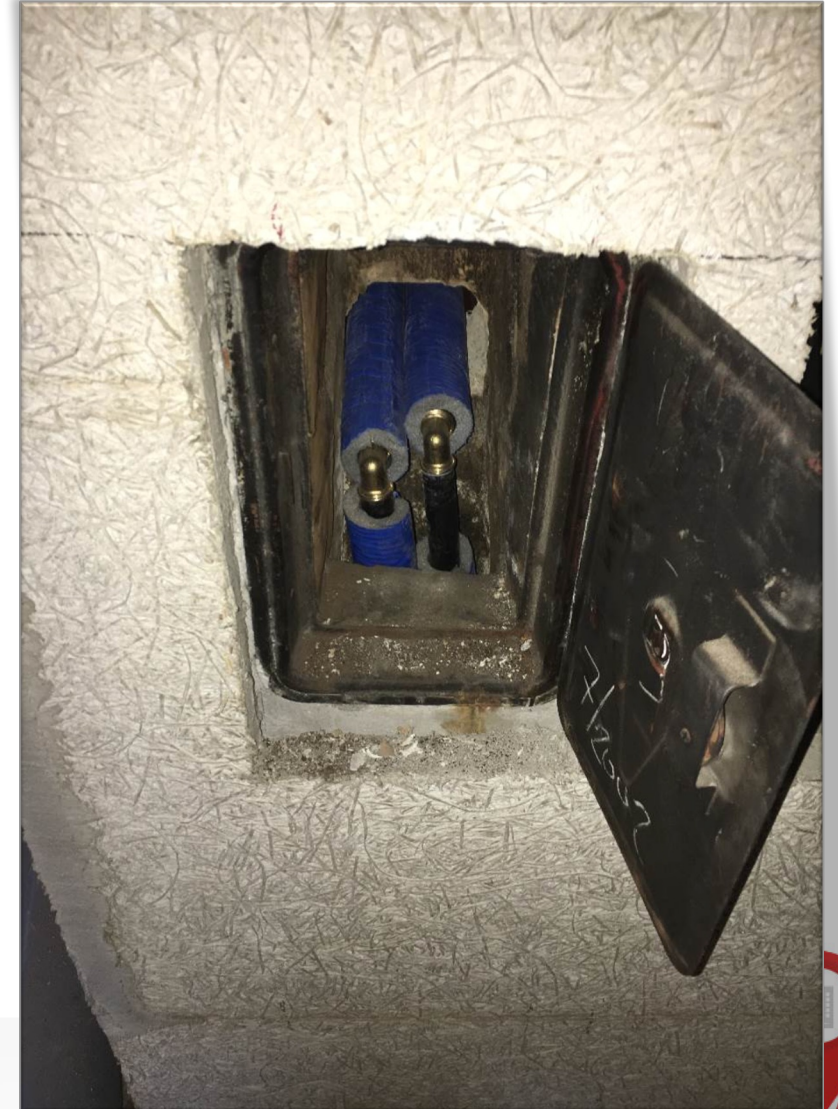
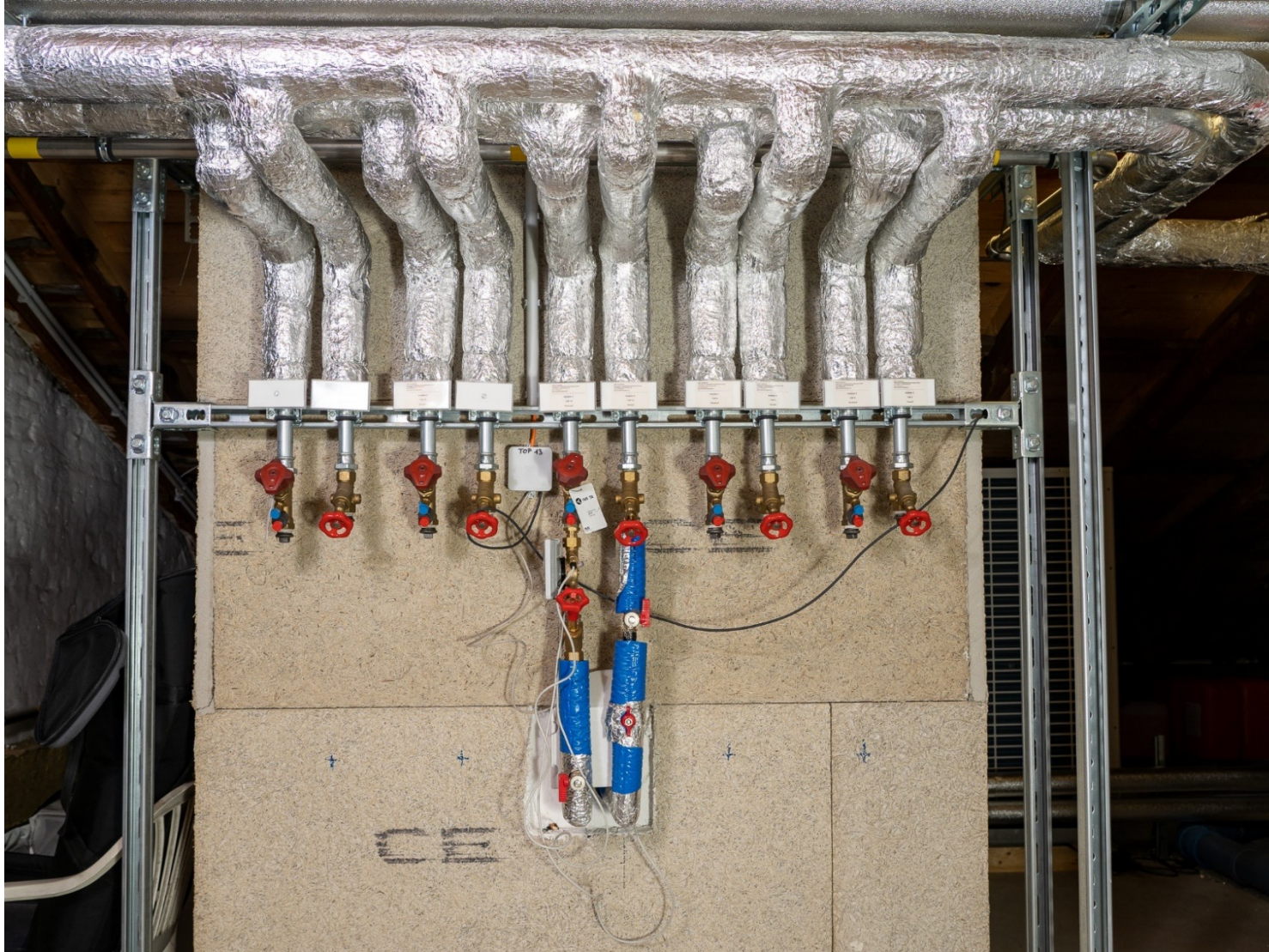
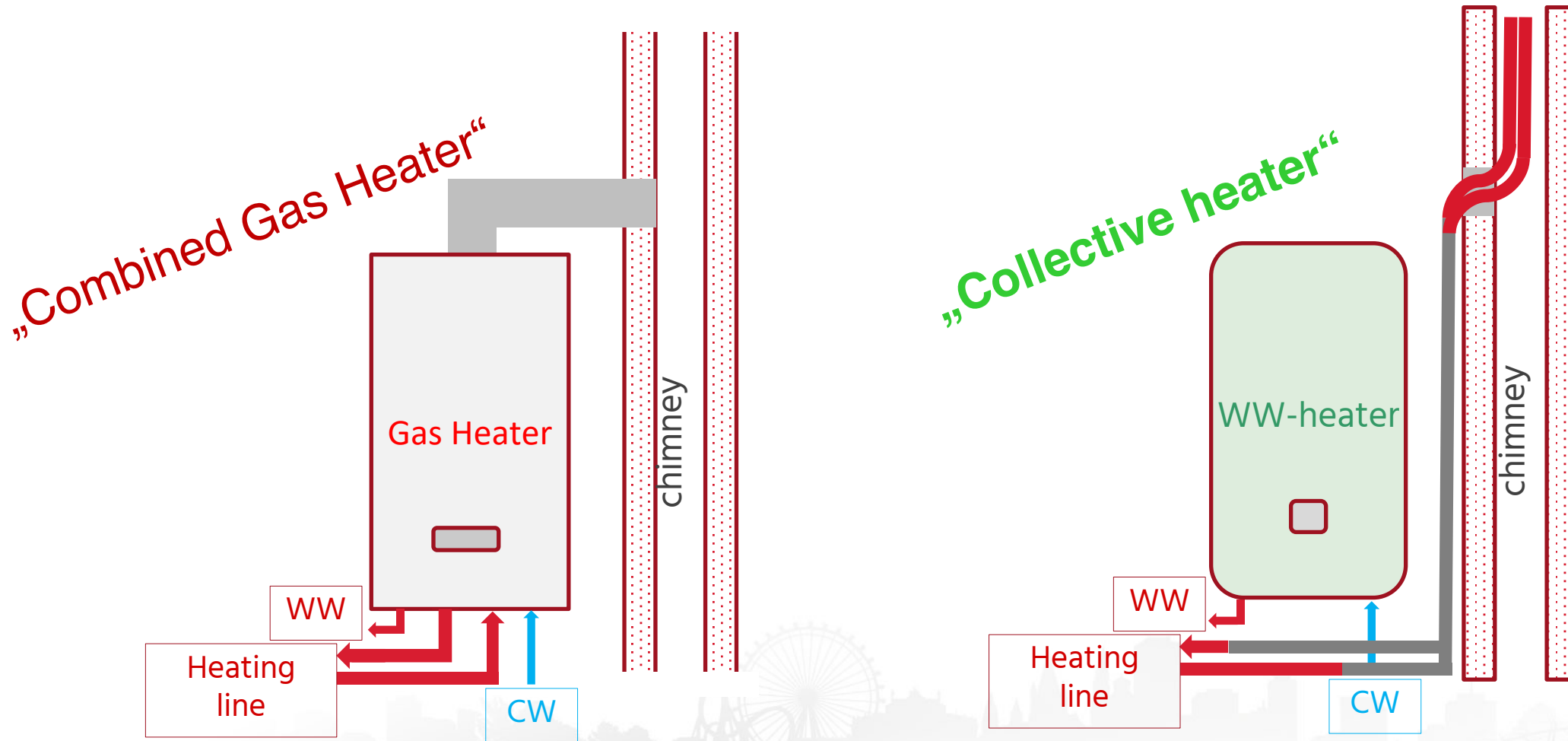


Photo 2: gas connection pipes for the individual flats



In the dwelling



The **installation costs** are about € 3.300,- and € 5.200,- are financed – as for the replacement of the individual heating in the flats (*about € 5.000,-*) – with the savings from the property

The **heating costs**, that means the costs for energy are invoiced separately To our tenants acc. to the Heating Costs Ordinance ((HeizKG §2 Z 9+10) by means of a heating cost metering system.

As a bulk energy buyer we can charge our purchase prices to our customers





**günstiger
sicherer
umweltfreundlicher**

(Symbolfoto)

Info-Videos
auf www.bewohner.at oder SMAT-Anlage
(Gemeinschafts-Satellitenanlage)
auf dem Frequenzband „S32“ (394 MHz)

Machen Sie mit!
So profitieren Sie und unsere Umwelt
von der Gemeinschaftstherme:

- Mehr Wohnkomfort
- Mehr Lebensqualität
- Mehr Umweltschutz
- CO₂-Einsparung
- Keine Kohlenmonoxid-Vergiftungsgefahr
- Keine Wartungskosten
- Ultimates Upgrade ohne Schmutz

 **gemeinsam
energie**

Info und Kontakt:
SOZIALBAU AG
Telefon: +43 1 52 195-456
E-Mail: bewohnerservice@sozialbau.at



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SOZIALBAU AG

Die Gemeinschaftstherme steht für eine effiziente und zukunftsichere Energieversorgung.
Davon profitieren Sie und unsere Umwelt!

**Dürfen wir vorstellen?
Das ist Ihre
Gemeinschaftstherme**

Sie befindet sich auf dem Dachboden Ihres Wohn-
hauses und bringt Ihnen viele Vorteile.

Ihre Wohnung wird an die Gemeinschaftstherme
(zentrales Heizhaus) angeschlossen. Die Leitungen
werden durch die Kamine verlegt und so Ihre
Wohnung mit dem hydraulischen Verteilnetz der
Gemeinschaftstherme verbunden.

Ihre Gas-Einzeltherme wird dabei entfernt und
für die Warmwasseraufbereitung gegen einen
Elektroboiler getauscht.



Die Vorteile.

- **Weniger Kosten:** Es entfallen die Wartungspflicht Ihrer Therme und die damit verbundenen Kosten.
- **Mehr Sicherheit:** Unfälle mit Kohlenmonoxid-vergiftungen gehören der Vergangenheit an.
- **Ein Beitrag für die Umwelt:** Die Umrüstung auf eine energieeffizientere Gemeinschaftstherme reduziert nachhaltig den CO₂-Ausstoß.
- **Mehr Planungssicherheit:** Sollte Ihre Wohnhaus-anlage einmal Anschluss an die Fernwärme oder ein anderes erneuerbares Energiesystem (z.B. Wärmepumpe, ...) erhalten, kann mit der Gemeinschaftstherme als zentrales Verteilsystem einfach nachgerüstet werden.
- **Warmwasser mit Sonnenstrom:** Gibt es bereits eine Photovoltaikanlage in Ihrer Wohnhausanlage oder ist eine geplant, wird der überschüssige Sonnenstrom vom Dach in den E-Boiler zur Warmwasseraufbereitung gespeichert.
- **Schnelle und saubere Umrüstung** in nur wenigen Stunden.





**Termin vereinbaren
auf www.bewohner.at
und anschließen!**

So einfach geht's.

1. Errichtung einer Gemeinschaftstherme am Dachboden.
2. Heizleitungsführung über den Kamin direkt in Ihre Wohnung.
3. Demontage der Gas-Einzeltherme in Ihrer Wohnung.
4. Montage des Elektro-Warmwasserboilers in Ihrer Wohnung.

„video-teaser“ ...

GEMEINSCHAFTSTHERME

SCHON BALD IN IHRER WOHNUNG



thank you for your attention

