Subsidies for fossil fuel heating – Draft final Heating Hub meeting

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02/03/2023

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Agenda

- Introduction of the study
- Methodology/limitations of the analysis
- Subsidies for residential heating systems
- Redirecting fossil heating subsidies

Introduction

Aim of the project

Quantify the total subsidies provided to install new / replacement fossil fuel heating appliances in Europe

Sub-objectives

- Highlighting the impact that could be achieved by using the fossil subsidies for other more climate friendly investments
- Identifying those countries that offer a subsidy to support biomass heating appliances.

Geographical scope

- Belgium, Bulgaria, Croatia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Poland, Romania, Slovenia, Spain and the UK

Methodology

Focus

- Residential heating appliances (space heating and combi-appliances that provide water and space heating)
- Latest years for which data is available (2020-2023)

Sources

- Previous research work for DG ENER on Energy subsidies.
- The recently published work by Cool Products / Oeko.
- Engagement of country experts to update the information on subsidies per country

Opportunity cost analysis

- Compilation of information on the average cost of heat pumps (technology cost)
- Estimates of the estimated labour and other costs associated with a heat pump→ total installation cost
- Energy consumption and efficiency of heat pumps
- Future price assumptions for natural gas and electricity.

Limitations of the analysis

- Variation between countries on the level and timeliness of detail that they provide on their subsidy scheme
- Subsidies to support households in paying their energy bills are not in scope(e.g., VAT reductions)
- Data on the total amount of subsidy and on the split between its end use is not consistently available
- Total budget per subsidy was in most cases available- but this budget may include measures unrelated to heating installations
- The budgets for heating installations considered are **only the subsidies that provided a disaggregation of each measure's budget per heating system**, therefore isolating the share of the total budget assigned to heating installations → might lead to difference with actual expenditures for heating systems

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Subsidies for residential heating systems

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Number of subsidies at EU level

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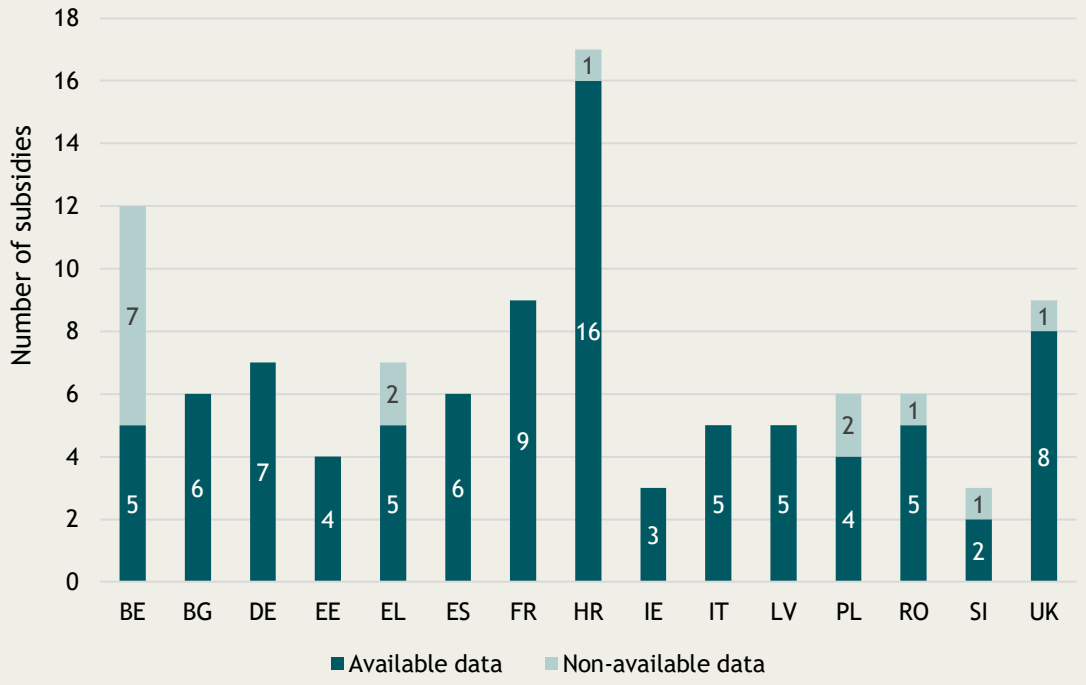
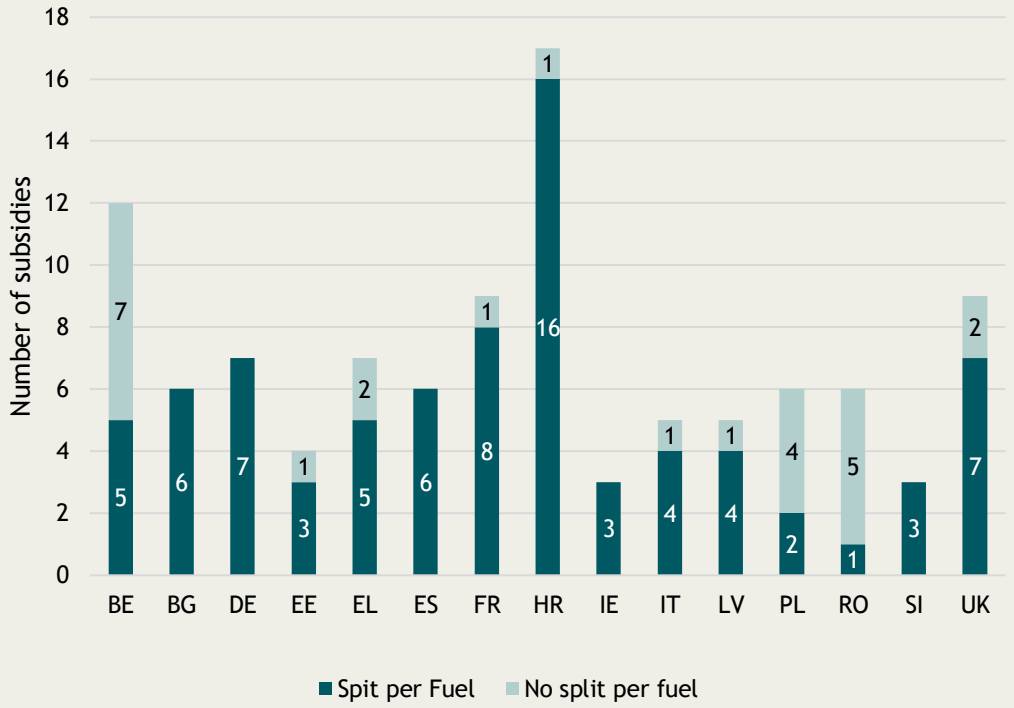
Total number of subsidies supporting installation of heating systems with and without data available on their total budget



Total number of subsidies supporting installation of heating systems with and without data available on their budget split per heating type

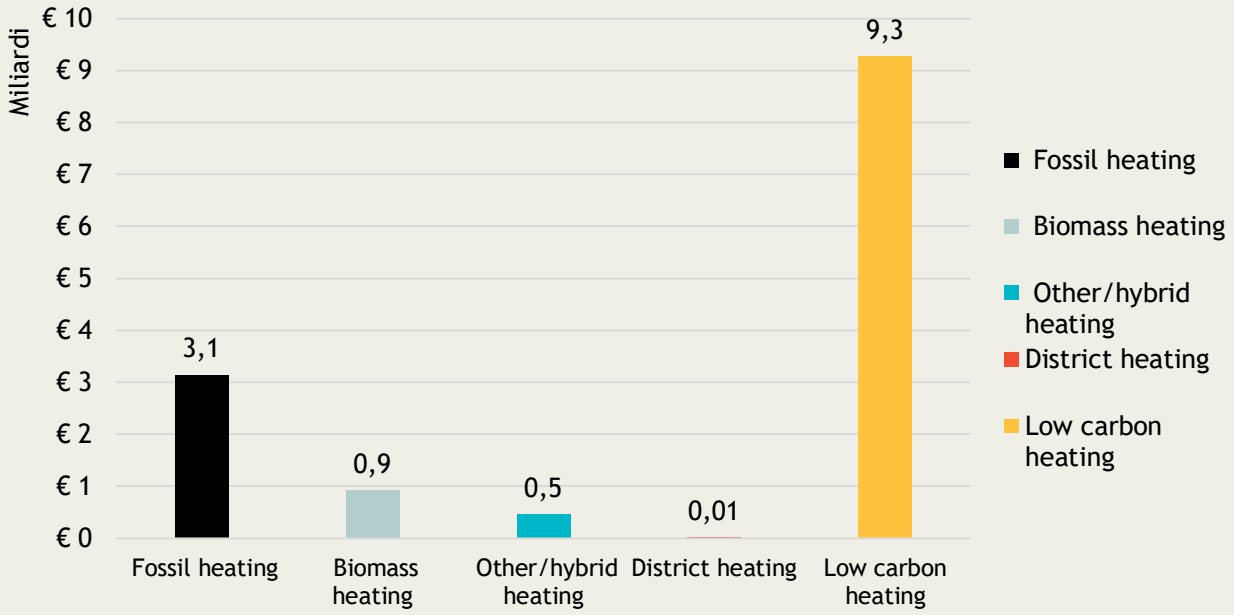


106 subsidies were identified supporting heating installations

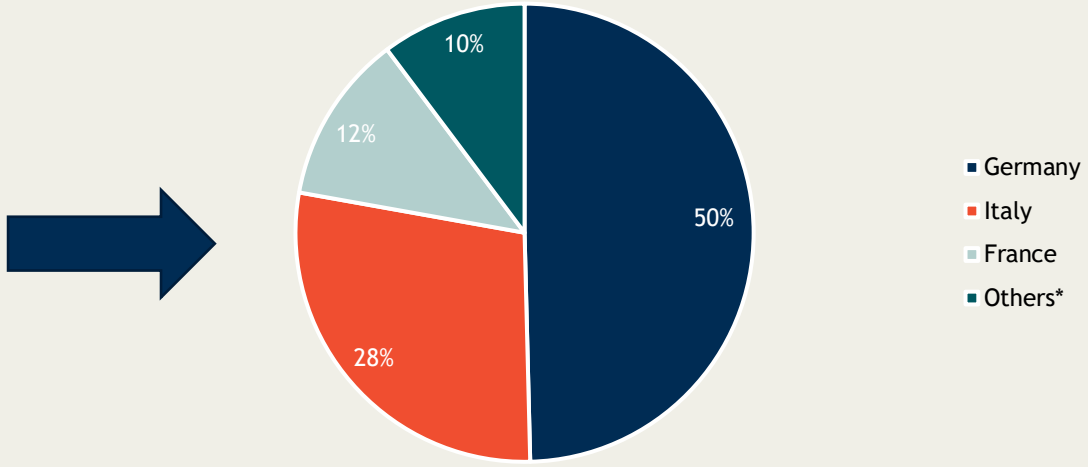
Graphs show subsidies of the most recent year. The majority of them refer to 2022 (47/106)

Heating installations subsidies at EU level

Total amount of subsidies for heating installations per fuel (billion €)



Share of budget out of the total supporting heating installations per key countries

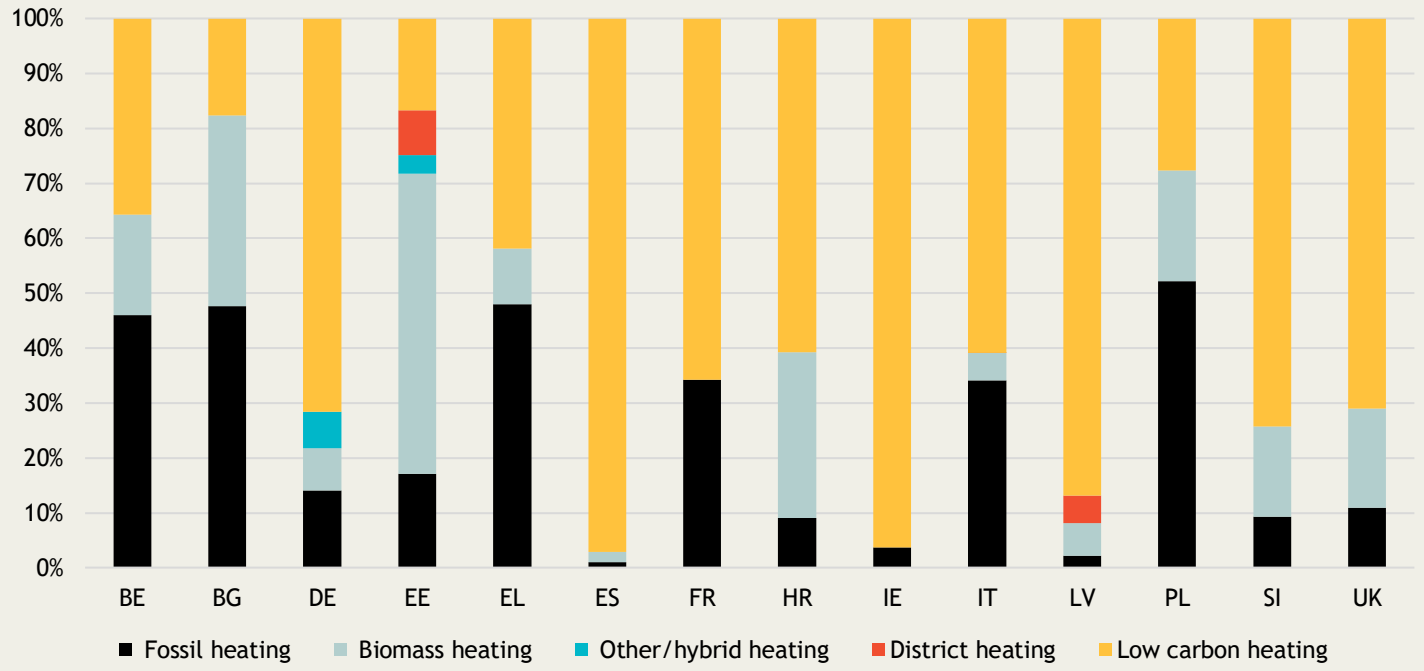


Total budget spent in heating installations: €13.8 billion*

**The budget covered refer to the most recent year with available data within the period 2020-2023. In most cases this is 2022*

Share of budget spent per heating type per country

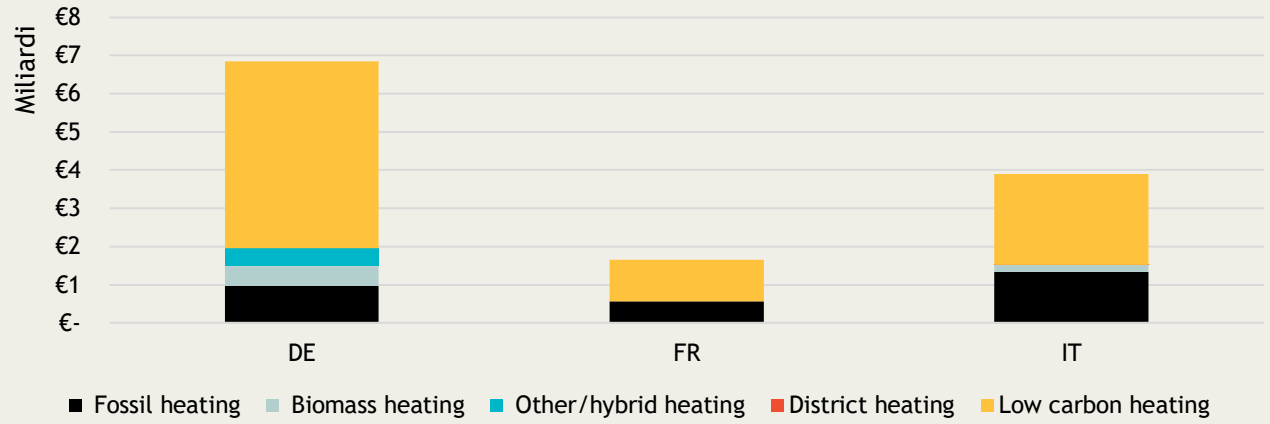
Share of subsidies per heating type per country



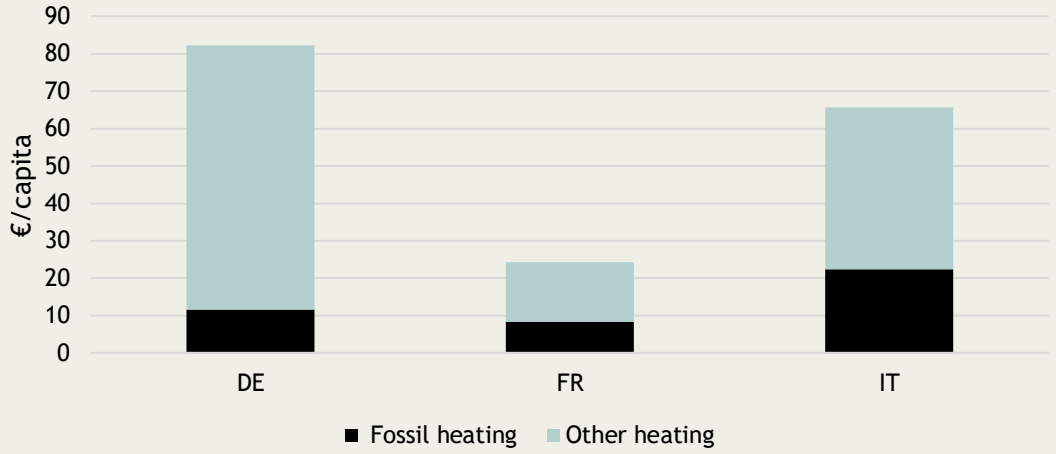
- Belgium, Bulgaria, Greece and Poland have the highest shares of their support spent on fossil fuel heating systems (>45%)
- Spain and Ireland have the highest share of low carbon heating systems support (>90%)
- Estonia and Croatia have the highest share of biomass support

Subsidies expenditures and subsidies intensity per country

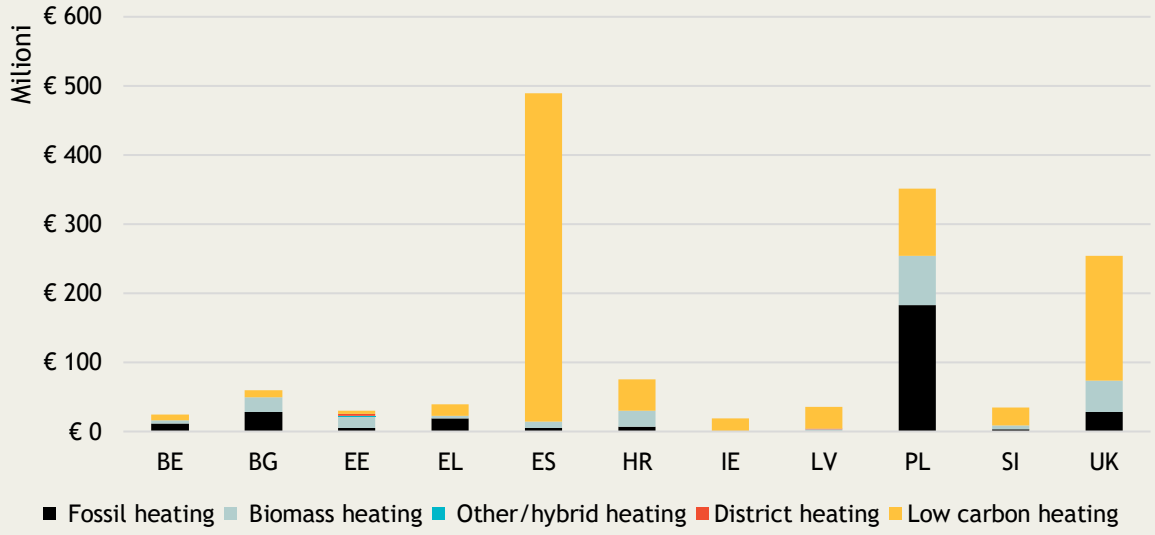
Total amount of subsidies for heating installations for Germany, Italy and France and per fuel (billion €)



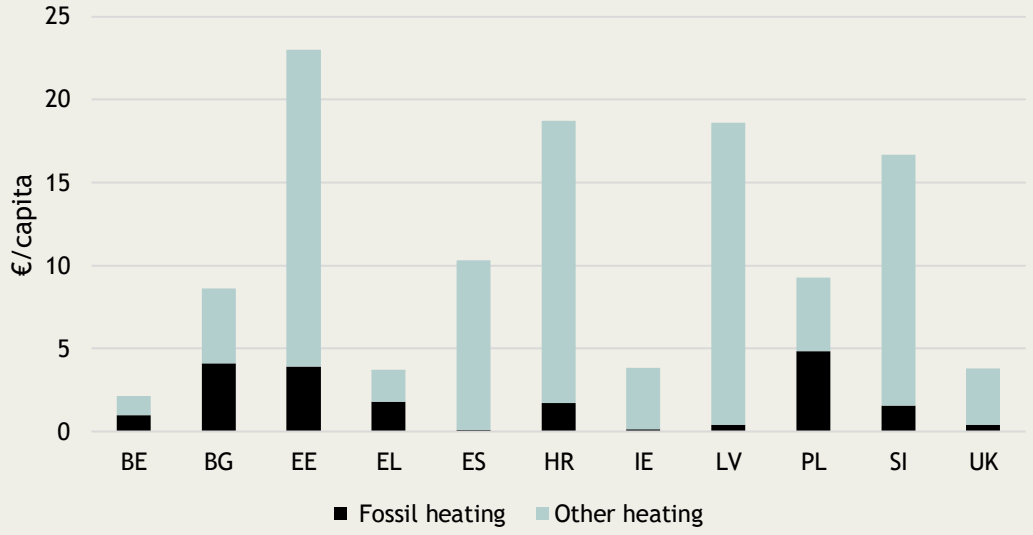
Total subsidies per capita for Germany, Italy and France



Total amount of subsidies for heating installations per country and per fuel excl. Germany, Italy and France (million €)



Total subsidies amount per capita per country excl. Germany, Italy and France



'Other' includes biomass, low carbon, Other/hybrid

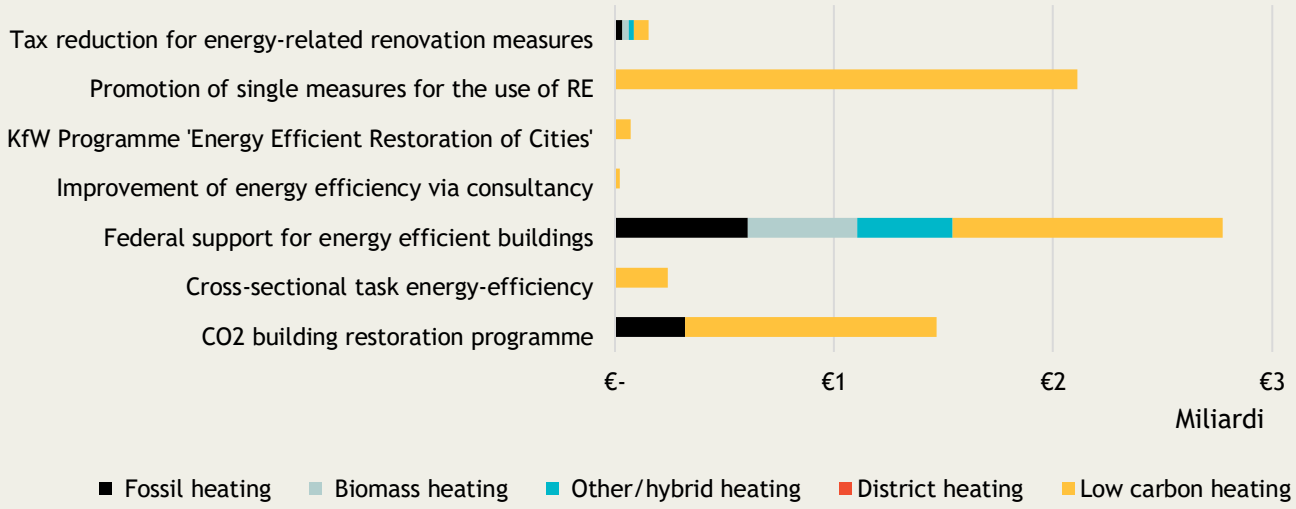
Germany

- Germany has the largest amount of subsidies of the countries in scope → € 6.8 bn (2022)
- Fossil fuel heating: ~ € 1 bn
- Low carbon heating: ~ € 5 bn

The largest scheme is *Federal support for energy efficient buildings*

- Fossil fuel heating: €600 million → stopped subsidizing FF heating in Aug 2022
- Low carbon heating: €1.2 bn

Subsidies of residential heating systems per heating type, Germany (2022)



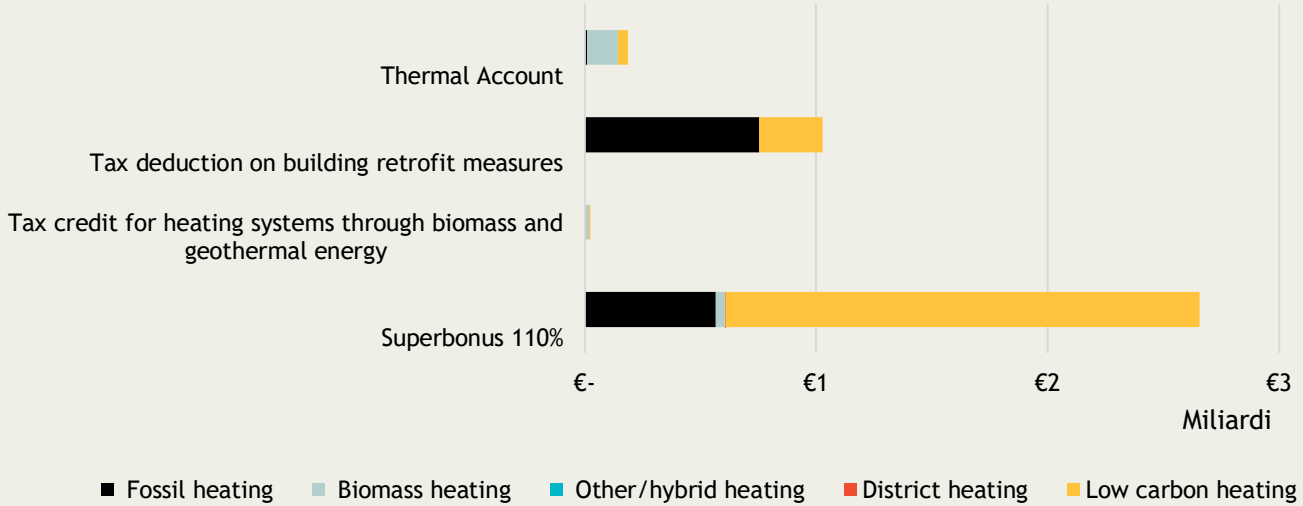
Italy

- Italy comes second in heating installation subsidies → €3.6 bn (values within the period 2020-2023)
- Fossil fuel heating: ~ € 1.3 bn
- Low carbon heating: ~ € 2.3 bn

The largest scheme is Superbonus 110%

- Fossil fuel heating: € 565 million
- Low carbon heating: € 2 bn
- Stopped in Feb 2023

Subsidies of residential heating systems per heating type, Italy (2020-2023)



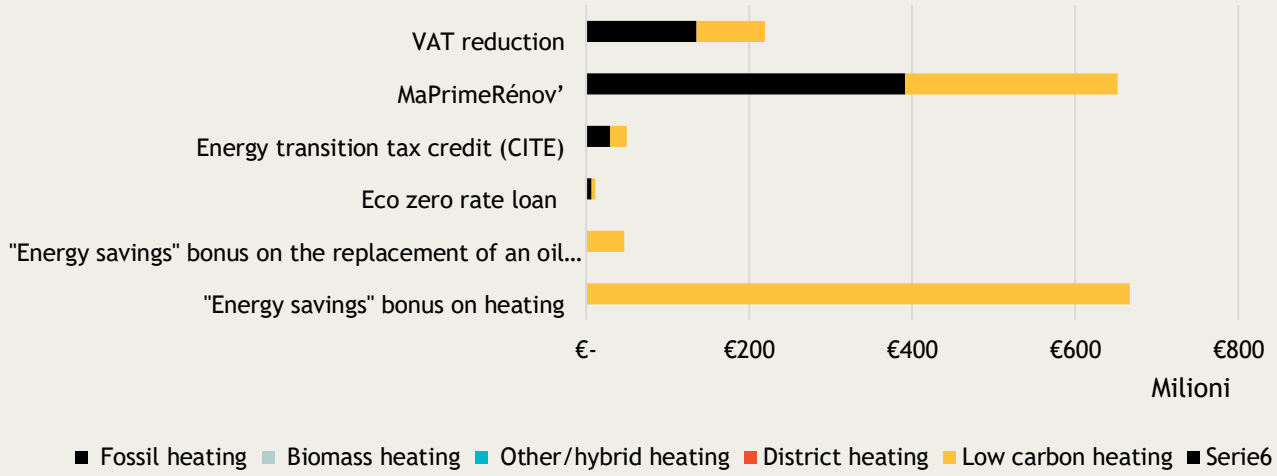
France

- France spent €1.6 bn in heating installations
- Fossil fuel heating: € 563 million
- Low carbon heating: ~ € 1.1 bn

The largest scheme is MaPrimeRénov'

- Fossil fuel heating: € 400 million
- Low carbon heating: € 260 million

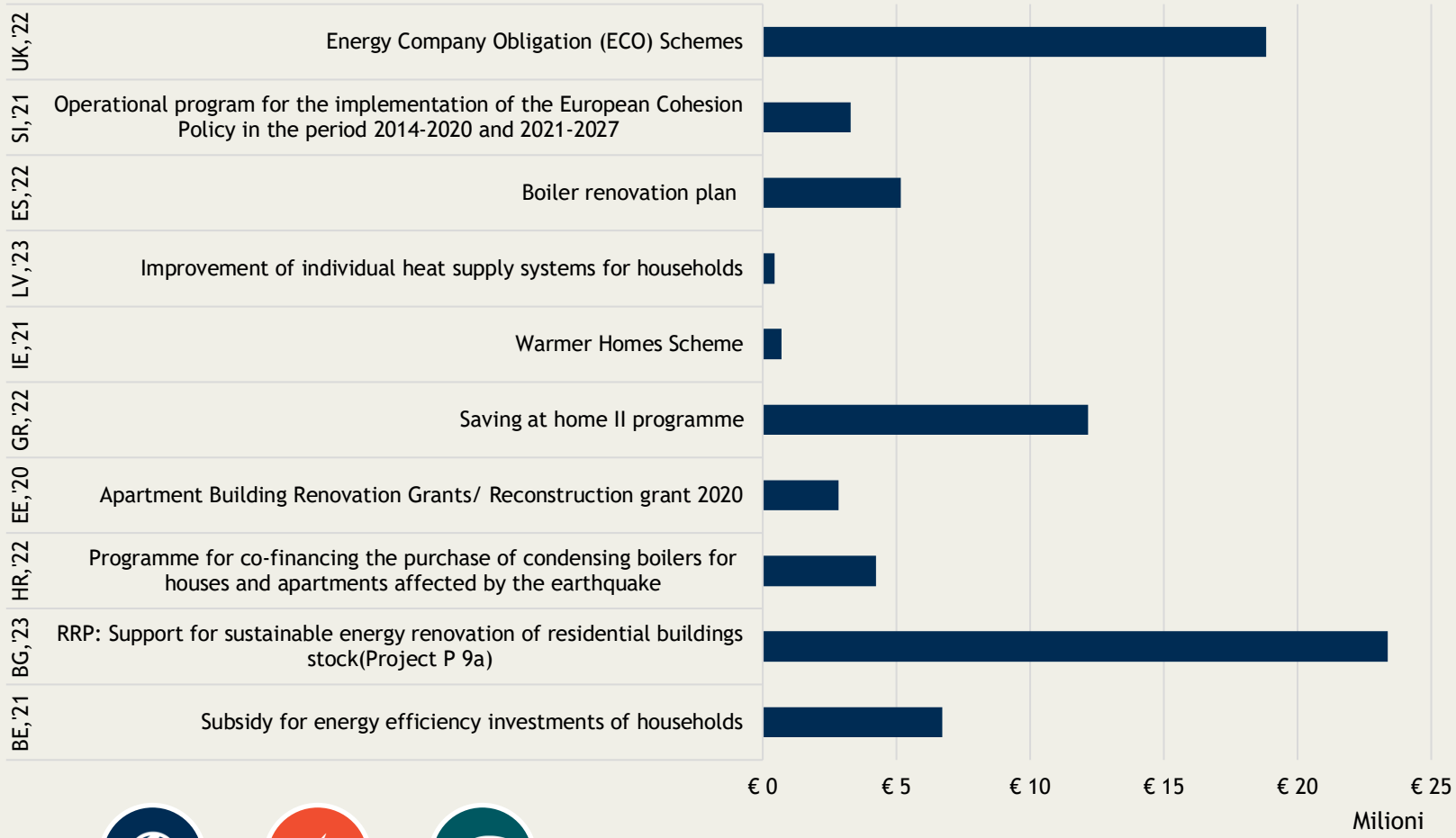
Subsidies of residential heating systems per heating type, France (2021, 2022)



Main fossil fuel schemes in other countries

- Each of the remaining countries provide at least one subsidy targeting fossil fuel heating systems
- Poland* has the highest: €180 million supporting oil, coal and gas boilers
- Ireland and Latvia are the countries with the lowest subsidies on fossil fuel heating systems (< €1 million)

Largest subsidy targeting fossil fuel heating systems identified per country (year with the most recent available data)



*Poland not shown in the graph due to different scale of subsidy budget

Redirecting fossil heating subsidies

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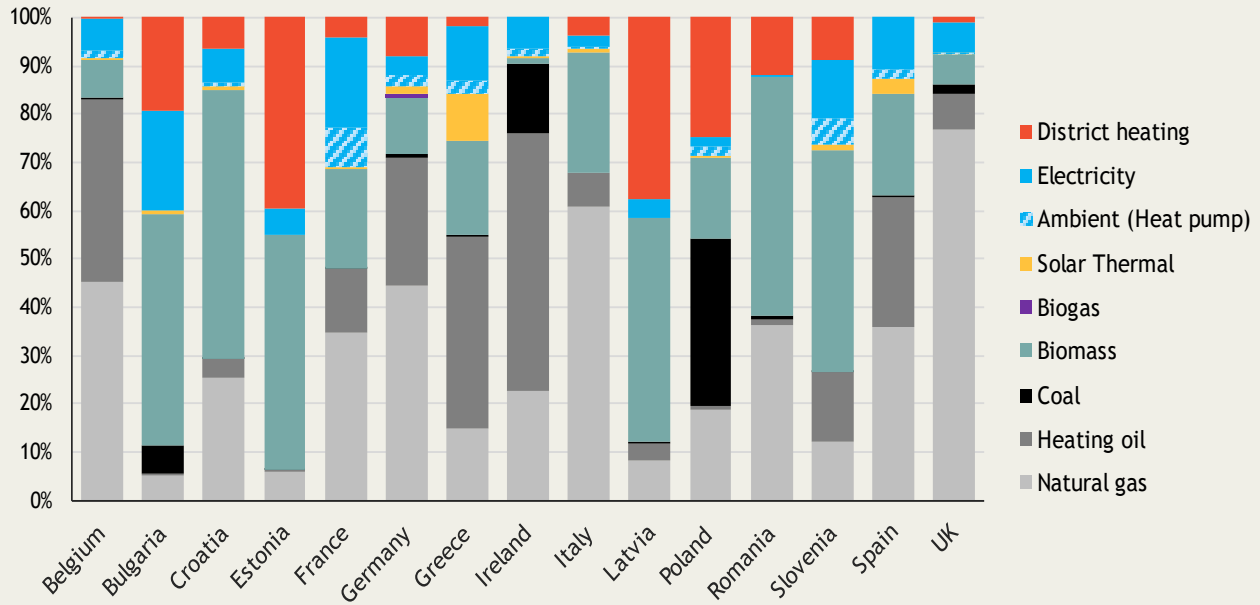
Redirecting heating subsidies

Objective:

- What if all fossil heating subsidies were redirected to low-carbon heating **systems** (heat pumps)?
- Background to reader about benefits of low-carbon heating

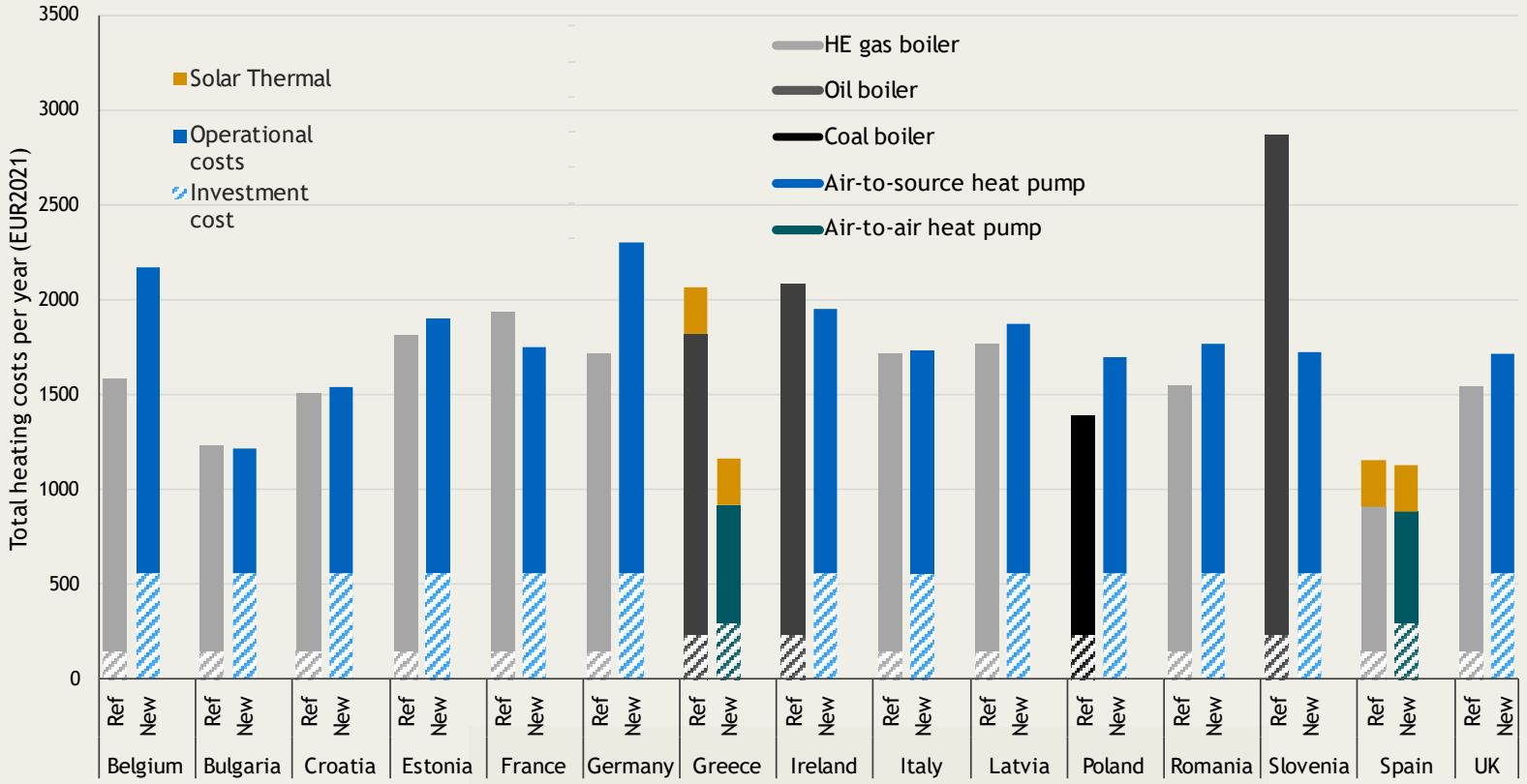
- **Method:** calculating the heating costs + needed subsidy for standardized home to switch to heat pump.
  - *Similar approach to Coolproducts studies*
  - *Simplified approach, but useful as a rough estimate.*
- Then extrapolating results to fossil subsidy per country.
- Report written for broad audience and also discussing policy needs and caveats.



Inputs: technology costs (OPEX, CAPEX), energy consumption and efficiency, fuel price projections 2022-2037.

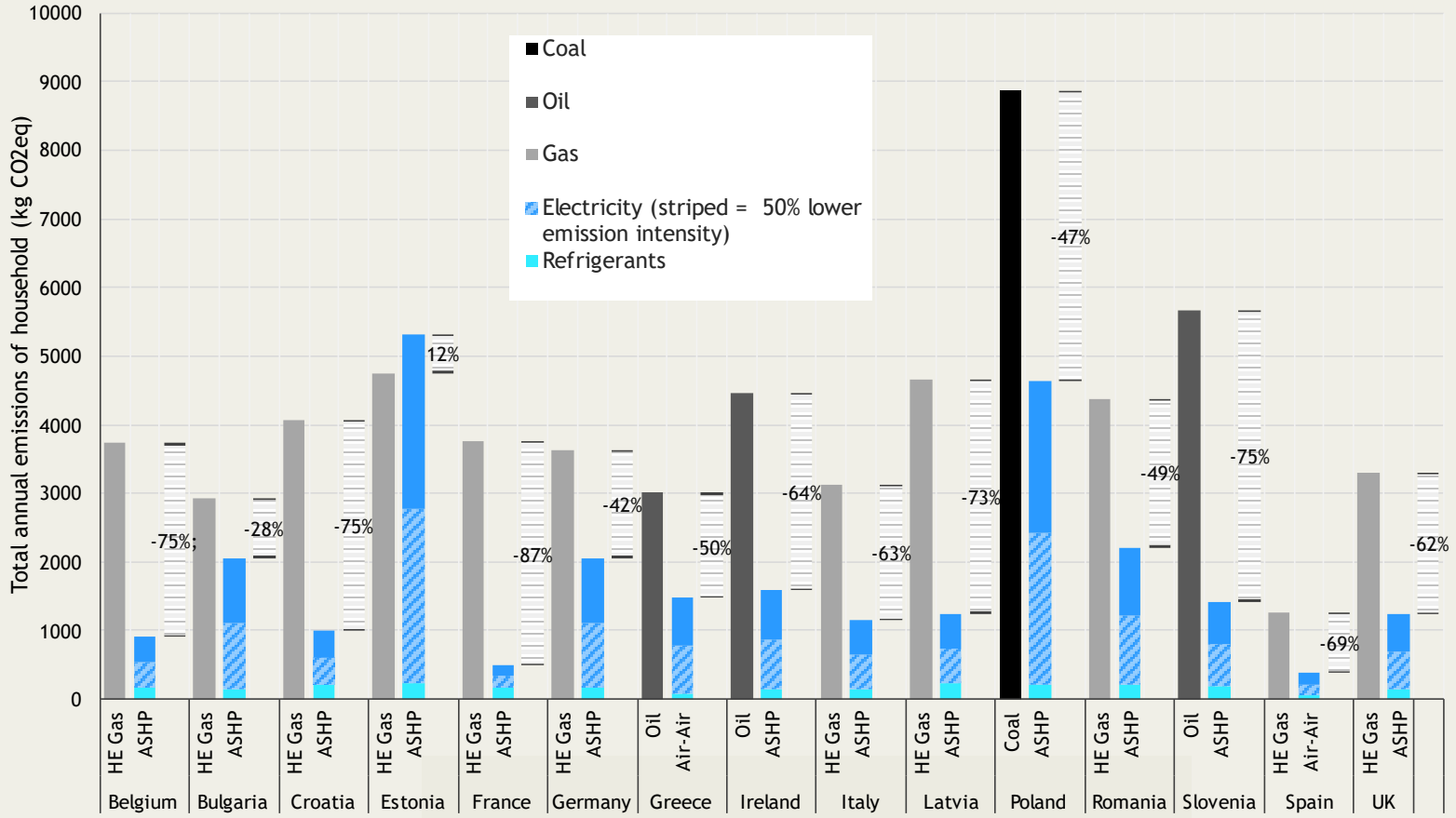
Are heat pumps cost effective?

- Currently heat pumps are already cost-effective over their lifetime in many cases (or only slightly more expensive than fossil heating)



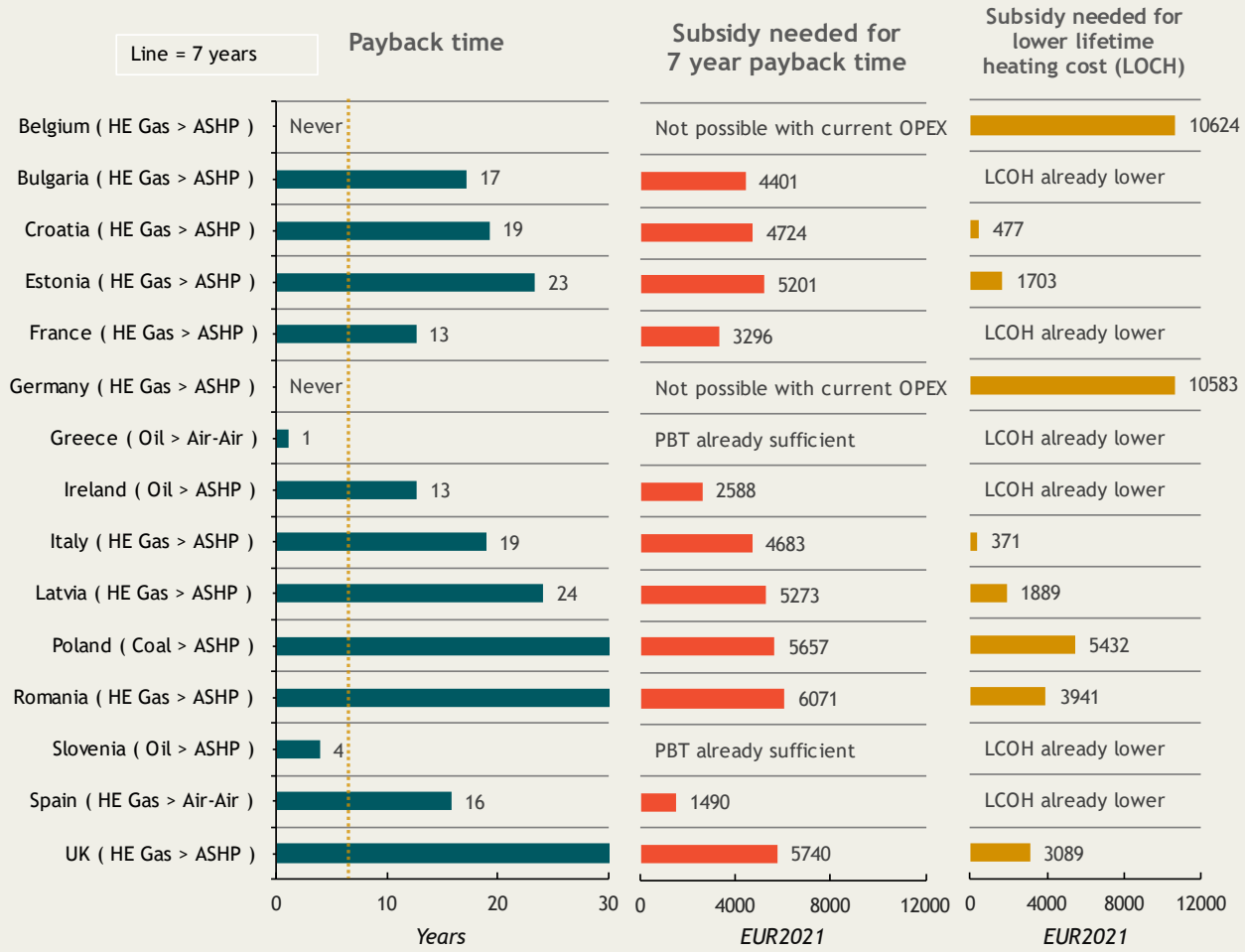
Emission savings

- Lead to significant emission reductions because of high efficiency and low-carbon electricity.



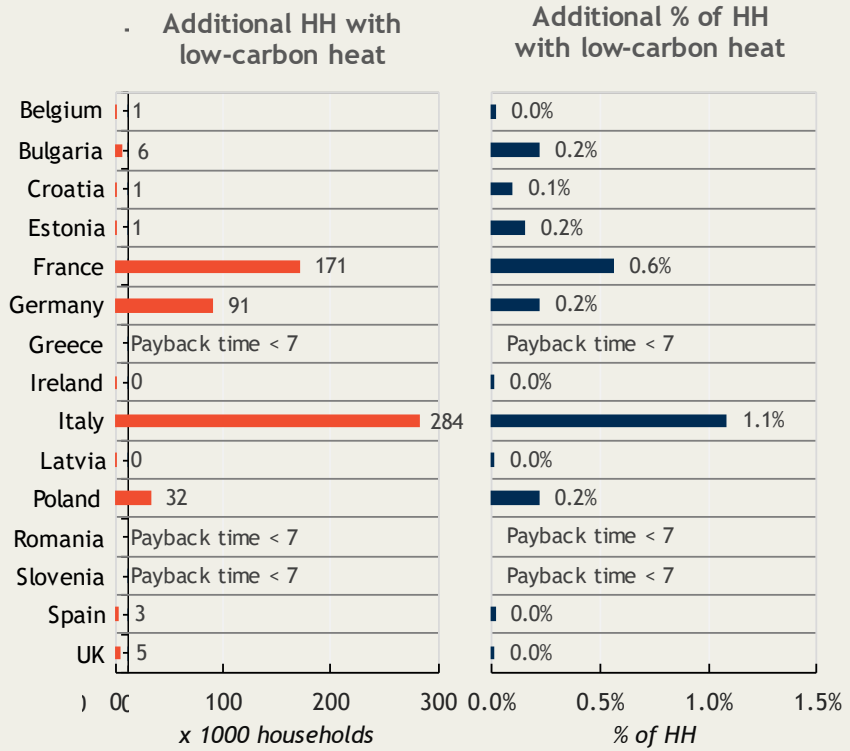
Are heat pumps cost effective?

- Next to emission reductions, heat pumps are already cost-effective over their lifetime in many cases
- However, high investment cost still a barrier to adoption. Only in a few countries attractive payback time without subsidies.
- Subsidy per household needed for 7-year payback time between 2000-6000 euro.
- Policy *mix* needed: combine subsidy with tax measures (e.g. shift electricity to gas tax) and regulation.
  - Tax shift could drastically reduce needed purchase subsidy (60% for 1 ct/kWh shift)



Redirecting fossil subsidy

- The 3.2 billion fossil subsidy could make heat pumps financially attractive for **600,000** additional households in Europe.
  - Mainly in Italy, France, Germany.
  - **Efficiency of subsidy** can be higher (>1 million hh) when combined with tax measures/regulation.
- **1 bcm** annual gas savings (0.25% total EU demand).
- **1.3 Mton** CO2eq saving (+0.4 Mton with renewable electricity)



Thank you for your attention, please contact us for more information

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