



Objectives and crisis related obstacles ahead for the heat transition in Europe

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Overview of the objectives and the current state of energy transition



Objectives of the heat transition in Europe

European Green Deal

- By 2050 Europe is the **first climate neutral continent**
- **reduction of CO₂ emissions by 55% by 2030 compared to 1990 (Fit for 55%)**

RED II Directive – The EU is obliged to ensure that at least 32% of its energy consumption comes from RES by 2030

- **1.3 p.p. per year of RES share increase**, starting from the share of RES in the **heating&cooling sector** in 2020.
- **1.1 p.p. per year of RES share increase** for Member States in which waste heat and cold are not used

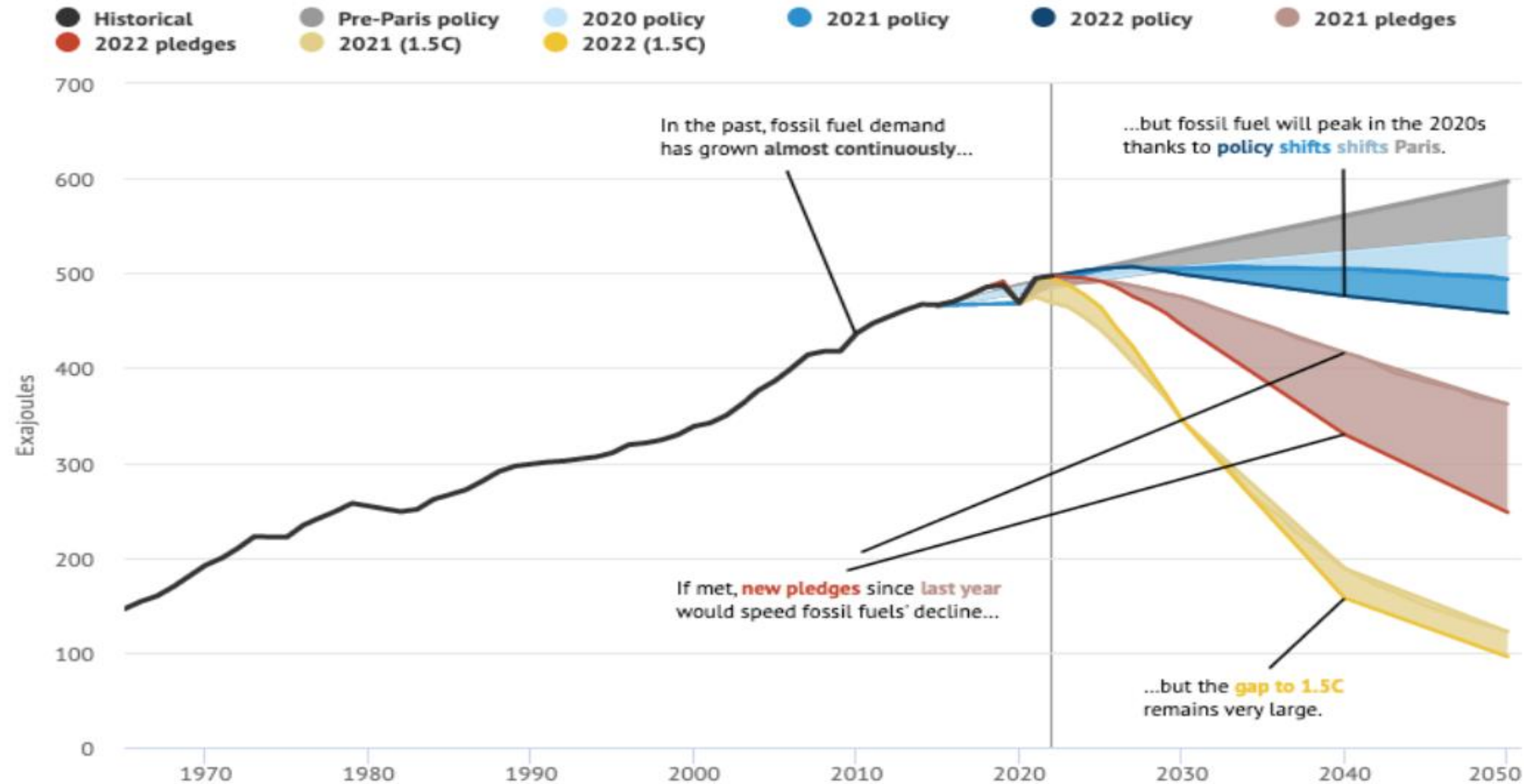
Revision of RED II Directive- new EU goal of at least 40% share of RES in final energy consumption by 2030

REPowerEU Plan-EU goal of at least 45% share of RES in final energy consumption by 2030  **Revision of RED II Directive (RED III)**

Revision of RED II Directive (RED III)

- the binding EU target for 2030 on RES in the **heating&cooling sector** increases from 40% to 45% by 2030
- **2.3 p.p. per year of RES share increase**, starting from the share of RES in the heating and cooling sector in 2020
- **2.8 p.p. per year of RES share increase** for Member States where waste heat and cold are used

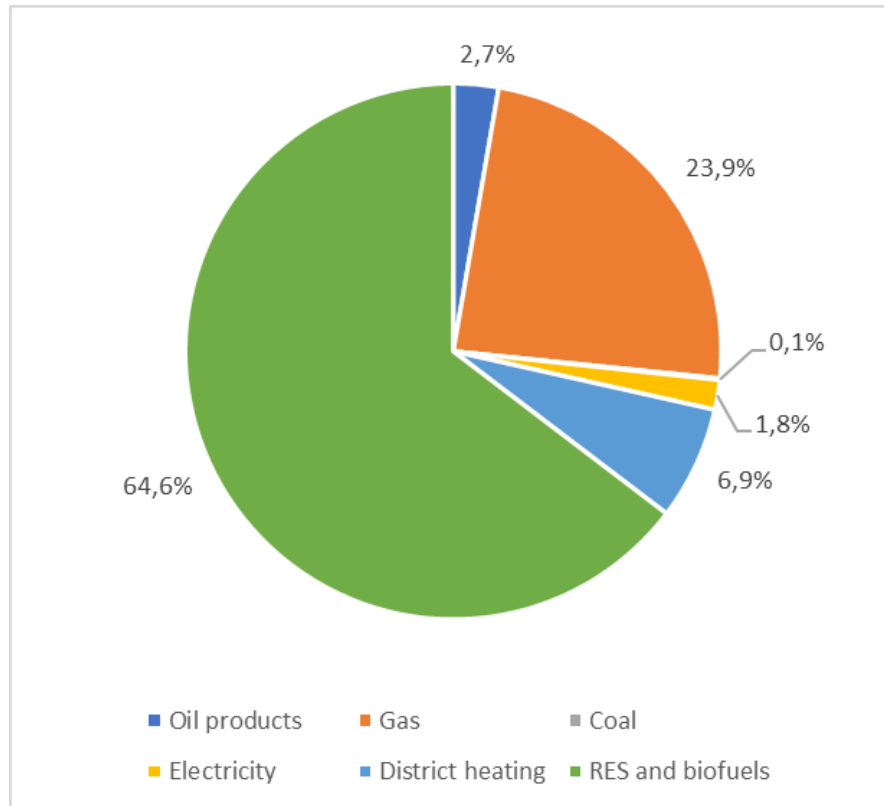
Reducing dependence on fossil fuels and promoting clean energy in heating and cooling



Source: Carbon Brief analysis of IEA World Energy Outlooks

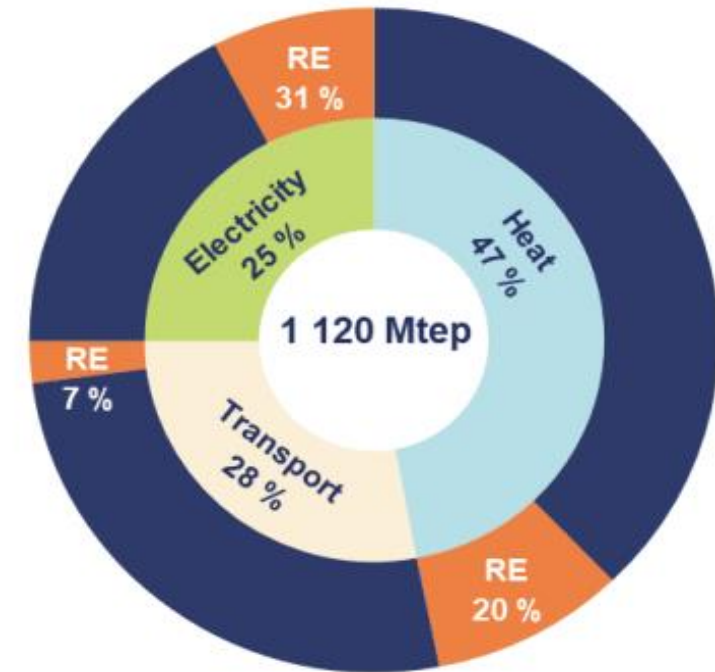
Heat is a half, electricity is a quarter

In Croatia heat represents 38.8 % of the final energy consumed in 2021



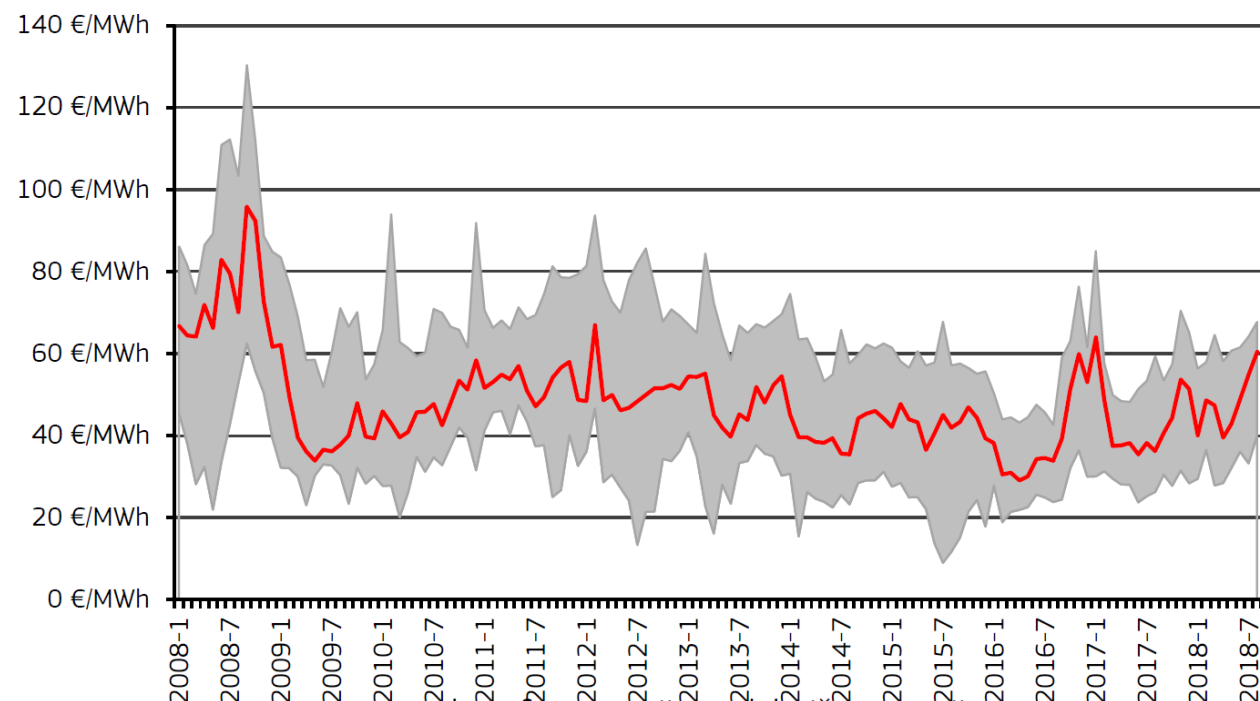
Source: Odysee Mure database

Renewable energy (RE) in final energy consumption in the EU (2017)

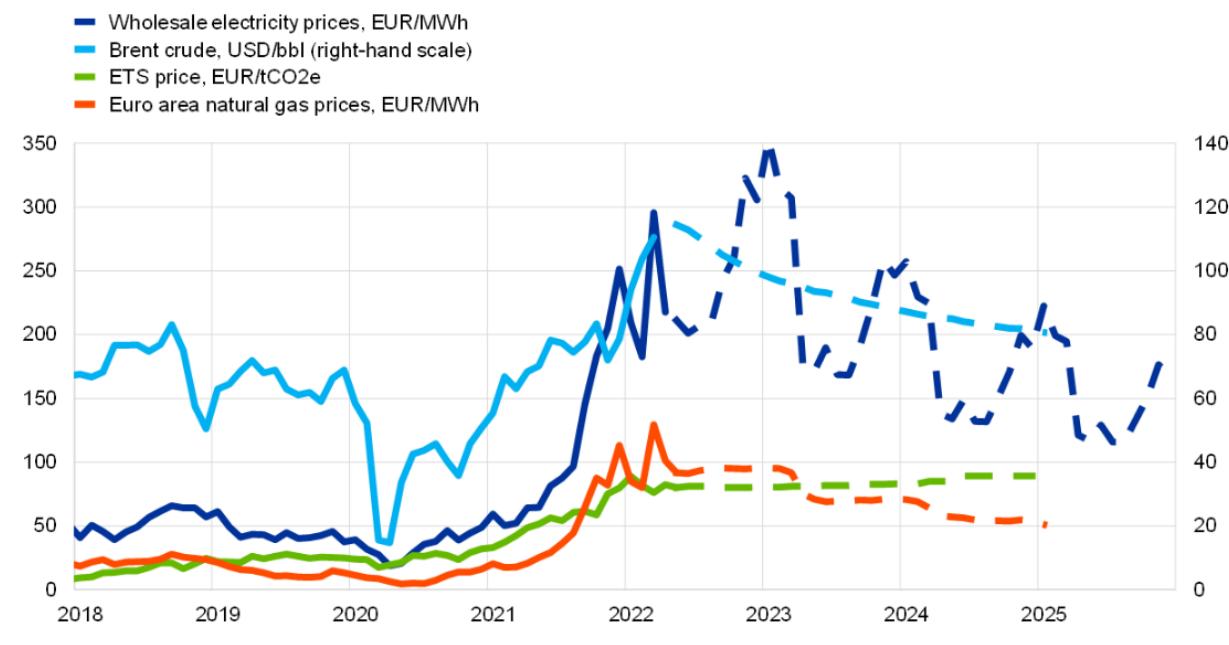


Source: EuroHeat & Power

Wholesale electricity market prices in Europe 2008 - 2018



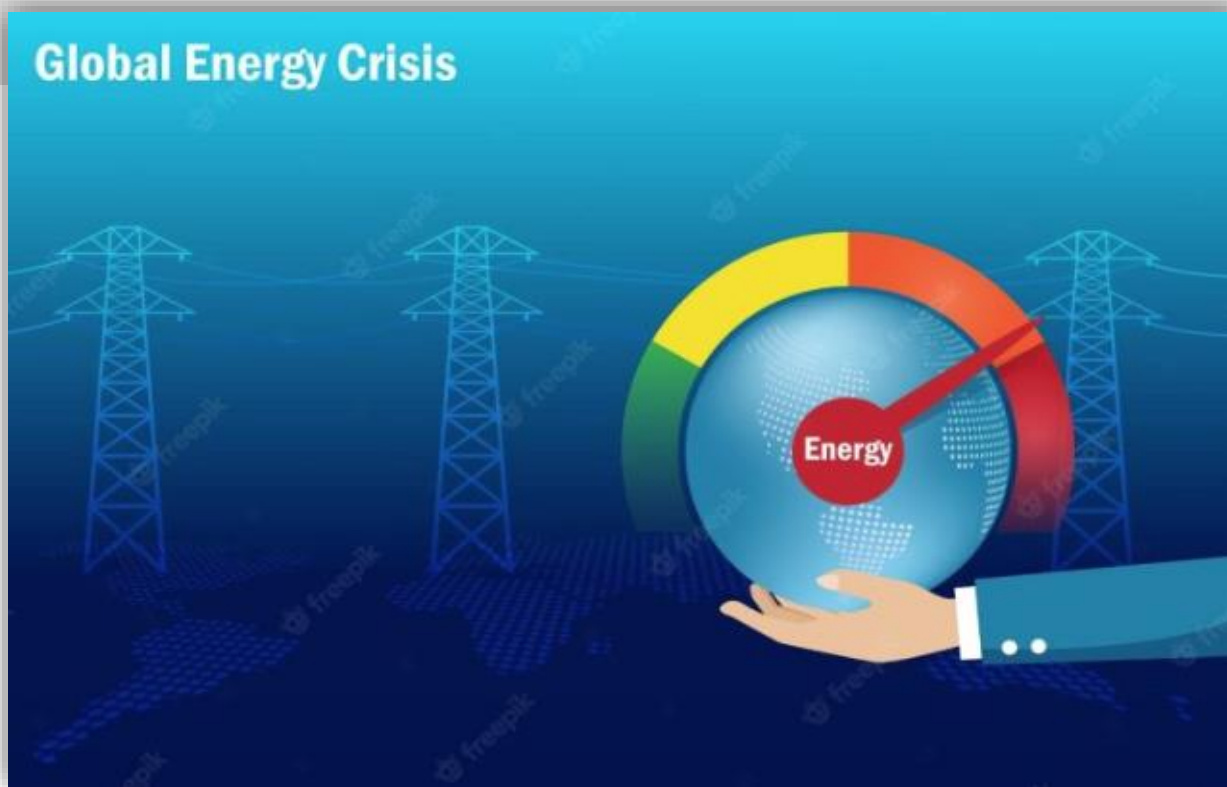
Wholesale electricity, gas and ETS market prices in Europe 2018 - 2025



Sources: Eurostat, Refinitiv and ECB staff calculations.

Momentum in the heating and cooling

High prices of natural gas and electricity created the momentum to initiate Europe's long-term heating and cooling transition



Focus on renewable production, storage and investment in improving energy efficiency!

Challenges facing (district) heating systems today

Global

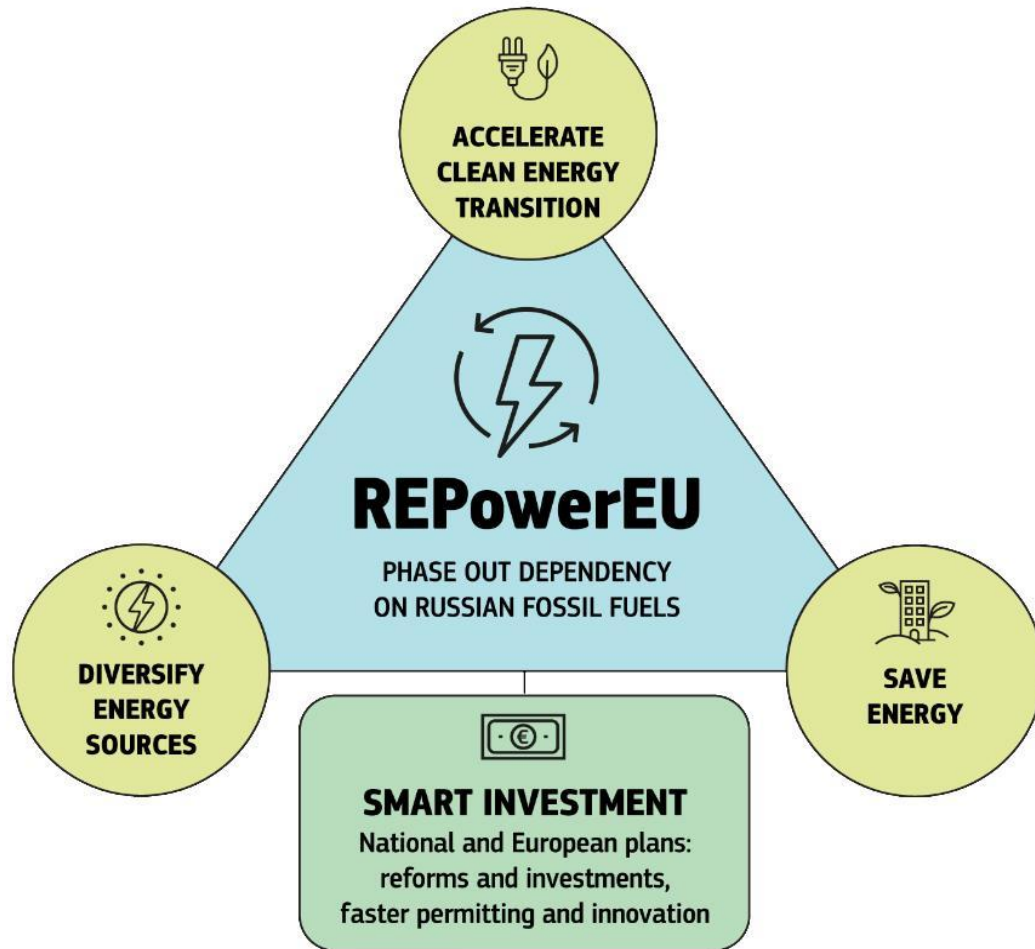
- Fuel disruptions
- Climate crisis
- Global agreements for decarbonization
- Limited and increasing competition for sustainable resources

Local

- Ageing infrastructure
- Changing demands due to energy efficiency improvements
- Expanding existing networks
- Local geographical risks
- Operation in hostile environment

REPowerEU - general overview

Heat pumps in REPowerEU plan



Savings

Fuel diversification (LNG and pipeline, gas, biomethane, renewable hydrogen)

Renewable electricity (solar & wind permitting)

Smart investments and reforms (Infrastructure, RRF, Innovation fund, CEF, Reform)

RED III objectives

Reduction and shorting of administrative procedures for issuing permits for use of energy renewable source

Encouraging energy production at the local level

Establish a framework goal for increasing the production and use of RES energy in cities

Accelerating the introduction of integrated solar power plants and heat pumps to reduce dependence on fossil fuels

Greater use of waste heat and cold and investment in energy efficiency at all levels

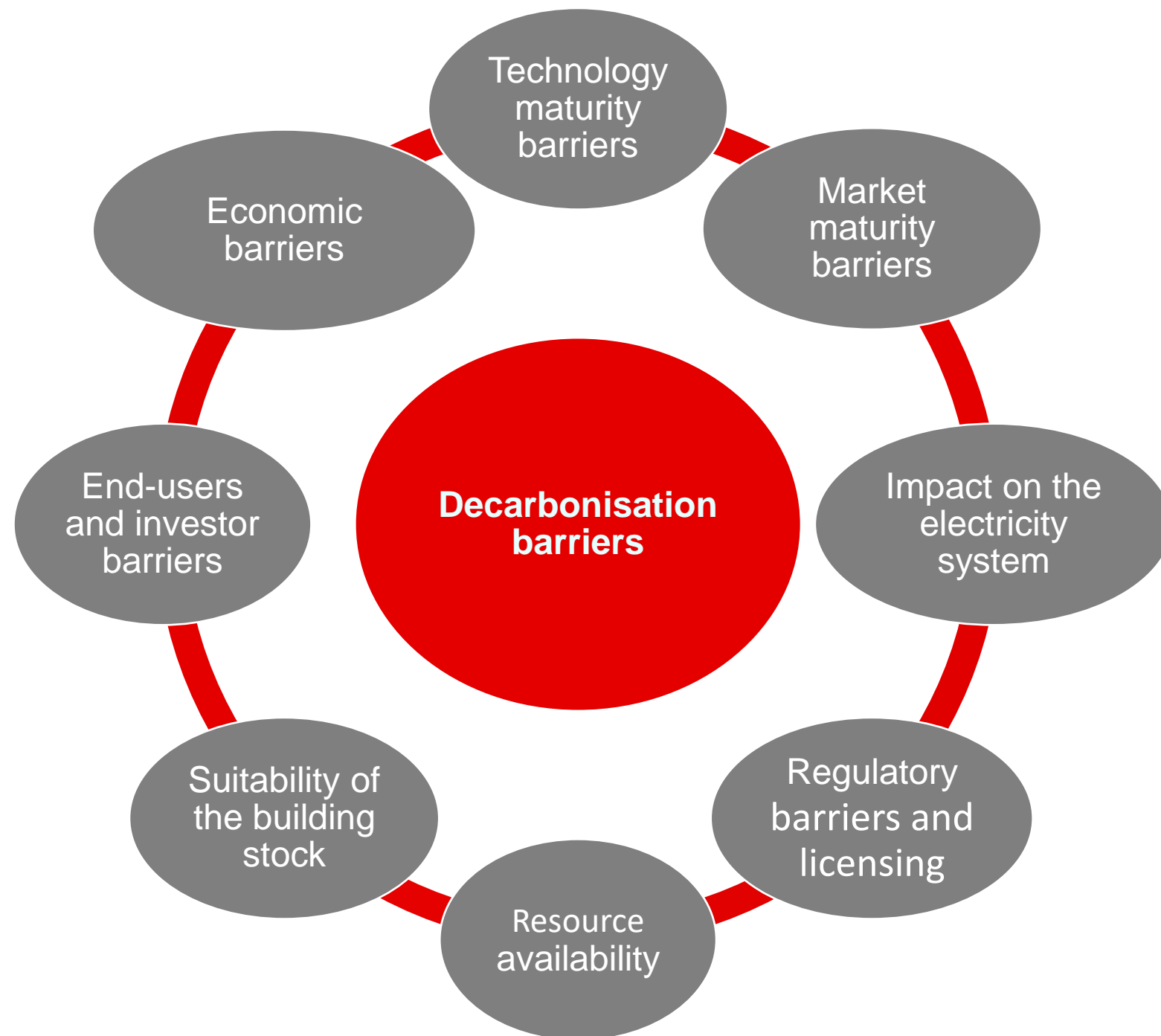
Encourage investment in thermal energy storage as a source of flexibility and smart heating and cooling systems

Obstacles and possible solutions



Renewable Space Heating under the Revised Renewable Energy Directive

European Commission
ENER/C1/2018-494 report



— Decarbonisation barriers - **solutions**

- Strong regulatory framework
- Economic policy instruments
- Subsidies, preferential loans, energy and carbon pricing
- Supporting complementary policies
 - R&D support measures
 - Market transformation measures – collective procurement programmes, capacity building and training for installers, capacity building to support local administration planning skills
- Heat **planning** and citizen involvement

ENERGY PLANNING

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What is that?

ENERGY PLANNING

What is that?

Do we need that?

ENERGY PLANNING

What is that?

Do we need that?

And to what extend?

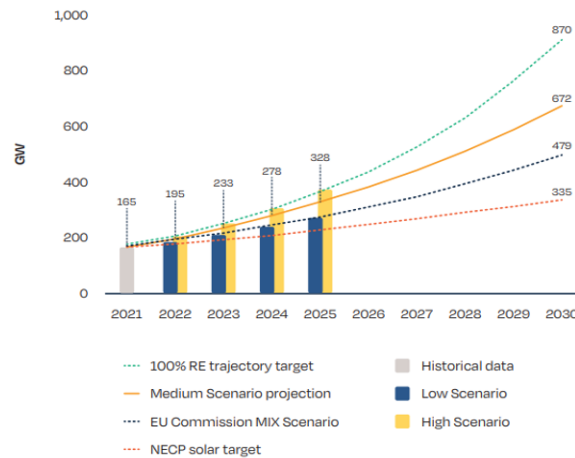
Energy planning



- Should be a **part of economic planning**
- Solve **specific problems**
- Define **specific actions**
- Prepare set of information for **decision makers**
- Of utmost importance to **achieve derbonization goals**
 - economic most efficient
 - socially responsible
 - environmentally acceptable
 - cost sustainable

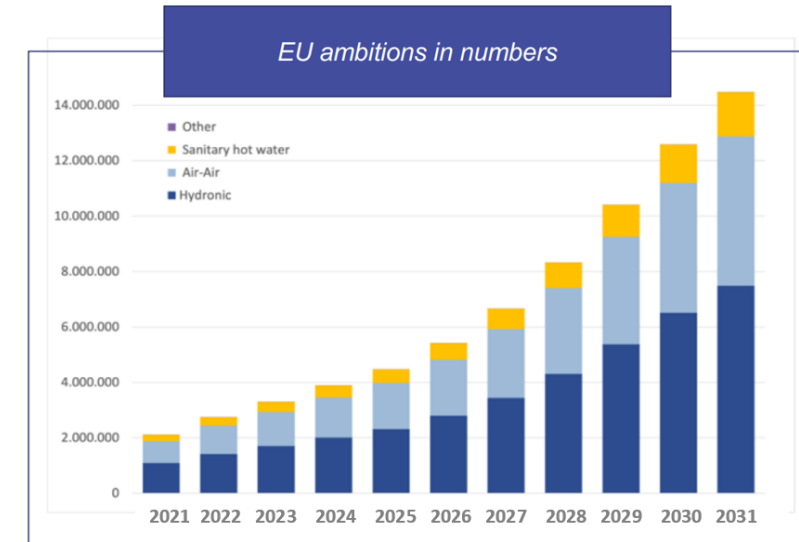
Energy planning

- **Multi-scenario** approach
- Assessment of various **options** and **uncertainties** → giving the appropriate weight to each one
- Simulation of possible **outcomes** and **impacts**
- **Essential part:**
 - Input data quality
 - alignment of assumptions



Source: EU Market Outlook for Solar Power (Solar Power Europe)

EU Heat Pump Accelerator

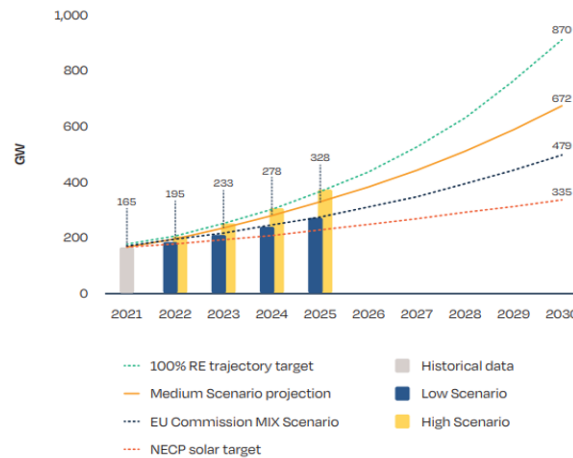


- EU aims at doubling current deployment rate of individual HPs
- EHPA: 20 millions by 2027 and 60 millions by 2030

Source: European Heat Pump Association

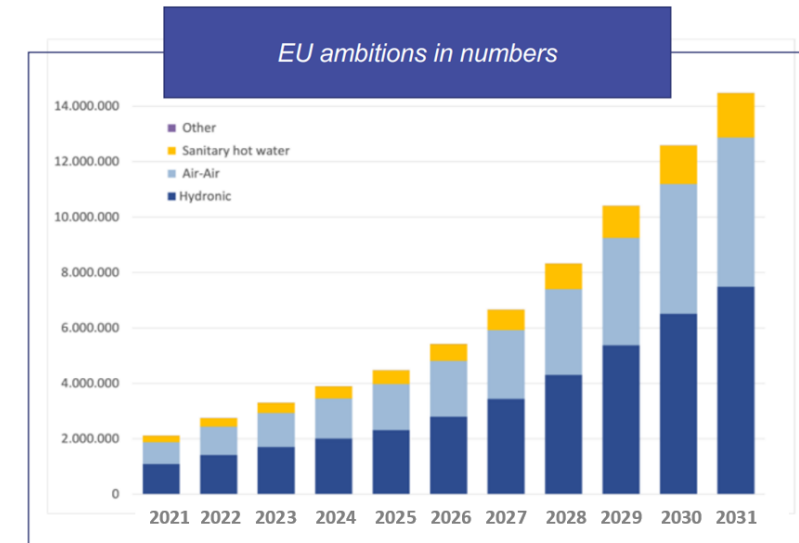
Energy planning

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Croatian perspective



Measures of the Croatian government valid until 31/03/2023

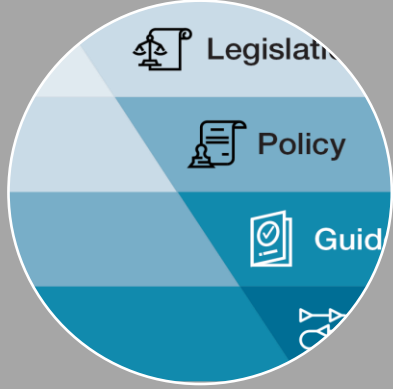
- Subsidies for households using natural gas for heating (0,013 cent per kWh)
- Reduction of VAT on gas, district heat and biomass:
 - ✓ from 25% to **13% permanently**
 - ✓ from 25% to **5%** for **gas** only (from April 1st, 2022, to March 31st 2023)
 - ✓ from 25% to **13%** on **pellets, briquettes, wood chips** and **firewood**
- Financial social benefits for vulnerable energy buyers



Reported obstacles for the further development of the Croatian DH systems



Missing global overview of RES heating and cooling potential in all counties, cities and municipalities



Update legislative framework for heating and cooling energy



Improve the public perception of heating and cooling energy



Co-financing the renovation and replacement of installations and heating elements



Insufficient number of qualified workers (installers and designers for RES heating and cooling systems)



REDI₄HEAT



REDI₄Heat is a new EU project, funded under the LIFE Programme, officially started in October 2022.

The project runs for three years and aims to accelerate the share of renewables for heating and cooling by identifying national policy gaps, thus proposing effective strategies.

Partners: **Croatia**, Germany, Greece, Poland, Portugal



Conclusions



Conclusions – general



- **Climate change** can impact all technologies and affect the **resilience** of energy systems
- Investments are needed in **climate resilient energy infrastructures**
- **Energy System Assessment / Scenario modelling can be a powerful tool to inform policy-makers**
- **Establish working groups** of all relevant stakeholders to be proactive, prepared and prompt in adopting and implementing EU legal framework
 - to timely recognize the value of RES
 - to enable financing of RES projects

Conclusions – specific



- **Decarbonization** of residential heating sector:
 - strengthen new building rules
 - increase the replacement rate
 - end fossil fuel incentives
 - renewable heating as standard in REPLACEMENT
- Initiate aggressive **public outreach campaign** for energy efficiency and saving measures and **impose it as obligatory wherever possible** (e.g. public institutions)
- Introduction of **tariff system for heating** to stimulate efficiency and savings
- **Retail energy pricing** as political/social mechanism is not the best option → clear market signals needed
- Harmonize regulatory frameworks in order to **accelerate investments on EU level**

Thank you for your attention!

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