



# Fuel of the poor

Domestic use of firewood in  
Bulgaria, Hungary and Romania

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19.05.2022.



# The Bio-Balance project

## Crosscutting issues related to biomass use

Climate change

Biodiversity

Air pollution

Energy poverty

## Bio-balance solutions

National level policy advocacy

Local level best practices

Project countries

**Bulgaria, Hungary, Romania**

Lead partner

**WWF Hungary**

Partners

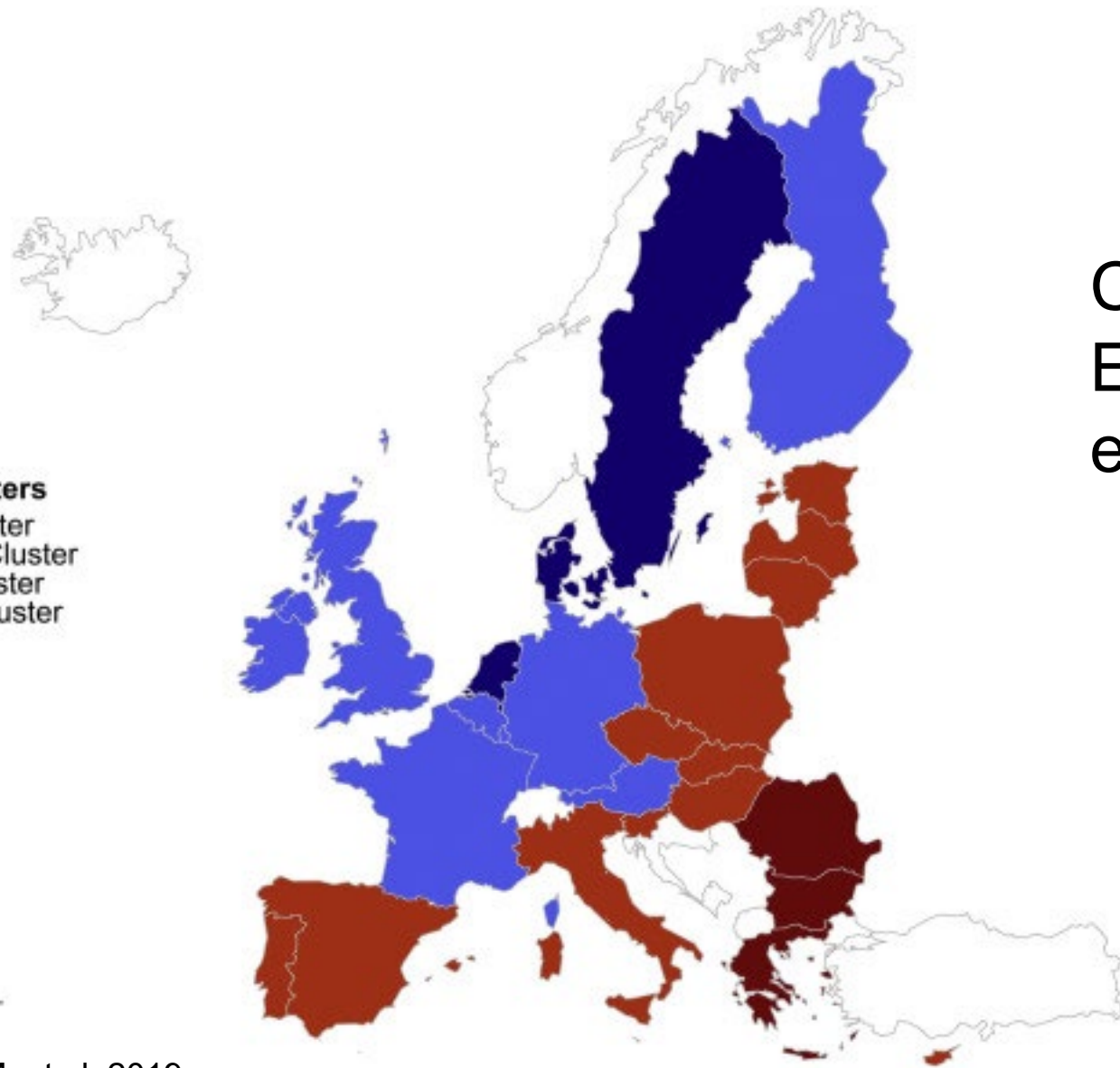
**WWF & Habitat for**

**Humanity local offices**

01/07/2021 – 30/06/2024



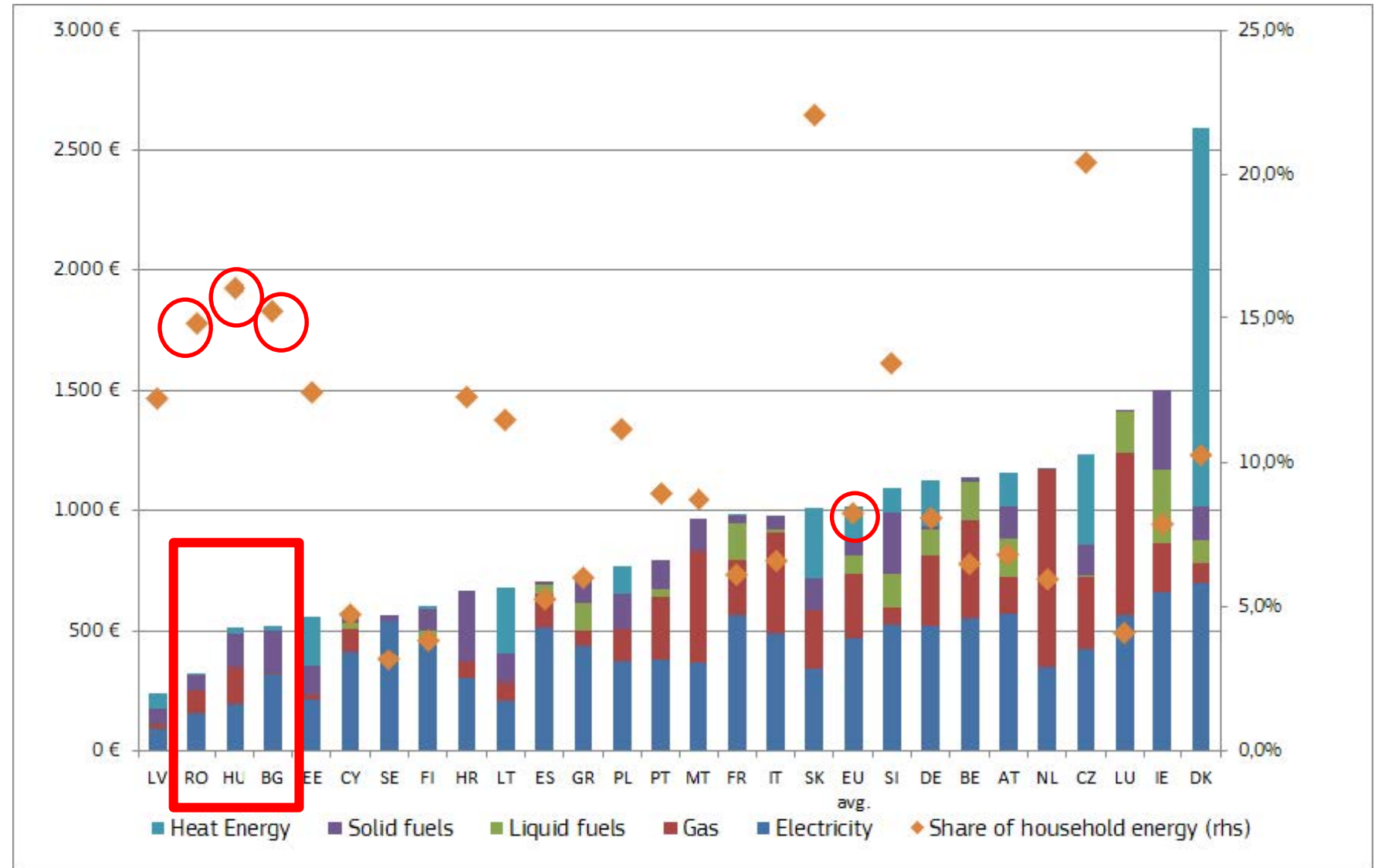
# The energy poverty divide



Central-Eastern and Southern European countries are more exposed to energy poverty

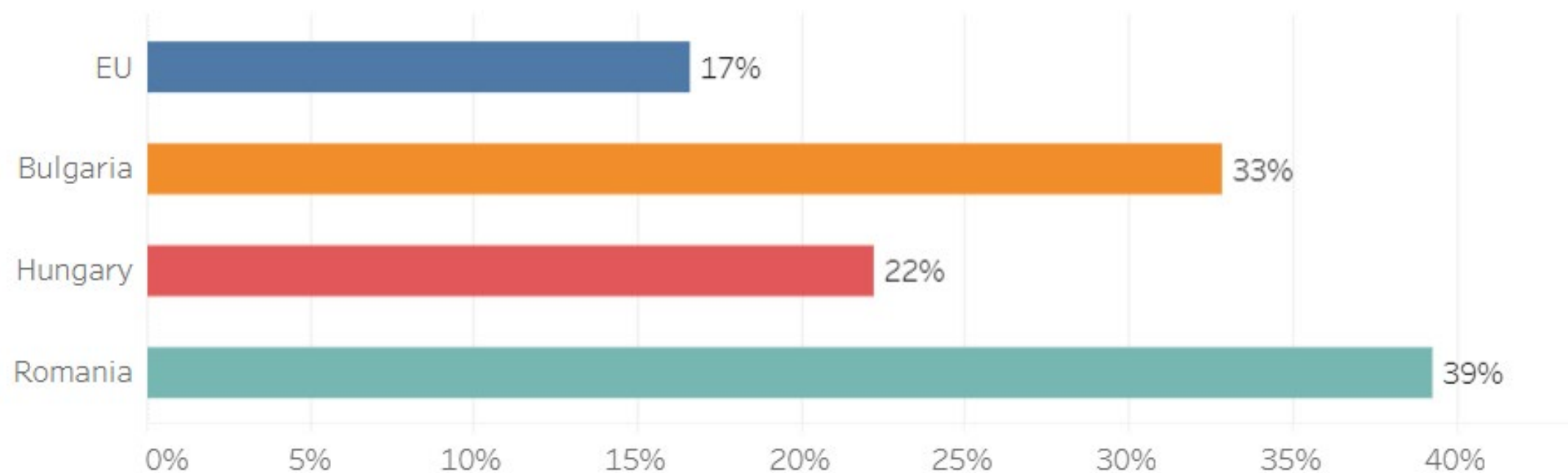
# Share of energy burden

Low energy expenditure but still high burden



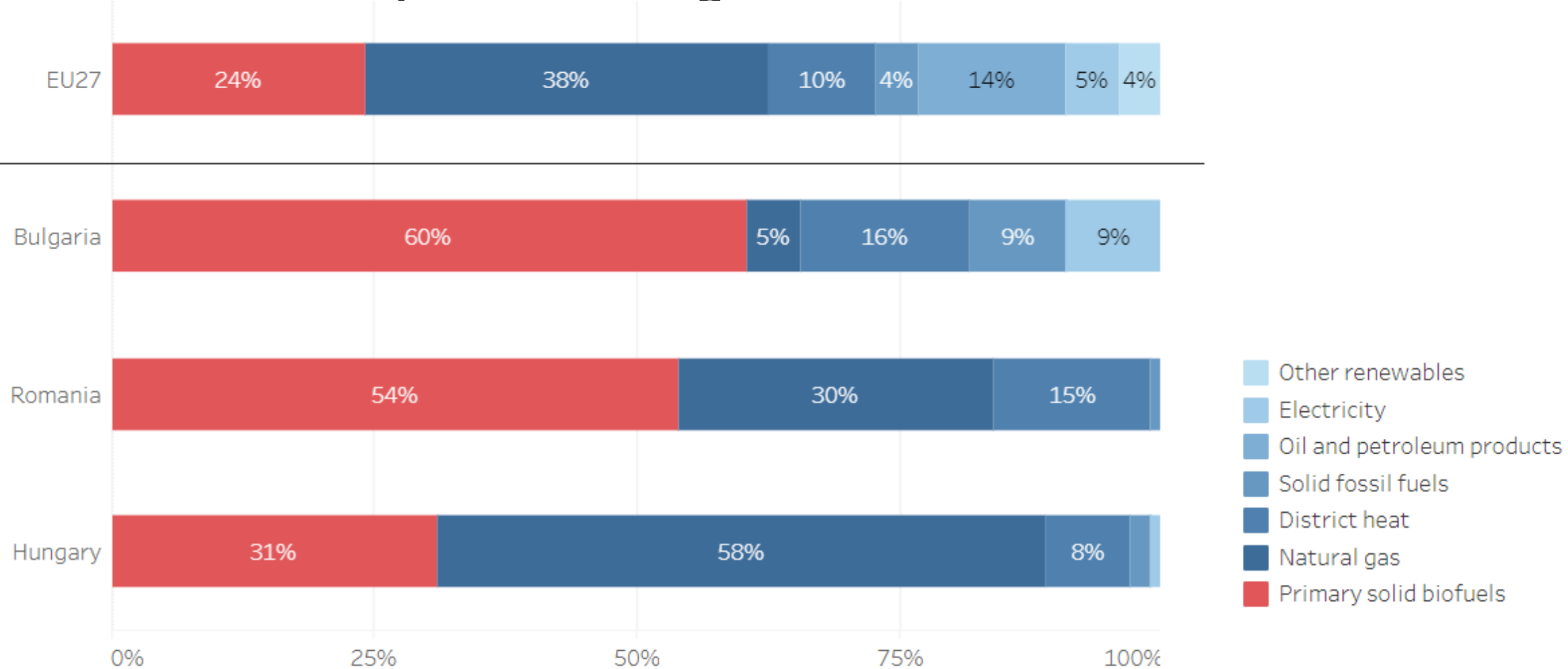
# The role of biomass in domestic energy use

## Share of primary solid biofuels (mostly firewood) in final energy consumption of households

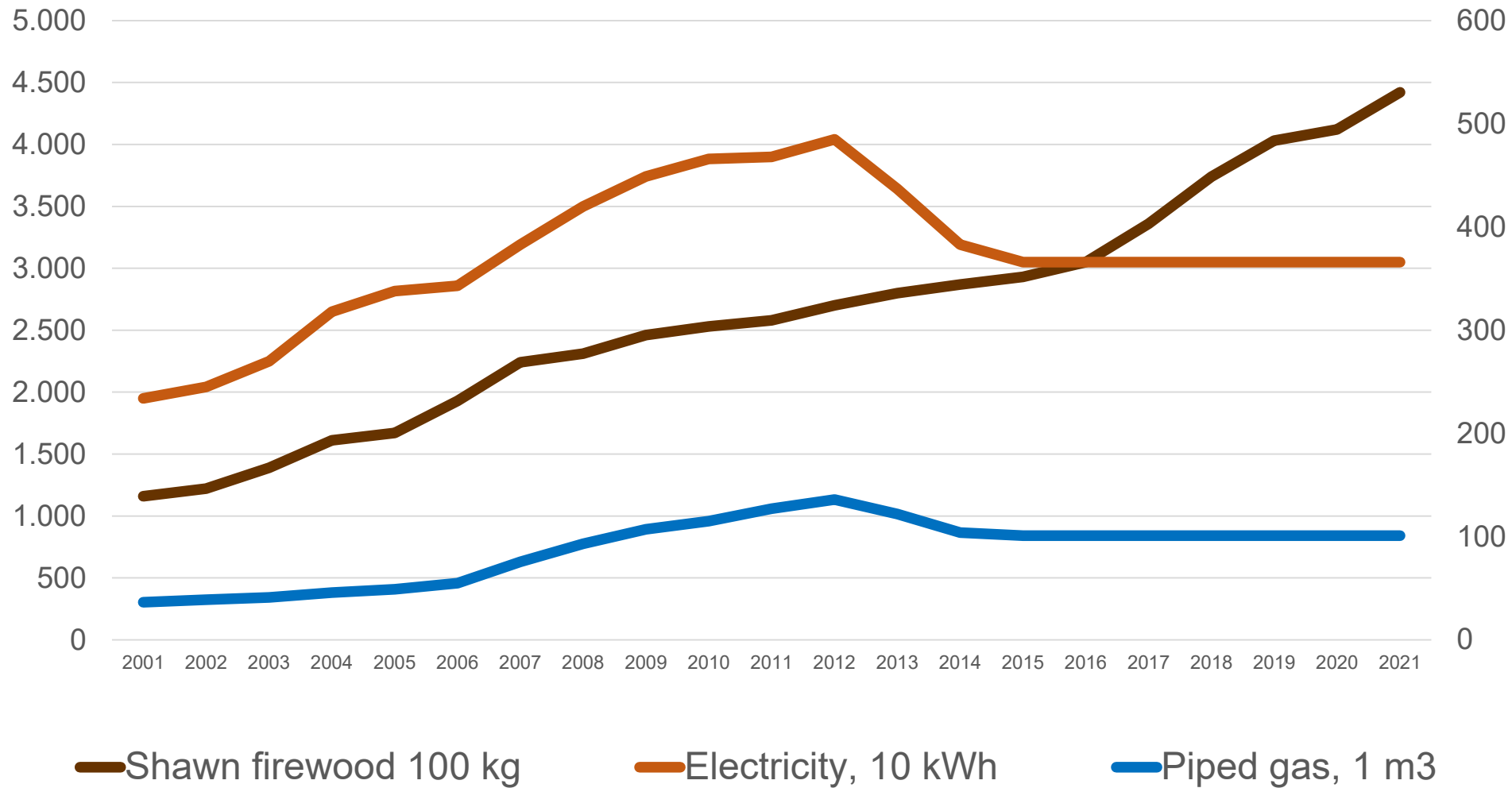


# The role of biomass in domestic heating

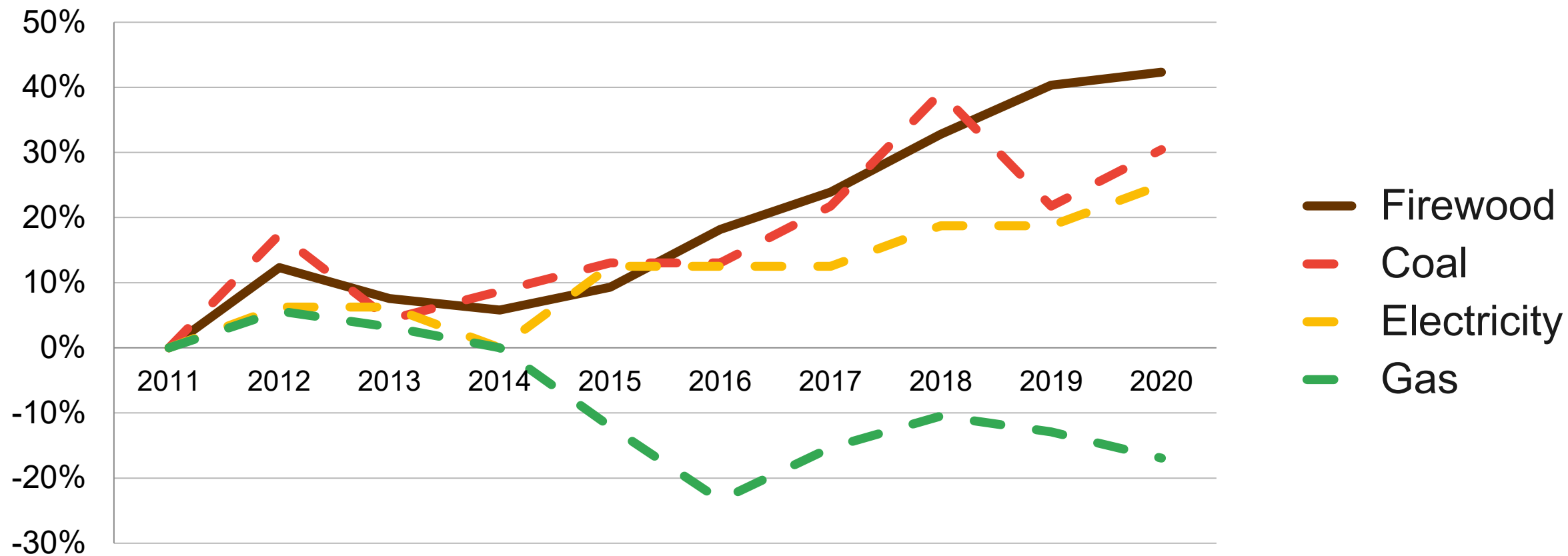
## Biomass as important heating fuel



# Hungary - Energy prices

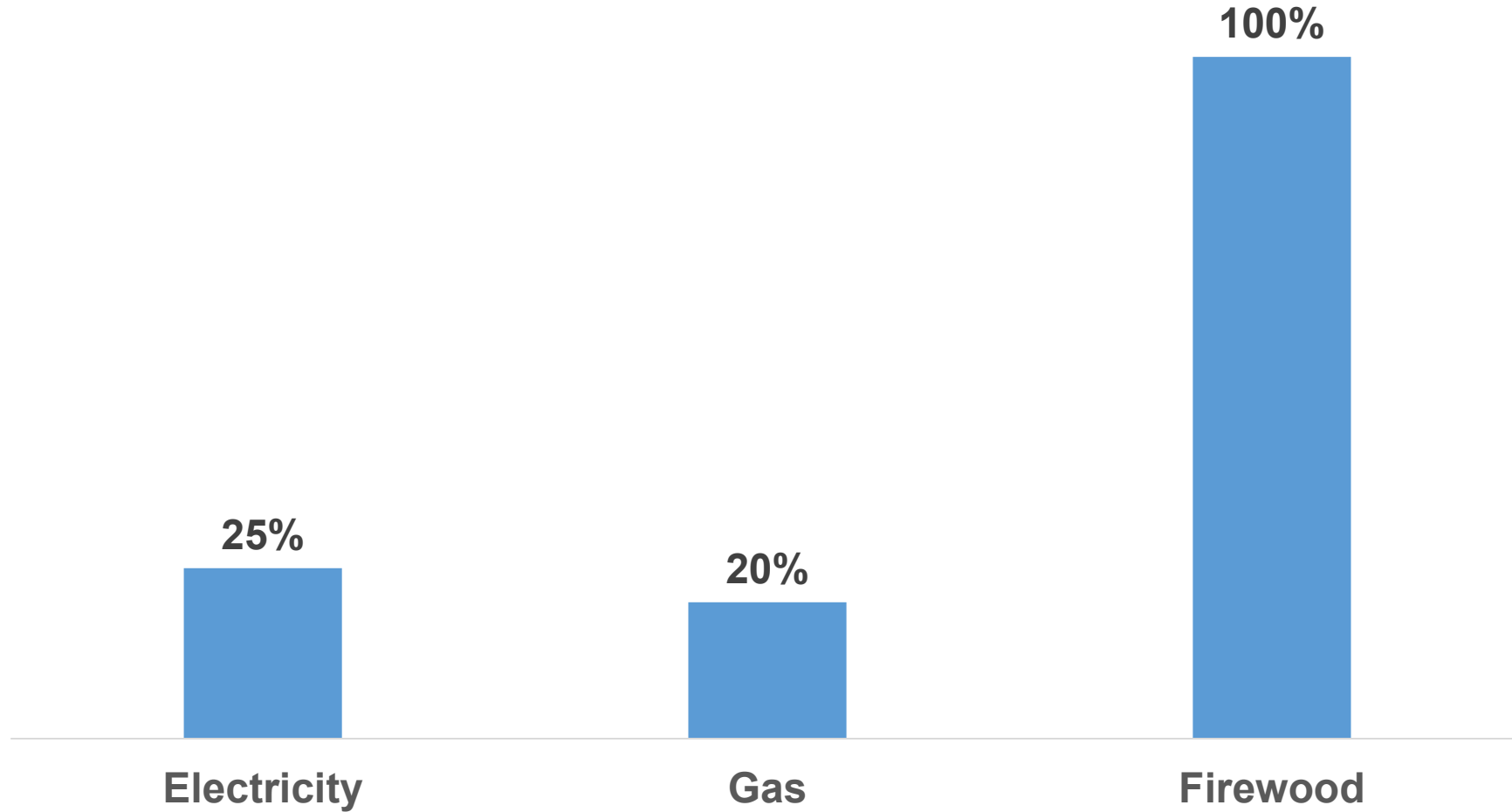


# Bulgaria changes in energy prices

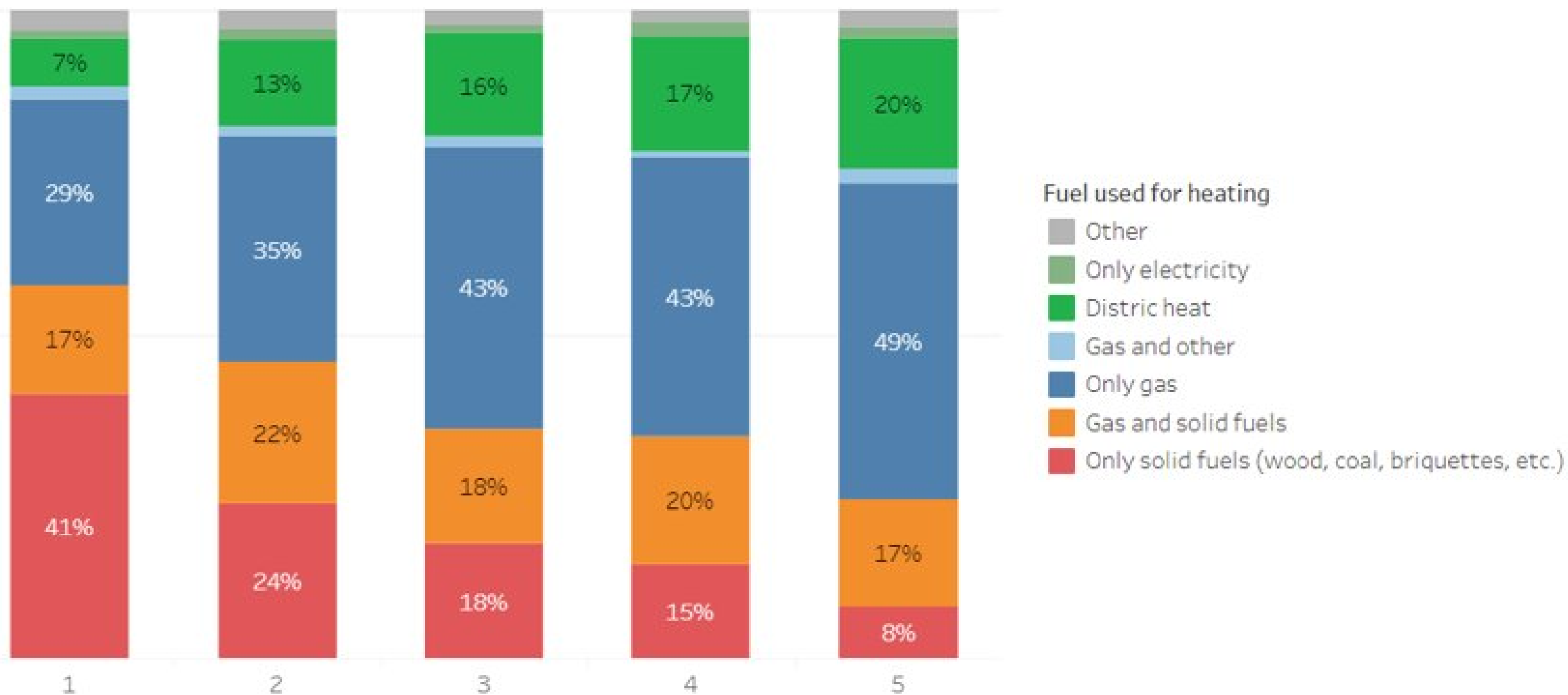




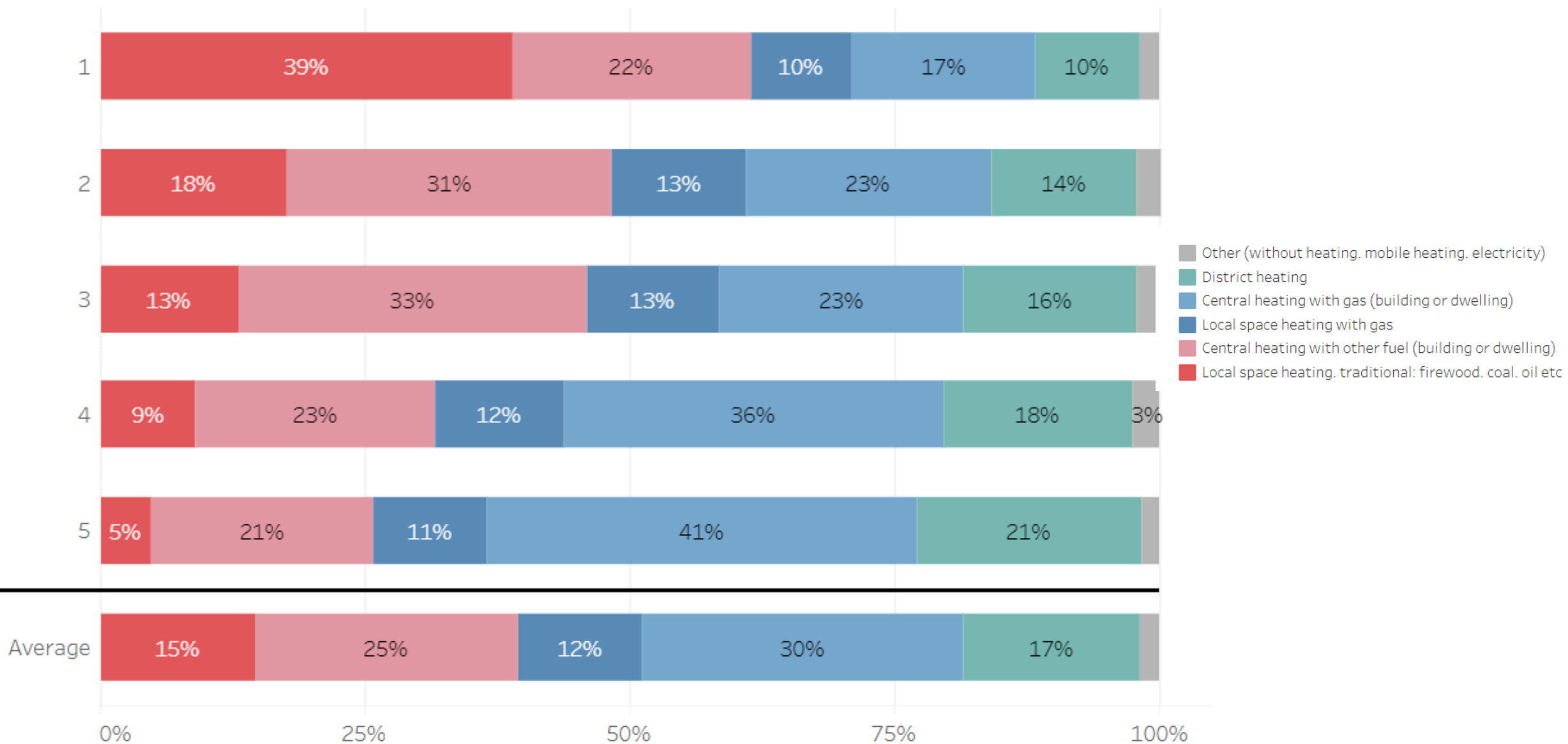
# Romania - change in energy prices 2020-2021



# Hungary – type of fuel by income 2020



# Hungary – type of heating



# Individual firewood heating



*kályha, kandalló, cserépkályha, sparhelt, teatűzhely*



Siroki László

# Individual firewood heating

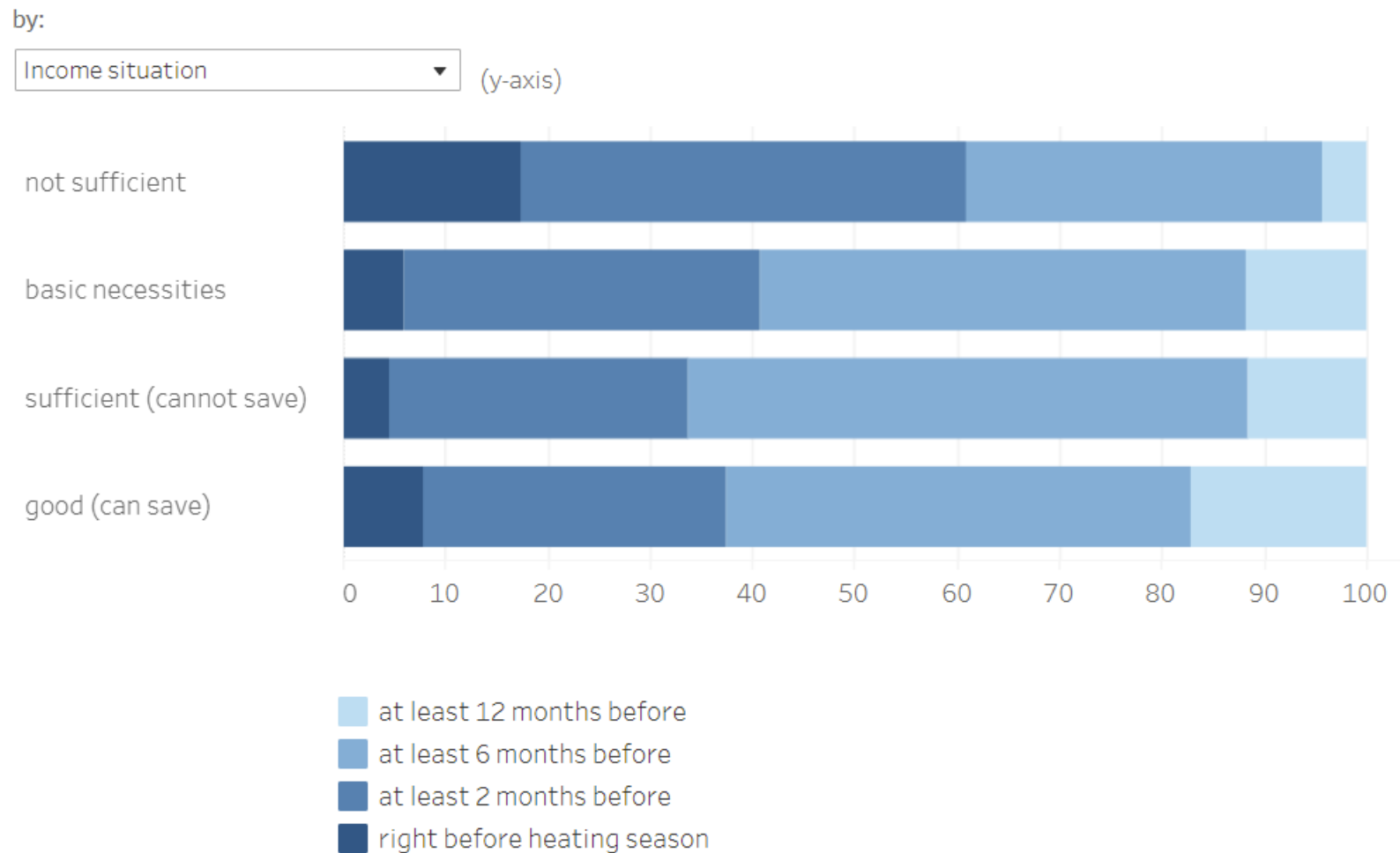


[source](#)



Csáti Renátó © HfHH

# Survey with firewood users – When do you buy wood?



Dry wood has higher calorific value!

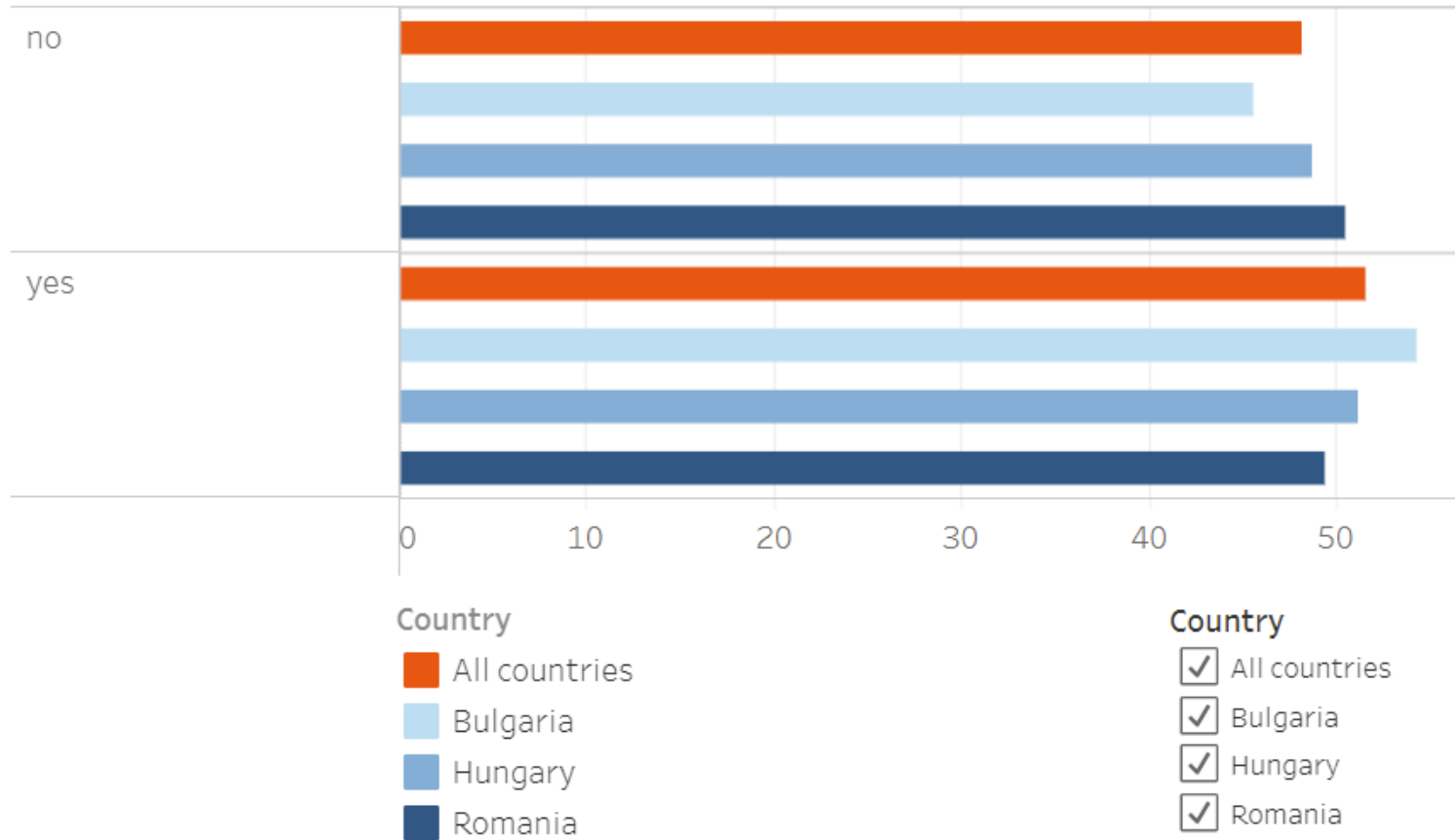
How long do you take / buy firewood prior to heating season?

<https://tabsoft.co/3MxEGgX>

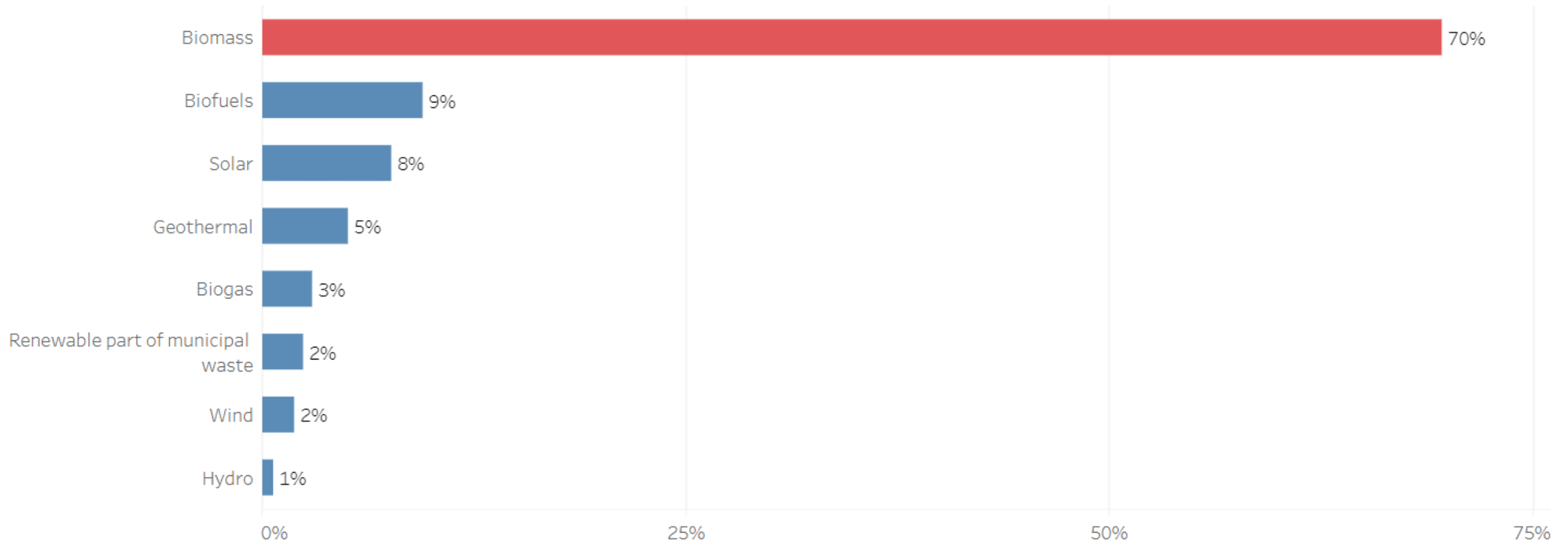
# Survey with firewood users – Is there any room in your home that is not heated?

Is there any room in your house / flat that is not heated at all?

## COUNTRY COMPARISON



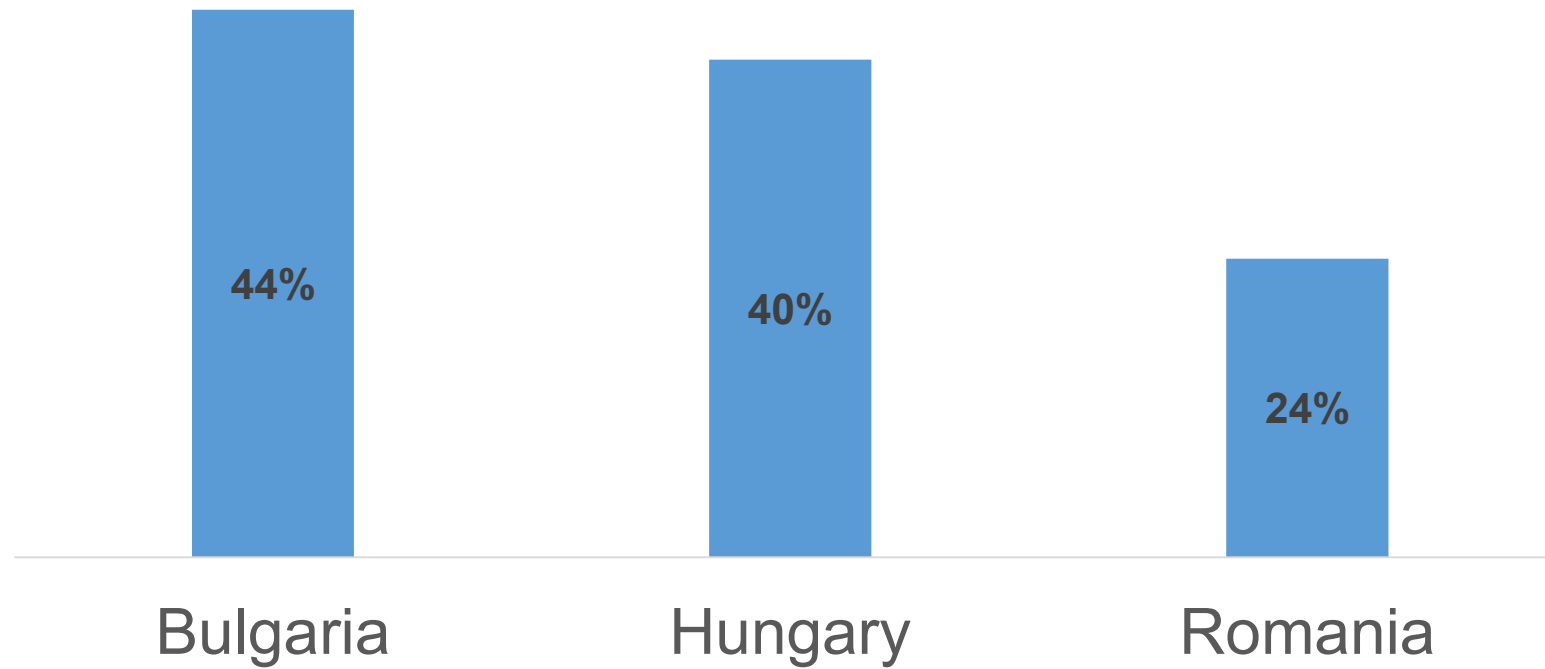
# Role of biomass in final renewable energy use



**~70% of biomass consumed in households**



## Plans to increase biomass use 2020-2030



# Source of air pollution

- Hungary: 2017 **household-level heating** accounted for **63% of PM10 and 87% of PM2.5 pollution**, which is associated with the high level of firewood use
- Among CEE countries, premature deaths attributable to PM2.5, NO<sub>2</sub> and O<sub>3</sub> exposure per 1 million inhabitants is
  - The highest in Bulgaria,
  - Third highest in Hungary ranked
  - Fifth highest in Romania.

# Policies

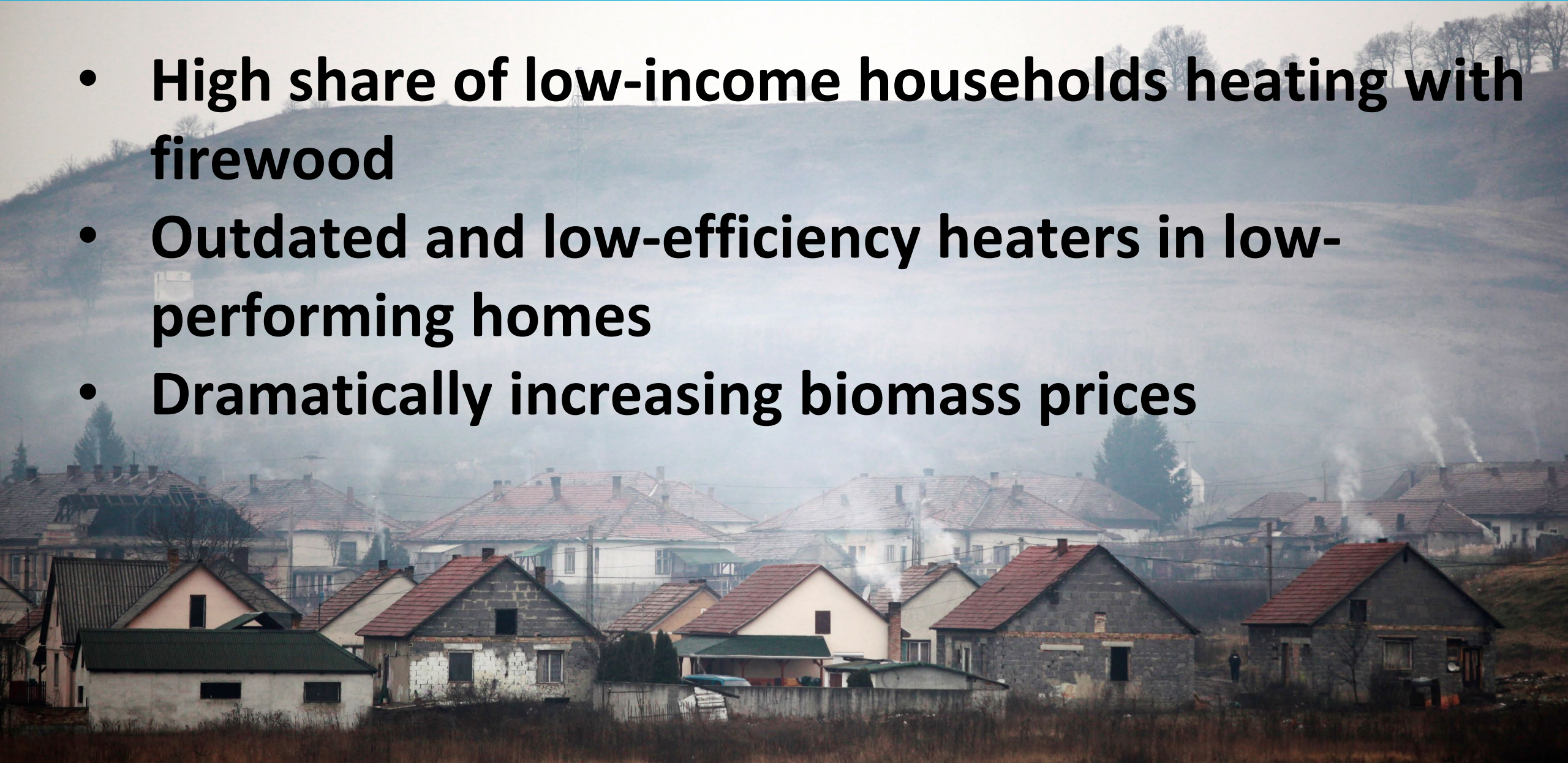
**Mostly price support programs**  
**Bulgaria: stove exchange program**  
**Lack of support for energy efficient retrofits**





## Conclusions – the problem

- **High share of low-income households heating with firewood**
- **Outdated and low-efficiency heaters in low-performing homes**
- **Dramatically increasing biomass prices**





# Conclusions – the problem

- **Biomass is the most important renewable energy source in these countries**
- **Biomass heating is one of the most important contributors to air-pollution**



# Conclusions

**# upgrading stoves – clean, affordable, suitable technologies**

**# energy efficient retrofits – Renovation wave, EPBD**

**# regulating the market - affordability and sustainability**

**# energy subsidies - alone not enough!**

## Conclusions- why to support firewood users?

**# cleaner air – better health**

**# warm and healthier homes – better physical & mental health**

**# reduced and more sustainable domestic biomass consumption**

**# low-income households having no access to modern energy services – inclusion, leaving no-one behind**

# Conclusions- improving the situation of firewood users leads to...

**# cleaner air**

**# warm and healthier homes**

**# reduced and more sustainable domestic biomass consumption**

**# inclusion of low-income households, leaving no-one behind**



# Thank you!

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