Residential heating in Hungary
and the role of coal

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Residential is the largest consuming sector!

Space heating:
- Share of gas decreased from 64% to 49%
- Share of solid fuel (wood, coal and waste) increased from 8% to 40%.
Non-efficient heating leads to air pollution – high PM10 values

Lost years of healthy life from ambient air pollution per hundred inhabitants

80% comes from non-efficient residential heating
Where does the high PM10 concentration come from?

- Residential heating: 45%
- Agriculture: 29%
- Industry: 11%
- Transport: 8%
- Institutions: 3%
- Waste management: 2%
- Others: 2%
Segmentation of building stock and residential heating is key.

Segmentation of the building stock

Number of flats (million)

- Proposed focus of residential heating efficiency
- Focus of previous governmental programmes

Final energy consumption

Segmentation of residential heating efficiency

- Final energy consumption

Graphical representation:
- Family houses
- Traditional multi-apartment buildings
- Industrialized multi-apartment buildings

Legend:
- Uninhabited
- Insulation < 0.8 W/m²K
- Insulation 0.8-1.3 W/m²K
- Insulation > 1.3 W/m²K
Distribution of heating systems used in residential buildings

![Bar chart showing the distribution of heating systems in different types of buildings.](chart.png)
Coal and lignite sales for residential heating purposes

Large coal mines’ incremental production (~270,000 tons = 3%), sold to the residential market

Small mines sell (80,000 tons) coal to the residential heating market

~ 350,000 tons of coal and lignite annually
~ 100,000 households affected
Governmental Social Fuel Program > counterproductive effect

Amount of financial support to local governments in the Social Fuel Program

- Social Fuel Program: settlements are eligible below 5 000 inhabitants
- Coal and firewood
- In 2018: 180 000 households, 5,5 billion HUF 17 million EUR
Replace coal in residential heating

How would it be possible to replace coal in 5 settlements where coal is used for heating?

Change of combustions/boilers and fuel

+ Shallow building renovation

1,56 billion HUF
4,6 million EUR
Governmental programmes

- **Panel (prefabricated block houses) house refurbishment programmes**: 35% of all panel buildings have been renovated between 2000 and 2015.

- **New loan scheme** (since 2017) to trigger energy efficient (residential) building renovations (interest-free, Hungarian Development Bank).

- **Warm Homes Programme**: Between 2008 and 2016, Green Investment Scheme (from Kyoto units’ sales): 1,1 PJ cumulative savings in 2014-2016.

  - **Heating Modernisation (boiler replacement) sub-programme of the Warmth of Home Programme:**

    - purchasing and installation of heating systems; condensing boiler technology and utilising renewable energy;
    
    - grants were awarded for 900 homes, resulting in calculated annual savings of 15GJ/year

- **“Heat Smart” campaign and new regulations:**

  - New efficiency and emission limits for <70kW standalone combustions after 2022
  
  - New efficiency and emission limits for <500kW solid fuel central heating boilers (2020)

  - Mandatory labelling on <70kW combustions (2017)
Recommendations

- Segmentation of residential buildings is key > find the right focus (e.g. family houses instead of panels)
- Map and define buildings with different heating and fuels
- Coal is not a solution, but a good proxy to find the most vulnerable groups
- Do not incentivise coal production or consumption
- Building efficiency first (e.g. insulation)
- Heating systems and fuel change is second
- Special loans, awareness raising campaigns, regulations and grants should be combined
Thank you very much!

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