FUEL POVERTY IN HUNGARY.

Measurements, experiences and policies.

Mapping the European energy poverty research landscape: towards common action and co-operation. Brussels, Sept 30th, 2010.

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Framing the concept

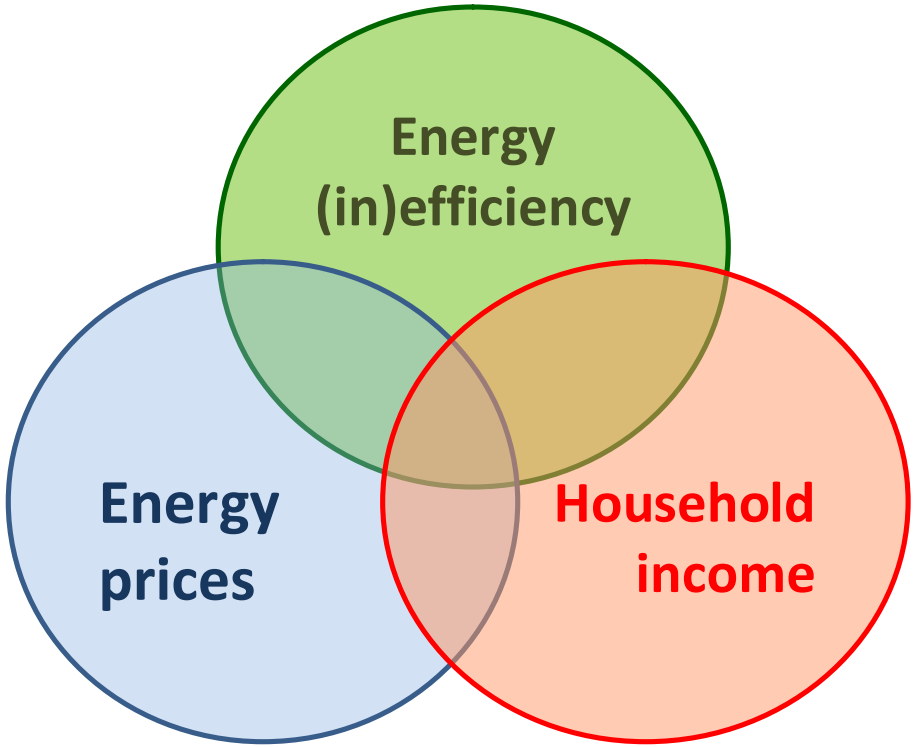
- The **co-benefits** of energy efficiency in buildings
  - The benefits of fuel poverty alleviation
- Prevent the **negative social consequences** of the transition to a low-carbon economy
  - Increase of energy costs (e.g., renewables, CCS, carbon tax)
  - Present vs. future generations
- "Perhaps the debate about the **three pillars of sustainable development** has been too often phrased in terms of **trade-offs** and much less in terms of **win-win** opportunities" (Schiellerup, 2010)

The concept of fuel/energy poverty

Reference	Definition
Boardman (1991, p. 201, in Morrison and Shortt, 2008)	"Inability to obtain adequate energy services for 10% of a household income"
Healy and Clinch (2002, p. 331), after Lewis (1982)	"Inability to heat the home adequately because of low household income and energy inefficient housing"
Buzar (2007, p. 225)	"A household is considered energy-poor if the amount of warmth in its home does not allow for participating in the 'lifestyles, customs and activities which define membership of society'"
European fuel Poverty and Energy Efficiency (EPEE) project (2009, p.4)	"A household's difficulty, sometimes even inability, to adequately heat its dwelling, at a fair price"

- Inability to **afford enough energy services** for satisfying the **household's basic needs,** namely **heating**

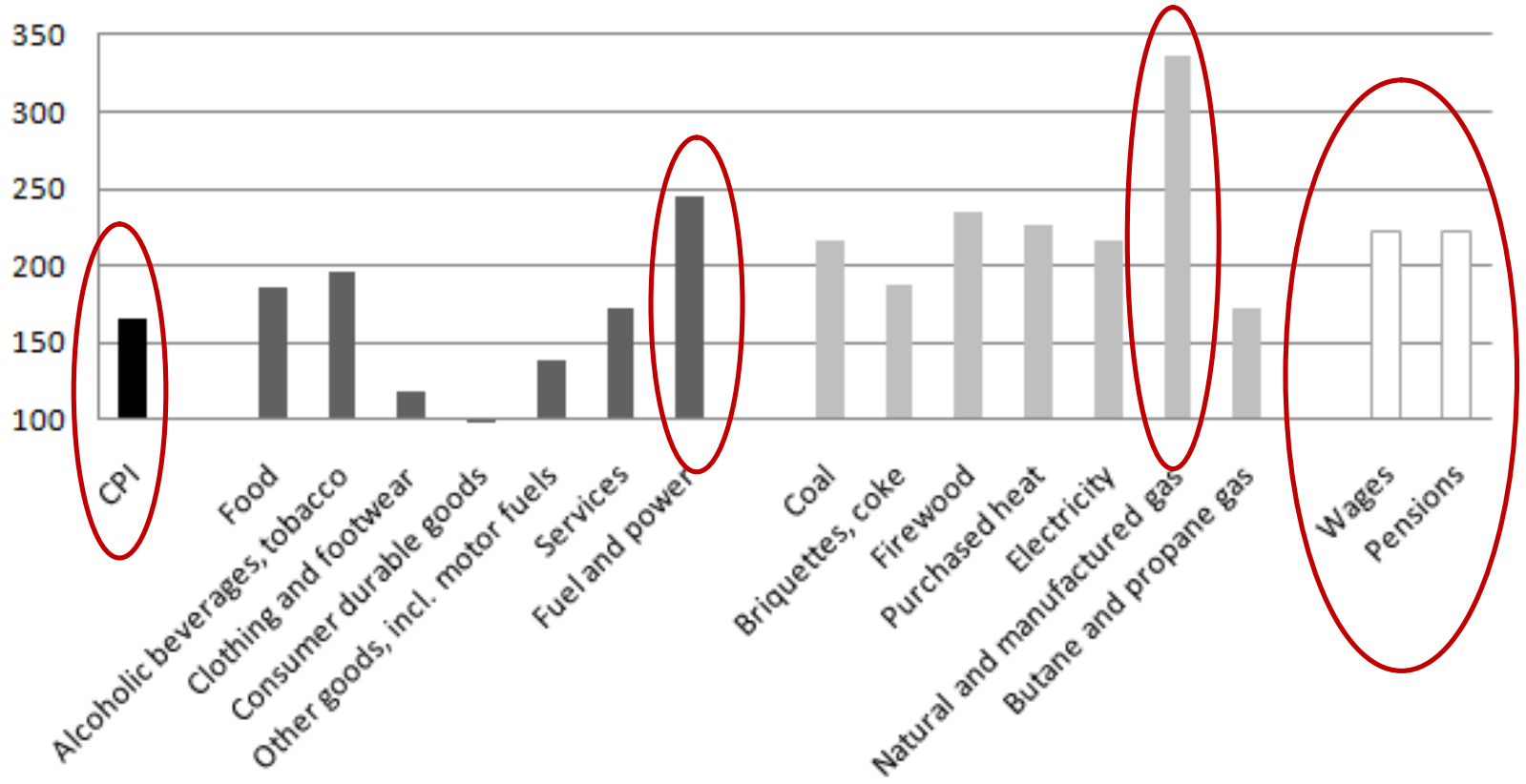
Contributing factors



- Fuel poverty is “perhaps the **strongest adverse social impact** resulting from the **inefficient consumption of energy** in the domestic sector”
(Healy and Clinch, 2002, p. 329)

Energy prices vs. household incomes

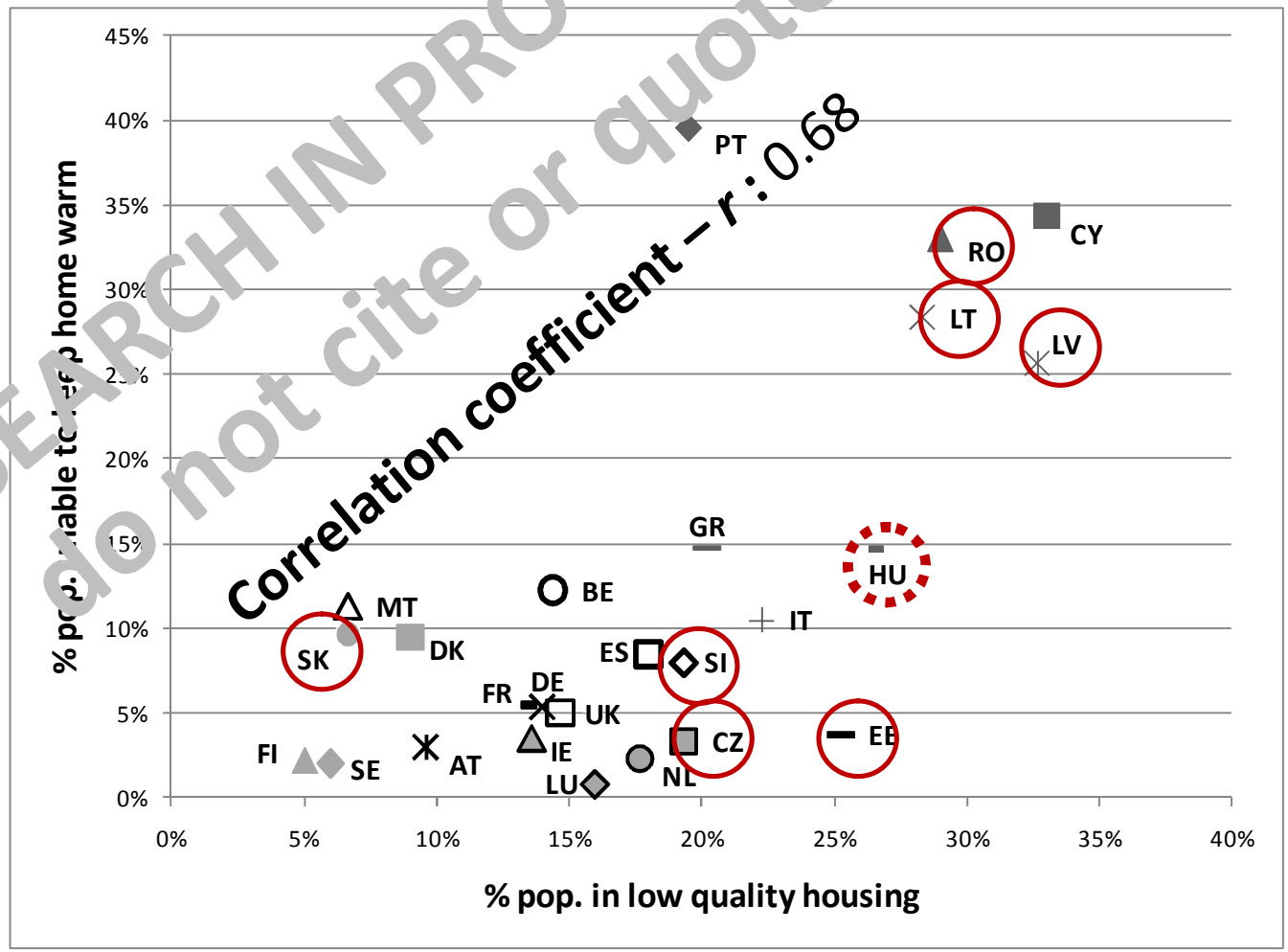
Consumer Price Index (CPI), price index of goods and services considered in CPI calculations, and rate of increase of wages and pensions in Hungary (2000-2009)



Source: Tirado Herrero and Ürge-Vorsatz, forthcoming

The energy performance of buildings

Inability to afford adequate heating vs. low quality housing* (self -reported)

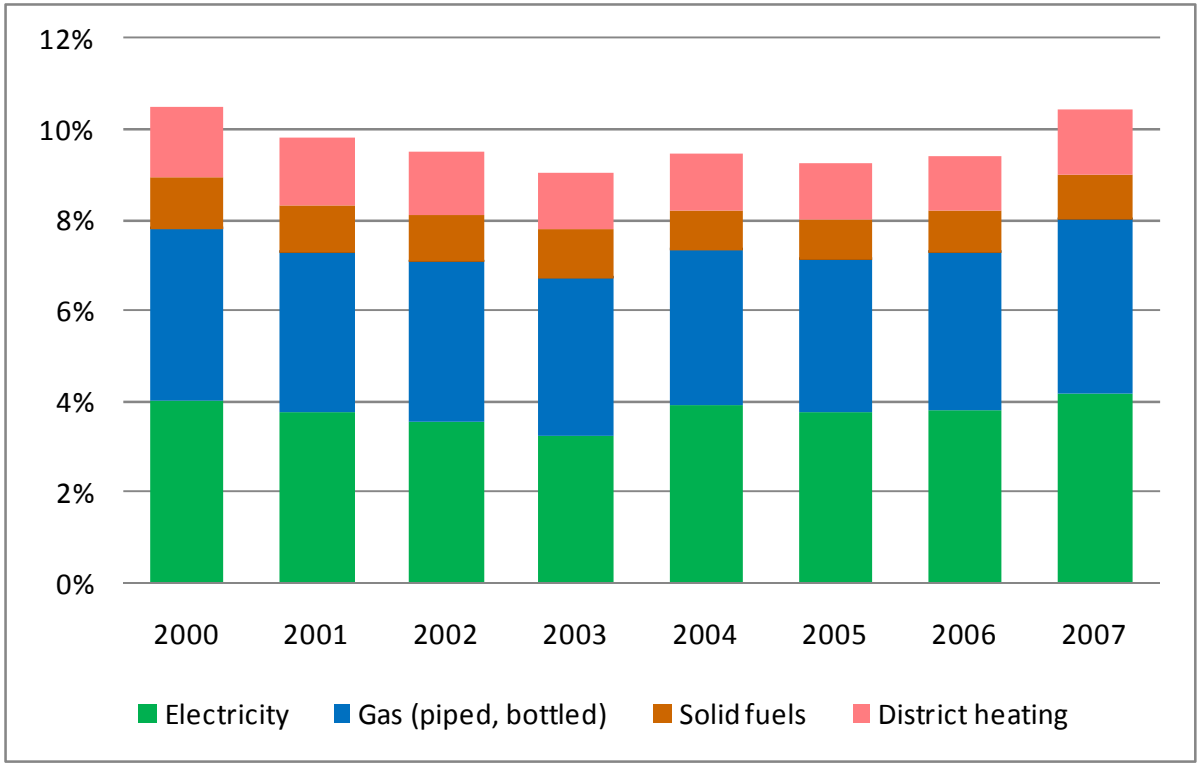


*Leaking roof, damp walls, floors or foundation, or rot in window frames of floor

Measuring fuel poverty in Hungary

Primary indicators

EXPENDITURE APPROACH: % of energy expenses vs. net income



Source: KSH

9.7% of **households net income** spent on **energy**, as an average for the period 2000-2007.

Measuring fuel poverty in Hungary

Primary indicators

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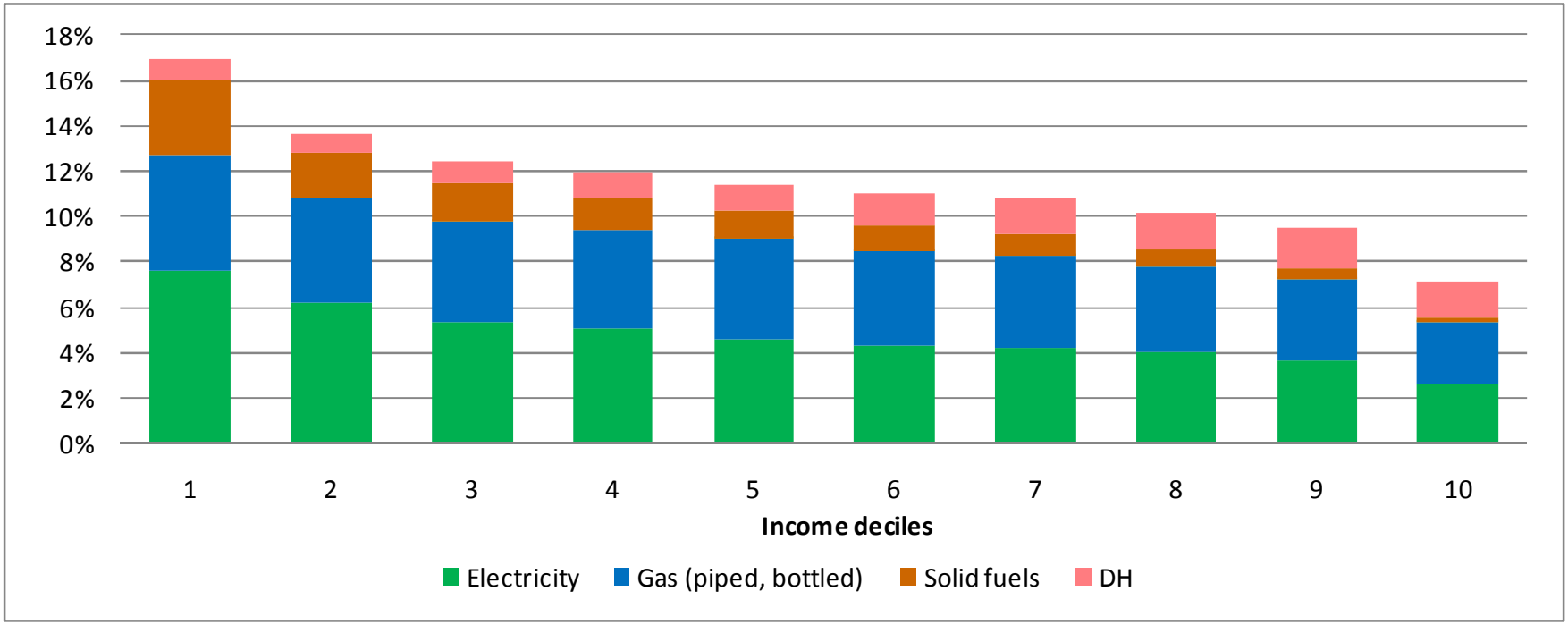


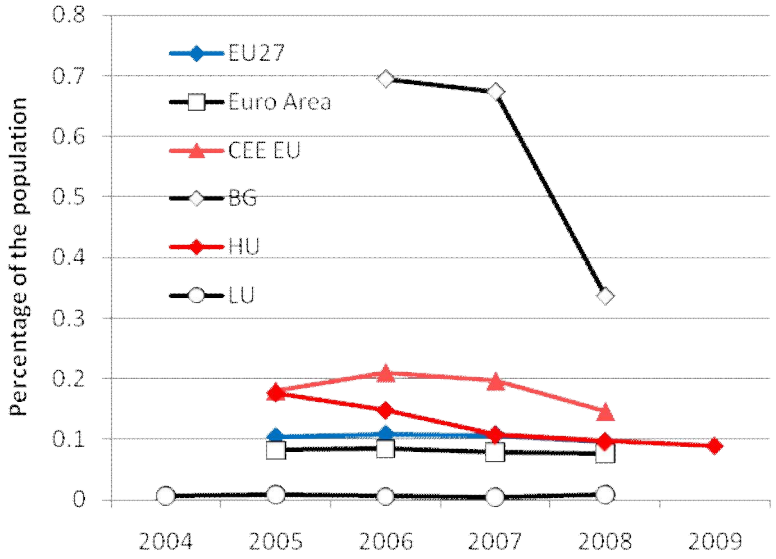
Source: KSH

In 2007, the average household of the **8 lower income deciles** spent **10% or more** of its net income on energy

Measuring fuel poverty in Hungary

Primary indicators

SELF-REPORTED APPROACH: inability to afford enough heating



12.4% of the population declare to be **unable to keep their homes adequately warm** (2005-2009)

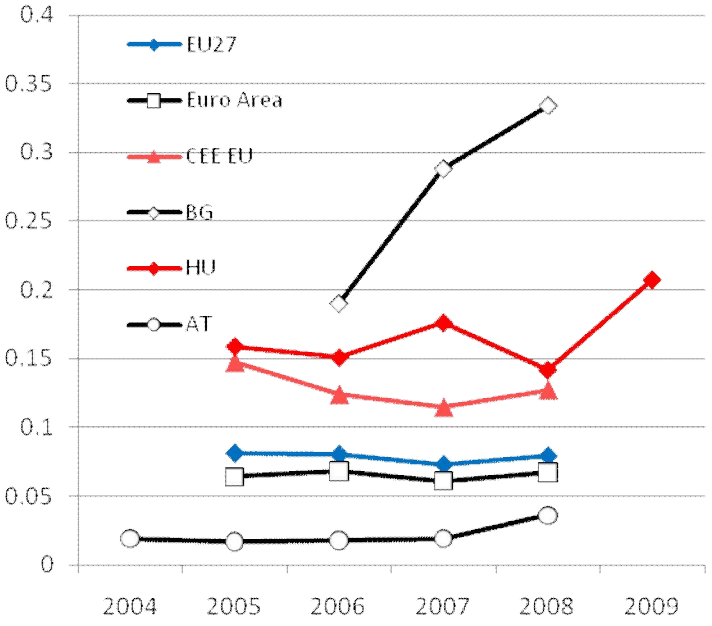
Source: EU SILC

- **Expenditure-based measuresments** seem to be **higher** than **self-reported fuel poverty rates**
- **Self-reported** trends do **not follow** the **expected pattern** of development for the late 2000s.

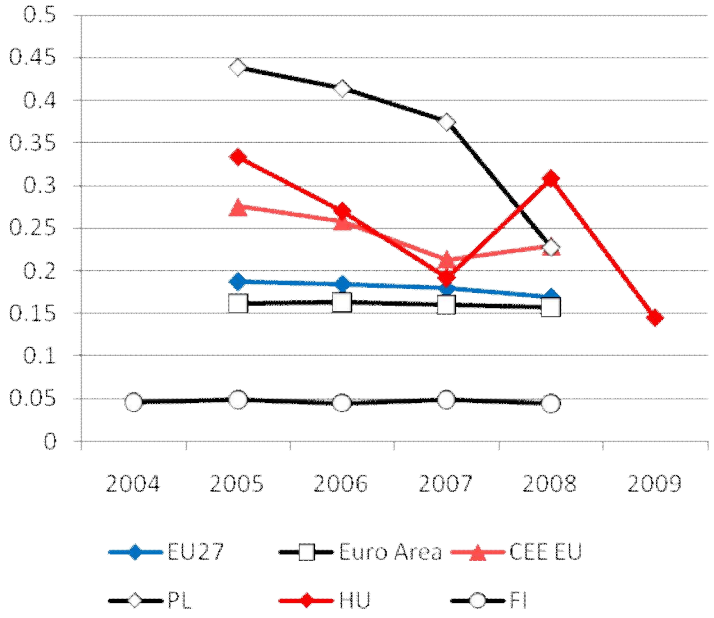
Measuring fuel poverty in Hungary

Secondary indicators

ARREARS ON UTILITY BILLS (self-reported)



FUEL POVERTY-RELATED HOUSING FAULTS* (self-reported)

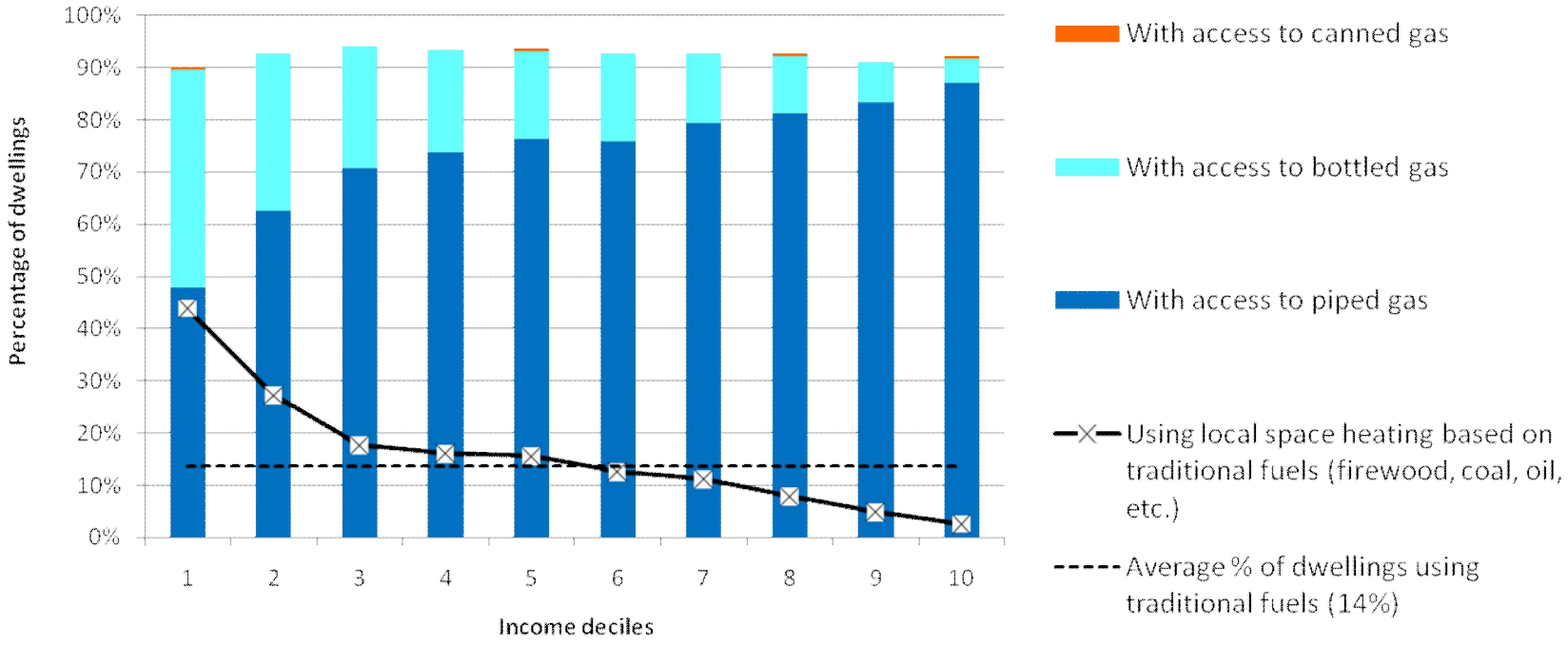


*Leaking roof, damp walls, floors or foundation, or rot in window frames of floor

Measuring fuel poverty in Hungary

Secondary indicators

USE OF TRADITIONAL FUELS FOR SPACE HEATING



Source: KSH

A socio-economic characterisation of fuel-poor households

Review of **household attributes** related to fuel poverty in Hungary

	PRIMARY INDICATORS		SECONDARY INDICATORS		
	Expenditure -based	Self-reported	Arrears on utility bills	Fuel poverty-related housing faults	Use of trad. fuels for space heating
Lower income	+++	+++	+++	++	+++
Pensioners / Elders	++	++	- - -	+	+
One-person household	++	++	-	+	=
With children	-	-	+	=	=
Without children	=	+	-	=	=
Mono-parental families	n.a.	++	++	+	n.a.
Large families (3 or more children)	=	+	++	+	++
Located in peripheral regions	+	n.a.	n.a.	n.a.	+

Source: own elaboration

District heating and panel buildings

The thermal trap

Inability to control indoor temperature **thermal discomfort**

Fixed flat rate, no individual meters

DH providers **do not easily allow to switch** to other fuel or company

Prefabricated **panel buildings** in suburban areas

Some consumers fail to pay regularly the tariff: **indebtedness**

Low-income population

Many DH networks are now obsolete and need **modernization** both on the heat supplier and on the consumers' side

Deprived rural Roma communities

In the outback

Poor rural community in NE Hungary: few income-earning opportunities (60 EUR per person per month)

Large traditional single-family houses. High specific energy consumption for heating (above 300 kWh/m2.year)

Heating and cooking: firewood. Only 1-2 rooms are heated in winter. Indoor air pollution

Lighting and appliances: electricity (5 to 10,000 HUF per month). They switch on the fridge only when they buy meat

Strategies to deal with fuel poverty:
-Illegal firewood collection (arrest, fines)
-Illegal connection to electricity grid

No access to **commercial credit** or **information on energy efficiency**. The issue of informal **money-lenders**

Who are the most affected?

- **Lower income** population
  - High energy expenses vs. income ratio, lower quality housing
- **Monoparental families**
- **Pensioners / Elders**
  - Most **EWDs** are people over 60 years old
  - **Switch off the heating** instead of delaying payments
- **Households** connected to **district heating** (DH)
  - Large fixed costs, inability to get disconnected
- **Rural poor**
  - Impact of increased **firewood prices** related to biomass use in renewable power generation
  - **Roma population**: electricity theft and illegal firewood collection

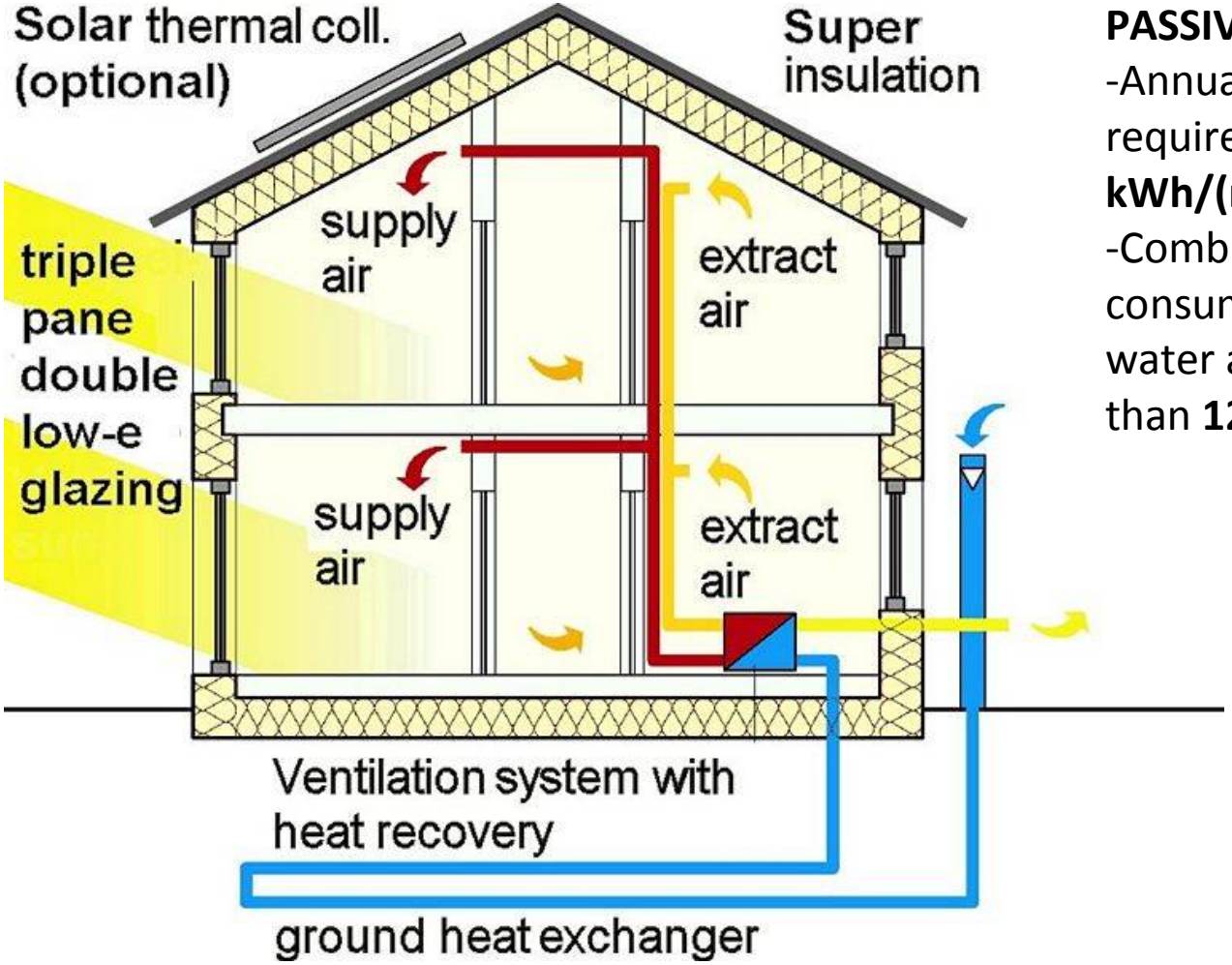
Strategies to deal with energy affordability problems

- Mantaining **low indoor temperatures** is only one of the solutions adopted by households…
  - reducing the consumption of **other basic goods and services** (e.g., education or food);
  - reducing the fraction of the **floor area heated**;
  - **fuel switch**, mostly from natural gas to firewood, a less convenient but cheaper fuel;
  - **payment arrears** and **increased indebtedness** with energy suppliers; and
  - **electricity theft** and **illegal firewood collection.**

Policy elements

- **Support** to **households** and **consumers**
  - DH and gas price support schemes
  - Poorly targeted,wrong signal to consumers, money saved is not invested in energy efficiency
- **Residential energy efficiency** programmes
  - **Panel, Öko** and **Climate Friendly Home** programmes
  - Suboptimal retrofits ***lock in*** the energy savings' potential of the building stock and may **not fully eradicate** fuel poverty
- **Energy supply expansion** projects
  - Allegedly aimed at improving the energy security
  - 'Nabucco' pipeline / Strategic gas reservoirs
  - Effects on long-term **energy (gas) prices**

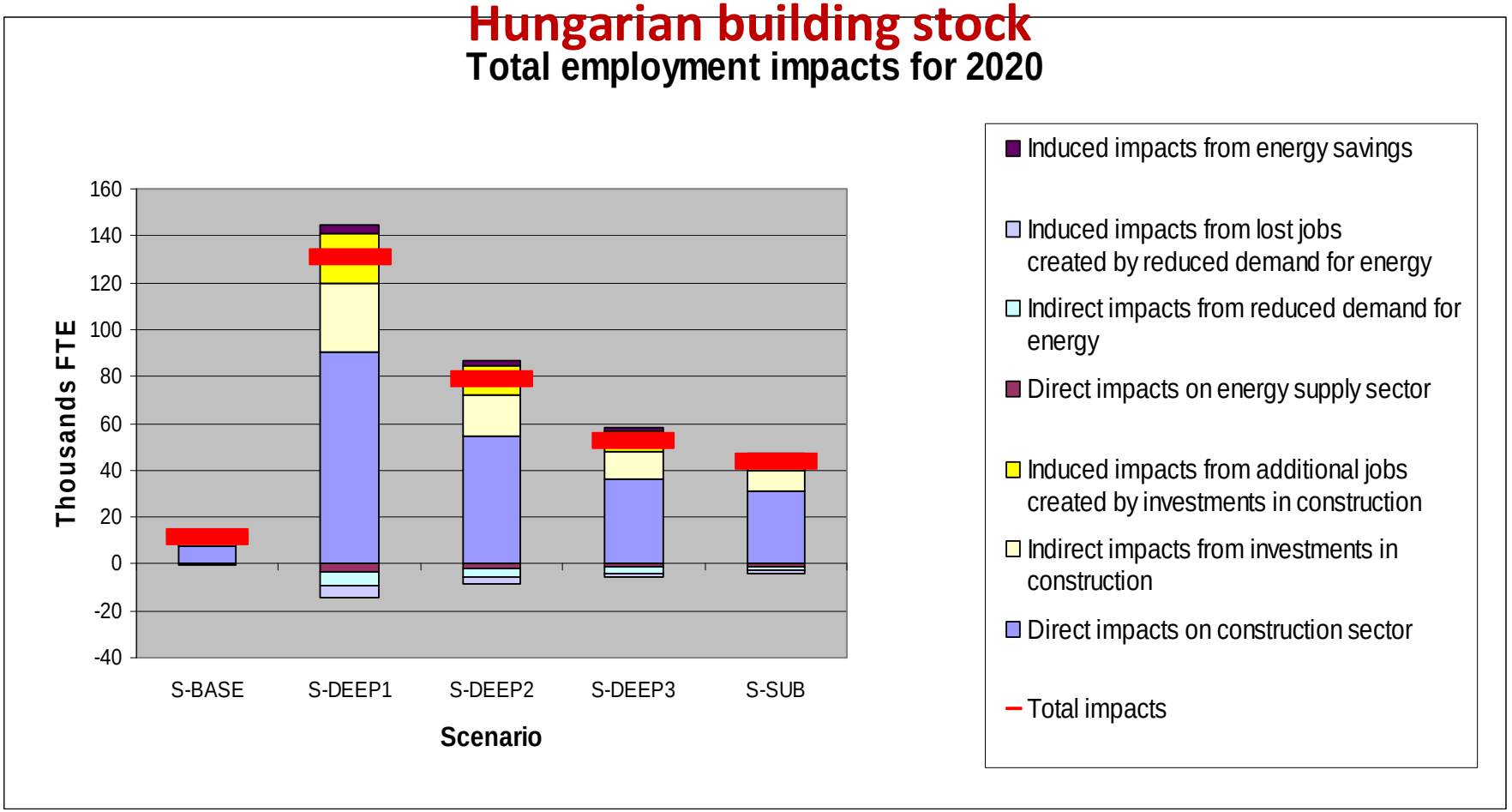
Advanced residential EE solutions are available…



PASSIVE HOUSE
-Annual **heating** requirement less than **15 kWh/(m²a)**
-Combined primary energy consumption (heating, hot water and electricity) less than **120 kWh /(m²a)**

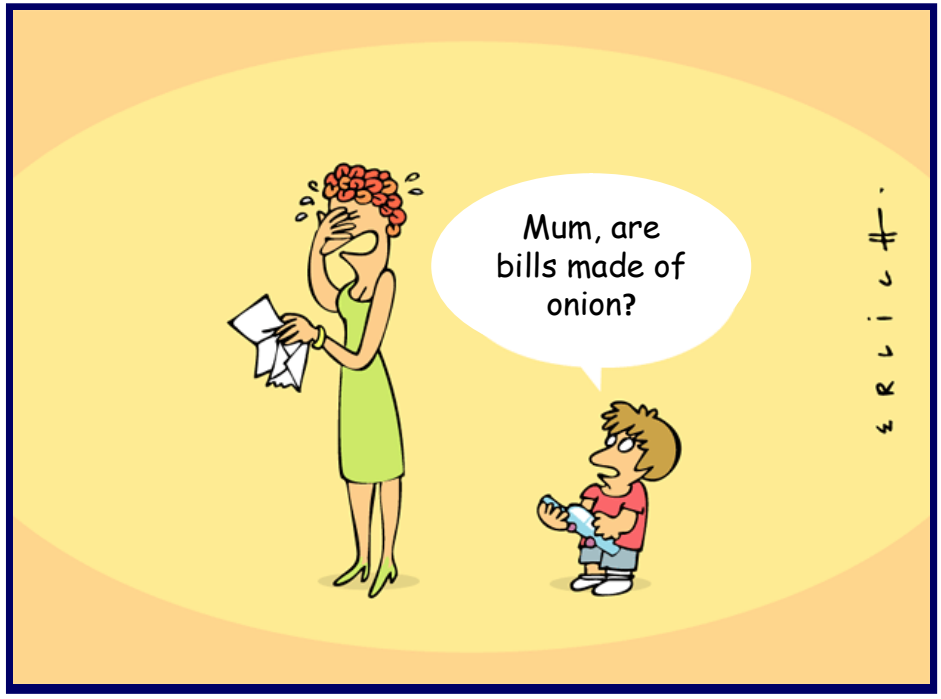
… and they generate additional co-benefits

Employment effects of deep and suboptimal renovations in the Hungarian building stock



Some conclusions…

- **Fuel poverty** is not a pervasive phenomenon in Hungary, but affects **selected social groups**
  - Lower-income, elders, monoparental families, DH-connected households, rural poor including ethnic minorities
  - ***Insular geography*** of fuel poverty (Buzar, 2007)
- **Various strategies** other than switching off the heating are applied by households to deal with energy affordability problems
  - Households minimise welfare impacts depending on their perception of risks, availability of fuels, conditions, preferences...
- **Rethinking the concept?**
  - Fuel poverty is not only suffering from inadequate indoor temperatures, but also being forced to adopt welfare-damaging solutions to deal with energy affordability constraints.



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THANK YOU!

Further contact:
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Fuel poverty in Hungary. Measurements, experiences and policies.

ADDITIONAL SLIDES

Co-benefits of residential energy efficiency

Primary vs. ancillary, non-energy or co-benefits

Type	Category
Direct impact on the welfare of residents	**Increased thermal comfort**
	Health benefits: reduced EWM and winter morbidity
	Savings in utility expenses
	Improved indoor environmental conditions
	Reduction in outdoor noise infiltration
	Improved safety conditions and lower maintenance costs
	Enhanced ability to rent or sell the space
Regional environmental effects	Reduced outdoor air pollution
	Lower resource consumption and waste disposal
Nationwide or system gains	Service provision system benefits
	Reduced energy dependency
	Employment effects
	Productivity effects
	Lower long-term energy prices
	Technology forcing

Own elaboration after selected sources

Characteristics of fuel poverty

- The purchase of energy is **income-inelastic**
  - Lower income households experience proportionately higher heating expenses
- **Not all poor households are fuel poor** and vice versa
- **Energy efficiency**: it is possible to bring households out of fuel poverty while reducing their energy consumption
  - Connection with key environmental issues (climate change and regional air pollution)
  - **Health impacts** (EWM and increased morbidity)

What about electricity?

- **40%** of a Hungarian household's average **energy expenses** are from **electricity**

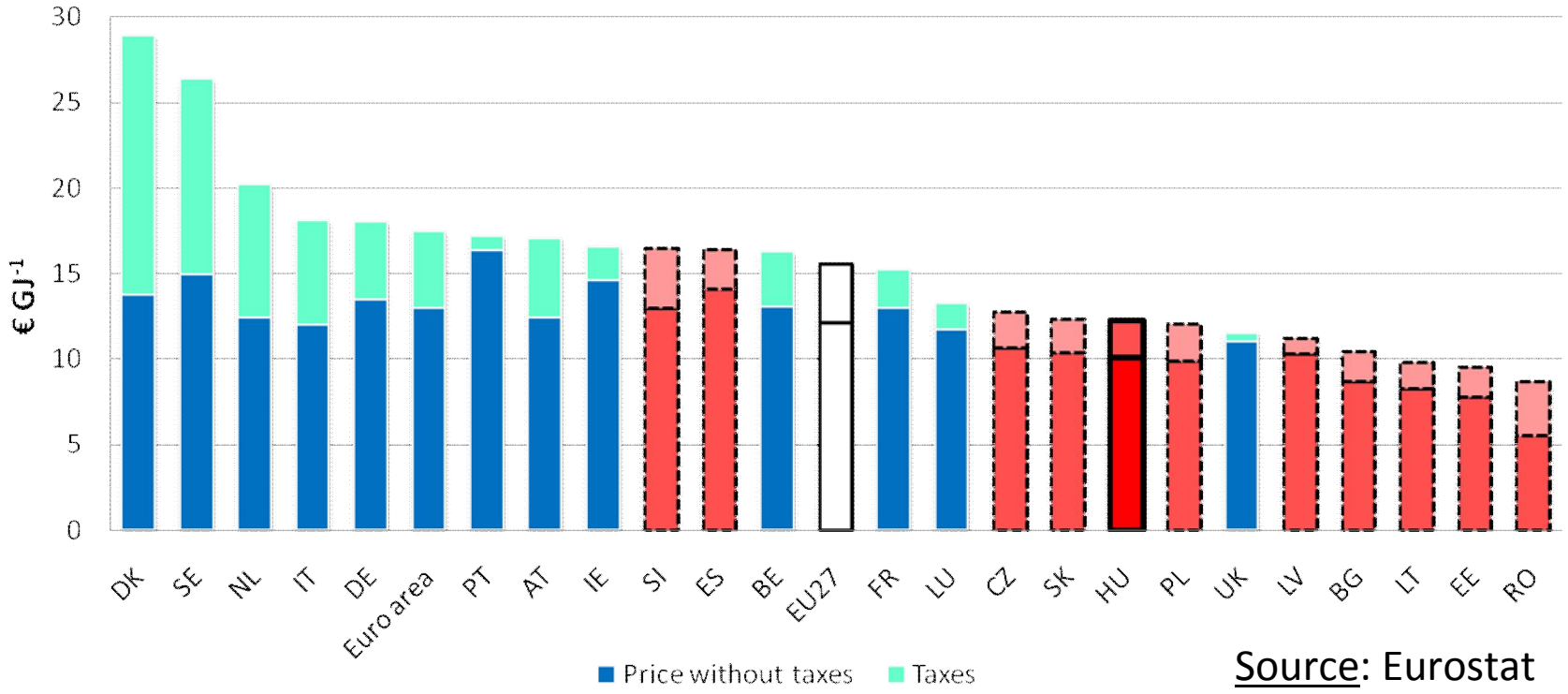
  seldom used for heating in Hungary…

  …but a household's budget is not divided into separate compartments.

- Improving the **efficiency of lighting and appliances** requires **less initial investments** than improving the **thermal efficiency** of the dwelling
  - Smaller **energy saving potential** and **less co-benefits**
- **Strategies** to deal with affordability problems
  - Illegal connection, arrears on bills, forced disconnection
  - Both **consumers** and **utility companies** affected

Energy prices vs. household incomes

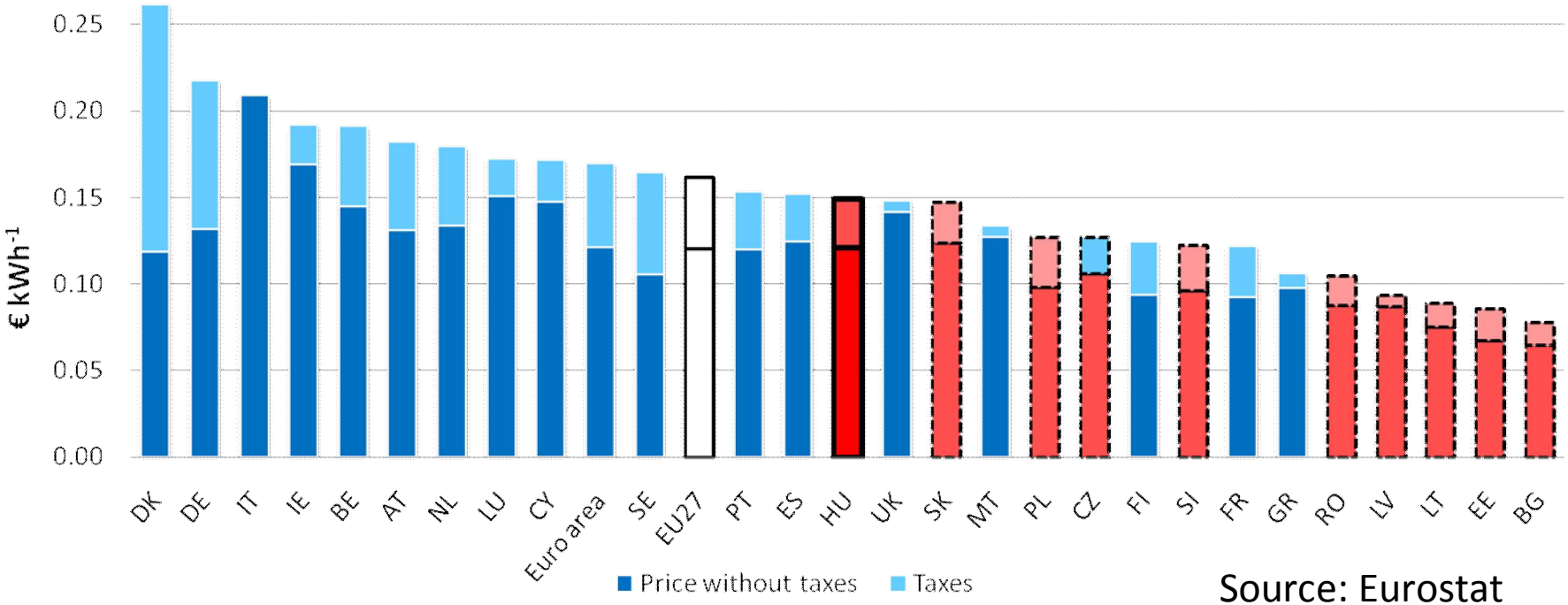
Gas prices for residential consumers (20 to 200GJ per year)
EU27 vs. CEE and Hungary (2007-2009)



Source: Eurostat

Energy prices vs. household incomes

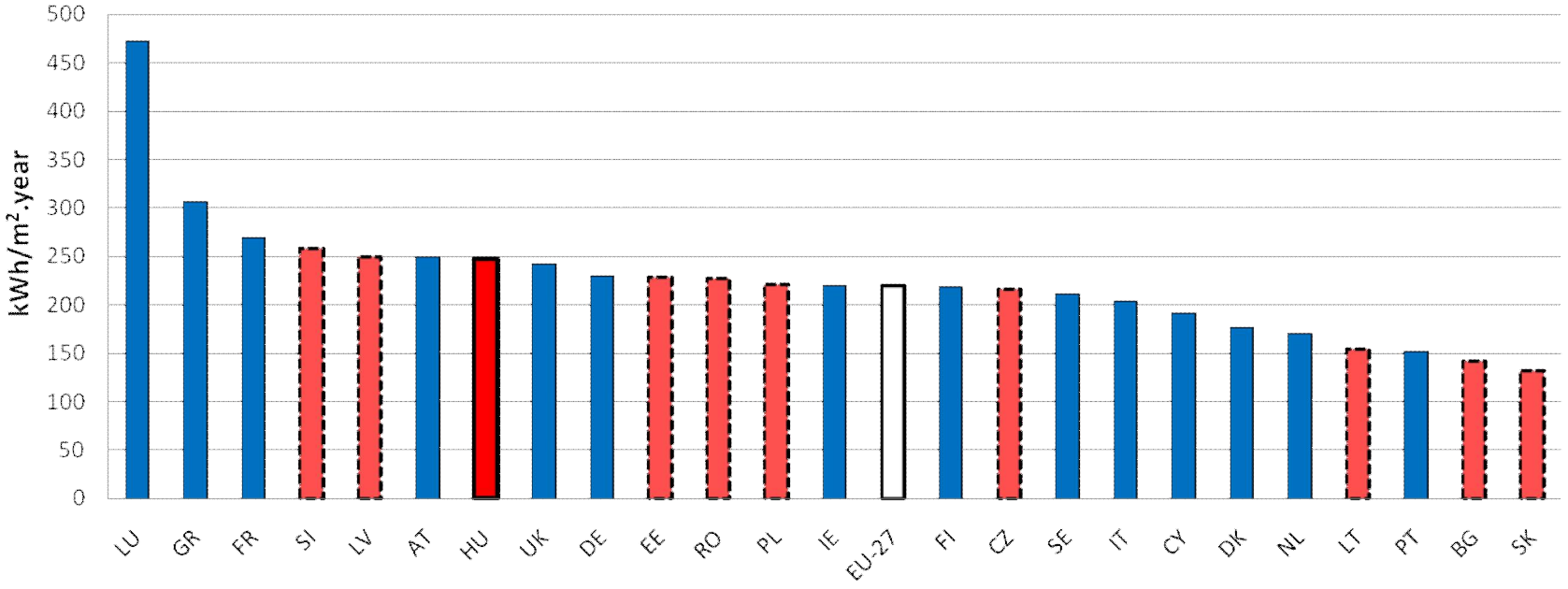
Electricity prices for residential consumers (2,500 to 5,000 kWh per year). EU27 vs. CEE and Hungary (2007-2009).



Source: Eurostat

Energy performance of the residential sector

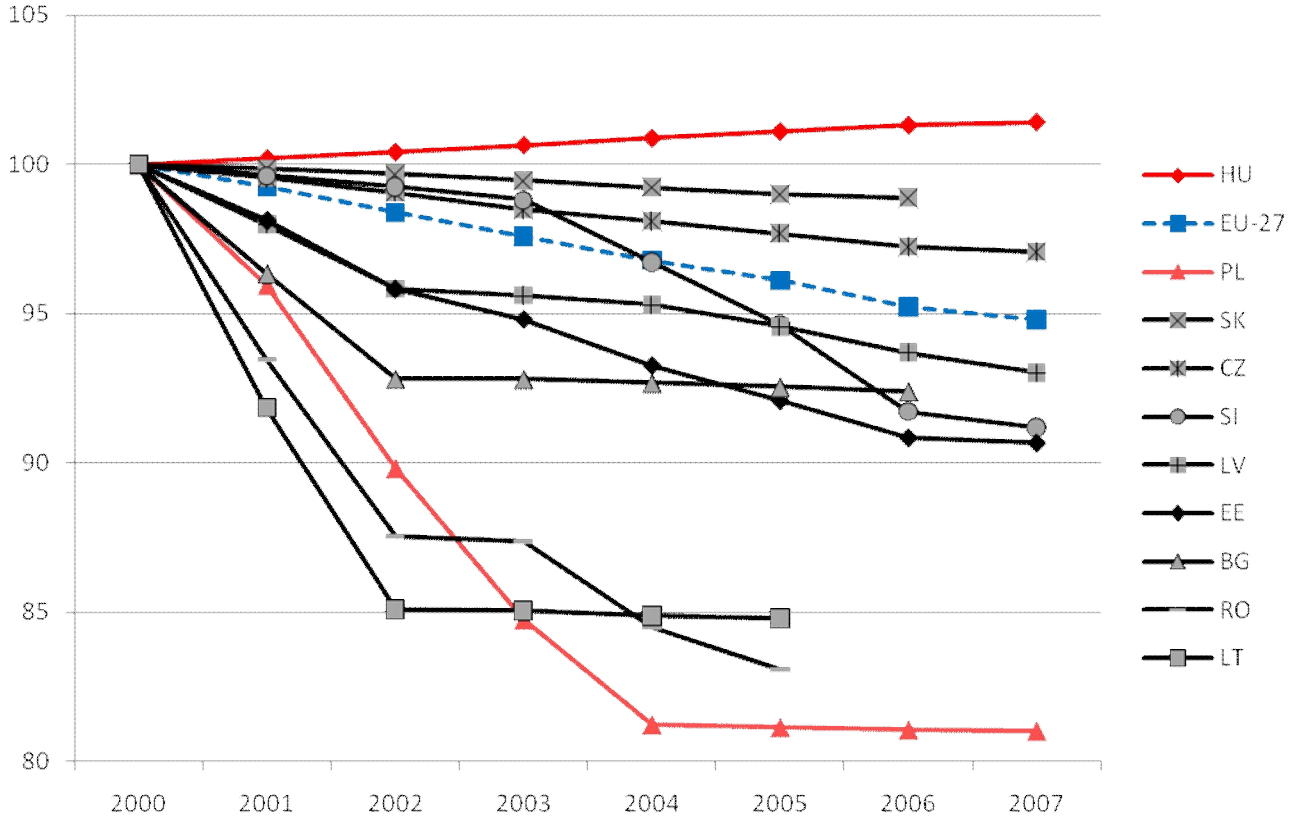
Households' specific energy consumption (all uses) per sqm. scaled to EU average climate. Hungary vs. EU 27 (2000-2007).



Source: ODYSSEE

The energy performance of buildings

ODEX energy efficiency of households.
Hungary vs. EU 27 and CEE (2000-2007).



Source: ODYSSEE