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A blind spot of European policy? Energy efficiency policies for low-income households

Picture Source: halkidikiproperties.com

Agenda

- Context
- Relevance
- Approach
  - **Energy Poverty**
  - **Barriers to EE** in the residential sector (low-income sector)
  - **Policies to EE** in the residential sector (low-income sector)
  - **How do policies remove** barriers?
- Conclusions and recomendations

Context of the research (1/2)

- **Context** of the paper is research performed by the authors for the Industry, Research and Energy Committee (ITRE) of the EU-Parliament on Energy Efficiency Policies for Low-Income Households (LIH).
- **Aim** was to analyse the current EE policy landscape in the EU and its Member States with regard to how they address LIH and to provide policy recommendations on the debate if energy poverty should be more strongly addressed by EED, EPBD, Labelling Directive or remain a domain of *social policy.*
- **Approach**: After presenting barriers to efficiency in households, we refer to the capability of EE policies to remove specific barriers for EE investments in LIH, as well as their environmental, economic, and social benefits .

Energy Poverty in EU-Directives

- **EPBD**, Preamble (20):

  "*…the existing and proposed measures listed by MS may include, in particular, measures that aim to **reduce existing legal and market barriers** …, thus **potentially contributing to reducing energy poverty**.*"

- **EED**, Preamble (52)

  "*…promote energy efficiency in all dwellings **to prevent energy poverty** and stimulate landlords letting dwellings to render their property as energy-efficient as possible*"

- **EED**, Article 7

  "*Within the EEOs Member States may: (a) include requirements with a social aim in the saving obligations they impose, …to be implemented as a **priority in households affected by energy poverty** or in social housing*"

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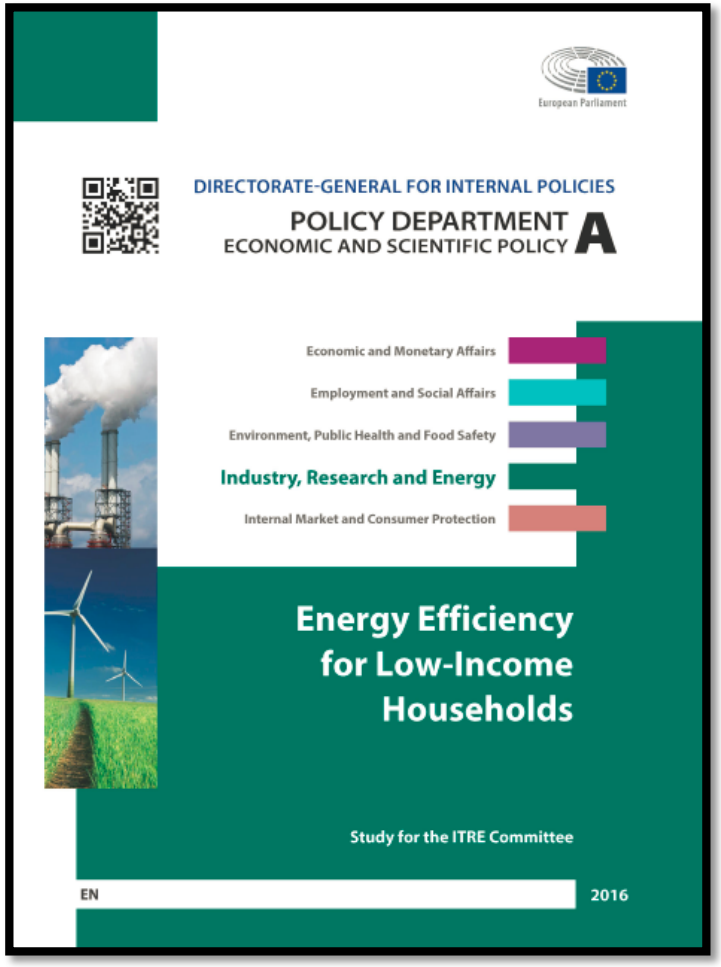
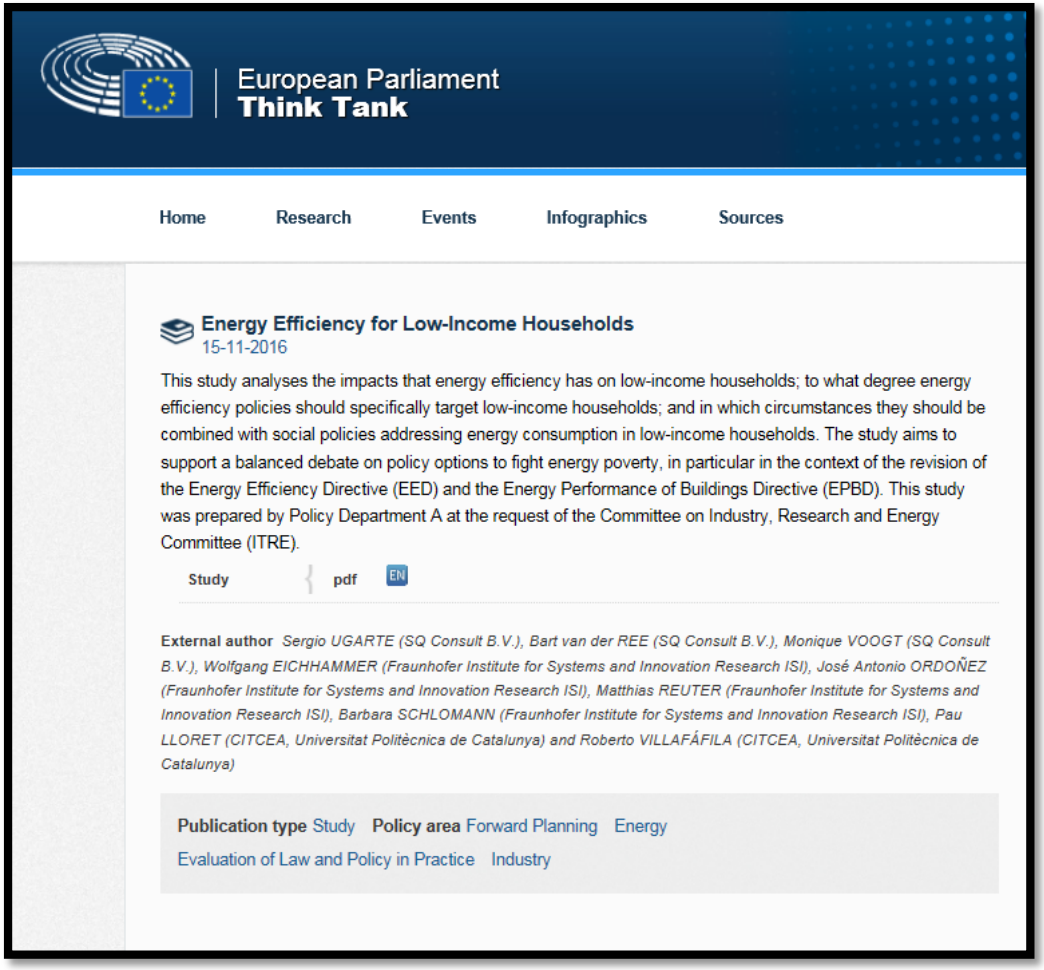
Context of the research (2/2)





Relevance of including LIH to EE policy (climate targets perspective)

1. **Residential buildings account for 75% of the European building stock**, from which more than 90% was built before 1990.
2. To reach an almost carbon neutral building stock in the EU by 2050 it is crucial to **include all residential buildings into these efforts.**
3. LIH represent about **17 % of households in the EU** (as defined by earning less than 60% of their respective national median equivalised disposable income).
4. …at the moment, **only few EE policies in Europe focus on or actively include low-income households (LIH)**

- *Social policies to alleviate the precarity of fuel poverty exist in nearly all Member States. Though these policies may be successful in alleviating fuel poverty, they can actually counteract the incentive for investing in EE.*

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Energy Poverty

- Energy Poverty is commonly depicted as being the combination of three factors:

1. Low Income
2. High Energy Bills
3. Low Efficiency of Devices

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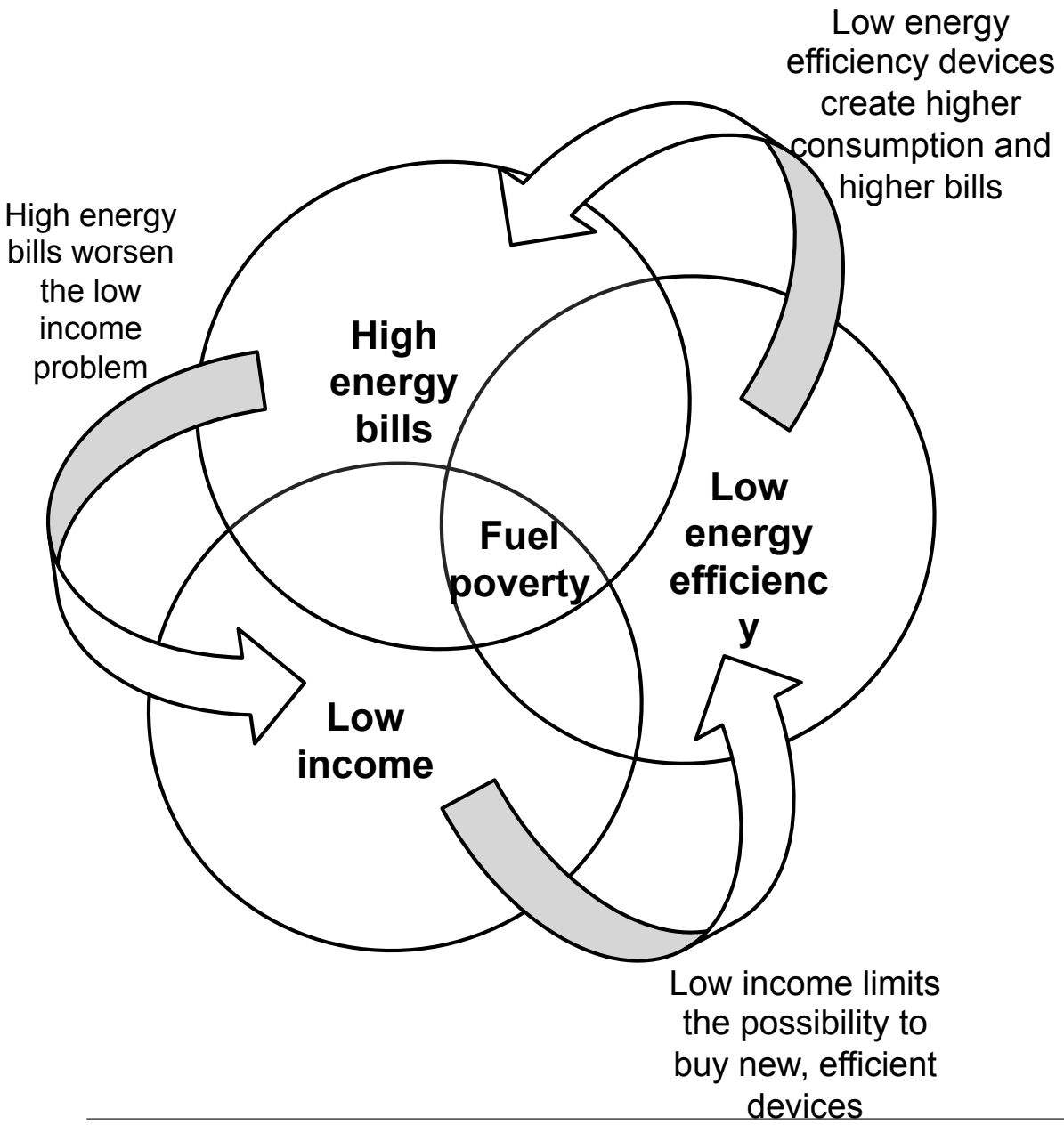

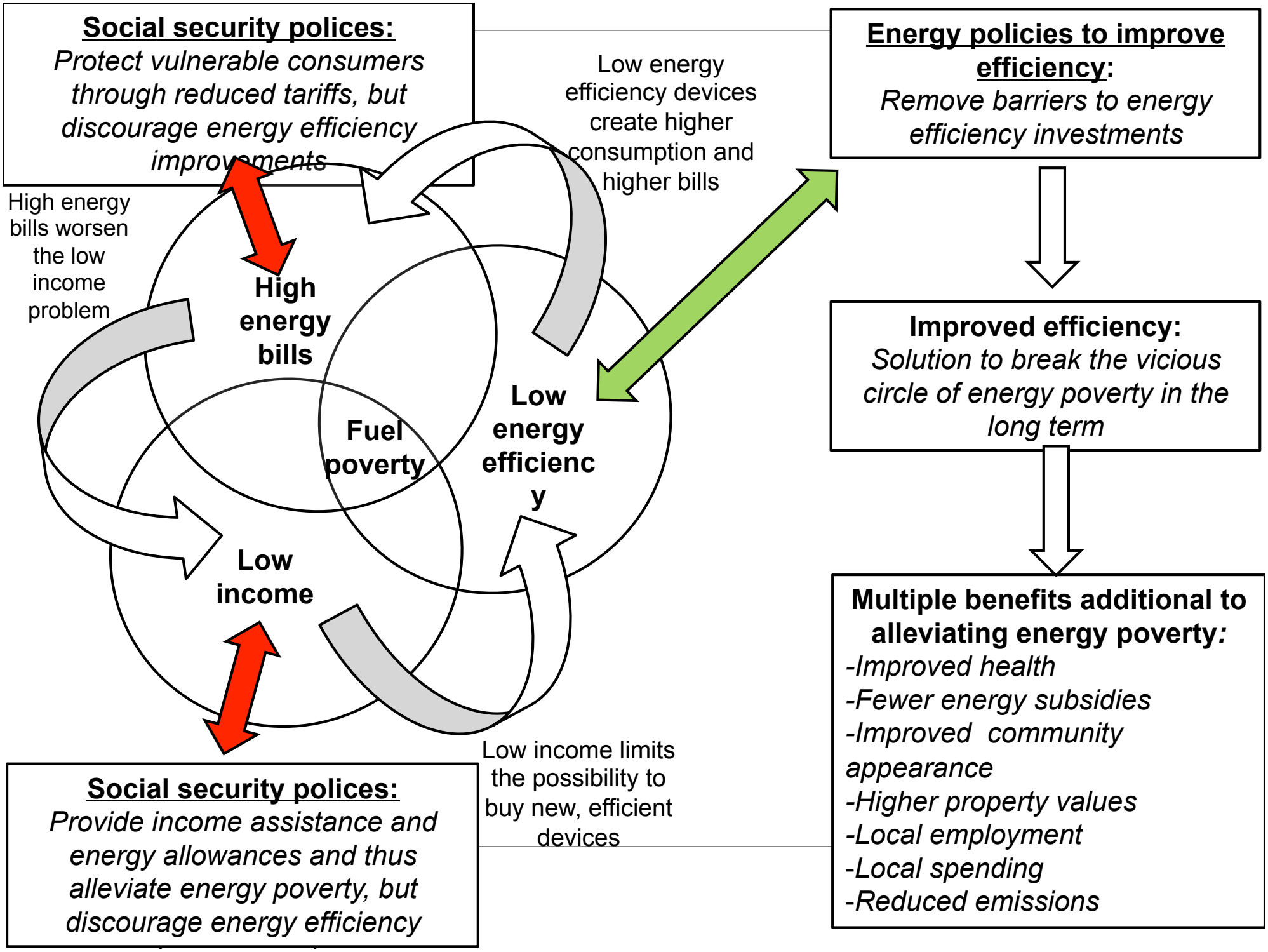
Social security polices:
Protect vulnerable consumers through reduced tariffs, but discourage energy efficiency improvements
Low energy efficiency devices create higher consumption and higher bills
Energy policies to improve efficiency:
Remove barriers to energy efficiency investments
High energy bills worsen the low income problem
High energy bills
Fuel poverty
Low energy efficienc y
Low income
Improved efficiency:
Solution to break the vicious circle of energy poverty in the long term
Multiple benefits additional to alleviating energy poverty:
-Improved health
-Fewer energy subsidies
-Improved community appearance
-Higher property values
-Local employment
-Local spending
-Reduced emissions
Low income limits the possibility to buy new, efficient devices
Social security polices:
Provide income assistance and energy allowances and thus alleviate energy poverty, but discourage energy efficiency

Barriers to the improvement of energy efficiency in the residential sector (1/3)

- **Defined** as inhibiting factors that explain the reluctance of persons, households, firms or other institutions to adopt cost-effective EE measures as derived from mainstream economics, organizational economics or organizational behavioural theories (Thollander 2010, IEA 2007, IEA 2012).
- The existence of barriers is the reason for the existence of the ***energy paradox on* or *energy gap*** between the cost-effective EE level as derived from technical and economic models and the level actually implemented by market participants
- Noted by Weber (1997), barriers and categories used in taxonomies **are not unambiguous, i.e. each barrier has institutional, economic, behavioural** and other components

Barriers to the improvement of energy efficiency in the residential sector (2/3)

Type	#	Barrier	Market failure	Relevance for LIH segment
Behavioural	1	**Lack of general awareness of benefits of EE measures**	**Yes**	**Yes**
	2	Preference for visible (or other) improvements of the dwelling		
	3	Behavioural inertia and bounded rationality	**Yes**	
	4	Comfort loss and dissatisfaction during refurbishment phase (noise, dirt, etc.)		
	5	Concerns on dispute with tenant/landlord (behavioural dimension of split-incentives problem)		
Information	6	**Lack of knowledge on energy consumption/ saving potential of the dwelling**	**Yes**	**Yes**
	7	Misperception on known consumption / lack of knowledge on saving potentials	**Yes**	**Yes**
	8	Lack of understanding between general maintenance costs (i.e. of boiler) and energetic improvements through new investments	**Yes**	**Yes**
	9	Lack of availability of general information related to energy consumption, energy saving potentials, economic and environmental benefits, etc.	Yes	
	10	Lack of availability of credible information	Yes	
	11	Lack of availability of understandable information (complexity of information, form of information)	**Yes**	**Yes**
	12	**Lack of availability of individual-specific information due to heterogeneity of individual benefits**	**Yes**	**Yes**
	13	Lack of availability of specific information on individual support programs providing loans/grants	**Yes**	**Yes**
	14	Lack of availability of information on consultancy and advisory services	**Yes**	**Yes**
Economic	15	**Lack of access to internal capital (i.e. lack of equity due to low savings or prioritisation of other investments)**		**Yes**
	16	Lack of access to external capital		**Yes**
	17	Split Incentives	**Yes**	**Yes**
	18	Subsidies to energy prices	**Yes**	**Yes**
	19	Risk aversion due to hidden costs (Decision-related costs, information-related costs, new technology adaptation costs, etc.)		
	20	Risk aversion due to long amortisation time		**Yes**
	21	Risk aversion due to uncertainty on own future economic situation		**Yes**
	22	Risk aversion due to overall economic situation		
	23	Risk aversion due to uncertainty on energy prices		
	24	Risk aversion due to general preference for equity over debt	**Yes**	**Yes**
	25	Risk aversion due to technological risk		
Administrative	26	Regulations to pass-through refurbishment costs to tenants		
	27	Complex owner structures in multifamily housing	**Yes**	

A subset of barriers is expected to be more inhibiting for LIH (3/3)

- **Behavioural, knowledge and informational barriers:** "*the education level is one of the most important individual factors for adults in reducing the risk of poverty and being able to secure acceptable living conditions for themselves and their families*". Eurostat (2013)
- **Economic barriers**:
  - LIH have by definition less savings and thus upfront costs of EE investments represent a fundamental obstacle.
  - LIH might have less access to capital as a result of lower creditworthiness, thereby facing lack of financing EE investments through loans.
  - LIH might have misaligned incentives generated by subsidies to energy prices.
- **Regulatory/ Administrative:** complex owner structures in multifamily housing, is of particular relevance in the low-income sector. In the European Union 46.8% of people earning less than 60% of the median equalised income live as tenants in apartment buildings.

Energy Efficiency Policies in the EU (ODYSSEE-MURE Categorization)

Financial instruments	Market based instruments	Informative/ Education instruments	Legislative instruments	Fiscal instruments
• Incentives for energy-efficient building renovations • Incentives for appliance replacement	• Energy efficiency obligations	• Audits • Information campaigns • Voluntary labelling of buildings/ components	• certificates for buildings/a • performance standards for buildings/a • Smart metering	• Income tax credits or reduction

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Energy Efficiency Policies in the EU for LIH

Policy topic by instrument used	EU-Member States implementing EE measures for households in general*	EU-Member States implementing EE measures for LIH**	Share of EU-countries implementing programs targeting LIH	* targeting LIH **targeting all households
Financial instruments				
Incentives for energy-efficient building renovations	**AT, BE, BG, HR, CZ, EE, FI, FR, DE, EL, HU, IE, IT, LV, LT, LU, MT, NL, NO, PL, RO, SK, SI, ES, SE, UK**	**BE, DE, FR, IE, LV, SI, UK**	23%	DE: CO_2-Gebäudesanierungsprogramm* DE: Energieeffizientes Bauen (KfW)* AT: Sanierungs-check* FR: Habiter Mieux** Scotland: Home energy efficiency programmes**
Investments in new buildings exceeding building regulations	**AT, BE, HR, CZ, FR, DE, IE, LV, LU, NL, NO, PL, SI, ES, SE, UK**	**none**	0%	FR : Prêt à taux zéro (PTZ)*
Incentives for appliance replacement		**AT, BE, DE, HU**	20%	HU: Replacement of Household Appliances programme** DE: Caritas Stromspar-Check**
Fiscal instruments				
Income tax credits or reduction	**BE, EE, FI, FR, IT, SE**	**EL, FR, IT**	9%	FR : Crédit d'Impôt Transition Energétique (CITE)* Eststonia: Eesti eluasemevaldkonna arengukava*
Legislative instruments				
Energy efficiency	**AT, BE, BG, HR, CY, CZ, EE, FI, FR, DE, EL, HU,**	**none**	0%	Spain: CER (Energy Performance Certificate for Buildings):

How do policies remove barriers? (1/2)

- **Financial instruments**: Policy measures within the financial instruments such as *incentives for EE building regulations* or *investments in new buildings exceeding building regulations* tackle the barrier *lack of access to external capital* by providing either loans or investment grants to promote energy-efficient construction.
- **Fiscal instruments:** Tax credits of are applied to the purchase price of energy efficient materials and equipment, usually excluding installation costs.
- **Legislative instruments: Labelling of appliances and EE certificates for Buildings:** Counteract the informative barrier *lack of knowledge on energy consumption*
- **Informative/Education instruments:** Information campaigns and information centres aim to raise awareness of market participants by informing about energy saving possibilities.

How do policies remove barriers (2/2)

Policy topics by instrument used	Barriers categories removed	Specific barrier´s removed
Financial instruments*		
Incentives promoting renewables	**Economic (1)**	• **Lack of access to external capital**
Incentives for energy-efficient building renovations	**Economic (1)**	• **Lack of access to external capital**
Investments in new buildings exceeding building regulations	**Economic (1)**	• **Lack of access to external capital**
Fiscal instruments*		
Income tax credits or reduction	**Economic (1)**	• **Lack of access to external capital**
Legislative instruments*		
Energy efficiency certificates for buildings	**Information (1)**	• **Lack of knowledge on energy consumption**
Energy performance standards for buildings	not applicable	*Forces high energy efficiency of buildings independently from market participant´s decisions.*
Energy performance standards for appliances	not applicable	*Forces high energy efficiency of appliances independently from market participant´s decisions.*
Energy labelling of household appliances	**Information (1)**	• **Lack of knowledge on energy consumption**
Smart metering and detailed energy billing	**Information (2)**	• **Lack of knowledge on energy consumption** • **Lack of availability of individual-specific information**

A good program / measure to increase EE in LIH should remove as many LIH-specific-barriers as possible.

Example of a very successful program: The German Caritas Stromspar-Check (2/2)

- During the pilot phase in 2009-2010, low-income-households were advised by a target audit and instructed how to save energy, but not assisted with finance or effective devices.

- This approach didn't work: low-income households were reluctant to invest even small amounts of money to improve their energy consumption.

- From a **barriers-to-energy-efficiency** perspective, it became visible that the informational barrier was indeed present, but removing this barrier through the audit was

→ not enough to trigger efficiency investments, due to behavioural inertia and lack of finance

Example of a very successful program: The German Caritas Stromspar-Check (2/2)

- The program was adapted and started not only to provide audits and behavioural training,
- But also providing **new, more efficient appliances**. Some days after the audit, new, subsidized highly-efficient devices are delivered and installed to the dwelling.
- On average, a household benefits with electricity savings of approx. 16% per year from appliance replacements with a market value of, on average 70 €. (long time monitoring ongoing)

Conclusions and Recommendations

1. **EU Climate Targets**: Long-term targets on energy savings in the European building sector require that all types of end-users are addressed, including vulnerable households among others. Active monitoring the achievements by end users can ensure that Member States achieve their targets among all types of end-users.

2. **Common Definition**: 'To support and incentivize design of EE policies that effectively address *vulnerable consumers*, a common definition of *vulnerable consumers* and *fuel poverty* at EU level is required. It is thus recommendable to delineate an EU-wide definition, but simultaneously accounting for the heterogeneity at European level by leaving the Member States the freedom to further adapt these definitions.

Conclusions and Recomendations

3. **Specific barriers:** In view of the subset of specific barriers to EE investments present in LIH (lack of capital, lack of information, etc.), policy measures should be customize to integrate measures that address specific barriers or monitoring requirements for these end-users.
4. **Strategy towards fuel poverty**: Fuel poverty can be reduced either through social policies or through EE policies. Only a limited amount of EU-countries have targeted EE policies towards LIH. EE policies to reduce fuel poverty should be considered instead of limiting the policy approach to social policies.
6. **Financing**: In view of the multiple benefits of EE, financing EE policies could partly stem from infrastructure funds from other sectors that positively benefit from the impacts of increased EE, as for example health or social welfare funds.

Thank you very much for your attention.

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Questions

- **Should Energy Poverty remain a domain of social policies or more strongly be considered in the directives?**

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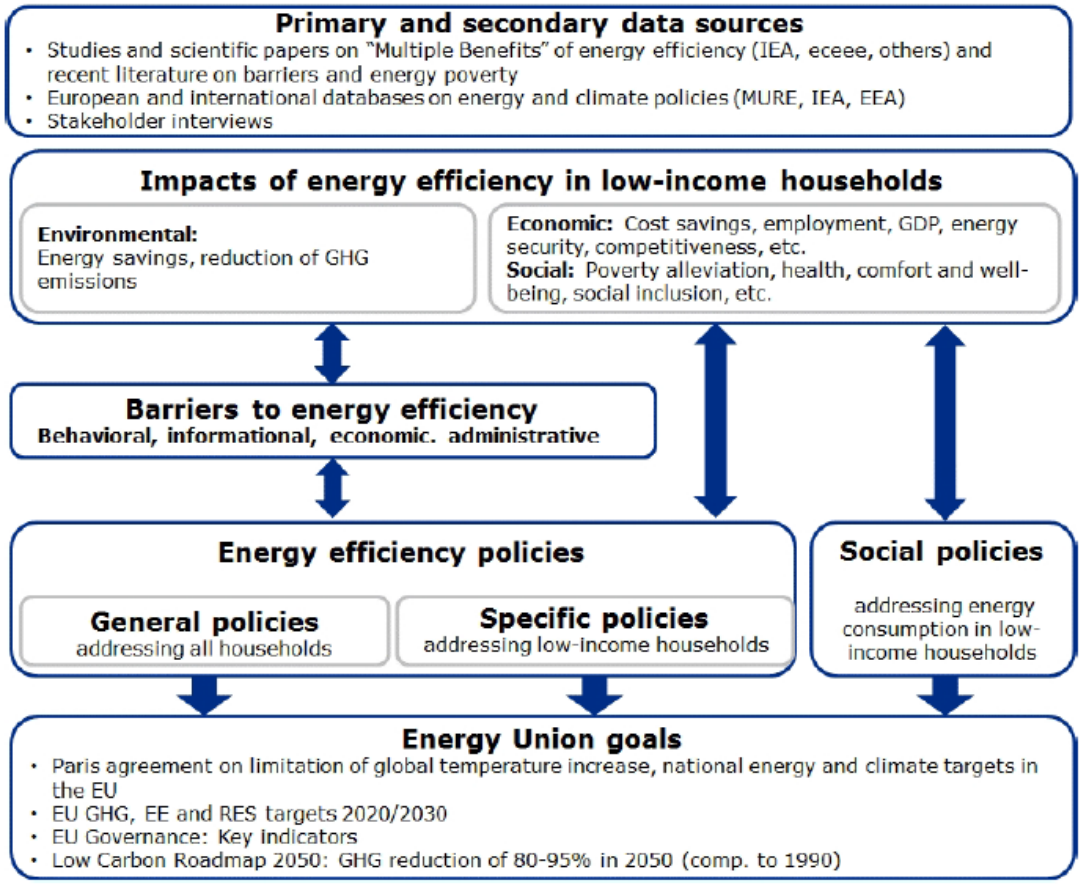
Barriers to the improvement of energy efficiency in the residential sector (2/3)

Studies (left) and proposed taxonomies (right)							
Brown and Hist (1990)	behavioural				structural		
Jaffe and Stavins (1994)			market failures	non-market failures			
Weber (1997)	behavioural	organizational	market based		institutional		
Sorell et. Al (2000)	behavioural	organizational	economic				
Brown (2001)			market failures	non-market failures			
Fraunhofer-ISE et al. (2012)	behavioural	informational	financial			legal/ administrative	technical
IEA 2012	priority	visibility	economic			fragmentation	capacity

Backup – Methodological Approach



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