



# Financing energy efficiency refurbishments in Bulgaria – modelling the best practice with a focus on Hungary

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# Energy Efficiency Financing Instruments – a comparative study

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# Background

- Keeping global average temperature growth below 2 °C requires a **7.6% reduction in GHG emissions every year** over the next decade (UN, 2015; UNDP, 2019)
- **Energy efficiency** plays a key role in combating climate change and can account for more than **40%** of the GHG emission reductions agreed in the Paris Climate Agreement (IEA, 2019; 2018)
- Current practices should be five times more ambitious to exploit the untapped potential of energy efficiency (UNEP 2019)
- In the **residential sector**, **30%** of GHG emissions could be avoided with net economic benefits (IPCC, 2007)

# Challenges of the residential housing sector

- The market is **fragmented**, with a lack of capital and an **inadequate institutional framework** for implementing energy efficiency investments (both financial and non-financial barriers, such as the lack of an ESCO model).
- The presence of **asymmetric information and moral hazard** among the end user and the financier is typical, which further increases the need for equity and the price of financing (interest).
- **Other benefits** related to energy efficiency (other than measuring energy savings and GHG emission reductions) **are rarely quantified**. In buildings these co-benefits can result in 19-43% energy cost savings (Ürge-Vorsatz et al., 2014; 2009).

# Research question and methodology

The research aims to provide workable **policy proposals for financing fragmented energy efficiency markets**, exploiting the many benefits of energy efficiency investments to achieve global climate targets.

Examine what is the **effective level and form of public involvement** in scaling energy efficiency investments.

- Analyse 12 case studies (6 from the CEE region) that supported energy efficiency investments between 1997 and 2020, mostly in the residential sector.
- Categorise the programs according to the application of the financing instruments used and their combination and the institutional framework through which the programs were delivered to the market.
- Finally, categorise success factors and plot the design matrix of energy efficiency financing programs.



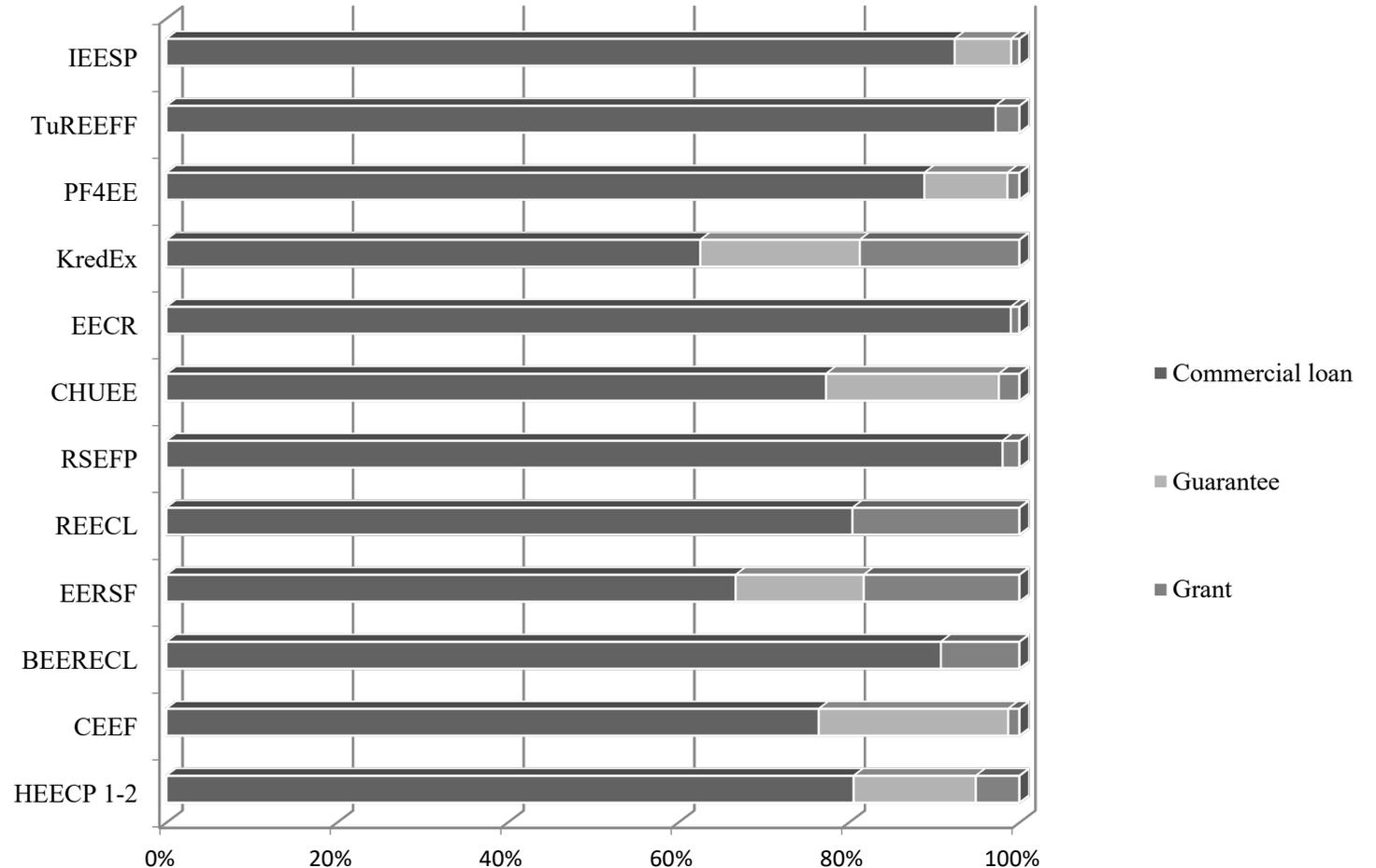
# Case studies

- Between 1997 and 2020, the 12 programs received app. \$ 24 billion in funding. It has made \$ 365 billion worth of energy efficiency investments, primarily in the residential and SME sectors, using nearly identical technologies.
- Overall common goal: to **reduce the risk of energy efficiency loans** for financial intermediaries (banks) while overcoming the financial constraints of energy efficiency projects. As well as the extension of the funding period. Demonstrating the financial profitability of energy efficiency investments.

# Financing instruments

Three main financial instruments were used: loans, credit risk-sharing instruments and grants.

- Commercial loans by commercial banks
- Risk sharing: first loss, pari passu, portfolio guarantees
- Grants: technical assistance, operational costs, energy audits



# Coordination and implementation

Where commercial banks heavily participate in financing, there is a low level of direct government involvement. Where funding is provided by the government or a governmental bank, the coordinating role of government is significant.

Categories	Involvement of commercial banks in coordination and implementation	Direct governmental involvement in coordination and implementation
IFI credit lines (f.e. from EBRD or EIB)	yes	no (no involvement)
IFC guarantee programmes (HEECP, CEEF etc.)	yes	no
Energy efficiency funds (KredEx, EESRF)	yes	yes + (moderate involvement)
Federal governmental development banks (KfW)	no	yes ++ (medium level involvement)
Governmental loans (in India)	no	yes +++ (strong involvement)

# Focal point in coordination and implementation

In cases where there is no direct involvement of government in coordination and implementation, the role of commercial banks is strong and the focal point is of a commercial (private) nature.

Categories	Involvement of commercial banks in coordination and implementation	Direct governmental involvement in coordination and implementation	Focal point
Credit lines offered by international finance institutions (f.e. from EBRD or EIB)	yes	no	International finance institution's advisory service and commercial banks
IFC guarantee programmes (HEECP, CEEF etc.)	yes	no	IFC programme office and commercial banks
Energy efficiency funds (KredEx, EESRF)	yes	yes +	Energy Efficiency Fund office and commercial banks
Federal governmental development banks (KfW)	no	yes ++	KfW federal development bank
Governmental loans (in India)	no	yes +++	National government and international finance institution's office/advisors

# Categorisation of success factors

- **I. category:** combined with loans, guarantees and grants, the focus is managed by commercial banks by supporting the program offices and advisory activities of international financial institutions.
- **II. category:** compared to I. category the single difference is that there is no guarantee element.
- **III. category:** loans are combined with either guarantees or grants and government involvement is moderate in focal point management and program coordination.
- **IV. category:** loans are combined with either guarantees or grants and government involvement in focal point management and program coordination is the highest level.

# Factors in energy efficiency finance

<b>Categories</b>	<b>Programme name</b>	<b>Combination of finance instruments</b> 1 element = loan 2 elements = loan+grant 3 elements = loan+guarantee+grant	<b>Focal point lead</b> 1= private 2= public-private 3= public	<b>Level of coordination</b> 1= no direct gov. involvement 2=yes+ 3=yes++ 4=yes+++	<b>Estimated total EE investment volume</b> in million USD
Category I.	HEECP1-2	3	1	1	90
	CEEF	3	1	1	298
	PF4EE	3	1	1	1022
	CHUEE	3	1	1	790
Category II.	RSEFP	2	1	1	289
	REECL	2	1	1	127
	TuREEFF	2	1	1	492
	BEERECL	2	1	1	306
Category III.	EERSF	3	2	2	43
	KredEx	3	2	2	325
Category IV.	IEESP	3	3	4	200
	EECR	2	3	3	361 400

# Key success factors

- At least two or possibly all elements, loans, guarantees and / or grants were included; and
- They had a focal point (private or public-private partnership) through which funds and grants reached the beneficiaries.

**The presence of all three financial instruments in a single program, combined with a single focal point, can correlate with the greater success of the program** (more energy efficiency projects have been implemented).

This is in line with recent research that a combination of a number of proven energy efficiency financing tools can deliver results in hard-to-reach markets.

# Planing matrix

- Two dimensions:
  - **Combining financial instruments**
    - Market based instruments – commercial loans
    - Financial subsidies – the loan is combined with guarantees and grants
  - **Level of coordination in implementation**
    - Market-level coordination where the allocation of resources is managed by commercial banks and international financial institutions
    - Where governments are moderately or heavily involved in the distribution of loans and grants

# Planing matrix

	level of combination of financial instruments		
	market based mechanism	financial subsidies	
g o v e r n m e n t	Category IV. from Table 4. Most rarely used model, investment volume is volatile.	Category III. from Table 4. Rarely used model, moderate volume of energy efficiency investment has been mobilized	l e v e l  o f
m a r k e t	Category II. from Table 4. Very commonly used model, high volume of energy efficiency investement mobilized	Category I. from Table 4. Most commonly used model, high volume of energy efficiency investement mobilized	c o o r d i n a t i o n

# Conclusions

**More energy efficiency projects are being implemented in programs where:**

- loans are **combined** with grants and guarantees
- offered on the market in a **one-stop shop**,
- with low and medium levels of state involvement

Programs that do not take into account **institutional constraints** in addition to various financial barriers can have undesirable results in terms of both the quantity and quality of projects implemented.

# Thank you for your attention

The study is available at:

<https://doi.org/10.33926/GP.2021.1.3>

<https://bankszovetseg.hu/gazdasag-es-penzugy-g-e-p.cshtml?lang=eng>

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# 25 years of energy efficiency in Hungary – from loans to savings

**Adrian Balaci**

# Early to mid 90s

- Regime change
- Publically owned housing-stock privatised – but the larger part was already privately owned
- Over 90% of all homes are owner occupied
- Maintenance and improvement cost debates and conflicts – who should pay for what?
- What about the common property area within a multi-residential building? Foundational walls, pipes, wires, elevator, yard, etc.
- If the common area can generate income for the community of owners and can cause loss or damage, etc. how should these benefits and costs be shared and distributed among the owners
- The role of the state in regulating economic activity – the building as an economic and legal entity
- The Law as a necessary third party
- If costs must be incurred what is the role of commercial banks – the failure of mortgages as a collateral in financing maintenance and refurbishment works
- The housing sector as a fragmented market -

# From 1997 to 2008

- Buildings recognised as economic and legal entities
- The large-scale development of Owner's Associations and Housing Associations
- Professional building management – linking necessary maintenance works to retrofit needs
- Portfolio based commercial financing developed for multi-residential buildings – defragmenting the market
- Partial state and municipal subsidies as catalysts
- Subsidising savings-accounts
- Subsidies as leverage – going from 2:1 to 1:20
- Mainstreaming – large scale implementation needs commercial banks/private equity

# 2005 to 2014

- Retrofit project managers as a One Stop Shop solution
- Bringing together the:
  - a) State
  - b) Local authority
  - c) Commercial bank
  - d) Building management company
  - e) Owner's Association or Housing Association
  - f) EE and RE technology provider
  - g) Construction company
  - h) Insurance provider
  - i) Energy auditor
  - j) Civil society

# 2005 to 2014

- Writing applications and proposals in the name of the Owners
- Applying for state and municipal subsidies
- Applying for loans
- Signing saving account deals
- Signing insurance policies
- Proposing the refurbishment plan to the General Assembly of Owners
- Subcontract technical consultants and auditors
- Supervise the project implementation and quality control

# 2014 and onwards

- What we've learned so far?
  - ✓ Financing the building as a whole and not individual owners can greatly increase the number of loans being issued to the housing sector while decreasing the potential default drastically – great growth potential
  - ✓ The state and municipality can both or independently intervene as facilitators by providing targeted subsidies meant to leverage private savings and commercial funds – subsidies are limited, they lack the volume needed to cover the entire or even a significant segment of the housing stock on their own
  - ✓ The Law must not fail to act as a neutral third party when it comes to defending the welfare and social security of the public – given that the management of the building as a whole and the common areas can not be achieved effectively by either the individual owner or a fragmented unregulated community of owners
  - ✓ The professional management of the building and the refurbishment project, meant to guarantee the quality of the work carried out and the good state of the building as a whole is a must
  - ✓ The environmental benefits and quality of life improvement post refurbishment can't be stressed enough when it comes to why we need such an effective One Stop Shop approach to this task

# Thank you for your attention

- Any questions?

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