D5.4: List of pilot projects

RenoHUb H2020 project

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PUBLIC

Project **RenoHUb**
"Integrated Services to Boost Energy Renovation in Hungarian Homes"
Grant Agreement no. 845652
LC-SC3-EE-2-2018-2019

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Document Factsheet

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Task Name	Selection of buildings for pilot energy planning and renovation mentoring projects
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Main Author	IMRO
Contributors	-
Reviewers	ENERGIAKLUB
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Table 1: Document Factsheet

Document History

Version	Date	Main modification	Entity
V1.0	21/04/2023	First draft	IMRO
V2.0	11/05/2023	Review and final version	Energiaklub

Table 2: Document History

TABLE OF CONTENT

PROJECT PARTNERS

AACM: AACM Central Europe Llc

ENERGIAKLUB: Energiaklub Climate Policy Institute and Applied Communications Association

IMRO: IMRO-DDKK Non-profit Ltd

MCSTE: Hungarian Family House Owner Organization

MEHI: Hungarian Institute for Energy Efficiency

1. Keszthely, Vaszary Kolos Str. 26

The house was built in 1987 with a central heating solution (originally heating oil, but this was later replaced by a gas boiler in 1998) and electric hot water supply per apartment.
The main facade of the building has an East-West orientation and consists of 56 apartments, typically 56-64 m2, with balconies.

1.1. Description of the process

The RenoPont office is waiting for help from the technical and social and financial aspects of the entire energy efficiency process.

1. contact recording - the office was contacted by the resident of the residential building and the condominium manager in March 2022
2. the housing association will make a decision on the preparation of the complete preparatory documentation on 05.2022.
3. professional contact - meeting a small community of residents at the site of the building - on 06/05/2022.
4. Preparation of surveys and engineering works, with the involvement of the residents, in addition to the technical issues resulting in energy savings, the preservation of the building's condition also had to be taken into account.

   a) inspection of facades and determination of the required thermal

insulation

i. engineering works: energy, architect, statics

b) examination of the roof and closing slab

c) examination of basement and garage slabs

d) examination of mechanical and electrical systems

e) inspection of boiler house and heating equipment (primer) and heat release for modernization

5. Handing over the supporter of the decision (renewal passport) to the joint representative - feedback
6. Informative residents' meeting presentation of decision preparation documentation 2023.02.
7. Order to request contractor offers and develop the financing method

The residential community is expected to make a decision on the content and start of construction in Q2 2023.

1.2. Based on the decision preparation, the proposed alternative

- Full insulation
- Boiler replacement, modernization and regulation of the heating system

1.3. Factors influencing the decision

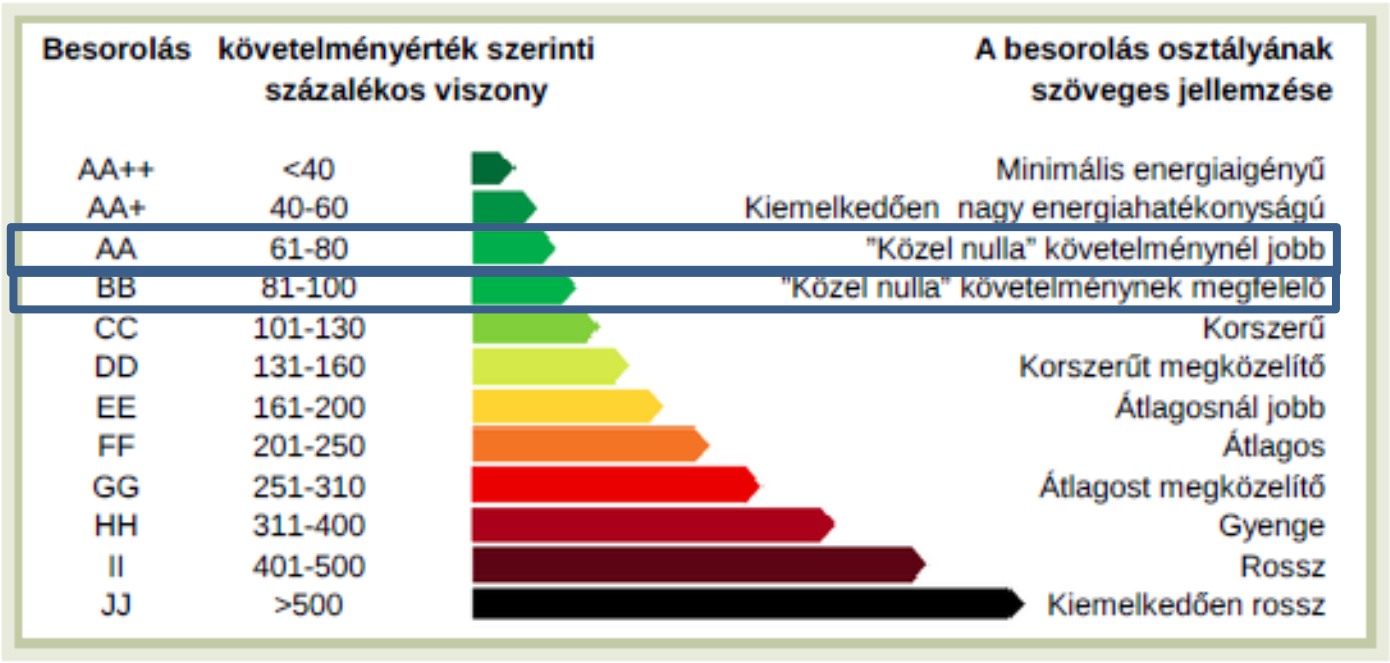
- Significant displacement of construction materials and labor costs 40-45%
- Significant increase in loan interest rates from 3% to 6-7%
- Inflation and negative changes in the exchange rate of the Forint
- Lack of tender resources

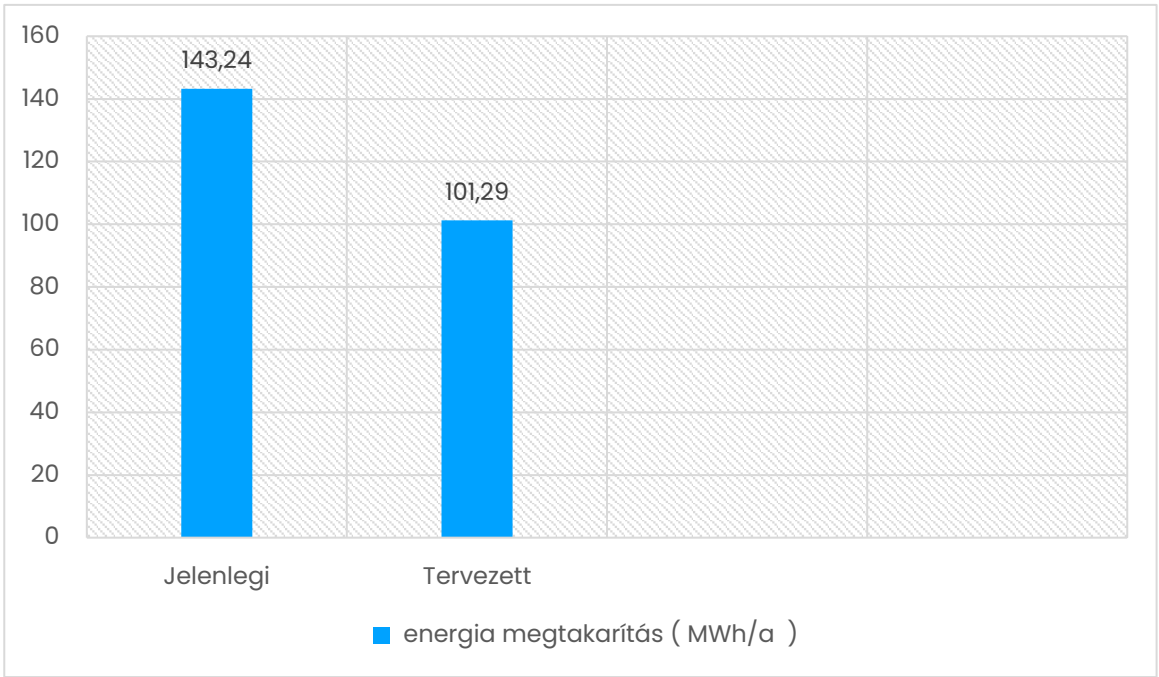
1.4. Results

In the field of energy efficiency

Based on the completed energy concept material, it is possible to replace the thermal insulation and individual windows, as well as the modernization of the heating system. amount of savings:

29.37 % (decrease from 143.23 kWh/m2a to 101.4 kWh/m2a)





1.5. Decision alternatives

Insulation and boiler replacement, heating modernization:

Total investment			217,221,987 HUF
Insulation - on the facade, with plinth and fire section boundary formation, modification of the attic and modification of existing lightning protection, widened replacement of window sills			**191,573,227 HUF**
Boiler replacement - modernization of the entire boiler house - installation of a Weishaupt or Bosch condensing boiler with gradual load programming, modernization of the circulation system, installation of an intelligent system			**20,240,633 HUF**
Investment ratio per apartment			*3,530,231 HUF*
Amount of additional funds requested: Credit: One-time payment:	**HUF 110,000,000** **89,813,590 HUF**		
	54m2 -	56m2 -	64m2 -
Amount of one-time payment for a sub-deposit	1,356,189 HUF	HUF 1,401,096	HUF 1,607,668
Repayment per sub-deposit 15-year loan monthly repayment	HUF 17,622	HUF 18,205	HUF 20,889

With thermal insulation:

Insulation - on the facade,	HUF 191,573,227		
Investment ratio per apartment	*HUF 3,192,887*		
Amount of additional funds requested: Credit: One-time payment:	HUF 110,000,000 HUF 69,573,227		
A need for self-reliance	54m^2	56m^2	64m^2
Amount of one-time payment for a sub-deposit	HUF 1,050,556	HUF 1,086,342	1,245,361 HUF
Repayment per sub-deposit 15-year loan monthly repayment	HUF 17,622	HUF 18,205	HUF 20,889

Boiler and heating modernization:

Boiler replacement - modernization of the entire boiler house - construction of a condensing boiler with gradual load programming, modernization of the circulation system, construction of an intelligent system	20,240,633 HUF		
Investment ratio per apartment	*HUF 337,344*		
Amount of additional funds requested: Credit: One-time payment if the housing association does not take out a loan	HUF 18,000,000 HUF 8,300,000		
A need for self-reliance	54m^2	56m^2	64m^2
Amount of one-time payment for a sub-deposit (then no credit)	HUF 125,330	HUF 129,480	HUF 148,570
Repayment per sub-deposit 12 years loan monthly repayment	3240 HUF	HUF 3346	HUF 3,840

In addition to its own savings, the apartment building can finance itself on the basis of ad hoc payments and by taking out a loan, depending on the version.
The full version, which includes thermal insulation and boiler replacements and related ancillary works, is charged by the one-time payment per apartment per apartment and the loan repayment included in the common cost.

In the case of apartments, the smallest burden is the energy efficiency intervention associated with the replacement of the boiler, in which case the apartment building can solve the modernization without taking out a loan or with a minimal loan.

In February 2023 a general meeting, the residents of the apartment building decided to examine the possibilities of the residential community with more precise data based on the technical content in the study, based on the contractor's offers.
A general meeting decision on the content of the energy efficiency investment and its schedule is expected in May - June 2023.

2. Keszthely Vásár square 10

The apartment building is a 65-apartment, 10-story district-heated apartment building made with tunnel formwork technology.
The RenoHUb office is waiting for help from the technical and social and financial

aspects of the entire energy efficiency process.

1. contact recording - the office was contacted by the caretaker and condominium manager of the residential building in November 2021.
2. professional contact - meeting a small community of residents at the site of the building - on February 13, 2022.
3. informing the residents at the official residents' meeting about the RenoHUb office's obligation to plan the possible energy-saving technical content, making a decision on the preparation of decision-preparatory documentation (preparation of a renovation passport) 05. 2022.
4. Preparation of surveys and engineering works, with the involvement of the residents, in addition to the technical issues resulting in energy savings, the preservation of the building's condition also had to be taken into account.

    a) inspection of facades and determination of the required thermal insulation
        i. engineering works: energy, architect, statics
    b) examination of the roof and closing slab
    c) examination of basement and garage slabs
    d) examination of mechanical and electrical systems
    e) engineering examination of the issue of mobility-restricted approach
5. the decision supporter (renovation passport) to the joint representative - feedback

Information and the establishment of possible priorities among the resident community are expected in Q.1 2023 within the framework of a general meeting.

2.1 Based on the decision preparation the proposed alternative is:

- Full insulation
- Replacement of down-rising lines and water pipes
- Modernization and regulation of heating controllers
- Creation of a ramp with limited mobility

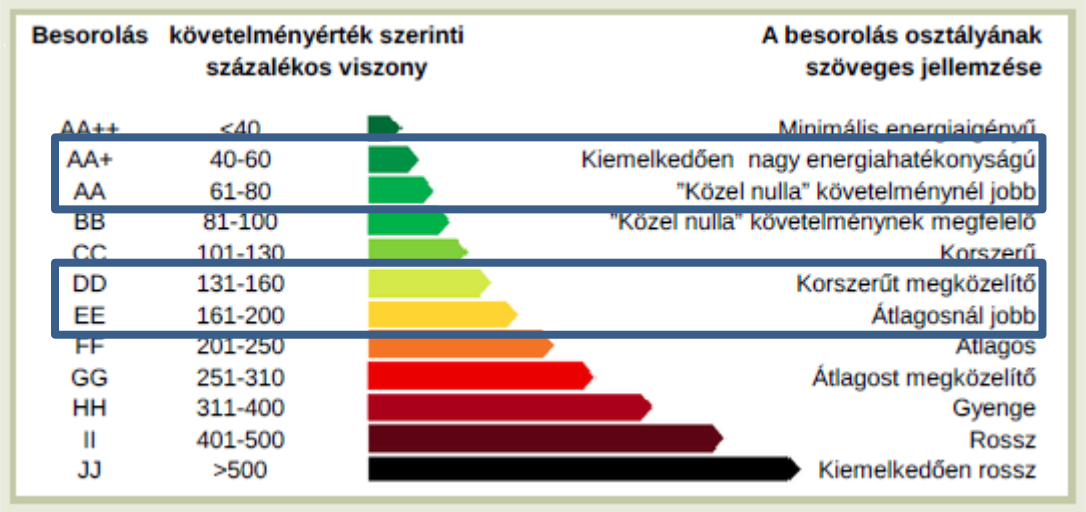
2.2 Factors influencing the decision

- Significant displacement of construction materials and labor costs 40-45%
- Significant increase in loan interest rates from 3% to 6-7%
- Inflation and negative changes in the exchange rate of the Forint
- Lack of tender resources

2.3 Results

In the field of energy efficiency

Based on the completed energy concept material, it can be achieved with thermal insulation and replacement of individual doors and windows, central heating control and the installation of a solar system.



Amount of savings based on the technical content compiled for the housing association:

49.97 % (decrease from 220.9 kWh/m2a to 110.4 kWh/m2a)

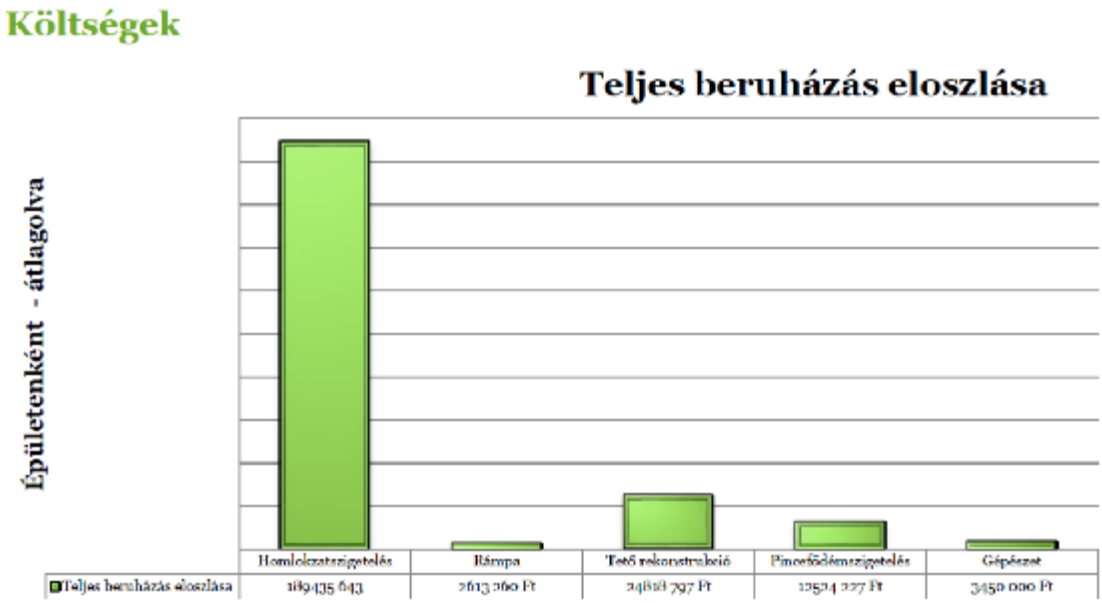


Figure 4 Distribution of investment in the renovation of 10 apartment buildings on Vásár tér

Insulation only:

Full investment without windows	189,435,643 HUF		
Cost per apartment	(43 sqm)	(51 sqm)	(58 sqm)
	HUF 2,121,679	HUF 2481607	2841535 HUF
The need for self-reliance is in a condominium			HUF 19,000,000

Insulation and ramp:

Total investment	HUF 192,049,005		
	43 sqm	51 sqm	58 sqm
Cost per apartment	HUF 2,121,679	HUF 2,481,607	HUF 2,841,535
Need for self-reliance	HUF 19,000,000		

A one-time self-payment per apartment is required	HUF 549,149	HUF 694,943	HUF 795,736
Increase in common costs per apartment	HUF 13,440/month	HUF 15720/month	HUF 18,000/month

Ramp only:

Total investment	3,613,362 HUF		
Cost per apartment	HUF 40,470	HUF 47,335	HUF 54,200
Need for self-reliance			currently not required

In addition to its own savings, the apartment building can finance itself on the basis of ad hoc payments and by taking out a loan, depending on the version.
The full version, which includes thermal insulation and related ancillary works, is charged by the one-time payment per apartment per apartment and the repayment of the loan included in the common cost.
In the case of an energy efficiency investment, there is no alternative for the apartment building to solve it without significant one-off payments and an increase in common costs.

The May-June 2023 general meeting, the residents of the apartment building decided that, based on the technical content of the study, additional costs and maintenance costs will be examined, such as the renovation of the roof and the replacement and modernization of sewage lines.

Scheduled based on the tests received

After the evaluation of the contractor's offers, a general meeting decision on the content of the energy efficiency investment and its schedule is expected in May - June 2023.

3. Budapest Sómlói Str. 35.

The apartment building is a brick building with a smaller number of apartments (9 apartments) built in 1969 using traditional technology.
The composition of the residential community is mainly older, but with the purchase of apartments in the last 2-3 years, 3-4 younger residents with families have moved into the house.

The building:

1. contact recording - the office was visited informally by a member of the audit committee,
2. professional contact - meeting a small community of residents at the building site
3. review of documentation provided by residents
4. the official residents' meeting, informing the residents about the RenoHUb office's obligation to plan the possible energy saving technical content, making a decision on the preparation of decision-preparatory documentation (preparation of a renovation passport)

3.1 Decisions

Among the resident community, they have to make decisions on several issues, therefore the substantive decision on the preparation of the documentation was made in March 2023.

Based on the energy surveys, residents will receive information about possible energy efficiency interventions by the end of May 2023.

4.Summary of the results of the pilot projects

List of buildings started or completed or partially completed based on the RenoPont offices during the project period:

	Tervezési adatok				Társasházi leírás		Energetikai besorolás		Energetikai felújítás költsége (ezer Ft)			Energia megtakarítás (kWh/év)			CO2 kibocsátás csökkenése (t CO2 ek/év)		
	Sorszám	Irányítószám	Település	Cím	Lakások száma	Épületek száma	Felújítás előtt	Felújítás után	Előzetes becslés	Tervezett	Tényleges	Előzetes becslés	Tervezett	Tényleges	Előzetes becslés	Tervezett	Tényleges
		1124	Budapest	Zsombolyi Mpccő	9	2	GB (HH)	CC (BB)	25000	28900		150000	150000		25	28	
		8700	Marcali	Miksolth Kálmán u. 8	26	4	HH	CC (BB)	43000	45000	44860	155000	158500		40	41,4	
		8800	Nagykanizsa	Zrínyi tér 11	56	10	GB (HH)	CC (BB)	98000	104000	109789	300000	342000		65	71	
		8360	Keszthely	Vásár tér 10	55	10	CC (BB)	CC (BB)	115000	135000	189000	155000	166480		69	72	
21.Q4.		8360	Keszthely	Vasvary Kolos u. 28	90	4	GB (HH)	CC (BB)	87000	98000	198700	330000	337800		50	64,5	
	Összesen								367000	411700	567373	1070000	1152780	0	239	286,9	0
		8800	Nagykanizsa	Városkapu tér 2	64	4	FF	CC	66480	68900	73500						
		8360	Keszthely	Fodor u. 40	42	4	GG	CC	28240	47000							
		8360	Keszthely	Szent Miklós u. 16	40	4	GG	CC	32500	51000							
		8360	Keszthely	Vásár tér 2	58	4	FF	BB	48360	58000							
22.Q4.		1016	Budapest	Szentlélek u. 35	9	3	GG	CC	35000								
	Összesen								210440	224900	73500	0	0	0	0	0	0
		1126	Budapest	Böszörményi u. 30-32	66	3	GG	BB	125000								
		1126	Budapest	Böszörményi u. 30-32	65	3	GG	BB	123000								
		1126	Budapest	Böszörményi u. 30-32	48	3	GG	BB	111850								
23.Q2.		1035	Budapest	Tímár u. 15	36	3	GG	CC	72000	102000		150000	150000		41	38	
	Összesen								545000	102000	0	150000	150000	0	41	38	0
					316	213	429		867000	209580	676580						

In addition to the pilot buildings, based on the inquiries received in the offices, in the apartment buildings where mentoring was requested, the economic environment and the limitations caused by the pandemic significantly slowed down decision-making in the past 2 years.

5.Single-family houses

Since MCSTE did not provide data on completed renovations, we cannot report on single-family houses at this time.