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REPORT

# TARGETING ENERGY EFFICIENCY RENOVATION TO IMPROVE HOUSING CONDITIONS OF THE MOST VULNERABLE

Avoiding social risks and ensuring the benefits

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FEANTSA

European Federation of National Organisations Working with the Homeless

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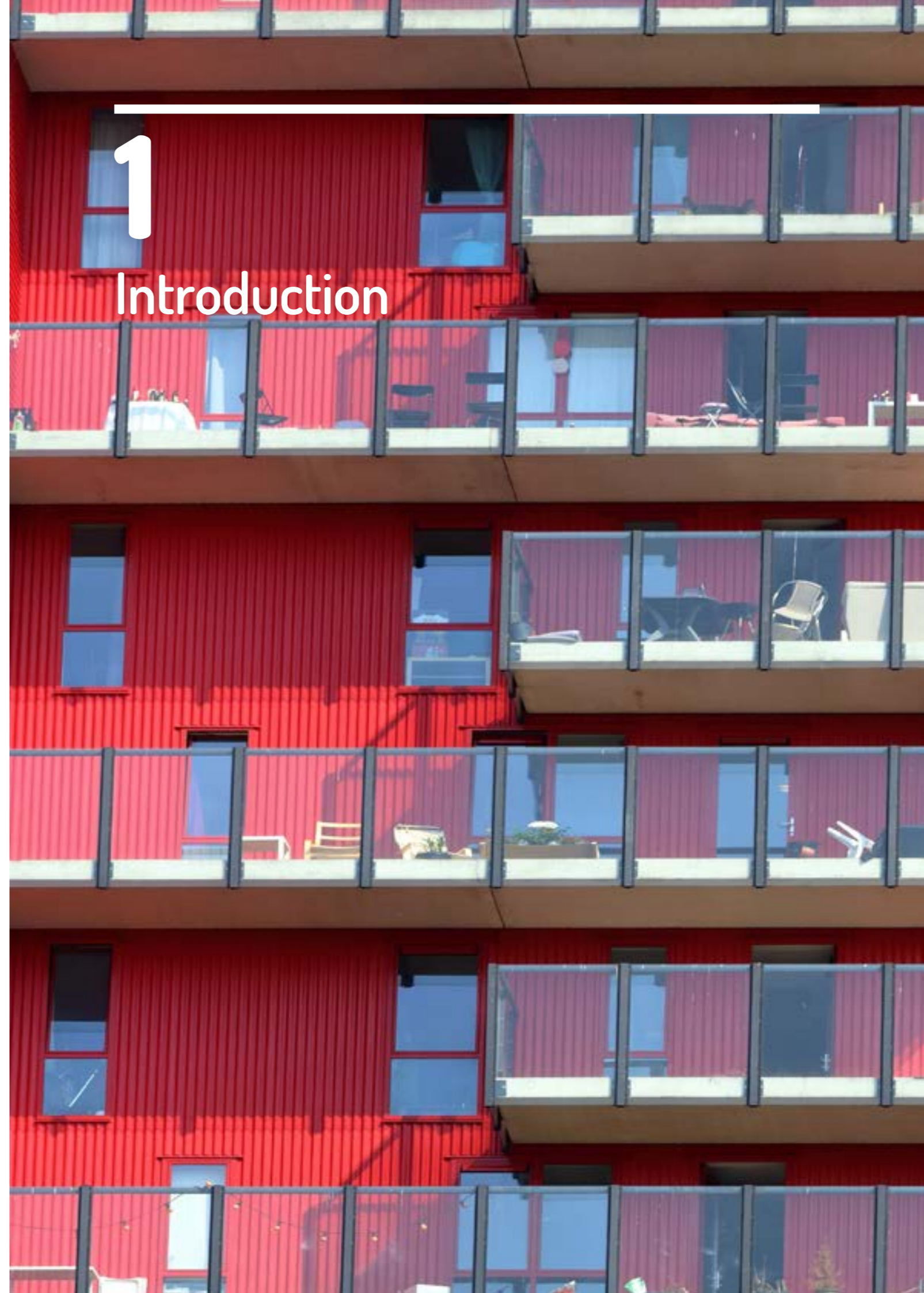
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## INTRODUCTION

Evidence points out that most vulnerable households face major challenges in the renovation of their homes. Lowest-income families live in most energy-inefficient homes, according to research by the Vlaams Steunpunt Wonen. This means that the cost of reaching renovation energy efficiency standards ends to be highest for those with the least. The Social-Economic Council of Flanders concludes in its report on Flemish climate policy that lowest-income groups therefore 'deserve priority' targeting in renovation, because of this strong link between the socio-economic profile of residents and the quality of the houses and apartments in which they live in.<sup>1</sup>

Low-interest rate loans, one stop shops, specific renovation schemes, are some of the common programs targeted towards most vulnerable groups such as low-income households, to support them in the energy transition. But the reality is that energy poverty still affects about 50 million households in the EU, some of them living in completely inadequate housing conditions, with 4.3 % of the EU-27 population experiencing severe housing deprivation in 2018.<sup>2</sup> Existing mechanisms often fail to reach those most in needs. These policies are often inadequate due to lack of ambition and lack of resources allocated. These instruments are particularly ineffective at targeting and impacting poorest households.<sup>3</sup>

While buildings account for 36% of the energy-related GHG emissions in the EU, the energy transition the European Union has committed to is both a challenge and an opportunity to address inadequate housing. The European Commission seems to have grasped the essential role of housing for living up to its Green ambitions but has so far missed out on delivering the decisive instruments to support lowest-income groups.

While many (NGOs, trade unions, academics) have expressed strong concerns about the social costs of the energy transition, Frans Timmermans, the European Commission's executive vice-president for the European Green Deal, insists that the EU's "commitment is that no-one will be left behind."

This report aims to highlight examples of successful targeted energy efficiency renovation towards vulnerable and lowest income groups. Its objective is to demonstrate how the Just Transition Mechanism and Renovation Wave should be targeted to become decisive instruments of the energy transition, ensuring the transition towards a climate-neutral economy will be a fair one. To do so, the Just Transition Fund should have been clearly targeted, not exclusively towards training and employment opportunities but also towards the eradication of extreme forms of poverty through investment in adequate housing for low-income and vulnerable groups.

Most projects highlighted in this report can appear to be small scale compared to the extend of the challenge. The idea for FEANTSA is to highlight the importance of small, tailor made, grass roots projects that are often the most adapted to reach out to energy poor. If policies and funding are to reach out to the most vulnerable, it will require direct funding and support deliberately targeting them, empowering actors at local level.

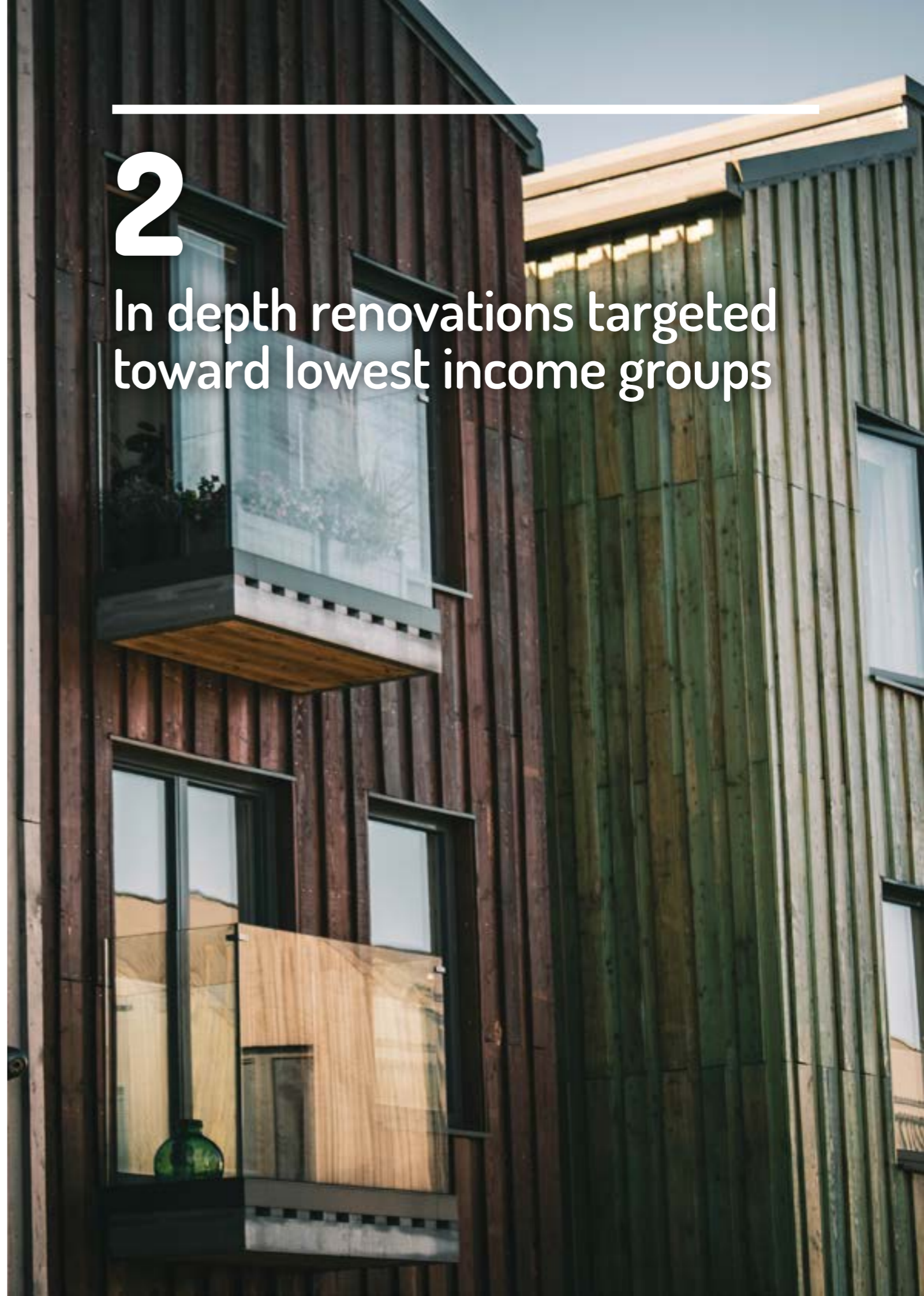
1 'De warmte glipt hier door gaten en kieren naar buiten', February 9, 2021, [https://www.standaard.be/cnt/dmf20210208\\_98071645?utm\\_source=standaard&utm\\_medium=social&utm\\_campaign=send-to-a-friend](https://www.standaard.be/cnt/dmf20210208_98071645?utm_source=standaard&utm_medium=social&utm_campaign=send-to-a-friend)

2 Eurostat, Housing statistics, consulted on 10/02/2021 [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Housing\\_statistics&oldid=497245](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Housing_statistics&oldid=497245)

3 Energy poverty: what foundations for a green and social pact for Europe? Overview of the European and national tools for combating energy poverty, FEANTSA & Fondation Abbé Pierre thematic report, [https://docs.wixstatic.com/ugd/bcd9b3\\_cc7b5a6969bb4573badef485726ea30a.pdf](https://docs.wixstatic.com/ugd/bcd9b3_cc7b5a6969bb4573badef485726ea30a.pdf)

# 2

## In depth renovations targeted toward lowest income groups



## TOITS D'ABORD : INTEGRATED ENERGY EFFICIENCY AND FIGHT AGAINST POVERTY (FRANCE)

# Direct subsidies to the families: around 7,900 € per household

# Duration: 2012- ongoing

# Households reached: 600 per year

Fondation Abbé Pierre is a non-profit organization in France that supports disadvantaged people to have access to decent housing. The Toits d'Abord programme was set up to support the renovation of homes owned by local non-profit associations, to provide affordable and energy efficient housing for lower income households. The energy targets for renovated homes are energy rating class A, B or C for buildings previously classed, before renovation, E, F, and G, respectively. The project's goal is to reduce tenants' energy bills to an acceptable level through the improvement of living conditions. The programme also supports the construction of new homes, and these must be an A or B rating.

The key idea is to guarantee that after payment of all housing-related bills, tenants will have at least €300 per month and per 'consumption unit' to live on. A consumption unit is an OECD scale used to compare the living standards of households of different sizes or compositions, generally based on the following scale: 1 UC for the first adult in the household; 0.5 UC for other people 14 years of age or older; 0.3 UC for children under 14 years of age. Around 600 homes have been funded to be built or renovated through this programme every year since 2012, and 900-1,200 people taken out of poor housing and energy poverty. 90% of the households housed after construction or rehabilitation have resources below the poverty line (1,015 euros/consumption unit/month), 50% live below the high poverty line (672/UC/month). Children make up half of the people living in housing supported by the Roof First program. The programme is funded by the energy supplier EDF and the Île-de-France

administrative region. It is an example of how energy renovations and minimum energy efficiency standards can be effectively integrated into a programme that supports lower income households out of poverty, by using the basic needs of the households as the basis for the levels of subsidy needed.

## GHENT KNAPT OP: "MONEY ALONE CANNOT SOLVE THE PROBLEM" (BELGIUM)

# Conditional grant to households of 30.000€

# Duration: since 2019

# Households reached: so far 100

Ghent Knapt Op is a program by the city of Ghent in Belgium, together with several NGOs and two universities. The idea is to target inhabitants of Ghent who meet the eligibility criteria and will receive a renovation budget of 30,000 euros from the city. The key here is that households benefit from a grant, with no co-funding requirement, but will have to pay back the grant when they sell the house. The success of the project is that it also goes beyond the financial support because 'money alone cannot solve the problem'. The Gent Knapt Op therefore also provides advice and guidance to organize the renovation, through the identification of contractors to support in the application for renovation permits. This support aspect seems to be particularly important to vulnerable groups who cannot afford to make mistakes with the limited resources they have.

For the time being, the project foresees the renovation of 100 houses in socially deprived neighbourhoods. After the end of the project period an operational recurring fund to tackle the bad housing conditions of residents in Ghent is planned. Hence, the project aims to include not only a limited target group, as it makes use of a recurring fund. This way, 'the public finance should possibly be used over and over to benefit as many households as possible.'<sup>4</sup>

4 <https://www.uia-initiative.eu/en/uia-cities/ghent-call3>

## 'EMERGENCY PURCHASE FUND': SUPPORT TO 'EMERGENCY BUYERS' (BELGIUM)

# Interest free loan of 25.000€

# Duration: Since 2012

# Households reached: so far 308 households

A program from the Flemish government was set up in 2020 to enable low-income households to access specific financial support to renovate a home they have bought. The idea here is to support households who have bought a cheap home on the private market, with low-energy performance standards, because they felt they did not have a choice due to the lack of affordable rental housing units available. These low-priced homes bought offer generally very poor energy efficiency and the renovation is out of reach for low-income groups, due to the high costs involved. The "Emergency Purchase Fund" supports the 'emergency buyers' through an interest-free loan of 25,000 euros from the OCMW ("Public center for social welfare"), so they can renovate their home for energy efficiency. The loan must be repaid if the owner sells the property or moves out. So far, 308 homes in 24 municipalities have been renovated thanks to this fund. The initial budget of 7.7 million euros will be increased by 20 million euros this year and next.

## LES TOITS DE L'ESPOIR, LINKING ADEQUATE HOUSING AND ACCESS TO EMPLOYMENT (FRANCE)

# Duration: Since 1996

5 <http://www.lestoitsdelespoir.fr/rubriques/qui-sommes-nous>

6 <http://www.lestoitsdelespoir.fr/rubriques/qui-sommes-nous>

7 <https://www.fondationbs.org/fr/archives/archives-solidarite/les-toits-de-lespoir>

8 <http://www.lestoitsdelespoir.fr/rubriques/renovation>

# Public and private grants for the renovation

# Households reached: 200 homes per year<sup>5</sup>

Les toits de l'Espoir (Roofs of Hope) renovates old, often vacant dwellings, to rehouse families with modest incomes. These unhealthy dwellings are owned by private or public landlords who cannot afford to pay the costs of renovation.

The project was launched by Emmaus and the Relais, the idea being to enable people experiencing exclusion access both housing and sustainable jobs, through open-ended contracts.<sup>6</sup> The company Les Toits de l'Espoir was set up to provide adequate housing for employees of the Relais, helping them to get out of inadequate housing after having helped them to find a job. This project was extended and became a response to the lack of housing for families in difficulty.

The association relies on a network of building companies. The project is financed both through public funds and private investors. Owners benefit from a share of the financial assistance provided by the National Agency for Housing Improvement (ANAH) and the local municipalities network. To benefit from this funding, the owner commits to transform his property into affordable "social" housing for a period of nine to fifteen years.<sup>7</sup> This way, the landlord sees his property upgraded at low cost, while the tenant has a decent dwelling with a rent cap.<sup>8</sup> Each year, 150 homes are renovated and made available to families in difficulty.

## CARBON CO-OP, A CO-OPERATIVE TO HELP PEOPLE TRANSFORM THEIR HOUSE (UK)

# Community building for energy saving

### # Access to finance

### # Personalized support for housing retrofit

Carbon co-op is a Greater Manchester energy co-operative. Members of this community support each other and receive specialist advice on housing retrofit. The first step of joining enables members to benefit from an in-depth house retrofit assessment that will identify where most energy is being lost, what improvements would have the biggest effect and what do you do first.

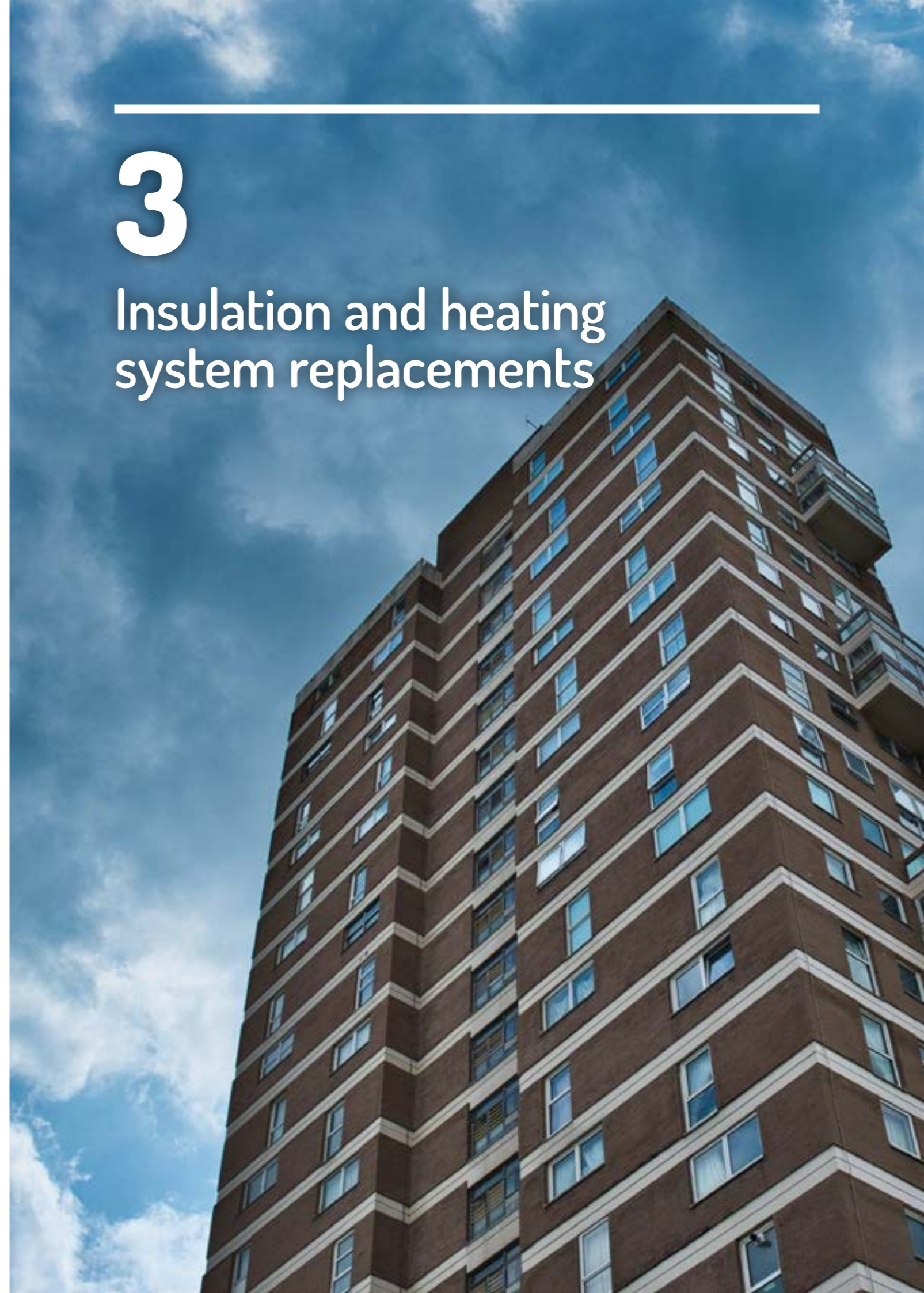
Members also can tap on a variety of services like 'Ask the Expert' seminars, factsheets, events, support in identifying and managing contractors, networking.

The network also provides support on access to finances, pointing towards mortgage providers that offer reduced rates, but also local authority programs, low interest home improvement loans, etc.

One of the key of the project is its 'whole house' approach, a holistic view of the entire property, implementing packages of improvements to provide a more efficient energy saving program. An observation by the authors of the study was that while it is often claimed that renovations are to be cost neutral for residents, taking into account savings in energy costs together with increase in rents, in practice this is rarely actually monitored.

# 3

## Insulation and heating system replacements



## RÉSEAU ECO-HABITAT – FRANCE- PICARDIE: WIN-WIN THROUGH LOCAL NETWORK (FRANCE)

# Support to access private and public funding  
for energy retrofit

# Duration: from 2014- ongoing

# Households reached: 110 families (2014 to  
2018)

The project's initial aim was to boost local businesses while helping vulnerable households to renovate their homes for better energy efficiency. The project supported low-income households to renovate their homes. The first stage identifies low-income energy poor households. Secondly, the network provided a free energy audit of the house and renovation needs. Then, it accompanied the households during all stages of the renovation project: identification of technical solutions and contractors, but also financing solutions.<sup>9</sup> The association is based on a network of local SMEs, volunteers, workers, financiers, advisors and other stakeholders. The project's key is that it provides households with precise knowledge of public and private financial mechanisms available to carry out the work. The materials and techniques used for the renovation work are environmentally friendly.

Between 2014 and 2018, 200 families have been identified according to the criteria of the ANAH (the National Agency of Habitat) and 110 have been supported in their renovation work.<sup>10</sup> The work mainly concerns insulation (roof, perimeter walls, floor), ventilation and heating.<sup>11</sup> Most of the families who benefited from the project saw their heating bills halved one year later. In addition, 100% of the respondents suffering from chronic illnesses linked to the lack of heating or the appearance of mould in the dwelling

9 <http://www.reseau-ecohabitat.fr/notre-association/>

10 <https://onpe.org/sites/default/files/02-fiche-action-reseau-eco-habitat.pdf>

11 <http://www.reseau-ecohabitat.fr/travaux-logement-pour-economiser/>

12 <https://onpe.org/sites/default/files/02-fiche-action-reseau-eco-habitat.pdf>

saw an improvement in their heating bills.<sup>12</sup>

The allocated budget represents 350,000 euros per year. The main funders are the Hauts-de-France region, the ADEME (French Environment and Energy Management Agency) and corporate foundations.

## SILESIA VOIVODESHIP: TARGETED HEATING SOURCE REPLACEMENT (POLAND)

# Grants of 3,6 million€ and loans of 0,5  
million€ in total

# Duration: ongoing

# Households reached: 100 single-family  
houses

The city of Gliwice has earmarked over PLN 16 million (an equivalent of around € 3.6 million) for the replacement of existing heating systems. Through the PONE pilot project, the city has developed a model of financial support for the replacement of heat sources and thermal upgrading of buildings. The allocated budget has amounted to around PLN 2.3 million (€ 0.5 million) – loans granted by some regional institutions in Poland. The costs eligible for coverage within the project could be up to 80% of the total investment costs for the heating system replacement.

In the city of Gliwice, existing heating systems are replaced, and the thermal insulation of municipal buildings is upgraded. Over 5'000 heating sources are said to be replaced in municipal flats. The rest, i.e. 3'200 heating sources are units within the city co-owned buildings, which means any modernisation has to be done as a joint effort with housing associations and, potentially, upon participation of private owners.

The funds were not distributed to the residents directly: the actual recipients were programme operators tasked by the city with current management and financial settlements. The payment scheme was split between the residents (20% of the total value of works; advance payments) and the city (the remaining 80% of the costs covered by the grant; paid upon the conclusion of works).

Beneficiaries of the pilot project have been over 100 residents of single-family houses, of which more than 10 were also subjects of thermal upgrading.<sup>13</sup>

Although the project funds are relatively substantial, the scale of the project is still mismatched with even greater needs. The Institute for Structural Research (IBS) estimates the total number of heat sources on solid energy within the Silesian Voivodeship set to be either decommissioned or replaced is at 470'000 for single-family buildings.<sup>14</sup>

## SKAWINA LABORATORY, MUNICIPAL TARGETING OF HEAT SOURCES REPLACEMENT FOR LOWEST INCOME GROUPS (POLAND)

# Targeted energy retrofit for lowest income  
households

# Duration: since 2018

# Households reached: 20

A government-run 'Skawina Laboratory' To be eligible, applicants must be owner-occupying,

(Polish: 'Laboratorium Skawina') was set up in 2018. The town of Skawina is running pilot projects of in-depth thermal upgrading and a boiler replacement programme for people facing personal or financial difficulties.

The first project consisted in choosing 20 out of 1000 houses to undergo in-depth thermal upgrading. The selection procedure gave priority to (i) the elderly, (ii) people with disabilities, (iii) large or extended families, (iv) people entitled to social assistance. The objective is to curb energy poverty, while beneficiaries are groups at risk of energy poverty for reasons other than mere energy costs.<sup>15</sup>

# Grants in co-financing of overall  
2,45 million€

# Duration: 2019- 2022

# Households reached: 300 single- family  
houses

The second program called "STOP-SMOG", is a central government scheme for heat sources replacement. The STOP Smog program is dedicated to lowest income groups, including pensioners, single parents, large families, etc. The projects plans to benefit to 300 single-family buildings between 2019 and 2022. The value of the co-financing is over 11 million PLN (equivalent of around €2,45 million) The investments are carried out by contractors selected through public procurement procedures and supervised directly by the Municipality of Skawina.<sup>16</sup>

13 P. Stępiński, P. Rapacka, Termomodernizacja budynków wielorodzinnych. Raport, <http://jagiellonski.pl/files/other/1537442237.pdf> (retrieved: August 2020), <https://niskoemisjnye.gliwice.eu/start2.php?s=49> (retrieved: August 2020), <https://gliwice.eu/aktualnosci/miasto/pone-szansa-na-czyste-powietrze> (retrieved: August 2020), <https://gliwice.eu/aktualnosci/miasto/wspolnie-dbajmy-o-czyste-powietrze-0> (retrieved: August 2020).

14 Wsparcie działań dotyczących ochrony powietrza i ograniczania ubóstwa energetycznego w ramach Regionalnego Programu Operacyjnego Województwa Śląskiego [Support for air protection and energy poverty mitigation actions within the Regional Operational Programme of the Silesian Voivodeship] [https://www.ewaluacja.gov.pl/media/83730/Wsparcie\\_UbostwoEnerglaskie.pdf](https://www.ewaluacja.gov.pl/media/83730/Wsparcie_UbostwoEnerglaskie.pdf) (retrieved: August 2020).

15 Ibidem.

16 <https://www.infoskawina.pl/stop-smog-zapewnione-finansowanie-dla-300-budynkow-w-gminie-skawina/>

be on a low income and have a maximum own funds and asset, including the property value, of about 94 000 euros. The building must use an old heating source (low-efficiency). A total number of 1000 heating sources have already been changed.<sup>17</sup>

## THE BETTER ENERGY WARMER HOMES SCHEME: UPGRADING THE ENERGY EFFICIENCY OF PRIVATELY-OWNED HOMES EXPERIENCING ENERGY POVERTY (IRELAND)

# Grants

# Duration: since 2000

# Households reached: more than 100 000 households

The Better Energy Warmer Homes Scheme is a publicly funded program that supports upgrading the energy efficiency of privately-owned homes experiencing energy poverty. It is operated by the Sustainable Energy Authority of Ireland (SEAI).

The Better Energy Warmer Homes Scheme initially provided funding for a variety of renovations such as attic insulation, draught-proofing, cavity wall insulation and energy advice. The scheme has been broadened since 1 June 2018, and now covers new energy efficiency measures such as external or internal wall insulation, central heating, and replacement windows. This scheme is available for owner occupied housing, built and occupied before 2006.

From 2000 to 2013 over €82 million were distributed through the scheme and more than 95,000 homes were supported. In 2019, 3,077 upgrades were carried out (it was 5,237 in 2018). Programme recipients are said to have showed significant improvements in physical and mental health.

Other schemes are available for homeowners that are not in the lowest income classes. The “Better Energy Homes”, for instance, is a national retrofitting programme that is available to all homeowners, including landlords. This program also provides grants for retrofit to incentivise homeowners to make their homes more energy efficient. In 2019 grants were paid on to 18,218 homes (and 14,301 homes in 2018).

<sup>17</sup> [https://www.gminaskawina.pl/index.php?option=18&action=articles\\_show&art\\_id=601&menu\\_id=803&page=50](https://www.gminaskawina.pl/index.php?option=18&action=articles_show&art_id=601&menu_id=803&page=50)

# 4

## Neighbourhood & multi appartement building renovation programs





## WARSAWA (MASOVIAN VOIVODESHIP): THERMAL UPGRADING OF A MULTIFAMILY BUILDING

# Grants and loans for the thermal upgrading

# Households reached: Multifamily building with 11 floors

# Operational costs down by 13% in 10 years

The Masovian Voivodeship project is the thermal upgrading of a multifamily building launched in 1969, with 11 floors and a total useful floor area reaching beyond 4'362 m<sup>2</sup>, a specimen of the pre-cast concrete-based technology.

This thermal upgrading project consisted in: (i) an extra insulation of the external walls and the ceiling with an additional insulation material, (ii) a partial replacement of the window frames, with the replacement of basement windows and external doors, (iii) a modernisation of the central heating system.

As a result, the consumption of final energy decreased by 38,8%, while the operating costs went down by about 13%.<sup>18</sup> The renovation costs were partly covered through with interest rates from heat costs savings. After 10 years of the credit repayment, the users' heating costs should drop by 13%. However, the thermal upgrading did not seem to completely fit the tangible needs of people living in energy poverty. The assumption was for the program to work, the economic equilibrium would be reached within a 15-year return. The referenced study ('Strategy for the upgrading of buildings: a 2050 roadmap')<sup>19</sup> outlines contemporary difficulties, mechanisms, as well as novel

ideas on how to foster financially a deep-going thermal upgrading of both single- and multi-family houses, something that could boost the achievement of emissions' reduction objectives within the housing stock.

## REELIH EASTERN EUROPE AND WESTERN BALKANS: FACILITATING THE ECO-SYSTEM OF RESIDENTIAL ENERGY EFFICIENCY

# Expertise and support on energy efficiency to low-income residents

# Duration: since 2012

# 3800 individuals reached

Habitat for Humanity and USAID see energy poverty in Eastern Europe and Central Asia as the housing issue that affects most people in the region. It is therefore essential to address the issue directly, engaging with communities and helping them to develop their own solutions to poverty housing problems. Starting from 2012, the United States Agency for International Development (USAID), and Habitat for Humanity have set up residential energy efficiency projects in Armenia, Bosnia and Herzegovina and Macedonia.<sup>20</sup> The aim is to support homeowners in multi-apartment blocks to collectively manage their buildings for improved energy efficiency and to alleviate energy poverty.

In many countries in Central and Eastern Europe multi-apartment buildings were privatised in the 1990s and the ownership was transferred from the state to residents. There were no prior

18 A detailed account in: Instytut Ekonomii Środowiska [Institute of Environmental Economics], KAPE, Narodowa Agencja Poszanowania Energii [National Energy Conservation Agency], BPIE, Strategia modernizacji budynków: mapa drogowa 2050, <http://renowacja2050.pl/files/raport.pdf> (retrieved: August 2020).

19 <http://www.renowacja2050.pl/files/raport.pdf>

20 <https://www.habitat.org/emea/stories/rely-reelih>

communal maintenance arrangements and therefore common areas in buildings, like roofs, stairs and facades slowly deteriorated.<sup>21</sup> These buildings are generally energy inefficient and need good maintenance.<sup>22</sup> Through the project the resident-led groups can access technical expertise through the project so they can make their buildings more energy efficient. As a result, residents spend less on energy and benefit from improved air quality, energy efficiency and the overall comfort of living. Habitat for Humanity carries out work in each of those countries to develop financial models so the improvements can be funded. One of the ways that this is achieved is through mediation carried out between residents, the public sector, and the private sector. This has helped increase the funding available for this type of work and has made it much easier for people from different backgrounds and institutions to work together to achieve improvements for the wider community.

As a result of the work of Habitat for Humanity and USAID, more than 3800 individuals now live in more comfortable and efficient housing across the three countries. Retrofitting has cut energy bills for low-income homeowners by up to 50%, helping to reduce poverty and tackle rising energy costs. The project has led several local governments to provide subsidies for energy efficiency interventions. In Armenia, the municipality of Yerevan has provided a 40% subsidy for all energy efficiency interventions through the REELIH project.

## THE BROOMHILL ESTATE: BRINGING TOGETHER THE COMMUNITY (SCOTLAND)

# Renovation program of more than 22 Million€

# Duration: 2014- 2015

21 Ibidem.

22 [https://www.feantsa.org/public/user/Resources/reports/Renovation\\_Wave\\_final\\_report.pdf](https://www.feantsa.org/public/user/Resources/reports/Renovation_Wave_final_report.pdf), p. 14

23 [https://www.riverclydehomes.org.uk/uploaded/river-clyde-web/passthrough/broomhill\\_report\\_stirling\\_university.pdf](https://www.riverclydehomes.org.uk/uploaded/river-clyde-web/passthrough/broomhill_report_stirling_university.pdf), page 13

24 [https://www.riverclydehomes.org.uk/uploaded/river-clyde-web/passthrough/broomhill\\_report\\_stirling\\_university.pdf](https://www.riverclydehomes.org.uk/uploaded/river-clyde-web/passthrough/broomhill_report_stirling_university.pdf)

# Households reached: 343 households<sup>23</sup>

The Broomhill Estate is a housing estate owned by a non-profit housing association, River Clyde Homes, in the Inverclyde district West of Glasgow in Scotland. A regeneration of the estate was carried out in 2014-15. The buildings had deteriorated, there were high rates of vacancy, indicating that people did not want to live there. Following initial consultations, the programme of more than £20 Million (around € 22 Million) of regeneration improvements was carried out, bringing the stock up to Scottish Housing Quality Standard (SHQS) and meeting the Scottish Energy Efficiency Standard for Social Housing, including a biomass district heating system.

A key of the program was the establishment of a governance group to bring together key partners such as the Housing Association, Local Authority, and Tenants and Residents Association. This group established community regeneration goals and steered the regeneration project. During renovations tenants were moved to alternative accommodation. This project was evaluated in an independent study by the University of Stirling, commissioned by River Clyde Homes in 2018-19.<sup>24</sup>

This study reported that the housing improvement works have transformed the neighbourhood, and significantly enhanced quality of living for the residents. The health and wellbeing of the residents, for instance, improved due to thermal insulation and heating upgrades. Housing improvement works included extensive internal and external upgrading of properties and common areas.

As the estate had empty properties before the renovations, the housing association proactively marketed for new tenants, adopting what they describe as a 'sensitive lettings plan', to ensure that people wanting to move within the neighbourhood had the chance to do so, to put in place extra support for those that needed it, but also to

encourage a wider pool of tenants to move there. One of the high-rise blocks was designated for retirement accommodation, with the addition of a community space and a guest room. Employment opportunities were integrated into the refurbishment process with 79 local people employed and 22 training places delivered by the contractors.

## BUCHAREST DISTRICT 1 CITY HALL: REDUCING CO2 EMISSIONS BY 20%, INCREASING RENEWABLE ENERGY BY 20% (ROMANIA)

# Renovation project funded by the city of  
€400 Million

# Duration: before 2018- still ongoing

# Households reached: 1030 residential  
buildings until the beginning of 2020

The city of Bucharest has a serious problem of energy inefficiency, in particular due to the age of its buildings. This issue contributed to an increase in energy bills but also high carbon dioxide emissions in the city. District 1 town hall has decided to take matters into its own hands with a €400 million thermal "rehabilitation" programme for buildings and flats. This vast renovation project aims to improve the energy efficiency of buildings in the city of Bucharest. The aim is twofold: reducing CO2 emissions and the energy bill.

More specifically, the City Council is setting itself the challenge of reducing CO2 emissions by 20% while increasing the use of renewable energy by 20%. After rehabilitation, the town hall claims that tenants save more than 30% of their maintenance costs.

Renovations can involve thermal insulation of the

outside walls, replacement of windows in outside doors, thermal sealing of roofs or terraces, etc.

At the beginning of 2020, more than 1030 residential buildings have been renovated. The town hall has announced a new list of 54 blocks for which thermal rehabilitation work will be carried out from May 2020.<sup>25</sup>

The City Council has approved an appropriate strategy for the inhabitants of single-family houses.<sup>26</sup> The City has launched a pilot phase to determine how to set and achieve energy performance indicators, and to develop standard solutions that could be implemented on a large scale.

The program is a public investment project funded by the City Council (€400 million).<sup>27</sup> Depending on the type of flat, rehabilitation costs owners between 1,000 and 3,000 euros. This amount is very low due to the high investment of the City Council (400 million euros). The costs are huge and only based on public funding, thus it is not easily transferable everywhere.

## SANTA COLOMA DE GRAMENET: RENOVATING THE NEIGHBOURHOODS (SPAIN)

# Mainly public subsidies from the City Council

# Duration: since 2013

# Households reached: 360 houses

Santa Coloma de Gramenet is a city in the province of Barcelona with a high population density and many poorly structured neighbourhoods. The economic crisis has placed these neighbourhoods in a situation of social and economic difficulties; this is notably illustrated by old buildings with low energy efficiency.

25 <https://www.primariasector1.ro/download/Lista%20de%20suit%20pe%20site.PDF>

26 <https://tackleenergypoverty.ashoka.org/en/story/energy-%E2%80%98rehab%E2%80%99-bucharest%E2%80%99s-buildings-slashes-energy-bills-and-co2-emissions>

27 <https://tackleenergypoverty.ashoka.org/en/story/energy-%E2%80%98rehab%E2%80%99-bucharest%E2%80%99s-buildings-slashes-energy-bills-and-co2-emissions>

In 2013, the City Council launched a renovation project called *Renovem els Barris* ("Renovating the Neighbourhoods"). This project targeted buildings built before the 1980s, which had maintenance and conservation problems. This project was carried out through a collaboration between the public and private sector, represented respectively by the City Council and the communities of owners and residents.

The City Council contracted the costs of the renovation work and transferred them to the owners through various fractional payment formulas, based on their income. It has also offered the possibility to link the debt to the building, thus avoiding upfront costs to the most vulnerable household.<sup>28</sup>

The aim was to rehabilitate buildings in poor condition through public leadership of the whole process. The City Council therefore took charge of the entire renovation project, to relieve the residents by improving their living and health conditions. In addition, the project also aimed to modernise the neighbourhood by improving the urban landscape.<sup>29</sup>

The result are 360 renovated and an estimated 30% reduction in energy consumption after the renovation of the buildings. The project is mainly based on high public subsidies and was funded by the City Council (1,2 billion €).

<https://www.gramenet.cat/ajuntament/arees-municipals/renovem-els-barris/>

28 <https://www.ecoserveis.net/wp-content/uploads/2019/02/Atlas-of-energy-poverty-initiatives-in-Europe.pdf>

29 [https://www.gramenet.cat/fileadmin/Image\\_Archive/Ajuntament/milllorembarri/Pirineus/bbp.cat\\_ficha\\_santa\\_coloma\\_renovem\\_els\\_barris.pdf](https://www.gramenet.cat/fileadmin/Image_Archive/Ajuntament/milllorembarri/Pirineus/bbp.cat_ficha_santa_coloma_renovem_els_barris.pdf)

## CROMCASTLE COURT IN DUBLIN: ENERGY SERVICE PROVIDERS ENGAGEMENT (IRELAND)

# Public funding of the replacement of an  
energy-efficient air-to-water heating  
system and two heat pumps

# Duration: renovation done in 2015

# Households reached: 128 apartments

Cromcastle Court in Dublin, is a housing estate of 8 blocks including 128 apartments, owned by the City Council and rented for a social purpose. It was renovated in 2015. Prior to renovation, heating and hot water were provided by a group heating system (gas boilers in a boiler room in each block), with no individual unit controls. This was replaced with heat pumps, remotely controlled by the Council. Windows were replaced with double glazed units. The heating system was provided under an Energy Services Contract for 7.5 years, with an energy service company installing, financing, operating and maintaining the equipment for an agreed period of time. The energy service company pays the energy bills, in exchange for payments based on the buildings historic energy use. Predicted cost savings to the Council were over 80,000 euros per annum. While the information about outcomes of this project is limited, it is of particular interest as the first managed energy services contract for a Local Authority in Ireland. Early feedback from residents was positive, with increased comfort and satisfaction levels reported.

<http://www.codema.ie/>

# 5

## Financial Instruments

### THE KREDEX FUND, ESTONIA: A REVOLVING FUND TO IMPROVE THE ENERGY PERFORMANCE OF MULTI- FAMILY APARTMENT BUILDING OWNERS AND HOUSING ASSOCIATIONS.

# Loans and grants

# Duration: since 2001

# Households reached: 103,000<sup>1</sup>

In Estonia, the national housing policy is linked to the energy-climate plan and includes the specific goal of creating a stock of high-quality residential buildings that are energy efficient and sustainable. To achieve this, the government is using the 'KredEX Fund', a government owned non-profit provider of financial services established in 2001 by the Estonian Ministry of Economic Affairs and Communications to provide financial solutions.

The KredEx Fund encourages apartment building owners to reduce energy consumption and increase the energy efficiency of their housing by at least 20% and to use renewable energy. It does so by providing access to preferential loans and grants subject to certain conditions for apartment building renovation to multi-family apartment building owners and housing associations. It also administers grants in the energy efficiency and housing sector on behalf of the Estonian national and local authorities. One of the measures was providing grants for changing boilers, with € 1.7 million being allocated to update the boiler in 586 homes between 2014 and 2018. Financial aid for purchasing, building, and renovating that is available to large families on low incomes is another key

measure of the plan.

The state covers 90-100% of the costs for renovation projects.<sup>2</sup> Financial aid can be allocated to a family in two stages. The maximum grant amount is € 8,000 for the first application, then € 5,000 for the second.

Between 2008 and 2019, KredEx financed 3,685 applications amounting to €32.8 million.<sup>3</sup> In addition to public national funds, the fund was financed by the European Regional Development Fund (ERDF) and the Council of Europe Development Bank (CEB).

### KREDITANSTALT FÜR WIEDERAUFBAU (KfW), GERMANY: ENERGY- EFFICIENT HOUSING THROUGH THE “ENERGY- EFFICIENT CONSTRUCTION AND REFURBISHMENT” PROGRAMME

# Public targeting of low-interest loans for renovation programs accessible to all through commercial banks

# State guarantee and public subsidies

In Germany, KfW is a public bank that enjoys a German state guarantee as well as public subsidies that enable it to carry out its mission for public good, including financing improvements in the energy performance of buildings.<sup>4</sup> In practice, the loans are accessible to all (companies, municipalities, social housing, private individuals) through commercial banks that distribute the KfW's financial products. It is these banks that act as interme-

1 <https://www.kredex.ee/en>

2 <https://www.kredex.ee/en/services/elamistingimuste-parandamiseks/home-support-families-many-children-57> KredEx Annual Report 2018

3 <https://kredex.ee/sites/default/files/2020-05/Sihtasutus%20KredEx%202019%20aastaruanne.pdf>

4 [Financing issues in energy transition: The German case \[in French\]. Rudinger 2013 http://www.levarne.fr/wp-content/uploads/2013/11/Instruments-financement-dans-la-transition-allemande\\_Fév.-2013\\_AR.pdf](http://www.levarne.fr/wp-content/uploads/2013/11/Instruments-financement-dans-la-transition-allemande_Fév.-2013_AR.pdf)

diaries and evaluate the feasibility of the projects and their performance. To be eligible, the projects must bring about a level of energy efficiency that is almost equivalent to a new build.

In 2020, the improved terms of the promotional programmes for energy-efficient construction and refurbishment (“EBS” programmes), launched by the climate cabinet, had an impact on the demand for energy-efficient renovation. This includes installation of new windows, insulating individual sections of buildings or complete refurbishment.<sup>5</sup> Indeed, over 26,500 applications were submitted in the first quarter alone of 2020.<sup>6</sup>

In the first three months of 2020, KfW have promoted around 110,000 energy-efficient housing through its programme “Energy-efficient Construction and Refurbishment”.

In 2017, KfW has put forward an example of energy renovation that combines the protection of a historical building and the construction of new energy-efficient and barrier-free homes.<sup>7</sup> This was achieved notably through an including protective insulation technology, the historic bricks on the interior side were equipped with an insulation layer made of mortar and a further brick wall.<sup>8</sup> This project was made possible thanks to loan and grant from KfW.

## NEW GREEN SAVINGS PROGRAM: EU ETS REVENUES FOR RESIDENTIAL RENOVATIONS (CZECH REPUBLIC)

Carbon revenue can contribute to climate-change mitigation as well as create a funding source to support energy renovation. The European Commission proposed in its Renovation Wave strategy to

examine whether and how the EU budget resources could be used alongside EU Emissions Trading System revenues to fund national energy efficiency and savings schemes targeting lower-income population. The Czech Republic already provides an interesting example in using carbon revenue from the EU Emissions Trading System to increase the energy efficiency of buildings, a crucial move for the acceptability of carbon pricing towards the general public. This is the New Green in Savings Programme (NGiS, 2014-2021).

The New Green Saving program (of the Ministry of the Environment) provides subsidies for the improvement of energy performance of residential buildings (such as deep or shallow thermal insulation), the construction of new homes (high energy performance) and use of renewable energy sources. The program aims in particular at the renovation of single-family houses and multi-family buildings as in the Czech Republic about 70% of these needs to be renovated. The program is funded by a share of auctioned EU Emission Trading Scheme allowances, with additional support from public investment. This strategy has enabled the Czech Republic to develop a long-term renovation program, combining public investment with the leveraging of private funds. Applicants for these subsidies can be owners or constructors and the amount of support, paid back after the renovation have been carried out, will depend on expected energy savings (with up to 50% of the total eligible expenses covered).

For more example of Financing mechanisms in Central Europe, please see proceedings from the European Commission event (27/04/2017) “Financing energy efficiency in Central Europe.”<sup>9</sup>

5 [https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Pressemitteilungen-Details\\_578880.html](https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Pressemitteilungen-Details_578880.html)

6 ibidem

7 <https://www.kfw.de/stories/kfw/stories/society/housing/erster-platz-bauen-2017/>

8 ibidem

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# 6 Technological Innovation



## 2ND SKIN: ENVELOPE A BUILDING TO MAXIMISE ITS ENERGY EFFICIENCY (NETHERLANDS)

# Renovation financed by the EU's largest public private partnership EIT Climate-KIC<sup>1</sup>

# Duration: since 2017

# Households reached: 183 houses so far

In the social housing sector, energy renovation is often difficult to implement because of the costs generated but also because the work can disturb tenants. When the social housing association Watergweg Wonen had to choose between demolishing and rebuilding a building in Vlaardingen, or renovating it, it decided to work with EIT Climate-KIC to develop an innovative low-cost rehabilitation solution.<sup>2</sup>

2ndSkin aims the renovation of social rental multi-family housing in the Netherlands by providing a solution for zero energy renovation that reduces the occupancy effects on building performance.<sup>3</sup>

This project was developed by TU Delft University and implemented by the start-up BIK Bouw. The idea is to add a "second skin" to the envelope of a building to maximise the energy efficiency of an ageing building.<sup>4</sup> The aim is to intelligently refurbish buildings by allowing zero energy consumption. To achieve this, the concept consists of three elements<sup>5</sup> : insulation of the building (walls, windows, roof), installation of heat recovery ventilation and finally the use of photovoltaic panels to produce electricity.

The advantage is that the installation is light and very flexible and therefore easily usable and adaptable. Moreover it can be installed very quickly, in two or three days, and residents can stay at home during the process. Thus, existing buildings can be easily upgraded, meeting eco-friendly building requirements, and reducing energy consumption and CO2 emissions.<sup>6</sup>

## CENTRUM PASIVNÍHO DOMU: USING PASSIVE HEAT WINS (CZECH REPUBLIC)

# Recouping "passive energy" through renovations and information

# Duration: since 2006

The project Centrum Pasivního Domu fights against energy poverty, supports the construction of new energy-efficient housing as well as the renovation of "passive houses", supporting the integration of the principles of "passive energy". The name passive house is based on the principle of using passive heat gains in the building. These are the external gains of sunlight passing through windows and the internal gains - the heat radiated by people and appliances. Thanks to high-quality insulation and other elements, these gains do not "run out" and are sufficient for most of the year to ensure a comfortable room temperature.<sup>7</sup>

The project particularly targets most vulnerable groups such as older people, low-income families, and people at risk of social exclusion and poverty. <sup>8</sup>In addition to supervising the work, the project also aims to inform families in responsible energy management.

1 <https://www.climate-kic.org/who-we-are/what-is-climate-kic/>  
2 <https://www.climate-kic.org/success-stories/2nd-skin/>  
3 <https://research.tue.nl/en/publications/renovation-of-social-housing-in-the-netherlands-user-research-app>  
4 <https://www.construction21.org/articles/h/2nd-skin-a-solution-to-simplify-and-scale-up-renovations.html>  
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6 <https://www.climate-kic.org/success-stories/2nd-skin/>  
7 <https://www.pasivnidomy.cz/co-je-pasivni-dum/t2>  
8 <https://tackleenergypoverty.ashoka.org/cs#block-views-partners-block-4>

The first objective is to combat energy poverty by enabling vulnerable groups to live in housing that is both adequate and energy-efficient, but also to help them prevent housing losses. The secondary objective is to reduce the risk of illness caused by living in inadequate premises and thus reduce the costs of subsequent treatment.<sup>9</sup> Improved ventilation helps to reduce exposure to high levels of CO2 and other harmful substances associated with respiratory problems.

<https://www.pasivnidomy.cz/>

## WILMCOTE HOUSE: ENERPHIT STANDARD RETROFIT (ENGLAND)

# Renovation project funded by the city of 14,7 Million €

# Duration: since 2010

# Households reached: 100 flats

Wilmcote House is a block of about 100 flats, including 3 towers of 11 floors. The building had major maintenance problems and many residents were living in energy poverty. The cold, damp and mould were detrimental to the health of the residents. In addition, two thirds of the residents were experiencing excessive cold and damp in the winter.<sup>10</sup>

In 2010, the City Council chose not to demolish the building and decided instead to launch an ambitious £12.9 Million (around € 14,7 Million) renovation project. The aim was to reduce heating demand in the homes by 90% and extend the life of the building by at least 30 years.<sup>11</sup>

The refurbishment of Wilmcote House has been designed using a fabric first approach in keeping

with the Passivhaus/EnerPHit standard, which is the standard for the renovation of passive houses.<sup>12</sup> The aim is to cover the entire building with a thermal envelope to obtain very high energy performance.

Residents have been widely consulted throughout the project. For example, they raised issues such as the inefficiency of electric heating and the lack of space to dry clothes.<sup>13</sup>

The work was carried out at various levels: insulation of the external walls, replacement of the roof, installation of triple-glazed windows, adjustment of ventilation with heat recovery system, etc.

The renovation work was completed in 2018. The project is planned to have extended the life of the building by 40 years. The tenants' energy bills were reduced by an average of £700 per year. Fully funded by Portsmouth City Council: the total funding for the project is £12.9 million, or £117,000 per flat, so it is a very expensive project, only funded by the public authorities.

9 <https://tackleenergypoverty.ashoka.org/cs#block-views-partners-block-4>  
10 [https://stateofgreen.com/en/uploads/2018/07/SoG\\_WhitePaper\\_Renovation\\_210x297\\_V10\\_WEB.pdf](https://stateofgreen.com/en/uploads/2018/07/SoG_WhitePaper_Renovation_210x297_V10_WEB.pdf)  
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# 7

## Conclusion

### CONCLUSION

The energy efficiency renovation for low-income households has primarily environmental and social goals: reducing the emissions of the household and reducing its energy bill. Still, the consequences of the renovation go further than that. The examples in this report have shown an increased health and wellbeing for the residents and an upgrading of the neighbourhood in which the renovation had been done.

The renovation of low-income households includes diverse measures such as upgrading of the heating system, thermal insulation of the outside walls, replacement of windows or doors, thermal sealing of roofs or terraces. Some projects implemented technical innovations to realise the energy efficient renovation. These innovations include passive houses, adding a second skin to building to make it more energy efficient, or using innovative fabrics as covering the building with a thermal envelope.

The support provided to the low-income households for the different projects included:

- Direct grants or low interest loans to the households to be spent on energy efficient renovation. The grants are sometimes conditional when for example they need to be reimbursed when the owner sells the house.
- Know-how and help to establish connections with local NGOs or tenants' associations engaged in energy efficient renovation.

The funding is often provided by public authorities, such as the City Council, but also public private partnerships or the funding through banks is a possibility that several projects have explored. Also energy providers as the EDF in France are involved in upgrading projects.

The grants can be either given directly to the families for the whole renovation project or earmarked for specific interventions as changing the boilers or heating in a building. These initiatives are extremely important to guarantee a just and social energy transition.

However, according to data collected by Eurostat, an average 6.9 percent of the EU population is still unable to keep their homes adequately warmed. This is in part due to the low-quality of the housing stock, particularly in Eastern Europe and Mediterranean countries. It is also due to increasing energy price for households. The European Green Deals vowed to leave no one in the energy transition.

At FEANTSA we believe that leaving no one behind requires explicitly recognising and addressing the social risks constituted by climate measures in the context of housing. The Green Deal and its Renovation Wave strategy must therefore be the basis for a regulatory and financial framework that will improve lowest-income groups' access to decent, affordable housing, including by directly addressing poor housing conditions with actions similar to projects highlighted in this publication.

Furthermore, the European Union, national and local authorities must also actively prevent the renovation wave from contributing to housing exclusion due to increased housing costs. The establishment of Mandatory Energy Performance Standards and the reinforcement of Energy Performance certificate will only be socially acceptable if they go hand in hand with legal and financial instruments supporting lowest-income groups, so that renovations are carried with no rent increase afterwards. These safeguard mechanisms should include earmarking of European funding to invest into the renovation of worst-performing buildings and lowest-income groups inadequate housing as well as the establishment of a dedicated EU "cold homes" fund to publicly fund renovation of worst performing buildings and housing units of people in situations of energy poverty.

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