



Actions to Mitigate Energy Poverty
in the Private Rented Sector

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1

EXECUTIVE SUMMARY

This updated report examines the structural barriers preventing investment in energy efficiency measures in Europe's Private Rented Sector (PRS) housing stock. The analysis is undertaken with reference to the broader trends in private renting, the regulatory landscape that currently exists, and the need to reduce social vulnerability and income poverty more generally. An introduction detailing historical and geographical trends in Europe, using case studies and elaborating upon research and policy analysis from previous ENPOR project reports, serves to provide the starting point of the review.

Following desk-based reviews of academic and grey literature, we identified Financial, Political/Regulatory, Social, and Geographical factors as key barriers to the implementation of energy efficiency policies in the PRS, which provide the backbone structure of this review. Several strands of analysis are drawn upon, including expert viewpoints and a stakeholder survey.

The primary survey was conducted twice, in 2021 and 2022, with a range of stakeholders working in the field of energy poverty, energy efficiency, housing and decarbonisation. This served to generate primary data on people's knowledge of policies, ratings of importance on the identified barriers and governance scales, and understandings of the effects of policy on vulnerable groups. Partners from the ENPOR Consortium also provided expert situated viewpoints, which were drawn together to provide a holistic overview of factors contributing to the key barriers, as well as suggesting potential solutions from a multi-stakeholder perspective, supplemented by the survey's findings. In this updated report, we also include reflections on the impact of COVID-19 and the ongoing energy crisis in terms of implementing energy efficiency solutions.

A common theme running throughout our analyses and recommendations is that solutions to energy poverty in the private rented sector are situated across the barriers, and are ultimately financial, social, political/regulatory and technical. Although a practical way of identifying structural factors that can prevent investment in energy efficiency, this is where we reach the limits of the conceptual notion of 'barriers' as an explanatory tool for understanding the persistent energy poverty, housing quality and energy efficiency related challenges. We reflect on how we can overcome these national barriers to work towards improved energy efficiency policy implementation.

2

INTRODUCTION

The housing and residential building sector is the second largest energy-consuming sector in Europe, utilising 26.7% of total energy, and responsible for around 8.5% of greenhouse gas emissions. As much as 75% of the EU's building stock is inefficient, with only 1% renovated per year. Renovating and improving the energy efficiency of buildings could reduce the EU's CO₂ emissions and energy consumption by 5%; as such, the European Commission calculates that in order to meet climate objectives, **the rate of renovations must double** (European Commission, 2020). **Despite ambitious strategies and measures being introduced into this arena to achieve climate targets, there are nevertheless numerous policy barriers to implementing energy efficiency measures, particularly in the rented sector, for which as many as 30% of EU citizens rely on for housing** (European Commission, 2022). The Private Rented Sector (PRS) is an important part of European rental housing.

Housing policy, and thus renovation of buildings, mainly remains within the purview of national government competences. National European housing markets are particularly heterogeneous, with significant additional variation between regions, urban and rural areas, and differing devolution of policy implementation. There are also differing historical housing legacies, geographical differences in housing stock, and proportions of private renters across local, regional and national scales. Each of these factors introduces a layer of complexity which must be contended with when creating energy efficiency policy.

In light of the above, this report examines the structural barriers currently preventing the implementation of energy efficiency policies in the PRS at a range of scales. In-depth desk-based research of academic and grey literature led to the identification of a number of barriers and sub-barriers to policy implementation – financial, political, social, technical and geographical – around which this report is centred (Bird and Hernández, 2012; Wrigley and Crawford, 2017). A primary survey was conducted to obtain the opinions of a range of stakeholders involved in the European energy, housing, poverty and decarbonisation sectors, on the identified barriers. The results of the survey are presented in this report. In addition, Partners in the ENPOR Consortium contributed their context-specific-situated perspectives to the identified barriers, which were holistically combined to provide an overview of contributing factors and potential solutions.

3

HISTORICAL AND GEOGRAPHICAL TRENDS IN ENERGY EFFICIENCY POLICY IMPLEMENTATION IN EUROPE'S PRS

This section first briefly reviews historical and geographical trends with regards to differences in privately rented housing, the quality of housing stock, and the legacies of housing regulation, as a means to provide contextual background. Further information can be found in ENPOR Deliverable 2.6¹. Additionally, the section reviews differences in energy efficiency policy implementation, drawing on ENPOR Deliverable 2.7² to set the scene for subsequent sections, which explores barriers to energy efficiency policy implementation.

3.1 Spatial and Temporal Trends in the PRS

In 2016, it was estimated that globally, 1.2bn people lived in rented accommodation, particularly in urban areas, where affordability and quality of housing remains a key issue. Although in 2015, the EU-average of privately renting tenants was around 20% (Eurostat, 2017), the share of PRS housing continues to differ considerably across the EU, from around 30% in Austria, Germany and Sweden, to less than 10% in Lithuania, Slovenia and Estonia (ibid). Broadly, the share of people living in social rented housing has fallen across the EU since the 1980s, particularly state-managed social housing (Whitehead and Scanlon, 2007). The growth of the PRS in several European countries over the past three decades does not necessarily reflect an increasing societal preference for renting. The PRS has now become increasingly viewed by many EU states as a crucial element in housing provision, moving in policy and society from a transitional sector, to providing long-term alternatives to social housing and homeownership for a broader gamut of society (O'Sullivan and Decker, 2007). The flexibility of short leases, which can be attractive for students and younger households, instead creates insecurity and precarity for low-income families and tenants. The sector is complex: a result of decreasing social housing expenditure, government interventions and changing regulations, with a blend of sub-markets and types of renters, and geographical nonuniformity across local, regional and national scales (Whitehead and Williams, 2019).

Two housing models have primarily governed the provision of rental housing in Europe; namely the dualist and unitary rental systems. The dualist system, dominant in Anglo-Saxon countries, and also in many CEE countries post 1990, is characterised by market-leaning policies, with a profit-driven housing and rental market parallel to a state controlled social housing sector. Homeownership is given preference, and the PRS is typically unregulated (Borg, 2015; Omic and Halb, 2017). Nevertheless, little data exists on the PRS in post-communist CEE countries: indeed, in Hungary, a 2000 study found that no statistical data existed on the PRS, although rates tended to be under 10% (Erdösi, Hegedüs and Somogyi, 2000), whilst in Croatia, Tsenkova suggested it functioned within the informal economy to a large extent (Tsenkova, 2009). By contrast, the unitary rental market, adopted in Germany

¹ ENPOR Deliverable 2.6: Report on Energy Poverty in the PRS – Overview & Framework. Available: https://www.enpor.eu/wp-content/uploads/2023/02/Deliverable2.6_ENPOR.pdf.

² ENPOR Deliverable 2.7: Analysis of Private Rented Sector Policies and Measures Available: <https://www.enpor.eu/wp-content/uploads/2023/04/ENPOR-Deliverable-2.7-Final.pdf>.

and Scandinavia, is characterised by a non-profit housing sector, whereby social landlords compete in the private market with for-profit landlords. Economic analysis has found that generally, housing deprivation rates are lower in unitary rental markets, whilst in dualist systems, lower-income groups tend to face higher housing costs and worse housing conditions (Norris and Winston, 2011). Between 2012 and 2015, low-income households in Northern, Southern and Western Europe spent more on rent than the EU average. A study by Omic and Halb found that at country level, those in the bottom 20% of income are substantially overburdened by housing costs (rent and bills), whilst in the rental sector, poorer households spent 35% of disposable income on rental costs, as opposed to 19% for richer counterparts. Tenants who paid market rates for rent were overburdened by 31.2% on average, highlighting the importance of housing policies for alleviating economic pressures of high costs (Omic and Halb, 2017).

In terms of the socio-demographic distribution of PRS tenants, analyses of the UK 2011 census by the Race Equality Foundation found that private renting increased among all ethnic groups since 1991, and that tenure insecurity was particularly pronounced among young people and minority groups (Finney and Harries, 2013). This report also found large geographical differences in overcrowding in housing, particularly concentrated in London and the Midlands. The English Housing Survey Headline Report of 2017 found that 19% of England's 24 million dwellings were classed as non-decent, with 11% having a specific hazard that posed a threat to occupants' health or safety (the top two hazards either being risks of falls or excessive cold) (Ministry of Housing, Communities and Local Government, 2019). Geographically, there is a higher proportion of non-decent homes in the North of England, with the highest share in the North West (22%) versus London and the South East (17%). 41% of all homes in the North (compared with a 38% national average) were built prior to 1944, and account for 68% of all non-decent homes. In England as a whole, 25% of people living in a non-decent PRS property live with a long-term illness or disability (Hackett, 2018). In addition, proportionally by tenure, the PRS has the highest percentage of non-decent homes (27% non-decent).

On the other hand, in Germany, as the sector is not focused on niche markets, like students or young professionals, it serves a wider gamut of society and is a 'cornerstone of housing provision for all parts of the population'. Households with subprime credit status are not encouraged to take out mortgages for homeownership, meaning that mortgage borrowers are less vulnerable in recessions. This makes the real estate market more stable. Private landlords are less motivated by short-term capital gains or investment, generally having much longer investment horizons, and tax reasons play a larger role in renting out properties due to substantial depreciation allowance. Tenures are much more secure, as landlords have no right to arbitrarily end contracts unless there is proof of breach of contract for example, and rents cannot be raised before 15 months after moving in, by more than 20% in three years and not beyond a locally specific benchmark level, which is defined with view to average rents for comparable dwellings in the area over the last six years. There is widespread availability of good quality housing, investment in stock by landlords and low residential mobility, in contrast with, for example, the UK's lower end, where poor quality is pervasive (Kemeny, 2006; Kemp and Kofner, 2010).

A well-managed PRS is important in maintaining a supply of housing and providing an

alternative to homeownership. Nevertheless, Sendi asserts that the PRS cannot function properly if ‘the basic terms and conditions essential for its operation are not well defined and established’ (Sendi, 2016). Rent controls and regulation of the PRS remain a contentious issue, and vary widely across Europe, with varying impacts and outcomes on landlords, tenants and rental markets (Haffner, Elsinga and Hoekstra, 2007). Arnott states that ‘tenancy rent controls’ are the most common form of controls, which regulates rents within an individual tenancy, but not between them, providing sitting tenants with a degree of tenure security by avoiding sharp rent increases, and allows landlords to charge starting rents at current market rates (Arnott, 2003). An OECD composite index of rent regulations found that average rents are no lower in highly regulated countries, although investment and maintenance were lower (Andrews, Caldera Sanchez and Johansson, 2011). For example, Branco and Alves found that over 1 million buildings in Portugal are in need of repair, of which around half of these are ‘significant’ (Branco and Alves, 2015). Some of this dilapidation is attributable to widespread rent freezes, which existed in the country from 1910 up until 2012. As sitting tenants could not be charged a rent increase or be evicted, property owners were not, as a result of inflation, making enough money to renovate or maintain their buildings, leading to some older properties lacking basic amenities, such as inside bathrooms. The financial crisis led to a large-scale decrease in public funding and renovation policies, leading to a review of the importance of the PRS for housing provision and urban regeneration. In 2012, a five-year transition period, phasing out rent controls and old lease contracts to new market rate rents, was introduced. Nevertheless, fears of low-income families being displaced by rises in rents and gentrification, as well as very high rents for new lets that force people out of city centres, as consequences of rent deregulation remain. Renoviction - phenomenon wherein a sitting tenant is evicted following the renovation of a property due to rent increases – is also a key concern.

Opponents of rent controls argue that whilst benefitting marginal households currently in the PRS, such policies do not help those seeking accommodation. The extent to which looser regulation is impacting the lower end of the PRS – typically home to lower-income, more vulnerable groups, more fearful of retaliatory eviction – is also unclear (O’Sullivan & De Decker, 2007). Ball (2015) thus describes a three-tier rental market: long-term, existing tenants benefit from lower rents and security as a result of regulation; more affluent, frequent property movers, who dilute the impacts of rent controls; and lower-income new entrants who are forced into the worst parts of the rental market.

How best to regulate or deregulate the sector and implement policies to ensure an adequate supply of housing whilst protecting tenants, particularly the most vulnerable, when energy efficiency and other green renovations become central policy priorities remains a prominent debate, and there is significant variation in how different EU states are tackling this issue. The regulation question is particularly salient given the statistic that 80% of homes likely to be lived in in 2050 have already been built (World Economic Forum, 2022), highlighting the importance of improving energy efficiency and quality of housing conditions against both cold and hot conditions, for thermal comfort, and to reach net-zero targets.

3.2 Trends in Energy Efficiency Policy Implementation in the PRS

Findings from ENPOR Deliverable 2.7, a report which analysed 114 policies and measures that target the PRS in Europe, show that the majority of collected policies have been implemented since 2010, largely at a national scale and by a range of authorities, including national, regional and local government bodies, NGOs, community organisations and private companies (Burbidge *et al.*, 2023). The vast majority of the policies are not directly targeted at the rental sector – 85% of those analysed are general, inclusive of PRS tenants, homeowners and social renters alike, and only six were specifically aimed at tenants. Only 28% of policies were specifically targeted at low-income groups. The most common policy types are those providing grants, subsidies or loans for energy efficiency renovations, training and information, and a form of financial support. Energy efficiency obligation schemes are far less common.

This insufficient targeting of low-income groups and people living in the rental sector within existing energy efficiency policies shows a continued lack of engagement by policymakers with these groups. This exacerbates existing inequalities and risks leaving vulnerable people behind in the energy transition. Clearly, there are barriers that hinder the implementation of policies that specifically address the rental sector. The subsequent section explores what these are.

3.3 Barriers to Energy Efficiency Policy Implementation in the PRS

Given the context laid out in Sections 3.1 and 3.2, we set out to conduct an extensive literature review of scientific and grey literature to identify key categories of barriers which have hindered the implementation of energy poverty policies in the PRS across Europe. This review spanned peer-review journal articles, technical reports, position papers and deliverables of EC-funded projects (see Papantonis *et al.*, 2022 for full methodological detail).

This review led to the identification of five key barriers: Financial, Technological, Political/Regulatory, Social and Geographical (see for example Eyre, 1997; Bird and Hernández, 2012; Castellazzi, Bertoldi and Economidou, 2017; Wrigley and Crawford, 2017; D’Oca *et al.*, 2018; Sareen *et al.*, 2020; Simcock *et al.*, 2020; Heffernan *et al.*, 2021; Simcock, Frankowski and Bouzarovski, 2021; UIPI, 2021; Bouzarovski *et al.*, 2022; Matraeva *et al.*, 2022).

Identified Categories	Identified Barriers
Financial	<ul style="list-style-type: none"> • Split incentives • Lack of direct financial incentives to landlords • High upfront costs • Lack of funding schemes that target the PRS • Expected return on investment • Inability to pay increased rents (leading to renovation following housing renovations) • Energy efficiency doesn’t increase sale or rental value of the property
Technological	<ul style="list-style-type: none"> • Lack of information (for example on available technologies) • Lack of technological knowledge for implementing

	<p>effective solutions</p> <ul style="list-style-type: none"> • Complex tenure patterns in • Use of technologies
Political/Regulatory	<ul style="list-style-type: none"> • Political invisibility of the PRS, lack of political interest • No definition of energy poverty/not a political priority • Lack of data on energy poverty amongst PRS tenants • Lack of targeted policies/best practice schemes to follow • Lack of energy labelling and mandatory efficiency schemes • Regulation vs Deregulation debate • Differing levels of political devolution with responsibility for energy efficiency policy • Complex tenure patterns in apartment buildings
Social	<ul style="list-style-type: none"> • Stigmatising and time-consuming, complex processes and procedures to access funding • Tenant and landlord mistrust in governmental policies • Prevalence of small-scale, low-income landlords • Broader social vulnerability in the sector (prevalence of low-income groups, single parents, ethnic minorities) • Lack of adequate skills and training in the workforce, or a lack of workers more generally
Geographical	<ul style="list-style-type: none"> • Climatic difference • Varying housing legacies between national, regional and local contexts

4

PRIMARY SURVEY: METHODS AND RESULTS

4.1 Methodology

A survey was designed and disseminated by ENPOR partners to investigate different stakeholder perspectives on the barriers to implementing energy efficiency policies for the alleviation of energy poverty in the PRS. The survey was carried out Europe-wide and aimed to generate primary data on:

- The importance of the identified categories of barriers;
- How aware relevant stakeholders are of specific policy measures that could address the identified barriers;
- Possible solutions that governmental bodies at different scales can implement to alleviate the identified barriers; and
- Which vulnerable groups are most affected by energy poverty in the PRS across Europe

The survey aimed to reach stakeholders across the research, policymaking and implementation process, as well as those who would be impacted by such policies. Target groups were thus as follows:

- Academics or researchers in the domains of energy efficiency, energy poverty, housing and housing decarbonisation;
- Representatives of Tenant and Landlord Associations;
- Government bodies at the local, regional, national and EU scales;
- Private organisations or companies;
- Policy organisations, policymakers, and Think-tanks;
- Not-for-profit and charities.

The EU-Survey platform was used to design and administer a semi-quantitative questionnaire. The survey was disseminated twice via the ENPOR newsletter, website, social media channels, as well as individual Partner channels. The first dissemination phase took place over a three-week period in April and May 2021. The survey was reopened and re-disseminated between July and September 2021 in order to reach a wider spectrum of respondents. Using a non-probability sample, target participants represented each part of the “quadruple helix”, which considers the collaboration of four main actors (industry, government, academia, and civil society) as a necessity for inclusive and successful energy planning (Sillak, Borch and Sperling, 2021). Special focus was placed on engagement with representatives of landlord and tenant associations (e.g., the National Residential Landlords Association (UK), National Union of Real Estate Owners (France), The Tenants’ Voice (UK), The National Confederation of Housing (France), the German Tenants’ Association, etc.).

The survey questions, and the results in the form of anonymised aggregated data, are

available with full open access³. The questionnaire was divided into three sections. The first section aimed to determine the importance of the categories of barriers identified in the desk research. The second section aimed to collect primary data on potential policy improvements (i.e., solutions), that could address the identified barriers, and their importance. The last section's goal was to identify groups at risk of energy poverty in the PRS. The survey included mandatory and optional questions, in addition to questions based on previous answers. The structure of the questions varied from Likert-like scales (respondents had to rank the importance of the different factors, e.g., from "not at all important" to "extremely important") to single and multiple choice (respondents chose between multiple given answers, e.g., select the most relevant or correct statement, etc.), while in some cases free-text boxes were used. The choice of format was dependent on the structure of the question being asked.

The survey results were analysed following a two-step procedure. Firstly, the quantitative results were compiled and analysed, and then the qualitative results, based on the stakeholders' quotes, were utilised to complement the quantitative results. The high participation (58% of the survey participants) of the stakeholders in the free-text boxes was critical to the validity of the survey: the quality of the qualitative results was elevated as a result of the range of proposed solutions by respondents.

4.2 Demographic Data

In total, 64 completed responses were collected during both survey phases. **Figure 1** presents the affiliation/representative background of survey participants: the majority of respondents come from the field of research and academia (26), while 8 work in not-for-profit organisations/charities, and 6 in government bodies, of which 4 are at the national and 2 at the regional level. Furthermore, 6 respondents come from other sectors (2 in energy agencies, 1 in real-estate, and 3 unspecified). They are followed by respondents from policy organisations or think-tanks, stakeholders working in private organisations or companies, and tenant associations, each of which accounts for 5 respondents. Finally, 3 respondents are landlord association representatives. With respect to the gender of respondents, 56% were female, 42% male and 2% identified as neither/other. In terms of the ages of our respondents, we only collected data from those over 18 years of age. We received respondents from every age range, except for over 70s. The age ranges of participants can be seen in **Figure 2**.

³ <https://doi.org/10.5281/zenodo.6539658>

Figure 1: Representative Backgrounds of Survey Respondents

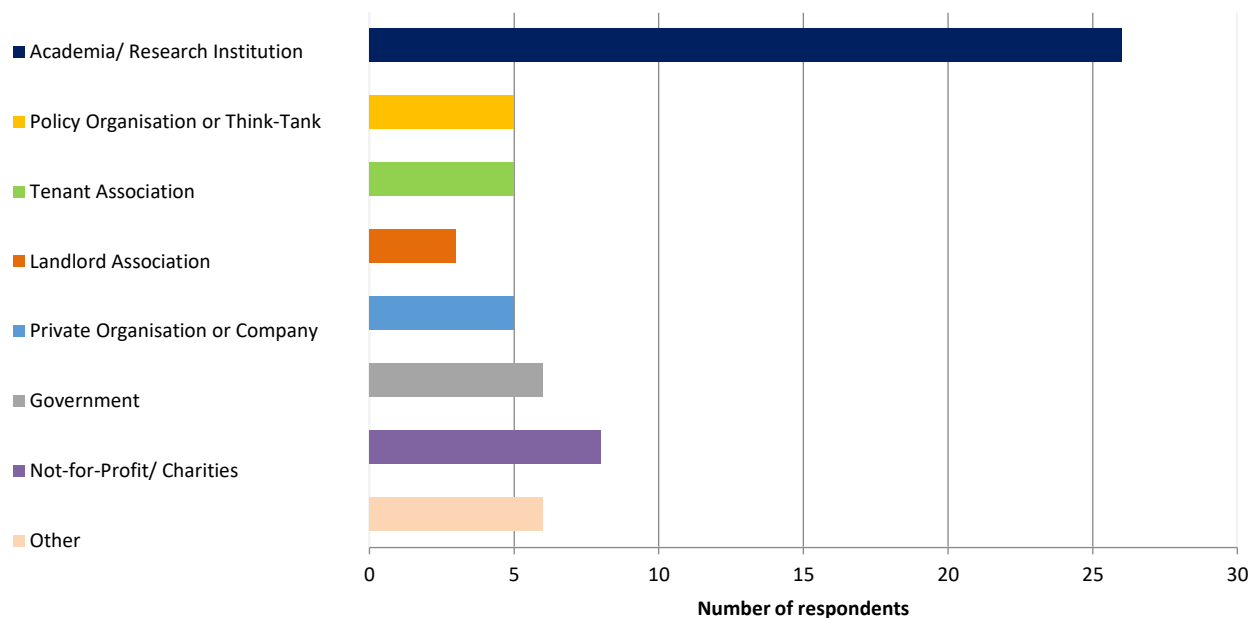
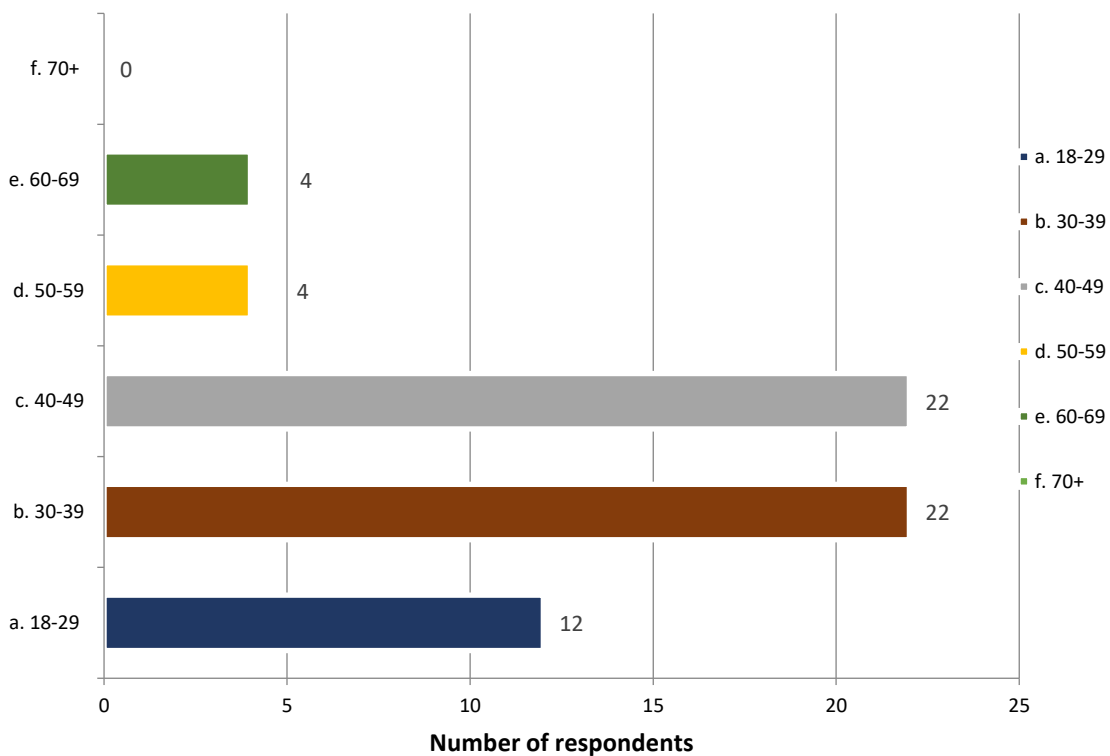


Figure 2: Age Ranges of Survey Respondents



4.3

Respondents were asked to rate the importance of the five barrier categories, as identified from our desk research. A Likert-like scale was used, with a score of “1” assigned for “Not at all important” and “5” assigned for “Very important” (**Figure 3**).

Among the survey participants financial barriers were regarded to be the most significant with 71.9% of the respondents rating this category as most important. Respondents viewed social barriers as the second most important category of barriers, with 67.2% rating them as “More than quite important” (“4” on the Likert-like scale). Political/Regulatory barriers were third, with 62.5% of survey respondents rating this category as “More than quite important”. Technical barriers were rated to be of lower importance among the categories of barriers, with only 9.4% of the respondents rating them as “Very important” and most of the respondents rating them as “Less than quite important”, or “Quite important” (“2” or “3” on the Likert-like scale). Finally, geographical barriers were rated as the lowest category of barriers, with only 6.3% of the respondents rating them as “Very important”.

Figure 4 presents the mean value of the Likert-like scale responses which assessed the importance of each category, where there are key differences in the levels of importance attributed to each barrier. In particular, financial, social, and political/regulatory barriers were rated as at least “Quite important” (above “3” on the Likert-like scale), while technical and geographical barriers were rated as “Quite important” (almost “3” on the Likert-like scale). In addition, with regards to the respondents’ affiliation, financial barriers are deemed as the most important among all the different stakeholder groups, except for the representatives from policy organisations/think tanks, who rated political/regulatory barriers as the most important category (**Figure 5**).

Figure 3: Importance Rating of the Five Barrier Categories That Hinder the Implementation of Energy Efficiency Policy in the European PRS (x axes = number of respondents)

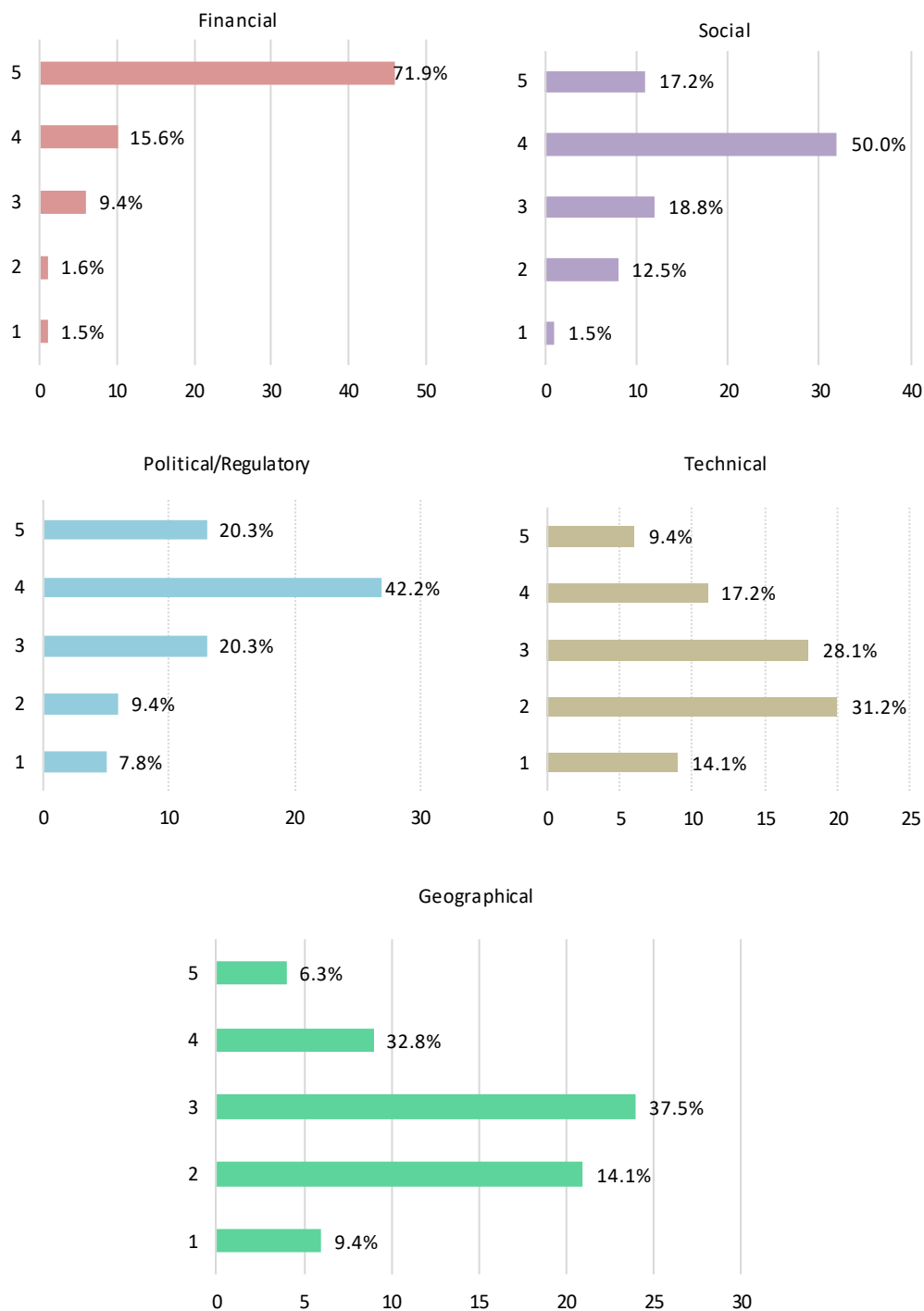


Figure 5: Mean value of the Likert-like scale responses measuring the importance of barrier category.

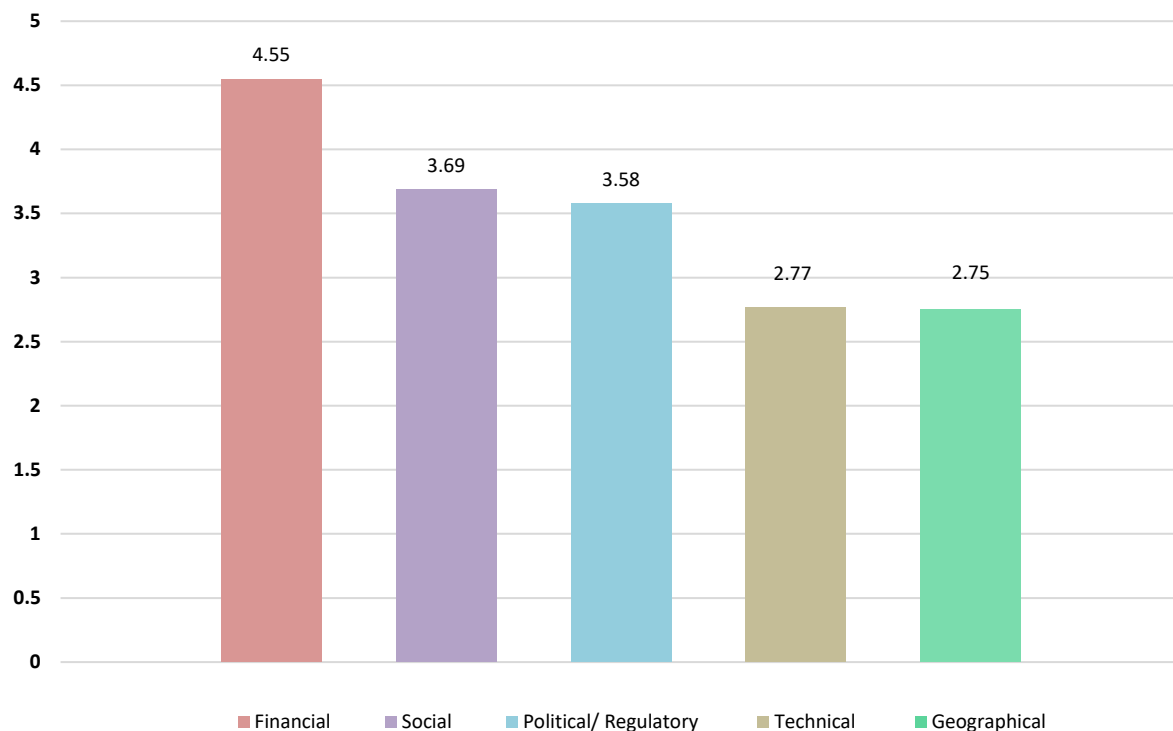
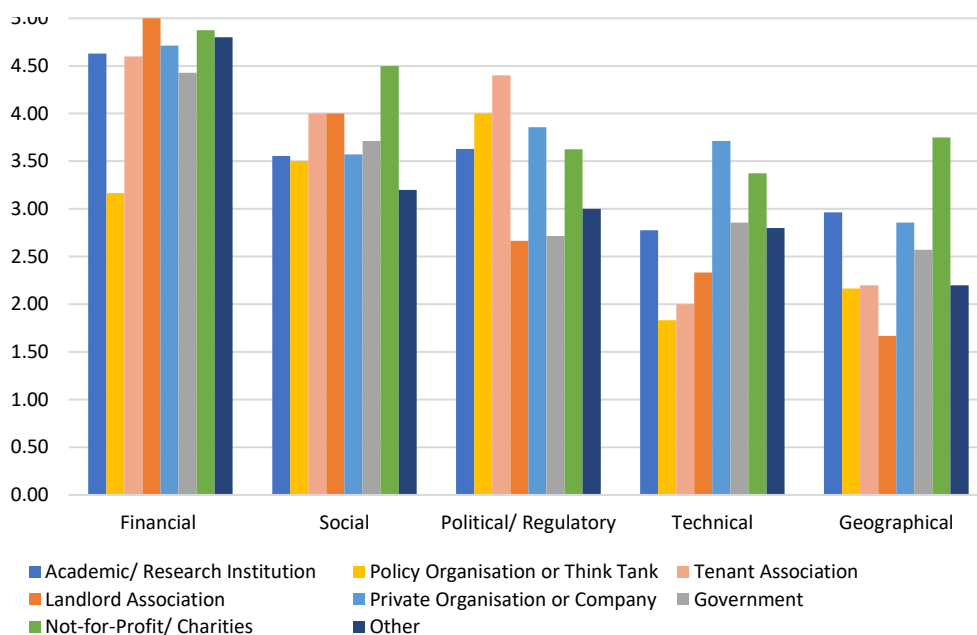
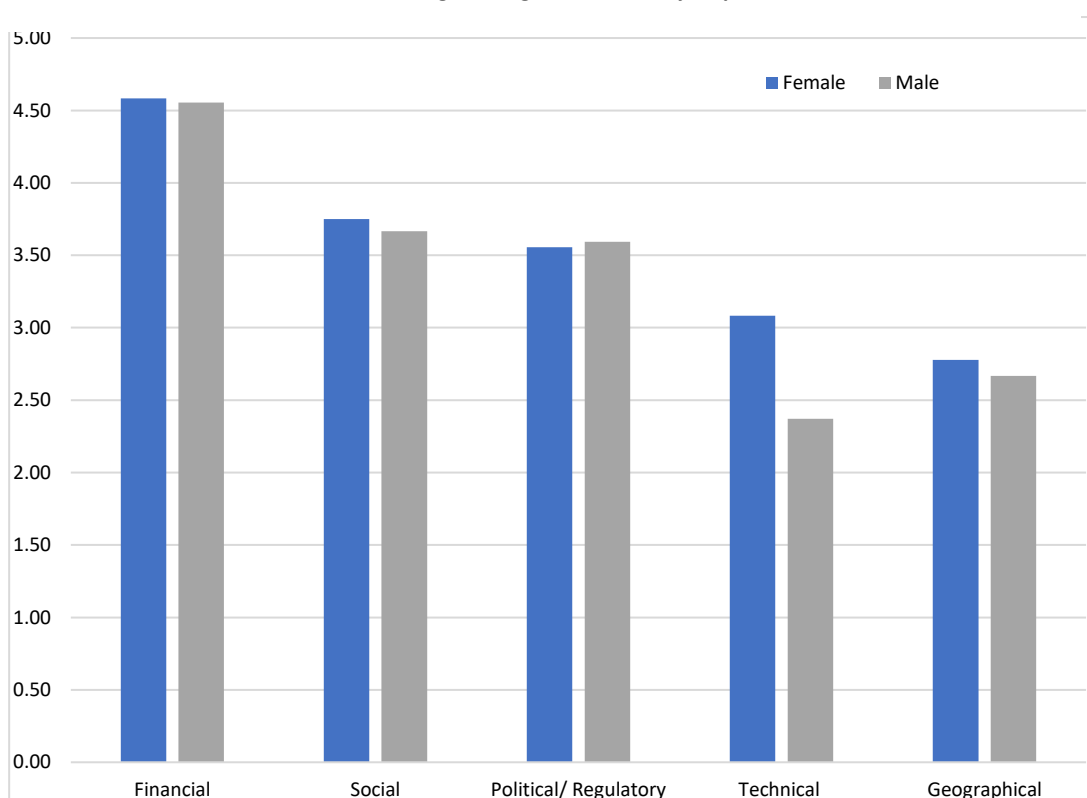


Figure 4 - Mean value of the Likert-like scale responses measuring the importance of each category of barriers according to the affiliation of survey respondents.



Furthermore, as shown in **Figure 6**, when broken down by gender, we see very little differentiation between assessed importance of barriers, with all rating financial as the highest. One observation of note is that **women rated the importance of technical barriers higher than men** (mean=3.08 vs mean=2.37), with men rating it as the least important of all barriers.

Figure 6 - Mean value of the Likert-like scale responses measuring the importance of each category of barriers according to the gender of survey respondents.

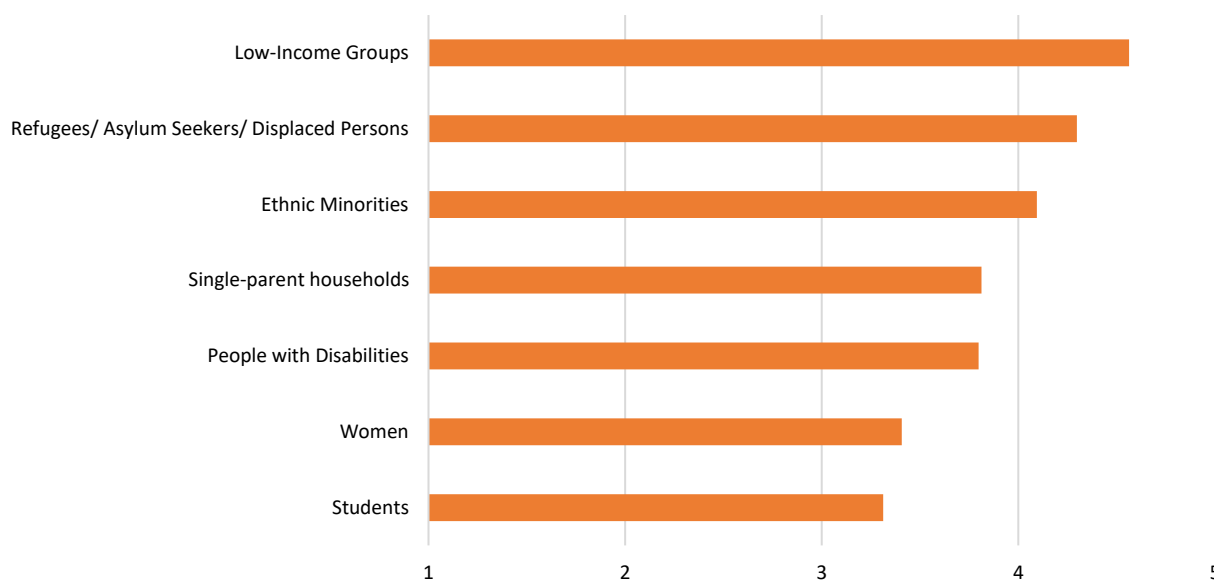


Respondents were also asked if they believed there were any other barriers to implementation beyond the categories provided. Issues surrounding renovations in multi-family buildings and homes in multiple occupancy where conflict may arise was a common response, as well as the invisibility of PRS tenants, lack of coherence in the sector and the relatively small size of the sector compared with homeownership in many European countries.

Additionally, survey participants were asked to rank specific vulnerable groups of tenants, as derived from the scientific literature (Walker and Day, 2012; Legendre and Ricci, 2015; Robinson, 2019) according to their exposure to energy poverty (with “1” being “Not affected at all” and “5” being “Extremely affected”). The mean rating for each group – **Figure 7** - was above “3” (“Affected”), which shows that stakeholders in the field consider each of these groups as potentially vulnerable to energy poverty. Low-income tenant

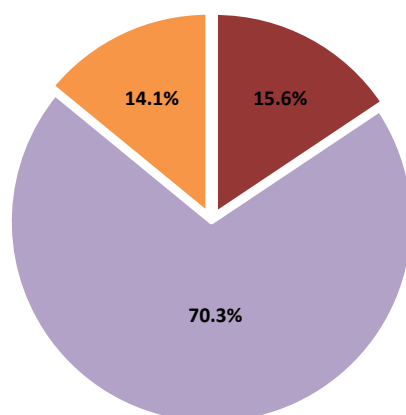
groups were rated as the most affected by energy poverty, followed by refugees/asylum seekers/displaced persons and ethnic minorities, which are also more likely to be in a lower-income group compared to the average population (Eurostat, 2016; Bouzarovski *et al.*, 2022). It must be noted that a significant number of respondents stated in the free-text box that older people are an additional potentially vulnerable group, that had been accidentally omitted from the survey. We must also note that these categories are not standalone – many of these vulnerabilities are intersectional and overlap with each other. For example, a refugee may also be a single parent with a disability living on a low income, which may exacerbate vulnerability to energy poverty from a range of dimensions.

Figure 7 - Mean rating value of the affectedness of different groups by energy poverty in the PRS across Europe, according to survey respondents.



Moreover, respondents' knowledge of specific EU-level policies aimed at improving energy efficiency in the PRS across Europe was also investigated. As presented in **Figure 8**, only a small proportion of respondents (14.1%) considered themselves as “very aware”, while 70.3% of them described themselves as “fairly aware” even if they are aware that there are policies in place, they cannot name them or provide specific information about them. On the other hand, 15.6% of the participants responded that they were totally unaware of such policies. The relevant EU-level policies in place, according to the respondents that considered themselves as “very aware”, along with a short description, are presented in **Table 1**.

Figure 8 - Survey respondents’ knowledge on specific EU-level policies aimed at improving energy efficiency in the PRS across Europe.



- a. Not Aware - I have never heard of EU-level policies to address issues faced by PRS tenants to improve the energy efficiency of dwellings.
- b. Fairly Aware - I know there are EU-level policies to address issues faced by PRS tenants to improve the energy efficiency of dwellings, but would not know them in detail/ do not know specific information.
- c. Very Aware - I can provide examples of EU-level policies to address issues faced by PRS tenants to improve the energy efficiency of dwellings.

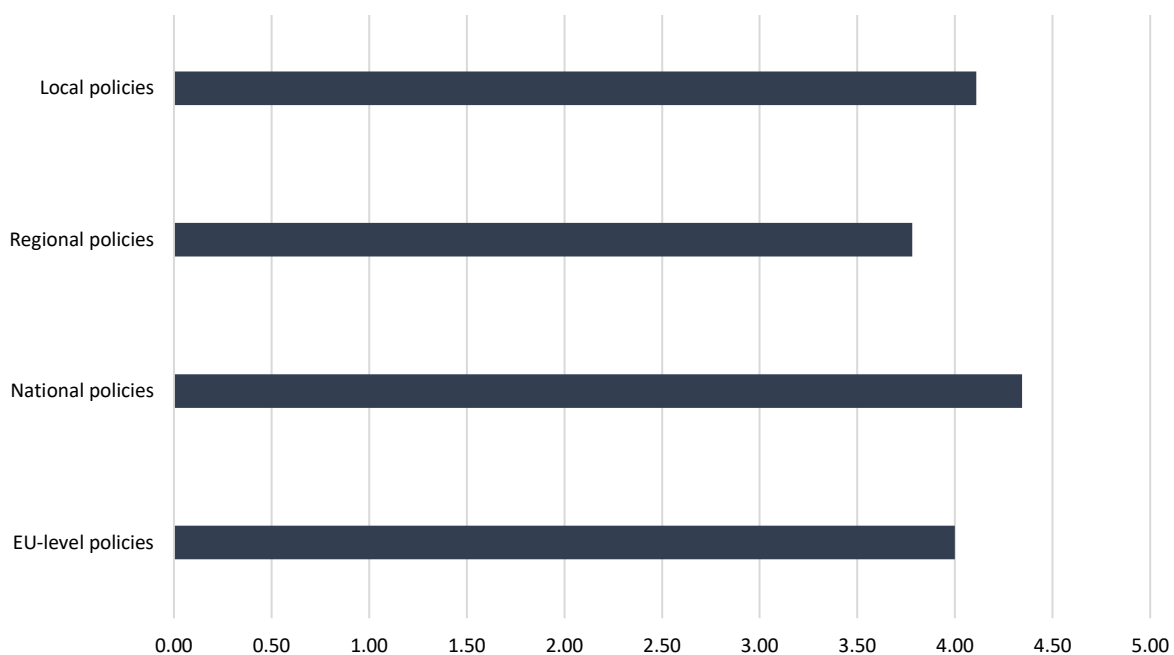
Policy Name	Short description
Eco-design	This Directive sets a framework for establishing EU eco-design rules for energy-related items, to ensure that such products can freely move within the EU market.
Effort Sharing Regulation	This Regulation sets obligatory climate targets in the Member States regarding the emission of the sectors of buildings, road transport, waste, agriculture, and small industries.
Energy Efficiency Directive (EED)	This Directive lays down a framework of measures to promote energy efficiency within the EU in order to ensure the achievement of its 2030 energy efficiency targets.
Energy Performance of Buildings Directive (EPBD)	This Directive encourages the improvement of energy efficiency across the EU’s building sector (European Commission (EC), no date).
Renewable Energy Directive (RED)	This Directive promotes energy from renewable sources. It sets a binding EU target for the overall share of renewable energy in the EU’s gross final consumption by 2030.
Renovation Wave	This Strategy aims to at least double the annual rate of energy renovations in the residential and non-residential building stock by 2030, fostering deep renovations.

Table 1 Relevant policies mentioned by survey participants that considered themselves as “very aware” of EU-level energy efficiency policies to address issues faced by PRS tenants.

Interestingly, the responses presented in **Table 1** indicate that even the “very aware” field experts are facing difficulties in providing proper examples of EU-level policies that improve the energy efficiency of dwellings in the PRS. Their inputs are limited to EU-level strategies/directives and regulations that give general directions regarding the increase of energy efficiency and the alleviation of energy poverty in Europe, without examining the particularities of the PRS or landlords/tenants. As a result, we can assume that awareness on the political and regulatory aspects of energy efficiency policies for the alleviation of energy poverty in the PRS across Europe is inadequate even among relevant experts, that there are insufficient policies that target this sector, and finally, that information concerning these policies is not accessible or adequately available.

Finally, respondents were asked to rank the importance of different scales of governance for implementing energy efficiency policies to alleviate energy poverty on a Likert-like scale of 1 (“Not at all important”) to 5 (“Very important”) (**Figure 9**). National policy level is classified as the most important, followed by the local policy level, indicating the necessity of contextualised and context-specific solutions to address the particularities of PRS in each country.

Figure 9 - Mean rating values by respondents of the importance of different governance levels for implementing energy efficiency policies in the PRS



5

STAKEHOLDER VIEWPOINTS AND ANALYSIS

The following two sections are consolidated and triangulated expert viewpoints and inputs derived from the praxis and experience of partner organisations in the ENPOR Consortium, and supplemented with findings from the primary survey. The contributing partners are as follows:

- International Union of Property Owners (UIPI)
- University of Piraeus Research Centre (UPRC)
- Institute for European Energy and Climate Policy (IEECP)
- Wuppertal Institute (WI)
- University of Manchester (UoM)

5.1 Financial Barriers and Solutions

Financial barriers to implementing policies or investing in energy efficiency measures in the PRS are usually primarily characterised by the split incentive. The split incentive is a term used to describe the situation where landlords pay for the retrofit improvement measures in a property, while tenants are the main beneficiaries of these improvements, such as lower energy bills and increased thermal comfort, meaning that the party making the financial investment does not directly benefit (Gillingham, Harding and Rapson, 2012). On the other hand, a tenant does not want to pay to retrofit a property that they do not own, particularly in contexts with short-term rental contracts and high tenant turnover.

Other barriers can include high upfront costs (including labour, technologies and new materials), long pay-back times for retrofit interventions (particularly in older properties or those in poor condition), and/or insufficient, unavailable or unattractive financing, particularly for lower income property owners. For example, a survey carried out by UIPI in 2021 found that although 77% of landlords (of 10,000 surveyed) thought it was beneficial to make their properties more energy efficient, 31% who did not renovate but wanted to do so did not have the necessary funds (UIPI, 2021). A study from Victoria, Australia concluded that in most cases, “proactive retrofitting by landlords was rare”, with most action stimulated by government subsidies or tenant requests (Lang *et al.*, 2022). In addition, as discussed in Section 2, many current retrofit financing schemes only target owner-occupiers, and are not open to either landlords or tenants, or inadequately cover the specificities of the PRS (D’Oca *et al.*, 2018). This finding was validated by our survey results, as across the board, financial barriers were consistently rated the most important category of barriers to implementing energy efficiency policies in the PRS across Europe.

Renovation costs can be broken down as follows:

- **Assessment costs** – incurred by property owners to have their properties assessed, evaluated and to arrange and finance any required improvements;
- **Installation costs** – from carrying out the necessary works to implement the

energy efficient measures;

- **Replacement costs** – replacing appliances that are still working for a more efficient model, but which could have had a longer life span;
- **Financing costs** – the renovation for the property owner (or tenant), depending on the conditions of the commercial loan obtained by bank or government scheme;
- **Hidden costs** – unclear contract results, clean-up costs after the renovation, not being able to inhabit in the home, or lost rental cost (in the case of landlords);
- **Legal expert hiring costs** – in case of legal challenges or disputes (Artola *et al.*, 2016).

Lack of funding opportunities and/or inability to secure finance on acceptable terms is generally one of the most cited barriers to investing in energy efficiency measures. However, it should be emphasised that it is often not a simple lack of funding that creates an obstacle in financial schemes. The problem is centred more on the quality of such schemes, as tailored, accessible, and well-targeted funding in the private rented sector is frequently lacking. Additionally, lack of stability, problems of blending finance and issues of complex application procedures are obstacles that significantly affect the funding and reduce its efficacy. The incentives created for landlords and tenants should not create burdens and complications which, in the end, have the effect of hindering the renovation process. The objectives set by public authorities should be feasible, realistic and based on the actual economic capacity of the actors involved. In addition, consumers and landlords – especially non-professional ones - are often confused by the number and complexity of grants at the local, regional and national level, which can have different compliance and eligibility requirements (UIPI, 2021).

Another key barrier to renovation is the lack of certainty with regards to property value increase. Tenants can also be unwilling to engage with renovation plans, due to fears of subsequent rent increase, which could exceed overall energy savings, or lead to in certain circumstances, eviction. ‘Renoviction’ is a documented phenomenon whereby tenants are forcibly displaced as a result of ‘value-added renovations’, in order for landlords to repay their investments, extract more profits and value from the property, and in some cases to ‘change the social structure of existing tenants’ via gentrification (Skanby, 2014; Bouzarovski, Frankowski and Tirado Herrero, 2018).

At the same time, efforts to improve the marketability of the dwellings following renovation are lacking: an unsurprising finding considering the way that energy efficiency improvements affect the value of real estate properties remains ambiguous. In a study conducted in Western Germany, sales nor rental premiums charged following energy retrofits failed to compensate for the upfront costs incurred by the landlord undertaking the works (Galvin, 2023). Implementation of methods to improve transparency of energy consumption in buildings, like energy performance certificates, could enable market actors to take energy efficiency investments into account (Zancanella, Bertoldi and Boza-Kiss, 2018).

Creating support packages for landlords to effectively and efficiently finance renovations has been identified as a key mechanism to target the investment cost barrier. The most top three most attractive incentives for renovation, according to the UIPI survey, would be grants, subsidies and tax relief, in the form of income tax, property tax or VAT reductions. Other potential incentives might involve professional or technical advice, one-stop shops

and loans, although loans were the least preferred option. Results from the primary survey also found that most respondents suggested financial incentives, such as subsidies and tax incentives to promote renovation, from the EU to the local level, as primary way to tackle financial barriers. One respondent suggested that local banks could develop tailored services, with nationally mandated ESCOs to offer innovative financing solutions, whilst another suggested funding training for social and health workers to identify vulnerable people at risk of energy poverty.

Targeted energy efficiency financial services mechanisms could also be of use here, such as “on-bill finance”, which obtains access to capital to fund energy efficiency investments in buildings by making repayments through energy bills. However, this places an increased burden on vulnerable tenants, and is seen as a regressive tax, disproportionately impacting lower-income groups (Castellazzi, Bertoldi and Economidou, 2017). Another example is the Property Assessment Clean Energy (PACE) mechanism, which finances energy efficiency upgrades through specific bonds offered by municipal governments to investors. The loans are repaid over the assigned term (typically 15 or 20 years) via an annual assessment on the property’s tax bill. The tax assessment is not placed on the property owner but on the property, allowing its transferability and helping to overcome split incentives. Blending finance schemes can also address the lack of landlord preference for loans alone, for example, subsidies combined with tax rebates and preferential loans (UIPI, 2021).

Balancing the split-incentive dilemma through rent increases or contribution payments – although less than the total energy saving to ensure benefits for the tenant – are also possible. For example, in order to encourage landlords to renovate, French legislation introduced in 2009, the “Troisième ligne de quittance”, which authorises landlords to carry out energy-saving works and, in agreement with their tenants request a monthly contribution from their side (French Government, 2009). When energy-saving renovations are undertaken by a landlord within the private and/or common parts of a dwelling, a contribution for sharing the saved energy costs can be asked from the tenant, as from the end of the renovations, provided that the tenant directly benefits from the renovations made and that these have been explained to them beforehand. Nevertheless, this contribution can only be asked if substantial work has been done or if the dwelling reaches a minimum level of energy performance. This participation, limited to 15 years maximum, is specified in the rental agreement and cannot exceed 50% of the energy-saving made.

In summary, the set-up of an ideal financial policy to address this barrier would not be a straightforward task, and would likely require multiple interventions. The landlord-tenant dilemma and a variety of other financial concerns like high costs, lack of information, etc., are the primary reasons that energy efficiency investments in the PRS are facing challenges. As a result, an ideal policy would be one that equally considers both landlords and tenants, and it is structured based on financial incentives and models. Such financial and fiscal incentives refer to provisions by governments, energy suppliers, and other sources that intend to overcome upfront costs, but are designed in a way to meet the special challenges that rented properties face. In general, policy transparency, communication, fairness in benefits, durability, and longevity are important concerns when designing policies to address financial barriers and support energy vulnerability in the PRS.

5.2 Political and Regulatory Barriers and Solutions

Of the current policies in place to implement energy efficiency measures in housing, few attempt to overcome regulatory and political barriers, as this can often be a contentious or sensitive topic amongst the PRS' different stakeholders. Political invisibility of the most vulnerable tenants can also be a major hindrance to policy implementation in this sphere, as demonstrated by the lack of relevant data. While there are many ways to measure energy poverty, there is still a lack of data on energy poverty metrics and supporting indicators (Vondung, Burbidge and Bouzarovski, 2022). Data is typically collected through time-consuming, expensive, and sometimes impossible to carry out surveys. Lack of data for most indicators is worse in years preceding 2016 (Hassani *et al.*, 2019). The ENPOR Energy Poverty Dashboard seeks to overcome this political invisibility, by presenting indicator data, including two PRS specific indicators, for the sector, as well as mapping policies that seek to address the issue, in an easy-to-navigate format for the public and policymakers. In many cases, attempts to overcome these barriers are often the setting of obligatory minimum energy performance standards (MEPS).

Another strategy to reduce invisibility has been the creation and operation of energy poverty observatories to raise awareness of the issue at the national, and in the case of the EU Energy Poverty Observatory (EPOV), the EU level. EPOV was developed by a pan-European consortium, aiming to engender transformational change in the availability of information on the socio-economic extent of energy poverty in Europe, improving transparency of data and knowledge, enabling networking and disseminating information across the EU. Other national observatories, for example, in France, can also provide more in-depth specific domestic data collection. Some survey respondents suggested that all Member States should be required to adopt clear action plans to improve the least efficient dwellings with milestones, developing EU-wide regulation for monitoring and evaluating the impacts of energy poverty. At a local scale, specific urban planning tools, identifying priority neighbourhoods and local action plans were all suggested solutions.

Mandatory minimum energy performance standards for existing buildings and energy performance certificates (EPC), require all residential buildings to meet a certain energy efficiency standard, and provide a certificate of this rating to tenants. "Minimum Energy Efficiency Standards" in the UK set a property's EPC minimum standard at E so that a property is eligible for renting. A similar regulation we meet in France, where the minimum standard of EPC is also E. Furthermore, different types of energy efficiency minimum standards are used in Flanders (Belgium), where they include roof insulation and double-glazing standards. An interesting policy that standardises properties without being connected with EPCs is "Housing Health and Safety Rating System" (HHSRS) in the UK. The policy concerns a risk-based evaluation tool to assess risk to health and safety in the home, and is used to assess the likelihood of faults or deficiencies impacting the wellbeing of those living in the dwelling. However, some landlords and landlord groups consider that the setting of mandatory standards can create an obligation to renovate regardless of context or economic circumstance, and can lead to abandoned buildings as property owners consider meeting such requirements too expensive. Nevertheless, minimum standards legislation such as those required in the UK do include caveats for protected or listed buildings, as well as stating an explicit cap for expenditure on energy efficiency renovations (UK Government, 2023).

Furthermore, there are some studies which suggest that the EPC is not a reliable document for assessing the energy performance of homes as they often overestimate current energy consumption, resulting in optimistic energy saving opportunities (Monfils and Hauglustaine, 2016; Cozza *et al.*, 2020). As mentioned previously, rent controls are particularly controversial, and can prove an obstacle to renovation (Branco and Alves, 2015). Controls are generally used to tackle a lack of affordable housing and disparity of income in certain areas, particularly within cities. Its practical effect is that it sets a limit on the rents a landlord can charge for each specific unit type by eliminating the free-market influence (Diamond, McQuade and Qian, 2019). Opponents of rent controls argue that although rent costs are frozen, none of the other costs associated with owning a property are capped in line with this, meaning that the landlord experiences a diminishing return. To avoid running at a loss, they must cut repairs, services and renovation initiatives, which leads to the deterioration of the building. The financial burden is placed upon the landlord, which does not work to alleviate the split incentive. Diamond *et al.*'s study in San Francisco found that both sides of the argument hold true; displacement was lowered by 20% when rent controls were introduced in 1994, but housing stock reduced by 15% as landlords sold to owner-occupiers. They surmise that in the long run, rent controls in the city were likely to drive up market rents due to loss of housing on the private rental market (Diamond, McQuade and Qian, 2019).

To encourage energy efficiency investments in the PRS, the dialogue between involved parties must be supported, legal frameworks and specific conditions for the redistribution of investment cost savings of energy efficiency upgrades between the landlord and the tenant should be laid out, as well as additional issues such as the limits of rent increase and the conditions under which tenants can reject a rent increase. For example, to facilitate improvements in dwellings with low-income tenants, governments could cover part of potential rent increases which are not offset by energy cost savings. A better definition of democratic rules is also necessary to ensure that a single owner should not be allowed to prevent energy efficiency upgrades in a shared condominium building (UNECE, 2017). In addition, real performance metrics could complement EPCs, which could contribute to tailored and specific renovation advice to building owners, proper design measures and better renovation coordination. This would also allow better calculation of savings predictions. EPCs could also include energy savings expressed in real terms (reduced kWh/year) rather than primary energy demand or cost savings, which are subject to political decisions and price fluctuations.

Finally, higher effectiveness of the existing legislation and regulatory framework should be pursued, emphasising further development, improvement, and enforcement of secondary legislation, norms, standards, targeted programmes and policies. In this context, policy transparency, communication, and long-term vision, combined with accurate monitoring tools and implementing instruments, are important factors that should not be neglected.

5.3 Social Barriers and Solutions

Varying social factors, including the presence of different vulnerable and low-income social groups in the PRS, in many cases can influence the adoption of energy efficiency schemes

and renovation measures.

The EmpowerMed project published a report detailing social barriers in 2020 (Habersbrunner et al., 2020). Trust transpired to be a crucial element - measures that target vulnerable groups can be perceived very differently depending on the context and actors involved. For example, the “Stromsparcheck” programme in Germany offers free energy checks and advice on how to reduce energy and water consumption without reducing the living comfort, such as through energy efficient devices. The programme’s energy consultants were sometimes perceived with mistrust as people worried that they aimed to sell their products for profit. On the other hand, the programme was very successful when the target groups were approached through personal contacts, information days (at churches, job centres, social organisations) and the work of multipliers (e.g., social workers). Feelings of stigmatisation and shame can also play a role: the report found that when vulnerable groups apply for grants or full subsidies, they can be stigmatised by neighbours or building managers who are aware that they receive such financial support. This was considered one of the reasons why vulnerable groups in Slovenia hesitated to apply for grants. Consultants offering energy checks and energy savings’ advice in the above-mentioned Stromsparcheck faced difficulties in convincing pensioners to apply for support. One of the possible reasons considered was that pensioners might feel ashamed of receiving support, deciding to refuse it. Furthermore, measures that target vulnerable groups should also take into consideration how these groups might perceive the procedures and conditions involved in applying for support. If the process is perceived as time consuming, complex and/or difficult, vulnerable groups, indeed all groups, can be more reluctant to apply (Habersbrunner *et al.*, 2020).

A report by the German Federal Environmental Agency (see Habersbrunner et al., 2020) also found that language, narrative or framing of the issue, the intimacy of allowing advisors into homes and the asking of sensitive questions can all also pose additional barriers to scheme uptake. The EmpowerMed report also recognised a gender dimension with regards to barriers to policy implementation, an issue which our primary survey also picked up, with women rating technical barriers as more important than men. A lack of awareness of this issue is linked to political invisibility issues described in the previous section, with a dearth of gender-disaggregated data on energy access, management, use and opportunities. Conducting gender and social impact assessments on programmes to determine differences in perceptions, uses, needs and capacities, as well as whether schemes are reaching men and women equitably were highly recommended (Habersbrunner *et al.*, 2020). In order to deliver tailored social policies, long term-funding for such measures must be secured, tying social solutions in closely with the financial and political solutions explored above. The expansion of advice services through improved outreach to affected persons, through the closer integration of advice centres of social associations, job centres, municipal authorities combined with training relevant staff on how to deal with energy efficiency and energy poverty issues might also prove valuable. Developing target group-specific consulting services (framing, language, time flexibility, advisors originating from respective groups) might also work to alleviate trust and remove stigma-based barriers (Burbidge and Petrova, 2022).

Even if energy efficiency measures are implemented, this does not mean energy

consumption or costs will go down, as a result of the performance gap and rebound effect. The rebound effect describes the difference between theoretically expected saving and the savings achieved, for example when cost reduction from energy efficiency measures lead to increased consumption. Lack of knowledge about existing solutions can create technological barriers that prevent renovation to achieve better energy efficiency. The lack of policies, examples, good practice and data on high energy efficiency properties do not create a large incentive for stakeholders in the PRS to renovate. If landlords have lack of necessary knowledge on possible solutions or costs, there is no impetus to act, whilst if tenants are not informed about the benefits of energy efficient buildings, it is unlikely they will be willing to prefer such a property. To address the rebound effect, advice centres can also provide education on energy efficiency measures, how to best utilise them to their advantage and promote sustainable consumption of energy.

The rental market in Europe remains primarily comprised of small-scale landlords that can often result in a lack of professionalism, inadequate knowledge to tackle energy issues and poor confidence in applying for grants or subsidies. Lack of professionalism is increased when landlords are not members of industry associations that can provide professional counselling and trainings to overcome these issues. Alongside the rental market growth experienced in recent decades, there remains a sector of low-income landlords for whom the obstacles associated with renovation and transition to more energy-efficient housing are more pronounced, and who are more affected by economic stability and legislative changes in housing. In addition, mistrust is not limited to tenants; landlords can also have deep-seated scepticism of policy and legislation, particularly if they are doubtful that modernisation and retrofitting will yield economic savings (UIPI, 2021).

Tackling the lack of data on problematic energy or housing situations and vulnerable target groups, but also on the energetic condition of the buildings, heating modes and so on requires cooperation with all stakeholders, particularly tenants and landlords, who are best placed to provide this information. Increased and systematic participation in a landlords' association for rental property owners could provide a way to centralise this information. Being a member of a landlords' association also brings advantages such as better awareness and subsequent promotion of the PRS's needs and interests. Thus, the significance of a series of national or regional associations that train landlords and offer information and support can be highlighted. In some situations, gradual implementation and long lead-in times of regulation, allowing time for adjustment and education on the topic can be useful, as well as increased financial aid for lower-income landlords.

A further social barrier is that of the need for a skilled workforce who are trained and able to retrofit buildings. A report by the UK's Grantham Institute (Baker et al., 2022) found that there are currently few incentives for construction workers to retrain to specialise in energy efficiency retrofitting, and a declining construction workforce in a UK context as a result of Brexit and the COVID-19 pandemic. The report recommends that national retrofit ambitions must include skills and trainings within their scope to ensure that the workforce is prepared for the retrofit demand. One solution proposed in France was the introduction of an Energy Efficiency Training programme which requires companies that are involved in retrofitting projects to receive training dedicated to energy efficiency (Baker *et al.*, 2022).

5.4 Technical Barriers and Solutions

A lack of technical knowledge can be a barrier that prevents the implementation of energy efficiency measures, whereby tenants and landlords are not fully aware of the benefits that the renovation could bring, or are mistrustful of certain implementation solutions. Furthermore, mistrust towards innovation professionals or the overwhelming number of offers can highly affect the final decision to renovate or not renovate. Mistrust in new technologies is often connected to lack of technological knowledge (D'Oca *et al.*, 2018). According to property owners' associations, there is a certain level of mistrust towards new technologies among their members, corresponding to the behavioural aspects towards available technological solutions and the possibility of purchase and use of such products. It is mainly connected to lack of knowledge about the issue and related technologies, the perception, feelings and interpretation of information, which all may cause fear and concerns regarding new technologies (Assefa and Frostell, 2007).

Risk aversion can also arise due to lack of information on technologies – this is where technological barriers cross over into the social domain. Lack of knowledge and capacity discourages the adoption of new and more efficient designs. Many energy users think in a traditional way, and thus focus more on initial investment costs rather than operating costs and money saved over time. Moreover, in many circumstances, consumers assume that energy efficiency adds to the costs and projects' duration. Decisions are often a product of individual perspective and bias regardless of complete information and rational utility. For example, if the probability of profitability is 95% for a certain investment – choosing highly energy efficient windows rather than ordinary ones when renovating - less than 95% of households will invest because of their risk averse nature (Pålsson, 1996). These people tend to focus on price and costs rather than returns and ignore small energy saving opportunities. Additionally, emotional factors or aesthetics are aspects that also influence a decision to renovate. The level of risk aversion tends to increase with age as people may prefer the status quo or commonly used solutions (Vavallo *et al.*, 2019).

Education on technologies and technical factors involved in energy efficiency and retrofitting could be a possible solution to this barrier. To raise technical awareness in a successful way, target groups need to be convinced to take actions regarding the adoption of better energy management practices and energy efficiency technologies for new or existing dwellings. An important factor is to ensure that the advice given to intended beneficiaries is credible, unbiased and not exaggerated. Eligible beneficiaries, especially more vulnerable ones, need trustworthy advisers who are not trying to “sell” them goods and services. Lists of trusted professionals could be provided by neutral parties such as public authorities, property owners or consumers associations, or “one-stop-shop” structures. The lists should have a non-exhaustive character, but with sufficient choices and a wide price range for the services offered. This would constitute a relatively low-cost measure to tackle a lack of transparency in the market. Advice to interested parties should point out areas of inefficiencies, propose suitable solutions, assess the expected economic benefits, and recommend reliable contact points for further assistance during implementation. Our survey respondents also echoed the sentiment of the importance of providing technical and professional advice, training the ‘trainers’, and generally increasing awareness, knowledge and support within schemes for technical implementations.

Another useful type of support is training and capacity building of target groups, so that they are capable to make decisions on their own and take appropriate steps for the implementation of suitable energy efficiency measures, enhancing knowledge on the topic and helping them to realise the long-term benefits of energy efficiency investment. There can be several categories of training based on necessary requirements; on the one hand, training can take place in the form of specialised programmes aimed at managers, engineers, technicians, and operators, while on the other hand, they can be developed around a subject, providing in-depth knowledge on specific techniques or methods. Independent and trusted guidance could be provided by local authorities and national property owners' associations. They should be directly involved in providing a comprehensive service package with information on the most efficient technologies, available funding instruments, fiscal measures, lists of certified building professionals, etc. to property owners at the local level. As one survey respondent suggested, NGOs can also play a role here, making use of mediatory and technical expertise to support energy efficiency implementation. EU initiatives such as "ECOLISH" and "ELIH MED", seek to overcome such barriers by raising awareness on energy efficiency investments, and by recognising the importance of accompanying refurbishment projects with awareness-raising campaigns, so that households understand better the challenges and benefits they can reap from them.

The creation of One-Stop-Shops that can grant coherent and consistent support throughout the retrofit project, guarantee impartial and holistic guidance, and a full-service package would ensure consumers/owners always have someone to talk to and who will deal with any issues they may be facing (including financing for renovation works). This might mean being guided to more professional advice. As a services hub, one-stop-shops can serve as the interface between consumers and accredited installers. As well as ensuring enough reliable and accredited installers, one-stop-shops would then be the third-party that provides an impartial situation assessment, defines which professional is liable when something goes wrong and smoothly implement the corrective works (McGinley, Moran and Goggins, 2020). From a technological point of view, it may not be possible to carry out certain types of renovation quickly without the need to interrupt the tenant's stay, and thus the development and expansion of plug-and-play technologies to limit disruption and reduce risks of installation could be a possible solution (D'Oca *et al.*, 2018; UIPI, 2018).

The establishment of a building renovation passport, which is a document in electronic or paper format, outlining a long-term (up to 15 or 20 years) step-by-step renovation roadmap for a specific building, resulting from an on-site energy audit and fulfilling specific quality criteria and indicators established in dialogue with building owners can help to promote progressive renovation and avoid the initial high upfront cost barrier. Nevertheless, the establishment of a reliable and good quality passport and corresponding roadmap requires a good audit in the first instance, which is often expensive. It is unlikely that owners of the worst performing stock will be ready to spend €1000 (prices differ but it is generally acknowledged that a good passport would cost this price), and if they do, they will have less money available to invest in the actual renovation. Therefore, the most promising solutions are those where the passport is subsidised partially or entirely. An example of a pilot venture in this arena is the Passeport Efficacité Énergétique (P2E) in France. P2E includes

basic information on the house, household and the energy expert. It describes a two-stage renovation process, including an indication of performance for each of the measures, and the overall cost. Additionally, it includes information on why renovation should be coherently staged and how to ensure this, as well as general information on why renovation will benefit the homeowner. Between 2016 and 2018, 1,172 P2Es were carried out in several test phases. The survey showed that piloted households were very satisfied with the passport in the terms of duration, reliability and provided information. 68% of piloted P2Es stated that the instrument triggered additional energy saving measures, 19% extended the planned renovation to cover additional measures, 19% increased the energy performance level of an already-planned measure, and 30% integrated energy performance measures in their previously non-energy-related renovation project. Experts estimate that P2E would cost around €400 including VAT. However, households were only willing to pay around €105 on average (BPIE and INIVE, 2020).

Digitalisation of energy used within the home can be an exceptionally powerful tool, when paired with sufficient training and information on how it should be used, such as the use of smart meters. Access to real-time data can help consumers understand how much they are using, and how much it costs, influencing user behaviour. Smart thermostats paired with a domestic heating system can allow users to heat a specific room to their desired temperature, without heating all other rooms in a household. Automation can also work to set energy saving modes when nobody is at home by automatically turning lights off, or turning off heating systems (Motherway *et al.*, 2022).

6

A MULTI-DIMENSIONAL SOLUTIONS PERSPECTIVE

The implementation of energy efficiency policies for the alleviation of energy poverty in the PRS across Europe is a multidimensional problem which cross-cuts multiple different sectors (ENPOR, 2021). This was a key finding from not only the first iteration of this report published in 2021, but is a finding from across the work of the ENPOR project in general. This was also supported by the results from the primary survey discussed in Section 4, with several stakeholder groups mentioning that governmental bodies and other organisations, such as NGOs, could improve the implementation of energy efficiency policies. Detailed insights on potential solutions which highlight the need for a multi-dimensional perspective are provided in **Table 2** (EU governmental bodies) **Table 3 Policy improvements/actions that national governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.** (national governmental bodies), **Table 4 Policy improvements/actions that regional governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.**(regional governmental bodies), **Table 5** (local governmental bodies), and **Table 6 Policy actions that organisations like NGOs can implement according to survey participants, and respective categories of barriers they alleviate.**(other organisations such as NGOs). However, we elaborate on some responses here.

One survey respondent working in the field of policy organisations/think tanks claims that EU governmental bodies should *“oblige landlords to renovate, to support the EU’s efforts to reach the 2050 goals, taking into account that tenants do not have to bear all costs”*, referring to the need for actions that target both financial and political/regulatory barriers. Moreover, another respondent who identified themselves as an academic highlighted the need for governmental bodies to encompass a wider range of categories of barriers, by stating that governments should *“offer tax reduction on the renting revenues if landlords commit to renting their dwellings with a rent lower than the market, along with the requirement that their dwellings meet a minimum energy-performance level. Additional tax reductions could be granted if the dwelling is rented in vulnerable groups”*. In this way, financial, social, and political/regulatory aspects of the issue are taken into account, also indicating the importance of interconnecting energy and social policies for the most effective alleviation of barriers.

A similar approach is also proposed by a respondent from the field of not-for-profit organisations/charities, who claims that *“when national governments design energy efficiency financing tools, a detailed mapping of the residency models should be foreseen to support a better allocation of funds based on the real and proven needs of each residency model”*, connecting financial incentives with the political/regulatory context. Finally, a respondent working within a city network suggests that *“local governments can assess opportunities and potential negative impacts at project-level and promote tailored financing solutions (e.g., to avoid so-called renovictions, etc.), especially when it comes to vulnerable households”*, highlighting the need for a multi-dimensional perspective on the alleviation of financial, political/regulatory, and social barriers.

Table 2 Policy improvements/actions that EU governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.

Categories of barriers addressed	Solutions	Affiliation of survey respondent
Financial Social Political/Regulatory	<i>“Develop a coherent methodology applicable on a European level to define levels of energy poverty and the level of financial assistance at each level of poverty.”</i>	Landlord association
Financial Political/Regulatory	<i>“Set overall objectives on energy efficiency/renewables but avoid going into detailed regulation (e.g., need of flexibility to adapt to local peculiarities, specific markets, etc.), along with further support of renovations through the provision of funds.”</i>	Private organisation/Company
Financial Political/Regulatory	<i>“Provide legal regulation (oblige landlords to renovate, otherwise we will never reach the 2050 goals, however, make sure that tenants do not have to bear all costs).”</i>	Policy organisation/Think tank
Financial Social Political/Regulatory	<i>“Monitoring and sharing of knowledge and best practice on energy poverty among MS, funding schemes, strong regulation, surveys among the MS, special awareness programs for consumers, focus on energy poverty with specific solutions to compact the reason behind the problem, support to vulnerable consumers with affordable funding solutions.”</i>	Private organisation/Company Not-for-Profit/Charities
Financial Social Political/Regulatory	<i>“Further guidance to MS by setting targets, providing funding for the alleviation of, and further research on, energy poverty in the PRS across Europe.”</i>	Academia/Research institution

Table 3 Policy improvements/actions that national governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.

Categories of barriers addressed	Solutions	Affiliation of survey respondent
Financial Political/Regulatory	<i>“Provide subsidies and demand a minimal pace on improvements of energy efficiency.”</i>	Tenant association
Financial Political/Regulatory	<i>“Better and more focused usage of the current EU legislation, and funding policies directly targeting energy vulnerability in the PRS across Europe, also providing better guidance to their subordinates.”</i>	Academia/Research institution
Financial Political/Regulatory	<i>“Provide subsidies and demand a minimal pace on improvements of energy efficiency, improve tenant rights on decisions in regard to improving energy efficiency.”</i>	Tenant association
Financial Political/Regulatory	<i>“Establish obligations for PRS landlords to comply with minimum energy efficiency requirements in the housing they own and rent out. Address high rental prices by intervening in PRS markets, giving powers to local/regional authorities in charge of urban areas, where prices have rapidly increased in recent years. Channel and distribute EU funding, coupled with national resources for retrofitting in PRS. Set consistent, ambitious national energy efficiency policies, or strategies, which adequately consider energy efficiency in the PRS across Europe, energy poverty and climate change.”</i>	Academia/Research institution
Financial Political/Regulatory	<i>“When designing energy efficiency financing tools, a detailed mapping of the residency models should be foreseen. This can support a better allocation of funds based on the real and proven needs of each residency model.”</i>	Not-for-profit/Charities

Financial Political/Regulatory	<i>“Adopt a progressive approach to forbid renting inefficient dwellings, with a clear deadline and financial incentives that decrease over time, or with financial incentives under the conditions to strongly limit the increase in the rent over the next 10 years. In case renovations are done without public aid, a regulation should limit the increase in rents after works so that it does not exceed savings in energy bills.”</i>	Academia/Research institution
Financial Social	<i>“More funding schemes, special awareness programmes for consumers, focus on energy poverty with specific solutions to compact the reason behind the problem, support to vulnerable consumers with affordable funding solutions.”</i>	Private organisation/Company Not-for-Profit/Charities
Political/Regulatory Technical	<i>“More information and data on the benefits of energy efficiency policies.”</i>	Other

Table 4 Policy improvements/actions that regional governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.

Categories of barriers addressed	Solutions	Affiliation of survey respondent
Social Political/Regulatory Technical	<i>“Regional authorities could investigate the most effective mechanisms to get landlords to upgrade their properties, lead on demonstration projects, coordinate large retrofit projects, and provide support to access funding.”</i>	Not-for-Profit/Charities
Financial Political/Regulatory	<i>“Depending on state composition: assist the delivery of EU/national funds and the implementation of national policies/strategies. Attract EU funding for dedicated regional programmes, or supplement EU/national funding with own resources from regional budgets.”</i>	Academia/Research institution
Financial Political/Regulatory	<i>“If sufficient power was decentralised at the regional level, this level could provide support services for local energy efficiency/renovation programmes, provide financing, catalyse the defragmentation of the energy renovation market (on the supply and demand sides), set up guarantee funds to de-risk private finance, etc.”</i>	Other

Table 5 Policy improvements/actions that local governmental bodies can implement according to survey participants, and respective categories of barriers they alleviate.

Categories of barriers addressed	Solutions	Affiliation of survey respondent
Financial Political/Regulatory	<i>“Establishing local tax deduction, along with flexible local building regulation, in order to implement energy efficiency measures.”</i>	Academia/Research institution
Financial Political/Regulatory	<i>“Influence rental prices in the PRS through municipally-owned, or managed social housing.”</i>	Academia/Research institution
Financial Political/Regulatory	<i>“Observe changes in rental prices following retrofitting at street, or neighbourhood scales, which can be seen as signs of “low-carbon gentrification, or renoviction.”</i>	Academia/Research institution
Financial Social Political/Regulatory	<i>“Local governments can assess opportunities and potential negative impacts at project-level, and promote tailored financing solutions (e.g., to avoid so-called renovictions, etc.), especially when it comes to vulnerable households.”</i>	Other
Financial Social Political/Regulatory	<i>“Social services of municipalities have a good knowledge of the households facing difficulties with paying their rent, energy bills, etc. And increasingly, municipalities have a good knowledge of the energy performance of the building stock in their area. They can, therefore, adapt information and support schemes according to the issues faced by owners and tenants.”</i>	Academia/Research institution
Financial Social Political/Regulatory	<i>“Advisors from municipalities can be mediators between tenants and owners when landlords face difficulties to get their dwelling meet minimum standards or would like to do works.”</i>	Academia/Research institution
Social Political/Regulatory	<i>“Set local renovation plans to support renovation by identifying and accompanying persons at risk of energy poverty at this level.”</i>	Private organisation/Company

Table 6 Policy actions that organisations like NGOs can implement according to survey participants, and respective categories of barriers they alleviate.

Categories of barriers addressed	Solutions	Affiliation of survey respondent
Social Political/Regulatory	<i>“NGOs can provide essential support to low-income and vulnerable households. They can also help to identify buildings that are substandard, and where owners abuse vulnerable households that cannot look for other housing opportunities.”</i>	Academia/Research institution
Social Political/Regulatory Technical	<i>“NGOs may help energy vulnerable groups to have their voice heard in front of public authorities or mediate with landlords and other non-state actors involved in PRS retrofitting actions (e.g., construction firms, etc.)”</i>	Academia/Research institution

7

CHANGES AND DEVELOPMENTS IN ENERGY EFFICIENCY POLICY BARRIERS 2021-2023

Since the first iteration of this report, published in 2021, the COVID-19 pandemic which began in 2020, combined with cost-of-living and energy crises, continued to have an impact on daily life across Europe, which was further affected by the Russian invasion of Ukraine in 2022, as supplies of Russian energy to the EU were reduced. In reaction to these events, energy prices were on average 40% higher in 2022 than in 2021 across Europe, with an inflation rate of 10.1% (Menyhert, 2022).

7.1 Changes to Policy

In response, countries issued emergency relief packages and short-term measures to support people and businesses through the crisis, largely through one-off financial payments and monetary support. For example, in Belgium, VAT was reduced in October 2022 on electricity, natural gas and district heating, whilst in Bulgaria, heating prices were frozen from December 2021 to March 2022 and prices for electricity were restricted to a 3.4% increase. In Finland, low-income households with high bills were entitled to have 60% of their costs covered by subsidies, and France offered €100 one-off payments to people already in receipt of energy vouchers. More information on EU Member States' short and medium-term can be found in a compiled report available on the [ENPOR Energy Poverty Dashboard](#).

As a result of the energy crisis and the surge in short-term measures, costing €570bn (Joyce, 2022), the European Scientific Advisory Board on Climate Change urged Member States to tackle the root cause of the energy crisis, by reducing energy demand, in particular through accelerating renovations to the building stock, and behavioural changes (European Environment Agency, 2023). Failure to do so will hinder efforts to shield Europeans from future crises. They also highlighted the need to provide targeted support within these support measures to low-income and vulnerable consumers. Nevertheless, progress on the EU's Renovation Wave to date has been limited, with several countries falling short of their targets. For example, Croatia requires over €1bn per year for its ambition to renovate 100% of buildings by 2050, but has only allocated an annual budget of €128m (Joyce, 2022). A key **political barrier** remains where Member States argue that building standards and regulations are their individual responsibility, rather than an EU-level decision (Keating, 2020).

The plethora of short-term emergency measures implemented was valuable in preventing immediate economic crisis for many households, however, Hesselman *et al.* (2021) found that **without a focus on meaningful longer-term and additional measures that secure affordable access to energy for vulnerable households, more people will be at risk of energy poverty**. In addition, poorly-designed climate change policies, including those that focus on energy efficiency may exacerbate energy poverty and create new forms of inequality. In order to combat this, climate-related policies need to be holistically combined with broader socio-economic development targets, such as integrating health and

education goals, to be truly effective (Belaïd, 2022).

7.2 Changes to Barriers and Solutions

The multiple crises which shaped 2021 and 2022, and are continuing to have effects into 2023, are also generating new socio-technical circumstances in relation to the PRS. **Increased financial barriers** have impacted the pace and appetite for energy efficiency renovation. For example, the cost of building materials and equipment, as well as labour, and thus **the cost of energy renovations has increased drastically** since 2021. For example, in the UK, repair and maintenance costs in the construction sector increased by 16.7% from September 2021 to September 2022 (UK Government, 2022). This creates a significant barriers to investment, particularly for lower-income groups, as greater initial outlay is needed for a retrofit project. Indeed, a study in Melbourne reported that landlords would delay renovations as a result of financial concerns (Lang *et al.*, 2022). On the other hand, **due to the increased costs of energy, payback times for investments are lower** due to energy savings having a greater financial reward. This disparity does not, however, alleviate the split incentive dilemma.

The pandemic further exacerbated financial and technical barriers through loss of jobs and pauses or cancellations to funding schemes. A study by Karakosta *et al.* found that during 2020, in the US, 70,000 people in the energy efficiency sector lost their jobs, and multiple states involved in the low-income renovations scheme, the “Weatherization Assistance Programme” halted it during the pandemic (Karakosta *et al.*, 2021). The same study found that **funds for energy efficiency across the EU were redirected to alleviate the economic impact** of the pandemic. This was also the case in Greater Manchester, UK, where financial resources were reallocated from decarbonisation budgets towards tackling the COVID-19 pandemic (Crowther *et al.*, 2022). In Scotland, the requirement for all new tenancies to require an EPC of at least a D by April 2022 was also paused due to strain on the PRS during the pandemic (Rice and Haigh, 2021). These pauses and delays to programmes will have a significant knock-on impact on both carbon budgets and the alleviation of energy poverty. Forecasts suggesting that the negative impacts of the COVID-19 pandemic on energy poverty will be reabsorbed only very slowly, creating further disparity between countries with high and low rates of energy poverty in the EU (Carfora, Scandurra and Thomas, 2022).

Socially, **the pandemic and energy crisis have led to an increase of people experiencing insecurity, poverty and energy poverty**. The mandate to stay at home in many countries saw a sharp increase in household energy consumption, which combined with spiralling energy costs, economic recession and unemployment, saw many households struggling financially. Belaïd states that **energy price increases and economic disruption have reaffirmed existing social inequality as well as energy poverty** (Belaïd, 2022). In the UK, 72% of households increased energy consumption since 2020, as average incomes dropped 28% due to changes in employment patterns. Ambrose *et al.* call for improved energy performance in the PRS, mechanisms to address debt, and a priority on high quality public spaces such as libraries to provide safe spaces, as key policy responses following Covid-19 (Ambrose *et al.*, 2021).

On a positive note however, as a result of the energy crisis, **public awareness of energy efficiency and the consequences of poor efficiency on energy bills has increased**. A survey

in the UK found that 60% of those interviewed were more interested in energy efficiency than they had been prior to the crisis due to the cost of their bills. 66% said they thought that the government should do more to assist with costs of renovation (Kingfisher, 2022). This has helped to remove a key social barrier around lack of awareness of the importance of energy efficiency. Nevertheless, Crowther *et al.* warn that **the focus on short-term crisis throughout the pandemic has shifted priorities and diverted attention away** from the longer-term achievement of decarbonisation ambitions (Crowther *et al.*, 2022).

8 CONCLUSION

This updated report has explored the structural elements that underpin efforts to improve the energy efficiency of the private rented sector in Europe. Based on the ENPOR Partners' contextually situated expert assessments, a desk research review of relevant literature and a questionnaire survey, we have brought together multiple strands of knowledge from a variety of sectors. The report has identified and considered the complex barriers in the path of energy efficiency investment in this part of the housing stock, as well as the integrated solutions that can help address them, as well as considering how the renovation landscape has changed since 2021. We have also identified some examples of good practice across Europe, while highlighting how successful initiatives to reduce energy poverty go hand in hand with wider interventions in how energy and housing are lived, experienced and regulated. In practice, this necessitates direct engagement with relevant housing residents, institutional stakeholders, and landlords.

In updating the report from our previous analyses, we have identified the complex challenges introduced by both the COVID-19 pandemic, as well as the broader energy crisis and post-pandemic policy landscape. These contingencies have further exacerbated existing vulnerabilities in household energy use and social inequality. While a suite of customised and ambitious policies has been developed in response, they rarely address the structural drivers of energy poverty. However, the new circumstances – including increased home-working patterns – have increased people's awareness and knowledge about energy use in the home, leading to an improved focus on the challenges faced by the PRS among other issues.

Updated results from the primary survey found that across the board, financial barriers continued to be consistently rated the most important barrier to implementing policy, regardless of sectoral disaggregation – except for policymakers, who deemed political barriers to be the most important. Another key finding was that generally, policy awareness was low to fair, which corresponds with this being an understudied and relatively invisible sector, particularly in its lower-income and more vulnerable segments, despite improvements in this area since the report's first iteration.

A common theme running throughout our analyses and recommendations is that solutions to energy poverty in the private rented sector are ultimately social, political and regulatory – they require acknowledging the inequities generated by wider systems of production and consumption, and recognising how energy use is bound up with the practice of political and economic power. Using artificial and subjective notions of "barriers" can also hinder cross-disciplinary, multi-sectoral engagement, resulting in siloed thinking, when in reality, the barriers and their solutions cover technical, political, social and financial issues, and cannot be viewed in isolation. Although a practical way of identifying structural factors that can prevent investment in energy efficiency, this is where we reach the limits of the conceptual notion of 'barriers' as an explanatory tool for understanding the persistent energy poverty, housing quality and energy efficiency related challenges. Future research and deliberation might ask the question how scientists, decision-makers and practitioners might develop

analytical tools to drive deep systemic change and disruptive innovation in the entirety of the housing sector. We have begun to address this with a dedicated section in this updated report, by bringing together and suggesting solutions that transcend barrier-based silos.

9

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