



Actions to Mitigate Energy Poverty
in the Private Rented Sector

Deliverable 5.2

Pilot Outcome fiches – Analysis of the policies’ outcomes

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INTRODUCTION

This report presents the findings in energy poverty in the Private Rented Sector (PRS) from the evaluation of the Horizon 2020 ENPOR policies in the form of outcome fiches. For each of the ten examined policies, ranging from Energy Efficiency Obligation schemes, subsidies, grants, information and advice measures, the fiches present the policy background, followed by a description of the policy and how it has been altered through the co-creation process with national stakeholders in the framework of the ENPOR project. It then concludes with the evaluation results based on a set of Key Performance Indicators (KPI) and providing a short summary and recommendations for the implementation of similar policies in the EU.

The KPIs were developed based on the framework of tenets of procedural, recognition and distribution justice followed in the project. The primary intention with the formulation of the KPIs was to detect whether policies and measures recognise the specific needs and presence of vulnerable households living in the PRS through explicit definitions, targeting and monitoring. A second tenet of the KPIs was the need to determine whether policies had been developed in an inclusive and comprehensive manner, by involving affected tenants and listening to the voices of households affected by energy poverty. We also judged the extent to which the policies communicated with the national policy landscape, and their ability to generate new strategic and institutional capacities to combat energy injustices. Finally, we judged the extent to which the policies can be directly linked to a reduction in energy poverty rates, within the specific national context in which they operate.

For the evaluation, the KPIs were operationalised as binary questions corresponding to the described aspects and grouped into three areas: policy design, capacity building and outcomes. For each question that was positively answered by the assessing ENPOR partner, a score of 1 was counted towards the overall score within the area and in total. It should be noted that the evaluation does neither consider the quality or quantitative extent of the fulfilment, nor differing relevance of the individual KPIs for the overall policy outcomes, e.g., by means of weighted scores (i.e., all KPIs feed equally into the overall scoring). Instead, the score reflects the extent to which the policy has checked the boxes of what our research has identified to constitute good practice when tackling energy poverty in the European private rented sector.

2 AUSTRIA

2.1 Policy background

2.1.1 Situation in the residential sector

Austria's residential sector has a mix of private ownership and rental arrangements. About 50% of Austrians live in privately-owned homes¹, which is significantly lower than the EU average of around 70%. This is largely due to the high proportion of social housing in Austria, particularly in Vienna. Renting is common, and Austria has a comparatively regulated rental market which contributes to keeping housing affordability in check.

Vienna, the target region of ENPOR in Austria, has a robust social housing system, with a high proportion of its inhabitants – over 40%² – living in subsidised or municipally built, owned, or managed housing. This is among the highest rates in the world. Vienna's social housing is characterized by good quality, sustainable design, and affordable rates.

The energy performance of buildings in Austria varies, with a mix of old buildings and new constructions. There are ongoing efforts to improve energy efficiency in the building sector, with regulations in place to ensure new buildings meet certain energy performance standards. In addition, there are programs in place to incentivize the retrofitting of older buildings. The current renovation rate in Austria is about 1.5% per year³.

Austria, in general, has seen a steady increase in household energy prices since 2020, which is consistent with the trend in many developed countries. This is influenced by a range of factors, including commodity prices on the international market, domestic production and supply conditions, and regulatory decisions. The energy crisis in 2022 caused a rapid increase in energy prices, while in 2023, prices are still significantly above the pre-crisis level. Many households now pay considerably more for their energy consumption, whereby the specific situation also depends on whether they were existing or new customers of suppliers. While new customers were partly confronted with tariffs in the second half of 2022 that were four times as high as before the energy crisis, price increases were passed on to existing customers to a lesser extent and also with a delay, as the passing on of price increases on the wholesale markets to end customer prices always takes place with a time lag. There were also differences between western and eastern Austria, especially in electricity prices, as there is significantly more hydropower in the west and greater dependence on natural gas in the east. Since spring 2023, however, prices have slowly started to fall again.

The high inflation rates triggered by the war are a particularly big problem for tenants, as many rents in Austria are linked to the consumer price index and thus also rise more sharply when inflation is high.

2.1.2 Energy poverty definition and strategy

Austria does not have yet an official definition of energy poverty at the political level as shown in the National and Energy Climate Plan for 2021-2030. Although various definitions have

¹ Statistics Austria: Housing situation - share of legal status by province, www.statistik.at/statistiken/bevoelkerung-und-soziales/wohnen/wohnsituation

² Statistics Austria: Housing situation - share of legal status by province, www.statistik.at/statistiken/bevoelkerung-und-soziales/wohnen/wohnsituation

³ Institute for Real Estate, Building and Housing and Austrian Federal Environment Agency (2021): Monitoring system for renovation measures in Austria, www.iibw.at/documents/2021%20IIBW_Umweltbundesamt.%20Sanierungsrate.pdf

been elaborated by different bodies, none have yet been included in the official political discourse. In the elaborated definitions of energy poverty, a very low household income and disproportionately high energy costs are the two most important factors. These two factors were mostly defined as equivalent net household income below the at-risk-of-poverty threshold of 60% of the median household income and energy expenditures above 140% of the median energy expenditure in the total population. Energy efficiency in buildings and dwellings as a third factor has also become increasingly important. This is particularly relevant as people with low household incomes can often only afford housing, which requires refurbishment.

According to the Energy Poverty Dashboard, 2% of the Austrian population were unable to keep their home adequately warm in 2021 with the energy poverty rate among tenants according to this indicator being almost twice as high at 3.7%. The share of tenants in the energy poor population is 73%, which underlines the relevance of targeting the PRS in the fight against energy poverty.

2.1.3 Policy framework with view to tenant protection

Austria implemented a wide range of consumer protection measures that also benefited vulnerable customers and contributed to the reduction of energy poverty. These measures largely corresponded to those of other EU countries: acute assistance such as basic supply and partial disconnection protection, cost caps, measures with a preventive effect such as prepayment meters, and information and advice.

Relevant measures envisaged in the government programmes since 2013 were implemented, especially regarding the contact and counselling centres of the energy providers as well as a bundle of institutionally coordinated assistance and support measures, and in particular for cases of hardship and emergency.

When implementing energy efficiency measures in the PRS, Austria also faces major challenges for energy poor households. Split incentives pose a major problem due to the legal situation in which tenants cannot influence the heating technology used within their households, although flat owners do not have full control over this decision either⁴. The lack of financing can also be a major hurdle; in many houses there are too few financial reserves or disposable income.

Rents in many old buildings (or all buildings that fall under the full scope of the Tenancy Act) are also subject to an indicative rent which reduces the incentive for landlords to invest here, although surcharges and deductions on the rent are also possible (usually, however, there are mostly surcharges by landlords). For this reason, an amendment to the Condominium Act came into force in 2022, which prescribes a minimum reserve of about 90 cents per square metre of floor space per month and also makes it easier to pass resolutions in the owners' association. These reserves are paid by the tenants (except in pre-war buildings) and can be used by owners or property managers to finance energy efficiency measures. Tenants cannot, however, de facto enforce a heating system exchange or similar actions themselves.

This is particularly relevant because a CO₂ tax has been introduced in Austria in October 2022, but it is precisely those who cannot switch to renewable energy sources who will have to pay it. It thus carries the risk of imposing a heavier burden on energy poor households in housing in need of renovation. Section 4 of the Tenancy Act does provide that a majority of the tenants of a building can demand that the landlord carry out “useful improvements” to the

⁴ Ashby et al. (2020), “Who are Hard-to-Reach energy users? Segments, barriers and approaches to engage them”, https://userstcp.org/wp-content/uploads/2020/10/Ashby-et-al-2020_ACEEE-summer-study.pdf

building (e.g., a district heating connection is explicitly mentioned in the law). However, this only applies if the investment can be covered from the rent reserve or if the tenant and landlord agree on how to share the additional costs. It is usually difficult to get such a majority – which is partly due to the high number of fixed-term tenancy agreements. Such a greening of tenancy law has been discussed for years and can also be found in various earlier government programmes. Even now, a broad discussion process on this topic is planned at the political level, but it has not yet begun. The government also plans to adopt a phase-out plan for fossil fuels, with mandatory replacement of oil and gas boilers. However, the Renewable Heat Act, in which this is to be enshrined, has not yet been finalised.

The Austrian government has implemented various measures to relieve the local population with low incomes of the high energy prices due to the energy crisis, for example in the form of various one-off payments. More general measures that already played a role in the context of energy poverty include housing subsidies and heating subsidies, the possibility for households to invoke mandatory basic supply by energy suppliers, and the possibility for low-income households to be exempted from energy-related fees.

In this process, various measures are specifically aimed at supporting energy poor households. These are briefly described below.

- **Clean Heating for All:** this subsidy scheme supports low-income households in switching from fossil-fuelled space heating systems to sustainable climate-friendly heating systems. Up to 100 % of the costs of the heating conversion are covered (with a cost cap). Energy advice for households is also provided. Building owners of a one/two-family house or terraced house who can prove their social vulnerability (e.g., by receiving certain social benefits) are eligible for support. This program serves as a first step to enable energy poor households to convert their heating systems and focuses only on building owners, as implementation in the rental sector would be significantly more complex.
- **Housing Umbrella:** as of 2023, this public support service is aimed at low-income private households. Households that are in arrears with their rent and are threatened with eviction can receive financial support here. They receive free financial and social counselling, and the arrears are paid for them. Through this support service, arrears on energy bills are now covered to prevent vulnerable households from being disconnected from energy supplies. This benefit is also linked to advice for households on living aspects and energy costs.
- **Appliance replacement programme for households:** under this new programme, the replacement of old inefficient household appliances, such as refrigerators, dishwashers and washing machines, is subsidised at 100 % for energy poor households. Households also receive low-threshold energy advice (so-called Social Energy Advice), during which a decision is made on whether appliances are worthy of replacement, and which is intended to help reduce energy consumption in the long term. Social counsellors trained for this purpose can also provide this form of advice.
- **Social Energy Advice:** this new concept of energy advice was elaborated by the Austrian Energy Agency (AEA) in 2022. Social advisors are trained to provide low-threshold energy advice to vulnerable households. The focus is on topics that can

help to reduce energy consumption without investments and also help with problems in paying energy bills. The training participants receive introductions to the topics of electricity, heating and hot water and learn from experts the most important recommendations for households to be able to make their energy consumption as sustainable as possible. They also learn where the most common problems of energy poor households lie and what the causes are. By combining their knowledge from the social sector with new knowledge from the energy sector, they are ideally suited to support energy poor households.

The introduction of an energy poverty coordination office was also recently passed into law in Austria. However, this still has to be set up structurally and take up its tasks.

2.2 Description of the ENPOR policy

The core objective of this policy is to provide information/advice and reach out to vulnerable consumers. In ENPOR, informational resources related to energy saving in domestic settings were refined and restructured. The primary characteristic that distinguished this effort from previous endeavours is a conscious and deliberate focus on figurative language, providing a distinct advantage to hard-to-reach demographics by offering them information in an easily understandable format with minimal textual content and an emphasis on illustrations and pictograms.

This strategy was implemented with the intent to bypass any potential language or knowledge-related barriers. While this approach was beneficial for energy poor households in general, it was particularly pertinent for those living in privately rented accommodations, given that their ability to implement energy saving or cost reduction measures is largely restricted by limited financial resources and lack of decision-making authority.

The development of these services necessitated the inclusion of the target demographic of affected energy poor households, which was accomplished through the intermediation of energy consultants from DIE UMWELTBERATUNG. The materials created were initially trialed by consultants in ongoing advisory interactions, allowing for direct feedback from energy poor households.

A total of 50 energy poor households, of which 41 lived in the PRS and 9 in the social rental sector, were included in this pilot phase to gauge their response to the newly created materials. It became evident that the focus on figurative language and illustrations was well-received, creating a significant increase in engagement with the material compared to previous text-centric resources.

The feedback received was overwhelmingly positive, with a few minor modifications needed to enhance clarity. This iterative development process ensured that the material was not only accessible but also relevant to the needs and challenges faced by the affected households. The final versions were shared with a variety of stakeholders from energy and social sectors to incorporate their feedback.

The dissemination of the material was made possible through the financial support of the Ministry for Climate Action. The materials were translated into several languages relevant

to the demographic and were provided free of charge to counselling institutes and other organizations supporting energy-poor households. In particular, organizations that aid privately renting households were prioritized.

In the end, about 130,000 factsheets were printed and distributed across Austria. The material has since become a crucial part of the support services for energy poor households in Austria and is expected to continue serving this role beyond the project’s duration.

2.3 Evaluation of the policy against the KPIs

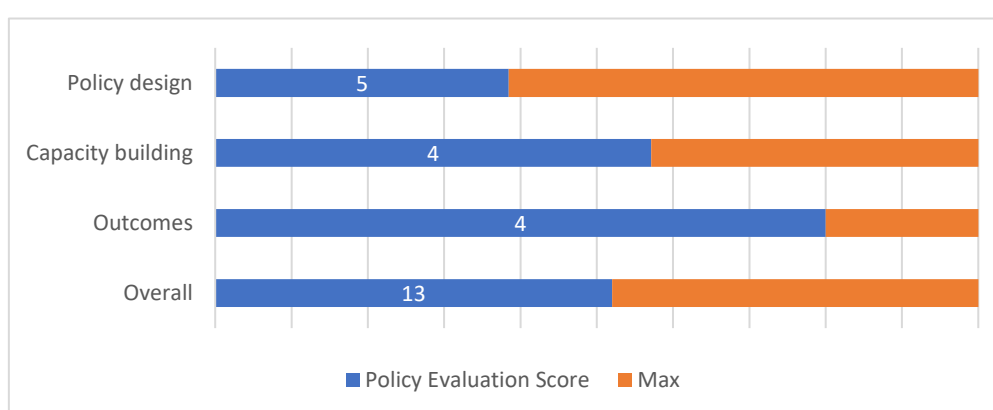


Figure 1: Policy evaluation scores Austria

Area	Score	Comments
Policy design	5/13	<ul style="list-style-type: none"> This policy was designed with the input of a wide range of stakeholders, including with feedback from energy poor tenants, although property owners were not involved in this process. The policy does not explicitly target the PRS but by design reaches many tenants as they make up a high share of those seeking advice, particularly in urban areas. There has been a wide uptake of the materials produced by this policy due to the success of the design from a range of municipal agencies, as well as use by the new Austrian Co-ordination Office for Energy Poverty, despite a lack of official energy poverty definition at a national level. This policy does not work to address the split incentive, as the measures targeted by the policy are not structural or requiring renovations, rather they are more behavioural and aimed at tenants.
Capacity building	4/7	<ul style="list-style-type: none"> This policy is effective in providing new insights into existing support measures, with the materials, as well as reaching a wide audience through their use as part of other social programmes. The policy helps to improve the knowledge of energy poor tenants with regards to energy conservation measures, as well as improving the knowledge of energy

		<p>poverty alleviation measures among the social workers and municipal workers who utilise and disseminate the information and advice contained within the materials.</p> <ul style="list-style-type: none"> • However, the policy does not maximise its potential to create new collaborations between stakeholders working within the sector.
Outcomes	4/5	<ul style="list-style-type: none"> • This policy was very effective in reaching energy poor tenants and energy poor households in general, due to outreach, dissemination and uptake of the materials by various agencies. The approach taken to reduce language barriers (by firstly reducing text in the materials, and secondly by translating them into several languages) improved the uptake of the materials. • There is evidence, due to the positive reception of the materials, that households have a better understanding of energy bills, conservation measures, and how to improve their thermal comfort. • However, longer term monitoring of whether households continue to implement those measures, and whether tangible energy bill savings are achieved will be needed to assess the long-term effectiveness of the energy advice given.
Overall	13/25	

2.4 Conclusion and further recommendations

The evaluated policy exhibits several strengths in its design and implementation, particularly in its inclusive approach to stakeholder involvement and the successful dissemination of materials targeting energy poor tenants and households. However, notable shortcomings exist, such as the policy's failure to address the split incentive issue, which focuses on behavioural rather than structural changes, and its limited capacity to foster new collaborations among stakeholders. To enhance the policy's effectiveness, it could be useful to ensure the active engagement of property owners in the policy design process to better address the split incentive. Another recommendation is to create synergies and partnerships with other actors of the energy poverty debate (e.g., social and housing practitioners, public health experts) through new partnerships and collaborations. Both proposed measures require wider policy and regulatory changes. Additionally, ongoing monitoring and evaluation of the long-term impact of the energy advice provided, including assessing energy bill savings changes among households, are essential to determine the policy's sustained effectiveness.

2.5 Overview of KPI assessment

Table 1: Overview of policy evaluation in terms of policy design - Austria

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 2: Overview of policy evaluation in terms of capacity building - Austria

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 3: Overview of policy evaluation in terms of outcomes - Austria

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	No	Yes
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Yes	No

3 CROATIA

3.1 Policy Background

3.1.1 Situation in the residential sector

In 2022, 91.1 % of the Croatian population lived in a household owning their home while the remaining 8.9 % lived in rented housing.

According to the national LTRS⁵, the Croatian national residential building stock consists of 762,397 buildings between multi-apartment and family houses with a total floor area of 142,176,678 m². Energy performance and building characteristics, as well as their energy consumption, are largely determined by the construction period. The annual final energy consumption for heating, cooling, domestic hot water (DHW) generation and lighting varies from 350 kWh/m²/a for the multi-apartment dwellings built before 1940 in continental Croatia to 57 kWh/m²/a for those built since 2010. The annual final energy consumption of public buildings varies from 380 to 140 kWh/m²/a, also depending on the construction period and climate factors related to the location. For the energy renovation of buildings by implementing energy efficiency (EE) measures and use of renewable energy sources (RES), attention is devoted to buildings constructed prior to 1987 and their renovation aimed at achieving a low-energy standard and energy class B, A or A+. The annual rate of energy refurbishment of the building stock in Croatia amounts to 0.7% of the floor area between the years 2014 and 2020, while the targets in the LTRS are set at 1% in 2021 and 2022, 1.5% in 2023 and 2024 and further increasing the percentage by 0.5% every 2 years until 2030. The targeted renovation rate for the period 2030-2040 is 3.5% and 4% for 2040-2050. In contrast, deep renovations that reduce energy consumption by at least 60% are currently carried out in only 0.2% of all buildings. In Croatia, only 1.6% of the buildings satisfy the near Zero Energy Building (nZEB) standard (cf. LTRS).

Furthermore, increasingly so-called free-based tenancies emerge, which include two separate families/households in the same dwelling. In the period from 2010 to 2021, residential real estate prices increased by a total of 37% in the EU. In the last quarter of 2022, Croatia had the largest annual increase in real estate prices in the entire EU. Real estate prices in HR in the last quarter of 2022 are 17.3% higher compared to the prices in 2021⁶, in Croatia there has been a significant increase in rents since 2018, and the rent increase in 2019 exceeds the average rent price increase for the EU and continued to grow in 2020, 2021 and 2023, about 1 % more than the average rent increase in the EU (regardless of the fact that the average rent price also increased in the EU).

The Croatian government tackled the ongoing energy crisis with measures like limiting the price of natural gas. Nevertheless, in the heating session 2021/2022 the price of natural gas increased by 67% - from €0.043/kWh to €0.076/kWh. The 2022/2023 heating season was 40% more expensive than 2021/2022 and the price remained constant until March 31, 2023. The price set by the government was charged by public gas suppliers, while customers of private gas suppliers had to pay the market price. The limited price of gas heating also applies to the 2023/2024 season, but only for customers of public suppliers. As a result, most customers who are on the free market are switching to public gas supply services under the jurisdiction

⁵ LTRS - https://mpgi.gov.hr/UserDocsImages/dokumenti/EnergetskaUcinkovitost/DSO_14.12.2020.pdf

⁶ <https://ec.europa.eu/eurostat/cache/digpub/housing/bloc-2a.html?lang=en>

of cities or municipalities.⁷

End customer prices of heat energy for all district heat systems did not change in the 2022/2023 and 2023/2024 heating season for customers of the Croatian national utility HEP-Toplinarstvo. The citizens with wood-based heating experienced an average price increase of 25% during the heating season 2022/2023 compared to 2021/2022. However, a discount from 5% to 15% of the price per m³ was provided for the period until April 2023 for beneficiaries of the „Guaranteed Minimal Support programme”. Across the four different tariffs in Croatia, in April 2022 electricity prices increased by 9% on average. Most households are in a tariff though in which prices even increased by 12%. If a household's consumption exceeds 2,500 kWh in a semi-annual period, there is an additional price increase on top of that. Free-based tenants, which were one of the main target groups of ENPOR activities in Croatia, will be affected by this price increase because they will most likely exceed the limit of 2,500 kWh and pay more expensive electricity which amounts to an increase of almost 30%.

3.1.2 Energy poverty definition and strategy

In Croatia, energy poverty is not clearly defined, nor have general criteria or methodologies for determining energy poverty been established so far. Nevertheless, energy poverty exists as a term in the "Energy Efficiency Act" under the "Energy efficiency obligation scheme for energy suppliers", which encourages the implementation of energy efficiency measures in households affected by energy poverty or in social housing spaces.

The definition of an energy-vulnerable household in the "Regulation on criteria for acquiring the status of vulnerable energy customers from within networked systems" does not consider all aspects of vulnerability, and the status of vulnerable energy customer should not only apply to electricity but also to other forms of energy (such as heat) as well. In the NECP a Program for Elimination of Energy Poverty was announced, which will be adopted by the end of 2024.

The Republic of Croatia also envisages the implementation of alternative measures, including the measures described below:

- ENU-3 Energy renovation programme for apartment buildings
- ENU-4 Energy renovation programme for family houses
- ENU -5 Energy renovation programme for public sector buildings
- ENU-7 Energy management system in the public sector
- ENU-8 Energy renovation programme for public lighting
- ENU -17 Increasing energy efficiency and use of RES in manufacturing industries
- ENU-18 Increasing the energy efficiency of public water supply, drainage and wastewater treatment systems
- TR-2 Program of co-financing the purchase of new vehicles on alternative fuels and the development of infrastructure for alternative fuels in road transport
- TR-3 Improving the public transport system and promoting sustainable integrated transport
- UET-8 Implementation of the Programme for the reduction of energy poverty
- UET-9 Implementation of the Programme for Combating Energy Poverty, which includes the use of renewable energy sources in residential buildings in assisted areas and areas of special state care for the period up to 2025.

⁷<https://vlada.gov.hr/UserDocImages/2016/Sjednice/2022/Rujan/147%20sjednica%20VRH/Jesenski%20paket%20mjera%20za%20zas%CC%8Ctitu%20gra%C4%91ana%20i%20poduzec%CC%81a.pdf>

In two new programmes (which are also policies further developed within ENPOR) - “Program for energy renovation of multi-apartment buildings for the period up to 2030 - Decision (Official Gazette, No. 143/2021)” and “Program for alleviation of energy poverty, which includes the use of renewable energy sources in residential buildings in areas of special state until 2025 - Decision (Official Gazette, No. 143/20219)” - the concept of energy poverty is introduced, but there is still no national definition of energy poverty.

Croatia does not also currently have an established system for monitoring energy poverty, which is why there is no clear insight into the real situation of energy-vulnerable households. In terms of energy poverty levels, according to the Energy Poverty Dashboard in 2021, 7.6% of the population were unable to keep their home adequately warm, with the share among tenants being significantly higher (12.8%). Nevertheless, against the background of high ownership rate, the share of tenants in the energy poor population was rather low (3.6%).

3.1.3 Policy framework with view to tenant and social protection

Croatia’s policy framework for the private rented sector consists of three key national policies. The “Lease of Apartments Act (Official Gazette, No. 91/96, 48/98, 66/98, 22/06, 68/18, 105/20)” defines the rights and obligations of landlords and tenants as well as other provisions pertaining to rental agreements. The law includes articles that define the following: general provisions, rent, obligations of the landlord, obligations of the tenant, rights of the tenant, termination of the lease agreement, death or termination of the contracting parties, list of lease agreements or deeds of the apartment, enforcement provision and so on. One of the articles in this policy contains a sub-clause that defines that: “...the landlord hands over the apartment to the tenant in a condition suitable for living”, but it is not defined which conditions are suitable for living, so energy efficiency of the rented space is not mentioned specifically. Another relevant policy is the “Law on Obligations (Official Gazette, 35/05, 41/08, 125/11, 78/15, 29/18)”. It includes articles which define that the lessor is obliged to make the necessary repairs in a timely manner at his own expense and the lessee is obliged to allow this. And the last policy “Law on Catering Activity (Official Gazette, 85/15, 121/16, 99/18, 25/19, 98/19, 32/20, 42/20)” is related to the tourism sector regulating private tourist rents.

There is no direct link between policies related to energy poverty and policies related to the PRS, but the form of housing – whether it is owned real estate, private rent, or social housing - is not a key factor in obtaining rights such as:

- Co-financing of electricity costs to a maximum of 65 euro per month, according to the Regulation on the monthly amount of compensation for vulnerable energy buyers, the method of participating in the settlement of the costs of energy users of the compensation and the actions of the Croatian Institute for Social Work (Official Gazette 104/2022).
- Guaranteed minimum financial assistance – up to 107 euro per month (The Guaranteed Minimal Support programme (Social Welfare Act (Official Gazette, number: 157/13, 152/14, 99/15, 52/16, 16/17, 130/17, 98/19, 64/20, 138/20))
- Single person or household - using wood for heating (3 m³ of wood or approved monetary amount to cover that cost) (The Guaranteed Minimal Support programme (Social Welfare Act (Official Gazette, number: 157/13, 152/14, 99/15, 52/16, 16/17, 130/17, 98/19, 64/20, 138/20)) writes off debts to persons up to the maximum amount of a debt of 660 Euro (decision on write-off of debts to natural persons up to a maximum amount of HRK 5,000.00 for the principal of the debt and expenses, increased by the associated interest)

Generally, apartments or houses for rent were mainly out of policy focus due to a lack of national data and the so-called free-based tenancy, which always includes two separate families/households in the same dwelling. Those groups have not been targeted yet and thus there are no statistics on extended families living in a joint household. An unregulated market and unresolved property legal relations contribute to the problem of a lack of national data and the lack of market transparency of the market. Additionally, in Croatia, where the tourism sector is one of the most important branches of the economy, private rent as a short-term rent brings large profits to landlords and creates severe problems for tenants, primarily in the Adriatic region of Croatia due to many leases being cancelled during the summer. This problem mostly affects students studying at colleges located on the Adriatic coast.

3.2 Description of the direct ENPOR policy

The National Programme for Renovation of Buildings for the period 2014-2020 aimed to undertake renovation activities, ensuring that part of the benefited households are those affected by energy poverty. The programme was implemented through four sub-programmes, but our focus was on the following two main programmes:

1. **“Programme of energy renovation of family houses 2014 – 2020”**: in 2020 there was an amendment to the programme – A public call for citizens to finance the energy renovation of family houses for vulnerable groups of citizens at risk of energy poverty – with 20 % of the total funds (28.4 million HRK = 3.79 million EUR) that were set aside for such vulnerable groups of citizens
2. **“Programme of energy renovation of multi-apartment buildings for the period 2014 – 2020”**

At the time of writing the ENPOR proposal, the 2014-2020 programmes were almost finished but continue according to the National Programme for Renovation of Buildings for the period 2021-2030. The current programme is implemented through several sub-programmes as well, but our focus is on the following three main ones:

1. **Programme for alleviation of energy poverty, which includes the use of renewable energy sources in residential buildings in areas of special state until 2025** (Decision (Official Gazette, No. 143/2021
2. **Programme for energy renovation of multi-apartment buildings for the period up to 2030** – (Decision Official Gazette, No. 143/2021
3. **Programme of energy renovation of family houses 2014 – 2020** – the programme is planned to continue according to the Energy Renovation Programme for Single-family Houses 2021-2027

So far, there have been two periods of implementation of the Renovation Programme 2014-2020 and 2021-2030:

- Programme for energy renovation of family houses for the period 2014 - 2020 – under this programme there were 3 calls for the general public since 2014 for family houses and 2 specific calls – 1 for energy poor households and 1 for households affected by earthquakes. The “Public call for energy renovation of family houses for vulnerable groups of citizens at risk of energy poverty” opened in 2020 included only citizens already targeted by the welfare system and excluded other categories of vulnerable citizens and citizens at risk of energy poverty or energy poor citizens. The financial plan (ETS system) of the Environmental

- Protection and Energy Efficiency Fund provides the funds.
- The Programme for energy renovation of multi-apartment buildings for the period up to 2030 (Official Gazette, No. 143/2021) covers the energy renovation of undamaged multi-apartment buildings and earthquake-damaged multi-apartment buildings, with the aim of reducing energy consumption and increasing the safety and resistance of existing multi-apartment buildings. The estimated investment for implementing the measure amounts to HRK 17.2 billion. This program brings green infrastructure measures, which reduce building heating and heat islands in cities. Under this programme, 2 calls for the public for renovating multi apartment buildings were implemented since 2014.
 - The Programme for alleviation of energy poverty, which includes the use of renewable energy sources in residential buildings in assisted areas and areas of special state concern for the period 2021-2025 (Official Gazette, No. 143/2021) will positively contribute to the reduction of energy poverty, the health of tenants, employment, spatial planning and the increase of real estate values. The program also envisages the use of renewable energy sources, mainly photovoltaic systems whose total potential can ensure the production of electricity at the location for self-consumption in the amount of about 4,360 MWh per year, which will reduce CO₂ emissions by about 691 tons per year. HRK 150 million (19.957.418 €) from NPOO and HRK 205 million (27.275.139 €) from the state budget are planned for the entire implementation of the programme in the implementation period. It covers the renovation of 387 residential buildings and 100% of the renovation costs are planned to be financed. The public call began to be implemented for 7 out of 32 buildings in Lika Osik.

3.3 Evaluation of the policy against the KPIs

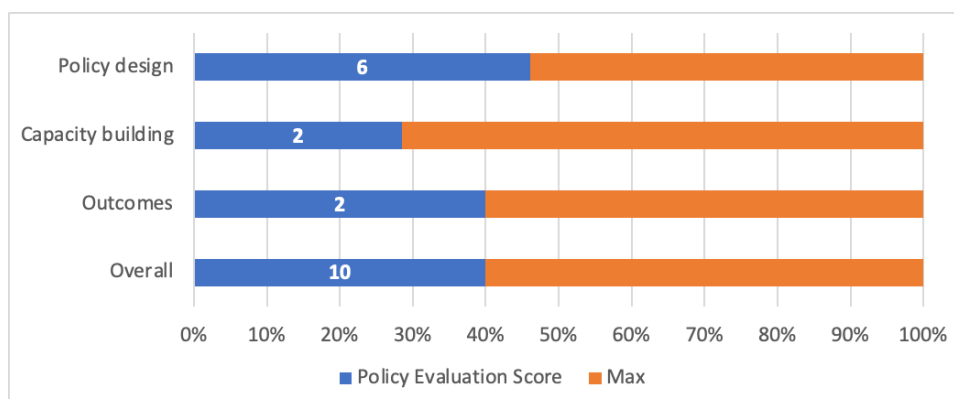


Figure 2: Policy evaluation scores Croatia

Area	Score	Comments
Policy design	6/13	<ul style="list-style-type: none"> • All three programmes target energy poor households and include the PRS within their remit, although they don't specifically target landlords or tenants. • These programmes do not directly work to address the split incentive, although privately rented households are beneficiaries of the policies. • The „Programme of energy renovation of family houses“

		<p>targets only family-owned households (individual homes). However, in Croatia, the so-called free-based tenancy, which always involves two separate families/households in the same dwelling, is widespread. This program is also addressing the challenges posed by free-based tenancy.</p> <ul style="list-style-type: none"> • The „Programme for energy renovation of multi-apartment buildings for the period up to 2030“ is targeting apartment buildings rather than individual apartments, however the split incentive barrier is more challenging to address in these situations, but energy poor households were addressed. • The „Programme for alleviation of energy poverty, which includes the use of renewable energy sources in residential buildings in areas of special state until 2025“ targets energy poor households with 100% subsidy for renovation (social housing and owners are included even PRS but not specifically in those words)
Capacity building	2/7	<ul style="list-style-type: none"> • The policy was effective at building the capacity of stakeholders across the renovation sector, by raising awareness of energy poverty in PRS among REACT group representatives from municipalities and state authorities. • However, as tenants and landlords were not part of the REACT groups, capacity building, skills and knowledge were not directly imparted to these stakeholder groups. But citizens were included in surveys that were implemented in cooperation with sister projects to collect data for the local authorities to tailor measures to their local circumstances
Outcomes	2/5	<ul style="list-style-type: none"> • The biggest change between the programs in the first period 2014-2020 to the new programs 2021-2030 is the inclusion of energy poverty in the programs and identification of energy poor households as a challenge that needs solution. Also, a whole new program dedicated to the renovation of buildings that are considered energy poor is a novelty between old programs and new versions. • A shortcoming is that these programmes did not include measures for the PRS, especially for the energy poor in the PRS. What can still be influenced is the creation of Public Calls resulting from these programmes and focus of Croatian REACT and TARGET groups for the already adopted programs was a better co-design of public calls. • The energy poverty data for the private rented sector in terms of energy poverty was gathered and will be used to create a policy that should be passed by 2026, and it is related to the ETS system for the building and road transport sector, including private residential buildings - family houses and multi-apartment buildings.
Overall	10/25	

3.4 Conclusion and further recommendations

For policy improvement, it is recommended that all three programs consider specific targeting of energy poor PRS tenants and landlords to address energy poverty effectively within this sector. Furthermore, efforts to directly tackle the split incentive issue should be explored – especially as this is likely to emerge as a key challenge in the forthcoming upgrading.

Furthermore, the cities that were part of the REACT and TARGET group meetings and where surveys were conducted will receive their own report with data on PRS and energy poverty in the PRS in their area, and the proposed measures will be linked to existing renovation programs.

During the ENPOR project, progress was achieved by putting the problem of energy poverty in the private rented sector on the map. Actions and steps taken during the duration of the project laid the foundations for alleviating energy poverty in the private rented sector.

3.5 Overview of KPI assessment

Table 4: Overview of policy evaluation in terms of policy design - Croatia

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) tenants,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 5: Overview of policy evaluation in terms of capacity building- Croatia

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 6: Overview of policy evaluation in terms of outcomes - Croatia

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates		

4 ESTONIA

4.1 Policy background

4.1.1 Situation in the residential sector

In Estonia, the residential buildings are mainly owned by private owners, except from social housing and dormitories owned by municipalities or universities respectively. There are 600,000 households in Estonia⁸ and 71% of citizens live in apartment buildings⁹. The private ownership rate in 2021 was at 81.6%¹⁰ with the remaining 18.4% of the population living as tenants. The energy performance of the building stock is insufficient to protect residents from rising energy prices. Within the next 30 years, Estonia has set its target in the Long Term Renovation Strategy (LTRS) to renovate its building stock including 100,000 detached houses with a floor area of 14 million m² and 14,000 apartment buildings with a floor area of 18 million m² at least to energy class C (≤ 150 kWh/m²/a)¹¹.

Housing affordability is highly affected by energy prices, inflation growth up to +30%¹² and interest rates for home or renovation loans (the Euribor rate has risen from 0% June 2022 to 4% in July 2023¹³). This can directly affect rent levels, but tenants must also anticipate that household expenses will increase for additional reasons beyond their control. Rent prices in Estonia have increased the most in Europe (+54% since 2015), which is also linked to a 39% increase in house prices (+). Estonian energy prices have rapidly risen in the last year. Due to a shortage of natural gas and replacement of residential heating with electric heaters, electricity costs for households have increased as electricity generation largely relies on shale oil, which is subject to high CO₂ taxation. The price of electricity rose from 0.16 €/kWh in 2021 to 0.24 €/kWh in 2022, also because there is a lack of capacity from renewable sources to produce cheaper electricity. In terms of other sources for heating, the natural gas price has also sharply increased from 0.06 €/kWh in 2021 to 0.11 €/kWh in 2022¹⁴. Data for district heating prices from the second biggest Estonian city of Tartu, show a similar increase from 0.058 €/kWh to 0.092 €/kWh¹⁵.

4.1.2 Energy poverty definition and strategy

Estonia has no explicit political strategy to combat energy poverty. There is however an official definition of energy poverty, which is linked to the policy of subsistence allowance, where its recipients also include energy poor households. The Energy Sector Organization Act defines ‘vulnerable energy consumers’ as persons living alone or families whose monthly income per family member during the last six months does not exceed the minimum wage. Likewise, a ‘person suffering from energy poverty’ is defined as a person living alone, or a family who has, at least once during the last six months, received a subsistence benefit and whose income per family member in the last month does not exceed the minimum wage. According to the Energy Poverty Dashboard, overall, 2.4% of the Estonian population were

⁸ <https://www.stat.ee/en/find-statistics/statistics-theme/well-being/households>

⁹ <https://www.stat.ee/en/news/population-census-average-home-estonia-older-average-person>

¹⁰ [https://ec.europa.eu/eurostat/web/products-eurostat-news/-/wdn-20211230-1#:text=In%202020%2C%2070%25%20of%20the,and%20Croatia%20\(both%2091%25\)](https://ec.europa.eu/eurostat/web/products-eurostat-news/-/wdn-20211230-1#:text=In%202020%2C%2070%25%20of%20the,and%20Croatia%20(both%2091%25)).

¹¹ https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

¹² <https://ec.europa.eu/eurostat/cache/digpub/housing/bloc-2a.html?lang=en>

¹³ <https://www.euribor-rates.eu/en/current-euribor-rates/3/euribor-rate-6-months/>

¹⁴ https://energy-poverty.ec.europa.eu/observing-energy-poverty/national-indicators_en

¹⁵ <https://gren.com/ee/hinnakiri/>

unable to keep their home adequately warm in 2021 with the share of energy poor among tenants being slightly lower (2.3%). The share of tenants in the energy poor population is only 8.5%, which is partly due to their overall low share in the population (only 18.4% of the population are tenants).

4.1.3 Policy framework with view to tenant protection

Against the background of high private homeownership and a peculiar rental market, there is no policy framework for tenant protection in Estonia. All people in need can get help via the subsistence allowance. People in poverty can rent an apartment from the Municipalities’ social housing stock. Due to the peculiarity of high real estate ownership in Estonia, it is hard to specify challenges/barriers in PRS. In addition, there are hardly any exclusively rented buildings in Estonia. In apartment buildings, there is a mix of rented out apartments and owners living in their apartments. That’s why these buildings are managed by apartment building associations, which decide on the timing and scope of energy efficiency renovation works. In municipality and university owned buildings, the implementation of energy efficiency renovation works is highly dependent on available budgets and are often postponed in light of the high upfront costs.

In Estonia the key strategic document with view to building efficiency is the EU mandated LTRS for buildings, developed by the Ministry of Economic Affairs and Communication. The main goal of this strategy is the full renovation of all buildings erected before 2000 by 2050. The depth of full renovation is reflected in the minimum required energy performance of a building after a major renovation, which, according to the Estonian energy performance regulations, currently is class C ($\leq 150 \text{ kWh/m}^2/\text{a}$).

4.2 Description of the ENPOR policy

The Estonian National Renovation Grant has been one of the most influential tools for mitigating the long-term effects of energy poverty. It was established in 2010 as a public initiative under the Estonian financial institution KredEx that became a grant holder. The grant is designed for associations and communities wishing to retrofit their apartment buildings as completely as possible. Eligible activities are e.g., envelope insulation, installation of HVAC systems, installation of EV charging infrastructure and local renewable energy production units. It may cover a percentage of the total project cost depending on the level of integration in the reconstruction of the relevant apartment building. The benefitting apartment building associations are representing 71% of the Estonian population living in 14,000 apartment buildings with 18 million m^2 . Of these, around 20-30% are rented, translating to 3,500 apartment buildings with 4.5 million m^2 . As only these associations can apply for the funding, there are no personalized social or gender related eligibility criteria for the grant.

The improvement and adaptation of the renovation grant in Estonia was the core policy process in ENPOR in the country. Redesigning the retrofitting policy to better mitigate the risks of energy poverty will hopefully help to avoid or reduce the following shortcomings of the policy in the future.

1. Financial: heavy reliance on the financial capacity of the building associations and as a function of this, the owners.
2. Administrative: the lack of stability due to staff funding being subject to periodic earmarking of EU funds.
3. Technical: the support of partial renovations with only a limited effect on the energy efficiency.

The social challenge of deep retrofitting is maintaining the balance between the living costs before and after the retrofitting. With the help of low-cost EU housing loans from private banks, the balance has been set just about right with compensating some increase on the total housing costs with a significant upgrade on the indoor air quality and comfort level (not to mention the increased real-estate value). However, the grant relies on the financial capacity of the building owners (about 60-70 %), which does not always exist. The initial design, based on private loans, has had its own weaknesses due to the criteria for the loan applications. The banks are superimposing their own set of conditions and thus creating a barrier for the building owners in the areas that do not witness the increase of real-estate value as an outcome of the retrofitting. As it is financially difficult to meet the loan criteria, these areas are locked out of using the public grant and, because of this, are becoming retrofitting “dead-zones”, further amplifying regional inequity in living conditions and energy improvements. In 2020, the situation has been improved with providing a state financed loan service for the applications rejected by the private banks.

Within ENPOR, the co-creation element aimed to improve the design of the Estonian National Renovation Grant by aligning the application conditions better with the requirements of the residential sector and to increase the capacity of building associations to apply for funding. In addition, a novel focus to target energy poor households and to better include tenants in the decision-making and renovation process was included.

These changes were already reflected in the last Grant call in April 2023. There were 212 applicants in this call and the amount of support is 112 million euro. 3.9 MWh of annual energy savings per dwelling can be achieved by this type of renovations (based on calculations from outcomes of previous renovations using the national renovation grant, published by grant holder KredEx in 2014) leading to 826.8 MWh or 0.826 GWh total annual energy savings through this call. Assuming that an average building has 1,700 m², then 360,400 m² will be renovated.

4.3 Evaluation of the policy against the KPIs

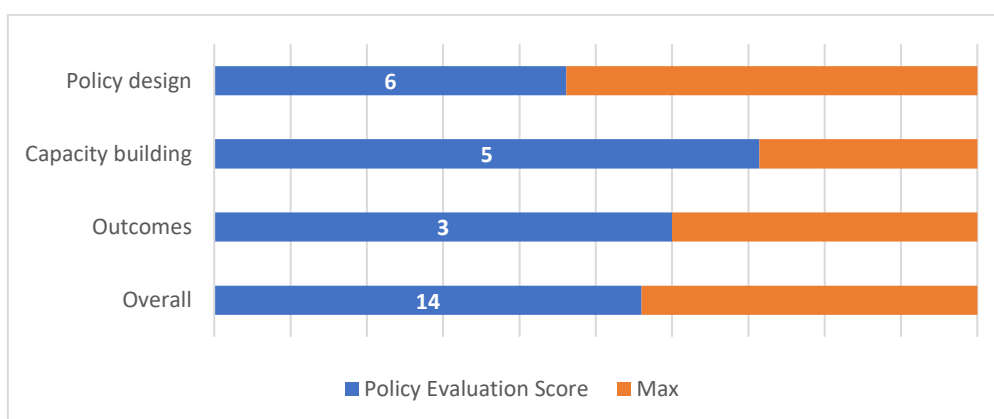


Figure 3: Policy evaluation scores Estonia

Area	Score	Comments
Policy design	6/13	<ul style="list-style-type: none"> This policy was well designed to bring together a range of stakeholders from across the renovation landscape, including representatives of property owners and

		<p>tenants, although tenants and landlords themselves were not involved in the process.</p> <ul style="list-style-type: none"> • This policy was also effectively redesigned to build on an existing blanket renovation grant to improve targeting at buildings where energy poor tenants live, in more peripheral residential zones. • As Estonia does not have a political strategy to alleviate energy poverty, the policy could not be integrated into wider programmatic objectives to address the issue. • The policy operates by targeting apartment buildings rather than individual apartments, hence greater energy savings can be achieved, however the split incentive barrier is more challenging to address in these situations.
Capacity building	5/7	<ul style="list-style-type: none"> • The policy was effective at building the capacity of stakeholders across the renovation landscape, by raising awareness of energy poverty, as well as forging new collaborations between stakeholders. It also improved knowledge of how to better assist people in energy poverty among REACT group representatives from municipalities and state authorities. • However, as tenants and landlords were not part of the REACT groups, capacity building, skills and knowledge were not directly imparted to these stakeholder groups.
Outcomes	3/5	<ul style="list-style-type: none"> • This policy was effective in reaching energy poor tenants, particularly those in more peripheral urban regions where the number of people suffering from energy poverty is higher. • Although renovations are yet to be carried out, thermal comfort of residents and overall building efficiency will be improved, as all renovations must be to at least an EPC C-level according to Estonian law. • Improved understanding of energy bills and energy conservation measures among tenants was not addressed.
Overall	14/25	

4.4 Conclusion and further recommendations

The evaluated policy demonstrates a well-designed approach to involving various stakeholders within the renovation landscape, although it lacks the direct engagement of both tenants and landlords. The policy effectively refines an existing renovation grant towards the improved targeting of buildings who are likely to be inhabited by low-income households, focusing on residential areas at the outskirts of cities. A notable shortcoming is the absence of a broader organizational and legal strategy to address energy poverty in Estonia, which means that the policy remains disconnected from the national policy landscape. Furthermore, while the policy targets apartment buildings, offering potential for significant energy savings, it faces challenges in addressing the split incentive issue. Recommendations include the incorporation of tenants and landlords in policy design and capacity building efforts, the development of a comprehensive energy poverty regulatory and policy alleviation framework at the national scale, and the upgrading of efforts to enhance

tenant knowledge of energy bills and conservation measures to maximize the policy's effectiveness.

4.5 Overview of KPI assessment

Table 7: Overview of policy evaluation in terms of policy design - Estonia

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) tenants,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy's target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 8: Overview of policy evaluation in terms of capacity building - Estonia

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 9: Overview of policy evaluation in terms of outcomes - Estonia

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates		

5 GERMANY

5.1 Policy Background

5.1.1 Situation in the residential sector

Germany’s residential sector is dominated by single- or two-family houses that account for 82.12 % of all residential buildings. With regard to the ownership of the dwellings, more than half (54%) are rented by private tenants¹⁶, well below the EU average. Out of the 43.4 million dwellings, only a small share of 1.09 million is in social housing¹⁷.

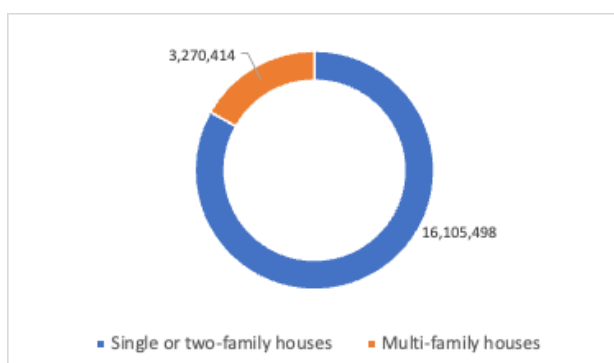


Figure 4: Share of single and two family and multi-family houses in Germany.

Source: Dena Building Report 2022

Despite an overall increase of the per capita floor area, there has been a reduction of the energy intensity. The calculated final energy intensity for 2020 for residential buildings amounts to 156.4 kWh/m²/a as compared to 204.9 kWh/m²/a in 2010¹⁸. This can be attributed to improvements in the building insulation as well as to improved energy efficiency of heating systems. However, due to the predominantly central heating systems in Germany and the heating-dominated climate (3,500 to 4,000 heating degree days, 10 to 50 cooling degree days including zero dehumidification needs), a large share of the overall energy used in buildings is for heating¹⁹.

While the total amount of energy used for heating (and cooling) largely depends on the level of building renovation, a clear definition of a renovation rate is missing due to diverse factors that are considered (e.g., heating system replacement, façade insulation, window replacement) that are ranging from 0.3-3.5%²⁰. On average it can be said that the renovation rate is stagnating at around 1% per year²¹.

As a consequence of low energy efficiency renovation rates in the past, a high percentage of dwellings (60%) falls into the four worst-performing energy classes E to H of the Energy Performance Certificate (EPC). For single- and two-family homes, it is even almost 70%, and

¹⁶ https://www.dena.de/fileadmin/dena/Publikationen/PDFs/2019/dena-GEBAEUDEREPORT_KOMPAKT_2019.pdf

¹⁷ <https://dserver.bundestag.de/btd/20/083/2008369.pdf>

¹⁸ Based on not-weather-adjusted data.

¹⁹ https://gjetc.org/wp-content/uploads/2023/06/GJETC-Buildings-Study_2023.pdf

²⁰ https://www.iwu.de/fileadmin/publikationen/gebaeudebestand/2018_IWU_CischinskyEtDiefenbach_Datenerhebung-Wohngeb%C3%A4udebestand-2016.pdf

²¹ https://asue.de/aktuelles_presse/sanierungsrate_im_klimawandel_2021

24% in the worst energy class H. Only 7% achieved an A or A+ rating, which is the best-performing class; these are mostly new buildings from the last 20 years²².

In correspondence with the rising demand for housing in Germany, rent levels are continuously increasing, leading to a considerable increase in the associated burden on residents: In 2021, 10.7 % of German households spent more than 40% of their monthly disposable income on rent alone, (with an average rent burden share of around 27.6% from the disposable income)²³. To support those that cannot afford their rents, housing benefits are paid to people with lower income, among which the largest groups account for pensioners at 48% and employees at 37%.

Even prior to the Russian attack on Ukraine the German energy prices have been rising similar to other European countries. In addition to factors such as commodity prices on the international market, domestic production and supply conditions, the introduction of the CO₂-pricing in 2021 on oil and gas heating further pushed the energy prices. However, while the electricity prices in Germany are high in comparison to other EU member states, the gas price is considerably low.

5.1.2 Energy poverty definition and strategy

The German Federal Government does not consider energy poverty as a problem of its own but rather treats it within its wider approach of poverty alleviation via welfare state measures. Accordingly, neither an official energy poverty definition nor an explicit strategy to address energy poverty exist to date. Rents, heating expenses and partly – based on a lump sum – the electricity costs are covered for welfare recipients. In addition, households with incomes below a specified threshold are eligible to apply for housing support.

According to EUROSTAT, up to 21.6% of the population in Germany is at risk of poverty or social exclusion. In 2021, 3.3% of the German population (around 2.8 million persons) was unable to keep their home adequately warm (EPD, 2023). Among tenants, the share was at 4.6%, i.e., 1.3 percentage points higher than in the overall population. Furthermore, the share of tenants in the energy poor population was considerably high (65.8%), which underlines the relevance of the rental sector for tackling energy poverty.

5.1.3 Policy framework with view to tenant protection

In addition to the above-mentioned provision of welfare and housing benefits, the German state supports tenants with the following measures:

- Heating allowances granted annually to those eligible for housing benefits ranging from 96 € (single household) to 196 € (five-person household).
- The introduction of the so-called "Mietpreisbremse" (renting price break) by the German federal government in 2015 was intended to curb excessive rent increases to help tenants manage their expenses, not only for rent, but also for other essentials such as energy costs.
- Following the price hikes that were partly induced by the Russian war in Ukraine the German government agreed to set a cap on the prices for gas and electricity for 80% of the average consumption of each household based on the consumption of the previous year.

Regarding more general measures tackling the energy consumption and the climate change issues, the most relevant for energy poverty in the PRS are:

²² https://gjetc.org/wp-content/uploads/2023/06/GJETC-Buildings-Study_2023.pdf

²³ https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/08/PD22_N054_61.html

- **Buildings Energy Act** is the main instrument for regulating the consumption of energy in buildings. It sets minimum requirements for the energy performance of the building shell and the system technology for new buildings, and also for larger renovations of existing buildings.
- **Federal Funding for energy-efficient buildings programme (BEG)** offers financial support for renovation measures resulting in a reduced energy consumption of the buildings. It is divided into three categories:
 - a. providing funding for residential buildings (BEG WG),
 - b. non-residential buildings (BEG, WG), and
 - c. single-measures (BEG EM). They offer either investment grants or low-interest loans with redemption subsidies.
- In addition to the BEG the **individual Renovation Plan (IRP)** provides a tool that informs about various possible renovation measures in the short-term and long-term perspective and how to implement them to avoid technical and financial lock-ins.
- **Federal Funding for efficient heating-networks** offers financial incentives for heating network operators to invest in new heating networks while also converting existing networks to a heating system based on renewable energy and waste heat.
- **Municipal Heating Planning** provides information on existing heating grid and thus functions as guidance to building owners and energy suppliers concerning the question whether district heating can be used or individual heating is necessary. In turn, the rate of replaced individual heating systems can be reduced.
- Starting in January 2021, the use of fossil fuels is charged with a **CO₂-price** per ton CO₂eq that is gradually increasing until 2027. For tenants the costs are partly covered by the landlords, the share of which is depending on the energy performance of the building. To reduce the burden on households the German government is planning to refund the generated income via a lump-sum payment. However, while the CO₂-pricing is already put into place, this compensation instrument is still pending with an implementation expected not before 2025.

5.1.4 Specific challenges/barriers for addressing energy poverty in the PRS beyond the split incentives

The German residential sector is highly fragmented, with only a third of dwellings being owned by professional owners (see graph below). In turn, there is a large number of “small” private landlords as well as owner communities, which makes political action to promote the renovation of the residential building stock a demanding task due to the diversity of constellations as well as distributed decision-making powers.

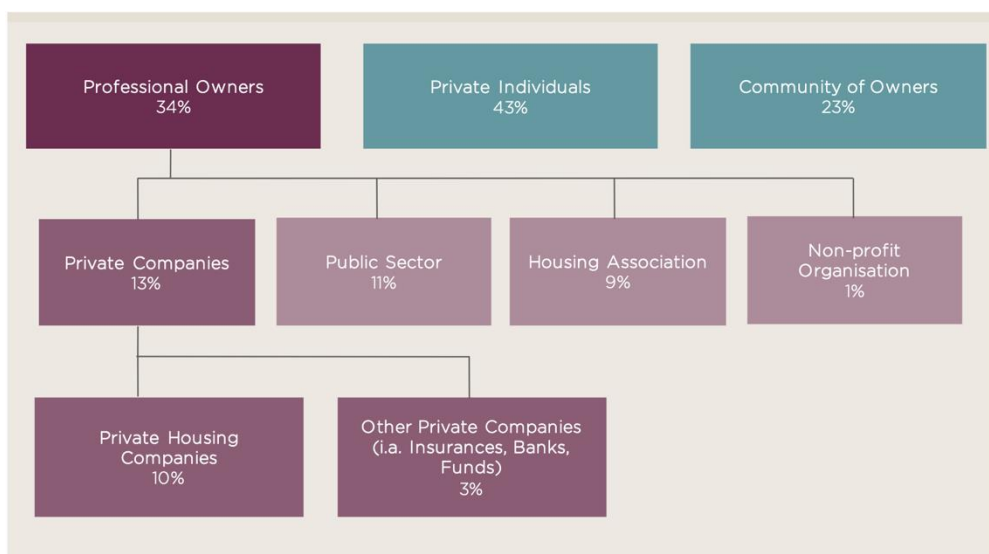


Figure 5: Ownership structure in the German residential sector.

Source: Savills Research 2019

5.2 Description of the ENPOR policy

In the project, there were two measures that were further developed: the Electricity Saving Check and the pre-paid metering app by EnergieRevolve, which are further described in the following.

In cooperation with the Federal Association of Energy and Climate Protection Agencies in Germany, the charitable organization Caritas introduced the “StromSparCheck” (Energy Saving Check), where in currently 150 locations throughout Germany long-term unemployed people are trained to provide energy-saving advice and low-cost technical devices free of charge to welfare recipients and low-income households. The target group is not further specified beyond that, thus not explicitly targeting energy poor (tenant) households or addressing gender related inequalities. However, with the advised measures largely focusing on small technical fixes in the dwellings and behavioural adaptations, the offer mostly addresses the situation of tenants (which also make up the vast majority of recipients). While the project started off aiming to reduce the electricity consumption of these households as they were directly benefiting from the resulting cost savings, it was extended later to also include activities to reduce the heating consumption. Public relations and advertising of the services involve local job centres and various other municipal and civil society organizations to reach the relevant target groups.

The second measure is the pre-paid metering app by EnergieRevolve, which is a subsidiary of Stadtwerke Düren, a municipal utility in the West-German state of North Rhine Westphalia. Their customers are offered an innovative model of prepaid metering and a free switch from their existing electricity provider to a digital prepaid meter that can be monitored by customers and charged just-in-time via a smartphone app or online interface. This allows them to better control their electricity consumption and electricity bills. The app allows the tracking and visualization of customers’ electricity consumption in 15-minute intervals. Currently, about 2,600 customers are using the app, not only in North Rhine Westphalia but also in other areas such as Berlin and Frankfurt, including a high proportion of low-income and energy poor households.

The co-creation process in the REACT group of the StromSparCheck helped to identify and

develop novel approaches to engage households with a view to energy efficient heating and ventilation and thus increase the effectiveness of the heating advice. As a result, more emphasis was put on comfort and to some extent health benefits within the communication and to support and strengthen the consulting contents, visual aids including elements of self-experimentation to convey advice on efficient/healthy heating and ventilation were developed. One important tool to raise the awareness of the tenants is the thermohydrometer (i.e., a tool that measures and displays both temperature and relative humidity) that is distributed upon the first visit of the advisors. Households are then asked to experiment with different ventilation techniques and document the indoor climate parameters (i.e., relative humidity and temperature levels) before and after airing in a corresponding diagram, in which the optimal combinations of the two parameters from a health perspective are visually highlighted as a green area and unhealthy combinations (e.g., high relative humidity and low temperatures) as red. Reading and marking values that are moving from red to green supports the households’ comprehension of the thermohydrometer and visualizes the impact of different ventilation techniques. In addition, households were provided a leaflet with visual recommendations for efficient ventilation in the heating period, a window sticker, which displays advised ventilation frequency and duration during the four seasons, and a radiator hanger with information on temperature levels associated with the different thermostat settings.

As concerns the pre-paid model, the app has been further developed through the co-creation process to provide additional utility to customers in terms of improving knowledge transfer about drivers and possible means to reduce unnecessary electricity consumption. In doing so, a close exchange with the target group (i.e., the app users) has been achieved by implementing regular feedback loops within the co- design process and the following evaluation. Eventually, the following improvements were implemented. To improve the transparency for users with view to their electricity consumption and costs, the yearly consumption curve in the consumption display was amended with an additional line reflecting the user’s consumption of the previous year. In addition, users are shown the absolute and relative difference in kWh and percent. With view to the provision of additional information related to electricity conservation in the app, a new website was bilaterally developed by Wuppertal Institute and EnergieRevolve to which the link is included in the app. The overall concept was drafted by Wuppertal Institute, which also researched and provided the information content, signed off by the REACT group and then refined and implemented by EnergieRevolve. On this website called “Energy Saving World”, users can find both written information and embedded video content on 1) how to efficiently use different appliances, clustered by room type in which they are usually located/used, 2) how energy labels work and how to use the information for decision making, 3) how to use the app and its functions to identify power guzzlers in the household and 4) links to external free energy advice offers, both digital and in person, as well as to state support services related to debt counselling and energy cost support.

Regarding the outcomes of the two measures, an evaluation of energy bills of advised households through the StromSparCheck showed average energy cost savings of 200 €/household and year (however not differentiated between heat and electricity savings. Nevertheless, since heating costs are fully covered by the state, cost savings can only be achieved with view to electricity only anyway).

Furthermore, in a survey among advice recipients, a fifth of those that have used the material properly, stated that they would shift to a more effective/energy efficient ventilation behaviour. Furthermore, reported heat settings were largely low or moderate and 71% of respondents stated that they have experienced comfort gains due to the advice.

Regarding the prepaid app, an evaluation of actual electricity savings is complicated since customers top up their budget by changing frequencies, which makes it difficult to identify patterns and relate these to the novel functions. However, in a survey among customers, 3 out of 4 estimated their cost savings from switching to the app as medium to very high. Furthermore, more than half of the respondents stated that the app helped them to better understand the energy demand of different applications/appliances in their household and almost all (97%) would recommend the app to friends.

5.3 Evaluation of the policy against the KPIs

5.3.1 StromSparCheck

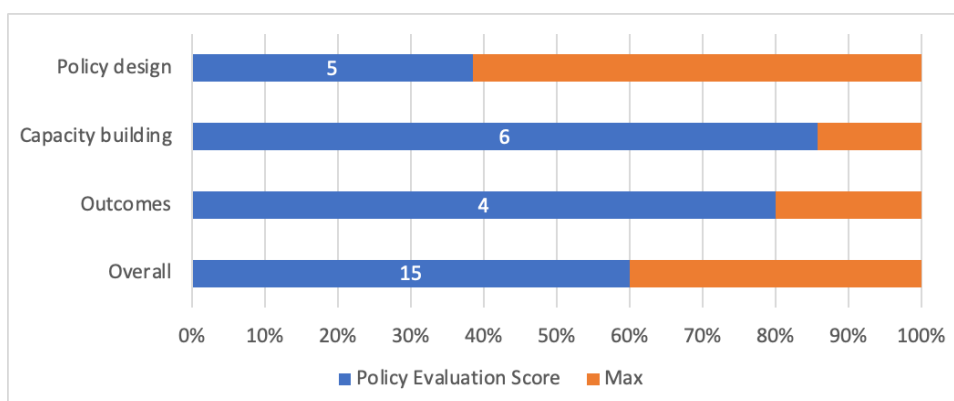


Figure 6: Policy evaluation scores Germany (StromSparCheck)

Area	Score	Comments
Policy design	5/13	<ul style="list-style-type: none"> The policy was designed with a wide range of stakeholders, including tenants and property owners (and/or representatives of these groups), as well as other relevant organizations across the PRS, such as municipalities, local job centres and civil society. The policy is integrated and linked with existing social welfare policies defining income thresholds and welfare recipient status. The policy includes PRS tenants as beneficiaries but does not explicitly target energy poor renters. This policy does not work to address the split incentive, as the measures promoted are not structural or requiring renovations, but rather behavioural ones aimed at tenants. As Germany does not have an official definition of energy poverty, the policy is not integrated with, or derived from national or overarching energy poverty strategies, objectives, targets or definitions.
Capacity building	6/7	<ul style="list-style-type: none"> This policy scores highly in the capacity building category. It was successful at promoting new links and knowledge exchange between existing organizations at the local

		<p>level, increasing skills with regards to addressing energy poverty in the PRS.</p> <ul style="list-style-type: none"> • New data was generated via the collection of data on energy consumption, socio-demographics as well as heating and ventilation behaviour of households. • Through the REACT group mechanism, stakeholders gained useful knowledge related to energy poverty in the PRS. • No new/increased funding and resources available to stakeholders working in the PRS was reported within this policy.
Outcomes	4/5	<ul style="list-style-type: none"> • This policy scores highly in the outcomes category. Follow-up surveys found that the policy had improved understanding of energy conservation options, improved thermal comfort, reduced energy consumption and achieved cost savings on energy bills amongst energy poor tenants. • However, longer term monitoring of whether households continue to implement those measures, and if tangible energy bill savings are achieved will be needed to assess the long-term effectiveness of the energy advice given. • As the policy targeted small energy efficiency measures and behaviour change, structural retrofit to improve energy efficiency of dwellings themselves was not within the scope of the policy and thus is unchanged. • It is worth noting that disaggregation of data on whether the tenants reached were in the PRS or social renters has not yet been calculated and thus the above scores as with regards to the PRS specifically may not be the same.
Overall	15/25	

5.3.2 EnergieRevolve prepaid app

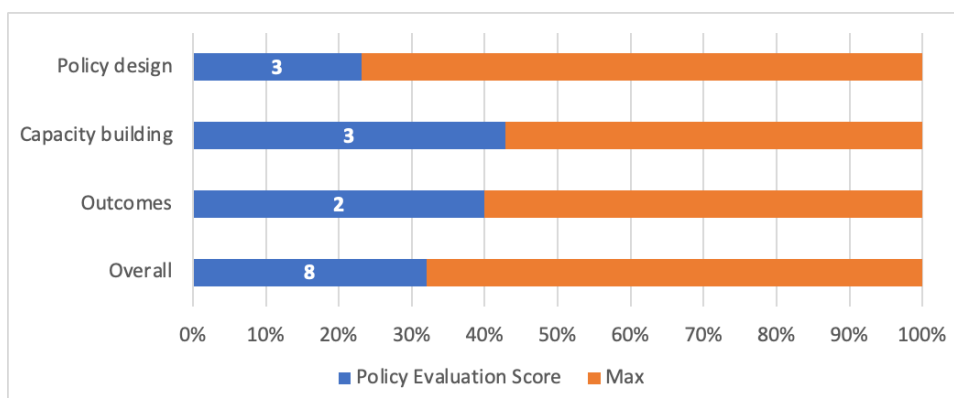


Figure 7: Policy evaluation scores Germany (EnergieRevolve prepaid app)

Area	Score	Comments
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Policy design	3/13	<ul style="list-style-type: none"> • The measure was designed with input from different stakeholders, including tenants, as well as consumer associations, academia and NGOs working in the energy field. • The measure includes PRS tenants as beneficiaries but does not explicitly target energy poor renters. • This measure does not address the split incentive, as the measures promoted are not structural or requiring renovations, but rather behavioural ones • As the measure has been developed by a public utility subsidiary, it is not integrated with, or derived from national or overarching energy poverty strategies, objectives, targets or definitions.
Capacity building	3/7	<ul style="list-style-type: none"> • This measure contributes to the integration of services available to energy poor tenants via the embedding of links to external support offers from the state and other stakeholders, thus creating new communication channels • New data was generated via the collection of data in a customer survey on user behaviour, socio-demographics and knowledge transfer as well as estimated electricity cost savings and shared with REACT group members. • No new/increased funding and resources available to stakeholders working in the PRS was reported within this policy.
Outcomes	2/5	<ul style="list-style-type: none"> • Due to its nature, the measure does not score highly in the outcomes category. However, surveys found that the measure is well received by its users for its transparency and facilitation of cost control. • Users reported an improved understanding of the energy demand of specific domestic energy applications. There is no information though whether this has enabled increased consumption of energy services. • As the measure targeted behaviour change, structural retrofit to improve energy efficiency of dwellings themselves was not within the scope of the measure and thus is unchanged.
Overall	8/25	

5.4 Conclusion and further recommendations

The evaluated measures demonstrate a comprehensive approach to stakeholder involvement, encompassing tenants, property owners, and various relevant organizations within the private rental sector. However, both measures fall short of explicitly targeting energy-poor tenants and addressing the split incentive challenge, as they primarily focus on behavioural measures rather than structural renovations. The lack of a national energy poverty definition and integration into overarching strategies is a notable limitation to better link different activities aiming to support energy poor tenants. Nevertheless, the StromSparCheck shows strengths in terms of capacity building, fostering knowledge exchange and both measures help to generate valuable data on energy consumption and household behaviour. Both measures have also shown positive outcomes, including

improved understanding of energy efficient heating and ventilation and energy demand of specific applications, enhanced thermal comfort, and reduced energy costs. There have been evident (partly self-assessed) cost savings for energy-poor tenants (even if these primarily concern electricity and cannot be traced to the ENPOR project). To further enhance its effectiveness, the measures should be amended with targeted initiatives to promote structural retrofitting in the PRS, aligning with national energy poverty strategies and regulations, and conducting long-term monitoring of outcomes and implementation.

5.5
Overview of KPI assessment

5.5.1 StromSparCheck

Table 10: Overview of policy evaluation in terms of policy design – Germany (StromSparCheck)

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy's target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 11: Overview of policy evaluation in terms of capacity building – Germany (StromSparCheck)

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 12: Overview of policy evaluation in terms of outcomes – Germany (StromSparCheck)

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Green	White
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	Green	White
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	Green	White
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	White	Red
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Green	White

5.5.2 EnergieRevolte prepaid app

Table 13: Overview of policy evaluation in terms of policy design – Germany (EnergieRevolte prepaid app)

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 14: Overview of policy evaluation in terms of capacity building – Germany (EnergieRevolve prepaid app)

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 15: Overview of policy evaluation in terms of outcomes – Germany (EnergieRevolve prepaid app)

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	No	Yes
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	No	Yes
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	No	Yes
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Yes	No

6 GREECE

6.1 Policy Background

6.1.1 Situation in the residential sector

According to the Household Budget Survey for 2020, 78.3% of all households live in their own dwelling in Greece. 14.3% of the households rent their dwellings, while for the remaining 7.4% households the dwelling has been provided free by the employer or the family or others.

The energy performance of the building stock is considerably low as the majority has been constructed before 1980 - 56% of the residential buildings - as presented in the following diagram based on data from the LTRS²⁴.

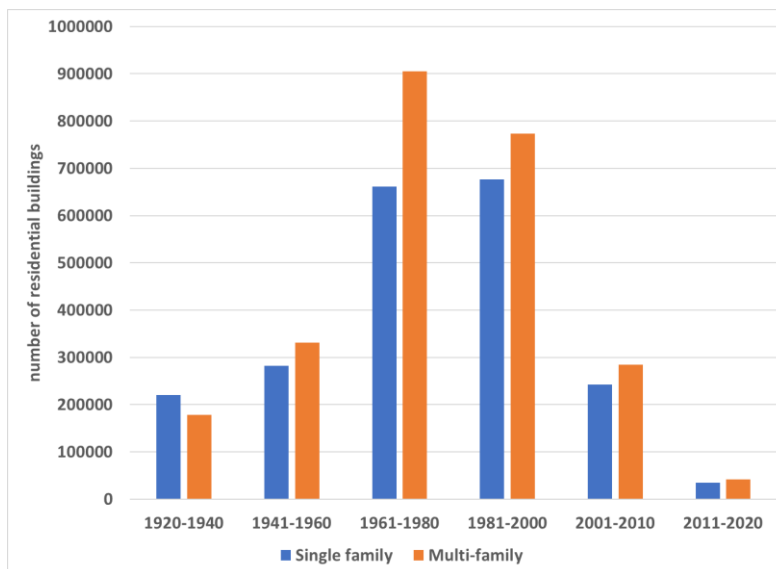


Figure 8: Number of single and multi-family buildings by period of erection in Greece

This conclusion is confirmed also by the analysis of the issued Energy Performance Certificates. More specifically, the average primary energy consumption for the residential buildings for each end-use separately is equal to:

- 206.84 kWh/m²/a for space heating
- 36.95 kWh/m²/a for space cooling
- 53,83 kWh/m²/a for domestic hot water

Regarding the renovation rate, the 2019 NECP set a target to renovate 12%-15% of the buildings and/or building units in the 10-year period from 2021 to 2030 through targeted policy measures. Nevertheless, the current renovation rate is estimated to be considerably lower (1% and lower).

The housing costs continue to rise reflecting the impacts of various events, such as the economic

²⁴ Source: Ministry of Environment and Energy, 2023. Long-Term Renovation Strategy. Available at: <https://ypen.gov.gr/energeia/energeiaki-exoikonomisi/ktiria/ltrs/>

recession, the pandemic and the energy crisis. Measuring the associated burden on household budgets by putting these costs into relation with the disposable household income shows on average a high share of 34.2% in 2021.

The increase of the rental prices is also significant as shown in the following diagram using rent index values according to data from a specialised site (Spitogatos²⁵). The increase is considerably higher in 2023 compared to 2015 (approximately 50%) due to various factors, such as the limited availability of buildings for renting, the reduced construction activity, in conjunction with the increased demand for purchasing a building, the increased preference for short-term leases, etc..

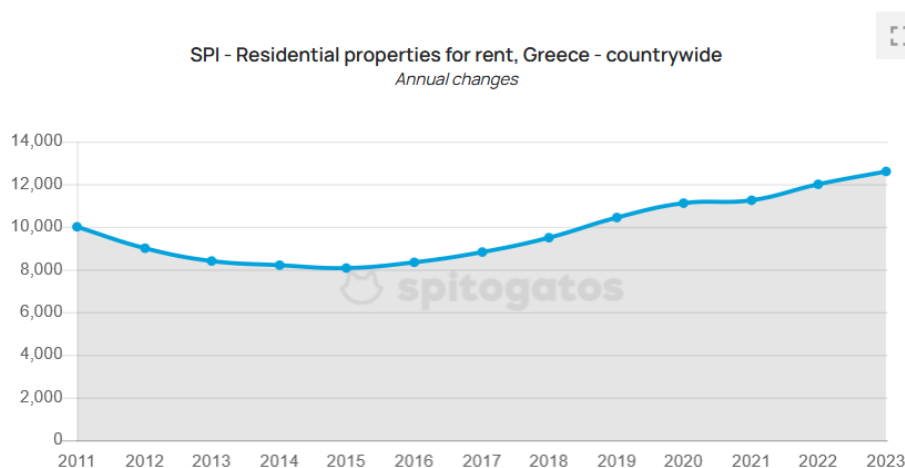


Figure 9: Change of rent index values in Greece between 2011 and 2023

Finally, household energy prices have increased also due to the energy crisis both for the case of electricity and natural gas, which went up from 11 to 19ct/kWh²⁶ and 5 to 15 ct/kWh²⁷ between 2019 and 2023, respectively.

6.1.2 Energy poverty definition and strategy

Targeted policies have already been implemented in Greece to combat energy poverty since 2011. The draft NECP, which was prepared at the end of 2018, presents the main implemented measures. Firstly, one of the most important policy measures to tackle energy poverty is the Social Household Tariff, which was introduced to protect vulnerable consumer groups providing discounts for the consumed electricity. At the same time a one-off special aid was provided in 2017 to support low-income households, which have been disconnected from the electricity grid due to overdue debts, to facilitate the satisfaction of their energy needs. The protection of vulnerable household customers from electricity disconnections has been applied through the Universal Service regime. Furthermore, in light of a considerable increase of consumer prices of heating oil, the provision of a heating allowance to certain categories of consumers has been adopted. The heating allowance was expanded to cover additional energy carriers during the current energy crisis. Moreover, energy efficiency improvement programmes have already been launched at national level for low-income households since 2011 such as the ‘Energy Savings at Home’ programme. The main objective of these programmes is the provision of financial support for the energy renovation of the residential buildings. Finally, special provisions for the fight against energy poverty were promoted within the framework of the Energy Efficiency Obligation Scheme (EEOS) by increasing the delivered

²⁵ Source: Spitogatos, 2023. SPI - The Spitogatos price index per area. Available at: <https://en.spitogatos.gr/property-index>

²⁶ Source: Eurostat, 2023. Electricity prices for household consumers - bi-annual data (from 2007 onwards). Available at: https://ec.europa.eu/eurostat/databrowser//product/view/NRG_PC_204

²⁷ Source: Eurostat, 2023. Gas prices for household consumers - bi-annual data (from 2007 onwards). Available at: https://ec.europa.eu/eurostat/databrowser/view/NRG_PC_202/default/table?lang=en

energy-saving certificates for the implemented energy efficiency measures by a factor of 1.4. Finally, incentives are foreseen for RES installations by energy communities to satisfy the energy needs of their members and vulnerable consumers or citizens through the application of a virtual net metering scheme.

The alleviation of energy poverty has been specified as an essential objective within the framework of the final NECP²⁸, which was submitted at the end of 2019. A quantitative target has been set for reducing energy poverty levels, as defined within the Action Plan for the Confrontation of Energy Poverty, by at least 50 % and 75 % in 2025 and 2030 respectively in comparison to 2016, while the foreseen level in 2030 should be below the EU average in 2030. Moreover, targeted policy measures will be designed and implemented to tackle energy poverty effectively, while emphasis will be given on the improvement of living comfort and the avoidance of health problems related to bad indoor climate.

In September 2021, an Action Plan for the Confrontation of Energy Poverty was developed, describing the policy measures to ensure the fulfilment of the specified targets within the NECP. Moreover, the definition of energy poor households was determined. Specifically, a household is characterized as energy poor in the case that both of the following conditions are simultaneously fulfilled:

- Condition I: the total final energy consumption of the household is lower than 80 % of the minimum final energy consumption, which is required theoretically for covering the thermal needs.
- Condition II: the total equivalized income of the household, based on the number of household members according to the modified equivalence scale of OECD is lower than 60 % of the median income of all the households in Greece.

In total, nine policy measures have been integrated into the Action Plan for the Confrontation of Energy Poverty to fulfil the specified NECP targets. The proposed policy measures have been classified into the following three categories:

- I. Measures for the short-term protection of energy poor households
 - M1: Improvement of the Social Tariff
 - M2: Provision of an energy voucher card to energy poor households
 - M3: Regulatory measures for the protection of energy poor households
- II. Measures for the energy upgrade of the energy poor households’ buildings and the promotion of RES
 - M4: Energy upgrade of the energy poor households’ building including the installation of RES systems
 - M5: Provision of financial incentives to energy poor households within the framework of the Just Transition Plan
 - M6: Provision of incentives to energy poor households within the framework of the EEOs
 - M7: Provision of incentives to energy poor households within the framework of Energy Communities
- III. Information and awareness-raising measures
 - M8: Conduction of information and awareness-raising measures within the

²⁸ Source: https://ec.europa.eu/energy/sites/default/files/el_final_necp_main_en.pdf

- framework of the EEOs
- M9: Conduction of information and awareness-raising measures implemented centrally at national level

Finally, a holistic monitoring mechanism has been developed based on the combination of bottom-up and top-down procedures. The bottom-up approach will be performed through the statistical model, which has been developed to identify energy poor households taking into consideration various parameters, while the top-down monitoring will be applied through the Greek Observatory of Energy Poverty. The responsibility for carrying out the foreseen monitoring procedures is assigned to a Working Group consisting of different ministries and external stakeholders, which has been established for monitoring and assessing the progress of the NECP with the following duties:

- Management, evaluation, and improvement of monitoring mechanism.
- Evaluation of the implemented policy measures in the period 2021-2030.
- Formulation of proposals either for improving existing policy measures or designing and implementing new more efficient ones.
- Preparation of the annual progress report.

The development of the energy poverty indicator has been estimated within the framework of the progress report of 2021²⁹. The share of energy poor households has decreased by 15% in 2020 compared to 2016, while its evolution can be observed in comparison with the four indicators of the European energy poverty observatory in the following diagram.

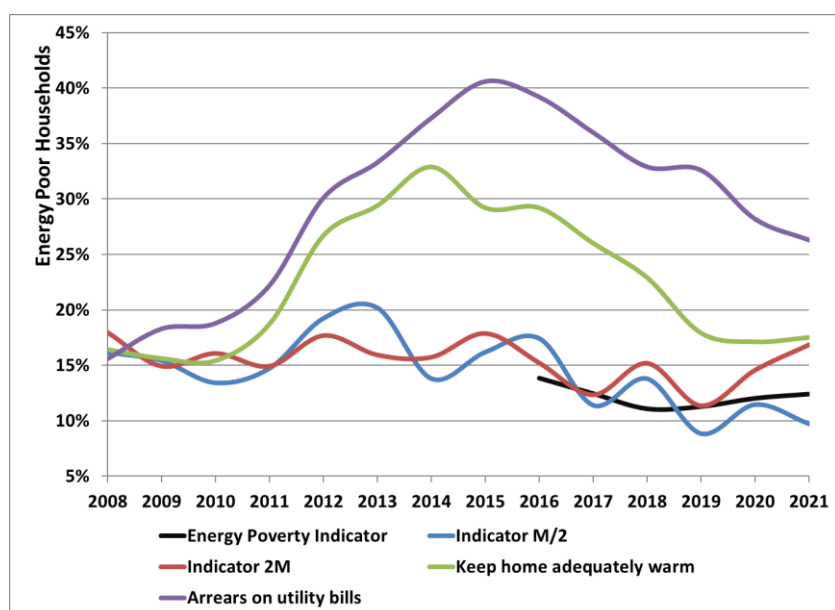


Figure 10: Development of energy poverty according to the Greek composite indicator and in comparison with other metrics

It should be noted that tenancy has been significantly linked with the intensification of energy poverty.

²⁹ Source: Ministry of Environment and Energy, 2021. Annual Progress Report of the Action Plan for the alleviation of Energy Poverty. Available at: <https://ypen.gov.gr/energeia/etisia-ekthesi-proodou-sdee-etous-2021/>

According to the analysis, 22% of the energy poor households live in rented dwellings, while the respective share in the total population is 14%. Moreover, the parameter of tenancy has been integrated into the logit model to quantify the possibility a household to be classified as energy poor household.

6.1.3 Policy framework with view to tenant protection

The Regulation of tenancy contracts in the Greek Civil Code (Astikos Kwdikas, AK), which was enacted in 1945, provides the general framework for tenancy in Greece. More specifically, Articles 574-618 of the AK regulate a standard tenancy type; without distinction among real estates and movable goods or between tenancies involving different uses of goods.

No targeted legislative provisions have been adopted for protecting vulnerable tenants nor to address the split incentive problem (as called for by Art. 19 of the EED). The only legislative intervention was introduced to reduce rental prices temporarily due to COVID-19 impacts in 2020.

It should be noted that the financing of landlords for the energy upgrade for their rented houses was eligible under the prerequisite that it is utilized as a permanent residence with the framework of the “Exoikonomo-Autonomo” programme. The same provision was continued also in the “Exoikonomo 2023” programme.

The most important challenges and barriers, which had to be addressed during the re-design of the pilot policy/measure and are related to split incentives problem, include:

- No special provision relating to tenants in the existing policies and measures.
- Integrating the problem of energy poverty in the PRS into the national definition of energy poverty.
- Provision of specific incentives for tenants/landlords within the framework of the national programme for the energy upgrade of residential buildings.

Specific challenges/barriers for addressing energy poverty in the PRS beyond the split incentives

The most important challenges and barriers, which had to be addressed during the re-design of the pilot policy/measure and are related generally to energy poverty, include:

- Design policies and measures focused on energy poor households and not low-income households.
- Difficulty to identify energy poor households and engage them into the planned policies and measures.
- Fostering the conduction of technical measures within the framework of the EEOS additionally to the existing awareness-raising measures.
- Establishment of a specialized mechanism for monitoring the triggered impacts on the alleviation of energy poverty from the implemented policies and measures.

6.2 Description of the ENPOR policy

The first pilot policy in Greece is the national programme for the energy upgrade of residential buildings, which provides financial aid to energy poor households for improving the energy efficiency of their buildings. The respective programme has been integrated both in the National Energy and Climate Plan (2019) and the National Action Plan for the Confrontation of Energy Poverty in Greece (2021). It is the continuation of the "Energy Savings at Home" programme focused on energy poor households. The "Energy Savings at Home" programme started in 2011 providing financial incentives to households, including low-income households, to replace window frames and install shading systems, to install thermal insulation in the building envelope, including the flat roof/roof and "pilotis" and to upgrade the heating and hot water system. The financial aid consists of a capital subsidy in relation to the household's

income and low interest loans including the subsidy of the interest rate and the coverage of the energy inspections’ cost. The measure has continued until 2021 via the “Exoikonomo-Autonomo” programme after continuous improvements enabling the implementation of the most cost-effective interventions to improve the energy efficiency of the residential buildings. The energy renovation of the residential buildings is continued with the “Exoikonomo 2023” programme. The Ministry of Environment and Energy is responsible for the supervision of the programmes, while the Technical Chamber of Greece has undertaken the administrative coordination of the “Exoikonomo 2023” programme.

The proposal for the case of the “Energy upgrade of buildings” programme foresees the inclusion of the tenant status as a distinct social criterion of eligibility, while the provided public aid must be calculated considering the shared benefits among landlords and tenants. Furthermore, deep energy renovations must be supported financially to ensure that energy poverty will be sustainably tackled. Finally, a dedicated budget within the “Energy upgrade of buildings” programme must be allocated for supporting energy poor tenant households.

The Energy Efficiency Obligation Scheme (EEOS) constitute the second pilot policy in Greece. The EEOS started in 2017 imposing an obligation to electricity, natural gas and petroleum products suppliers so as to achieve a specific energy saving target (333 ktoe of cumulative energy savings constituting 10% of the national target) through energy efficiency interventions until 2020. The implementation of energy efficiency interventions in energy poor households is also foreseen without specifying a sub-target. The EEOS will play also an essential role not only for promoting energy efficiency generally, but for contributing to the alleviation of energy poverty as outlined both within the National Energy and Climate Plan (2019) and the National Action Plan for the Confrontation of Energy Poverty in Greece (2021). The EEOS continues also in the period 2021-2030 according to the provisions of the NECP, while the Ministerial Decision for specifying the operational framework was adopted in June 2022 signalling the official initiation of the scheme. The Ministry of Environment and Energy is responsible for the supervision of the scheme, while CRES has been appointed as the administrator for the calculation, monitoring, control and verification of the delivered energy savings within the scheme.

The proposal for the case of the EEOs foresees the conduction of targeted information and awareness-raising activities by the energy suppliers providing useful and effective guidance to energy poor households living in rented buildings. Moreover, it is recommended to combine the EEOS with the alternative measures ensuring that the energy efficiency interventions will be implemented with the most cost-effective approach. The identification and participation of the energy poor households must be facilitated providing the capability to the obligated parties to approach them with no obstacles. Finally, the information and awareness-raising activities can be accompanied with the provision of financial support for the installation of energy efficient heating and cooling systems, such as heat pumps.

Both pilot policies intend to combat energy poverty at the national level, however not specifically among tenants. The Action Plan for the alleviation of energy poverty describes two different approaches to identify energy poor households. The first one is based on a logistic regression model, which calculates the possibility for a household to be affected by energy poverty. The second approach is more simplified setting two thresholds (for income and electricity consumption), which can be used to classify a household as energy poor household. These approaches should be applied to all policy measures. No reference on gender issues exists.

Different outreach channels are utilised in the pilot policies. For the case of the national programme for the energy upgrade of residential buildings, energy poor households can apply for participating into the programme after the announcement of its initiation according to the communication plan of the programme, which was carried out using different means (e.g., press releases, promotion through a dedicated website and social media and advertisements in TV and radio). It should be noted that private rented buildings are supported financially with different aid compared to the landlords. The financial aid for the case of the private rented buildings ranges from 40%-65% depending on the income.

In contrast, the obligated parties within the framework of the EEOS should identify and approach energy poor households to participate in their planned measures according to the national definition of energy poverty as specified within the Action Plan for the confrontation of energy poverty. Therefore, for addressing the split incentive problem the obligated parties must explore if the energy poor households live in rented buildings.

The national programme for the energy upgrade of residential buildings foresees the implementation of specific number of energy efficiency interventions at regional level (in the 13 different prefectures) ensuring a balanced spatial allocation of the affected residential buildings. The Ministry of Environment and Energy (MoEE) is responsible for the design of the programme, while the Technical Chamber of Greece is in charge of its coordination.

The EEOS is applied at national level with the participation of more than 30 obligated parties. The Ministry of Environment and Energy is the implementing authority, while CRES has been appointed as the administration for the monitoring, measurement, control and verification of the delivered energy savings.

The formulated proposals for the re-design of the pilot policies were assessed as rather effective by the REACT group to contribute to the alleviation of energy poverty. Firstly, the “Energy Upgrade of Buildings” programme managed to support a higher number of energy poor households mainly due to the dedicated budget for them within the RRF plan, and the preliminary results also show a higher number of financially supported rented houses compared with the previous calls due to the fact that a dedicated financial aid was foreseen for them.

Moreover, the implementation of a targeted awareness raising campaign by the Public Power Corporation (the largest electricity supplier) within the framework of the EEOS not only improved the understanding of the households about energy poverty but also provided financial support to energy poor households for the purchase of a heat pump.

Even though the evaluation of the pilot measures has not been completed yet, it is estimated that the “Energy Upgrade of Buildings” programme managed to affect 15,169 energy poor households according to the official data of the programme. Similarly, the targeted awareness raising campaign conducted by the Public Power Corporation managed to affect 142,820 energy poor households as resulted by the official measurement protocol of the EEOS.

6.3 Evaluation of the policy against the KPIs

6.3.1 Energy upgrade of buildings programme

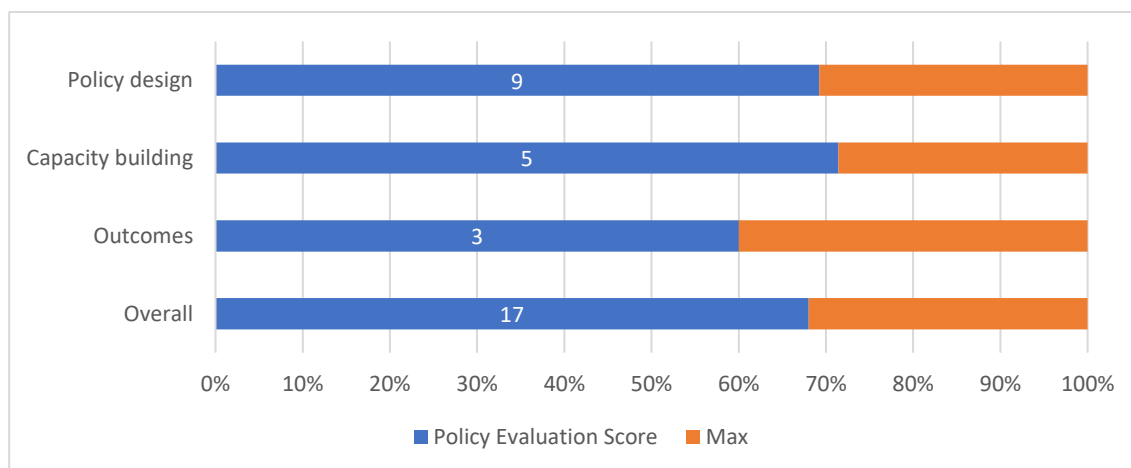


Figure 11: Policy evaluation scores Greece (Energy upgrade for buildings programme)

Area	Score	Comments
Policy design	9/13	<ul style="list-style-type: none"> • This policy includes the PRS within its remit, although doesn't specifically target energy poor households, landlords or tenants. Nevertheless, this policy was designed with the input of a wide range of stakeholders, including with feedback from energy poor tenants and landlords through engagement with the REACT groups. • This policy is integrated with and underpinned by existing national and EU-level strategies and frameworks to combat energy poverty in Greece, and policy beneficiaries are identified according to the same categories as the National Action Plan to combat energy poverty. • This policy does not directly work to address the split incentive, although privately rented households are beneficiaries of the policy.
Capacity building	5/7	<ul style="list-style-type: none"> • This policy led to an increase in knowledge and skills among stakeholders on the need to include the PRS within energy efficiency policies. • A notable achievement of this policy is the foreseen establishment of an energy poverty working group within the Ministry of Environment and Energy, as well as a new fund earmarked for the alleviation of energy poverty in the PRS. • No new data or collaborations were recorded as having emerged from this policy.
Outcomes	3/5	<ul style="list-style-type: none"> • This policy was effective in reaching PRS tenants, as well as improving the structural energy efficiency of dwellings through renovations and the installation of more efficient heating, and thus is likely to reduce the prevalence of energy poverty in the PRS by increasing thermal comfort. • However, as it was not carried out in conjunction with awareness raising measures, improved knowledge of energy bills or conservation was not observed. • Data was not collected on whether tenants were able to increase their energy consumption to fulfil basic needs following the energy renovation of the buildings.
Overall	17/25	

6.3.2 Energy Efficiency Obligation Scheme

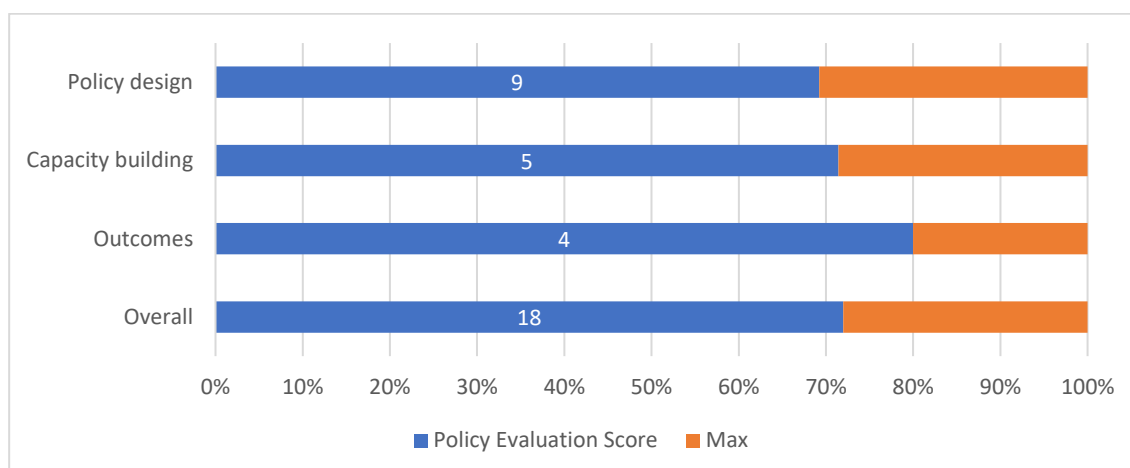


Figure 12: Policy evaluation scores Greece (Energy Efficiency Obligation Scheme)

Area	Score	Comments
Policy design	9/13	<ul style="list-style-type: none"> Although PRS tenants are eligible for some of the measures in the policy, neither the PRS nor energy poor PRS tenants are explicitly targeted by the scheme. Nevertheless, this policy was designed with the input of a wide range of stakeholders, including with feedback from energy poor tenants and landlords through engagement with the REACT groups. In addition, the scheme is implemented by a large number of stakeholders (30 legally obligated parties). This policy is integrated with and underpinned by existing national and EU-level strategies and frameworks to combat energy poverty in Greece, and policy beneficiaries are identified according to the same categories as the National Action Plan to combat energy poverty. This policy does not directly work to address the split incentive.
Capacity building	5/7	<ul style="list-style-type: none"> This policy led to an increase in knowledge and skills among stakeholders on the need to include the PRS within energy efficiency policies. A notable achievement of this policy is the foreseen establishment of an energy poverty working group within the Ministry of Environment and Energy, as well as a new fund earmarked for the alleviation of energy poverty in the PRS. No new data or collaborations were recorded as having emerged from this policy.
Outcomes	4/5	<ul style="list-style-type: none"> This policy was effective in reaching PRS tenants, as well as improving the structural energy efficiency of dwellings through renovations and the installation of more efficient heating. It was also accompanied by an awareness raising programme, thus leading to increased knowledge regarding energy bills and energy conservation measures in the home.

		<ul style="list-style-type: none"> Data was not collected on whether tenants were able to increase their energy consumption to fulfil basic needs following the energy renovation of the buildings.
Overall	18/25	

6.4 Conclusion and further recommendations

In the evaluation of the two energy efficiency policies in Greece, several strengths and areas for improvement have emerged. Both policies have been designed with the input of a wide range of stakeholders, including feedback from tenants vulnerable to energy poverty, as well as landlords, through engagement with REACT groups. They are also integrated with existing national and EU-level strategies to combat energy poverty, aligning them with broader policy and regulatory objectives. However, neither policy explicitly targets energy-poor households or the PRS and does not directly address the split incentive challenge.

For policy improvement, it is recommended that both policies consider specific targeting of energy poor PRS tenants and landlords to address energy poverty effectively within this sector. Furthermore, efforts to directly tackle the split incentive issue should be explored – especially as this is likely to emerge as a key challenge in the forthcoming upgrading of Greece’s housing stock. Additionally, collecting data on tenants' ability to increase their energy consumption to meet basic needs following building renovations could provide valuable insights.

On the positive side, the establishment of an energy poverty working group and a fund earmarked for energy poverty alleviation in the PRS are notable achievements that should be pursued further. The participation of 30 stakeholders in the Energy Efficiency Obligations of Buildings policy is particularly commendable. This is a best practice that warrants diffusion beyond the case study area context. Further collaboration and data-sharing among stakeholders specifically working on the PRS can enhance the policies' overall effectiveness and lead to improved decision-making relevant to the sector. Lastly, incorporating awareness-raising measures can help improve tenant knowledge about energy bills and conservation measures.

6.5 Overview of KPI assessment

6.5.1 Energy upgrade of buildings programme

Table 16: Overview of policy evaluation in terms of policy design - Greece (Energy upgrade of buildings programme)

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 17: Overview of policy evaluation in terms of capacity building - Greece (Energy upgrade of buildings programme)

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 18: Overview of policy evaluation in terms of outcomes - Greece (Energy upgrade of buildings programme)

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates		

6.5.2 Energy Efficiency Obligation Scheme

Table 19: Overview of policy evaluation in terms of policy design - Greece (Energy Efficiency Obligation Scheme)

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	(Has it been publicly challenged?)		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 20: Overview of policy evaluation in terms of capacity building - Greece (Energy Efficiency Obligation Scheme)

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 21: Overview of policy evaluation in terms of outcomes - Greece (Energy Efficiency Obligation Scheme)

Indicator	Specification Operationalisation /	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	No	Yes
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	Yes	No
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Yes	No

7 ITALY

7.1 Policy Background

7.1.1 Situation in the residential sector

In Italy, flats are the most popular type of housing in cities or rural areas (54.9%), followed by houses (44.6%) and other (0.5%). According to the Italian Strategy for Energy Retrofitting of the National Building Stock (Italy, MiTE, 2021) in 2018 there were 12.4 million residential buildings, with a total surface of more than 3 billion m². More than 65% of buildings were built before the first law on energy efficiency in 1976 (i.e., prior to any regulatory requirements on the building energy performance) and 22% of the total residential building stock is not occupied. Italy needs to retrofit 2.6% of the residential and tertiary building stock annually to reach its target. Documents and statistics on the state of the art of energy efficiency of the Italian building stock are available on ENEA’s platform on energy performance certificates³⁰ and the national portal on buildings³¹.

Ownership is more common than renting. In 2021, 73.7 % of the population lived in a household owning their home, while the remaining 26.3 % lived in rented housing. While most of the households own their homes, 70% of low- and middle- to low-income households rent their homes (OECD, 2022). There has been a steady increase of rents in the EU between 2010 and 2021, in Italy the rent evolution is under the EU average, although a rise can be observed. Owners of rented properties are eligible for the Ecobonus and Superbonus, but there is no data on their share of the total use.

In 2021, the housing cost overburden rate (i.e., the share of the population living in a household where total housing costs represent more than 40 % of disposable income) was 9.2 % in cities and 6.4 % in rural areas. The average share of housing costs in disposable income was 15.8% and the share of those at risk of poverty (i.e., with a disposable income below 60 % of the national median income) was at 32.6 % of the population.

The draft 2023 NECP reports that the increase in electricity prices for households in Italy in 2021 compared to 2020 (14.9%) is more pronounced than the euro area average (9.6 %) ³². Using the harmonised consumer price indices collected by Eurostat, household gas prices have increased significantly in 2021 (19.2%) and taking into account the overall price changes over the last three years (2019,2020 and 2021), Italy presents a more linear evolution, with an increase (14.9%) slightly higher than Spain (+12.6%) but lower than the euro area average (18.7%).

7.1.2 Energy poverty definition and strategy

The 2017 Italian National Energy Strategy defined energy poverty as the difficulty of purchasing a minimum basket of energy goods and services or, alternatively, access to energy services that involves a distraction of resources, in terms of expenditure or income, exceeding a “normal value”. This definition is mentioned also in 2020 Italy’s NECP.

According to a 2023 Report of the Italian Observatory on Energy Poverty run by a network of

³⁰ <https://siape.enea.it>

³¹ <https://pnpe2.enea.it/>

³² <https://commission.europa.eu/system/files/2023-07/ITALY%20-%20DRAFT%20UPDATED%20NECP%202021%202030%20%281%29.pdf>

researchers from universities, public and private entities and institutions working on energy poverty, the energy poverty rate in 2021 according to this definition has reached 8.5%, up by half a percentage point from the previous year, as a consequence of the increase in the final prices of electricity and gas. At the regional level energy poverty levels are estimated to vary between 4.6 % in Marche Region to a maximum of 16.7 % in Calabria.

The Italian Annual Report on Energy Efficiency 2022 reported a higher share of energy poor households living in rented dwellings (14.5%), compared both to the national average value and to disadvantaged social groups. Owners were significantly less exposed to energy poverty risks, with only a 5% rate being reported in 2020, whereas energy poverty among those living free of rent was higher (16.5%). According to the EPD, overall, 8.6% of Italians were unable to keep their home adequately warm in 2021 with the share of energy poor among tenants being significantly higher (14.8%). The share of tenants in the energy poor population is 34.4%, which is proportionally higher than the share of tenants in the population (26.3%).

7.1.3 Policy framework with view to tenant protection

Among the social protection measures, the most important ones are the electricity and gas bonuses that provide a discount on the bill, which is linked to the number of household members and, for the gas bonus only, also based on the climatic zone and the type of use.

Concerning energy efficiency, a measure aimed at improving the energy efficiency, with positive impacts in the medium and long term, is a tax deduction for the energy refurbishment of buildings, ranging from 50% to 65%, depending on the type of intervention, known as “Ecobonus”. This instrument has been extended thanks to the Budget Law for 2018 also to independent social housing institutes. In 2020 the Decree-Law No 34/2020 introduced the “Superbonus 110%”, as a temporary measure to push for renovation of buildings. It is a deduction rate for expenses incurred for specific interventions in the field of energy efficiency, anti-seismic interventions, installation of photovoltaic systems or infrastructures for charging electric vehicles in buildings to 110%. It can only be used for deep renovation, as it foresees at least one “driving” measure (such as complete insulation - coating and windows - of the house, substitution of heating systems and/or anti-seismic measures, which can be accompanied by “driven” ones (such as EV recharging structures, PVs, etc.)). Both abovementioned measures are not explicitly targeted towards vulnerable groups and/or those experiencing energy poverty.

Summarizing the main recent measures:

- National and local measures focused on financial assistance for reducing the energy bills (electric bonus, gas bonus, financial assistance for heating costs);
- National programmes for improving the energy efficiency of households (Ecobonus, Superbonus 110, VAT reduction on renovation);
- National and local programmes on grants and tax reduction (conto termico, tax reduction for the first 150 kWh of electricity consumed per month)
- National Training and Information programme on Energy Efficiency (“Italia in Classe A”)
- (some) disconnection protection measures (reduction of available power);
- Subsidies to low-income families
- EU-funded Projects linked to energy poverty carried out in Italy (SMART-UP, ASSIST, LEMON, PADOVAFIT!, PADOVAFIT EXPANDED, ENERSHIFT, SER, GreenAbility, GreenRoad)

The draft 2023 NECP highlights how vulnerable customers are identified, not only regarding the economic conditions, but considering health, age, housing, considering electricity and natural gas. As a form of protection, the regulatory authority sets out the contractual and economic conditions reserved to them, based on market prices, which all sellers are required to offer to vulnerable persons. Despite the improvement and the measures taken in recent years, Italy still maintains a gap with other European Member States as regards both gas and electricity prices. The unit cost of electricity in the protected market for typical households (resident, power 3 kW, consumption 2 700 kWh) shows a significant break in absolute values and tariff components from the last quarter of 2021 until the first quarter of 2023. During this period, the final unit cost reached a tripling of its value. In terms of tariff components, the energy share has increased by more than 80 % of the final price, system charges have been cancelled by extraordinary regulatory measures to mitigate increases in bills. In 2023, the unit cost of household electricity almost realigned with historical prices until 2021. The unit cost of natural gas in the protected market for typical households (1400 Smc) also shows a significant increase from the last quarter of 2021 until January 2023. During this period, the final unit cost doubled its value, the energy share increased four times, weighing more than 80 % of the final price. Regulatory provisions aimed at mitigating the final costs of bills, and VAT rates reduced.

In 2022 as part of the National Plan concerning natural gas consumption, with the aim to mitigate the effects of the international energy crisis, the Ministry of Ecological Transition issued Energy Saving Decree no. 383 of 6 October 2022, which defines the new time limits for the operation of heating systems supplied by natural gas, with the reduction of one degree of the maximum values of the temperature for the winter season 2022-23, (compared to Decree no. 74/2013) and reducing 15 days for the heating period and 1 hour in the daily duration. The operation of thermal systems was allowed with different limits for the 6 different climatic zones.

7.1.4 Specific challenges and barriers for addressing energy poverty in the PRS beyond the split incentives

Italian policy measures target solely or also socially vulnerable group, they do not take into consideration the specific issues of the PRS. Communication programs are pushing on Energy efficiency by focusing on the promotion of renovation benefits, and the increased value of the ownership is one of the key messages. Awareness raising for policymakers on energy poverty in this sector can be useful, highlighting to plan measures to avoid any possible adverse consequence for renters, risks of gentrification and “touristification” (short-period renting has been increasing). The main barrier/challenge to undertake communication and information activities specifically targeted to tenants is the difficulty to reach them, due to the fragmentation of the Italian PRS.

7.2 Description of the ENPOR policy

The policy further developed within ENPOR is the Italian National Energy Efficiency Training and Information Programme, (foreseen until 2023) according to Italian Legislative Decree 73/2020 art. 12, implementing EED.

ENEA, in cooperation with GSE – Gestore Servizi Energetici, after a public consultation, submits a 3-years plan to the Ministry in charge of Energy. Currently ENEA coordinates the Programme on behalf of the Italian Ministry of Environment and Energy Security. It is a multimodal programme including measures relating to education, training, information and awareness raising, as well as behaviour change. The related Communication Campaign is named “Italia in Classe A”.

The revision of the program has included the improvement of contents on energy poverty,

targeted actions for vulnerable groups and the PRS as well as developing specific communication materials for landlords, tenants and building managers.

Furthermore, awareness initiatives (surveys, engagement and training sessions) have been also carried out in high schools, where students showed high interest in the topics related to energy, its relationship with climate change, and on the issue of energy poverty. Considering the influence teenagers can have on their families, and their willingness to know more about energy efficiency, they are a relevant target group for further actions.

The “Italia in Classe A” public website will include contents and learning materials on energy poverty. The materials designed and developed in the framework of ENPOR will be available on the website and will also be distributed through the network’s member associations who approved the final version. The Municipality of Cosenza in Calabria will distribute one hundred printed brochures for building managers and tenants.

Training and communication actions will be mainly implemented at national level, but also at local and regional levels through ENEA’s territorial offices working with regional and local authorities by providing scientific and technical support.

7.3 Evaluation of the policy against the KPIs

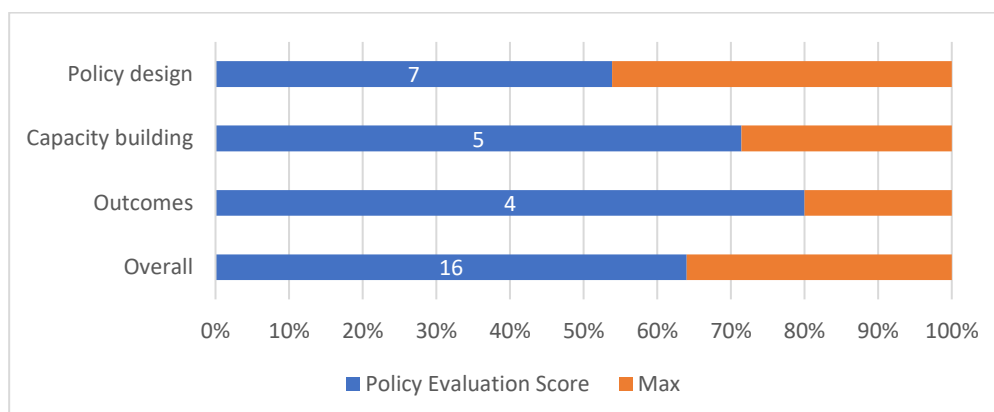


Figure 13: Policy evaluation scores Italy

Area	Score	Comments
Policy design	7/13	<ul style="list-style-type: none"> This policy was designed with the input of a wide range of stakeholders including civil society organisations, utility providers, charities, energy consultants and representatives of property owners and tenants’ associations. The policy refers to and is aligned with both national and EU-level policies addressing energy efficiency, although is not part of the overarching Italian national energy poverty strategy. Although an awareness-raising and behavioural measure, this policy worked to address the split incentive where possible by clearly detailing advantages/disadvantages,

		roles and responsibilities of each party as part of the information disseminated on energy efficiency measures.
Capacity building	5/7	<ul style="list-style-type: none"> • Policy evaluation surveys conducted at capacity building events and REACT groups report increased knowledge and skills related to energy poverty in the PRS among relevant stakeholders such as building managers. • The outputs of this policy are a range of content, training and activities that are publicly available and targeted to a range of different stakeholders, including students and policymakers, and thus capacity building will continue longer-term. • This policy does not lead to the production of new data on energy poverty in the PRS or lead directly to new funding.
Outcomes	4/5	<ul style="list-style-type: none"> • Overall, based on past survey results for the overall campaign, the policy has reportedly led to an increase in knowledge on energy conservation measures, energy bills and thermal comfort. The policy was also successful in reaching energy poor tenants in the PRS. • Nevertheless, as this is an information and behavioural change campaign, no structural improvements or renovations to the energy efficiency of buildings was made.
Overall	16/25	

7.4 Conclusion and further recommendations

In summary, it is evident that the policy has been carefully conceived, with extensive stakeholder engagement, including civil society organisations, utility providers, charities, and representatives of property owners and tenants' associations. Although it aligns with national and EU-level energy efficiency policies, it is not integrated into broader strategies to address energy poverty and energy efficiency among low-income households. The policy speaks to the split incentive challenge by providing clear information on the advantages, disadvantages, and responsibilities of each party involved in energy efficiency measures.

However, there are areas for improvement. To enhance its impact, the policy should consider integrating with national-level efforts and programmes to reduce energy poverty, promoting the production of new data on energy poverty in the PRS, and seeking opportunities for funding allocation. Additionally, expanding beyond information and behavioural change campaigns to include structural improvements and renovations for energy efficiency could further alleviate energy inequalities in the PRS, while leading to more tangible outcomes for the private rented housing stock and its tenants.

7.5 Overview of KPI assessment

Table 22: Overview of policy evaluation in terms of policy design - Italy

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from representatives of owners		
	Yes, from representatives of residents		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	Has it been publicly challenged?		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 23: Overview of policy evaluation in terms of capacity building - Italy

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 24: Overview of policy evaluation in terms of outcomes - Italy

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates		

8

THE NETHERLANDS

8.1 Policy Background

8.1.1 Situation in the residential sector

The Netherlands exhibit significant levels of urbanization, characterized by a notably high urbanization rate. Approximately 74.4% of the population resides in predominantly urban areas, while 25% live in intermediate regions, and a mere 0.6% inhabit predominantly rural areas³³. The concentration of this urbanization is particularly pronounced in the western part of the country. The municipality of Utrecht (one of the main cities of ENPOR) is the fourth biggest city of the Netherlands, with over 360,000 inhabitants living within the city limits. The Netherlands have about 17,6 million inhabitants in total (as of 2022).

In 2022, the housing stock amounted to 8 million. The number of privately rented dwellings increased by 2.5% in 2021, reaching 1.13 million. Private rental homes accounted for over 14% of the housing stock in the Netherlands on January 1, 2022, which is equivalent to about one out of every seven residences. Of the privately rented dwellings, 71% (over 807,000 homes) were multifamily units, while about 327,000 were single-family homes. One-fourth of the multifamily units were smaller than 50 m² (over 207,000), whereas among single-family homes, 83% were at least 90 m² in size. Approximately one third of the privately rented dwellings were located in buildings constructed before 1945, which could include pre-war apartments, upper and lower houses, as well as newer apartments and studios created through the subdivision or transformation of older buildings. Among single-family homes, 27% were situated in older structures. Additionally, 14% of privately rented multifamily units had a construction year of 2011 or later, representing 38% of all multifamily units from this construction period³⁴.

The initial rental price at the commencement of the lease agreement is crucial in determining whether a rental property falls into the private sector housing category. If the net rent at the start of this contract exceeds the so-called liberalization threshold, it is considered a private sector housing unit. In 2022, this threshold stood at 763.47 euros in net rent. For private sector housing units, the rent increase in 2022 is capped at the average inflation rate from December 2020 to November 2021, plus an additional 1 percentage point. This means that rents for existing tenants can be increased by a maximum of 3.3 percent. When a rental property gets a new tenant, the landlord is not bound by the established maximum annual rent increase. Rental properties that changed occupants between July 1, 2021, and July 1, 2022, had, on average, a rent that was 9.7% higher in July 2022 compared to 2021. Rents for the private rental sector increased on average by 3.8% in July 2022³⁵.

Household energy prices consist of three main components. The first component encompasses the supply costs, which are billed by the energy supplier. The second component includes the network costs incurred by grid operators. The third and final component is various taxes and levies managed by the government. Most consumers receive a consolidated energy bill that covers all these components, with the energy

³³https://ec.europa.eu/eurostat/databrowser/view/URT_PJANAGGR3__custom_7047680/default/table?lang=en

³⁴ <https://www.cbs.nl/nl-nl/nieuws/2023/11/private-huursector-groeit-sterker-dan-koop-en-corporatiesector>

³⁵ <https://www.cbs.nl/nl-nl/nieuws/2022/35/huren-gemiddeld-met-3-procent-gestegen>

supplier also invoicing the costs on behalf of other involved parties.

Within the first component, the electricity and natural gas supply costs, there are two subcomponents: fixed charges and supply costs. The supply costs are variable and are contingent on the amount of energy consumed. The rates for electricity and gas delivery are determined by energy suppliers. The ACM (Authority for Consumers & Markets) oversees these rates for small consumers to ensure they remain reasonable and do not become excessively high.

As part of the third component, which involves taxes and levies, there exists an energy tax refund (heffingskorting). The government recognizes a portion of energy consumption as a fundamental necessity. Consequently, consumers receive a fixed energy tax refund for each electricity connection they have³⁶. The energy price for electricity in 2021 was 14 ct/kWh (no data available in 2022) and for natural gas 19 ct/kWh in 2022³⁷.

8.1.2 Energy poverty definition and strategy

In the Netherlands, energy poverty has gradually gained attention on the political agenda. However, policymakers have frequently overlooked the vulnerability of individuals facing energy poverty. The issue of energy poverty has primarily been tackled through the general poverty welfare system, focusing mainly on preventing disconnections. One of the challenges lies in the fact that poverty welfare measures are typically implemented at the municipal level, while decision-making and resource allocation for the energy transition are primarily governed by national laws and policies.

To gain an insight into the width of the problem, TNO – The Netherlands Organisation for Applied Scientific Research – conducted a quantitative study in 2021 on energy poverty in the Netherlands. The research was based on numbers from Statistics Netherlands (CBS) from 2019. TNO produced a map, showing the nature, extent and regional distribution of energy poverty in the country. This was the first time that energy poverty was mapped in the Netherlands, making use of a multi-layered definition with different indicators that considered three components:

1. The affordability of energy;
2. The energetic quality of the house;
3. The choice and opportunity to participate in the energy transition.

This can be closely related to the definition that the ENPOR project is using, considering a) low incomes, b) high energy needs and c) high energy prices. The map that TNO created, can be compared to a national version of the EPD. The only indicator that has not been considered by TNO is the indicator “the ability to keep home warm”, most probably because the CBS data did not provide any data that was reliable. According to the Energy Poverty Dashboard, 3.3% of the Dutch population were unable to keep their home adequately warm in 2021 with the energy poverty rate among tenants according to this indicator being almost twice as high (6.3%). The share of tenants in the energy poor population is 56.4%, which underlines the relevance of targeting the PRS in the fight against energy poverty.

The TNO report is an integral part of the long-term TNO knowledge program on energy poverty, carried out in collaboration with the Dutch government. Following this report, in 2022 the Ministry of Economic Affairs and Climate Policy (EZK) commissioned Statistics Netherlands (CBS) to develop an annual Energy Poverty Monitor. The definition of TNO is

³⁶ <https://www.cbs.nl/nl-nl/dossier/energieprijzen/aardgas-en-elektriciteit>

³⁷ https://energy-poverty.ec.europa.eu/observing-energy-poverty/national-indicators_en

thus now a nation-wide accepted definition.

8.1.3 Policy framework with view to tenant and social protection

As mentioned before the TNO research has shown that energy poverty rates would have most probably been much higher in 2022, if the Dutch government had not taken several measures to compensate households for the increasing energy prices. The list³⁸ below gives an overview of measures being taken in the Netherlands since 2021 which aim to reduce energy bills. Many of the measures have since 2021 been prolonged or expanded. They are however in principle all temporary measures, that are planned to be diminished as soon as energy prices go down again.

- Total of €300 million for municipalities to support energy poor households (first €150 million was announced in 2021) Definition for energy poor households defined in TNO study with Low Income High Costs and Low Income Low Energy Efficiency (Mulder et al., 2021)
- Lowering of the energy tax on electricity
- Energy tax refund increased from €560 to €785
- Increase of the energy surcharge to €1,300 for welfare recipients and people earning less than 120% of the social minimum (earlier measures announced an increase of €200 and €800). This increase is also disbursed in 2023.
- Lowering of the energy VAT from 21% to 9% (natural gas, electricity and city heating)
- 10% increase of the minimum wage
- Price cap starting in January 2023: 40 ct/kWh and €1.45 per m³ gas, for a use below 2,900 kWh and 1,200 m³ gas. Households using more electricity and/or gas pay the higher price
- All households receive €190 in November and December to bridge the months before the price cap will be active

Municipalities have been given significant responsibility in encouraging individual homeowners, housing corporations, and landlords to undertake measures to improve the energy efficiency of their properties. The 300 million euros mentioned above, have been used for a large part to provide energy-saving advice or measures to their constituency. Municipalities were allowed to choose the way to spend this money themselves. It concerns, for example, the adjustment of the central heating system, the application of radiator foil and draft strips or the installation of LED lamps.

These funds are the ones being used to finance for example the Energy Box that is the focal point for ENPOR in the Netherlands. The RREW³⁹ (Regeling Reductie Energiegebruik Woningen), a regulation that aims to reduce the energy consumption of homes, is in place since 2020 and its budget has since been raised. The total budget was € 70 million when it opened and was later increased to € 100 million. The scheme ends in December 2023. In April 2023, additional measures were agreed to at governmental level, including extra support from energy fix teams for vulnerable households all over the country⁴⁰.

When it comes to larger-scale and more permanent measures improving the energetic quality of housing, such as insulation, this is still mainly considered to be a matter for landlords to address. The social housing organizations' so-called National Performance

³⁸ TNO (2023), Energy Poverty: A Science and Policy State of Play, pg. 32
<https://publications.tno.nl/publication/34640524/86Phvt/TNO-2023-P10119.pdf>

³⁹ Regeling Reductie Energiegebruik Woningen (RREW) (rvo.nl)

⁴⁰ EZK - Concept update Integraal Nationaal Plan Energie en Klimaat 2021-2030 (europa.eu)

Agreements have been signed in 2022, with clear goals to improve housing quality. For example, it is agreed that as of 2026 no houses will be on the market with low maintenance quality and that corporations will invest €200 million extra per year until 2030 in the improvement of their housing stock.⁴¹

In the private rental sector, no such agreements have been made. For this sector, the number of parties involved – ranging from large commercial corporations to individual landlords – and the disorganisation amongst them, makes it much more complicated for the government to work together. A few measures have been taken though, to put pressure on this group. For example, it has been decided that as of 2030 landlords may no longer rent out poorly insulated houses with labels F and G. To promote landlords taking energy saving measures, the focus lies on providing extra subsidies. For example, the government has made a sum of €124 million available for subsidies for homeowners and landlords to be used for measures such as insulation, heat pumps and more⁴². Furthermore, in 2023 the National Insulation Programme was launched, aiming at the worst insulated homes.

One of the additional complicating issues, is that it is difficult to reach energy poor households (in the private rental sector) since policy makers are, because of privacy laws, not able to use income data to grant subsidies.

8.2 Description of the direct ENPOR policy

The Energy Box was established in 2014 by de Jonge Milieu Adviesbureau (JMA), the municipality of Utrecht, the tenant organisation “De Bundeling” and the social housing associations Mitros, Bo-Ex, SSH, Groenwest and Portaal. The Energy Box project is a social enterprise, that was set up with a triple purpose: first to reduce the energy consumption of residents, second to fight (energy) poverty and third to provide jobs for the (long-term) unemployed.

The Energy Box consists of a consultation with an energy coach, an advisory report, and a box with energy-saving products. During the consultation, an energy coach explains how to use the energy-saving products and discusses the residents’ energy consumption. Based on the consultation, the energy coach provides the residents with energy-saving advice in a report tailored to the resident's situation. The advice can be implemented by the residents without big investments or costs, making it possible for the residents to save money on their energy bill and increase their living comfort without renovations or investments. Residents receive a box with energy-saving products aimed at improving energy-conscious behaviour at home. Initially, the Energybox measure of JMA consisted of a standard procedure as follow in the figure below.

⁴¹ <https://aedes.nl/nationale-prestatieafspraken>

⁴² <https://www.rvo.nl/subsidie-en-financieringswijzer/isde>

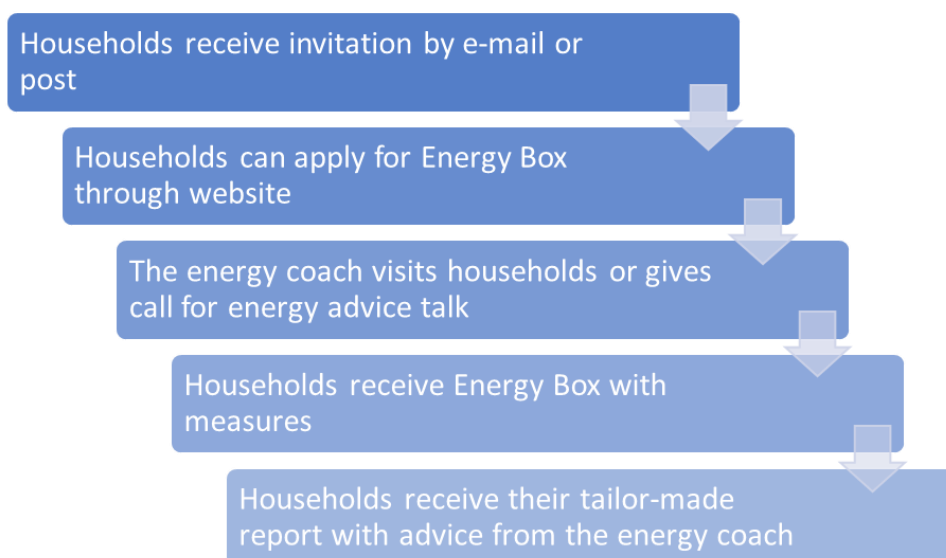


Figure 14: Standard procedure of the Energybox measure

Most often, the households targeted are defined at neighbourhood or even street or building level, in the case of direct cooperation with a social or private housing corporation. The decision on which neighbourhoods, streets or buildings to target, is based on a combination of factors, including the state of the property (energy labels), last moment of renovation and type of residents. Often the Energy Box scheme is part of a larger package of measures to improve energy conditions in a building, street or neighbourhood. Over the last few years both on the side of Energy Box and at municipalities attention has grown to specifically target households at risk of energy poverty. To assist Energy Box and the involved parties in choice making, as part of the ENPOR project, we have developed a prototype tool to predict energy poverty risks at neighbourhood level. In practice, the tool turned out to be complex and time-consuming to use, so we have not developed it further. But tools like the TNO map of Energy Poverty in the Netherlands⁴³ can help in this regard.

The results of the Energy Box speak for themselves: in 2021, 19,000 residents were reached and in April 2023 this number has grown to almost 45,000 residents. Until now more than 5 million Euros are saved per year by households using the Energy Box. The average savings per household after a visit of a coach is about 257 kWh of electricity and 100 natural gas m³ each year. The results are continuously updated and can be found on the [website](#) of Energy Box.

Originally on average only 1 out of 10 households being targeted, applied for an Energy Box, although differences existed between neighbourhoods.⁴⁴ Thus, conversation rates were not very high. Experiments with different means of communication (flyers, doorhangers, multilingual e-mail and letters) (as also tested as part of the ENPOR project) and, for example, door-to-door visits by energy coaches, have shown however that conversation rates can be raised to 50%. Also, the research conducted within ENPOR has shown that different target groups, such as students or people with a migrant background, need different communication strategies. This awareness has grown a lot amongst the

⁴³ <https://energiearmoede.tno.nl/>

⁴⁴ B. de Haan – JMA, personal communications, April 1 2021

parties involved and is now always part of discussions when setting up a new campaign.

The Energy Box scheme is always carried out at a local level, in close cooperation with local stakeholders. Because of the need to address certain target groups with specific means, the knowledge of locals concerning the type of residents in a neighbourhood is vital. Also, the Energy Box must be low-key and accessible, so working with local energy coaches is also very important. However, at national level the value of these types of support schemes to households at risk of energy poverty has grown a lot (see also the chapter before). Thus, the Dutch government has intensively raised financial means to support municipalities in making use of energy coaches, energy fix teams and other initiatives to combat energy poverty.

In the ENPOR project the policy was further developed in collaboration with JMA into multiple directions.

- Energy Box with Choice: provides flexibility and choice for tenants, with the option for the energy coach to offer additional materials or products during visits to meet tenant needs.
- Energy Box with Extra Visit: includes an extra visit from the energy coach after 8 weeks to support behavior maintenance and assist with measure implementation if needed.
- Energy Box with Practical Help: energy coach not only provides advice but also installs energy-saving products if the tenant requires assistance.
- Energy Box for Language Barriers: materials translated into multiple languages to reach tenants with migrant backgrounds.
- Energy Box via Social Network: promotion through existing social networks and local events, such as food bank distributions and community gatherings.
- Energy Box with Cargo Bike: utilizing a cargo bike for promotion, complemented by door-to-door visits and posters for a comprehensive approach.
- Energy Box for Students: tailored door-to-door visits and advice for (private) student housing, along with customized box materials.
- Energyvoucher: residents in Zeist received a €75 voucher for spending at local DIY stores, serving as an alternative approach to the Energy Box method for comparison.

8.3 Evaluation of the policy against the KPIs

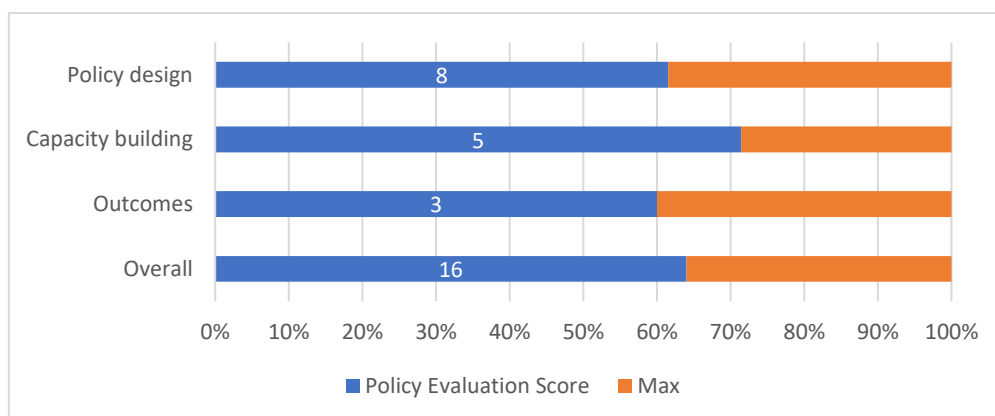


Figure 15: Policy evaluation scores The Netherlands

Area	Score	Comments
Policy design	8/13	<ul style="list-style-type: none"> The policy includes PRS tenants, although at the discretion of the individual implementing authority. The policy was designed with the input of stakeholders from across the PRS landscape including landlords and their representatives, however tenants and/or their representatives were not part of the REACT group process. The policy does not address the split incentive. The policy involved the development of a tool which allows more fine-grained identification of energy poor households at the neighbourhood level, including PRS tenants, which can lead to better targeting of households in need. The policy is well integrated within broader programmatic objectives to alleviate energy poverty at local and national levels.
Capacity building	5/7	<ul style="list-style-type: none"> The policy was effective at fostering new collaborations and partnerships between stakeholders across the PRS landscape, including municipalities, private landlords, and housing associations. Dissemination of the policy and its results with multiple stakeholders was achieved through academic papers and presentations at national meetings with policymakers, which has helped to inform new policy ideas. However, the policy did not include capacity building with regards to improving relevant skills or widening access to finance or other resources for tackling energy poverty.
Outcomes	3/5	<ul style="list-style-type: none"> This policy was effective at reaching energy poor PRS tenants. There is also evidence that there is improved understanding of energy bills, energy conservation measures and increased thermal comfort in households which received an Energy Box. As this policy is focused on household behaviour change and energy conservation measures, the energy efficiency of the building stock was not altered.
Overall	16/25	

8.4 Conclusion and further recommendations

The policy was effective in targeting energy PRS tenants vulnerable to energy poverty, particularly improving their understanding of energy bills, and enhancing thermal comfort through initiatives like the Energy Box. It also fostered collaborations among stakeholders in the PRS landscape and was well-integrated into broader energy poverty alleviation goals. The policy developed novel energy poverty detection tools, at a small scale of disaggregation. Thanks to the ENPOR project, there was clear evidence of extensive policy coverage across multiple constituencies. However, there are notable shortcomings. The policy did not involve PRS tenants or their representatives in its development, where these voices could have provided important input in the design of specific goals, measures and steps. It did not directly address the split incentive issue, where landlords may be structurally discouraged from investing in energy efficiency measures. Moreover, the policy did not include capacity

building measures to improve relevant skills or widen access to resources for addressing energy poverty. To enhance its effectiveness, future policy development should seek to involve a wider range of stakeholders in its design and implementation, while addressing the issue of energy efficiency incentives among landlords. This could be enhanced by capacity-building initiatives across a variety of governance sectors and levels.

8.5 Overview of KPI assessment

Table 25: Overview of policy evaluation in terms of policy design - The Netherlands

Indicator	Specification / Operationalisation	Yes	No
Does the policy allow tenants in the PRS to participate/benefit?			
Does the policy explicitly target the PRS?			
Does the policy explicitly target energy poor households in the PRS?			
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,		
	Yes, from (representatives of) residents,		
	Yes, from other relevant stakeholders		
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?		
	(Has it been publicly challenged?)		
	Does it refer to other policies and/or legal acts?		
	Is the policy documented as an element of an overarching energy poverty strategy?		
Does the policy explicitly address the split incentives issue?			
Are the policy’s target groups specified with view to criteria derived from an official energy poverty definition?			
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.		

Table 26: Overview of policy evaluation in terms of capacity building - The Netherlands

Indicator	Specification / Operationalisation	Yes	No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?		
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants, ...) in state organisations to better address energy poverty in the PRS?		
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?		
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?		
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events		
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders		
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings		

Table 27: Overview of policy evaluation in terms of outcomes - The Netherlands

Indicator	Specification / Operationalisation	Yes	No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates		
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates		

9 CONCLUSIONS

In conclusion, although the co-created policies were positively assessed by the involved stakeholders and provided tangible improvements for tackling the identified challenges to address energy poverty in the Private Rented Sector, none of the ENPOR policies reached a full score across the three evaluation areas. While this partly indicates further room for improvement with view to the inclusive and targeted policy design and implementation, it also reflects the generic differences between different policy types and their specified targets. For instance, information and training instruments aim to create awareness and remove informational barriers among different stakeholders and are not designed to improve the energy efficiency of dwellings or provide additional funding to building owners for doing so. The same way, the primary focus of financial instruments is to create incentives and/or overcome financial barriers for building renovations but not necessarily to improve the understanding of energy bills of residents. The evaluation results in this way also highlight the relevance of a multi-faceted approach, which combines different policy instruments in a tailored policy package that delivers on the delineated requirements of an inclusive, integrated and effective energy poverty strategy.