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Status of energy poverty and policies to address it in CEE/SEE countries

Study on the impacts of policies to decarbonize residential buildings on energy poverty in CEE/SEE and mitigation strategies

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1. ABOUT THIS REPORT

This report is part of a Study which IEECP conducted for the European Climate Foundation on how the Fit-for-55 proposals to expand the ETS to fossil fuel heating in buildings, minimum energy performance standards, and phasing-out of fossil boilers will impact lower-income households in the CEE/SEE region over the period 2030-2050. The countries included in the study are Poland, Hungary, Czech Republic, Slovakia, Romania, Bulgaria, Spain, Portugal, Italy, and Greece.

Our objective was to provide clear policy recommendations to address potential adverse effects. The study has been carried out through three Workstreams:

1. **Desk research on the understanding of the energy poverty structure**, resulting with national factsheets and a comparative dashboard which clearly demonstrate which policies apply to low-income groups, what are the enabling factors for their success and what types of overlaps/complementarities exist;
2. **Quantification of the three new policies**, trough data collection, modelling of the business as usual and the three policies' scenarios with the calculation of the impacts;
3. **Identification of benefits** of the implemented policies and the **recommendations** on how to design policies to minimise adverse effects on energy poor.

This report shows findings from Workstream 1.

2. SUMMARY REPORT

2.1 Introduction

This report presents the initial findings of Workstream 1, based on data gathered from a variety of sources (primarily Eurostat and other relevant international agencies, as well as domestic statistical sources) and analysed in line with the conceptual framework and research insights. The text that follows seeks to provide a summative perspective on energy poverty policies and patterns across the 10 case study countries, as well as a wider range of relevant factors that demonstrate how domestic energy inequalities connect to wider economic, infrastructural, institutional and social disparities.

A key starting point for this report is more recent thinking on energy poverty and vulnerability, which sees these conditions as the product of beyond the narrow remit of energy prices, household incomes and energy efficiency. What is more, it is now acknowledged in the literature that rather than being limited to inadequate energy services, poor health and well-being in the home, energy poverty also has much wider indirect effects on the entire system of energy policy, regulation and service delivery[1]. The results of the analysis have implications for the framing and implementation of climate mitigation measures, in terms of acknowledging existing and past energy poverty patterns, and the effects of fiscal and economic policies more broadly.

2.2 Policy Analysis [2]

We provide a cross-sectoral and integrated evaluation of energy poverty - related policies across the case study countries. In line with broader project aims, our aim here is to review the ability of national level policies in this domain to address: 1) the expansion of the European Trading Scheme (ETS) to fossil heating and fuels; 2) mandatory energy renovations and 3) the phase-out of fossil boilers. Policies were reviewed with respect to their fit and relevance to these programmatic areas, and the ability to reduce energy poverty in a sustained and ambitious manner.

We first explore measures that both tackle energy poverty directly, as well as wider strategic frameworks which address some of its key drivers: low incomes, high energy prices, poor residential energy efficiency, and energy-related social practices around energy use more broadly. In line with literature on the subject, we have categorized policies in terms of whether they provide direct income support for households, reductions and changes in energy tariffs and bills, or consumer information around energy use. Measures that sought to reduce energy price interventions were placed in a separate category, as were those which offer support towards improving the residential energy efficiency of the housing stock or promote the sustainable generation of energy in buildings. A separate category was reserved for programmes that include broader development of a range of energy measures across different sectors.

[1] Bouzarovski, Stefan. / **Energy Poverty: (Dis)Assembling Europe's Infrastructural Divide**. Springer Nature, 2017. 117 p.

[2] Multiple countries name the energy poverty subsidies or other measures using fossil fuel as "sustainable energy measures" or similar. Although the authors use the naming from the countries' legislative framework, subsidies and measures tackling energy poverty with higher fossil fuel consumption are not considered aligned with the energy transition and the objectives of the European Green Deal.

Direct income support to low-income or other vulnerable households is one of the most commonly encountered policies across all case study countries. It is particularly present in post-socialist countries, where this form of assistance is often tied in with broader social policy or housing support and is not necessarily targeted towards energy. Thus, Bulgaria has a winter heating allowance (to provide financial support for vulnerable households to cover their heating costs during the winter), as well as a monthly housing allowance, and one time support for vulnerable households. Practically all of Bulgaria's energy poverty measures are in this policy area. Greece similarly has a heating oil allowance, while Italy has a range of instruments to support households in this manner – particularly through the electricity and gas bonus. Italian municipalities also offer financial support for heating costs of given categories of households. Portugal has a programme to support access to adequate housing via direct transfers. Poland has a range of energy and housing allowances, and Romania offers winter heating assistance as well. Income support for energy is also present in Slovakia, with Spain also offering bonuses for electricity and heating, and emergency financial support for households facing disconnection risks.

Energy payment support is encountered across all case study countries. It can take various forms – from large-scale reductions in energy bills, to more targeted measures for vulnerable households in the form of disconnection bans. Many energy tariff-based instruments were introduced during the pandemic, and hence it remains unclear how long they will persist for. Thus, Greece offered 300kWh electricity free of charge to indebted households, while also implementing a wider social residential tariff for a wide range of household categories. Portugal also has a social tariff, and a reduction of VAT on energy prices. The country also has a disconnection ban and social tariffs for electricity and gas. Short-term discounts on electricity bills were also offered to selected households during the pandemic. Hungary has a utility cost reduction plan programme. Italy offers disconnection protection measures and tax exemptions for lifeline levels of electricity consumption. There are also reductions in fuel prices for areas of gas – grid (like distant islands) and as well as VAT decreases (the latter have also been implemented in Portugal, Spain and Czechia). Disconnection protection for vulnerable households is also present in Spain and Romania and retail prices for household consumers remain regulated in some countries (for example Poland and Spain).

Some countries also provide dedicated information support, even if this is not always targeted towards vulnerable groups. A notable case is Portugal, where multiple initiatives are working towards such a goal. Poland also has a national support system for energy efficiency and renewable energy. Spain has a system of energy advice points, and Slovakia offers a price calculator to assist fuel switching, and an advice programme for vulnerable households. The EKIS energy consultancy performs a similar role in the Czech Republic. Greece supports the establishment of energy communities for this purpose.

Residential efficiency support is present across the entire corpus of case study countries, mainly in the form of national- or municipal-level programmes to improve multi-family housing (e.g., in Bulgaria, Czechia, Poland, Romania, Slovakia). Energy efficiency vouchers are available in Portugal, Hungary offers energy savings loans, and Italy offers tax credits for this purpose; Spain and Greece also offer a variety of grants, loans and subsidies. Sustainable energy generation support is offered in Bulgaria for multifamily residential buildings, even if the country also has programmes in place supporting switching away from fuelwood towards gas. Greece also has a set of measures to replace heating oil boilers with natural gas boilers in buildings. Italy's tax

credits for sustainable energy similarly involve renewable energy generation in households; and Poland's Clean Air Programme includes support for renewable sources (as well as fossil fuels). In Spain, there are a variety of policies that provide support for household level switching towards renewable energy. Finally, Slovakia has a dedicated programme to assist renewable energy generation in households.

Across all case study countries, multiple initiatives and projects funded by the EU and national agencies have offered support towards programme development in the domain of energy poverty policy; national strategies and initiatives, if they are sufficiently comprehensive and detailed, can also fulfil this role. Examples include projects ACHIEVE, ASSIST, POWERPOOR, REACH, SAVES, SAVES2 and STEP - active in a number of countries among which Bulgaria, Czechia, Italy, Poland, Portugal, Romania, Slovakia and Spain, the Greek and Italian Energy Poverty Observatories (and associated plans and programmes), the Italian Energy Poverty Observatory, and the SlovSEFF project in Slovakia. Spain integrates energy poverty considerations across a wide range of programmes and contains multiple best-case examples of policy integration and development across a range of domains.

Based on the available information, we can provide a summative scorecard with a comparative assessment of policy development across all surveyed countries (Table 1).

Table 1. Policy scorecard – energy poverty (2 = policies fully present; 1 = policies partly present; 0 = policies not present).

Country	Income	Bills	Informatio	Efficienc	Renewable	Programm	Total
BG	2	0	0	2	1	1	**6**
CZ	0	1	1	2	1	1	**6**
EL	2	2	1	2	2	2	**11**
ES	2	2	1	2	2	2	**11**
HU	1	2	0	2	1	1	**7**
IT	2	2	1	2	1	2	**10**
PL	2	0	1	2	1	1	**7**
PT	0	2	2	2	1	2	**9**
RO	0	2	0	2	0	2	**6**
SK	2	0	2	2	2	1	**9**

Across the case study countries, the main policies which can support energy poor households in relation to the expansion of the European Trading Scheme (ETS) to the buildings sector are situated in the social policy domain (in terms of targeted direct transfers to households and appropriate bill payment reductions), energy efficiency and renewable energy interventions.

In terms of minimum energy performance standards, once again, countries where existing policies for energy efficiency in the housing stock are strong are expected to perform well on this count. The existence of an energy advice and household support system is also a good basis.

The phase-out of fossil boilers is not a policy that is supported widely across the case study countries. Where renewable energy policies to support the energy poor are present, there is a good basis for action. Some countries – Bulgaria, Greece, Poland – have policies that work against this target.

1.3. Infrastructure and prices

We now present a comparative summary, across years and countries, of the wider socio-technical and economic trends that influence the access to energy in housing. An important element of the equation is the extent to which households can use a wider set of infrastructures for domestic heating, beyond electricity and fuelwood. Differences in access to networked gas and district heating (DH) systems, in particular, can be attributed to past levels of economic development and investment, and can shape future decarbonization pathways.

As can be seen from Figure 1, post-communist states are characterized by much more extensive access to DH compared to Southern European countries, although this varies widely among the former. There is no clear pattern in the development of networked gas infrastructures, although they are more common in historically relatively more wealthy countries. DH and gas systems are jointly least developed in states with high levels of energy poverty (Bulgaria, Greece, Portugal).

Also, of relevance to the expansion of energy poverty are energy price changes. Energy tariff trends across the case study areas have been traditionally seen as the main drivers of increasing energy poverty. However, consumer gas prices have generally come down over the past 10 years (especially in Hungary), as only two countries (Portugal and Romania) seem to have experienced significant increases (Figure 2). Hungary has also seen a decrease in electricity prices (Figure 3), where, however, there has been a general upward trend, particularly in Greece, Romania, Portugal and Italy.

Notably, and across the region, network charges and taxes compose a large part of the final electricity price. This is particularly pronounced in Czechia and Slovakia (which have some of the highest retail electricity prices in the region), and more recently, Spain (Figure 4). The loading of non-tariff charges onto household electricity prices has been shown to be highly regressive for consumers.

Figure 1. Population shares with access to gas networks and DH. Sources: Eurostat, national databases, Euroheat.org

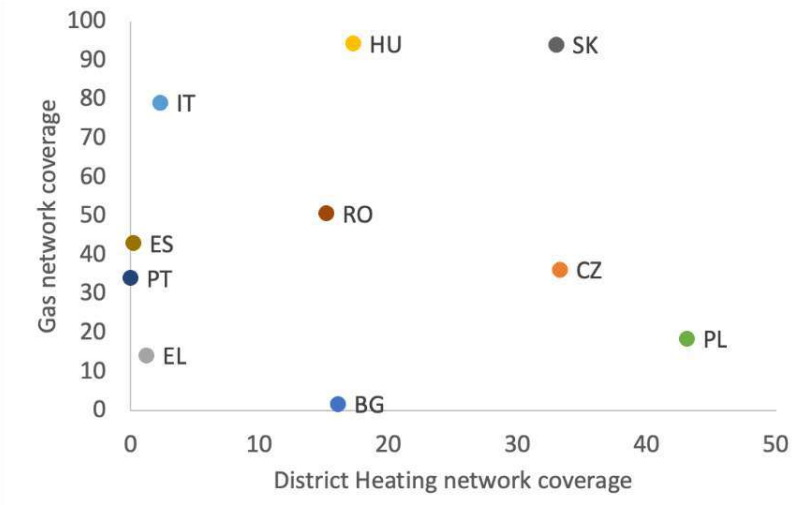


Figure 2. Relative gas price changes since 2011 (2020=100%). Sources: Eurostat, national databases, Euroheat.org. Note uneven data coverage.

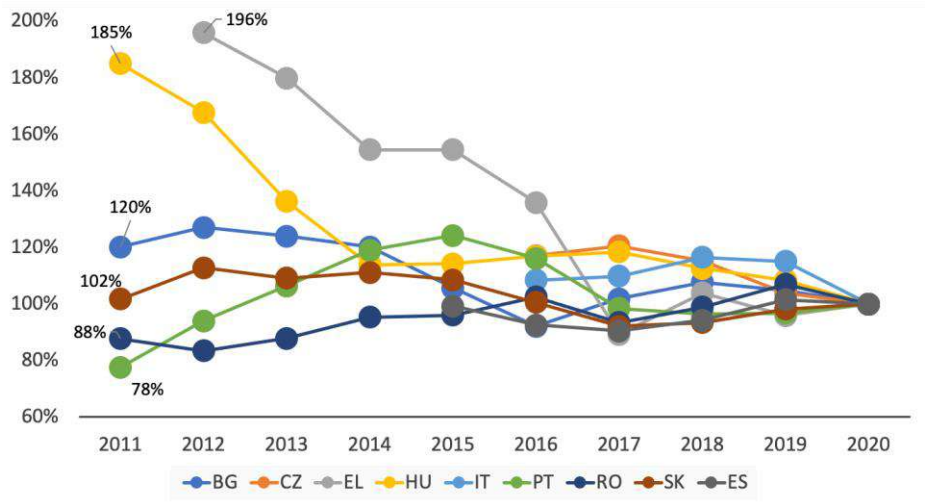


Figure 3. Relative electricity price changes since 2011 (2020=100%). Sources: Eurostat, national databases, Euroheat.org. Note uneven data coverage.

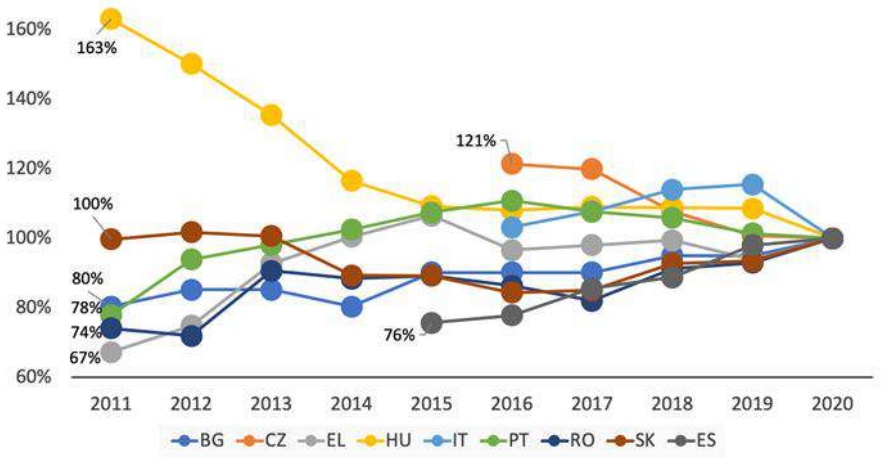
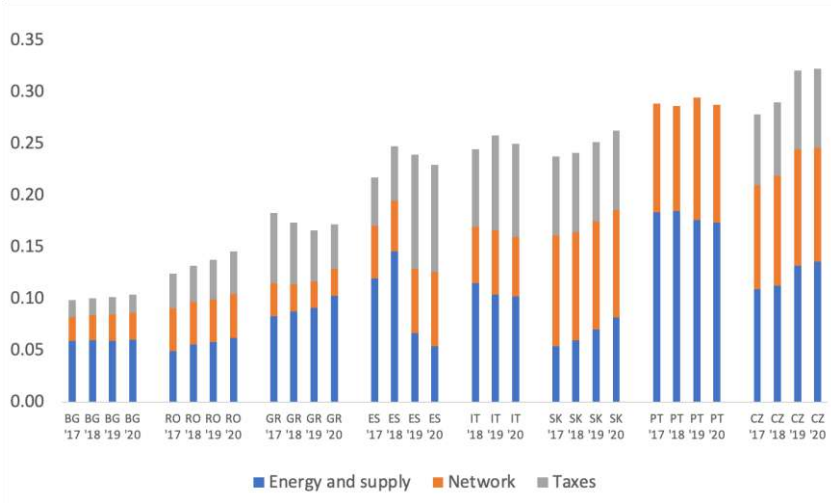


Figure 4. Composition of final electricity prices. Sources: Eurostat, national databases, Euroheat.org. Note uneven data coverage.



The structure of electricity and gas retail markets has also been shown to influence consumer choice – which in theory should bring down prices for all households through supplier switching – and broader possibilities for low-carbon transitions. Generally, the shares of the largest gas and electricity generators have been falling across the case study countries, but they remain particularly high in Slovakia, Hungary and Poland (for gas, see Figure 5), and Czechia, Slovakia and Greece (for electricity, see Figure 6). Of note is also the increasing concentration of the Hungarian electricity market in the hands of a single company.

In terms of household numbers per electricity retailer, they have been decreasing across the case study region, with the exception of Hungary and Romania (Figure 7). Interesting trends emerge when the electricity retailers per household is compared to the share of the largest supplier (Figure 8). Whereas in some countries, the sector remains focused on a small number of companies (above the dotted lines), there are significant differences among those where residential consumers who can choose from a wide range of supplier (such as Czechia and Slovakia), as opposed to those where their options are much more limited (Greece, and to a lesser extent, Portugal).

Figure 5. Degree of market liberalization (% Herfindhal Hirschmann Index) - Share of largest supplier in the gas market. Source: Eurostat.

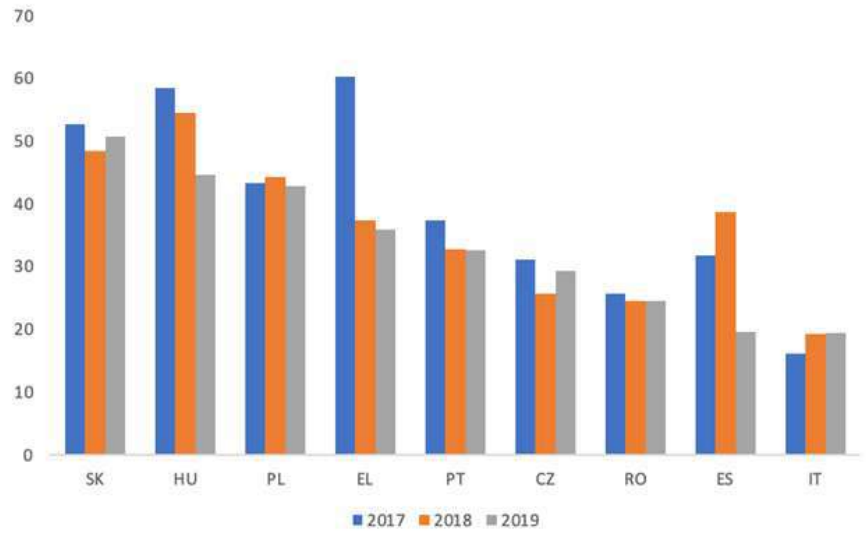


Figure 6. Degree of market liberalization (% Herfindhal Hirschmann Index) - Share of largest supplier in the electricity market. Source: Eurostat.

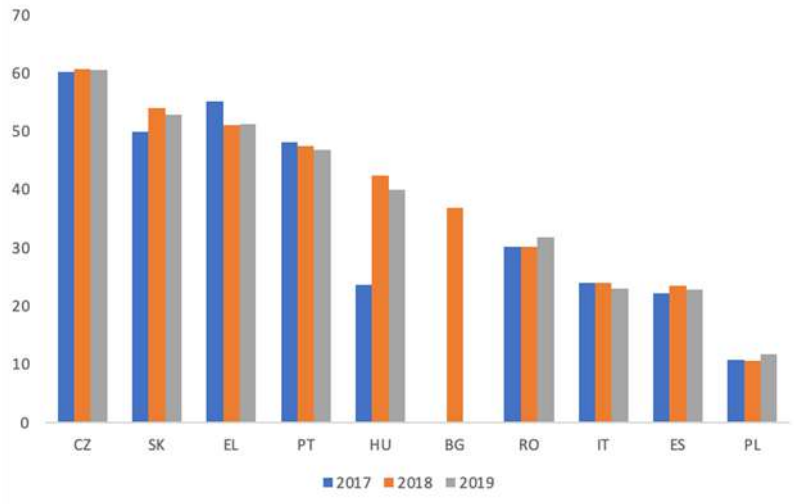


Figure 7. Households (1000) per electricity retailer. Source: Eurostat.

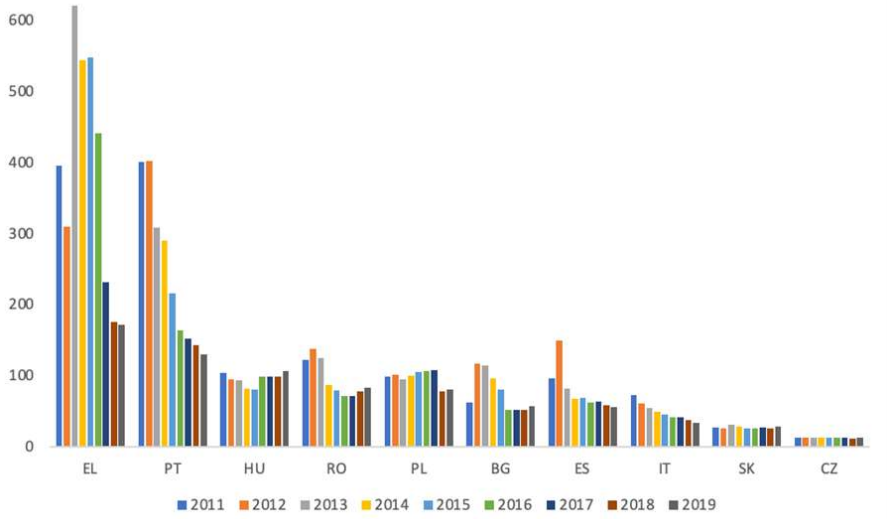
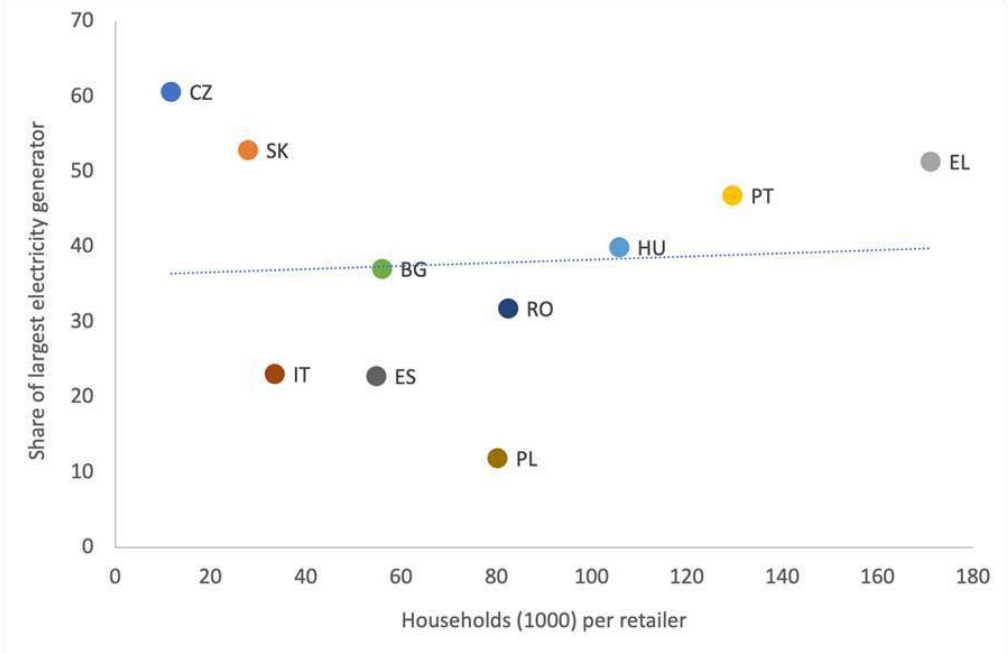
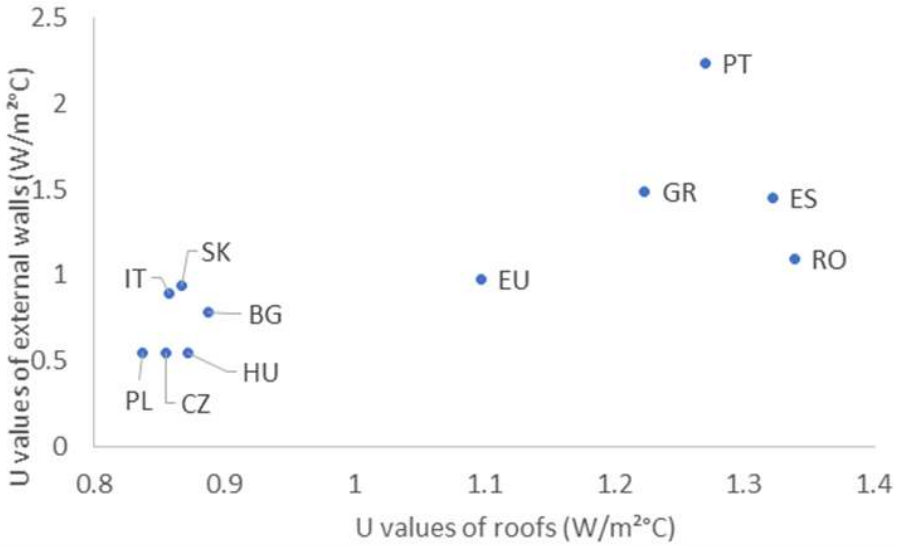


Figure 8. Households per retailer compared to the share of the largest supplier. Source: Eurostat



Of particular relevance to the energy-related circumstances of vulnerable households, and the low-carbon transformation as a whole, are the housing and energy efficiency circumstances of various socio-demographic groups. With regard to the overall energy efficiency of the housing stock, there is no discernible trend other than many countries being below the EU average for both roofs and walls (Figure 9).

Figure 9. U-values of roofs and walls (residential buildings) in the case study countries. Source: EU Building Stock Observatory.



It is also possible to generate several broad conclusions about the structure and regulation of the housing stock. Overall, owner occupancy dominates in all of the case study countries and is higher than the EU average (Figure 10). There is a relatively small social rent sector in Poland, Bulgaria, Portugal and Italy (yet still above the EU average), and private renting is below the EU average across the regions – but highest in Greece, Italy and Czechia. In terms of housing stock structure, there is a greater degree of diversity (Figure 11), with apartments dominating in Spain, Greece, Italy and Czechia; and houses being more frequent in Hungary and Romania. These two countries are the only two where the share of houses exceeds the EU average – indicating that overall apartments dominate in the case study area.

Plotting the share of households with low incomes who live in houses (whether detached, semi-detached, or terraced) vs those who own homes, indicates potential areas for policy intervention (Figure 12).

> In Southern European countries (with the exception of Czechia) there is a relatively lower degree of homeownership among low-income people, who are otherwise disproportionately concentrated in apartments.
> At the same time, low-income households in Central and East European countries are overwhelmingly homeowners who live in houses.

The difference between the two categories indicates a possible urban-rural split in the focusing of policy work, and the need to acknowledge the challenges faced by rural households in Central and Eastern Europe in particular, vs those who are in the rented sector in Southern Europe.

Figure 10. Tenure structure in 2019. Source: Eurostat.

Figure 11. Housing type structure in 2019. Source: Eurostat.

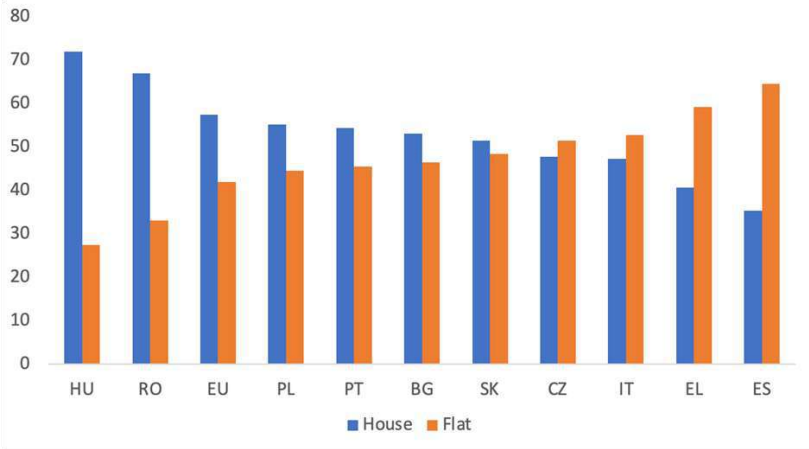
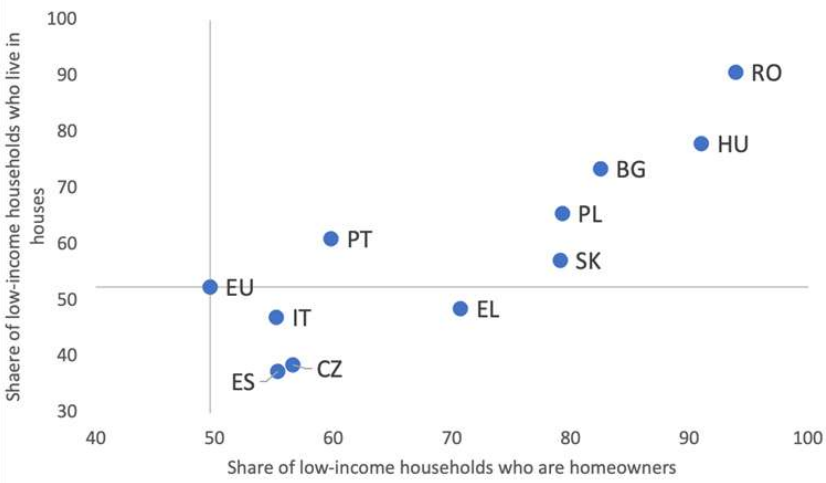


Figure 12. Shares of low-income households (with incomes below 60% of the national median) who are homeowners, vs those who live in homes. Source: Eurostat.



There is a developed body of literature aimed at studying and resolving the tenant-landlord dilemma. For example, in order to support the UK's Green Deal and overcome the split incentive barrier, Pelenur and Cruickshank 2012, suggest interventions to target particular demographic groups and housing sectors, such as single persons, individuals with a degree, flats and terraced homes. In the Netherlands, a policy attempting to overcome this dilemma is in place: it stipulates that total housing costs – including rent and energy – cannot be increased following a renovation. In the case of Sweden, a specific policy aims to address the split incentive by offering financial support to the landlord so as to improve the energy efficiency of the property, with a portion being allocated to a rent reduction for the tenants (EU Energy Poverty Observatory 2020).

Several authors also refer to combinations of measures. Bird and Hernández (2012)[3] call for incentives for landlords and a utility-managed on-bill financing mechanism. Drawing from the Australian experience, Wood et al. (2012)[4] suggest tax preferences and the establishment of a rent premium. Ástmarsson et al (2013)[5] bring the experience from Denmark to recommend a package of legislative changes, financial incentives, and the improved dissemination of information. März et al (2020)[6] discuss a comprehensive policy approach that would require better energy efficiency-related landlord targeting through networking, fostering a sense of responsibility neighbourhoods, and improving local framework conditions.

As such, future policies implemented by the countries in this study should aim to ensure that funding mechanisms do not inadvertently place the burden on vulnerable tenants or social security programmes, such as through the introduction of rent caps, energy retrofit one-stop shops at the local level, mediation between landlords and tenants, and guidance for landlords before renovictions or coercive actions take place.

1.4. Patterns or poverty and inequality

Wider patterns of income poverty, social exclusion, and government spending on social assistance have also been shown to influence rates of energy inequality. In the case study context, the share of population at risk of poverty or social exclusion has generally been decreasing over the last 10 years (Figure 13), despite an upward trend in some countries until 2013 and even 2014 (including Greece, Hungary and Spain in particular).

The relationship between state expenditure on social exclusion and housing (Figure 14) indicates that most case study countries are well below the EU average, with the exception of Italy when it comes to social protection expenditure on social exclusion. Only Hungary, Czechia and Spain devote substantive funds to housing support. This means that social support

[3] Stephen Bird, Diana Hernández, *Policy options for the split incentive: Increasing energy efficiency for low-income renters*, Energy Policy, Volume 48, 2012, Pages 506-514,
[4] Wood G, Ong R and McMurray C, Housing Tenure, Energy Consumption and the Split Incentive Issue in Australia International Journal of Housing Policy 12, 2012, 439–469
[5] Björn Ástmarsson, Per Anker Jensen, Esmir Maslesa, *Sustainable renovation of residential buildings and the landlord/tenant dilemma*, Energy Policy, Volume 63, 2013, Pages 355-362,
[6] März S, Beyond economics—understanding the decision-making of German small private landlords in terms of energy efficiency investment Energy Efficiency 11, 2018, 1721–1743

mechanisms to support energy poverty alleviation and low-carbon transitions across most of the case study countries, and especially those who have the highest rates of domestic energy deprivation, are poorly developed and lack the capacity to provide robust assistance.

Figure 13. Share of population at risk of poverty or social exclusion. Source: Eurostat.

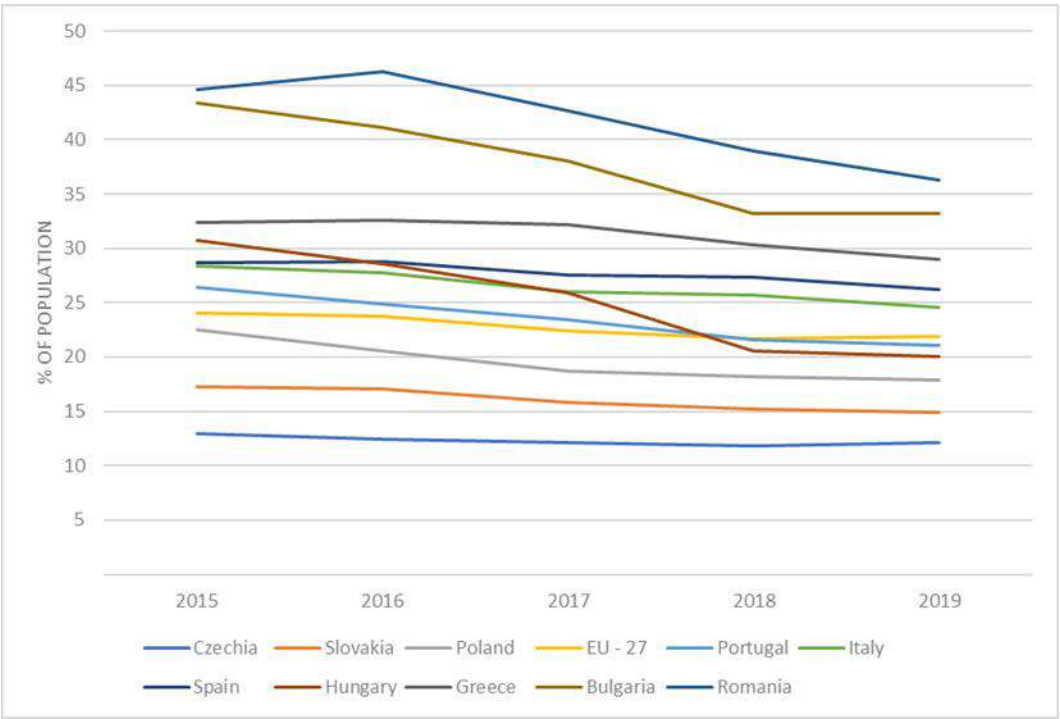
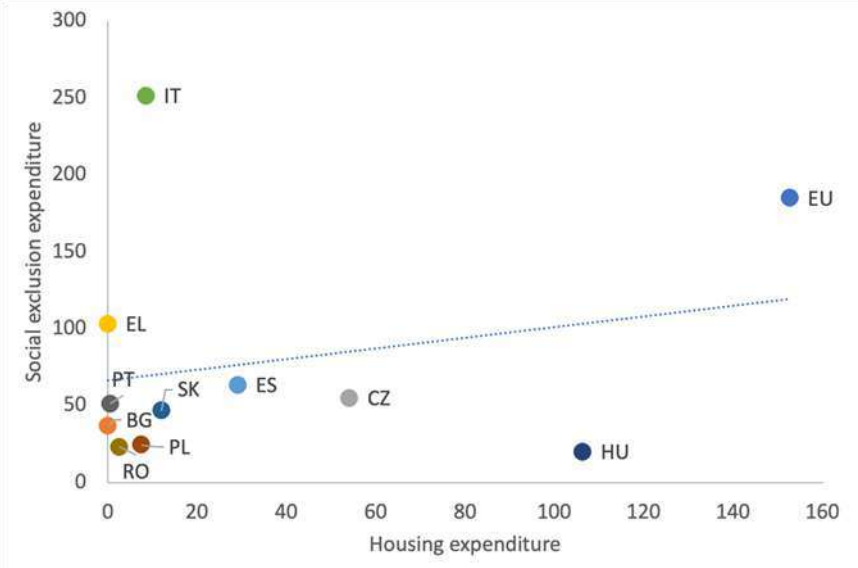


Figure 14. Social protection expenditure on housing and social exclusion, per population head, in EUR per inhabitant, 2018. Source: Eurostat.



In terms of energy poverty indicators, the reported inability to keep the home adequately warm has generally been on the decrease across the case study region in recent years (Figure 15), even if some countries (Portugal and Greece) previously experienced increases. The value of this indicator is presently the highest in Bulgaria, despite a relatively dramatic and consistent

decrease over the past 10 years. There is a relatively close correlation between this indicator and general income poverty (Figure 16).

Figure 15. Share of population reporting an inability to keep the home adequately warm. Source: Eurostat.

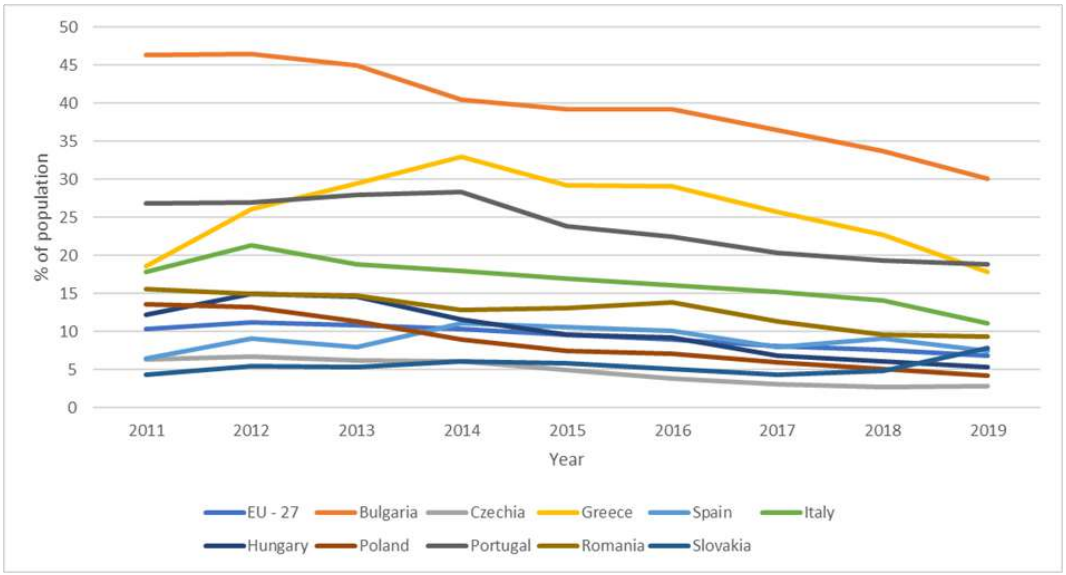
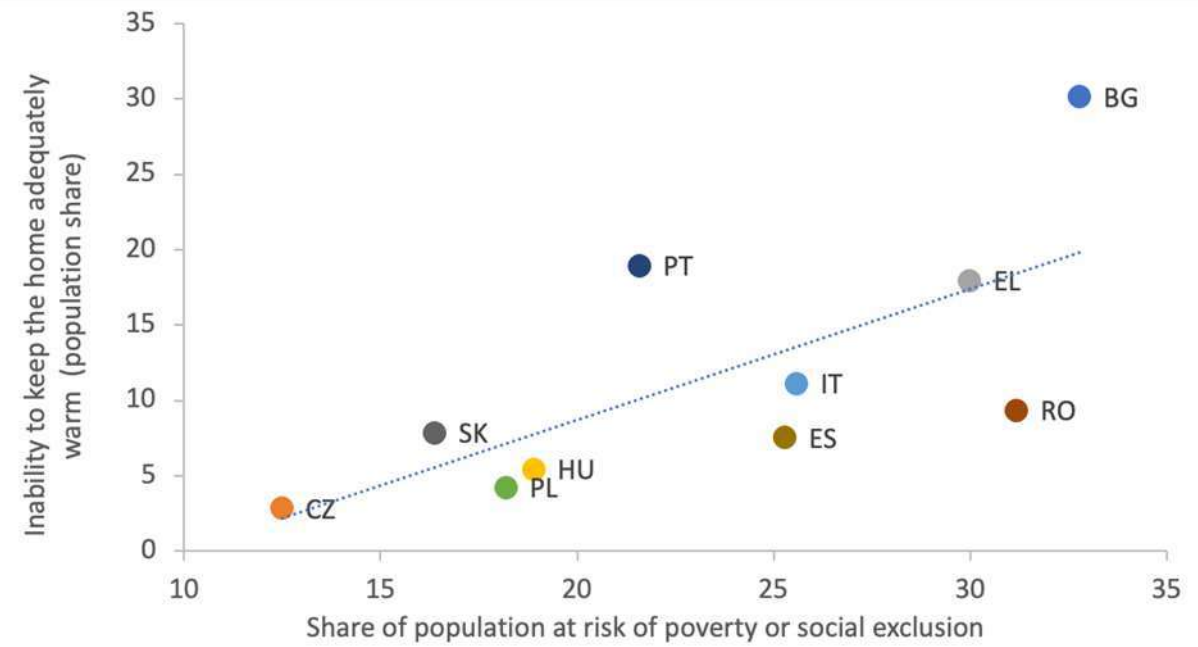


Figure 16. Share of population experiencing an inability to keep the home adequately warm vs being at risk of poverty or social exclusion, 2019. Source: Eurostat.



The percentage of people experiencing energy-related debt follow a broadly similar pattern to the inability to keep the home adequately warm (Figure 17), even if the value of this indicator is the highest in Greece, with significant values also being noted in Bulgaria, Romania and Hungary. Also, rates of decrease have generally been slower in most countries. When it comes to the total percentage of people living in poor quality housing (Figure 18), however, the picture is

much more pessimistic, with slow rates of decrease in most countries, and a predominance of Southern European countries among the list of highest indicator values.

Figure 17. Share of population with arrears on energy bills, 2019. Source: Eurostat.

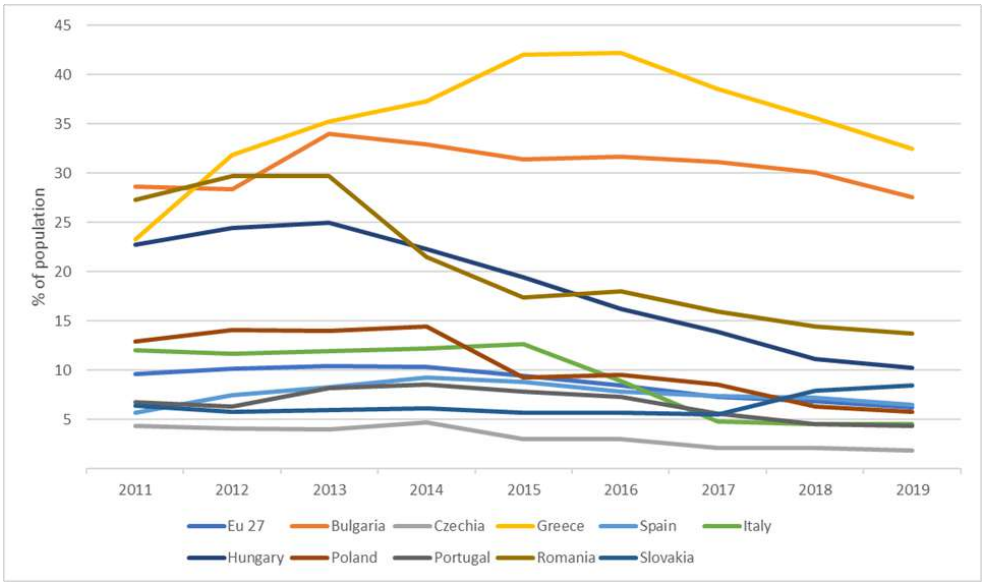
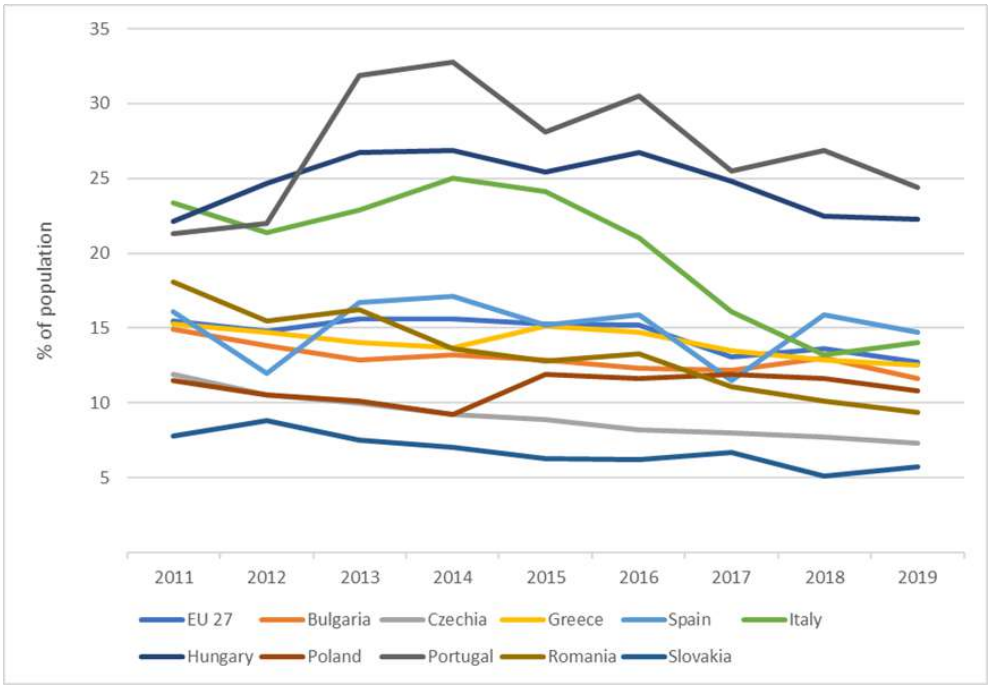


Figure 18. Share of population living in poor quality housing (dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor), 2019. Source: Eurostat.



A comparison between the population shares of people with energy debt, vs those in poor housing, points to the relative similarity between Greece and Bulgaria in this regard, vs the disproportionately high levels of energy debt in countries like Portugal and Hungary (Figure 19).

In 2012 (more recent data is not available), the problem of disproportionately warm homes in summer seems to have been particularly pronounced among low-income people in the Czech Republic and Italy, despite relatively low levels of poorly heated homes in winter (Figure 20).

Figure 19. Population shares - arrears on energy bills vs living in poor quality housing (dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor), 2019. Source: Eurostat.

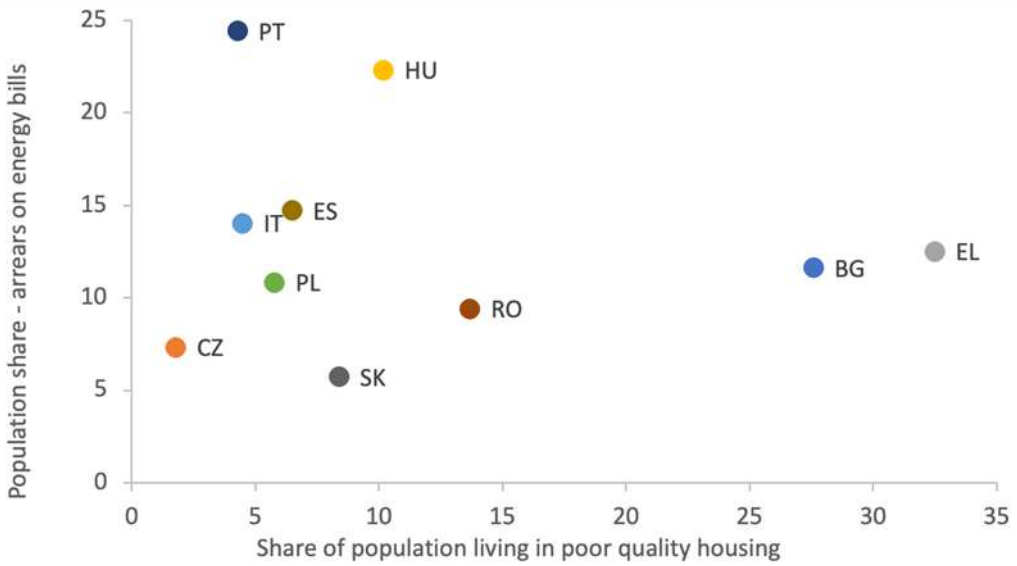
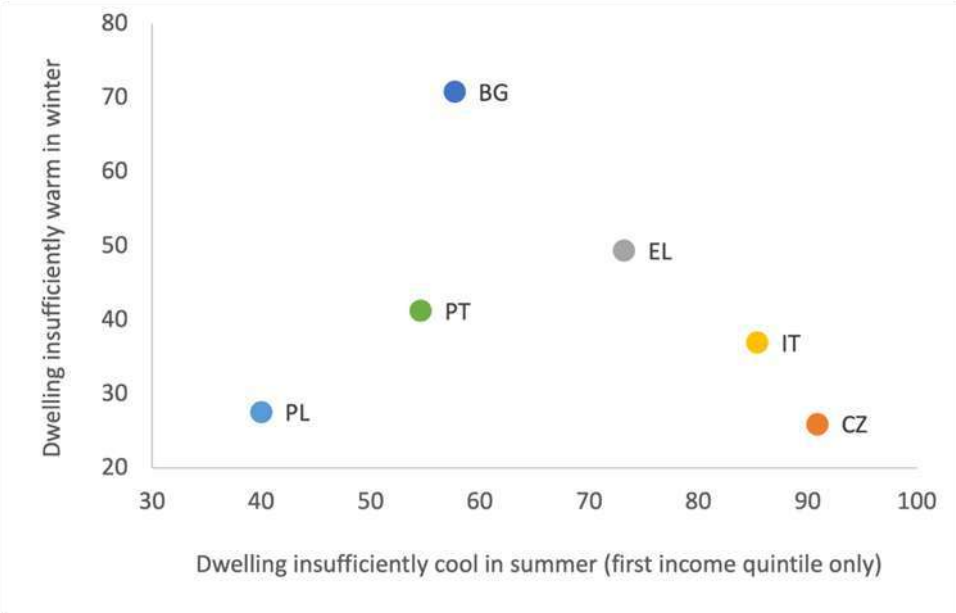


Figure 20. Insufficiently warm vs insufficiently cool dwellings among selected countries in the region, 2012. Source: Eurostat.



1.5. Conclusion and policy recommendations

This analysis indicates the emergence of several broad-level patterns and typologies among the 10 case study countries, with regard to the institutional embeddedness of energy related

household disparities, their infrastructural nature, the capacity of the state to promote an inclusive decarbonisation of the economy, and socio-economic trends with regard to energy and inequalities more broadly:

> The lack of access to energy supply alternatives (both infrastructurally and in terms of market opening) in countries that are most exposed to energy poverty, and the concentration of energy poverty among homeowners and house dwellers in Central and Eastern Europe (creating different opportunities and constraints for intervention).
>
> The relatively poor coverage of the social protection system in terms of addressing structural housing and social exclusion related issues across most case study countries.
>
> The slow improvement in energy poverty indicators across the region, after a previous increase. This trend may be reversed by COVID and is weakly reflected in housing-related indicators (but more so in well-being related ones).

As a whole, the evidence reviewed in this section leads to four policy recommendations, in terms to the need for:

1. The introduction of Minimum Energy Performance Standards to the housing sector should be accompanied by broad policies to address the structural conditions of the housing stock, as they relate to energy poverty. Targeting collective housing infrastructures (apartment buildings, DH systems etc) in Southern European countries is of high priority, as are measures to address the higher relative concentration of poverty within urban areas in such countries. Rural areas across the region also exhibit a high level of vulnerability, requiring the development of customised policies that can work with the grain of existing property ownership and residential patterns in such regions.

2. Reconciling conflicting policy objectives in the implementation of low-carbon restructuring strategies. This pertains, in particular, to the continued existence of subsidies for the expansion of fossil gas heating in the residential sector in some of the study countries.

3. Strengthening the institutional capacity of the social welfare system (in terms of monitoring and detection tools, extent of coverage, range and size of support mechanisms available) to protect households from price rises, and expanding support to households who are not strictly income-poor, but may be nevertheless vulnerable to energy poverty by virtue of the poor energy efficiency of their dwellings, inadequate heating and cooling systems, or high domestic energy needs.

4. Developing regionally- and locally-attuned policies to address energy poverty, in cases where, for instance, there are high shares of households dependent on polluting solid fuels, and/or experience specific issues with the quality of the housing stock (such as Roma neighbourhoods in Central and Eastern Europe, and immigrant enclaves in Southern Europe). An area-based policy approach that connects energy poverty alleviation policies to related housing, health, social and infrastructure investment through one-stop-shops might work best in such settings.

3. COUNTRY REPORTS

1. BULGARIA

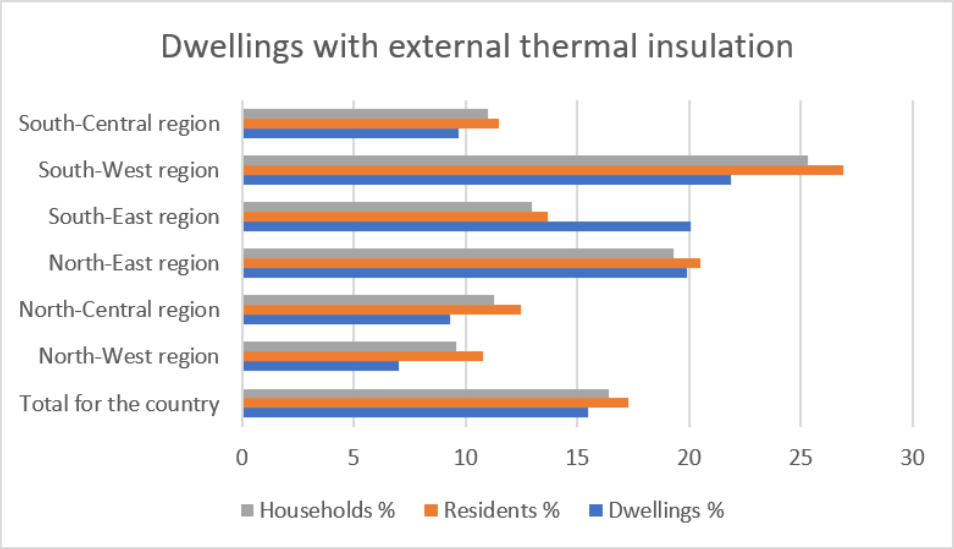
1.1 Energy poverty status

1.1.1 Energy efficiency

1.1.1.1 Thermal insulation[7]

In terms of thermal insulation, 15.5% of Bulgarian dwellings, 17.5% residents and 16.4% of households benefit from thermal insulation in 2011. These numbers show that only less than a quarter of the population benefits from energy efficient homes and can access considerable energy savings.

Figure 1: percentage of households, residents and dwellings with external thermal insulation. Source: National Institute of Bulgaria

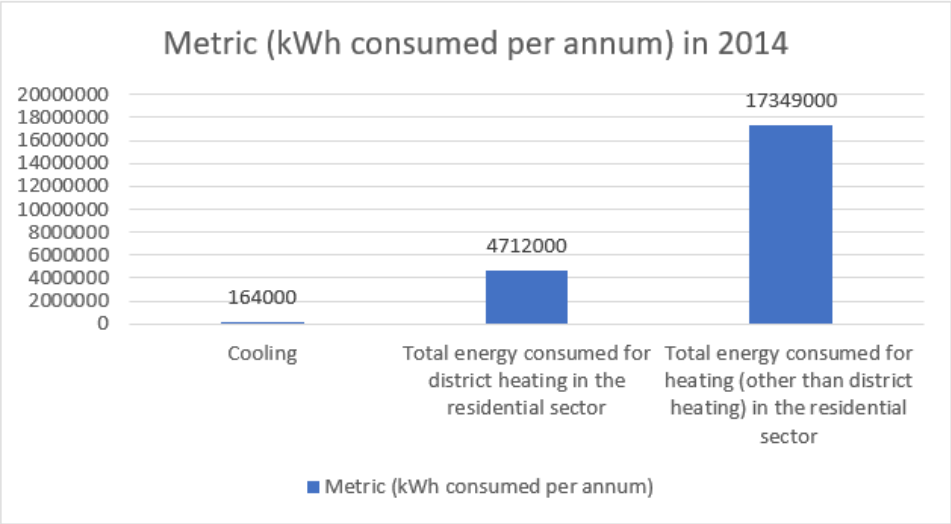


1.1.1.2 Heating and cooling

Data from 2014 shows that within the residential sector, 164,000 of kWh per year was consumed for cooling, 4,712,000 kWh was used in district heating and 17,349,000 kWh was used in total for heating. These figures demonstrate that district heating was the main form of heating in 2014.

[7] Thermal Insulation is an energy efficiency tool that allows both the reduction of heat transfer and energy savings. It is therefore a great indicator to provide insight on how countries have or lack energy efficient tools that can benefit vulnerable citizens.

Figure 2: Heating consumption in 2014. Source: Europa

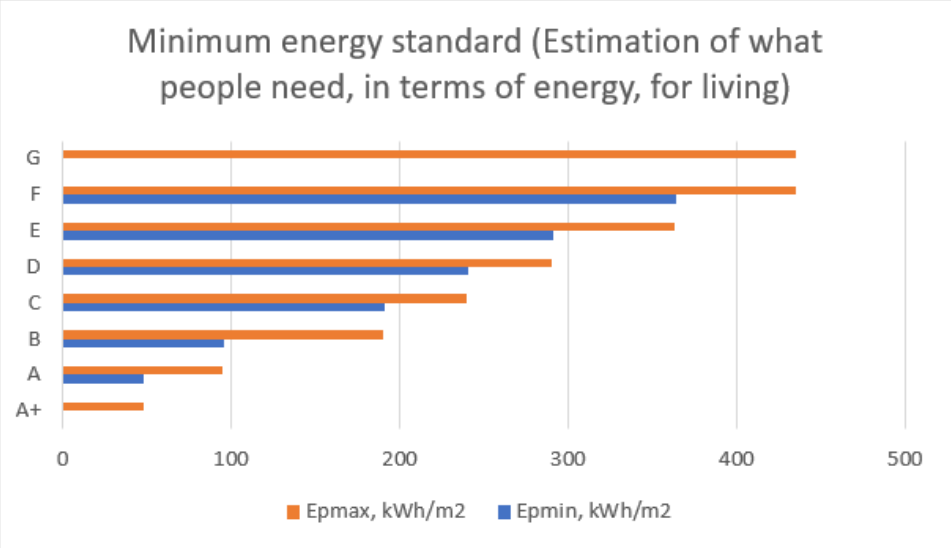


1.1.1.3 Ventilation

It's worth noting that no questions relating to ventilation levels were included in the 2011 statistical questionnaire completed as part of the census. Moreover, no questions addressing household ventilation levels are included in the questionnaire currently prepared for the purposes of the upcoming national census planned for 2021. As a norm, residential buildings in Bulgaria, irrespective of the housing typology, do not have integrated ventilation systems. This seems to be the case even in the context of new construction where integrated ventilation system installations are still negligibly low from a statistical perspective.

1.1.1.4 Energy Consumption for basic needs

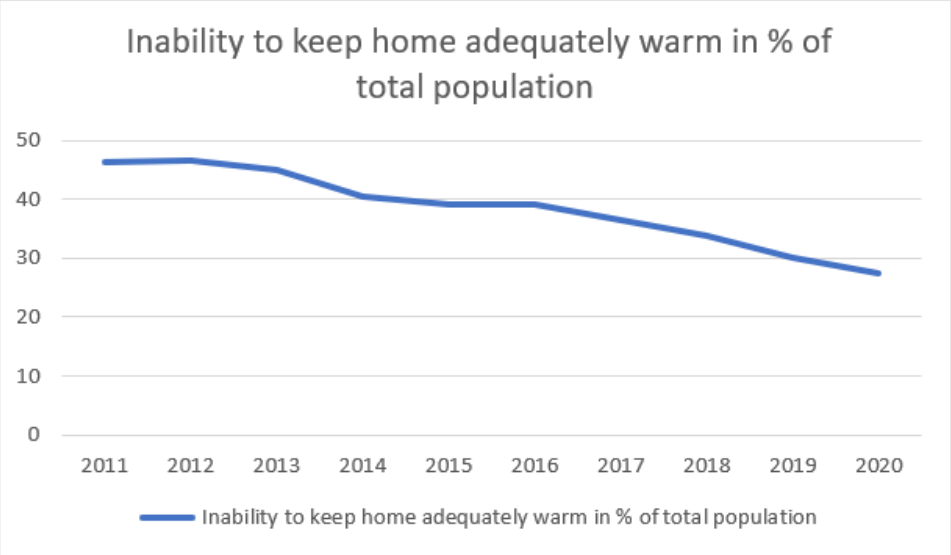
Figure 3: Minimum energy standard. Source: Interreg



1.1.1.5 Adequate temperature in winter and summer

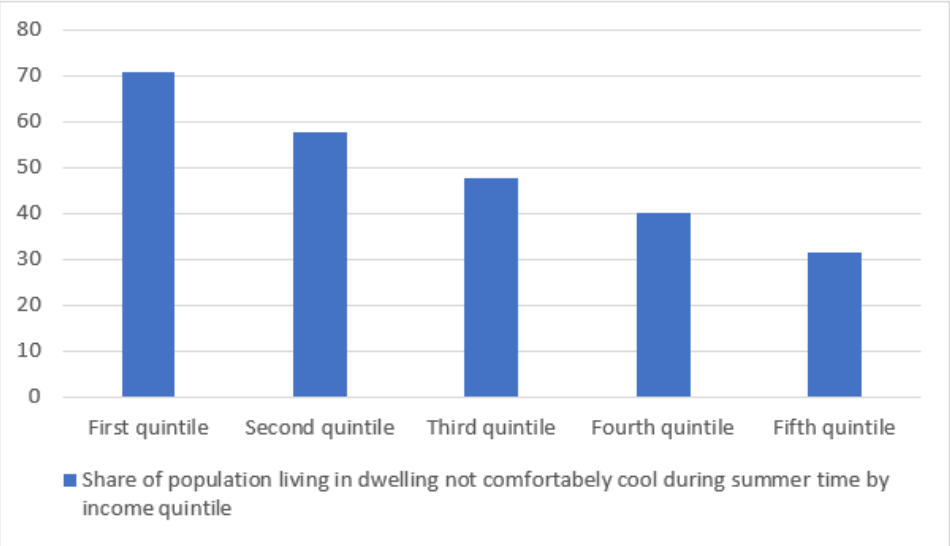
Bulgarian households' inability to keep warm has decreased over the years, as 27.5% of the population was not able to keep their home warm in 2020 in comparison to the 46.3% in 2011. This difference shows that in just under 10 years, the percentage of the population which couldn't heat their homes properly fell from almost half to nearly a quarter.

Figure 4: percentage of population unable to keep their home warm. Source: Eurostat



In 2012, 49.5% of population couldn't keep their home cool in summer, which confirms the previous data that not many households consume or have cooling devices but are rather focused on heating the home.

Figure 5: Share of population not comfortably cool during summer. Source: Eurostat

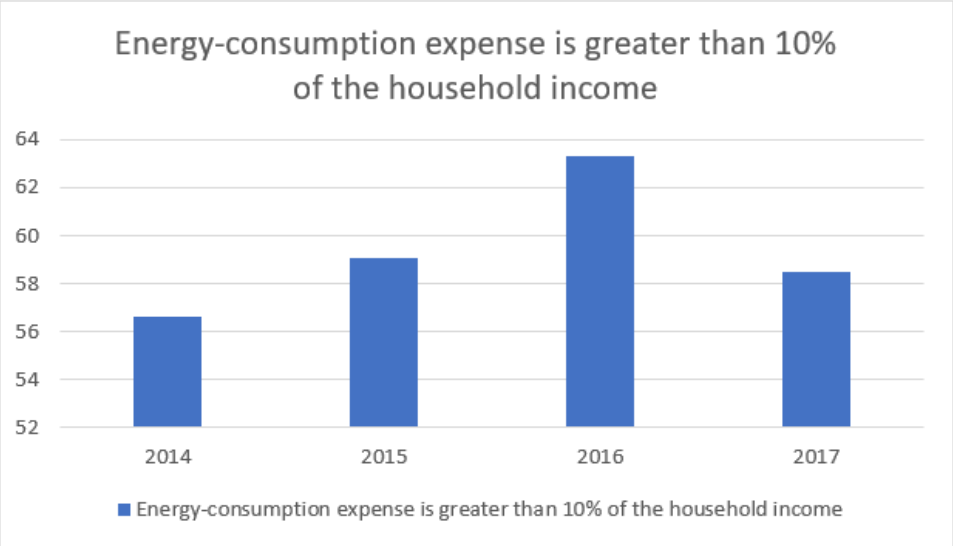


.1.2 Social and economic poverty

1.1.2.1 Household income and expenses

The number of households facing energy consumption expenditures higher than 10% of their income was of 56.5% in 2014, over half of the Bulgarian population, showing an important gap between income and energy consumption, highlighting a high number of households vulnerable to energy poverty. Households at this risk have increased by 3% since then, as there was 58.5% of the population with expenditures that were 10% higher than income in 2017.

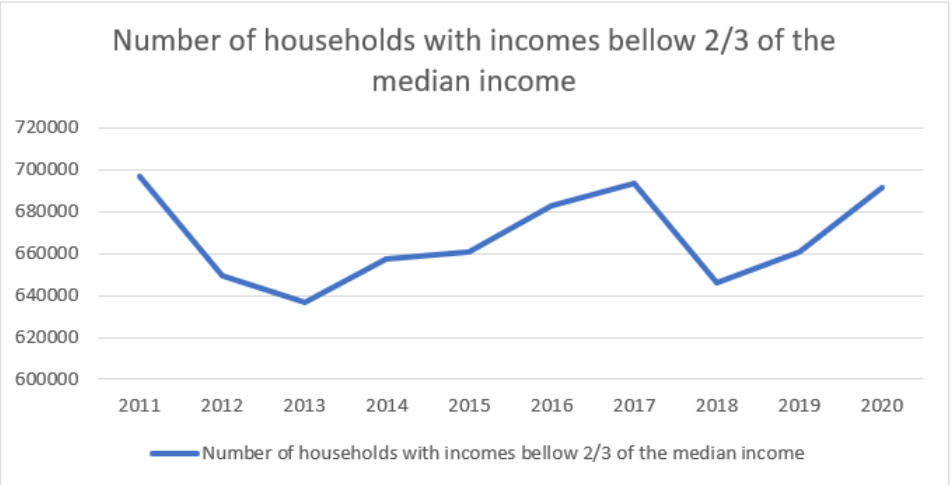
Figure 6: Energy expenses are greater than 10% of household income. Source: Zazemiata



1.1.2.2 Relation between energy poverty and income poverty

The number of households with income below 2/3 of the median income (therefore at high risk of poverty) in 2011 was 696,666.7 and 691,666.7 in 2020. The number has slightly lowered in 8 years, but it has however risen in the last year due to COVID 19 as the number of households at risk of poverty was 660,833 in 2019 and increased by 30,833 in just one year.

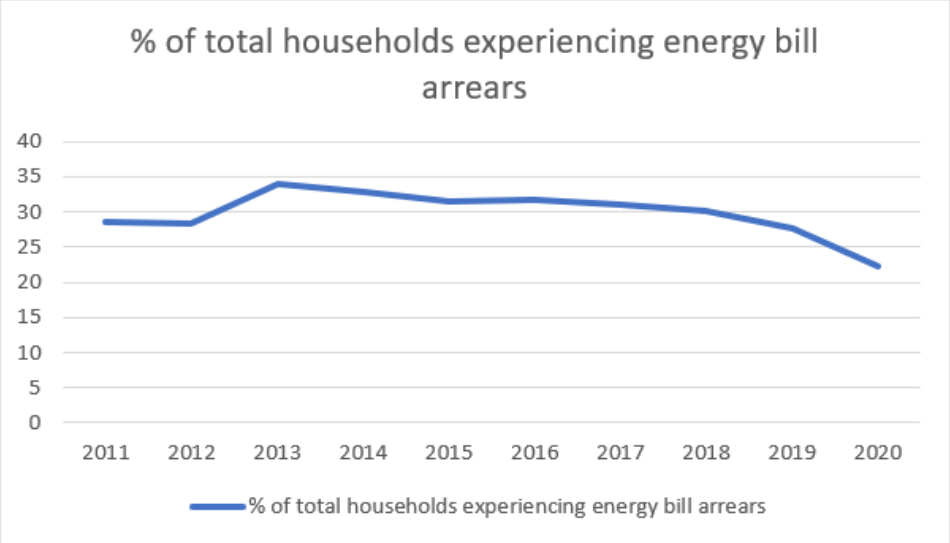
Figure 7: Households below median income. Source: Eurostat



1.1.2.3 Identify households that cannot afford energy due to low income

Households that experienced energy bill arrears 2011 encompassed 28.6% of the population and 22.2% in 2020. There was a decrease of 6 % in 9 years. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020.

Figure 8: Percentage of households with energy bill arrears. Source: Eurostat



1.1.3 Wellbeing and health

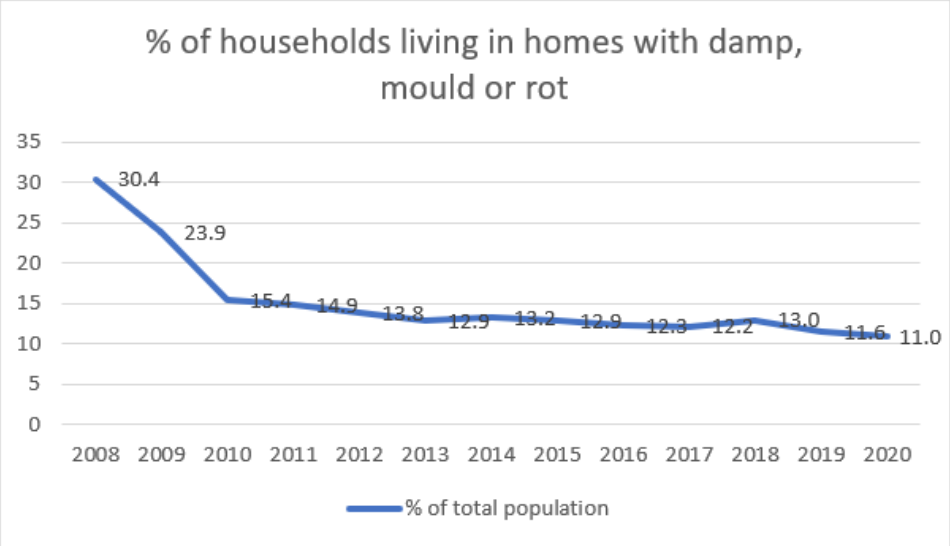
1.1.3.1 Household health and wellbeing

Excess winter mortality decreased by 2% between 2005 and 2014, from 18.4% to 16.9% with a high rise in 2008 of 20.5%, the numbers have fluctuated over the years as there was another peak of 19.9% in 2012.

Figure 9: Percentage of excess winter mortality. Source: Energy Poverty Advisory Hub

Furthermore, the percentage of population experiencing damp or mould in their homes has decreased over the years, the percentage used to be of 30.4% in 2008 and is now only of 11% in 2020.

Figure 10: Households living with damp, mould or rot. Source: Eurostat



1.2 Review of energy policies focused on low-income and vulnerable groups

1.2.1 Past Measures

The Energy Efficiency of Multi-Family Residential Buildings National Programme aims to create better living conditions and ensure heat comfort to families by implementing energy efficiency measures (NECP). The programme started in 2015 and ended in 2020, focusing on the renovation of residential buildings designed before May 1999 of three or more floors with six or more separate objects with residential use. It offered 100% grant to support measures that brought the energy consumption of buildings to at least Class C (energy use of 191 kWh/m^2 to 240 kWh/m^2) at the lowest cost. In the period of 2015 to 2020, the programme supported the renovation of 1921 buildings, reaching 128,439 homes, out of 3,005,589 households' total[8].

Another similar measure was the "Energy renovation of Bulgarian homes" project, with the objective of upgrading multi-family residential buildings to energy class C, lowering the average monthly cost of heating homes and potentially improving the living conditions of low-income households so that they will not be considered at risk of energy poverty. Until 2015, 299 multi-family buildings received grants. According to the webpage[9] that describes the project, it started in 2012 and ended in December 2015.

Until 2019, the REECL Programme aimed to provide loans and investment incentives for building renovation through local banks. It is a joint project by the Bulgarian national

[8] National Statistical Institute: https://bit.ly/3BjetNB
[9] https://www.mrrb.bg/bg/energijna-efektivnost/energijno-obnovyavane-na-bulgarskite-domove/

government, the European Bank for Reconstruction and Development, and the European Commission (EPOV).

1.2.2 Measures currently (or recently) implemented

Bulgarian policy measures for socially vulnerable groups are mainly characterised as follows:

- **National programmes focused on financial assistance** (Heating aid, Monthly allowance, One time support, and the Social tariff for electricity);
- **National programmes focused on building renovation** (National programme for energy renovation, Program for energy efficiency in the building stock, and REECL)[10];
- **National and local programmes focused on heating systems** (Bulgarian Municipalities Working Together to Improve Air Quality - LIFE-IP Clean Air); and
- **EU-funded Projects linked to energy poverty** carried out in Bulgaria (REACH, ACHIEVE, POWERPOOR)

National programmes focused on financial assistance are short-term measures on household budget support, provided to households that meet certain income-tested and property-based criteria for poverty, which can cover income, property and health status, marital status, age, and/or training and job employment, among other criteria (NECP[11]). Heating aid in winter is in accordance with the Social Assistance Act and Regulation No RD-07-5 of 16 May 2008, and grants heating allowances to socially vulnerable groups, from 1 November to 31 March, via the social assistance system. According to the Bulgaria NECP (p. 159), the "regulation defines 17 risk groups with differentiated minimum income that are eligible for heating assistance depending on the degree of risk and the priorities set. At present, about 250,000 individuals and families are recipients of such assistance."

In addition, in case of exceptional Energy policies and measures focused on low-income groups extra costs related to energy, such as higher heating costs or repairs/replacements for broken heating equipment, a "one time support" may also be granted to low-income households and vulnerable households (EPOV[12], NECP). Other measures are a monthly allowance granted to persons or families who meet multiple pre-defined conditions, and a social tariff for electricity, which was to be introduced in 2018 or later with the new mechanism for protection of vulnerable consumers.

Heating aid in winter (text extracted from Bulgaria NECP, p. 159)
"Heating allowances are provided for the respective heating season (1 November—31 March), i.e. for 5 months, in an amount determined by an order of the Minister for Labour and Social Policy adopted before the beginning of the season, taking into account the electricity price for household customers determined by the KEVR on the basis of a projected consumption of 385 kWh electricity, including 280 kWh at the

[10] The program targets all income groups and is not directly focused on energy poverty.
[11] https://ec.europa.eu/energy/sites/default/files/documents/bg_final_necp_main_en.pdf
[12] https://www.energypoverty.eu/observatory-documents/member-state-reports-energy-poverty-2019

daytime rate and 105 kWh at the night-time rate (the quantity of energy required for heating one room). There is an option to select the type of fuel: solid fuel, electricity, gas or heat. This type of assistance will continue to be applied as a measure to support energy poor people."

Another initiative on the national level with implementation at the local level is the **Bulgarian Municipalities Working Together to Improve Air Quality** (LIFE-IP Clean Air) which aims for the replacement of ineffective heating appliances in households (wood and coal) to heating with pellets, gas or use of the central heating network. Although the measure doesn't explicitly mention a target group, it mainly focused on the low-income group. An example of the implementation of such measure can be seen in Sofia's camping[13], which covers 20,000 households in the territory of Sofia Municipality and will be funded by two financial mechanisms, with the aim of completing the replacement of heating appliances within three years. The initiative began in 2018 and will end in 2024.

Bulgaria also counts on **projects linked to energy poverty and funded by the European Union**, such as REACH, ACHIEVE, and PORERPOOR. In such projects, energy poor households may receive information and advice from energy advisors during home visits. Other projects cited in EPOV, are FIESTA (for families with children) and SAVES2 (for students).

While most of the national measures focus on short-term household budget support, Bulgaria also has a long-term strategy for energy efficiency aimed at lowering consumption and demand for heating and cooling in the household sector, which aims to decrease the number of energy poor households (NECP). Also, in line with Third Liberalisation Package of the EU, Bulgaria has initiated the liberalisation of its electricity market in 2007. Since then, all final consumers have been able to choose the electricity supplier and purchase electricity at agreed prices. In the NECP (p. 88), it is acknowledged that the "phasing out of regulated prices for all final consumers will boost competition among electricity suppliers but it will also expose consumers to greater price volatility. In order to ensure the protection of vulnerable clients, the government will introduce support measures to ensure a smooth transition to full liberalisation". Among the measures, the NECP includes a partial regulation of the price at first, which will gradually be eliminated, and a mechanism for protection of vulnerable consumers of electricity – which will include the criteria for identification of vulnerable consumers as well as financial and non-financial measures for their protection throughout the year.

The country's NECP also presents the national government objectives regarding energy poverty, which are described as follows:

- adequate protection of people at risk of energy poverty by providing target heating allowances via a mechanism for the protection of vulnerable consumers following full liberalisation of electricity prices for final consumers, including households;
- the renovation of multi-family residential buildings with a view to upgrading them to energy class C will lower the average monthly cost of heating homes and may result in low-income households being able to improve their living conditions sufficiently to be dropped from the category of households at risk of energy poverty;

[13] https://www.sofia.bg/en/bitovootoplenie

- improving energy efficiency by complementing the national target under Article 7 of Directive 2012/27/EU through a requirement for the implementation of measures, as a matter of priority, to improve energy efficiency for the benefit of vulnerable clients, including households affected by energy poverty and, when appropriate, in buildings used for social housing.

Although energy poverty is mentioned in the NECP, the plan lacks the assessment of energy poverty required by the Governance Regulation (EC_NECP ASSESSMENT), as the definition and identification of vulnerable users are under development (NECP).

Furthermore, the Bulgarian government presented the latest version of the **National Recovery and Resilience Plan (NRRP)** on 20 July, 2021[14]. The largest share of European funds will be invested in the "green" transition (36.8%) and in innovation (27.4%). The plan lays the foundations for a green and digital transformation of the economy, in the context of the ambitious goals of the European Green Deal. Issues related to overcoming energy poverty in Bulgaria are covered mainly in the "Green Bulgaria" section (36.8% of the total budget), Component 4 "Low Carbon Economy" including:

- Program for energy efficiency in the building stock; and
- Program for financing single measures for energy from renewable sources in single-family buildings and multi-family buildings that are not connected to heat and gas networks.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
Air/water heat pump	→	Tax reduction for a period of 3-10 years
Solar thermal system	→	Tax reduction for a period of 3-10 years
Gas boilers	→	Loans for high-efficiency boilers, burners and automatic boiler control systems

A total of 36% of heat is produced by renewable energy.

1.2.3 Forthcoming measures

The **Long-term National Strategy to Support the Renovation of the Building Stock until 2050**[16] complies with the requirements of Directive (EU) 2018/844/EU on the energy

[14] Bulgarian Government (2021) National Recovery and Resilience Plan. Available at: https://www.nextgeneration.bg/14
[15] https://eeb.wappla.com/

performance of buildings and the provisions of the National Energy Climate Plan until 2030. The key goal of the Strategy is to enable the renovation and decarbonisation of the building stock by 2050, whilst also providing a high quality of life in a healthy, safe, energy efficient, modernised and high-tech living environment.

The Strategy reviews the national building stock of residential and non-residential buildings by type of buildings, construction period, energy consumption and energy performance. The Strategy identifies energy saving packages for energy renovation, taking into account the type of buildings and the climate zone. It develops a roadmap with indicators for measuring the achieved results for the periods 2021-2030, 2031- 2040 and 2041-2050, which reflect the stage target values of the process of energy renovation of the building stock in Bulgaria with associated assessment of the environmental, social and economic benefits. The Strategy emphasises the key importance of ensuring a modern, up-to-date and cost-effective regulatory framework, introducing sustainable financial instruments, providing information and capacity building.

The Strategy pays special attention to the approaches for addressing the issues related to energy poverty reduction in Bulgaria by planning to create a unified system for collecting information for the purposes of the implemented social policies concerning energy vulnerable groups of the population and providing suitable financial instruments whilst maintaining a 100% grant component within targeted social policies. The ultimate goal is that by 2050, 60% of the housing stock in the country and nearly 17% of the non-housing stock must be renovated. This is expected to save 7,329 GWh of energy per year.

The **Program for energy efficiency in the building stock** is expected to provide over BGN 1.2 billion (over 600 million EUR). It pays special attention to the measures for increasing the energy efficiency in the residential building stock with two separate work packages, depending on the initial energy characteristics of the residential buildings: Package 1 for buildings with energy classes E, F, G with 100% project financing, and Package 2 for buildings with energy class D with 85% project financing. Reducing "energy poverty" by reducing energy costs is one of the specific objectives of the program. However, the grant component does not take into account the income level of the beneficiary households.

The **Program for financing single measures for energy from renewable sources** aims to provide funding for the construction of solar systems for domestic hot water and for the construction of photovoltaic systems up to 4 kW with battery storage (with additional energy needs met through the grid). Households eligible for direct heating allowances on their energy bills are expected to receive a 100% grant. The project supplements the National Program for Energy Efficiency of Multifamily Residential Buildings, focusing mainly on measures that are not eligible under this program.

In addition, Component 4 "Low Carbon Economy" of the NRRP introduces two major reforms that directly affect the issue of energy poverty in Bulgaria. The so-called Reform 2 provides for the development of an energy poverty definition for Bulgarian households during the first half

[16] Bulgarian Government. Ministry of Energy (2021) National Strategy to Support the Renovation of the Building Stock until 2050. Available at:
https://www.me.government.bg/uploads/manager/source/EE/LTRS_Bulgaria.pdf
https://ec.europa.eu/energy/sites/default/files/bg_ltrs_2020_en_version.pdf

of 2022 for the purpose of financing energy efficiency projects. This will be integrated with the Energy Efficiency Act. Reform 7 "Liberalisation of the electricity market" provides for the transposition of the provisions of Directive 2019/944 into national legislation. It plans to define the criteria for identifying households in a situation of energy poverty and vulnerable consumers, taking into account the criteria outlined in the Directive including low-income, high-energy costs as a share of disposable income and low energy efficiency.

TABLE 1: BULGARIA'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Heating aid in winter**
Description and results	This measure provides financial support for vulnerable households to cover their heating expenditures during winter time (November 1 - March 31). Nearly 7% of the population is covered, which is about 500,000 people, or around 250,000 households per year.
Start year	1999
Organisation	National government
Target groups	Low-income households
Source	EPOV

Measure	**One time support**
Description and results	One-time financial support may be granted once a year in exceptional circumstances when there are extra costs, which could include higher heating costs in winter or broken heating equipment.
Start year	1999
Organisation	National government
Target groups	Low-income households Vulnerable households
Source	EPOV

Measure	**Monthly allowance**
Description and results	Aid is granted on a monthly basis to persons or families who meet multiple pre-defined conditions, for instance: - The monthly income of the person or family is lower than a pre-defined standard; - The apartment is single and no larger than: one-room - for 1 person; one-bedroom for two and three-member family; three-room for four people and so on; - The individual does not own property that can be a source of income.
Start year	1999
Organisation	National government
Target groups	Low-income households Vulnerable households
Source	EPOV

Measure	REECL Programme
Description and results	The European Bank for Reconstruction and Development, the European Commission and the Bulgarian Ministry of Energy have set up the REECL facility, in co-operation with Bulgarian commercial banks, to help Bulgarian households upgrade their houses and/or flats. The REECL facility provides loans and investment incentives through local participating banks. To date, the REECL Programme has committed to 2,635 energy efficiency loans totaling 18 million Bulgarian leva and incentive grants amounting to 3 million Bulgarian leva.
Start year	2006
Organisation	National government, Business/Industry
Target groups	No specific target group
Source	EPOV

Measure	Action in low-income households to improve energy efficiency through visits and energy diagnosis (ACHIEVE)
Description and results	In ACHIEVE, long-term unemployed people, volunteers or students are mobilized and trained to develop a large-scale energy advice service towards low-income households facing difficulties with their energy bills.
Start year	2011-2013
Organisation	European Union Local government
Target groups	Low-income households
Source	EPOV

Measure	Reduced Energy use And Change Habits (REACH)
Description and results	This project contributed to energy poverty abatement at the practical and structural level by empowering energy poor households to take actions to save energy and change their habits, and by establishing energy poverty as an issue that demands structural solutions. In cooperation with social actors who helped to identify the energy poor households, energy advisors carried out 1,600 home visits and distributed tailor-made advice, and post-visit support to energy poor households. It was expected that REACH will achieve energy savings of nearly 300 toe/year.
Start year	2014-2016
Organisation	European Union

Target groups	Vulnerable households
Source	EPOV

Measure	**National Program for Energy Efficiency of Multifamily Residential Buildings**
Description and results	The programme has been oriented to the renovation of multi-family residential buildings with a main objective to secure better living conditions for the residents in the multi-family residential buildings, heat comfort and higher quality of living environment through implementation of energy efficiency measures. In the period of 2015 to 2020, the programme supported the renovation of 1,921 buildings, reaching 128,439 homes.
Start year	2015
Organisation	National government
Target groups	No specific target group
Source	NECP, Ministry of Regional Development and Public Works https://www.mrrb.bg/en/energy-efficiency/energy-efficiency-of-multi-family-residential-buildings-national-programme/

Measure	**Social tariff for electricity**
Description and results	A social tariff is to be introduced in 2018 in Bulgaria or later (already being delayed, it was originally planned for 2017) with the new mechanism for protection of vulnerable consumers. The measure would cover 1.1 million people.
Start year	2018
Organisation	National government
Target groups	Disabled Households on social benefits Pensioners Vulnerable households
Source	EPOV

Measure	**Bulgarian Municipalities Working Together to Improve Air Quality (LIFE-IP Clean Air)**
Description and results	LIFE-IP Clean Air supports the implementation of the Air Quality Programs of the Sofia Municipality, Burgas Municipality, Ruse Municipality, Stara Zagora Municipality, Veliko Tarnovo Municipality and Montana Municipality.

	The main objective of the Integrated project is improvement of air quality in the municipalities by designing and implementing alternative household heating systems in the six municipalities. The scheme envisages transition from heating with wood and coal to heating with pellets, gas or use of the central heating network
Start year	2019
Organisation	Local government
Target groups	No specific target group
Source	Odyssee-Mure, Project website

Measure	**Program for energy efficiency in the building stock**
Description and results	Focused on increasing the energy efficiency in the residential building stock. Buildings with energy classes E, F, G receive 100% project financing, and buildings with energy class D receive 85% project financing. Reducing "energy poverty" by reducing energy costs is one of the specific objectives of the programme. However, the grant component does not take into account the income level of the beneficiary households.
Start year	ongoing
Organisation	National government
Target groups	No specific target group
Source	RRP

Measure	**The Program for financing single measures for energy from renewable sources**
Description and results	The project supplements the National Program for Energy Efficiency of Multifamily Residential Buildings, focusing mainly on measures that are not eligible under this program.
Start year	
Organisation	National government
Target groups	No specific target group
Source	RRP

Measure	**Empowering Energy Poor Citizens through Joint Energy Initiatives (POWERPOOR)**
Description and results	The main aim of PowerPoor is to support programmes/ schemes for energy poor citizens and encourage the use of alternative financing schemes (e.g., establishing energy communities / cooperatives, crowd funding). PowerPoor will

	facilitate experience and knowledge sharing, as well as the implementation of small-scale energy efficiency interventions and the installation of renewable energy sources, increasing the active participation of citizens.
Start year	2020
Organisation	European Union
Target groups	Energy-poor citizens
Source	POWERPOOR https://powerpoor.eu/

2. CZECHIA

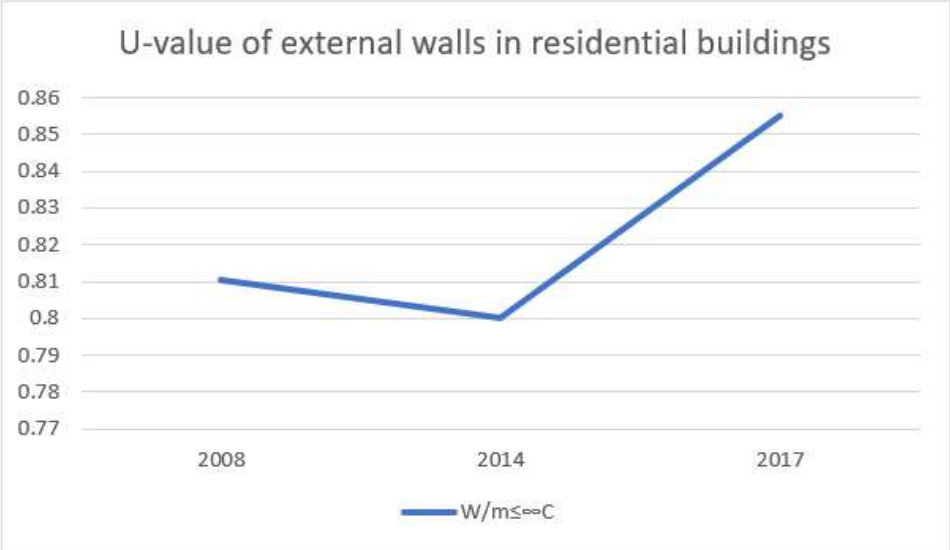
2.1 Energy Poverty Status

2.1.1 Energy efficiency

2.1.1.1 Thermal Insulation

The U-value[17] of external walls of residential buildings has increased between 2008 and 2017, showing a lack of insulation starting at 0.81 up to 0.85.

Figure 11: U-value of external walls. Source: Buildings Observatory

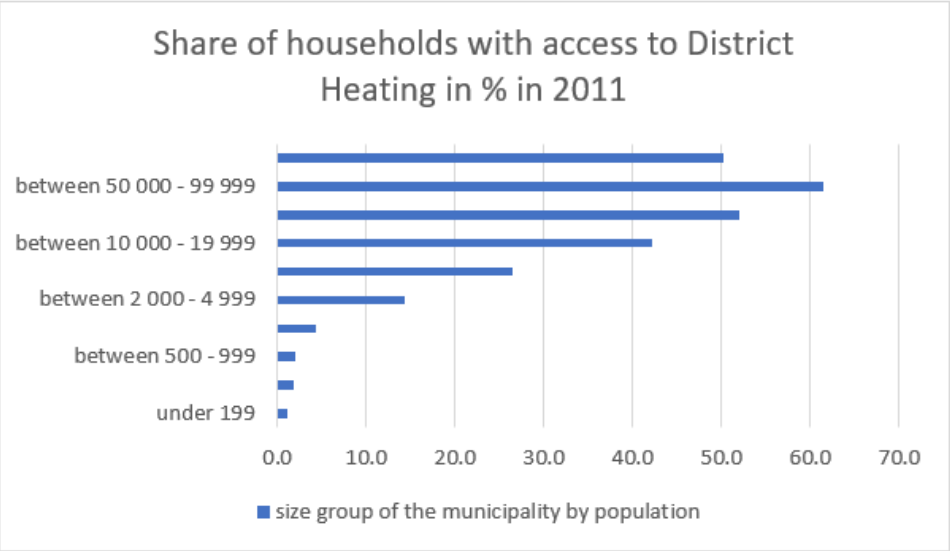


2.1.1.2 Heating and cooling

Data from 2011 shows that over 60% of households living in municipalities between 50,000-99,999 inhabitants had access to district heating and 50% in municipalities over 100,000 inhabitants, showing the bigger the municipality the easier it is to have access to district heating. Municipalities under 19,999 inhabitants have less than 50% of households with access to district heating.

[17] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

Figure 12: Share of households with access to District Heating. Source: Czech statistical office



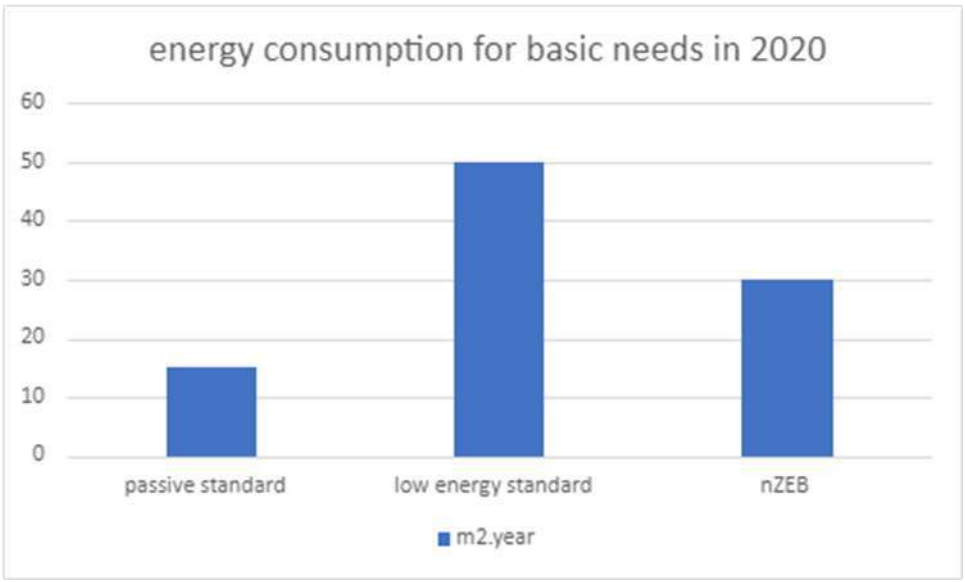
2.1.1.3 Ventilation

No data

2.1.1.4 Energy consumption for basic needs

The passive standard in Czechia is under 15 kW/(m².year), the low energy standard is under 50 kW/(m².year) and the nZEB (which buildings must meet in starting in 2020) is between 30 - 70 kW/(m².year).

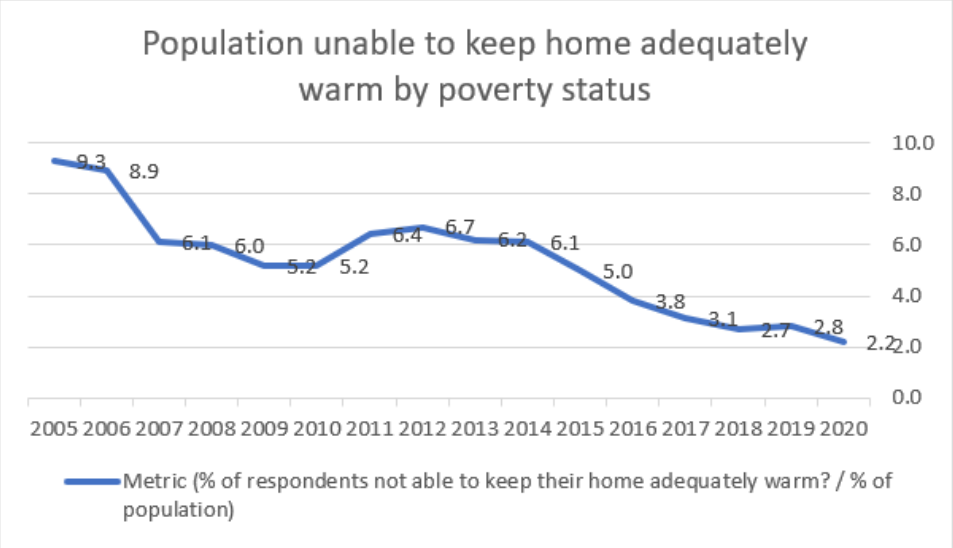
Figure 13: Energy consumption for basic needs. Source: Stavba



2.1.1.5 Adequate temperature in winter and summer

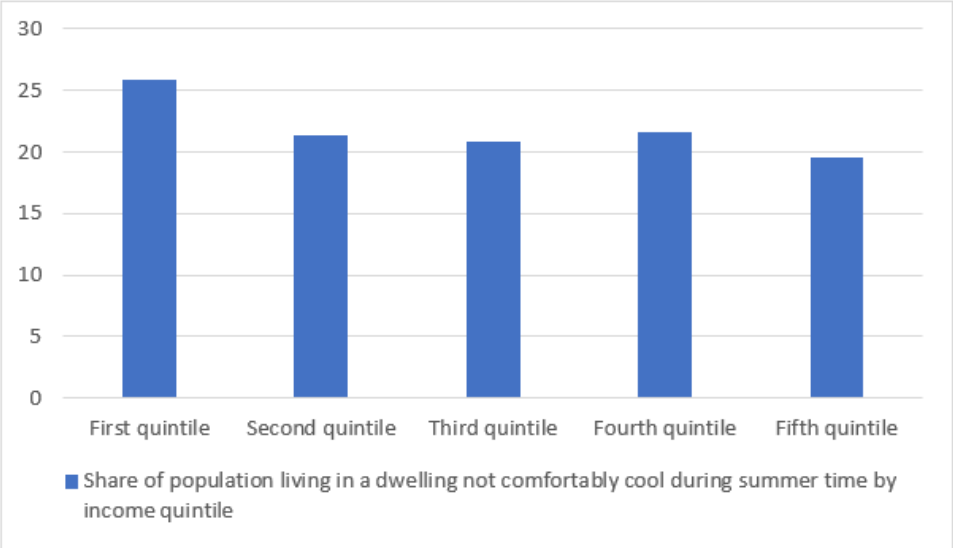
The percentage of the population unable to stay warm has crucially decreased over the years, 9.3% of the population couldn't keep their home warm in 2005, it has now decreased to 2.8% in 2020.

Figure 14: Percentage of population unable to keep warm. Source: Eurostat



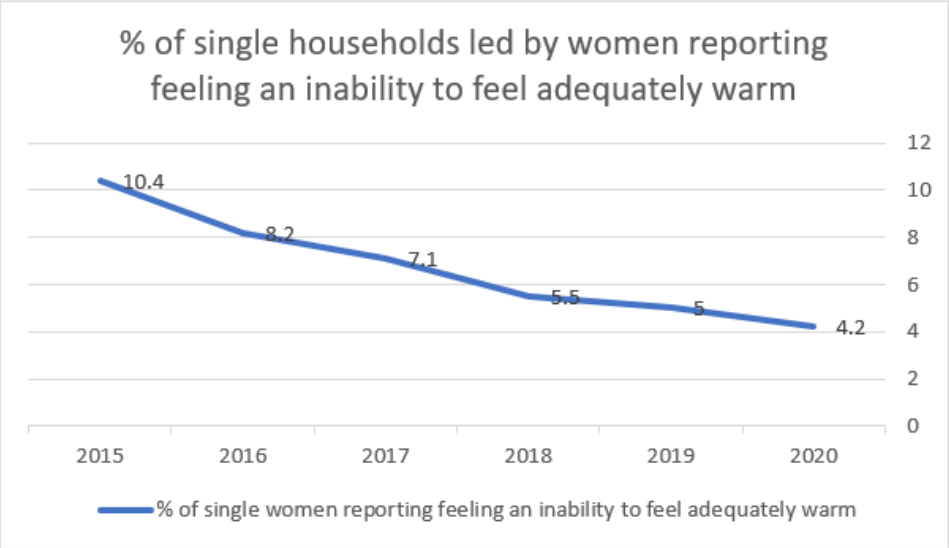
In 2012, 25% of households with first income quintiles could not keep their homes comfortably cool in the summer. As other income quintiles were in average 20% unable to keep their homes cool, showing an overall struggle to keep one's home cool no matter the income quintile.

Figure 15: Share of population not comfortably cool in summer. Source: Eurostat



Research has shown that women tend to feel colder than men, therefore data has been collected showing that single women managed to keep warm in their homes a lot more. The percentage of women not being able to keep their homes warm was split in half, from 10.4% in 2015 to 4.2% in 2020, suggesting better living conditions.

Figure 16: Percentage of single households led by warm unable to keep warm. Source: EU SILC Survey

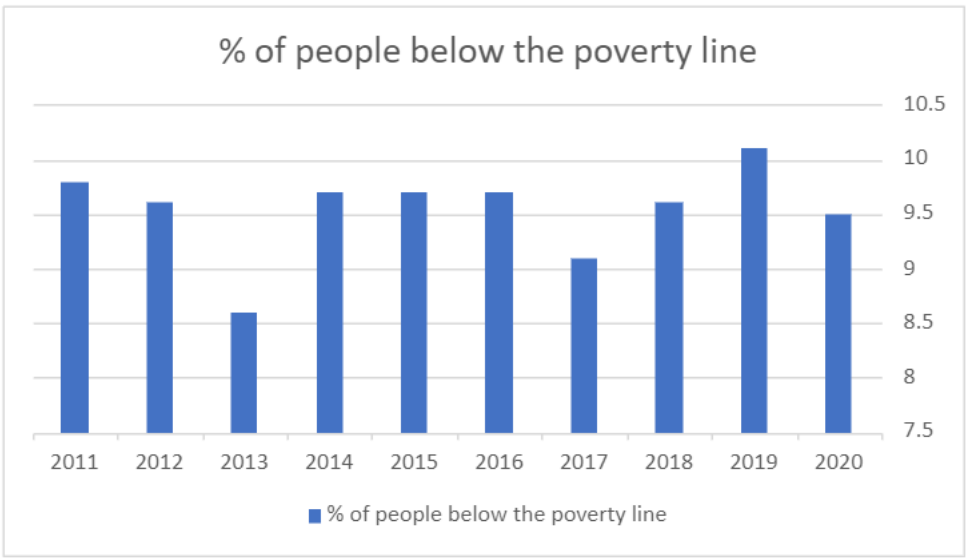


2.1.2 Social and economic poverty

2.1.2.1 Relation between energy poverty and income poverty

The percentage of the population below the poverty line has fluctuated over the years, 9.8% in 2011 to 9.5% in 2020 and the highest peak in 2019 of 10%. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020.

Figure 17: Percentage of people below the poverty line. Source: Czech statistical office



2.1.2.2 Identify households that cannot afford energy due to low income

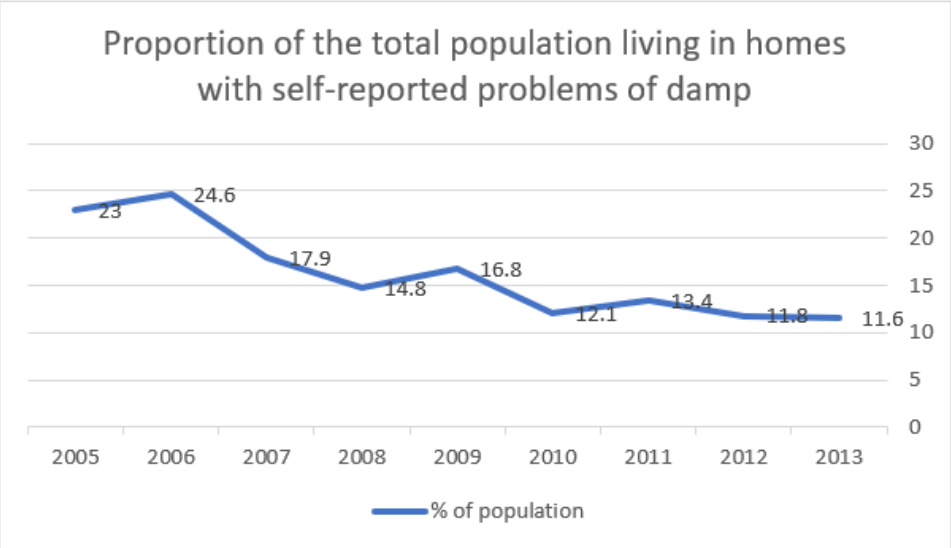
A total of 2.1% of the population had energy expenditure arrears in 2018. (Source: Eurostat)

2.1.3 Wellbeing and health

2.1.3.1 Household health and wellbeing

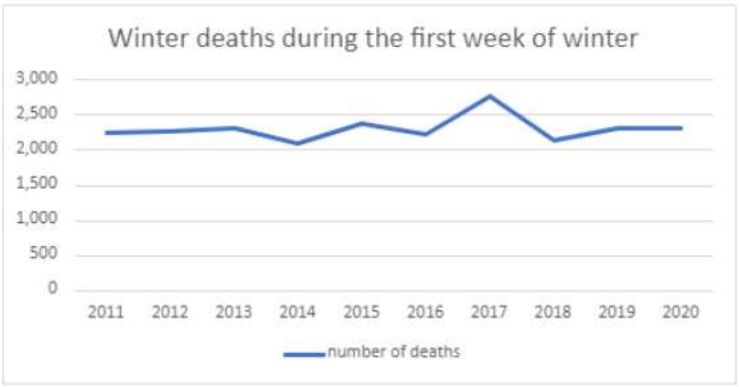
The percentage of the population experiencing problems of damp within their homes was at its highest in 2004 with 24.6% of the population, it has since decreased down to 11.6% in 2013, showing an improvement in living conditions.

Figure 18: Households reporting problems of damp. Source: WHO Environment Health



Winter deaths have fluctuated over the years, it has however experienced a peak in 2017 of over 2,500 deaths. The average remaining around 2,250 deaths per year on the first week of winter.

Figure 19: Winter deaths during the first week of winter. Source: Czech statistical office



2.2 Review of energy policies focused on low-income and vulnerable groups

2.2.1 Past Measures

Boiler Subsidies

A pilot program was launched by the National Program Environment and provided financial assistance to households and municipalities in the Karlovy Vary, Moravian-Silesian and Ústí and Labem Regions. It provided pre-financing to replace solid fuel boilers in households in the form of a soft loan as well as the intervention of advisory services. This program was specifically targeting vulnerable households.

The Czech Republic will provide information about the developments in this area by periodic progress reports in accordance with Regulation (EU) 2018/1999.

The Warm-Up Program

The Warm-Up Programme is identified as a Specific Objective 2.5 in aiming at reducing energy performance in the housing sector. IROP allocated CZK 8.7 billion (over 350 million EUR) on the topic of warming, the project took place from 2014 to 2020. The objective of the aid was to reduce the energy performance of apartment buildings and to increase the share of renewable energy sources. The program contributed to fulfilling the Obligations of the Czech Republic according to the Directives on energy performance of buildings and energy efficiency, to the creation of a long-term and stable framework for meeting global objectives and for supporting energy-saving construction in the Czech Republic. The program involves:

- Energy savings in apartment buildings in the Czech Republic
- Insulation of perimeter walls, ceilings, floor, roof, interior structures
- Replacement of opening fillings, insulation of loggias, green roof and façade
- Solar photovoltaic systems, solar thermal collectors systems for cogeneration (renewable energy sources, natural gas), biomass boilers
- Interest-free loan of the Warm-up programme:
- In addition to energy-saving measures, it can also be used for replacing windows and doors or elevators, for apartment buildings throughout the Czech Republic outside Prague
- It is possible to obtain a loan of between CZK 500,000 and CZK 90 million with a maturity of 20 years
- It can be combined with the warm-up project submitted to the IROP call, combining the benefits of both types of support and using funds effectively

Panel 2013+

Panel 2013+ is a loan programme for the revitalisation of the housing stock and is governed by Government Regulation No 468/2012Coll., in which the loan amount can cover up to 90% of renovation costs. The loan can be used for:

- Reducing the energy performance of the house

- Repair of house breakdowns
- Repair and modernisation of common areas
- Modernisation of residential cores
- Complex repairs

EKIS

EKIS Energy Consultancy is a free public service which serves to support the introduction of energy savings and renewable energy sources. It is intended for citizens, public administrations, businesses and entrepreneurs.

2.2.2 Measures currently (or recently) implemented

The RESTART program

The program was based on the principles of a just and fair transition and designed to support the restructuring of Czechia's coal regions. A Coal Commission was created and is responsible for the roadmap to provide a transition from coal to a "climate neutral economy". The strategy paper for RESTART underlines the importance of the Coals Commission phase out plans: "The outcomes and recommendations of the Coal Commission, which should be adopted by the Czech government by the end of 2020, will be reflected in the update of the Strategic Framework of the Strategy, as well as in future RESTART action plans". The programme covers a wide range of measures such as innovation, direct investment, R&D, human resources, social stabilisation, infrastructure and the environment.

The specificity of this project is it builds on a governance structure that combines integrated national strategic planning with expert knowledge and advice from regions, acknowledging the diverse needs of the three regions.

The program is mostly supported by national and EU funds: 1.5 billion EUR for the plan to be set out in 2030 in terms of development activities in the regions: around 303 million EUR (approximately 20%) come from European structural and investment funds, 80 million EUR (approximately 5%) come from the special national privatisation fund, while 1.1 billion EUR (approximately 75%) come from national funding.

As stated in the NECP assessment, "Finally, Czechia has partially addressed the recommendation to integrate just and fair transition aspects better. Some additional information has been provided on the RESTART project for coal regions, but without any additional impact assessment." Within Article 7 of Directive 2012/27/EU, the Czech Republic will set up the instruments so as to ensure increase in energy efficiency also for low-income groups.

New Green Savings Program

The New Green Savings Program that started in 2014 promotes energy savings in buildings for housing. The program supports the reduction in energy performance of residential buildings (complex or partial insulation), the construction or purchase of houses with very low energy demands, environmentally friendly heating methods, renewable energy sources and adaptation

and mitigation measures in response to climate change in existing and newly built family or apartment buildings. It is one of the most effective programmes in the Czech Republic focused on energy savings in family houses and apartment buildings.

The first programming period resulted in several billion crowns distributed to thousands of households. According to the webpage it encourages:

- Renovation of family and apartment buildings (insulation of facade, roof, ceilings, replacement of windows and doors)
- Construction of family and apartment buildings in the so-called passive standard (passive houses)
- Purchase of family houses and apartments with very low energy demands
- Solar thermal and photovoltaic systems
- Storage tanks for rainwater capture, use of waste water
- Green roofs, outdoor shading equipment
- Use of heat from waste water, water heating
- Controlled ventilation systems with heat recovery (ZZT)
- Exchanges of non-ecological heat sources for heat pumps, boilers or local biomass sources, gas condensing boilers
- Acquisition and installation of charging stations for passenger cars
- Planting trees on publicly accessible plots of land near apartment buildings.

For the 2021-2030, the program will be financed in the first years by the Recovery and Resilience Facility (RRF) in the National Recovery plan (total CZK 19 billion, around 800 million EUR), from 2026 on the share of sales of so-called emission allowances (CZK 4 billion per year, around 160 million EUR). The New Green Savings Programme is funded by revenues from the sale of EUA (European Union Allowance) and EUAA (European Union Aviation Allowance) units.

The Long-Term Strategy

The basis for the implementation of the Long-Term Strategy is a communication campaign at national level. Based on the outputs of the draft Communication Strategy for Raising Awareness of Energy Efficiency in order to motivate target groups to reduce energy consumption and to implement efficient energy management, the Ministry of Industry and Trade is seeking to launch a 'Short-term campaign aimed at the general target group'. The aim of this campaign is to quickly improve the awareness of the Czech public about energy savings.

In connection with this campaign, the strategy ensures the financial availability of Energy Consulting and Information Centres, feasibility studies of energy savings and adaptation measures on and in buildings, creating strategies for improving the energy performance of buildings in the region, technical assistance for submitting applications for financial support from the State. Information on services related to improving energy performance and a calculator was also created to provide assistance.[18]

EFFECT

[18] Nezávislé porovnání cen elektřiny a plynu | Ceny 2021 (tzb-info.cz)

The State Program for the Support of Energy Savings, the " EFEKT Program ", was announced by the Ministry of Industry and Trade with the intention of participating in the fulfilment of the State Energy Concept. It was implemented to achieve the current target set by the European Directive no. 2012/27/EU on energy efficiency. The EFFECT Program was a complementary program to operational and national energy programs to increase energy savings. The budget of the program for the period 2017-2021 is a maximum of CZK 750 million (around 30 million EUR). Funds for individual years will be released gradually.

Reaction to Current Rising Costs of Electricity Error! Bookmark not defined.

In the months of November and December 2021, electricity and gas will be exempt from value-added tax (VAT), while households will be exempt from energy fees if the electricity they use comes from renewable sources. In addition, the new coalition preparing for government is considering other support measures to shield citizens from rising energy costs including a housing allowance, a taxpayer tax rebate and extending their emergency assistance program.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
Air/water heat pumps	→	The Nová zelená úsporám scheme covers up to 50% of the costs through grants
Solar thermal system	→	The Nová zelená úsporám scheme covers up to 50% of the costs through grants
Gas boilers and district heating	→	The Green Savings Programme provides grants to households willing to make the switch from coal, coke and coal briquettes to gas boilers. The grant for gas boilers covers 50% of the costs and can reach up to CZK 25,000 (around 1000 EUR).

A total of 23% of heat is produced by renewable energy.

4.2.3 Forthcoming measures

Currently, measures that have already been put in place address the future of low income families and their inability to pay for their energy bills. No new measures are foreseen at the time of writing.

TABLE 2: CZECHIA'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Boiler subsidies**
Description and results	Provides financial assistance to vulnerable households to install new boiler.
Start year	
Organisation	Government
Target groups	Low income households
Source	NECP

Measure	**New Green Savings Program**
Description and results	Energy efficiency measures and renovation, 2019, and second one in 2020
Start year	2014
Organisation	Government
Target groups	All
Source	NECP New Green Savings – SFŽP ČR (sfzp.cz)

Measure	**The Operational Program Environment**
Description and results	Protection of the environment at local level through EU funds
Start year	2014
Organisation	Government and EU
Target groups	Local level
Source	https://www.sfzp.cz/dotace-a-pujcky/operacni-program-zivotni-prostredi/

Measure	**The Warm-Up Program**
Description and results	Energy efficiency and savings program and increase RES use.
Start year	2014- 2020
Organisation	Government
Target groups	Households residing in apartments
Source	IROP - Ministry of Regional Development of the Czech Republic - Warming (mmr.cz)

Measure	RESTART
Description and results	Transition from coal region to climate neutral region with consideration on a just and fair transition principles. First results in 2030
Start year	2020
Organisation	Government
Target groups	3 coal regions
Source	NECP restart-strategy_for_economic_restructuring_of_czech_coal_regions.pdf (europa.eu)

Measure	The Long Term Strategy
Description and results	Communication campaign and advice and strategy implementation on energy efficiency measures
Start year	
Organisation	Government
Target groups	All
Source	NECP Long-term renovation strategies | Energy (europa.eu)

Measure	EFFECT
Description and results	Energy savings program
Start year	
Organisation	Government
Target groups	All
Source	https://www.mpo-efekt.cz/cz/programy-podpory/54039

Measure	Panel 2013+
Description and results	Loan program to revitalise housing stock, includes renovation and energy efficiency options
Start year	2013
Organisation	Government
Target groups	All
Source	Panel 2013+ - SFPI

3. GREECE

3.1 Energy Poverty Status

3.1.1 Energy efficiency

3.1.1.1 Thermal insulation[19]

In terms of thermal insulation, the U value has increased in external walls between 2014 to 2017 but insulation has gotten better for roofs and decreased between 2014 and 2017.

Figure 20: U-value of external walls. Source: Buildings Observatory.

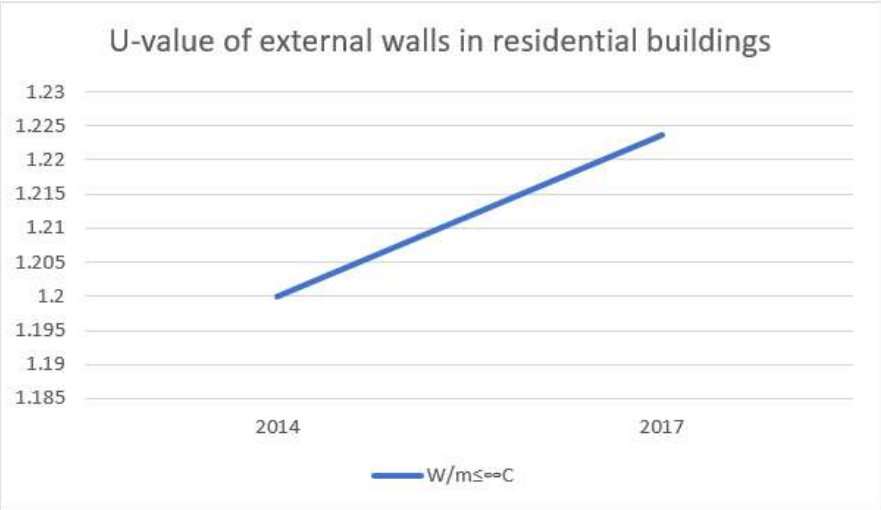
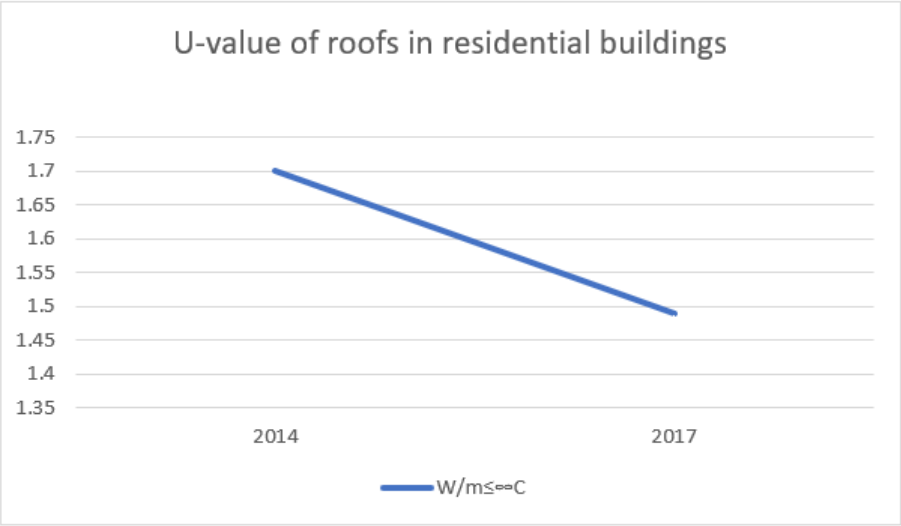


Figure 21: U-value of roofs. Source: Buildings Observatory.

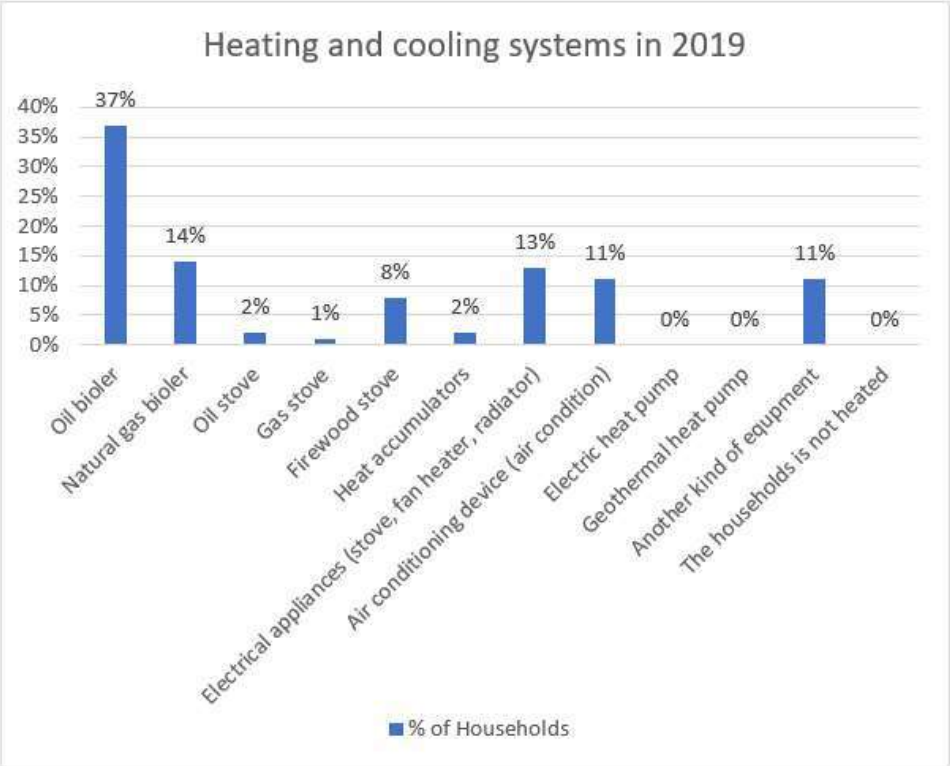


[19] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

3.1.1.2 Heating and cooling

Heating and cooling systems are mainly used through boilers, with oil boilers (35%) in first place, followed by natural gas boilers (14%).

Figure 22: Heating and cooling systems.



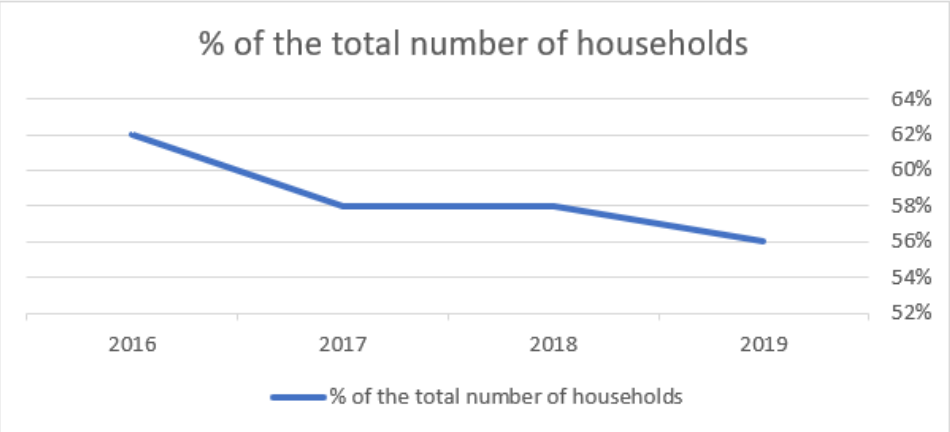
3.1.1.3 Ventilation

No data

3.1.1.4 Energy consumption for basic needs

The minimum energy standard per household has decreased over the years, 62% of the population experienced minimum energy standards in 2016 and decreased to 56% in 2019.

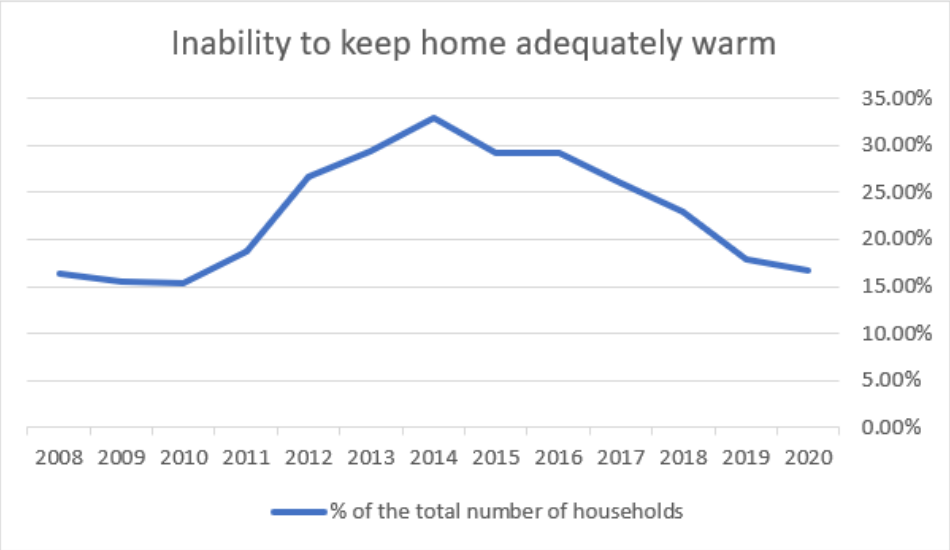
Figure 23: Energy consumption for basic needs. Source: YPEN



3.1.1.5 Adequate temperature in winter and summer

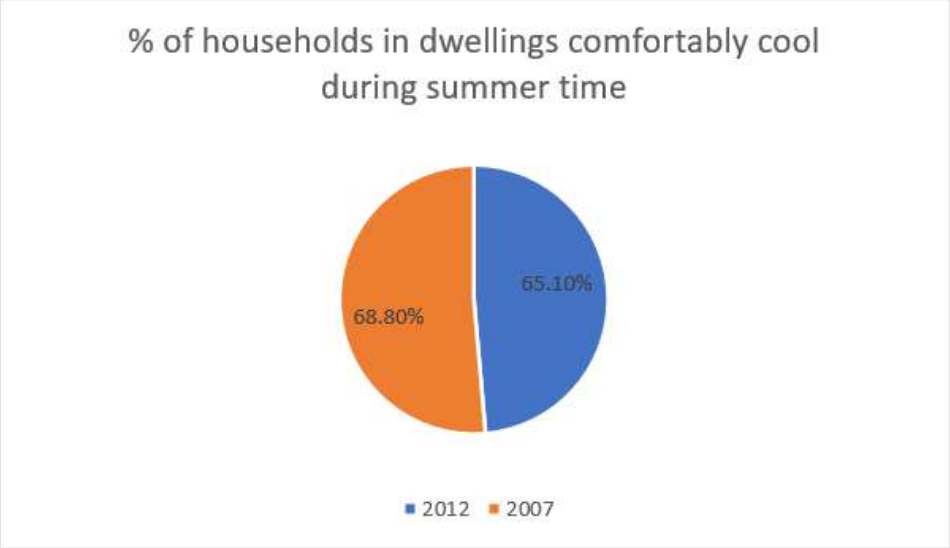
Many households have experienced inabilities to keep their home adequately warm, there have been high peaks since 2008 as it went from 15% of households to 33% in 2014 and decreased back to almost 15% in 2020.

Figure 24: Percentage of households unable to keep warm. Source: EU-SILC



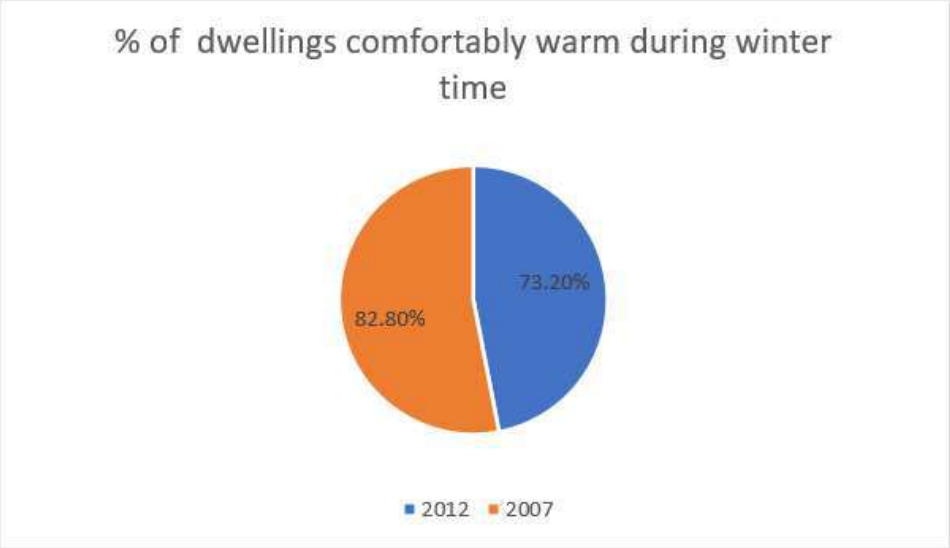
More households have been able to keep their homes cool in the summer, it has gone up from 65% in 2007 to 68% in 2012.

Figure 25: Percentage of households comfortably cool in summer. Source: EU-SILC



There has been a decrease of almost 10 percent between 2007 and 2012 of dwellings that can keep their homes warm in the winter, going from 82% in 2007 and decreasing to 73% in 2012.

Figure 26: Percentage of dwellings comfortable warm in winter. Source: EU-SILC

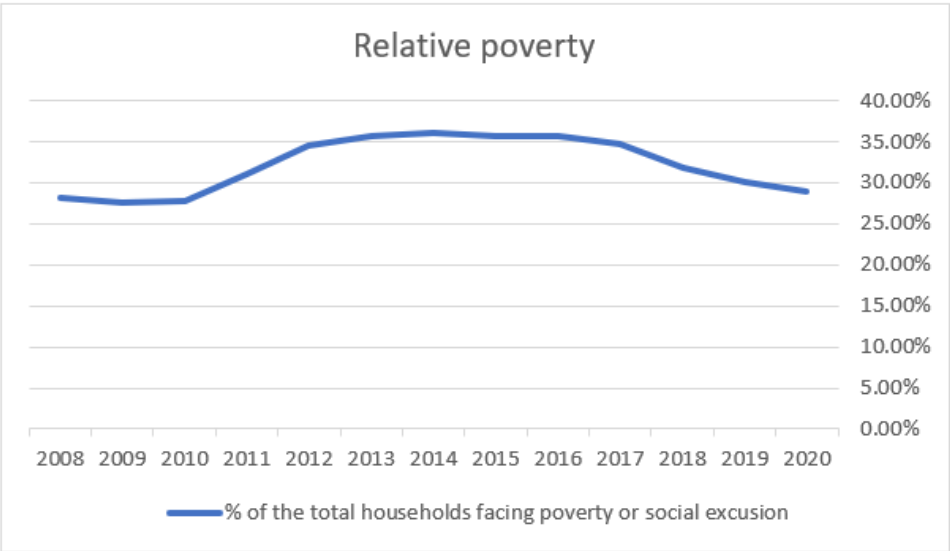


3.1.2 Social and economic poverty

3.1.2.1 Relation between energy poverty and income poverty

Households facing poverty and social exclusion has increased between 2008 and 2020, it experienced a stable peak between 2012 and 2017 where 35% of households were vulnerable to poverty. It has since decreased below 30% in 2020 but still remains higher than in 2008. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020.

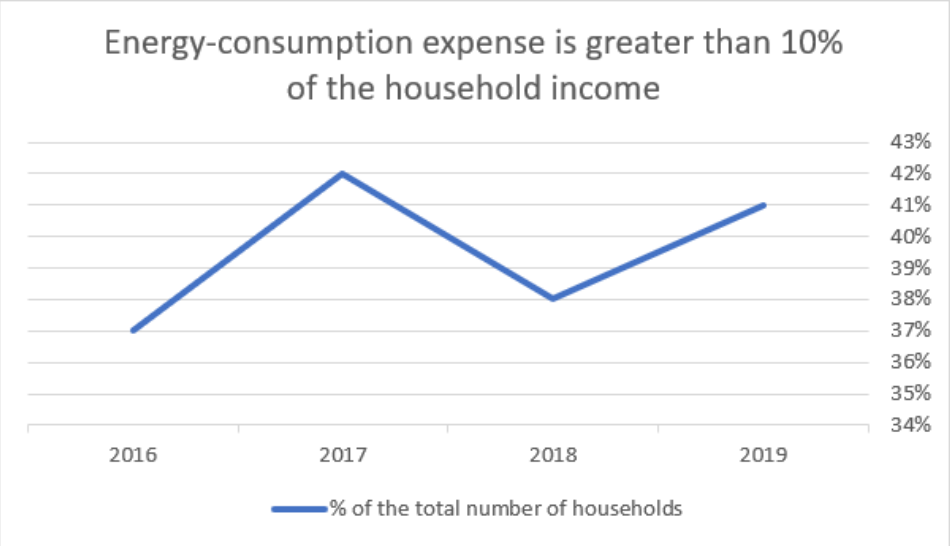
Figure 27: Relative Poverty. Source: EU-SILC



3.1.2.2 Identify households that cannot afford energy due to low income

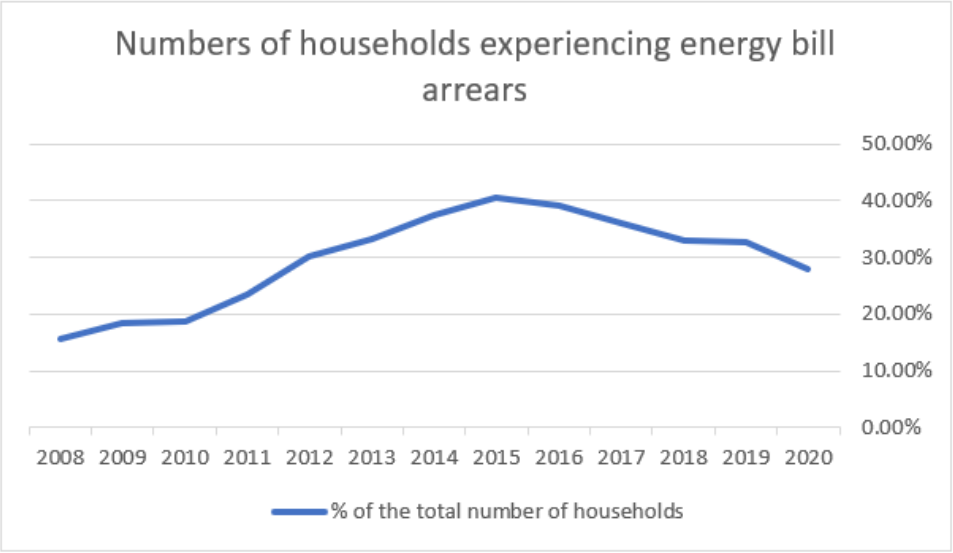
Households facing energy expenditures higher than 10% of their income has peaked between 2016 and 2019. In 2017, 42% of households were facing energy expenses higher than 10% of their income which was at its highest. These numbers show that almost half of the population have high energy expenses and underlines that Greece is the highest rated European country in terms of energy poverty.

Figure 28: Energy consumption is greater than 10% of household income. Source: YPEN



Households experiencing energy bill arrears has also deeply increased since 2008, the number of households has more than doubled in 7 years, from 15% in 2008 to 40% in 2015. It has since decreased down to 27% in 2020. This shows once again how important energy expenses are for households in Greece and underlines the fact that many households are vulnerable to energy poverty due to high energy expenses.

Figure 29: Households experiencing energy bill arrears. Source: EU-SILC

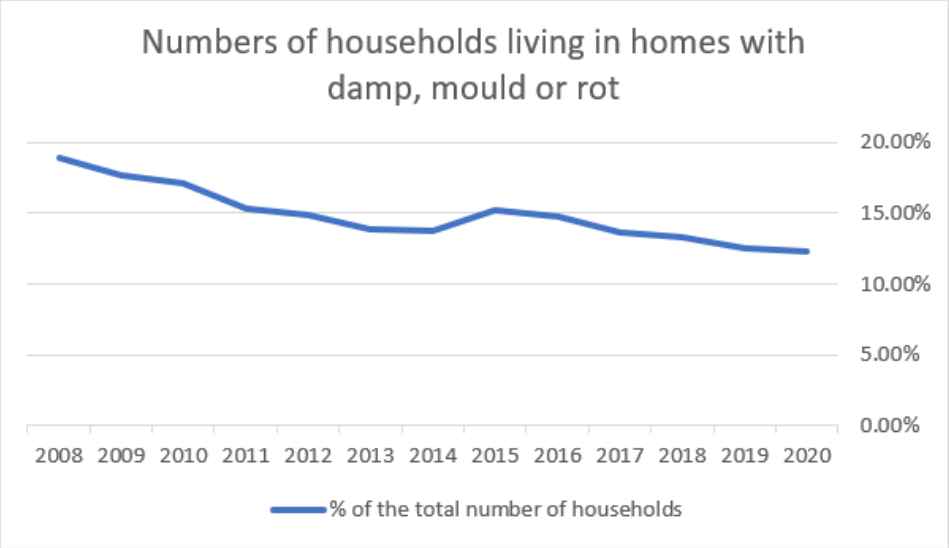


3.1.3 Wellbeing and health

3.1.3.1 Household health and wellbeing

Households experiencing damp, mould or rot in their homes has slightly decreased between 2008 as it started at 19% of total households in 2008 and has gone down to 12% in 2020.

Figure 30: Percentage of households living with damp, mould or rot. Source: EU-SILC



3.2 Review of energy policies focused on low-income and vulnerable groups

3.2.1 Past Measures

Greece is implementing targeted policies to address the energy poverty phenomenon. An initial presentation of main measures was occurred within the framework of the draft National Energy and Climate Plan (NECP)[20], which was prepared in the end of 2018. The Social Household Tariff, which was introduced to protect vulnerable consumer groups with the purpose of providing discounts to the electricity consumed by beneficiaries, is one of the most important policy measures to combat energy poverty. A similar provision is also made, through the Solidarity Services Tariff, to legal entities of public law of a privileged nature, religious-charitable institutions and specially certified private non-profit bodies that provide social care services.

In 2017, 10 million EUR was earmarked as one-off special aid to support low-income consumers who have been disconnected from the electricity grid due to overdue debts, in order to meet their energy needs. The automatic transition of vulnerable household customers into the Universal Service regime was also introduced, without any interruption of their electricity supply in case the supplier terminates the Supply Agreement, or the previous supplier submits to the respective operator an order to deactivate the supply due to overdue debts or non-compliance by the client with the terms of settlement of due debts.

[20] https://energy.ec.europa.eu/system/files/2019-03/ec_courtesy_translation_el_necp_0.pdf

From the year 2012 until today, the granting of a heating allowance to certain categories of consumers of domestic heating oil has been instituted because of the increase in the final price of this particular petroleum product.

Moreover, energy efficiency improvement programmes have already been launched at national level for low-income households, and their contribution has been significant. The 'Saving at home'[21] programme involves the implementation of interventions to improve the energy performance of residences that are proved to have low energy performance and belong to low-income owners who cannot fund on their own the energy upgrade of their residence.

Under the energy efficiency obligation scheme, energy suppliers participating in this scheme can meet the energy-saving target by implementing technical and/or behavioural measures in vulnerable households by increasing energy-saving units by a factor of 1.4. Moreover, incentives are foreseen for RES installations by energy communities in order to meet the energy needs of their members and vulnerable consumers or citizens through the virtual net metering scheme.

Additional measures include the elaboration of the Energy Poverty Action Plan, which comprises specific actions related to the improvement of energy efficiency in energy-poor households and other social policy or energy pricing measures, and the operation of the Energy Poverty Observatory.

3.2.2 Measures currently (or recently) implemented

The alleviation of energy poverty has been specified as an essential main objective within the framework of the final NECP[22], which was submitted at the end of 2019. More specifically, it was noted that the phenomenon of has worsened gradually, primarily over the last few years constituting as a priority its confrontation. The deterioration of the population's energy status and thus increase of energy poverty has mainly been the result of the economic recession and its impact on people. Indicatively, about 23% of the total population stated unable to heat their homes, while the respective percentage was equal to 41% for the case of the economically vulnerable population in 2017. Moreover, targeted policy measures should be designed and implemented so as to alleviate effectively the phenomenon of energy poverty, while emphasis has to be given on the improvement of comfort conditions and the avoidance of the triggered health problems. A quantitative target has been specified in NECP for reducing the energy poverty at least 50% and 75% in 2025 and 2030 respectively compared to 2016, while the foreseen level in 2030 to be below the EU average in 2030.

Achieving this goal requires the design and implementation of a coherent and effective strategy, which will aim to permanently and radically combat the phenomenon rather than its temporary mitigation through temporary and short-term measures.

In the context of social policy, consumer protection and the fight against energy poverty, the government's choice is to apply the principles of empowerment and sustainability, providing

[21] https://exoikonomo2021.gov.gr/
[22] https://energy.ec.europa.eu/system/files/2020-03/el_final_necp_main_en_0.pdf

support to all vulnerable groups facing the risk of poverty and/or social exclusion through long-term and sustainable solutions.

The preparation of the Action Plan for Combating Energy Poverty was also foreseen within the NECP. This strategy should be specified and outlined in the Plan including both the definition of households experiencing energy poverty through specific quantitative criteria, as well as a specific process to monitor and evaluate the evolution of the phenomenon. In addition, specific policy measures have to be specified, in accordance with the requirements of both Directive 944/2019 and Directive 2002/2018, and a specific process should be developed to monitor and measure the impact of each measure separately, in order either to redesign them or to adopt new policy measures.

Moreover, the various challenges were identified. Specifically, the assessment of the existing policy measures should be conducted either to improve them or to introduce new more effective, while a methodology must be developed and implemented for selecting the most cost-effective measures and prioritize the derived benefits from the alleviation of energy poverty compared to other benefits. The development of a mechanism for controlling and monitoring the policy measures in place must be carried out to emphasize the identification of the energy poor households. Finally, it is essential to mobilize the required funding instruments for the energy upgrading of the residential buildings of energy-vulnerable households and other social groups fostering the further penetration of RES within the framework of self-production and net metering schemes.

The alleviation of energy poverty should also be promoted in the region of Western Macedonia and the municipality of Megalopolis in order to support just transition in these areas through the initiation of specialized actions, which will be financed annually by the revenues from the auctioning of emissions allowances. Specifically, it is foreseen the activation of energy communities for the installation of RES units for combating energy poverty, the construction of natural gas networks for ensuring the operation of the district heating networks and ensuring the fair energy transition in these areas and the improvement of the energy performance of public/private buildings in compliance with the minimum energy performance requirements.

Finally, additional measures must be initiated according to the provision of the NECP for protecting consumers along with the planned measures for tackling energy poverty. All the above-mentioned issues are displayed by the specific policy priority PP5.9 Protecting consumers and addressing energy poverty.

Policies and measures were proposed within the NECP in order to achieve the relevant objectives. Specifically, the alleviation of the energy poverty in Greece will be achieved initially with the improvement of the existing measures such as the measure of the social tariff and the measure for the protection of households from the potential cut-off the electricity to focus on exclusively on energy poor households. Moreover, the introduction of the energy card will be examined enabling the energy poor households to select the energy carriers for satisfying their energy needs with the most appropriate way. Finally, targeted financing programmes will be designed for improving the energy efficiency of the energy poor households' buildings. Last but not least, additional incentives will be explored for both energy suppliers within the framework of the energy efficiency obligation scheme and for the energy communities contributing actively to the energy renovation of the residential buildings.

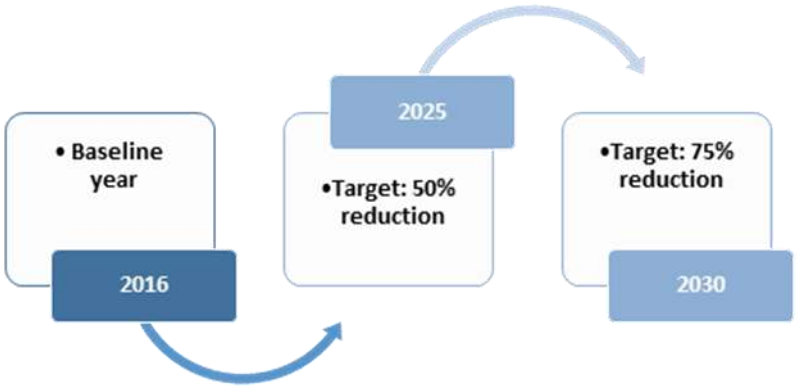
An overview of the proposed measures is provided in the following table.

Name of policy measure	Category of measure
M13. Maintenance of social tariff scheme	Economic measure
M15. Provision for the automatic transition of vulnerable domestic customers into the Universal Service scheme	Regulatory measure
M16. Exploration of the introduction of the 'energy card'	Economic measure
M17. Energy upgrade of residential buildings of households that are vulnerable with regards to energy and promotion of the installation of RES plants for the purpose of meeting their energy needs	Economic measure
M18. Motivation of existing mechanisms for actions in vulnerable households	Economic measure

The increased building stock renovation rate, which is considered within the framework of the NECP, will facilitate the alleviation of energy poverty. More specifically, the target for the energy renovation of the 12-15% of the total number of dwellings in the country (i.e. up to 60,000 homes annually), will lead to the energy upgrade of the dwellings of vulnerable households through targeted actions addressing energy poverty and aiming to achieve the relevant national objective set.

Action Plan for the Confrontation of Energy Poverty

The Action Plan for the Confrontation of Energy Poverty was publicized in September 2021 specializing the policy measures in order to achieve the specified targets within the NECP as depicted in the following diagram:

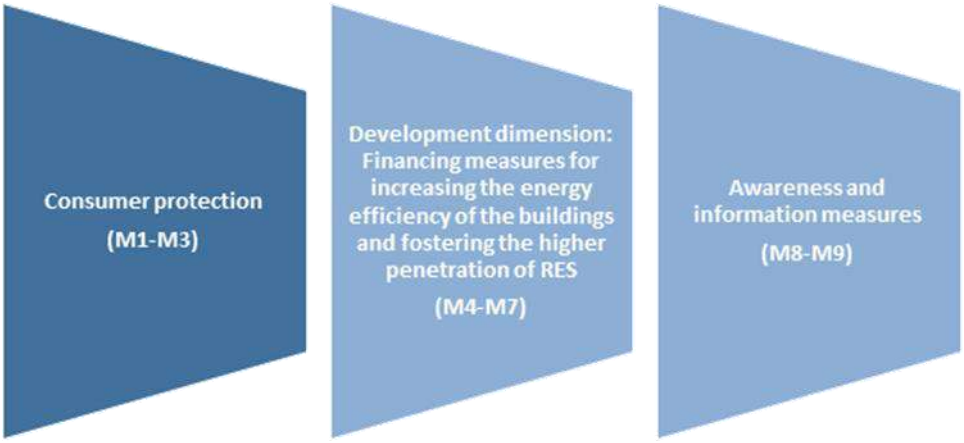


Moreover, the definition of the energy poor households was determined. Specifically, a household can be characterized as energy poor in the case that satisfy simultaneously both the following conditions:

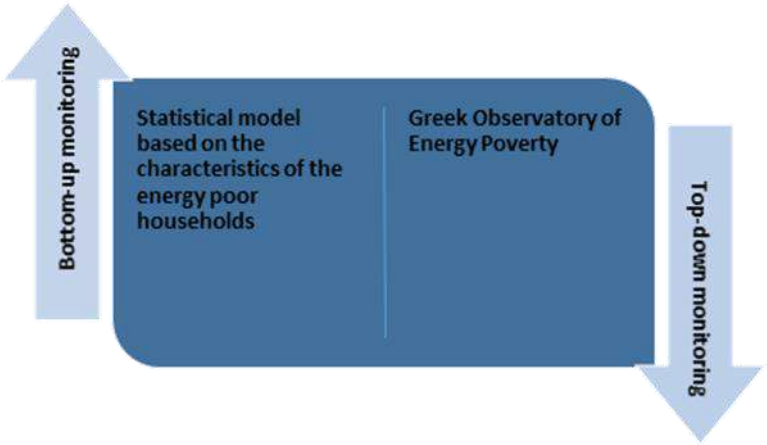
- Condition I: The total final energy consumption of the household is lower than the 80% of the minimum final energy consumption, which is required theoretically.

- Condition II: The total normalized income of the household, based on the number of household's persons according to equivalence scale of OECD is lower than the 60% of the mean income of all the households in Greece.

In total, ten policy measures have been integrated into the Action Plan for the Confrontation of Energy Poverty so as to fulfil the specified targets. The proposed policy measures have been classified into three different categories as displayed in the following diagram.



A holistic monitoring mechanism has been developed based on the combination of a bottom-up and a top-down procedure. The bottom-up approach will be performed through the statistical model, which has been developed in order to identify the energy poor households, while the top-down monitoring will be occurred through the Greek Observatory of Energy Poverty.



Finally, a central role for applying the foreseen monitoring procedures is assigned to the Working Group, 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.

Reaction to Current Rising Costs of Electricity

As of September 2021, plans were announced to offer subsidies to Greek households and small businesses to combat the currently increasing costs of energy. After an initial value of 9 EUR for the first 300 kilowatt-hours (KWh) consumed per month, the subsidy was increased to 18 EUR and 24 EUR for low voltage consumers and the beneficiaries of the social household tariff respectively. In response to the rise of energy costs, the government-owned Public Power Corporation will also expand its existing discount policy to fully cover the price rise for the average household with a consumption of up to 600 kWh per month. Greece has also expanded its heating allowances caps and inclusion criteria, meaning than an estimated excess of 1 million people will benefit from this allowance in comparison to the 700,000 in 2020.

The activation/launch of the recently established Energy Transition Fund, under Article 61 of Law 4839/2021 (FEK A' 181/02.10.2021), is foreseen as an equivalent measure, aiming to address efficiently the excess energy cost for the consumers. The provision of subsidies through the Energy Transition Fund for the case of electricity, natural gas, pellet and solid biomass and district heating is planned for the alleviation of the current energy cost crisis. It is estimated that all energy poor households will be supported with the provided financial aid until the end of the current heating period (which might extent into the 1st quarter of 2022). The households, which are integrated into the Social Tariff scheme, will be supported with an increased financial aid compared to the remaining ones. It should be noted that there is a provisional cost assessment of the measure through the Energy Transition Fund of above 400 million EUR for all the Greek households a percentage of which will support energy vulnerable households.

Finally, photovoltaic stations will be constructed by municipal energy communities to provide power to vulnerable households via the use of 100 million EUR from the Recovery and Resilience Fund.

Clean heating subsidy summary from EEB[15]

Type of Technology		**Type of Subsidy**
All types of heat pumps	→	Grant covering ≥70% of installation costs & tax reductions of 10% of the costs may also apply until December 2021
Solar thermal system	→	Grant covering ≥70% of installation costs & tax reductions of 10% of the costs may also apply until December 2021
Gas, oil, LPG boilers	→	Grants covering ≥70% of costs

A total of 30% of heat is produced by renewable energy.

3.2.3 Forthcoming measures

The implementation of the foreseen policy measures within the Action Plan for the Alleviation of the Energy Poverty has already started. All the foreseen measures are presented in the following table in regard to the targeted energy poor households and the available public aid for their realization.

Policy measures	Number of households	Public aid
M1. Improvement of the Social Tariff	100,000	40 million EUR on annual basis
M2. Provision of energy card to energy poor households	100,000	40 million EUR on annual basis
M3. Regulatory measures for the protection of energy poor households	150,000	30 million EUR
M4. Energy upgrade of the energy poor households' building including the installation of RES systems	120,000	1.8 billion EUR
M5. Provision of incentives to energy poor households within the framework of the Just Transition Plan	10,000	210 million EUR
M6. Provision of incentives to energy poor households within the framework of the EEOs	100,000	70 million EUR
M7. Provision of incentives to energy poor households within the framework of the Energy Communities	90,000	100 million EUR
M8. Conduction of measures within the framework of the EEOs	350,000	-
M9. Conduction of targeted measures centrally by the Ministry of Environment and Energy	100,000	10 million EUR

The "Exoikonomo 2021" program will be launched officially until the end of 2021, while the accomplishment of the foreseen energy upgrade is estimated within 2022-2023. The policy measure will continue to be implemented under the National Recovery and Resilience Plan in a next round during the second half of 2022 and in the following years through programmes financed by the NSRF 2021-2027 aiming at the radical confrontation of the energy poverty

phenomenon. Generally, the policy measure for the energy upgrade of the energy poor households' buildings is considered as the most significant for combating energy poverty on annual basis.

The Energy Efficiency Obligation (EEO) scheme for the period 2021-2030 will be launched by the end of 2021 with the adoption of the respective legislative framework. Specifically, the regulation for the operational framework of the EEOs, under a Ministerial Decision, will be completed until the end of November 2021. In order to incentivize such activities by the obligated parties, it is foreseen to increase the accounted delivered energy savings by a factor equal to 40% for the case of technical measures targeted energy poor households by the obligated parties. Furthermore, an increase of the delivered energy savings by a factor equal to 10% is provided to the obligated parties that carry out targeted information and awareness-raising measures in energy poor households.

The regulatory measures for the protection of the energy poor households will be retained also, such as the measure for the automatic transition of vulnerable household customers into the Universal Service regime for protecting them from potential electricity disconnections due to arrears. Moreover, the adoption of a new instrument in 2022 is planned to aim at the application of a fast-track reconnection procedure for the case of energy poor households including the provision of the respective cost, which will be covered by the Energy Transition Fund.

Finally, the existing Price Comparison Tool, which has been developed by the Regulatory Authority for Energy (available at: energycost.gr) will be further promoted informing the energy poor households about the evolution of energy prices and increasing the transparency among the fuel suppliers.

Commission's individual assessment of the NECP

In the evaluation report of the NECP compiled by European Commission, it is highlighted that the number of affected households and the planned policy measures to tackle energy poverty are reported. Emphasis is given the energy card, which will be provided to vulnerable consumers in order to replace the existing support measures for the consumption of energy goods (heating oil subsidies) and also to enable them for selecting the most effective fuels for fulfilling their energy needs and confronting the energy poverty. Moreover, the introduction of tailor-made funding schemes to improve the energy efficiency of vulnerable consumers' homes is foreseen, while the role of the energy efficiency obligations scheme is highlighted. Generally, the policy measures, which are included within the NECP, are assessed as credible and comprehensive in relation to the achievement of the target for the alleviation of energy poverty.

Furthermore, it is noted that the description of all existing energy subsidies and the timeline to phase-out is not sufficient. Nevertheless, it is mentioned that Greece intends to reform the subsidies for fossil fuels and review the existing social policies including regarding energy poverty. The identification and reporting on energy subsidies by developing an inventory and boosting the required activities in order to phase-out the fossil fuels is considered as a prerequisite.

The role of the Action Plan for the Confrontation of Energy Poverty is highlighted specializing the policy measures for the alleviation of energy poverty and focusing on improving the

problem with the high percentages of arrears in the electricity market and enhancing market's ability to collect the foreseen payments. Priority will be given to the improvement of the energy efficiency in buildings both the accelerating energy savings and contributing to the recovery of the economy after the Covid-19 pandemic. The Renovation Wave initiative will manage to intensify efforts to improve the energy performance of buildings with specific policy measures, targets and actions, while priority will be given to the alleviation of energy poverty simultaneously. The Renovation Wave initiative can also foster the increase considerably the stock of affordable residential and social housing.

The policy measures to tackle energy poverty would need to be monitored closely, while the role of the Action Plan for the Confrontation of Energy Poverty is essential for the effective monitoring and assessment of the implemented policy measures contributing to the achievement of the ambitious national targets. It is noted also that energy poverty could support the provision of socially innovative solutions and the promotion of social enterprises that work on addressing this challenge. The continuous upskilling of the workforce in the construction sector will contribute also towards this direction.

TABLE 3: GREECE'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Energy Efficiency at Household Buildings Programme**
Description and results	This measure provides households with financial assistance to improve the energy efficiency of their housing. During the period 2014-2016, 548 million EUR were secured for the implementation of energy efficiency upgrading interventions in residential buildings. By October 2013, 406 million EUR had been provided to approximately 40,000 beneficiaries. In June 2016, the State renewed and modified the Programme in order to increase the number of beneficiaries. According to a recent study, however, the Programme has been proved insufficient due to its bureaucratic nature, its limited budget and other technical and procedural obstacles.
Start year	2011
Organisation	Government
Target groups	Low income citizens
Source	EPOV

Measure	**Social residential tariff**
Description and results	This measure provides a social tariff to certain households. The tariff is provided by all power suppliers.
Start year	2011
Organisation	Government, energy suppliers
Target groups	Chronically/severely diseased Disabled Households with children Low-income households Unemployed Vulnerable households
Source	EPOV

Measure	**Heating Oil allowance**
Description and results	This measure provides households with financial assistance to cover heating oil costs during wintertime (October-April). Around 106 million EUR of heating oil allowance was distributed to 380,000 beneficiaries between mid-October 2016 and mid-January 2017.
Start year	2013

Organisation	Government
Target groups	Low income housholds
Source	EPOV

Measure	**Disconnection protection, Energy bill support**
Description and results	This measure provided indebted households with an amount of 300kWh electricity free of charge. In addition, the debts of households that were previously disconnected were arranged so that they could be reconnected. 92,000 households received electricity free of charge, while electricity debts declined within one year by about 45%.
Start year	2015
Organisation	Government
Target groups	Low income and indepbted households
Source	EPOV

Measure	**Replacement of heating oil boilers with natural gas boilers in buildings**
Description and results	This measure provides households with financial assistance to replace the existing heating oil boilers with natural gas boilers.
Start year	2015
Organisation	Government
Target groups	Low income households
Source	EPOV

Measure	**Law on Energy communities**
Description and results	This measure facilitates the set-up of energy communities which are organisations that aim to promote solidarity and innovation in the energy sector, including energy poverty measures.
Start year	2018
Organisation	Government + NGO
Target groups	Vulnerable households
Source	EPOV

Measure	**Building The Future**
Description and results	This measure aims to facilitate households to improve the energy efficiency of their housing by ensuring better prices for energy efficiency interventions.
Start year	
Organisation	Government
Target groups	No specific target
Source	EPOV

4. HUNGARY

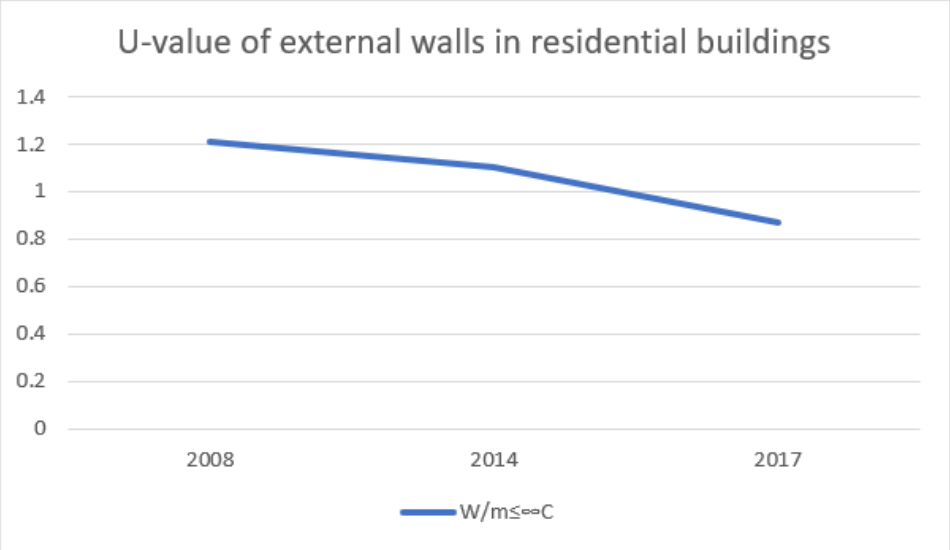
4.1 Energy Poverty Status

4.1.1 Energy efficiency

4.1.1.1 Thermal Insulation

Thermal insulation has proven useful in Hungary for external walls and roofs, as the U value[23] has slightly decreased over the years. From 1.2 to 0.8 for walls and from 0.8 to 0.6 for roofs.

Figure 31: U-value of external walls. Source: Buildings Observatory

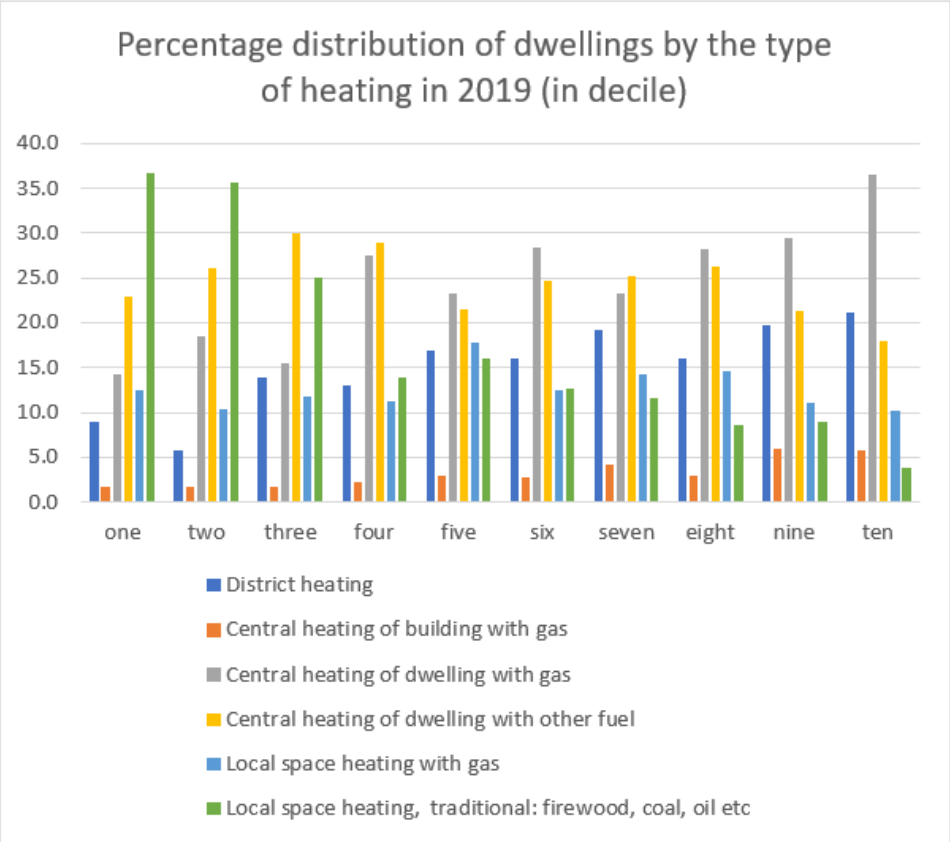


4.1.1.2 Heating and cooling

Depending on income decile, first deciles have better access to local space heating with traditional heating such as coal, fuel, oil (almost 40%) whereas ten deciles have access to central heating with gas (almost 40%). Depending on decile access to different sources of heating widely depend.

[23] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

Figure 32: Percentage distribution of dwellings by the type of heating. Source: Castano Rosa et al. (2019)[24]



There is still a large part of DH homes with no heat control. There have been several waves of panel retrofit programs, mainly in the 2000-2010's, meeting the energy requirements of the time, today DH heated buildings do not comply with energy performance requirements of HUN regulations. A full energy retrofit of panel homes would cost today at least 3-4 million HUF (around 8,300-11,000 EUR).

4.1.1.3 Ventilation

No data

4.1.1.4 Energy Consumption for basic needs

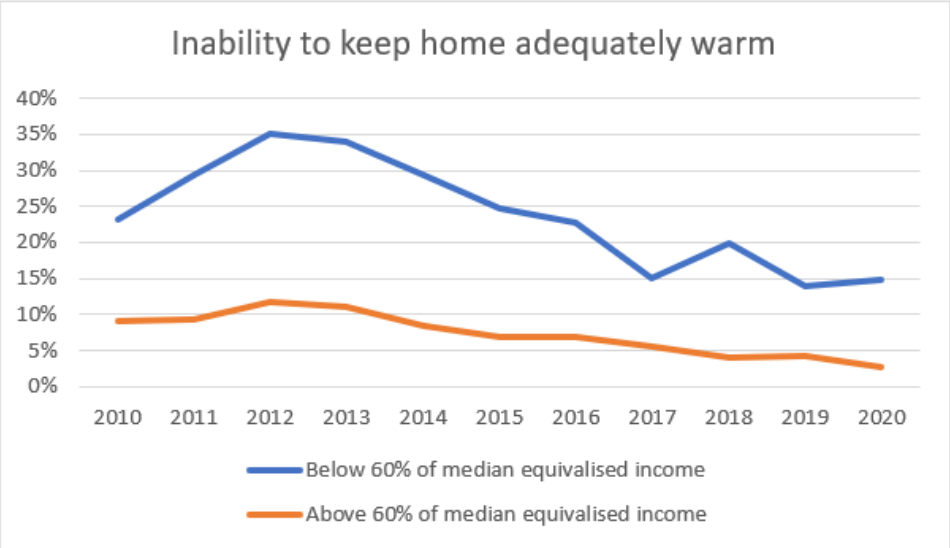
No data

[24] Raúl Castaño-Rosa, Jaime Solís-Guzmán, Carlos Rubio-Bellido, Madelyn Marrero, *Towards a multiple-indicator approach to energy poverty in the European Union: A review*, Energy and Buildings, Volume 193, 2019, Pages 36-48,

4.1.1.5 Adequate temperature in winter and summer

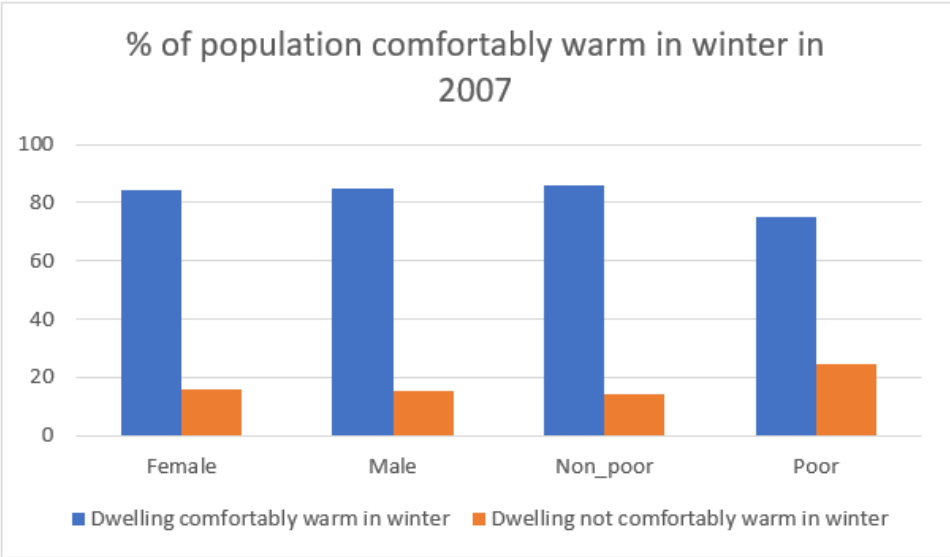
Households below 60% of median equivalised income have struggled to keep their homes adequately warm more than households above this median income. This shows in the graph below as households above 60% of median income have faced a decrease in their inability to keep their homes warm over the years, from 10% in 2010 to 3% in 2020. Just as households above the 60% median income has also decreased from 23% in 2010 to 15% in 2020. There was a however a rise in 2018 with 20% which was not experienced by households above 60% of median income, underlining a strong vulnerability based on income.

Figure 33: Inability to keep home adequately warm. Source: Eurostat



It can be seen that it was harder for poor households to be comfortably warm in the winter of 2007, as non-poor households were of 14% whereas 24% of poor households were unable to keep their homes warm in 2007, which is 10% more than other groups.

Figure 34: Percentage of population comfortably warm in winter. Source: Eurostat

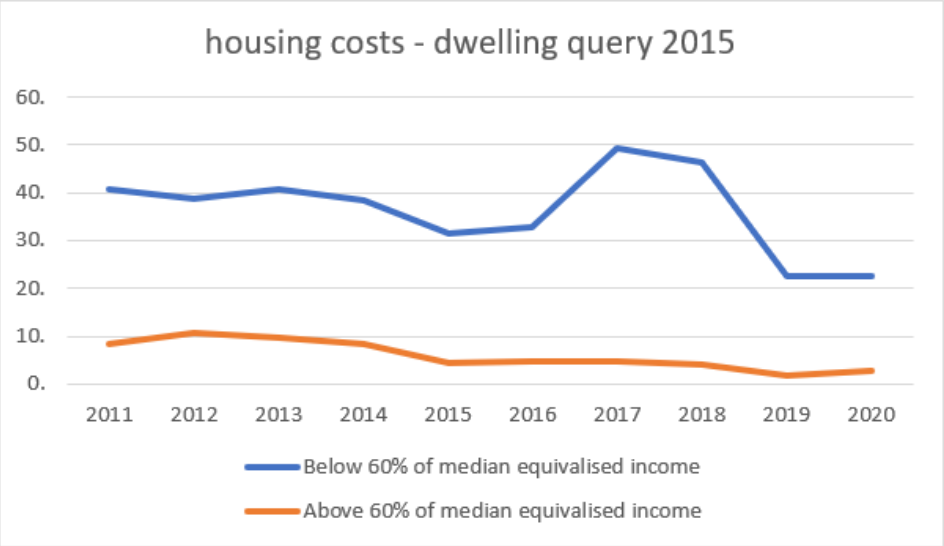


4.1.2 Social and economic poverty

4.1.2.1 Household income and expenses

Housing costs widely depend on income, we can see that housing costs have impacted households below the 60% median income, that in 2011 poorer households had to spend 30% more housing costs than households above the 60% median income, this gap has since decreased by 10% in 2020 with 22.7% for households below 60% and 2.7% for households above 60%.

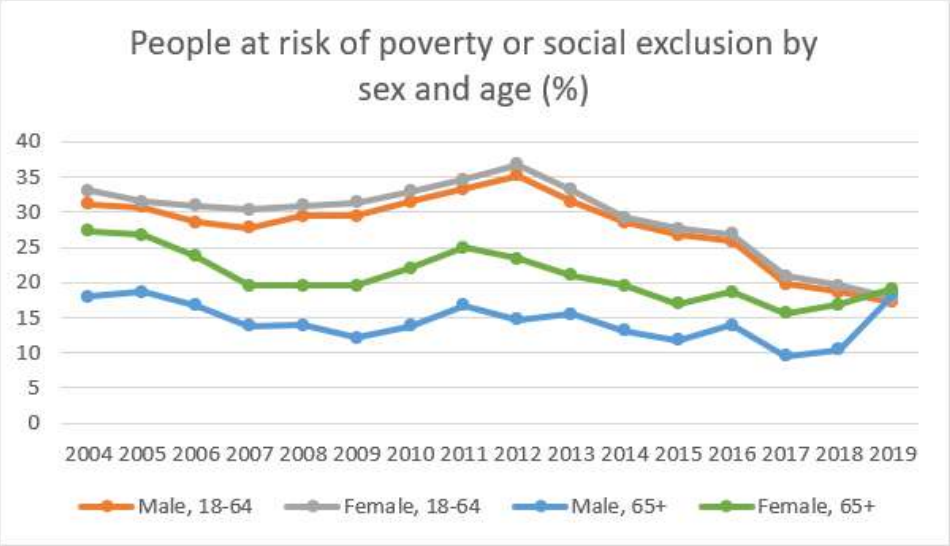
Figure 35: Housing costs per dwelling query. Source: Eurostat



4.1.2.2 Relation between energy poverty and income poverty

The percentage of people at risk of poverty or social exclusion has fluctuated over the years depending on age and gender. Overall, women of all ages have been more vulnerable to poverty and social exclusion, especially women between 18 to 64, who ranked the most vulnerable from 2004 and 2019. The most vulnerable age group is of 18 to 64 as they rank second highest after women. It's important to underline that all genders and ages reached a similar percentage in 2019 of around 20%. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020.

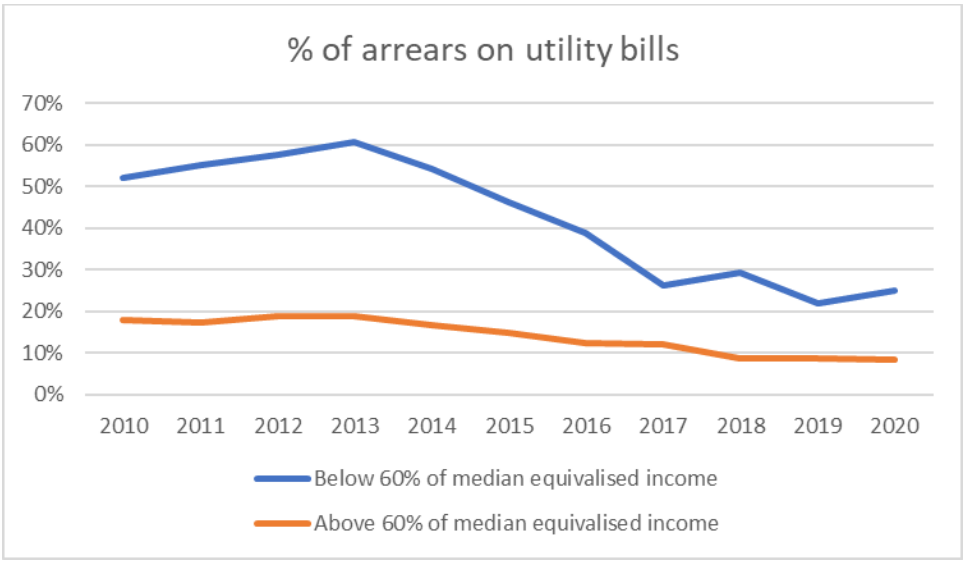
Figure 36: People at risk of social exclusion or poverty by sex and age. Source: Eurostat



4.1.2.3 Identify households that cannot afford energy due to low income

Once again, we can see that lower income households have more difficulty and deal with arrears on utility bills, more than households above the 60% median income. The highest difference was in 2013 where households below 60% were up to 60% dealing with arrears, whereas households above 60% where under 20%. Showing a 40% difference on arrears. The gap has since decreased to a 15% gap in 2020. Showing again how difficult it can be for vulnerable households to pay their utility expenses, being a sign of energy poverty.

Figure 37: Percentage of households experiencing arrears on utility bills. Source: Eurostat

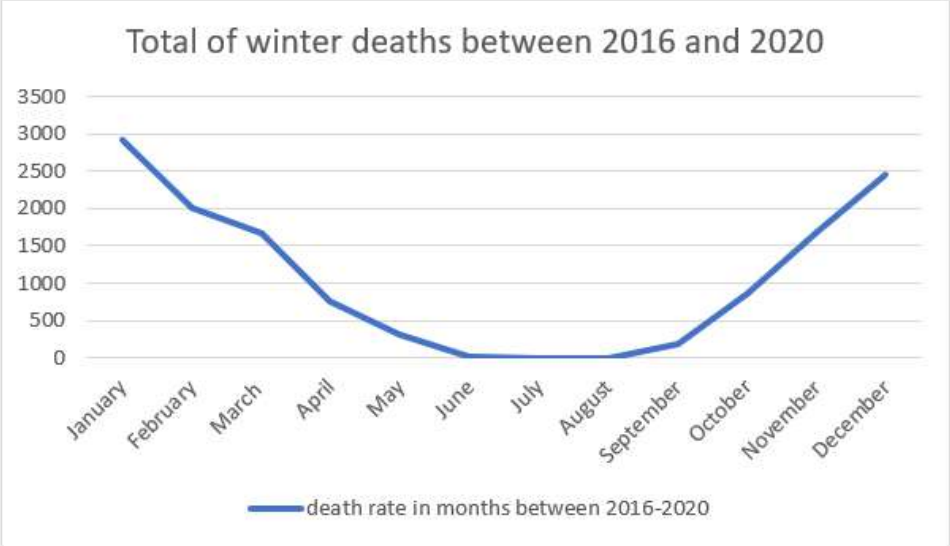


4.1.3 Wellbeing and health

4.1.3.1 Household health and wellbeing

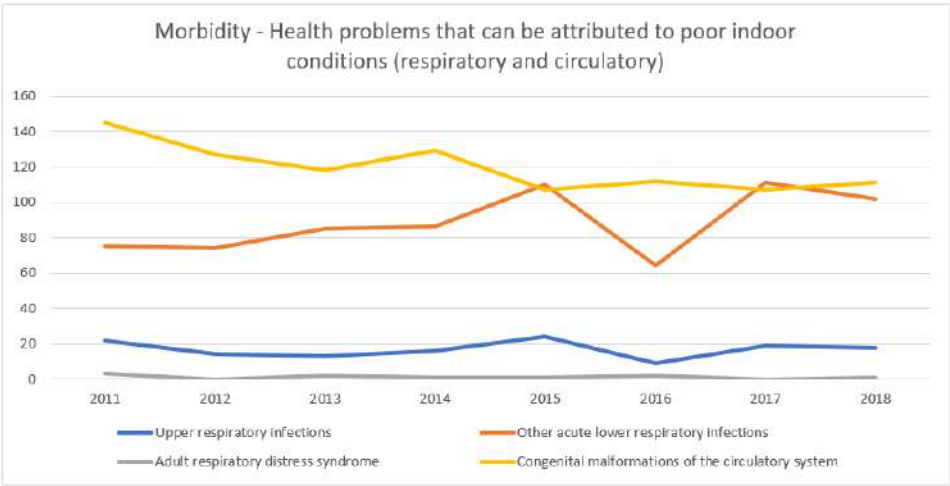
Deaths are a lot higher in winter, between 2016 and 2020 there were 2,908 deaths in January and 2449 in December, showing that households unable to keep their homes warm in the winter can have mortal consequences.

Figure 38: Total of winter deaths between 2016 and 2020. Source: Eurostat



Poor indoor living conditions can have a deep impact one's health, as shows the graph below, congenital malformations of the circulatory system and upper respiratory infections have been the biggest deadly consequences of poor indoor conditions.

Figure 39: Health problems that can be attributed to poor indoor conditions. Source: Eurostat



4.2 Review of energy policies focused on low-income and vulnerable groups

The Hungarian policy for energy poverty is weighted in favour controlling of the cost of energy provided to households (for gas, electricity and district heating). Subsidized for housing of low-

income households can be provided through Municipalities. Measures that target the qualitative improvement of dwellings through energy efficiency are focused on loans and on a post-financing scheme.

Households' electricity prices had been in a steady decline up to 2020, yet, in the years of 2012 and 2014, the share of household income spent on total energy costs was in the order of 15-20%, according to studies. Despite the falling costs in the last decade, large shares of the overall population have been unable to pay their utility on time. The decline in electricity prices provides more support for the medium and high-income groups, and it does not affect households that use solid fuels for heating. According to KSH (Hungarian Central Statistical Office) firewood prices became 34% higher in the last 4 years in Hungary since firewood is excluded from the "general utility cost reduction program". However, most of the vulnerable and potentially energy-poor households (especially in the countryside) still use mainly (wet) firewood or poor-quality lignite for heating, which is the main cause of severe local air pollution. Around 17% of the Hungarian homes in almost 100 cities are supplied by district heating. Energy prices of district heating has also been fixed since 2013, however the exact price heavily depends on the given city and district heating supplier.

As a result of the utility price cut, some energy poverty indicators improved over the last 7 years (can keep home warm enough, arrears on utility bills decreased), but others not (e.g. homes with damp walls), which point to the fact that the housing situation of the energy poor (spending on energy, low quality homes, no energy renovations, polluting individual heating systems) has not improved significantly.

Energiaklub estimate that 10-21% of households experience energy poverty, which is in line with the share of arrears on utility bills. Out of those estimated 380-800 thousand households, three quarters live in detached houses in villages and in rural areas. Similar conclusions have been drawn in the 2019 study of the Technical University of Budapest who used data from the Hungarian Central Statistical Office on 7,000 households: energy poor households number between 300 and 1000 thousand, or, on average 13.6% of all households. Out of those, 16.6% are located in the capital, Budapest. Vulnerability to (energy) poverty is highest among the elderly living on their own, the unemployed people, in large families and in single-parent families.

4.2.1 Past measures

National programmes focused on building renovation and heating systems replacement:

- Home Renovation Program (Otthonfelújítási Program) offers a grant to families with at least one child to expanded and/or modernized and existing house.
- Financing options for energy efficiency (Lakástakarék-pénztári konstrukció Korszerűsítési hitelek), providing favourable financial conditions on instruments targeting home renovation.
- Warmth of Home Programme (Otthon Melege) focused on the replacement of inefficient appliances, including heating systems, and out of the different

programmes launched between 2009 and 2014 only the Energy-efficient Renovation of Apartment Buildings program is currently operational.

4.2.2 Measures currently (or recently) implemented

The policies and measures to alleviate Energy Poverty are hereby distinguished in four categories.

National programmes focused on financial assistance

- Utility cost reduction plan (Rezsicsökkentés) started in 2013 and aims at ensuring affordable energy supply and financial predictability for consumers falling within the scope of universal services;
- Protection for vulnerable consumers (Szociálisan rászoruló fogyasztókat) offers partial protection against disconnection, allowing delayed payments in instalments, and the use of a pre-paid meter;
- Municipalities with a population less than 5,000 can apply for the state operated social fuel support program. From the state support they purchase solid fuel, which is distributed to households in need according to locally determined conditions. Since 2014, in addition to firewood, lignite can also be distributed to the poor;
- Protection for disabled consumers (Fogyatékkal élő fogyasztó) is active since 2013 and protects against disconnection in case of late- or non-payment. This is a legal obligation of universal energy service providers as it provides protection against disconnection for vulnerable and disabled consumers that was introduced into Hungarian law with the implementation of the Directive 2012/27/EU on common rules for the internal market for electricity and the one for gas.

National programmes focused on building renovation, energy efficiency and heating systems replacement

- Home Renovation Program (Otthonfelújítási Program) offers a grant to families with at least one child to expanded and/or modernized and existing house.
- The Energy Efficiency Obligation Scheme (Energiahatékonysági kötelezettségi rendszer) introduced in 2021

Exclusively supporting its most vulnerable citizens, such as pensioners or those on social benefits, Hungary has put forth measures to offer some protection against disconnection (delayed payments or pre-paid meters) under the measure of “Protection for vulnerable consumers”, while disabled citizens may not be disconnected from supply in case of late payment or non-payment, under the measure of “Protection for disabled consumers”. Other measures that also apply to the energy poor include according to the EPOV the scheme for “Financing options for energy efficiency”, incentivising home renovations and heating system replacement, and the “Rules on renewable production by households” that sets up riles on net metering.

The Hungarian NECP (National Energy and Climate Plan) refers to past and foreseen actions on energy poverty. It presents the government measures launched in early 2013, where consumers falling within the scope of universal services (sic) have been guaranteed affordable energy supply. Vulnerable consumer groups are considered large families living in single-family houses in small municipalities and single pensioners living in apartment blocks (or to a lesser extent in single-family houses). Hungary aims to measure the success of these policies by monitoring the share of households spending at least 25 % of their income on energy costs. This stood at 9.8 % in 2016.

Under the energy poverty heading the Hungarian NECP mentions additionally how the lignite fired Mátra Power Plant has an important role as a local employment provider, and that the structural reform of the power plant's region is of crucial social significance.

Energy poverty is also addressed as a dimension of the internal energy market (section 3.4 of the NECP) where it states the governmental commitment to "maintain sustainable overhead costs for Hungarian households in the future, while also ensuring the earning power of energy companies". To achieve this the NECP mentions a "complex strategy" involving energy efficiency, decentralised ('household') heating solutions, the penetration of power generation, and the optimisation of supply methods, while also making reference to increased competition in domestic and regional commodity markets, cost-effectiveness of grid operation and development and the promotion of digital solutions. The NECP states that in the context of planned reforms on the eligibility for social support the "energy fees of the most deprived persons do not increase".

Upcoming plans included in the NECP are:

- Preparation of a programme to improve conditions for vulnerable customers
- Extension of the subscription-based electricity connection scheme to households living in buildings that are deteriorated or unsuitable for renovation
- Planning of future awareness raising information and consulting campaigns

In linking policy instruments, it is mentioned that "when planning the energy efficiency obligation scheme, it should support vulnerable consumers".

Overall, and in agreement with the evaluation of the NECP by the European Commission, the energy poverty dimension is not sufficiently covered. Several statements resemble platitudes meant to fill reporting obligations but lack concrete plans. It must be noted nonetheless that the NECP contains a few elements that point to ongoing and planned activities which remain to be substantiated and further developed.

Within the Energy - Green transition component of Hungary's Recovery and Resilience Plan (NRRP) the decarbonisation of the energy sector and the conversion of electricity generation to carbon-neutral is detailed. The plan also places great emphasis on promoting residential renewable energy investments and investments to increase the necessary electric network capacity. Decarbonising the electricity sector and increasing the use of renewable energy are important strategic goals, but they are not enough to achieve climate goals: the end-use sectors, especially buildings, which are responsible for almost 50% of energy consumption and CO2 emissions, do not get enough emphasis in the plan.

The Energy component (F component) is the main element of the NRRP targeting the energy sector. Measures in the Energy component are designed to support the decarbonization goals of the NECP. The Energy component has an overall budget of 262.5 billion HUF (around 740 million EUR). Two main elements are planned to be supported by grants:

1. Transmission and distribution network development, to make it flexible and intelligent to adapt to the increased renewable based electricity production and consumption, with a net funding of 103 billion HUF;

2. Grant financing of residential solar panels and/or electrification of heating systems with heat pumps in combination with solar panels, with a net funding of 159 billion HUF.

In case of the second element, the target group is 11,600 households with below average income. Eligible measures include window and door replacement, but the main aim of the action is to promote renewables in residential heating. The expected energy saving is 15-30%. The action aims to contribute to the mitigation of energy poverty, as the selection of the below-average income households is planned to consider local air pollution indicators as well. While air pollution in cities is a well-known problem, non-efficient heating devices that burn mainly firewood (and waste) are typical to rural areas. As a result of inefficient heating stoves, residential heating is the main emitter of about 70% of the emission of small particulate matter.

Despite the fact that the Hungarian Recovery and Resilience Plan has not been approved by the EC, the Government decided to launch the first call in November 2021. The call named 'Support for residential solar PV systems and electrification of heating systems in combination with PV panels' aims to grant finance (100% grant support) Hungarian households living under the national average salary levels to install PV panels and/or change heating systems. The household income limit is, however, rather high and the process is so complicated that probably not the poorest strata will have access to the grant. In addition, the originally stated goal of the RRP (to improve air quality in the most problematic regions and to reduce energy poverty) does not seem to be adequately addressed by the call. The electrification of heating systems without proper insulation of the houses is ineffective and uneconomic yet the call doesn't include such measures (aside from the change of windows and doors, meaning that no insulation or other building renovation measures are suggested). As such, those living in the worst conditions cannot afford to complement the grant from their own resources.

Reaction to Current Rising Costs of Electricity

Aside from household prices for electricity being regulated below cost, no new measures at the state level have been rolled out.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
All types of heat pumps	→	Subsidy scheme covers ≥50% of the installation through grants and loans.
Solar thermal system	→	Subsidy scheme covers ≥50% of the installation through grants and loans.

Gas, oil and coal burners	→	As of January 2021, the Home Renovation Aid subsidy scheme covers ≥50% of costs for families with children through grants and loans. The scheme includes all heating system including fossil fuelled boilers.

A total of 18% of heat is produced by renewable energy.

4.2.3 Forthcoming measures

According to the NECP, Energy Efficiency Obligation Schemes , or some of the alternative measures should be "designed to help vulnerable consumers":

2.1. Subsidies from funding programmes with primary energy efficiency focus (especially KEHOP, TOP, VEKOP, GINOP, ZINOP)

2.2. Primarily non-energy efficiency funding programs (especially TOP, VEKOP, EFOP, IKOP, KEHOP, VP)

2.3. Direct energy efficiency funding programmes launched using funding resources received to relaunch the economy

3.1. Tender programs based on ETS quota revenues

3.2. Direct tender programs for energy efficiency based on Governmental Green Bond Program revenues

3.3. Tender programs for direct financial support under the EEA and Norwegian funding mechanisms

4.1. Corporate normative tax relief for energy efficiency measures

4.2. Integrated results of CSOK home creation support programme and Rural CSOK development support (primarily non-energy efficiency programs)

4.3. Energy rationalization tender program for the institutions of the Ministry of the Interior

4.4. Energy efficiency investments of budgetary institutions [232/2015. (VIII. 20.) Government Decree. regulation]

4.5. Implementing lighting modernization actions in the member institutions of the vocational training centres established and maintained by the Minister responsible for vocational education and adult education [239/2019. (X. 16.) Government Decree]

4.6. The "Bright Smart Institutions Program" [192/2020. (V. 8.) Government Decree]

4.7. Other individual support decisions set out in government decisions

4.8. Energy efficiency improvements implemented in the Home Creation Saving Program

5.1. Measures to improve energy efficiency under the Modern Cities Program with budget support

5.2. Energy efficiency elements of the Hungarian Village Program:

1. Building energy developments;

2. Transport developments;

3. Behavioural change, energy efficiency awareness improvement

5.3. Energy efficiency elements of long-term program for settlements' economic catching-up

5.4. Individual energy efficiency measures of municipalities

5.5. New energy efficiency development programmes for local governments to relaunch local economic development

6.1. Financial assets imposed in the Electricity Act (funds payable pursuant to Section 147 of Act LXXXVI of 2007 on Electricity)

6.2. Green Credit Program

7.1. Energy efficiency development effects of complex transport development programs (maintenance of toll systems, restricted zones for motor vehicles, establishment of parking zones, development of railway network, development of cycling facilities, eco-driving, speed reduction on motorways, Shaping the cost reimbursement for car use, development of intelligent transport systems)

7.2. State financial support for the operation of public transport

7.3. Promoting electro-mobility (Jedlik Ányos Plan) and the implementation of Hungary's new bus strategy concept and the Green Bus program

8.1. Mandatory employment of energy rapporteur at companies with significant energy consumption

8.2. Obligation to install energy sub-metering

8.3. National Energy Specialist Network – Promoting the energy efficient use of public buildings

8.4. Free energy advisory service to SMEs and individuals provided by the Hungarian Chamber of Engineers

9.1. Complex market development measures provided by strengthening the energy efficiency market (e.g., through innovation subsidies)

Long Term Renovation Strategy

The Hungarian LTRS (Long Term Renovation Strategy) does not dedicate specific sections to energy poverty, but it does mention vulnerable consumers on a few occasions:

The LTRS mentions that Hungary will maintain the following measures for the benefit of households:

- keeping energy prices under public regulation (reduction of bills),
- a social fuel scheme,
- development of household-scale electricity for families with schoolchildren,
- Development of housing conditions in 'Closing Settlements

The LTRS adds a programme of "Education, consumer awareness" which will start in 2023 and will be targeted at the retail sector, encouraging renovations.

To evaluate the effectiveness of measures, the LTRS states that an evaluation report will be prepared annually based on the following monitoring indicators:

- public investments in policies addressing these issues (conflicts of interest, households to be supported, etc.) – HUF,

- Number of buildings in the worst performing segment from a technical point of view, share per subtype of the total building stock – bb,m^2, %,

- public investment in policies addressing households to be supported – HUF,

- share of rented houses in the worst technically performing segment with an energy performance certificate per total rented dwelling – %,

- percentage of vulnerable users in terms of energy costs, with a regional breakdown – %,

- late settlement of utility bills (number of consumers, extent of delay, amount) – main, day, HUF

- population living in inadequate housing conditions or with inadequate heating and cooling, with regional breakdown – persons,

- share of household disposable income spent on energy – %,

- share of households using solid fuels to a large extent, by regional breakdown – household,

- rate of change of average ressiteher – HUF.

National Recovery and Resilience Plan (NRRP)

Energy poverty is mentioned in Component C of the NRRP, which targets emerging settlements with a social policy focus, aiming to extend basic social and public services to the 300 most disadvantaged settlements in Hungary (based on a complex set of indicators). The component will finance social housing (new buildings) and the renovation of 2,500 existing buildings by 2025 Q2, with the aim to improve housing conditions (not explicitly energy efficiency). Overall funding dedicated for this is 65,93 billion HUF (around 180 million EUR).

TABLE 4: HUNGARY's ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Warmth of Home Programme (Otthon Melege)**
Description and results	Eligible households received financing to replace energy inefficient household appliances (up to a limit of 50% of the purchase price of a new appliance). The appliances that could be replaced were laundry machines, refrigerators, heating systems, windows and doors. The different sub-programs were launched between 2009 and 2014. Only the Energy-efficient Renovation of Apartment Buildings program is currently operational More than 75,000 households have participated in the different sub-schemes. Energy savings of more than 138,000,000 kWh per year and GHG reductions of more than 38,000,000 kg CO2 per year.
Start year	2009 - 2014
Organisation	Ministry of National Development (MND)
Target groups	Low-income households, Unemployed, Elderly
Source	Atlas of Energy Poverty Incentives in Europe https://www.ecoserveis.net/wp-content/uploads/2019/02/Atlas-of-energy-poverty-initiatives-in-Europe.pdf

Measure	**Financing options for energy efficiency (Lakástakarék-pénztári konstrukció Korszerűsítési hitelek)**
Description and results	The Hungarian government provides favorable financial conditions on instruments (such as loans or savings accounts) to allow housing renovation, including insulation and the replacement of heating systems.
Start year	
Organisation	National Government
Target groups	Unspecified
Source	EPOV

Measure	**Home Renovation Program (Otthonfelújítási Program)**
Description and results	The home renovation grant is a grant with which the already existing home can be expanded, modernized by those who already have at least one child. The support can be spent on both material costs and labor costs, as well as both for outdoor and indoor work. The maximum total amount of support is 3 million may be HUF. Material costs and labor fees can be claimed in half. All families can apply for support only once.
Start year	2021

Organisation	National Government
Target groups	Families with at least one child
Source	https://ec.europa.eu/energy/sites/default/files/documents/hu_2020_ltrs.pdf
Source link	

Measure	**Utility cost reduction plan (Rezsicsökkentés)**
Description and results	The program ensures affordable energy supply and financial predictability. Yet, the envisaged policies and measures are not described in detail. No measurable targets are set.
Start year	2013
Organisation	National Government
Target groups	"consumers falling within the scope of universal services"
Source	LTRS (page 49), NECP-en (page 70) and NECP assessment by the EC https://ec.europa.eu/energy/sites/default/files/documents/hu_2020_ltrs.pdf https://ec.europa.eu/energy/sites/default/files/documents/staff_working_document_assessment_necp_hungary_en.pdf

Measure	**Protection for disabled consumers (Fogyatékkal élő fogyasztó)**
Description and results	Disabled consumers may not be disconnected from supply in case of late payment or non-payment. They also receive additional assistance by allowing the measurement and payment of the bill to happen at the place of use, as well as the possibility to receive additional information on the bill.
Start year	2013
Organisation	National Government
Target groups	Disabled
Source	EPOV

Measure	Education, consumer awareness
Description and results	Hungary will put more emphasis on programmes targeted at households to be supported in the course of awareness-raising, information and advisory campaigns aimed at increasing the willingness to invest in energy efficiency by increasing the awareness and influencing the behaviour of the population
Start year	2023
Organisation	Ministry for Energy Policy
Target groups	Retail sector
Source	LTRS https://ec.europa.eu/energy/sites/default/files/documents/hu_2020_ltrs_en.pdf

Measure	Development of housing conditions in the 'Closing settlements'
Description and results	A complex housing programme may be developed for housing interventions that will place particular emphasis on both infrastructure and human development. Following the development of trust and cooperation and the settlement of ownership relationships, then the programme will proceed with the application of renovation, comfort repair or new construction procedures with the involvement of local capacities.
Start year	2019
Organisation	Ministry of the Interior
Target groups	Roma
Source	LTRS Government Decree 1404/2019. (VII. 5.) Government Decision on the basis of the long-term programme of "Counting localities"

5. ITALY

5.1 Energy Poverty Status

5.1.1 Energy Efficiency

5.1.1.1 Thermal Insulation

Thermal insulation in Italy has had its efficient effects over the years as the U value[25] for external walls and roofs have decreased between 2008 to 2017, from 1.5 to 0.8 for walls and from 1.8 to 0.9 for roofs.

Figure 40: U-value of external walls. Source: Buildings Observatory

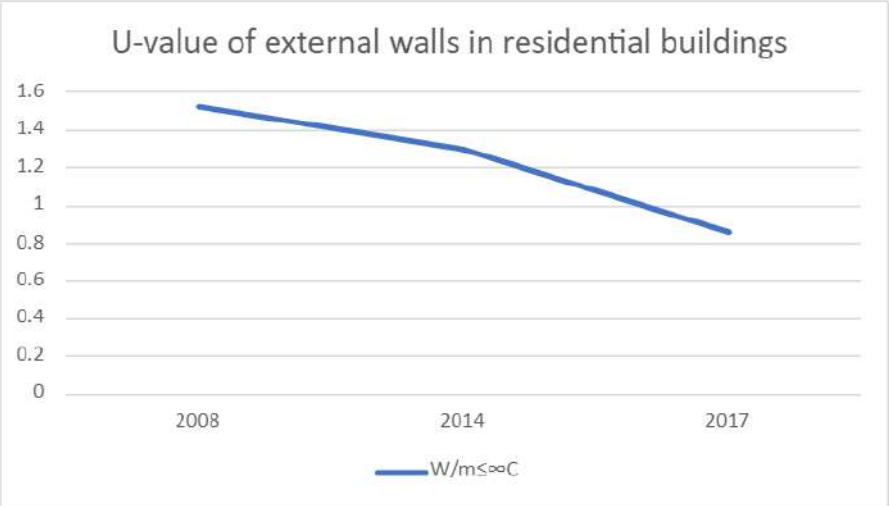
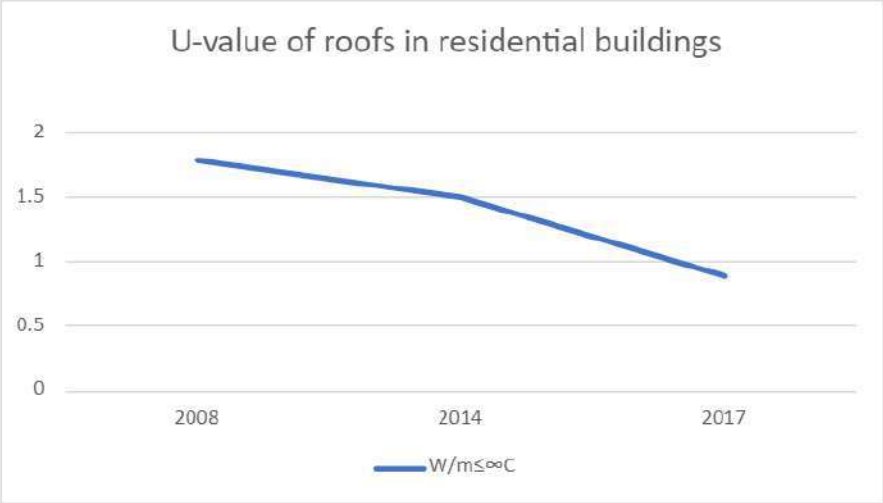


Figure 41: U-value of roofs. Source: Buildings Observatory.

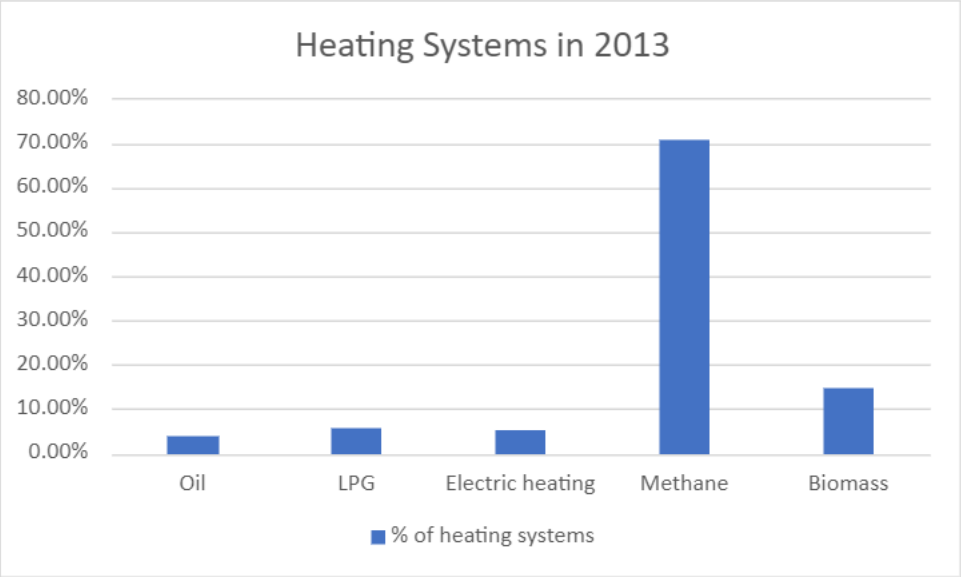


[25] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

5.1.1.2 Heating and cooling

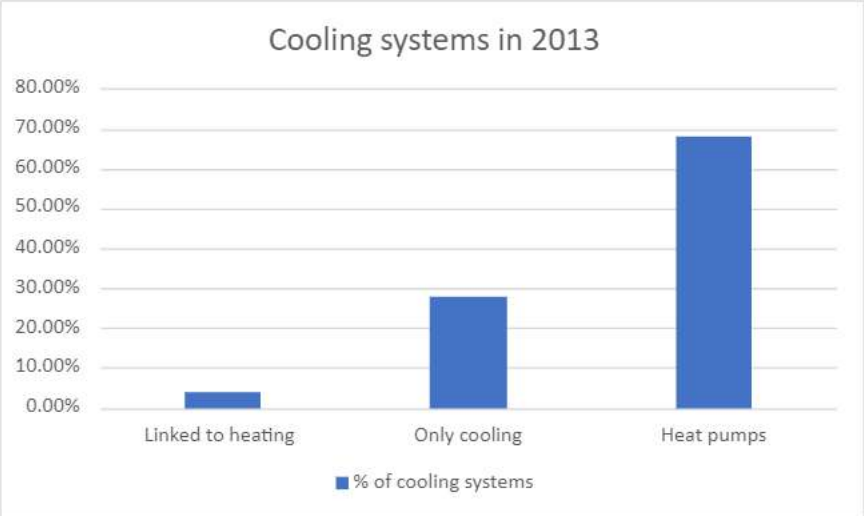
Heating systems mostly consisted of methane (70%) followed by biomass (15%) in 2013.

Figure 42: Heating systems in 2013. Source: ISTAT



Cooling systems were majorly provided via heat pumps almost up to 70% in 2013, followed by 29% of only cooling.

Figure 43: Cooling systems in 2013. Source: ISTAT



5.1.1.3 Ventilation

No data

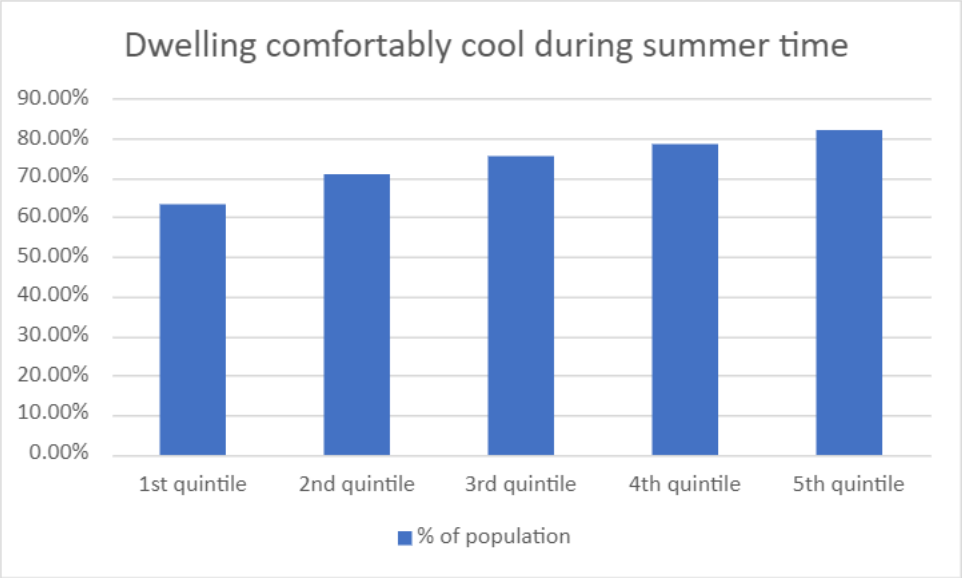
5.1.1.4 Energy Consumption for basic needs

No data

5.1.1.5 Adequate temperature in winter and summer

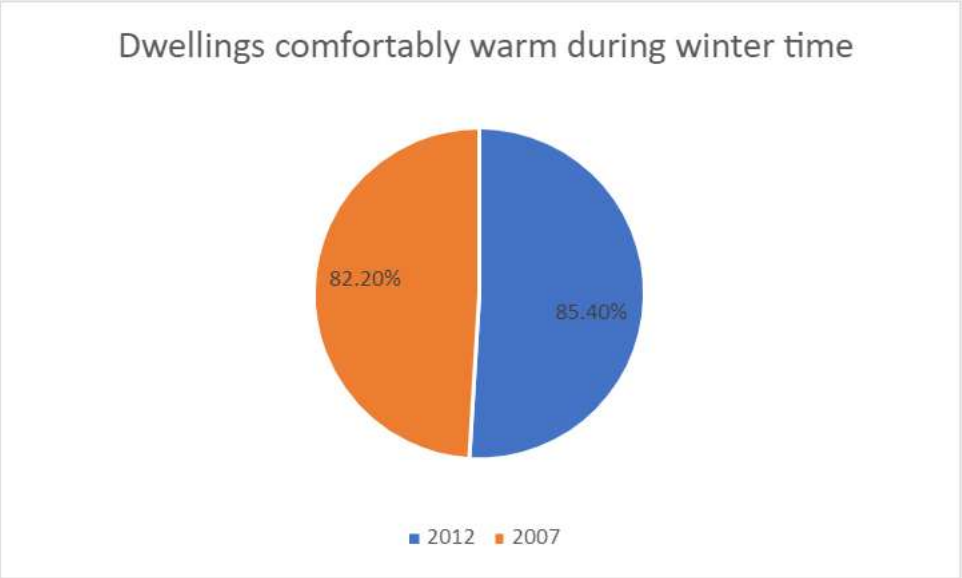
The Italian population overall struggles to keep their homes comfortably cool during the summertime no matter the quintile, which ranges from above 60% for first quintile to over 80% for the fifth quintile, showing that a high majority of the population struggles to keep their homes cool during high temperatures.

Figure 44: Dwellings comfortably cool during summer. Source: Eurostat



In contrast, it is much easier for Italian households to keep their home warm in wintertime. With 82% in 2007 and 85% in 2012.

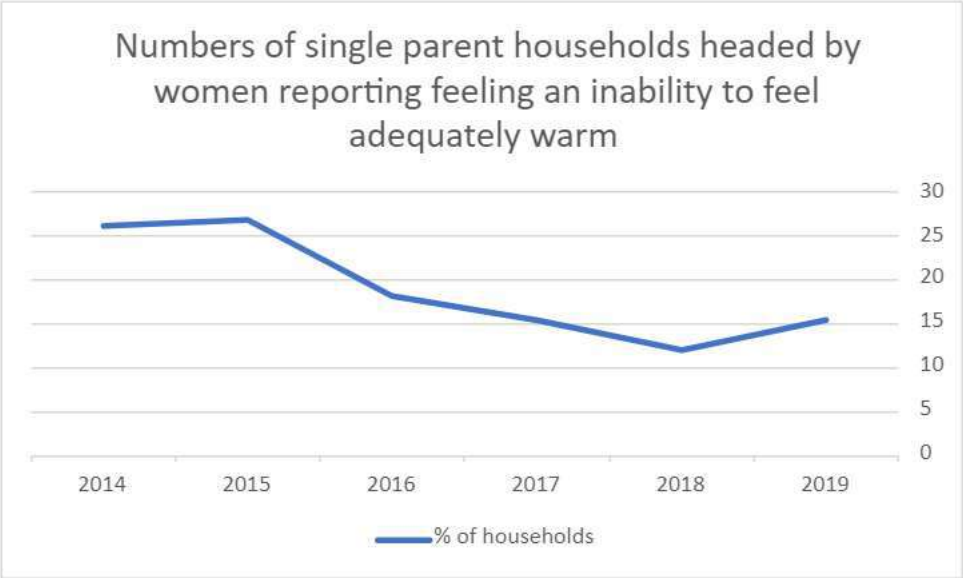
Figure 45: Percentage of dwellings comfortably warm in winter. Source: EPOV



Research has shown that women tend to feel colder than men, therefore data has been collected showing that single women managed to keep warm in their homes a lot more. The percentage of

women not being able to keep their homes warm decreased by 10%, from over 25% in 2014 to 15% in 2019.

Figure 46: Single parent households led by women unable to keep warm. Source: Eurostat

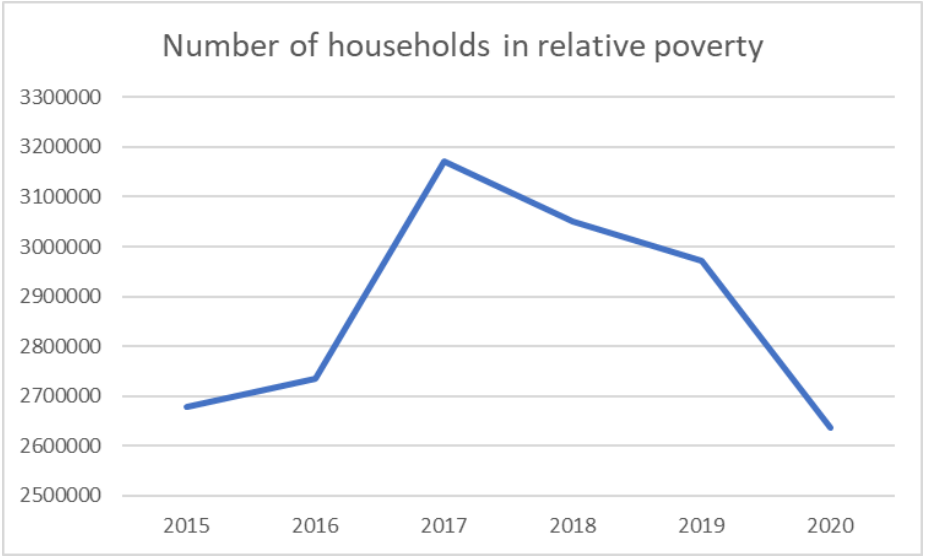


5.1.2 Social and economic poverty

5.1.2.1 Household income and expenses

The number of households in relative poverty has not gone below 2,500,000 between 2015 and 2020, it has gone up over 3,000,000 in 2017 but has gone back down to 2,637,000 in 2020, showing that the same number of households have remained at high risk of poverty in the last five years. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020, that being 96.5 million people.

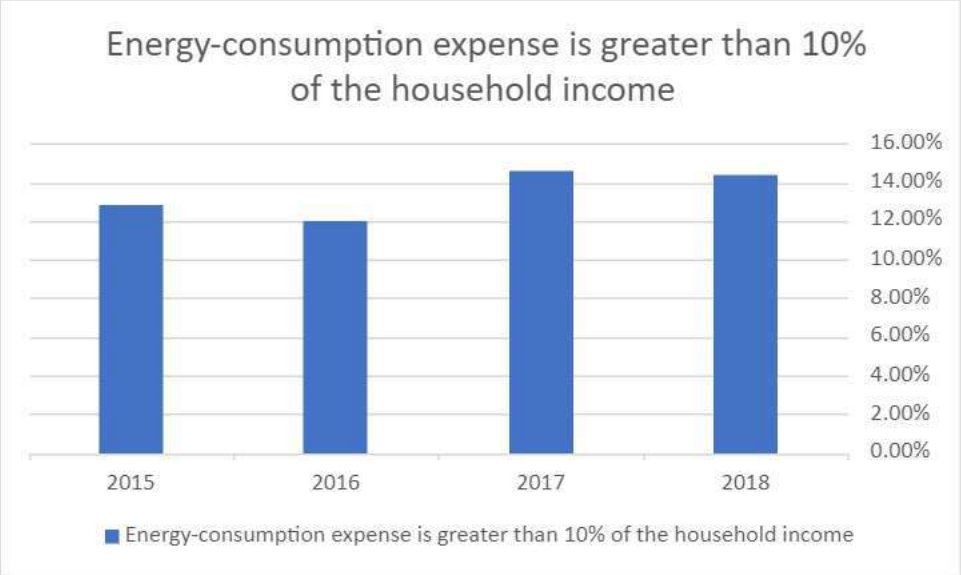
Figure 47: Number of households in relative poverty. Source: ISTAT



5.1.2.2 Identify households that cannot afford energy due to low income

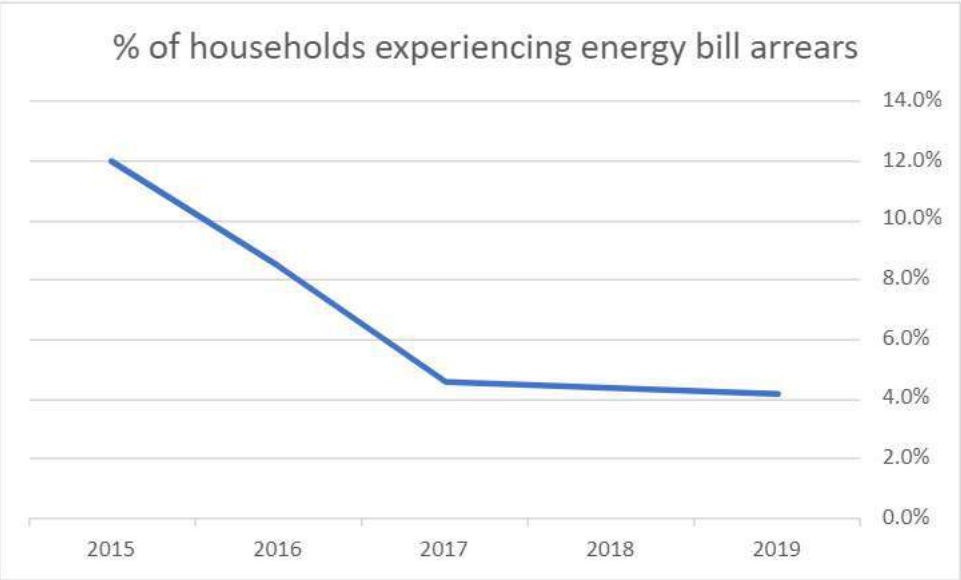
The number of households facing energy consumption expenditures higher than 10% of their income was of 13% in 2015. Households at this risk have increased by 1% since then in 2018.

Figure 48: Energy expenses are higher than 10% of household income. Source: ENEA



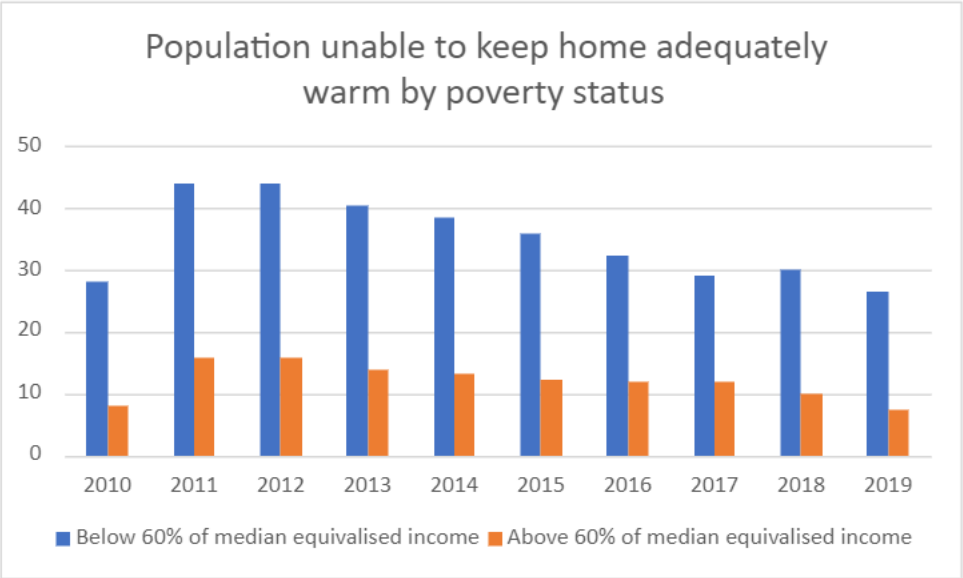
The percentage of households experiencing energy bills in Italy has widely decreased over the years, it used to contain 12% of households and decreased to 4% in 2019, decreasing three times lower in five years.

Figure 49: Percentage of households with energy bill arrears. Source: ISTAT



The following graph demonstrates how it is much more difficult for households below the 60% median income to keep their homes comfortably warm, although it has decreased over the years, there is still an important gap between the population depending on income, showing energy poverty is present when being unable to heat one's home due to income.

Figure 50: Population unable to keep home warm by poverty status. Source: Eurostat

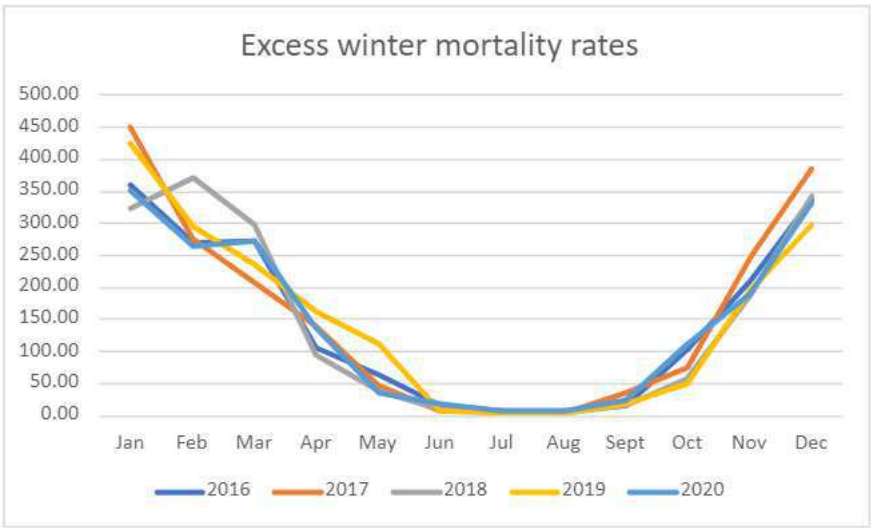


5.1.3 Wellbeing and health

5.1.3.1 Household health and wellbeing

Winter mortality was at its peak in 2017, with 450 deaths in January and 385 deaths in December, being the highest numbers between 2016 and 2020.

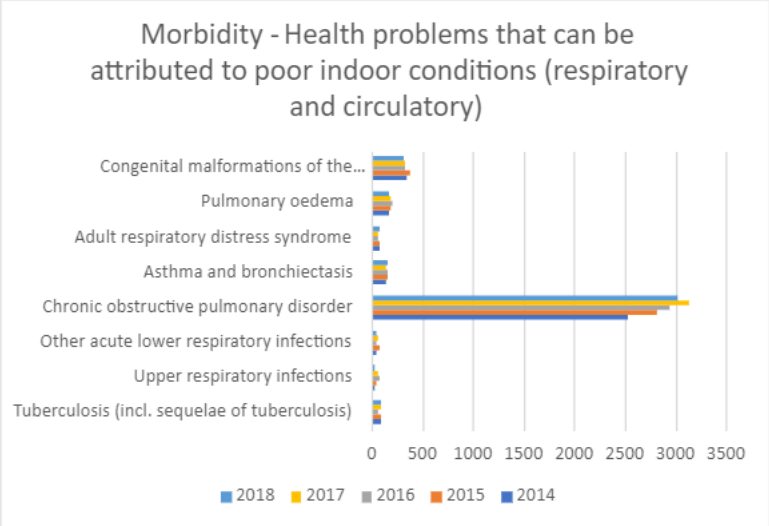
Figure 51: Excess winter mortality rates. Source: Eurostat



Poor indoor conditions mostly lead to chronic obstructive pulmonary disorder, it has been the strongest health problem from 2014 to 2018 related to poor indoor conditions in Italy affecting

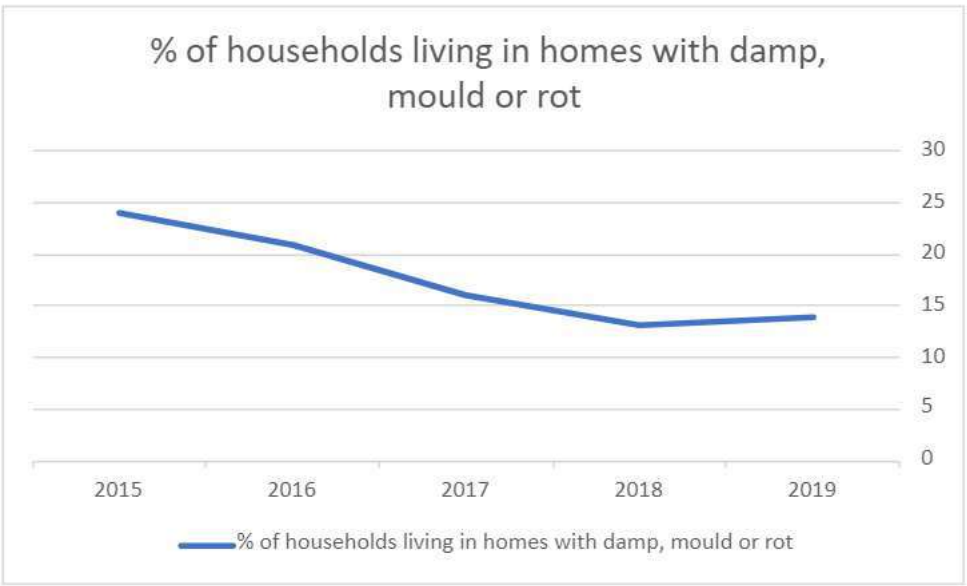
around 3,000 citizens, followed by congenital malformation of the circulatory system (around 350 citizens average).

Figure 52: Health problems that can be attributed to poor indoor conditions. Source: Eurostat



The percentage of households living in homes with damp, mould or rot has decreased between 2015 to 2019, starting at 20% to under 15%.

Figure 53: Percentage of households living in homes with damp, mould or rot. Source: Eurostat



5.2 Review of energy policies focused on low-income and vulnerable groups

5.2.1 Past measures

In the part there has been no clear definition of energy poverty in Italy, and as such, there is limited clear data surrounding the number of people experiencing energy poverty in the country. For this reason, the measures affecting low-income groups in Italy are currently still being applied or will be altered to better suit the needs of vulnerable groups in the future.

5.2.2 Measures currently (or recently) implemented

Italian policy measures target solely or also socially vulnerable groups. These are mainly characterised as follows:

- **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**
- **Covenant of Mayors**
- (some) **disconnection protection measures** (reduction of available power);
- **Subsidies to low-income families**, and
- **EU-funded Projects** linked to energy poverty carried out in Italy (SMART-UP, ASSIST, LEMON, PADOVAFIT!, PADOVAFIT EXPANDED, ENERSHIFT, ENPOR, SER, GreenAbility, GreenRoad)

National and local measures focused on financial assistance for reducing the energy bills

The electricity and gas bonuses are a form of a bill discount which is provided to low-income families and, in case of the electricity bill discount, also to families with one of their members relying on life-saving medical equipment.

According to the Italian NECP[26] in 2018 "the total amount granted for the electricity bonus was around 120 million EUR, and around 64 million EUR for the gas bonus. Between the launch of the mechanism and 31 December 2018, around 2.9 million families benefited at least once from the electricity bonus and around 1.8 million families benefitted from the gas bonus. In both cases, these values have ample room for growth: the ratio of families effectively subsidized to those who might still benefit from the bonuses is between 30% and 35%, according to ARERA." Because of this gap, the government introduced a decree (Article 5(7) of Decree-Law No 4 of 20 January 2019) which removed the need to apply to obtain these types of subsidies. Beginning in January 2021, all social bonuses for economic hardship, including the electricity and gas bonuses, will be automatically recognized to eligible citizens and households. However, the bonusses are still quite low as they only cover around 25% of the average annual cost for vulnerable consumers. Possible improvement to the bonuses could lie in raising the income

[26] https://ec.europa.eu/energy/sites/ener/files/documents/it_final_necp_main_en.pdf

threshold for eligibility so that more families could receive financial aid. Moreover, since taxes and VAT on energy in Italy are high and apply indistinctively on vulnerable and non-vulnerable citizens, taxes could also be changed.

ELECTRICITY BONUS

The electricity bonus is a discount on the bill, introduced by the Government and made operational by ARERA with the collaboration of municipalities, to ensure savings on electricity spending for families in conditions of economic and physical hardship and for large families. The conditions necessary to be entitled to the bonus are:

Economic hardship:

- *Families whose ISEE (equivalent financial situation index) is not exceeding 8.265,00€;*
- *Large families (with more than 3 dependent children) whose ISEE is not exceeding 20.000,00€;*
- *For holders of Citizenship Income (reddito di cittadinanza) or Citizenship Pension (pensione di cittadinanza).*

In 2021, in case of economic hardship the bonus amounted to: 128 EUR (family of 1-2 components); 151 EUR (families of 3-4 components); 177 EUR (families with more than 4 components).

Serious health conditions (physical discomfort):

- *For cases in which a serious illness forces the use of essential medical equipment powered by electricity.*

The bonus in this case depends on the power needed (below and above 4,5 kW) and on the amount of electricity used (below 600 kWh/y, between 600 and 1200 kWh/y, and more than 1200 kWh/y). In 2021 the bonus varied between 189 EUR and 676 EUR per year.

GAS BONUS

The gas bonus is a discount on the bill, introduced by the Government and made operational by ARERA with the collaboration of municipalities, to ensure savings on energy expenditure for families in conditions of economic hardship and for large families.

Amount of the bonus for domestic clients (€/year)	***2021***					
	Climatic zone					
	A	*B*	*C*	*D*	*E*	*F*
Families up to 4 components						
Hot water	*30*	*30*	*30*	*30*	*30*	*30*
Hot water and heating	*67*	*67*	*83*	*109*	*136*	*170*
Families with more than 4 components						
Hot water	*46*	*46*	*46*	*46*	*46*	*46*
Hot water and heating	*93*	*93*	*121*	*157*	*192*	*245*

On top of the national instruments listed and described above, some local and regional authorities provide additional support to vulnerable consumers for heating expenses. Some examples include Schio, Montagnana, Ivrea, and others.

National programmes for improving the energy efficiency of households

As regards the measures for improving the energy efficiency of households, Italy has a complex system of tax discounts that varies depending on the type of intervention:

50% tax reduction – ECOBONUS: this is valid for generic renovation works (not specifically targeting energy efficiency) and for the pose of solar screens, winter air conditioning systems with heat generators and replacement of winter heating systems

with class A fossil fuel boilers, without a co-generation system. The maximum deductible amount is 96,000.00 EUR (with lower ceilings for each intervention type).

65% tax reduction – ECOBONUS: this is valid for energy efficiency related renovation works, and it is related to a number of interventions including: thermal insulation, change of boilers with at least co-generation or heat pumps, micro-generation, PV systems, automation systems, etc. The maximum deductible amount is 100,000.00 EUR (with lower ceilings for each intervention type)[27].

110% tax reduction – SUPERBONUS 110: this is a temporary push for renovation of buildings, introduced in 2020 and lasting until 2023. It can only be used for deep renovation, as it foresees at least one "driving" measure, which can be accompanied by "driven" ones. Some driving measures are complete insulation (coating and windows) of the house, substitution of heating systems and/or anti-seismic measures. Driven measures can be other energy efficiency interventions, EV recharging structures, PVs, etc[28].

The three measures mentioned above are not explicitly targeted towards vulnerable groups and/or those experiencing energy poverty. However, the Budget Law for 2018 introduced the possibility for consumers to reassign credit to construction companies or banks (with a cost which is usually 10% of the value, making EE measures cost-free for consumers in case of Superbonus 110%). The same applies for social housing companies.

The above-mentioned national programmes are great on paper, especially the Suberbonus which has been designed for people who have no collateral and therefore cannot deduct the bonuses from taxes, however they are often too complex in reality. Often, they work in the case of social housing or condominiums where a few families who could not cover their upfront benefit if their housing associations apply for the bonus. However, energy poverty almost always means poverty in general, which in most cases includes poverty of information. Poor families are not properly informed about these bonuses, and even if they are, they do not believe in them as they may think it is impossible for the government to pay for the retrofitting of their houses. There is also the additional hurdle of high complexity meaning that many refrain from even starting the process. For those few who do embark on their renovation journeys, the initial costs of consultants and energy audits (around 1,000 EUR) are already discouraging. Finally, due to the rise in the price of raw material during the pandemic and economic contingencies, the risk that consumers need to bear often seems too high.

National and local programmes on grants and tax reduction

Two tax reduction schemes exist in Italy: the first reduces the excise due for the first 150 kWh of electricity consumed per month by Italian families in case of main residence and up to 3 kW of power[29]; the second one is for the price of fuel used for heating in Sardinia, small islands and in

[27] https://www.agenziaentrate.gov.it/portale/web/guest/schede/agevolazioni/detrazione-riqualificazione-energetica-55-2016/cosa-riqualificazione-55-2016
[28] https://www.agenziaentrate.gov.it/portale/web/guest/superbonus-110%25
[29] https://www.servizioelettriconazionale.it/it-IT/tariffe/costo-fornitura/tabella-imposte-energia-elettrica

mountainous areas not reached by the national gas grid[30]. A national grant is also available for small scale interventions on energy efficiency and renewable thermal energy: conto termico. Conto termico can be granted to individuals (also through an ESCO) or public authorities, in which the flat grant amounts to 5,000.00 EUR. However, conto termico works primarily for public administrations as citizens are not informed enough about this measure. In addition, they fear there are eligibility risks related with the bonus, as they would need to cover upfront costs believe they will not be reimbursed, meaning they tend not to use it.

National Training and Information programme

Within the framework of the Italian National and Information Programme, an awareness raising campaign has been designed aiming at boosting behavioural changes, encouraging a more sustainable use of energy, interaction with building technologies in refurbished houses, and targeting vulnerable consumers and communities of citizens. Activities carried out with the "Italia in Classe A" campaign ended in 2020.[31] A new national EE program for information and training actions has been issued with dlg 73/2020 art. 12, which is intended to end in 2030 and has a 9 million EUR budget every three years. The new program is included in the National Recovery and Resilience Plan, part of the Next Generation EU, under 1.1 Mission 2, Component 3, and will be implemented by ENEA in cooperation with GSE. Targets of the programme are large companies and SMEs, professionals, operators promoting EE, multifamily building managers and related trade associations, public administration, banks and financial institutions, students, all level education teachers, citizen, consumers and "multiplier effect subjects", as well as the low income population. Its main features are continuous dialogue with stakeholders and graduality, flexibility in monitoring and cross-checking results, and being a multimodal program including measures relating to education, training, information, awareness-raising, and behavioural change. The program also funds research activity on communication instruments and multidisciplinary approaches in inspiring behavioural change in individuals.

Covenant of Mayors

In the context of the Covenant of Mayors, measures specifically dedicated to energy poverty alleviation are not yet evident, even if many of the actions included in SEAP/SECAP indirectly contribute to this objective. At the national level, only two signatories specifically refer to "energy poverty" actions in their SECAP at the moment.

Disconnection protection (reduction of available power)

In case of lack of payment of electricity bill, if the meter allows, the provider can reduce the available power to a level equal to 15%, thus allowing for minimum use. Unless a power increase has been made, traditional contracts provide that the electricity meter can reach a maximum power of 3.3 kW. This means that, in the event of a reduction of available power, the consumer should still have 495 W available. This measure is only temporary, as if the debt is not paid within 40 days the seller can ask the distributor to disconnect the user from the grid[32]. This applies to all citizens and is not reserved solely for vulnerable consumers, and gives various possibilities after the power is reduced, which can occur when a bill is overlooked or not

[30] https://energasq8.it/zone-non-metanizzate-le-agevolazioni-per-il-gpl/
[31] More infomartion can be found at www.italiainclassea.enea.it
[32] https://www.arera.it/atlante/it/elettricita/capitolo_6/paragrafo_4/domanda_2e.htm

received. Consumers may have the option of paying bills, dividing the payment into instalments, or receive aid from the energy provider to meet the conditions for the electricity bonus.

Subsidies to low-income families: citizenship income and citizenship pension

Unrelated to energy but worth mentioning is the introduction in Italy of citizenship income (CI) and citizenship pension (CP), starting from March 2019 (Legislative Decree 4/2019). The CI is a measure to fight poverty, combining economic support to a training support aimed at reintegrating the recipient on the job market. If all members of the family are 67 years of age or older, or if there are also people under the age of 67 in the family in a condition of serious disability or non-self-sufficiency, it assumes the name of CP. Citizenship Income is paid to families who, at the time of submitting the application and for the entire duration of the benefit, are in possession of certain economic, citizenship and residence requirements. The benefit is provided through an electronic payment card, the Citizenship Income Card and is conditional on adherence to a path of accompaniment to work and social inclusion which, due to the characteristics of the beneficiaries, provides for the signing of the Declaration of Immediate Availability for Work (DID) and the Pact for work at the Employment Center, or the Pact for social inclusion at the social services of the municipalities[8]. Notwithstanding the name, residence permit holders and individuals under international protection are eligible for it. Starting in 2021, the electricity and gas bonuses are automatically dispensed to beneficiaries of CI and CP.

Italian National Energy and Climate Plan (NECP)

Together with the measures already in place and described above, the Italian National Energy and Climate Plan lists a number of measures, which the government intends to prioritize in order to fight energy poverty. In particular, these are:

6. setting up a National Observatory of Energy Poverty;

6. reviewing the existing instruments, in particular the electricity and gas social bonuses;

6. subsidies for low income families;

6. putting in place a programme for making social housing buildings more energy efficient.

Although the national observatory of Energy Poverty has not yet been set up by GSE, the research community autonomously established in 2019 the Italian observatory on Energy Poverty (Osservatorio Italiano sulla Povertà Energetica[33]). In October 2021, the observatory counts almost 60 members, coming from:
Italian Universities: Brescia, Bocconi, Bologna, Calabria, Cattolica, IMT Lucca, Florence, Naples Federico II, Palermo, Padua, Politecnico of Milan, Turin, Tuscia, Trieste;
Foreign Universities: Institute for Research in Technology (IIT), Universidad Pontificia Comillas, Madrid; EFPL LESO-PB, Lausanne, Université Côte d'Azur of Nice;
Research Centers: ENEA, Di Vittorio Foundation, Bruno Leoni Institute, GSE, RSE;
Public Institutions: ARERA, ACER Reggio Emilia, Bank of Italy, EURAC, ISTAT, Ministry of Economic Development;

[33] http://oipeosservatorio.it/chi-siamo-2/

NGOs and private entities: Modena "open door" association, Padua volunteer service center, Lanza Padova Foundation, Fratello Sole, AISFOR, Next Energy Consumer, SOGESCA, Salvini e Soci law firm.

Existing instruments, especially the gas and electricity bonus, are already under revision. As described above, starting in 2021, the bonuses are automatically recognized to eligible citizens and households, without having to submit an application. Moreover, the government is working to broaden access of families in living in economic or physical hardship with additional automated mechanisms, such as the one with the national institute for social security. Moreover, as mentioned in the NECP, the intention of the government is of "replacing the current electricity and gas social bonuses with a new 'energy social bonus', and adjusting the benefit on the basis of the Equivalent Economic Status Indicator (ISEE) and the number of household members; the benefit will be, at most, equivalent to three months' energy costs (these consisting of both electricity and heating costs) – ideal for covering heating costs (during the winter) or air-conditioning costs (during the summer). With reference to the bonuses for physical hardship, households with very low ISEE scores will be directly provided with highly technologically efficient equipment that will make application of the bonus more functional and concrete".

By strengthening the "conto termico", higher subsidies can be introduced for the installation of PVs covering up to 100% of the cost for households on low incomes. Moreover, the government is planning interventions for those affected by exceptional circumstances (e.g. suspension of energy bills for families affected by earthquakes).

Finally, the government is looking into launching a large-scale programme for making social housing more energy efficient.

EU-funded projects supporting the alleviation of energy poverty

In addition to what listed above, some EU-funded projects are also active in Italy to support vulnerable groups. Some examples are(non exhaustive list):

SMART-UP (https://www.smartup-project.eu/): The SMART-UP project encourages the active use of smart meters and in-home displays by vulnerable consumers to change their energy behaviour. Social workers and other frontline staff have been trained to advise and empower vulnerable households to become more energy efficient. The target is to engage 5,000 vulnerable households in total.

ASSIST (http://www.assist2gether.eu/): This project tackles energy poverty by creating specialised services through energy advisors. Selected energy advisors are given training, so that they can provide vulnerable consumers with advice and guidance on household energy efficiency, including efficient behavioural changes. 750 vulnerable consumers per country in 6 countries will be addressed with specific actions to reduce their energy consumption and an additional 2,000 vulnerable consumers will be provided with specific energy efficiency advice through the ICT platform of the network.

LEMON (http://www.progettolemon.it/): This project targets the energy retrofit of private and public dwellings in the social housing sector of two regions of Emilia-Romagna by establishing an innovative financing approach, which applies an energy performance contracting (EPC) model combined with a new "green lease" concept based on the improved energy performance of the housing units (Energy Performance

Tenancy Agreement - EPTA). It envisages to trigger sustainable energy investments of €15.29 million in 622 dwellings.

PADOVAFIT! (http://www.padovafit.it/english/): Around 2,000 dwellings have participated in signing a contract for retrofitting works, resulting in 4,850 tCO2e/year of avoided GHG emissions, 15,200 MWh/year of primary energy savings, and 2,300 MWh/year of renewable energy produced.

PADOVAFIT EXPANDED (https://www.padovafit.eu/it/home.html): PadovaFIT Expanded aims at creating and piloting a One-Stop-Shop dedicated to home renovation services in the city of Padova (Italy) and to expand the process to the city of Timisoara (Romania) and to the cities of Smolyan and Vidin (Bulgaria). The concept is based on existing experiences of similar One-Stop-Shops motivating and supporting homeowners (demand side) as well as stimulating the supply sides, both technically and financially, to invest in energy efficiency.

ENERSHIFT (https://enershift.eu/): EnerSHIFT aims at launching €14.59 million of energy investments with the retrofitting of around 43 social housing buildings throughout the 4 provinces of Liguria. The scope of social housing in Italy is quite narrow and addresses the most vulnerable part of the population. Therefore project activities can be considered relevant for energy poverty.

ENPOR (https://www.enpor.eu): ENPOR aims to make energy poverty in the private rented sector (PRS) visible and test energy efficiency support schemes to address it, identifying energy poor tenants (and respective homeowners) as well as understanding and addressing their needs. To achieve this ENPOR is developing the Energy Poverty Dashboard, an online tool mapping energy poverty in Europe, and it is supporting the adaptation and implementation of 10 policies in 7 Member States tailored to the specific needs of the PRS, in order also to provide recommendations on how to integrate them into broader policy objectives.

SER (Social Energy Renovation: Maximizing social impact and boosting clean energy investments in the non-profit sector through de-risking, aggregation, and capacity building - https://www.ser4impact.eu/). SER was funded under the H2020 program and works towards increasing sustainable building renovations in the Third Sector thanks to an innovative tool that focuses on the ecological transition and the end of energy poverty. During the implementation of the project, a "de-risking" mechanism will be developed to reduce the risk associated with loans and facilitate access to credit for individuals with limited economic capacity. The mechanism will include the analysis and technical standardization of projects for energy retrofitting. The projects will be aggregated and subjected to a social impact assessment. Interested investors have the opportunity to access safe, effective investments, in line with ESG criteria whereas social enterprises to carry out 'green' restructuring 'at affordable prices, with the necessary technical assistance. In Italy, a group of sustainable restructuring in the non-profit sector will be promoted, with a further possibility of replicability in Bulgaria and France, and informative round tables in Germany, the Czech Republic, Slovakia, and Poland. The advantages of the SER project go beyond energy saving as it will stimulate an inclusive and green post-COVID recovery, and give support to the Third Sector Entities, enabling the allocation of resources to invest in social activities.

GreenAbility (Green Abilities to tackle social issue - http://www.fratellosole.org/erasmus-greenability/): The GreenAbility project aims to identify of the most critical energy poverty issues which have a direct or indirect impact

on life quality and wellbeing of poor households and disadvantaged people and of their level of social inclusion. The project provides to beneficiaries (managers of TSOs, social workers, caregivers, volunteers) approaches, best practices and expertise included in two toolkits containing an array of solutions through a specialized educational activity adopting a correct and non-technical language, applicable to their work. The GreenAbility partnership will develop ready-to-use solutions which can bring results and social and environmental benefits and support to Third Sector Organizations in their work to face a social problem which is right in the agenda of all European countries and its strictly related to social inclusion and to other urgent matters like climate change and environment protection

GREENROAD (www.greedroadproject.eu): The project aims at facilitating the dialogue between Italian public and private key actors on financing issues related to energy efficiency in the existing and new buildings sector and fostering collaboration, innovation and action through the establishment of a permanent national roundtable and connected events at local level. Through these fora, energy poverty will be discussed and recommendations on which are or could be the most appropriate financial instruments for energy-poor households will be drawn.

Reaction to Current Rising Costs of Electricity

In the last quarter of 2021, the VAT on the use of natural gas will drop to 5% for civil and industrial uses which were at 10% and 22% depending on consumption. Italy will also allocate 450 million EUR to strengthen the 'social bonus' on bills for families in economic difficulty and with serious illnesses.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
All types of heat pumps	→	Tax rebates subsidize 65% to 110% of the cost of a heat pump and can also become a discount at the point of sale. Using the Superbonus incentive, all costs can be covered upfront.
Solar thermal system	→	Tax rebates subsidize ≥110% of the cost of a system and can also become a discount at the point of sale. Using the Superbonus incentive, all costs can be covered upfront.
Gas and oil burners	→	A tax rebate of up to 110% of the costs of a gas boiler can be applied under certain circumstances. The normal tax rebate is 65% for gas and oil boilers. Using the Superbonus scheme, all costs can be covered upfront.

A total of 20% of heat is produced by renewable energy.

Response to gas price increase – fall 2021

As a response to the raise in fossil fuel prices (especially gas) in autumn of 2021, Italy is looking into the following measures:

using ETS revenue to finance price intervention;
freeze value-added tax levels on utility bill payments[34].

5.2.3 Forthcoming measures

Long term renovation strategy (LTRS)[35]

The Italian long term renovation strategy, as requested by the Governance Regulation (regulation EU 2018/1999), tries to identify possible paths to reach climate neutrality by 2050. In order to do so, a reference scenario was developed, taking into account not only the targets laid out in the Italian NECP, but also forecasts in terms of population and GDP growth produced by the national institute of statistics (ISTAT) and possible effects of climate change. Starting from the emission gap resulting from the reference scenario, the strategy elaborates solutions following three parallel paths: reduction of demand through energy efficiency and sustainable mobility; a change in the energy supply mix, where renewables play a crucial role; and CCS and CCU technologies.

In terms of demand reduction, the LTRS foresees that on top of what already planned in the NECP, Italy needs to concentrate its effort on three main pillars: renovation of the building stock (which needs to improve from the 0,9% foreseen in the NECP to around 2%, 80% of which should be deep renovation), shift to sustainable mobility and consumption reduction in industry. The plan foresees that the three objectives above need to pass through electrification (especially concerning heating and mobility) and requires attention to be given to circular economy in the field of waste, behavioural change of consumers, and others.

In the focus section on main decarbonization action for the civil sector, the list of measures include: biomass heating; electric and gas heat-pumps, solar thermal energy, high and low temperature district heating. In this sense, no particular attention is paid to vulnerable consumers or energy poverty.

Recovery and resilience plan (PNRR)[36]

As stated on the Italian Ministry of Economics and Finance's website "the Recovery and Resilience Plan presented by Italy envisages investments and a consistent reform package, with 191.5 billion EUR in resources being allocated through the Recovery and Resilience Facility and 30.6 billion EUR being funded through the Complementary Fund established by Italian Decree-Law No. 59 of May 6th 2021, based on the multi-year budget variance approved by the Italian Council of Ministers on April 15th. The total amount of funds envisaged amounts to 222.1 billion EUR. In addition, a further 26 billion EUR has been earmarked for the implementation of specific works and for replenishing the resources of the Development and Cohesion Fund by 2032,

[34] https://www.raponline.org/knowledge-center/responses-to-fossil-gas-price-volatility/
[35] https://www.mite.gov.it/sites/default/files/lts_gennaio_2021.pdf
[36] https://www.governo.it/sites/governo.it/files/PNRR.pdf

meaning that a total of 248 billion EUR will be available. In addition to these resources, there are also those made available by the REACT-EU programme, which will be spent in the years 2021-2023 in accordance with EU regulations. These funds amount to a further 13 billion EUR[37].

The plan is developed around three strategic axes (digitalization and innovation, ecological transition, and social inclusion) and has six missions, of which one is the "Green revolution and Ecological Transition", with 68.6 billion EUR allocated. Amongst other objectives, there is "an additional 50,000 more efficient private and public buildings for a total of 20 million square meters". Another mission is "education and research" with 31.9 billion EUR allocated, which includes "school renovations for a total of 2.4 million square meters". In terms of renovation of the private buildings stock, the plan explicitly mentions the Superbonus 110 as a measure which can have a large impact on vulnerable consumers such as the energy poor. The plan mentions that the Superbonus 110 will be valid for renovation works carried out by the end of 2023 (2022 for condominiums).

Energy poverty in Italy – some figures from ENEA

Italy does not have an official definition of energy poverty. However, the NECP states that it is "*understood to mean the inability to purchase a minimum energy basket of goods and services or a situation where access to energy services entails a diversion of resources (in terms of expenditure or income) higher than the socially acceptable level*".

	2016	2017	2018	2019
High energy expenses compared to income (2M) % of population whose income quote for energy expenses is more than double the national average	15,21%	14,86%	16,60%	15,43%
Low Income High Cost (LIHC) % of population for whom i) energy expenses is above national average; ii) income, aside for energy expenses, is lower than national average	3,64%	4,28%	4,38%	4,55%
10% indicator % of population whose energy expenses are more than 10% of income	12,82%	11,96%	14,58%	14,40%
Energy expenses, income quintile 1 (EEIQ1) % of energy expenses on the income of households of the 1st quintile	7,66%	7,88%	8,14%	8,20%
Low absolute energy expenditure (M/2)	16,76%	14,15%	14,69%	13,85%
Low Income High Cost-PNIEC (LIHC-PNIEC) % of population whose i) energy expenses is above national average; ii) income, aside for energy expenses, is lower than national average; and i) the percentage of population with no heating expenses; ii) value of total expenditures lower than national average	8,6%	8,7%	8,8%	8,3%

Main indicators of energy poverty on a national level [38]

[37] https://www.mef.gov.it/en/focus/The-National-Recovery-and-Resilience-Plan-NRRP/

[36] https://.efficienzaenergetica.enea.it/component/jdownloads/?task=download.send&id=453&catid=40%20&Itemid=101

TABLE 5: ITALY'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Agevolazioni per aree non monetizzate, Sardegna e isole minori/Tax reduction for heating in Sardinia and in mountainous areas/small islands**
Description and results	5% price reduction for LPG and oil for areas not connected to the national gas pipeline, including Sardinia and smaller islands (e.g. Lampedusa).
Start year	1999
Organisation	National Government
Target groups	Inhabitants of areas not reached by national infrastructure, Sardinia and smaller islands
Source	NECP https://ec.europa.eu/energy/sites/ener/files/documents/it_final_necp_main_en.pdf

Measure	**Ecobonus**
Description and results	This is a fiscal instrument which gives a tax credit between 65 and 50% for certain Energy Efficiency interventions. Administratively much easier than the Superbonus 110% (see below) and with less requirements. Important to note for those experiencing energy poverty is that credit can be reassigned to construction companies or banks.
Start year	2007
Organisation	National public funding
Target groups	No specific housing situation
Source	EPOV, NECP https://www.energypoverty.eu/measure-policy/electric-bonus

Measure	**Bonus elettrico/Electric bonus**
Description and results	The electric bonus is a measure to provide financial assistance to households to pay their electricity bills. Families wishing to access those social bonuses must have an income of less than 8,107.50 EUR (as per their Equivalent Economic Status Indicator), increased to 20,000 EUR for large families (with more than three dependent children). As well as these social bonuses, there is also an electricity bill discount available to people reliant on life-saving medical equipment (known as the 'physical ailment social bonus'), which is granted irrespective of income. It is automatically granted to people receiving the citizenship income (Article 5(7) of Decree-Law No 4 of 20 January 2019 (transposed in amended form by Law 26 of 28 March 2019)). In 2014, 933,000 persons received an electric bonus , while in 2018, the total amount granted for the electricity bonus was around 120 million EUR and around 2.9 million families benefited at least once from it.

Start year	2009
Organisation	National government
Target groups	Chronically/ severely diseased Low income households
Source	EPOV, NECP https://www.energypoverty.eu/measure-policy/electric-bonus

Measure	**Bonus gas/Gas bonus**
Description and results	The gas bonus is a measure to provide financial assistance to households to pay their natural gas bills. Families wishing to access those social bonuses must have an income of less than 8,107.50 EUR (as per their Equivalent Economic Status Indicator), increased to 20,000 EUR for large families (with more than three dependent children). Its amount varies as a function of the climatic zone and the type of use. It is automatically granted to people receiving the citizenship income (Article 5(7) of Decree-Law No 4 of 20 January 2019 (transposed in amended form by Law 26 of 28 March 2019)). In 2014, 625,000 persons received a gas bonus, while in 2018, the total amount granted for the gas bonus around 64 million EUR and around 1.8 million families benefitted from it.
Start year	2009
Organisation	National government
Target groups	Chronically/ severely diseased Low income households
Source	EPOV, NECP

Measure	**Conto termico/Heat account**
Description and results	This measure provides subsidies to companies and households for thermal improvements of housing resulting in around 900 million EUR per year (200 for Pas).
Start year	2012
Organisation	National Government
Target groups	Public administrations, ESCOs and citizens
Source	EPOV

Measure	**Super bonus 110%**

Description and results	This is a fiscal instrument which gives a 110% tax credit for certain interventions such as energy efficiency interventions, anti-seismic interventions, PV installations and infrastructures for recharging e-vehicles. It is valid for interventions carried out between 2020 and 2022 (2023 for certain categories as condominiums). Tax reduction amounts to 110% of the total intervention value. Important to note for those experiencing energy poverty is that credit can be reassigned to construction companies or banks (with a cost which is usually 10% of the value, making EE measures cost-free for consumers).
Start year	2020
Organisation	National public funding
Target groups	No specific housing situation
Source	Agenzia Entrate https://www.agenziaentrate.gov.it/portale/superbonus-110%25

Measure	**Reduction of available power**
Description and results	With certain meters, it is possible to lower the amount of power which can be used instead of disconnecting the household completely.
Start year	
Organisation	Regulator
Target groups	No specific housing situation
Source	EPOV

Measure	**Contributo economico per le spese di riscaldamento/Financial assistance for heating costs**
Description and results	Some municipalities provide financial support for heating costs of certain households.
Start year	
Organisation	Local Government
Target groups	It varies in each local context - generally severely diseased or low income
Source	EPOV

Measure	**Esenzione accisa per i primi 150 kWh di consumo/mese/Tax reduction for the first 150 kWh of electricity consumed per month**
Description and results	This results in a tax exemption/reduction for the first 150 kWh/month for the first residence and power less

	than 3 kW (for greater than 3kW it is a reduction and not an exemption).
Start year	
Organisation	National Government
Target groups	1st residence with less than 3kW power
Source	NECP https://ec.europa.eu/energy/sites/ener/files/documents/it_final_necp_main_en.pdf

Measure	**Riduzione IVA ristrutturazioni/VAT reduction for renovation**
Description and results	A VAT reduction applies for renovation works, including the replacement of heating systems.
Start year	
Organisation	National Government
Target groups	/
Source	EPOV

6. POLAND

6.1 Energy Poverty Status

6.1.1 Energy Efficiency

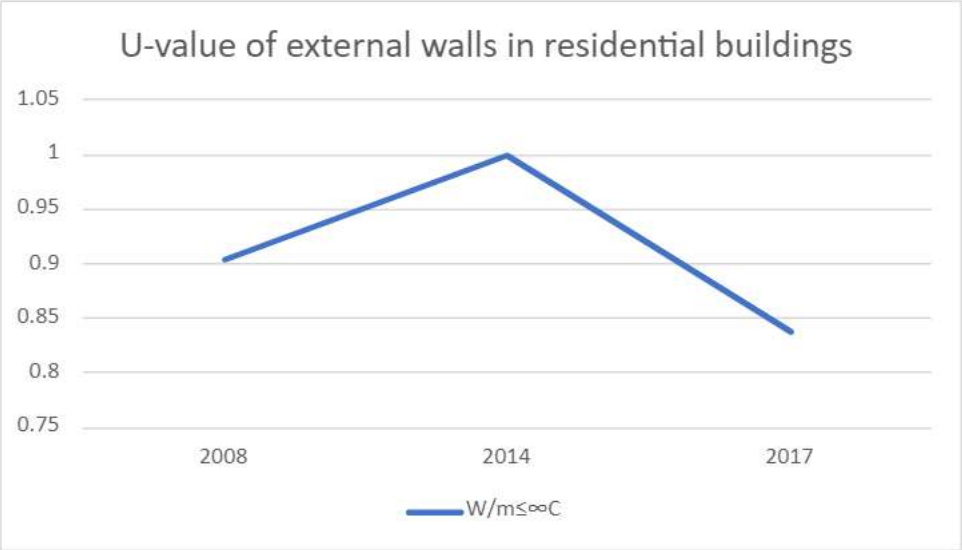
6.1.1.1 Thermal insulation

Insulated buildings provided considerable energy savings compared to uninsulated buildings in 2018, saving 17 kWh/m². (Source: Statistics Poland 2019-2020)

In insulated buildings	**152.78 kWh/m²**	**2018**
In uninsulated buildings	169.44 kWh/m²	2018

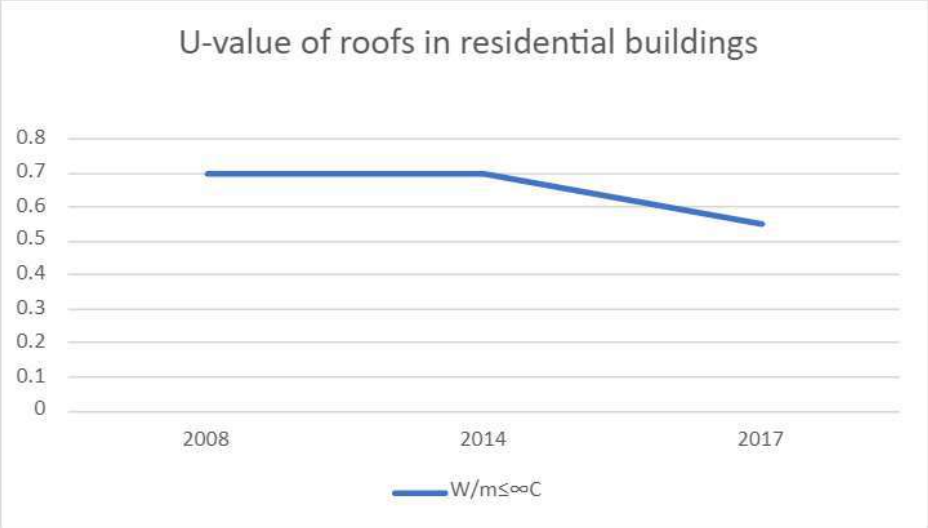
Furthermore, thermal insulation for roofs and walls has proven efficient between 2008 and 2017 as the u value decreased from 0.9 to 0.85 and from 0.7 to 0.5,5 for roofs[39].

Figure 54: U-value of external walls. Source: Buildings Observatory



[39] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

Figure 55: U-value of roofs. Source: Buildings observatory



6.1.1.2 Heating and cooling

Most cooling systems in Poland use by households are double (19%) or single (17%) boilers, followed closely by gas boilers (15%).

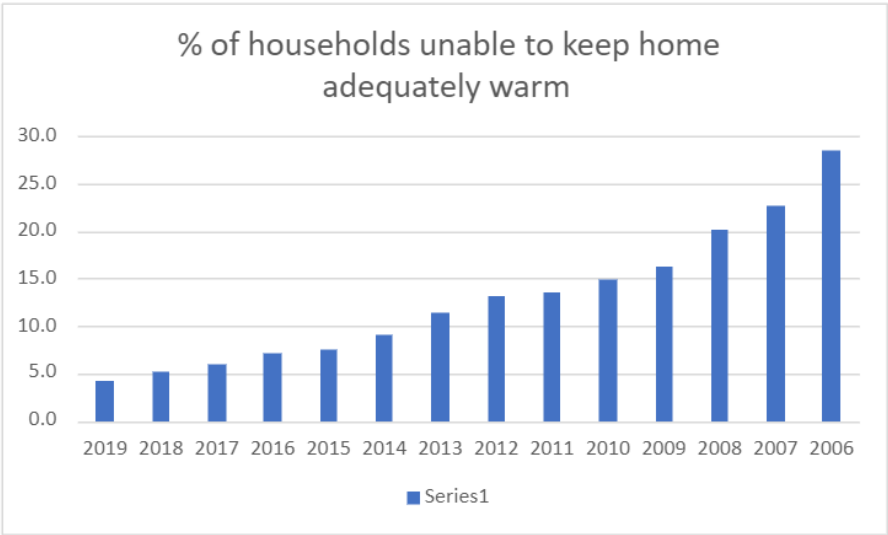
6.1.1.3 Ventilation

No data

6.1.1.4 Adequate temperature in winter and summer

The percentage of households unable to keep their homes adequately warm has constantly decreased over the years with 28.4% in 2006 to 4.2% in 2019.

Figure 56: Percentage of population unable to keep home adequately warm. Source: Eurostat



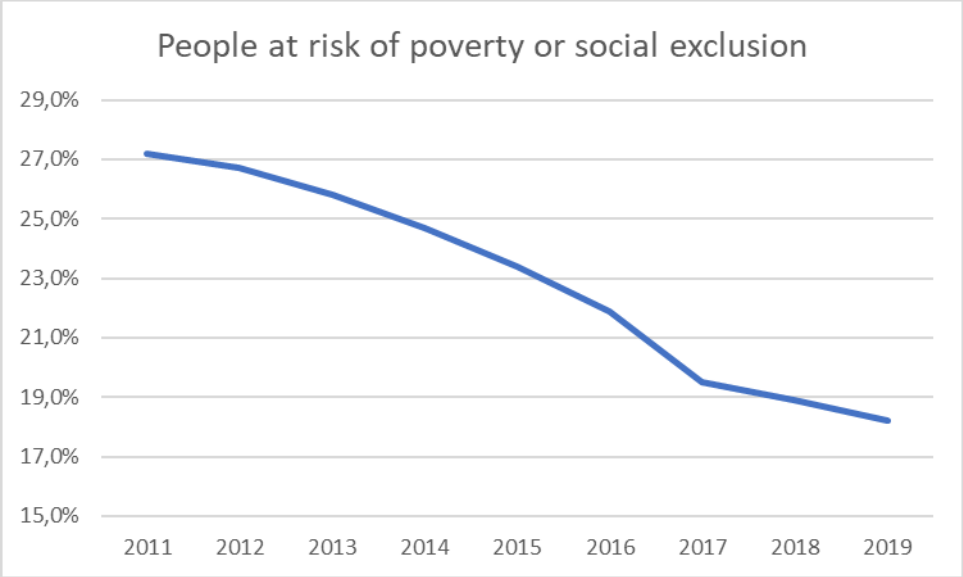
Moreover, 25.3% of dwellings were comfortably cool during the summer of 2012 and 40% of dwellings were comfortably warm in the winter of 2012.

6.1.2 Social and economic poverty

6.1.2.1 Relation between energy poverty and income poverty

The percentage of people at risk of poverty or social exclusion has decreased between 2011 and 2019, starting at 25.5% of the population down to 18%, the decrease has been constant over the years. Furthermore, Eurostat reported that in 2020, 96.5 million people in the EU were at risk of poverty or social exclusion; this was equivalent to 21.9 % of the EU population.

Figure 57: Percentage of population at risk of poverty pr social exclusion. Source: Eurostat



6.1.2.2 Identify households that cannot afford energy due to low income

A total of 46% households had energy consumption expenses greater than 10% of their household income in 2016, showing that almost half of the Polish population struggled with energy expenditures.

Moreover, households experiencing energy bill arrears has gone down by half since 2011 where 12.9% of households experienced arrears whereas in 2019 it was down to 5.8%, there was however the highest peak of 14.4% of households experiencing arrears in 2012.

6.1.3 Wellbeing and health

6.1.3.1 Household health and wellbeing

In the winter of 2017, 35,046 winter deaths were recorded. Moreover, the percentage of population living with a leaking roof, damp walls or rot on floors or window frames has decreased between IN 10 years, from 17% in 2009 to 11% in 2019.

Figure 58: Dwellings with a leaking roof, damp walls or rot. Source: Eurostat

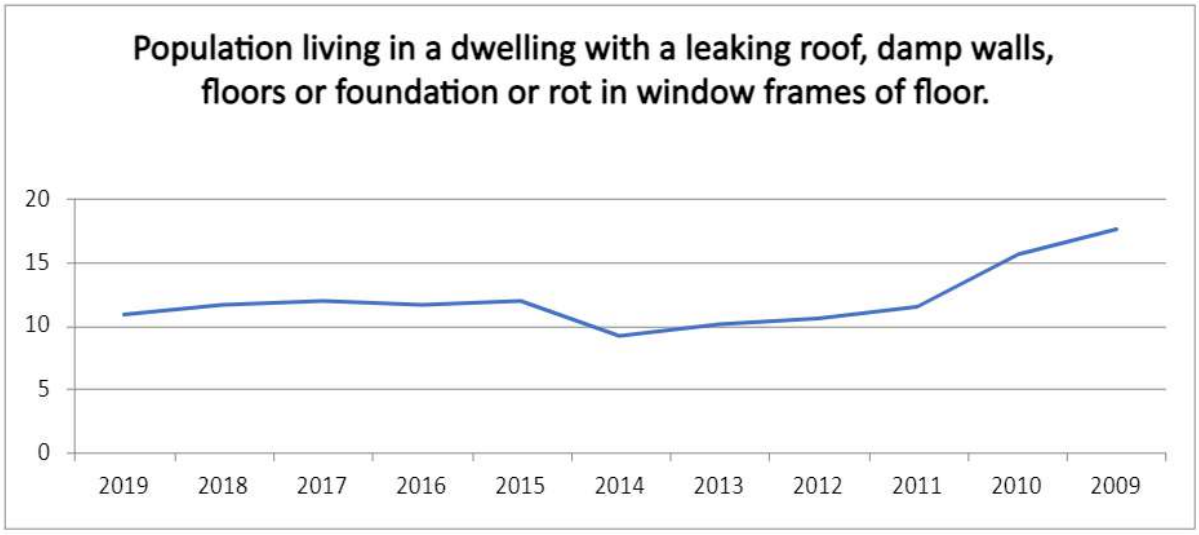


Figure 59: Winter mortality. Source: Polski Wegiel

6.2 Review of energy policies focused on low-income and vulnerable groups

6.2.1 Past measures

Tariff regulations for vulnerable consumers

Market regulations are uncompetitive as electricity prices remain the same, it is partially implemented this way in order to protect consumers from spikes in energy prices. As explained by the President of the Energy Regulatory Office:

“The regulation of tariffs was originally designed to protect consumers from arbitrary unjustified electricity price increases, imposed by monopolistic companies, unrestricted by any competition.”

“The deregulation of the market will be possible when protection of the most vulnerable customers is ensured, and continuity of services in emergency situations, such as the bankruptcy of a supplier, is provided for”.

Energy Allowance

The Energy Law of 26 July 2013 intents on protecting “vulnerable consumers of electricity” and “vulnerable consumers of gaseous fuels”, as Poland does not have an official definition for energy poverty, it targets specific vulnerable energy consumers.

“Vulnerable consumers of electricity” are granted a housing allowance within the Act on housing allowances of 21 June 2001. “Vulnerable customers of gaseous fuels” were introduced to allowances to purchase fuel under the Energy Law in 2019, known as the Vulnerable Consumer Protection System.

Both vulnerable consumer groups benefit from:

- installation of a prepayment metering and billing system
- protection against suspension of supplies
- option to terminate contracts without extra charge
- option to change the vendor of electricity or gaseous fuels
- access to the collection of consumer rights prepared by the President of URE together with the President of the Office for Competition and Consumer Protection

The energy allowance was given to 77,700 vulnerable consumers in 2020.

Special Purpose Allowance

The Special purpose Allowance was established in 2018. The allowance permits vulnerable citizens to meet the necessary living needs (food, medicines and treatment, fuel, clothing, necessary household items, minor renovations and reparations, funeral costs, etc.).

The polish Government extends this allowance to various situations:

- “Special-purpose allowance to cover expenses arising as a result of a for random event: this benefit may be granted to a person or family who has suffered losses as a result of a fornicious event. In this case, it can be granted regardless of income and may not be refundable.
- Special-purpose allowance to cover expenses related to a natural or environmental disaster: this benefit may be granted to a person or family who has suffered losses as a result of a natural or environmental disaster. In this case, it can be granted regardless of income and may not be refundable.”

The Special Purpose Allowance has since been extended and modified due to COVID-19 restrictions, providing businesses with financial help and employment security.

Anti-smog tariff

The Anti-Smog Tariff was put in place in December 2017 under the Ministry of Energy, in order to reduce heating one's home with oil or coal and switch to electric heating alternatives in order to improve air quality and prevent the smog created by oil and coal use. Every year, 48,000 Poles die prematurely due to air pollution. The government allocated PNL 100 billion for better air quality.

Therefore, electricity rates have been introduced to this tariff and are 30 to 50% lower than the G11 tariffs most commonly used in Poland. There are co-financing programs available for vulnerable consumers to replace their boilers.

6.2.2 Measures currently (or recently) implemented

Thermomodernisation and Renovation Fund

The Thermomodernisation and Renovation Fund was launched in 2008 and aims at providing financial assistance to improve energy efficiency of existing buildings through thermomodernisation renovations to existing buildings for better energy efficiency and savings. The goal is to achieve 700 total annual savings in 2030. One of the particularities of the fund in 2021 is that it includes municipalities in the implementation of thermomodernisation and enables them to target vulnerable consumers and give them access to these renovations, in order to reduce energy poverty. Over 31,000 bonuses were granted from the Thermomodernisation and Renovation Fund in 2009-2019. The total amount of support granted exceeded 1.7 billion PLN (around 370 million EUR) and covered 460,800 dwellings. Furthermore, the municipality has to provide its own contribution of at least 30%. The remaining contribution is provided by the Thermomodernisation and Renovation Fund (the State) by 70%. The program is taking place again between 2019-2024 and the budget is of 1.2 billion PLN (around 260 million EUR). Part of the fund contains a bonus for single dwelling residential buildings from 2021 to 2030, which is: "a tax relief aimed at creating an incentive for the thermal modernization of single-dwelling residential buildings through the personal income tax."

The Clean Air Program

The Clean Air Program was launched in 2018 and will end in 2029. One of its main objectives is to provide cleaner and more efficient heating in residential housing and improve general air quality and fight smog, as Poland has some of the most polluted cities in Europe.

Part of the program targets vulnerable electricity consumers that are given access to a flat-rate energy allowance, the allowance is specified each year by the Ministry of Energy and can vary depending on electricity consumption limits and average electricity prices for household consumers, giving vulnerable consumers easier financial access to cleaner energy sources.

Act on Energy Efficiency

The Energy Efficiency Act provides energy efficiency targets and obligations, including certificates for new heating systems, liquid fuels for transportation, etc. People will be able to register their energy savings to the Institute of Environmental Protection. As of April 2021, Multi-unit buildings will be required to install heat and remote water reading systems by 2027. The Act also includes the obligation of a "white certificate" and is considered the "key energy efficiency support mechanism in Poland" as it requires: "Energy companies selling electricity, heat or natural gas to final consumers are required to comply with a statutory obligation to complete an energy efficiency project at a final consumer or generate and present to the President of the Energy Regulatory Office (URE) for redemption a specific amount of final energy savings, as confirmed by a white certificate."

The Energy Efficiency Act includes the following measures:

1. Horizontal measures:

- 1) Energy efficiency obligation scheme (white certificates);
- 2) Operational Programme Infrastructure and Environment 2014-2020 (Measure 1.3.3 – Nationwide system of advisory support in the field of energy efficiency and RES for the public, housing and enterprise sectors);
- 3) Information and educational campaigns.
- Energy efficiency measures for buildings and public bodies:
- 1) PL04 Operational Programme – "Saving energy and promoting renewable energy sources" under the EEA Financial Mechanism in 2009-2014;
- 2) Green Investment Scheme – GIS. Part 5 – Energy management in buildings of selected public finance sector entities;
- 3) Green Investment Scheme – GIS. Part 6 – SOWA – Energy Efficient Street Lighting;
- 4) Operational Programme Infrastructure and Environment 2014-2020 (Measure 1.3.1 – Supporting energy efficiency in public buildings);
- 5) Operational Programme Infrastructure and Environment 2014-2020 (Measure 1.3.2 – Supporting energy efficiency in the housing sector);
- 6) Operational Programme Infrastructure and Environment 2014-2020 (Measure 1.7.1 – Supporting energy efficiency in residential buildings of the Śląskie Province);
- 7) Regional Operational Programmes for 2014-2020.

Reaction to Current Rising Costs of Electricity

On 22 October, Poland's Climate Minister submitted a bill aimed at shielding the most vulnerable 20% of households from the recent spike in energy prices, which will increase the number of beneficiaries of energy bills allowances and increasing their value by 6 months. If passed, the bill will also prohibit suspending the supply of electricity to vulnerable customers from November 1st to March 31st along with Saturdays or bank holidays. Additionally, the bill will introduce the concept of energy poverty into the Polish legal system.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
All types of heat pumps	→	The Program Czyste Powietrze scheme funds ≥30% of the costs in detached houses with an annual income of ≤ 100,000 PLN (around 22,000 EUR) through grants and tax reductions. The heat pump market in Poland is still small, with roughly 27.000 units sold in 2017.
Solar thermal system	→	The Program Czyste Powietrze scheme funds ≥30% of the costs in households with an annual income of ≤PLN 100,000 through grants and tax reductions.
Gas and oil burners	→	Despite not support coal heating, several subsidies for fossil schemes are available. Homeowners with an annual income of ≤PLN 100,000 can receive grants covering ≥30% of the costs which rises up to 60% for low-income households.
A total of 16% of heat is produced by renewable energy.		

6.2.3 Future policies for energy poverty

A future policy towards tackling and reducing energy poverty and protecting vulnerable consumers is solving the problem of energy poverty is planned to be developed.

TABLE 6: POLAND'S ENERGY POLICIES FOCUSED ON LOW INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**National support system for energy efficiency and RES**
Description and results	This project aims to support different stakeholders in Poland to improve energy efficiency by providing guidance and information. Advisors are available that can give households information on how to improve energy efficiency.
Start year	
Organisation	National Government
Target groups	No specific target group
Source	NECP http://nfosigw.gov.pl/o-nfosigw/doradztwo-energetyczne/informacje-ogolne/

Measure	**Energy allowance/Housing allowance**
Description and results	This measure provides financial assistance to households to pay their electricity bills.
Start year	2014
Organisation	National Government
Target groups	Low income household
Source	NECP Reports - Energy Regulatory Office (ure.gov.pl), 2021 edition

Measure	**Clean Air Program**
Description and results	The Clean Air Program provides financing to improve heating systems in households.
Start year	2018
Organisation	National Government
Target groups	Owners, occupants
Source	http://nfosigw.gov.pl/czyste-powietrze/o-programie-czyste-powietrze-/

Measure	**Thermomodernisation and Repairs Fund**
Description and results	The Thermomodernisation and Repairs Fund will be a policy measure that takes into account measures

	addressed to households affected by energy poverty.
Start year	2021
Organisation	National Government
Target groups	Households
Source	NECP, measure under Art7 EED https://www.bgk.pl/samorzady/fundusze-i-programy/fundusz-termomodernizacji-i-remontow/

Measure	**Special purpose allowance**
Description and results	This measure can be given in certain cases to meet basic needs, including fuel and energy expenses.
Start year	
Organisation	National Government
Target groups	Low income households
Source	https://www.gov.pl/web/rodzina/zaSILCi-celowe

Measure	**Act on Energy Efficiency**
Description and results	Policy to encourage energy savings.
Start year	
Organisation	National Government
Target groups	All
Source	(https://www.cire.pl/item,212281,1,0,0,0,0,0,rzad-przyjal-projekt-zmiany-ustawy-o-efektywnosci-energetycznej.html)

Measure	**Anti Smog Tariff**
Description and results	This measure was implemented to reduce fossil fuel use and have better air quality and offers financial help for low income households.
Start year	
Organisation	National Government
Target groups	All
Source	NECP Poland strives for anti-smog solutions to improve air quality - LIFA air (lifa-air.com)

7. PORTUGAL

7.1 Energy Poverty Status

7.1.1 Energy efficiency

7.1.1.1 Thermal Insulation

Thermal Insulation of walls in residential buildings has gotten better between 2008 and 2017, as the U-value[40] decreased from 1.44 to 1.26 in 9 years. The insulation of roofs has also proven more efficient between 208 and 2017, starting at 2.6 and decreasing to 2.2.

Figure 60: U-value of external walls. Source: Buildings Observatory

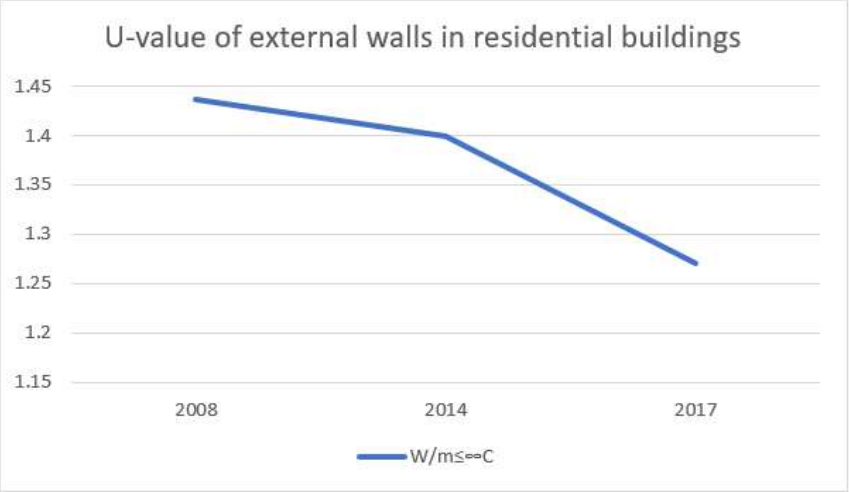
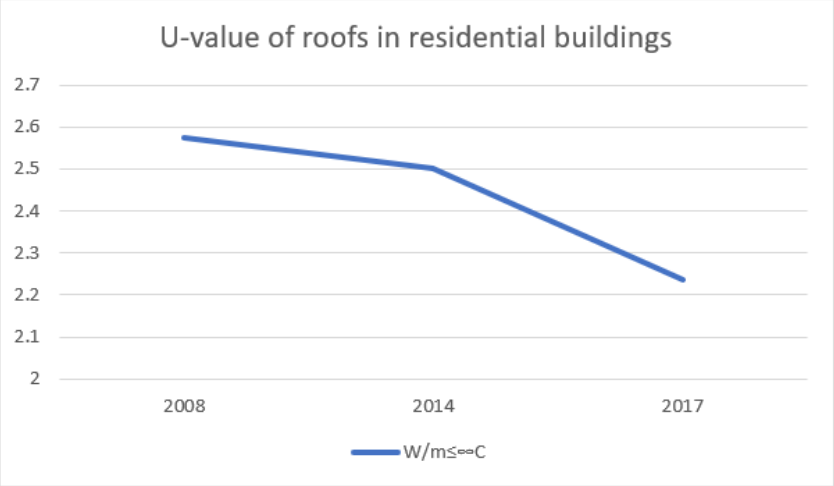


Figure 61: U-value of roofs. Source: Buildings Observatory.

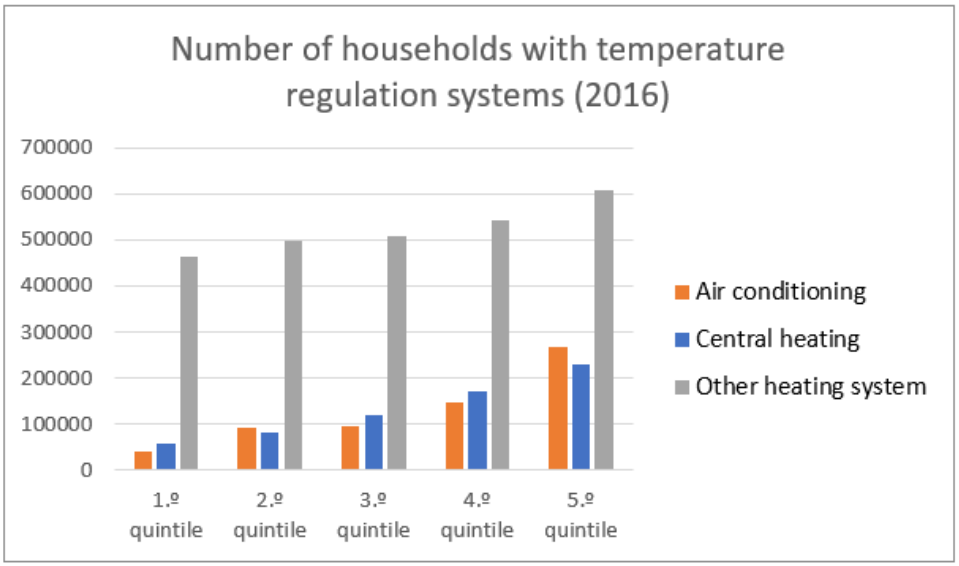


[40] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

7.1.1.2 Heating and cooling

Most temperature regulation systems come from water heating systems which involves almost 100% of households, while less than 20% of households have access to air conditioning or central heating.

Figure 62: Number of households with temperature regulation systems. Source: INE



7.1.1.3 Ventilation

Reference value of the air renovation rate per hour - 0.4 for the heating season (Gouveia and Palma, 2019)[41]

Table 1. Average heat transfer coefficient and solar factor before and after retrofit.

Building element	Average typology heat transfer coefficient (W (m^2·C)$^{-1}$) before the retrofit	Average solar factor (gT) before the retrofit	Average typology heat transfer coefficient (W (m^2·C)$^{-1}$) after the retrofit	Average solar factor (gT) after the retrofit
Walls	1.43	—	0.39 (−72.7%)	—
Roof	2.27	—	0.46 (−79.4%)	—
Windows	3.76	0.80	2.52 (−32.9%)	0.52 (−35.0%)

7.1.1.4 Adequate temperature in winter and summer

Households unable to keep their home warm in the winter has decreased from 2006 to 2019, going from 39.9% of households down to 18.9% in 2019, showing that the number of households vulnerable to keeping their home warm has split in half in 13 years.

However, Portuguese households have struggled to keep their homes cool in the summer as only 35.7% of households felt comfortably cool during the summertime.

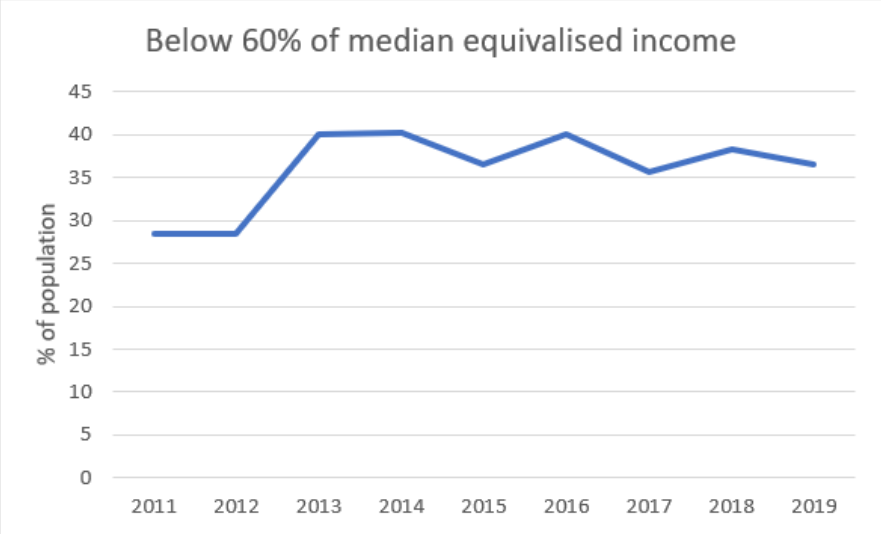
[41] Gouveia, J. P., Palma, P., & Simões, S. G. (2019). Energy poverty vulnerability index: A multidimensional tool to identify hotspots for local action. *Energy Reports*, *5*, 187-201.

7.1.2 Social and economic poverty

7.1.2.1 Household income and expenses

Households below the 60% median equivalised income has fluctuated over the years but experienced a very early peak between 2012 and 2013, going from 28% to 40% in just one year. And fluctuating between 40% to 35% in 2019, underlining that under half of the Portuguese population has income below 60% of the median equivalised income. Furthermore, Eurostat reported that 21.9% of the EU population was at risk of poverty or social exclusion in 2020.

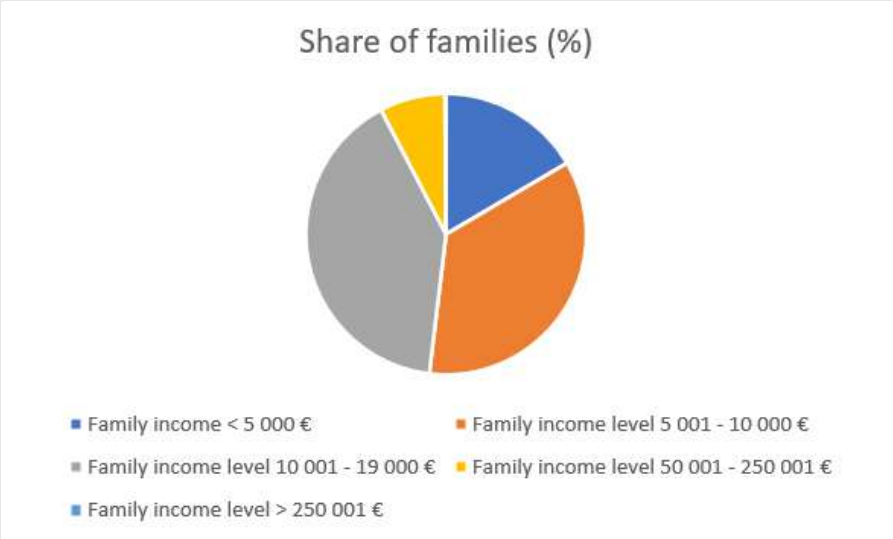
Figure 63: Percentage of households below 60% median income. Source: Eurostat



7.1.2.2 Relation between energy poverty and income poverty

Share of families/households in every of the income quantile is shown in the following figure:

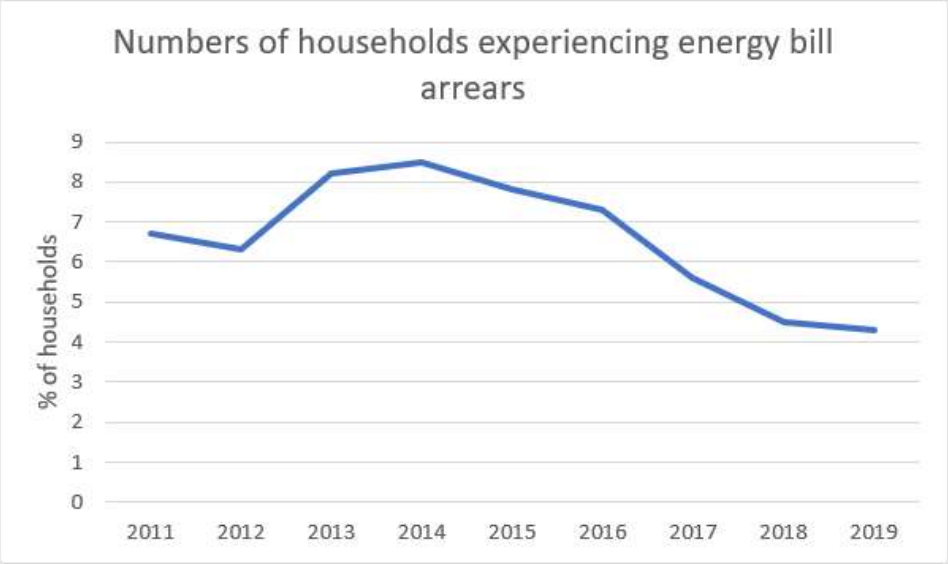
Figure 64: Share of families in income quintiles. Source: PORDATA



7.1.2.3 Identify households that cannot afford energy due to low income

The number of households experiencing energy bill arrears decreased in 2012 down to 6%, it was at its highest in 2014 at 8.5% and has since gone down to a little over 4% in 2019.

Figure 65: Percentage of households with energy bill arrears. Source: Eurostat

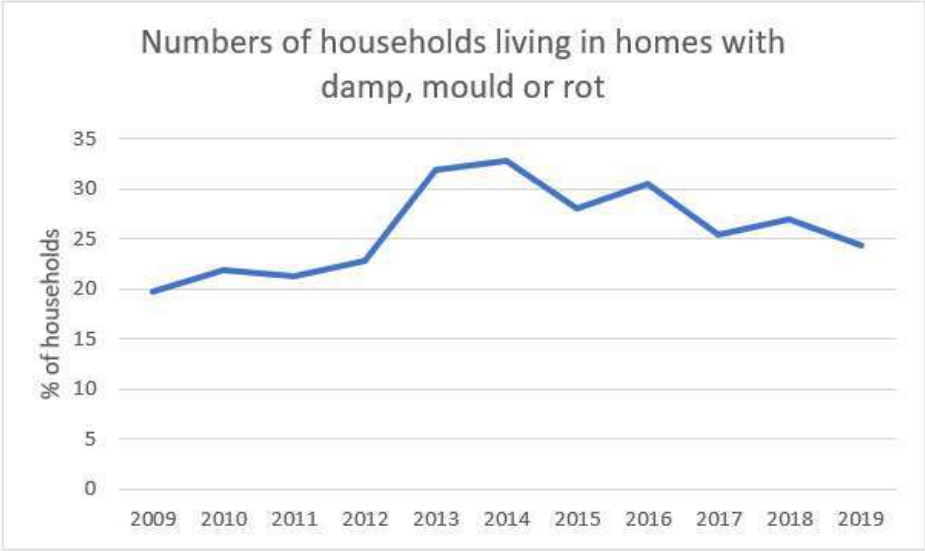


7.1.3 Wellbeing and health

7.1.3.1 Household health and wellbeing

The percentage of population living with a leaky roof, damp walls or rot has varied between 2009 to 2019, it increased up to 32.5% in 2014 and has gone down to 24% in 2019, but has experienced another peak of 30% in 2016, showing how conditions change every two years, but remain higher than in 2009 when it was at its lowest of 20%.

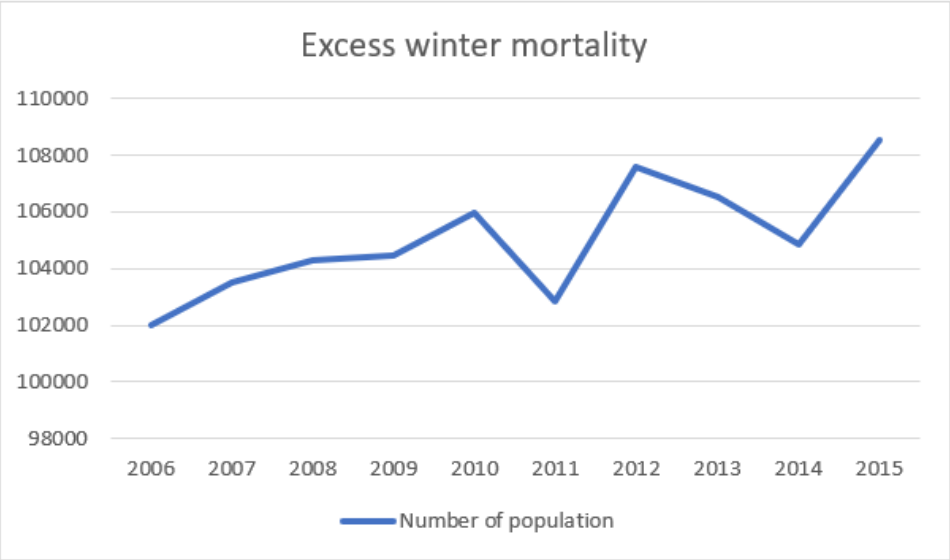
Figure 66: Percentage of households living with damp, mould or rot. Source: Eurostat



7.1.3.2 Excess winter mortality

Excess winter mortality has fluctuated over the years, showing households really depend on the intensity of winter weather.

Figure 67: Excess winter mortality. Source: EPOV



7.2 Review of energy policies focused on low-income and vulnerable groups

7.2.1 Past measures

More Sustainable Buildings (Edifícios Mais Sustentáveis)

More Sustainable Buildings is a support programme aligned with the Recovery and Resilience Plan (Plano de Recuperação e Resiliência), the NECP, and the LTRS. It is carried out through the Environmental Fund (Fundo Ambiental), with the support of the Energy Agency (ADENE), the National Laboratory for Energy and Geology (LNEG), and FCT - NOVA University of Lisbon. The programme finances measures that promote rehabilitation, decarbonisation, energy efficiency, water efficiency, and the circular economy in buildings. It targets existing single-family housing buildings and multifamily buildings and focuses on measures that lead, on average, to at least 30% reduction in the consumption of primary energy in buildings. The programme is currently in the second phase, aiming for the allocation of 30,000,000 EUR with over 35 thousand submissions already submitted for evaluation. The first phase was finalised in 2020, when 9.5 millio EUR were allocated to the programme.

The programme's beneficiaries are individuals who can prove the status of holder of any right to carry out interventions in the candidate properties, including their owners and co-owners. Each candidate is limited to a maximum total incentive of 7,500 EUR per single-family building or autonomous fraction or 15,000 EUR in case of total ownership of the multi-family building. The programme refunds 85% of the investment (VAT not included) and there is a maximum financial support for each intervention (e.g., 1,500 EUR for interventions on windows). More

information about measures funded through the programme can be found on the programme webpage[42] (in Portuguese).

Prohibition to suspend the supply of energy services and payment plan

Exceptionally related to the declaration of a state of emergency due to the COVID-19 pandemic, the Law No. 7/2020 of 10 April, determined the prohibition of the suspension of the supply of essential energy services, such as electricity and gas. Furthermore, the Law No. 18/2020 allowed consumers to create a payment plan, extending payment terms, without associated interest (starting after September 30, 2020). This payment plan covered all bills due from March 20, 2020, thus allowing customers affected by the COVID-19 pandemic to pay the energy bill.

According to the recent publication of ERSE Regulation No. 180/2021, of March 2, citizens in situation of unemployment, reduced household income equal to or greater than 20%, or that have been infected with COVID-19 should receive a payment plan in in instalments from the electricity and natural gas suppliers, for invoices issued from January 1, 2021 and for the duration of the state of emergency, until June 30, 2021.

Extraordinary support for electricity consumption

Motivated by the sharp drop in temperature in the first half of January 2021 and by the imposition of general confinement due to COVID-19, the Government approved extraordinary support for electricity consumption. The measure offers a direct discount on the electricity bill of beneficiary families, defined in EUR/day, depending on the power level. It is aimed at all domestic consumers (including vulnerable ones) with contracted powers of up to 6.9 kVA, benefiting from a support defined in EUR/day, for a period of 15 days. The extraordinary support related to general confinement is aimed at vulnerable consumers, beneficiaries of the social electricity tariff, benefiting from a support defined in EUR/day, for a period of 30 days.

7.2.2 Measures currently (or recently) implemented

As showed in Table 3, Portugal's policy measures focused on socially and/or energetically vulnerable groups and low-income families currently (or recently) in place are the following:

- Electricity and natural gas social tariffs
- Information and awareness
- Reduction of VAT taxes on energy prices
- More Sustainable Buildings programme (focused on wider audience)
- Prohibition to suspend the supply of energy services (related to the state of emergency due to COVID-19)
- Extraordinary support for electricity consumption (related to the state of emergency due to COVID-19 and the drop of temperature in Jan 2021)

[42] https://www.fundoambiental.pt/apoios-prr/paes-2021.aspx

- Programa 1º Direito - Support Programme for Access to Housing
- Efficiency Voucher - Vale Eficiência
- National strategy against energy poverty (2021)

The policies mentioned above are further described below. Besides these policies, Portugal also developed a Building Energy Certification System or Energy Performance Certificates, with a total of 1,347,775 certificates issued to date for dwellings (SCE) . This measure will be updated by covering aspects of energy poverty (see the next section). Recently, in 2018, Portugal launched the call 25 - Energy Efficiency in Buildings, with a maximum budget of 3.1 million EUR from the Energy Efficiency Fund (EEF). It aims to finance the implementation of measures that promote energy efficiency in buildings and targets natural persons who own existing and occupied single-family housing buildings or of autonomous fractions in multifamily buildings, as well as legal persons entitled private owners of existing and occupied service buildings, except for all entities with the Portuguese Classification of Economic Activities (CAE) 01 to 33. According to the LTRS (p.16), the applications are under analysis.

Furthermore, Portugal counts with National and EU-funded Projects linked to energy poverty carried out in Portugal or including relevant Portuguese entities, such as H2020 STEP, H2020 POWERPOOR, H2020 Porto Energy Elevator; EU EPAH – Energy Poverty Advisory Hub (funded by DG Energy European Commission), LIGAR – Energy Efficiency for all (funded by PPEC from ERSE), Menu Renovação Verde - Green Menu (co funded by Climate KIC), Ponto de Transição - Transition Point (funded by Fundação Gulbenkian).

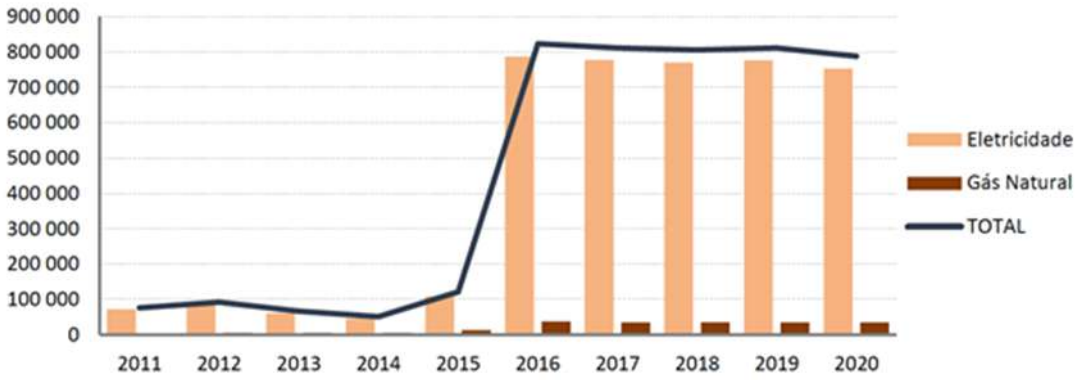
Within the development of LIGAR , for example, was created an energy poverty vulnerability index and mapping tool for all 3,092 civil parishes regions (mainland and islands), which is frequently updated and improved and has been feeding local climate change adaptation strategies and projects as well as being referenced in the national Energy Poverty strategy. The project received support from the Plan for the Promotion of Efficiency in Electric Energy Consumption (PPEC), which aims at improving energy efficiency among consumers in different market segments - Industry and Agriculture, Commerce and Services and Residential. From 2017-2018, it supported measures such as the installation of equipment with a level of efficiency above the market standard and dissemination of information about good practices in the efficient use of electricity.

Social electricity and natural gas tariffs

In 2010, the social tariff was created to ensure that all citizens have access to electrical power and natural gas, regardless of which supplier offers the service. It provides financial assistance for paying energy bills, targeting disabled citizens, households on social benefits, low-income households, pensioners, and unemployed citizens. The measure aims to protect economically vulnerable consumers of the growing prices and volatility of energy costs, in line with European guidelines on the internal electricity and natural gas markets (NECP). Since 2016, the discounts have been automatically granted to customers meeting economic and/or social vulnerability criteria. According to Portugal's NECP (p. 150), "Automatic recognition is carried out by the I.T. System at the Directorate-General for Energy and Geology (DGEG), which cross-references data in accordance with the protocols governing access and transmission of information among different agents in the energy sector and Public Administration bodies holding the required data, more specifically the Tax and Customs Authority and the Social Security Institute."

The discount applied to access tariffs to electricity networks corresponds to 33.8 % of the value of transitional sale tariffs, excluding VAT, other taxes, contributions, levies, and late-payment interest. The discount applied to access tariffs to natural gas networks corresponds to 31.2% of the value of transitional sale tariffs, excluding VAT, other taxes, contributions, levies, and late payment interest. The figure below displays the total number of beneficiaries of the social tariff for electricity and natural gas in Portugal per year.[43]

Figure 68: total number of beneficiaries of the social tariff for electricity and natural gas in Portugal per year



According to a study by Martins et al. (2019)[44], although the social tariff does not encourage changes in consumption patterns or the increase in energy efficiency, the measure must be continued as it has reached unprecedented levels of discount in Portugal (over 800,000 customers, representing a global discount of more than 85 million EUR on their invoices). The discount given to vulnerable energy consumers adds to other social benefits, contributing to reduce the vulnerability of the poorest groups. The authors explain that the improvement of the economic situation in Portugal, from 2016 to 2017/8, resulted in the reduction of the risk of poverty and in some reduction of consumers who benefited from the social tariff, which may show how the measure is successful in reaching its target group.

Regarding energy poverty, Martins et al. (2019) argue that the social tariff is not intended specifically to reduce energy poverty and will only have a small influence on improving heating and cooling, and/or addressing cut of energy supply related to lack of payment. In Portugal's Long-Term National Strategy for Combating Energy Poverty (for public consultation), it is recognized that the measure is not a long-term and sustainable solution to address energy poverty as it does not promote energy efficiency, sustainability in housing, and the energy

[43] Versão Draft da Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Draft version of the Long-Term National Strategy for Combating Energy Poverty] available at https://participa.pt/contents/consultationdocument/Estrate%CC%81gia%20Nacional%20de%20Longo%20Prazo%20para%20o%20Combate%20a%CC%80%20Pobreza%20Energe%CC%81tica_VConsultaPu%CC%81b_2852.pdf

[44] Martins, R., Silva, P., Antunes, M. and Fortunato, A., 2019. Estudo sobre a aplicação da tarifa social de energia em Portugal. [Study on the application of the social tariff in Portugal]. *Observatório da Energia*. Available at https://www.observatoriodaenergia.pt/wp-content/uploads/2019/04/estudo_tarifa_social.pdf

transition in the long term. However, it allows for a reduction in the energy cost, ensuring the citizens have access to these services regardless of economic, social or geographic situation of consumers.

Information and awareness

Several initiatives are in place in Portugal aiming to provide information and encourage energy illiteracy among citizens, such as:

CINERGIA (Information Centre for Energy) [45] provides an integrated vision of the energy sector, contributing to a better energy literacy of civil society.

Observatório da Energia (Energy Observatory)[46] aims to promote the efficient use of energy resources and the reduction of time to change supplier, through easy access to unbiased and independent information.

Poupa Energia[47] acts as a platform for comparing electricity and natural gas tariffs, allowing an informed choice/change of supplier and promoting efficiency in energy consumption. Since its launch, in November 2017, it has recorded around 594 thousand simulations, enabling more than 5.2 thousand supplier changes, translating into savings of more than 590 thousand EUR/year for consumers.

Consumidor Informado Consumidor Poupado[48] aims to train citizens about energy consumption and promote energy efficiency and reduction of energy consumption in homes. It targets families and citizens with less access to digital information, focusing on populations residing in smaller cities and rural areas.

The Energy Poverty Vulnerability Index (IVPE)[49], developed by CENSE – Center for Research in the Environment and Sustainability of the NOVA School of Science and Technology, NOVA University of Lisbon. Since 2017, it has allowed to assess and map the vulnerability of the Portuguese population to energy poverty, in winter and summer, at the civil parish level. This index combines the analysis of the energy performance of residential buildings, energy consumption in homes, and the inhabitants' socioeconomic characteristics and identifies points of vulnerability where intervention should be prioritized.

DECO Energy Advisory Office[50], since 2020, it provides personalized and detailed advice to consumers on energy. It aims to support consumers in a situation of energy poverty by helping them to find the most appropriate solutions and advising consumers on more efficient energy consumption, providing information about savings, and improving health and well-being.

[45] https://www.cinergia.pt/pt/
[46] https://www.observatoriodaenergia.pt/pt/
[47] https://poupaenergia.pt/
[48] https://consumidorpoupado.quercus.pt/
[49] João Pedro Gouveia and Pedro Palma , Center for Environmental and Sustainability Research (CENSE), FCT-NOVA University of Lisbon
[50] https://www.deco.proteste.pt/

Menu Renovação Verde (Green menu)[51] is an online energy efficiency one-stop-shop that supports improved energy efficiency and building renovation. It has been online since late 2020, includes over 200 measures for different energy services, and has relevant links to regulations and financing schemes in place.

Long-Term National Strategy for Combating Energy Poverty (2021)

The Long-Term National Strategy for Combating Energy Poverty has as the following objectives – decrease energy poverty, protecting vulnerable consumers and actively integrating them in the energy and climate transition. It will be necessary to adopt and put into practice a set of short, medium and long measures, which are sustained over time and are aligned with the national energy climate plan (NECP), creating the social conditions to identify, act and measure. In this sense, the pursuit of the main objectives to decrease energy poverty will be based on the application of four principles:

1. Energy efficiency

Promote programmes, actions and support mechanisms of a structural nature to combat situations of energy poverty, which include interventions aimed at making investments in energy efficiency and rehabilitation of buildings, incentives for changes in consumption patterns and actions aimed at the integration of energies renewables. These actions will be developed together with the various actors, national and local, including the various regional and local bodies in various aspects, in order to better adapt to reality and promote closer proximity to consumers in situations of energy poverty.

2. Price support and cost reduction

Promote programs, actions and mechanisms that allow the reduction of energy charges, such as the Social Energy Tariff, and with the energy services of domestic consumers, either through awareness-raising actions that encourage proper use and management or through support so that the price of energy is not an exclusion factor in access to these services, regardless of the economic, social or geographical situation of consumers, and at the same time serving the purpose of ensuring universal access to services quality at affordable prices.

3. Consumer protection

Promote programs, actions and mechanisms that protect domestic consumers whenever they are unable to meet energy costs or in their relationship with market operators. In this way, the intention is to find mechanisms to support the payment of the bills of its most vulnerable customers, without the interruption of energy services, particularly in more extreme weather situations that impact energy consumption.

4. Information, knowledge and education

Promote the development of training and information campaigns in order to raise awareness and disseminate the best energy efficiency practices in order to encourage behavioural change when using energy with a view to obtain savings in the energy bill, comfort and environmental

[51] https://www.menurenovacaoverde.pt

gains. Advice and assistance structures for this purpose and for the dissemination of available incentive systems with a view to increase the energy efficiency of homes should be created and strengthened. Promote the development of programs and actions in schools, with the youngest - agents of change and multipliers of information in their household - where issues of energy efficiency, energy poverty and the importance of individual and collective commitment in changing behaviour will be addressed in the use of energy with a view, also, to an effective fight against climate change

Reduction of VAT taxes on energy prices

In 2019, through the publication of Decree-Law No. 60/2019, of May 13, the fixed component of one of the elements of the price due by the electricity and natural gas supplies started to be taxed with reduced VAT at a rate of 6% on the mainland and 4% and 5% in the Autonomous Regions of the Azores and Madeira, respectively. The reduction of VAT taxes focuses on consumers who have a contracted power that does not exceed 3.45 kVA in relation to electricity, and that have consumption at low pressure that does not exceed 10,000 m^3 in natural gas, per year. This measure resulted in a reduction in VAT on electricity and natural gas in the fixed term for around 2 million consumers.

In 2020, in addition to the reduction in the VAT rate, it was also applied the intermediate rate of 13% on the mainland, and 9% and 12% in the Autonomous Regions of the Azores and Madeira, respectively. This is applied to the supply of electricity that does not exceed a certain level of consumption, and that is related to contracted powers within the normal low voltage (BTN) up to 6.9 kVA. The intermediate VAT rate applies to a level of consumption up to 100 kWh (in a 30-day period), which tends to be below the average level of monthly electricity consumption in Portugal per contracted power level in BTN. For large families (households consisting of five or more people), the intermediate VAT rate limit increases by 50% (corresponding to 150 kWh for 30 days). This VAT amendment aims to protect economically vulnerable consumers while stimulating a rationalization of energy use and covers around 5.2 million consumers.

Programa 1º Direito - Support Programme for Access to Housing

The programme aims to support housing solutions for people living in inappropriate housing conditions and who do not have the financial capacity to support the cost of access to adequate housing. It promotes the rehabilitation of buildings and leases. It also invests in integrated and participatory approaches that promote social and territorial inclusion, through cooperation between sectorial policies and bodies, between central, regional and local administrations and between the public, private and cooperative sectors.

The support to promote housing solutions can be granted directly to families or entities, such as Autonomous Regions and Municipalities, public entities, residents' associations and housing and construction cooperatives, as well as owners of properties located in degraded areas. Until 2021, it is estimated 700 million EUR of financing through non-refundable contributions[52].

[52] https://www.portaldahabitacao.pt/documents/20126/35870/GUIA+1DRT_20190531.pdf/deb61c37-bb10-7417-ad87-d69cc8d6ee00?t=1559321079494

Efficiency Voucher - Vale Eficiência

This measure targets economically vulnerable families in situation of potential energy poverty, which do not reside in social housing and are located in Portugal's mainland. The programme aims to improve the thermal comfort of homes of vulnerable groups. It will do so by delivering 100,000 "efficiency vouchers" to economically vulnerable families by 2025, worth 1,300 EUR plus VAT (Value Added Tax) each. The families can use the vouchers to invest in improving the thermal comfort of their home, either through interventions in the surroundings or through the replacement or acquisition of energy efficient equipment and solutions. The present phase of the Programme aims to deliver 20,000 vouchers. The programme's goal is a total estimated allocation of 162 million EUR and 100,000 families reached by 2025. More information about this support scheme can be found on the website[53] (in Portuguese).

Reaction to Current Rising Costs of Electricity Error! Bookmark not defined.

On 15 Oct 2021, the Portuguese national regulatory authority announced its proposal for electricity tariffs for 2022, which states that network tariffs will decrease by more than 50% for households, while their regulated tariff will decrease by 3.4% when compared with the 2021 average tariff.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
Air-to air heat pumps	→	The *More Sustainable Buildings* scheme (Edifícios Mais Sustentáveis) that is part of the Program Economic and Social Stabilization Program (PEES) subsidizes heat pumps through grants and loans. Households can expect to receive ≥85% of the installation cost, up to 2.500 EUR.
Solar thermal system	→	The *More Sustainable Buildings* scheme subsidizes solar thermal through grants and loans. Households can expect to receive ≥85% of the installation cost, up to 2.500 EUR.
Gas boilers	→	Low-interest loans

A total of 42% of heat is produced by renewable energy.

7.2.3 Forthcoming measures

[53] https://www.fundoambiental.pt/apoios-prr/vales-eficiencia.aspx

Further measures planned to start in 2020-2021 are mentioned in national documents and plans, such as the National Energy and Climate Plan[54] (NECP), the Long-Term Renovation Strategy[55] (LTRS), and the Long-Term National Strategy for Combating Energy Poverty[56]. These measures are mainly characterised as follows:

> **National programmes focused on financial assistance** (Financing and tax benefits for energy renovation; Increase comfort package; Energy Efficiency Fund; Financial Instrument for Urban Rehabilitation and Revitalization)
>
> **National programmes focused on monitoring mechanisms** (National system to assess and monitor energy poverty and follow-up/monitoring mechanisms of the performance of the building stock)

Other measures which are not focused on vulnerable groups or low-income families but can support such groups are:

> **National information campaigns on energy transition**
>
> **National programmes focused on building renovation** (Renovation of buildings with the worst energy performance, Updating Building Energy Certification)

Most of the measures are mentioned in the Long-Term Renovation Strategy (LTRS), which is based on the analyses of energy consumption and thermal comfort of the national building stock, associated benefits of the measures (e.g., improved labour productivity and health, combating energy poverty) and costs related to the implementation of the policies and measures, considering the specificities of the buildings covered, including typology and geographic location.

Among the measures, the LTRS includes the replacement of existing systems with more efficient systems, the promotion of energy from renewable sources, the adoption of technical solutions for energy renovation of buildings, which are aligned with the identification and analysis of response mechanisms to potential market failures. Hence, it also includes the creation and/or development of financing programs for building renovation and the deployment of public and private investment, as well as the reinforcement of incentive and market monitoring policies.

The document proposes seven Eixos de Atuação – EAs ("Action Lines") of the Buildings Program, which are:

> EA1 - Building Renovation
>
> EA2 – Smart Buildings

[54] Portugal's National Energy and Climate Plan 2021-2030, December 2019, available at https://ec.europa.eu/energy/sites/default/files/documents/pt_final_necp_main_en.pdf
[55] Portugal's Long-Term Renovation Strategy - Estratégia Nacional para a Renovação de Edifícios, August 2014, available at https://ec.europa.eu/energy/sites/default/files/PT-Art4BuildingStrategy_pt.pdf
[56] Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty] available at https://participa.pt/contents/consultationdocument/Estrate%CC%81gia%20Nacional%20de%20Longo%20Prazo%20para%20o%20Combate%20a%CC%80%20Pobreza%20Energe%CC%81tica_VConsultaPu%CC%81b_2852.pdf

EA3 - Energy Certification

EA4 - Training and Qualification

EA5 - Combating Energy Poverty

EA6 - Information and Awareness

EA7 - Monitoring

For each of the EAs, policies were selected based on a benchmarking at European level for energy renovation of buildings. More than a hundred policies were identified, out of which 70 measures have been analysed considering their potential relevance to the country, and almost 30 measures were selected for the seven EAs.

The measures that directly aim to support the most energy-vulnerable populations or families with low incomes are mainly part of the EA5 - Combating Energy Poverty, which counts on the **Increase Comfort Package** and the **Financing and tax benefits for energy renovation**.

The Increase Comfort Package aims to support the most energy-vulnerable populations or families with low incomes through several measures, such as:

Financing programmes for building renovation and replacement/acquisition of space heating and DHW systems, as well as terminal water use devices by more efficient options in terms of water and energy;

Promoting the integration of the most energetically vulnerable populations or low-income families in renewable energy communities;

Developing monitoring indicators, monitoring strategies, establishing objectives to combat energy poverty in the medium and long term, at national, regional and local level; and

Proposing specific measures, including measures in the field of renovation of the building stock and financing programmes aiming to achieve objectives to alleviate energy poverty.

The Financing and tax benefits for energy renovation includes the dissemination and promotion of existing financial support to local entities that carry out programs to support energy renovation in social housing. It also aims to study the introduction of tax benefits and energy saving bonuses integrated in the energy certification scheme for buildings, and the inclusion of a social criterion in the attribution of financial and tax benefits.

Another financial mechanism mentioned in the LTRS is the **Financial Instrument for Urban Rehabilitation and Revitalization**, which aims to support the revitalization of public spaces dedicated to disadvantaged communities as well as energy efficiency in housing by providing loans on more favourable terms compared to those of the market. The financing amount is 1,400 million EUR, which can be executed until 2023.

Energy Efficiency Fund (EEF) – NECP, p. 183

"The Energy Efficiency Fund (EEF) was created through Decree-Law No 50/2010 and its purpose is to fund the programmes and measures provided for in the National Action Plan for Energy Efficiency (PNAEE), as set out in the annex to Council of Ministers Resolution No 80/2008 of 20 May 2008. This is achieved through the following lines of action: a) Support for projects which are predominantly technological in nature in the transport, residential and services, industry and public sectors; b) Support for actions which are transversal in nature and engender energy efficiency in behaviour, taxation and incentives and financing."

Regarding energy certification, EA2 – Smart Buildings includes the **update of the Building Energy Certification** by covering aspects of energy poverty, as well as the **Renovation of buildings with the worst energy performance**, which aims to develop energy-efficient incentive measures that ensure significant levels of comfort and thermal performance, whenever they are intended for rental; the inclusion of an energy efficiency criterion in the lease; and intervention focused on the worst-performing segments, so that they achieve the minimum standard of energy performance in buildings until 2030.

Under EA7 – Monitoring, the strategy includes the establishment of a **national system to assess and monitor energy poverty**, which aims to identify and monitor the number of families living in energy poverty, their main characteristics and geographic concentration. It also aims to understand the structural or contextual factors that lead to energy poverty, and to implement a strategy to protect vulnerable consumers. EA7 also includes the **Implementation of follow-up/monitoring mechanisms of the performance of the building stock**, which aims to create an observatory, within the Energy Observatory, to monitor evolution of the existing building stock, energy poverty and the improvement of energy and environmental performance.

In EA6 – Information and Awareness, the measure **Information campaign on energy transition** aims to create of a virtual counter and information points across the country to support the improvement of the energy and water performance of buildings, providing information on procedures related to building renovation and available financial mechanisms.

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TABLE 7: PORTUGAL'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Social electricity and natural gas tariffs**
Description and results	This measure provides financial assistance to households to pay their energy bills through a social tariff. Since 2016, it is automatically awarded to households receiving certain social benefits and to low-income households. For household to qualify, the electricity and natural gas consumption cannot be higher than a certain limit. Previous versions of this social tariff that started around 2008 were different in scope (only electricity) and target groups. Around 14% of all Portuguese households benefit from this measure: 786,000 households receive the social tariff for electricity and 34,000 receive it for natural gas.
Start year	2008
Organisation	National government
Target groups	Disabled Households on social benefits Low-income households Pensioners Unemployed
Source	NECP, Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050, Martins, R., Silva, P., Antunes, M. and Fortunato, A., 2019. Estudo sobre a aplicação da tarifa social de energia em Portugal. Observatório da Energia. https://ec.europa.eu/energy/sites/default/files/documents/pt_final_necp_main_en.pdf https://participa.pt/contents/consultationdocument/Estrate%CC%81gia%20Nacional%20de%20Longo%20Prazo%20para%20o%20Combate%20a%CC%80%20Pobreza%20Energe%CC%81tica_VConsultaPu%CC%81b_2852.pdf https://www.observatoriodaenergia.pt/wp-content/uploads/2019/04/estudo_tarifa_social.pdf

Measure	**Information and awareness**
Description and results	Several initiatives aim to create awareness, provide information, and support citizens regarding energy poverty and energy efficiency, such as CINERGIA, Observatório da Energia, Poupa Energia, Consumidor Informed Consumidor Poupado, the Energy Poverty Vulnerability Index, and DECO Energy Advisory Office.
Start year	2017

Organisation	National government
Target groups	Citizens
Source	Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty] https://participa.pt/contents/consultationdocument/Estrate%CC%81gia%20Nacional%20de%20Longo%20Prazo%20para%20o%20Combate%20a%CC%80%20Pobreza%20Energe%CC%81tica_VConsultaPu%CC%81b_2852.pdf

Measure	**Reduction of VAT taxes on energy prices**
Description and results	The reduction of VAT taxes aims to protect economically vulnerable consumers while stimulating a rationalization of energy use.
Start year	2019
Organisation	National government
Target groups	Citizens
Source	Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty] https://participa.pt/contents/consultationdocument/Estrate%CC%81gia%20Nacional%20de%20Longo%20Prazo%20para%20o%20Combate%20a%CC%80%20Pobreza%20Energe%CC%81tica_VConsultaPu%CC%81b_2852.pdf

Measure	**More Sustainable Buildings (Edifícios Mais Sustentáveis)**
Description and results	This programme finances measures that promote rehabilitation, decarbonisation, energy efficiency, water efficiency and the circular economy in buildings. It focuses on measures that lead, on average, to at least 30% reduction in the consumption of primary energy in buildings. It targets existing single-family housing buildings and multifamily buildings. The programme is currently in the second phase - as the first phase was finalised in 2020. In the 1st phase (2020), 9.5 M€ were allocated to the programme.
Start year	2020
Organisation	National government

Target groups	Citizens who own a house
Source	Fundo Ambiental https://www.fundoambiental.pt/apoios-prr/paes-2021.aspx

Measure	**Prohibition to suspend the supply of energy services and payment plan**
Description and results	This measure is related to the state of emergency due to the COVID-19 pandemic. it prohibits the suspension of the supply of essential energy services, such as electricity and gas, and enable the consumers to create a payment plan, extending payment terms, without associated interest.
Start year	2020
Organisation	National government
Target groups	Citizens
Source	Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty]

Measure	**Extraordinary support for electricity consumption**
Description and results	In early January 2021, the Government approved extraordinary support for electricity consumption, motivated by the sharp drop in temperature in the first half of January and by the imposition of general confinement (article 8 of Decree-Law no. 6-E/2021, of January 15). The measure is implemented through a direct discount on the electricity bill of beneficiary families, defined in €/day, depending on the power level.
Start year	2021
Organisation	National government
Target groups	Citizens and vulnerable groups
Source	Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty]

Measure	**Programa 1º Direito - Support Programme for Access to Housing**
Description	"Programa 1º Direito" focuses on both the renovation of buildings and leasing. It aims to support housing solutions for people living in inappropriate housing conditions and who do not have the financial capacity to support the cost of an adequate housing.

and results	Support can be granted directly to families or entities to promote housing solutions. Estimated amount of financing through non-refundable contributions is €700M until 2024
Start year	
Organisation	National government
Target groups	Families and entities
Source	Estratégia Nacional de Longo Prazo para o Combate à Pobreza Energética 2021-2050 [Long-Term National Strategy for Combating Energy Poverty]

Measure	**Efficiency Voucher - Vale Eficiência**
Description and results	The programme aims to deliver 100,000 "efficiency vouchers" to economically vulnerable families by 2025, worth €1,300 plus VAT (Value Added Tax) each, so that these families can invest in improving the thermal comfort of their home. This can be done either through interventions in the surroundings, or through the replacement or acquisition of energy efficient equipment and solutions. The present phase of the Programme aims to deliver 20,000 vouchers. The programme's goal is a total estimated allocation of 162 million EUR and 100,000 families reached by 2025.
Start year	2021
Organisation	National government
Target groups	Vulnerable groups
Source	Fundo Ambiental https://www.fundoambiental.pt/apoios-prr/vales-eficiencia.aspx

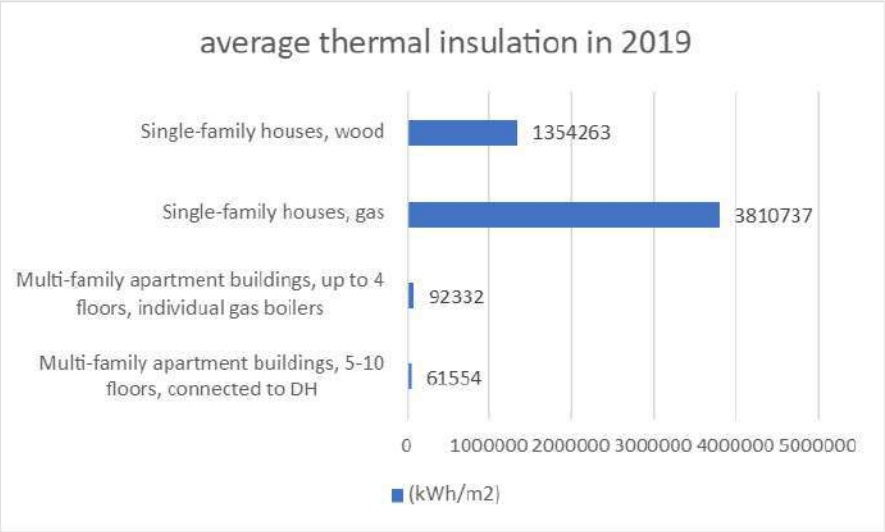
8. ROMANIA

8.1 Energy Poverty Status

8.1.1 Energy efficiency

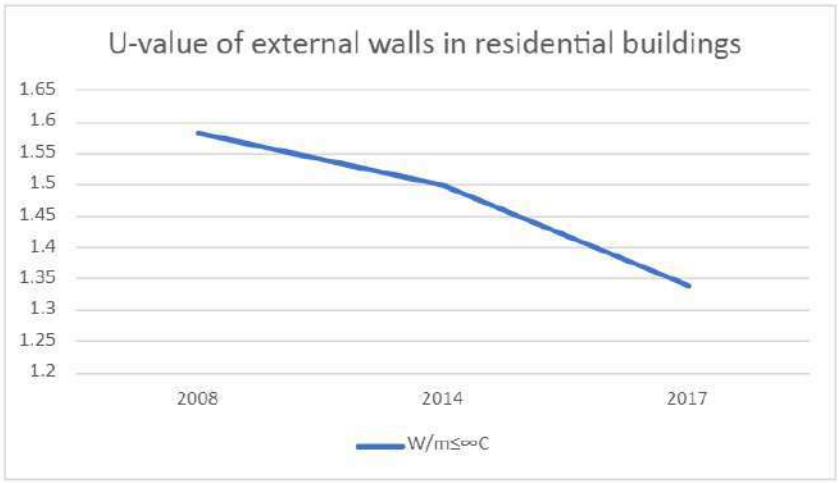
8.1.1.1 Thermal insulation

Figure 69: Average thermal insulation in 2019. Source: LTRS



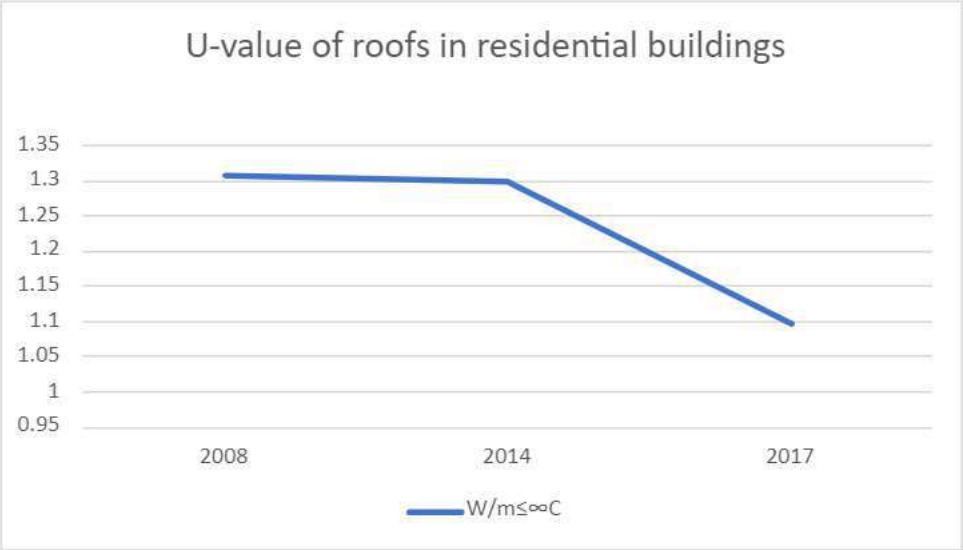
Furthermore, thermal insulation for walls and roofs has also performed better as the u-value[57] decreased between 2008 and 2017, from 1.6 to 1.35 for walls and from 1.3 to 1.2 for roofs.

Figure 70: U-value of external walls. Source: Buildings Observatory



[57] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

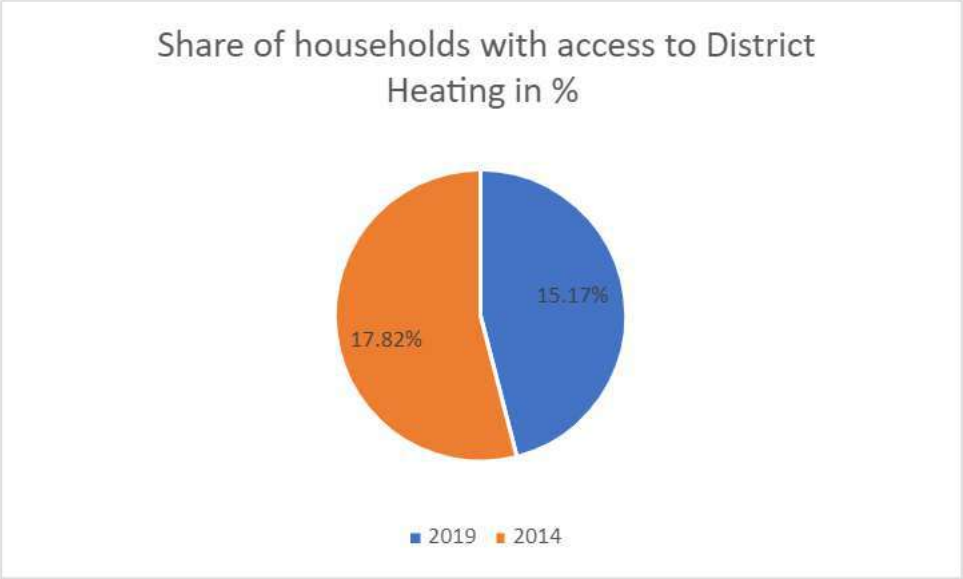
Figure 71: U-value of roofs. Source: Buildings Observatory



8.1.1.2 Heating and cooling

The share of households with access to district heating has slightly decreased between 2014 and 2019, going from 17.82% to 15.17%.

Figure 72: Share of households with access to district heating. Source: Eurostat



8.1.1.3 Ventilation

No data

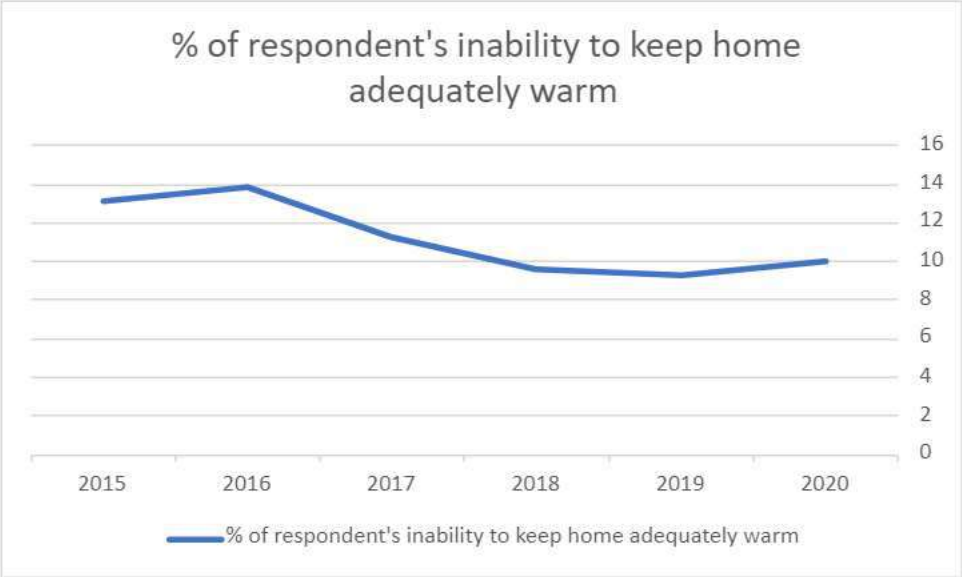
8.1.1.4 Energy consumption for basic needs

No data

8.1.1.5 Adequate temperature in winter and summer

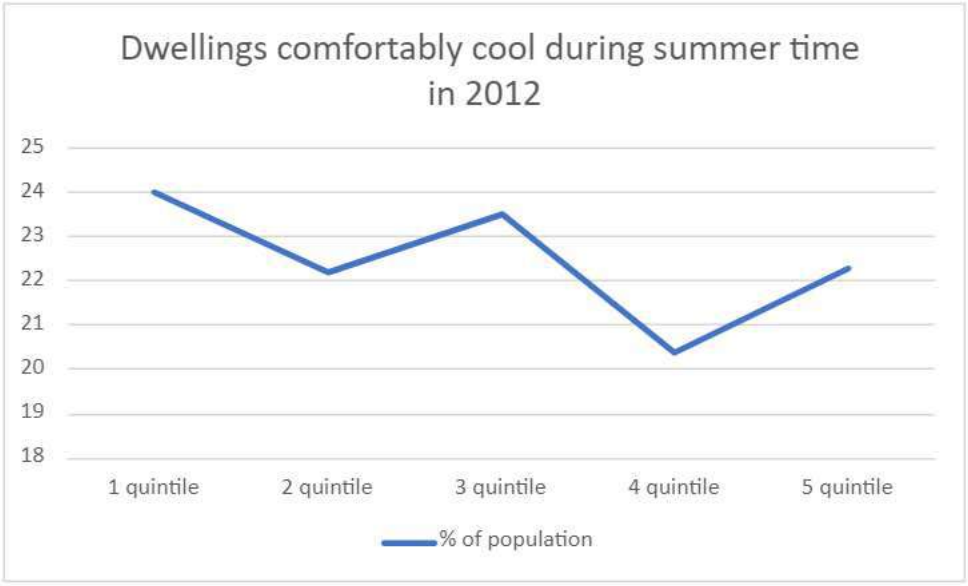
In terms of comfort during winter, the number of households unable to keep their homes adequately warm has gone from 14% in 2016 to 10% in 2020.

Figure 73: Percentage of respondents unable to keep warm. Source: Eurostat



Whereas cooling one's home has fluctuated a lot depending on quintiles, second (22%) and fourth quintiles (20%) have struggled more to keep their homes cool in the summer of 2012.

Figure 74: Dwellings comfortably cool during summertime in 2012. Source: Eurostat

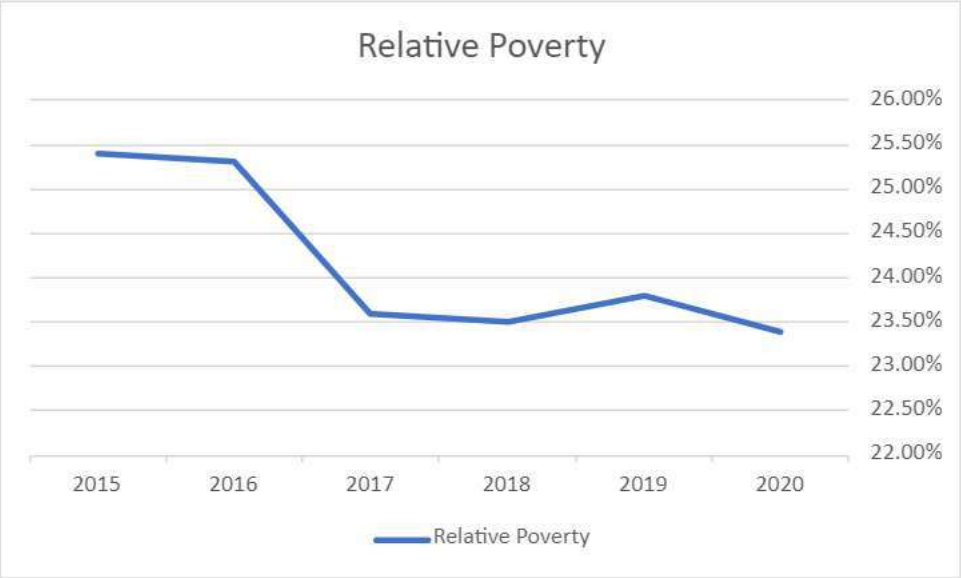


8.1.2 Social and economic poverty

8.1.2.1 Household income and expenses

Households vulnerable to poverty has decreased since 2015, starting at 25.5% in 2015 down to 23.5% in 2020, with an important drop in 2017 down to 23.5%. Furthermore, Eurostat reported that in 2020, 96.5 million people in the EU were at risk of poverty or social exclusion; this was equivalent to 21.9 % of the EU population.

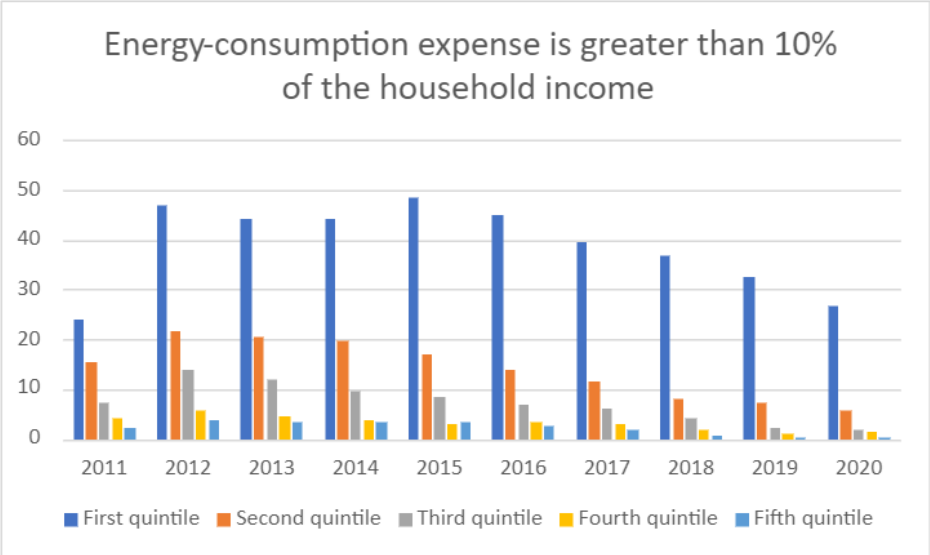
Figure 75: Percentage of households below 60% median income. Source: Eurostat



8.1.2.2 Identify households that cannot afford energy due to low income

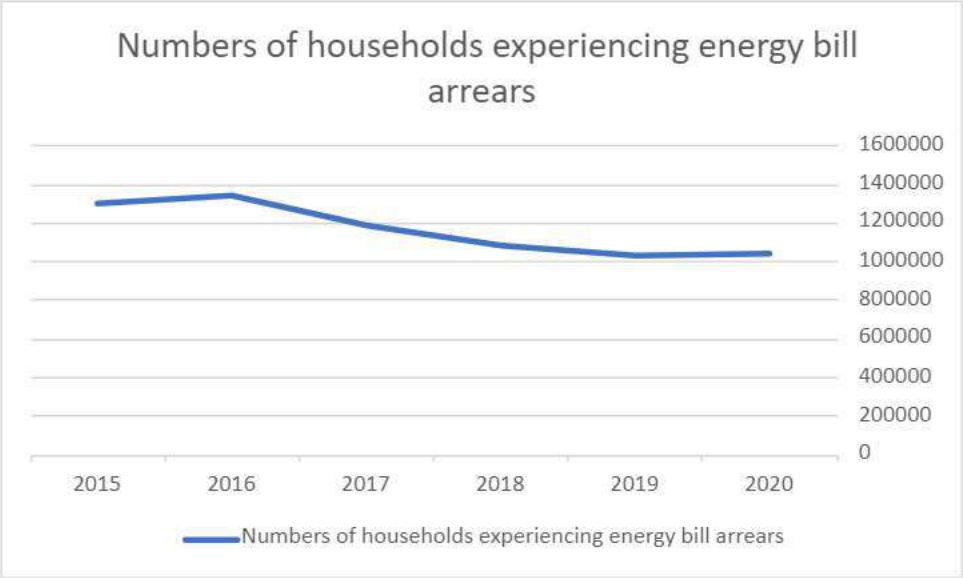
The first quintile has experienced the highest energy expenses greater than 10% of their household income throughout 2011 to 2020 and has remained a lot higher than other quintiles, it fluctuated between 40% to 50% between 2012 and 2017 and has since gone down to 26% in 2020.

Figure 76: Energy expenses are higher than 10% of household income. Source: Eurostat



In terms of energy bill arrears, 1,000,000 households were dealing with arrears in 2020, which is a little lower than in 2016 with 1,344,600.

Figure 77: Number of households with energy bill arrears. Source: Eurostat

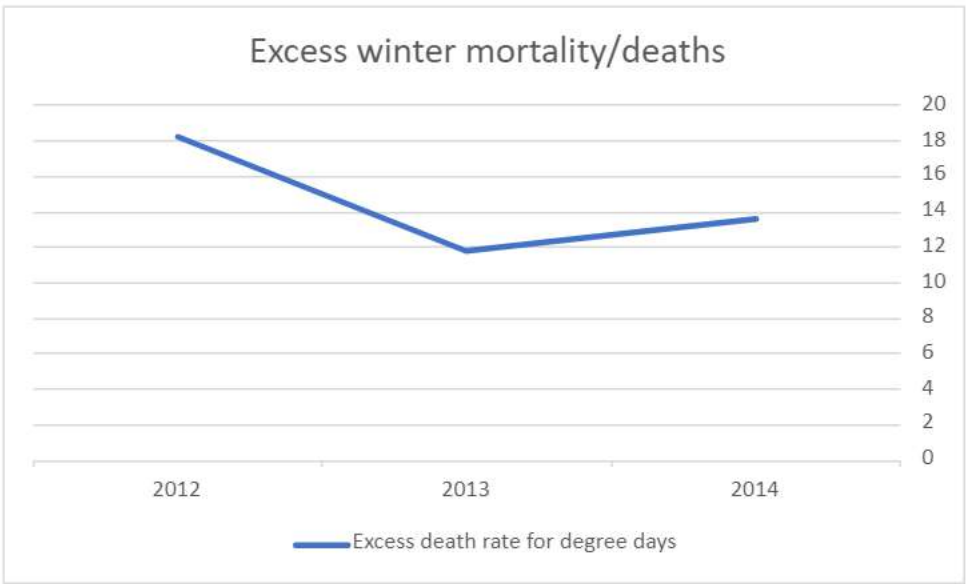


8.1.3 Wellbeing and health

8.1.3.1 Household health and wellbeing

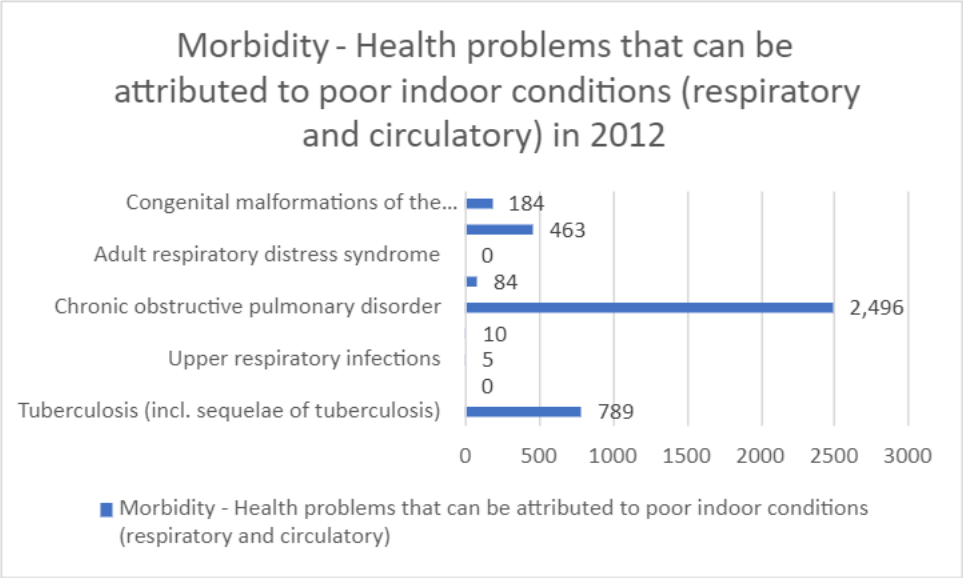
Deaths in winter have decreased between 2012 and 2014, starting at a 18.3 death rate to 13.6.

Figure 78: Excess winter deaths. Source: EPOV



In 2012, health problems leading to death attributed to poor indoor conditions mostly led to chronic obstructive pulmonary disorders (2,496) and Tuberculosis (789).

Figure 79: Health problems that can be attributed to poor indoor conditions in 2012. Source: Eurostat



8.2 Review of energy policies focused on low-income and vulnerable groups

Compared to the EU average, Romania is lagging behind the introduction of effective policy measures that focus on combatting energy poverty in low-income households and the protection of vulnerable household groups. In total, five policy measures which vary widely in their size and scope are specifically targeted at low-income groups and are currently in effect; of which four were initiated through the National Government with the other being part of a European Union initiative.

Although improving with new policy objectives being set and laws planned for introduction in the foreseeable future (2021), the Romanian legislation still only partially integrates and supports existing policy measures and leaves little room for introduction of effective new policy measures supporting vulnerable households currently often only supported through regulation aimed at the prevention of rapidly increasing costs of energy carriers.

Additionally, as is evidenced in the Romanian NECP report[58], the current administrative systems need to be developed to bring them closer to what is needed for an effective national roll-out of a future proof, social assistance system that is capable of effectively implementing energy poverty measures targeting low-income households specifically.

[58] https://ec.europa.eu/energy/sites/ener/files/documents/ro_final_necp_main_en.pdf

Romania (NECP, 2020) p.134-135

The social protection measures in the Strategic Action Plan also include improving the performance of the social assistance system to protect low-income persons and one of the specific objectives is to protect low-income and vulnerable consumers against the shocks generated by an increase in energy prices. The responsibility for the achievement of these objectives lies with the Ministry of Labour and Social Protection. (…)

In order to ensure the fair granting of heat subsidies, the development of the national social assistance computer system is a prerequisite for building the capacity of the local public administration authorities. They will ensure the computer processing of data on the applicants and verification of the eligibility criteria for the categories of vulnerable consumers. The subsidy, which is currently applicable to all heat consumers, will be granted only to vulnerable consumers who have been identified as such by the responsible authorities in accordance with Law No 196/2016.

However, figures do suggest the situation overall has been improving over the past decade with 24.4% of the population being unable to keep their house warm back in 2008 and dropping to 9.6% in 2018 bringing it closer in line with the EU average. Furthermore, the size of the population group behind on their energy bill payments has also seen a significant reduction from 30% in 2014 to ~14% in 2018. Explanations for this decrease suggest that these improvements may be in part a result of the renovation efforts of the existing building stock, though the general economic development of the country has also played a role[59].

That said however, according to Eurostat data (2019), Romania is well below the average electricity price for household consumers in the EU, and it is only due to the low purchase power of individual households that the affordability of energy still a concern. Especially considering that the results achieved over the recent decade have brought the Romanian averages to the achieved EU standards of 2015[60].

Five policy measures were introduced that target energy poverty in particular, with a brief description of each presented below.

8.2.1 Past Measures

National - Heating aid during winter (Ajutoare pentru încălzirea locuinței)

This measure provides financial assistance to households to pay their heating bills during winter (November 1 - March 31). This happens through an emergency ordinance that was put into effect in 2011. The main goal of the measure however was to reduce gradually the amount of subsidies from the budget for heating generation, in line with commitments to the EU, and replace it over time with a form of targeted income support for the more vulnerable groups. While subsidies are illegal state aid in the EU, the measure allowed a "grace period" for the

[59] https://energy-poverty.ec.europa.eu/practices-policies-toolkit/publications/epov-member-state-report-romania_en
[60] https://ec.europa.eu/energy/sites/ener/files/documents/ro_final_necp_main_en.pdf

sector in Romania so that the government would have had enough time for refurbishments and modernization of the production units. While the reduction of the subsidies was expected to lead to rising energy prices in the long term, such heating support were meant to provide social protection to vulnerable income groups during winter, by supplying monthly financial support to cover a part of the expenses related to the heating of the house during the cold season, as well as implement methods for billing and payment of heating[61]. To benefit support, eligible households fill in a form that is submitted to the city hall, which includes details about the incomes and wealth so that the eligibility for support can be checked; the support granted to the beneficiaries is a cash payment calculated based on heating source and income levels. As the heating support measure was meant to be temporary, Law 196/2016 (on minimum income) was a first attempt to streamline multiple types of poverty and vulnerability and provide an integrated targeted income support. The law never came into effect (its effectiveness was postponed several times, while Ordinance 70/2011 continued to apply. Law 196's provisions on vulnerable energy consumers were finally cancelled and replaced with new provisions in Law 226/2021 which deals specifically with vulnerable energy consumers). This measure's comparative impact is medium.

National – programs with international donors, NGOs, private initiatives

Though there is little assistance to vulnerable consumers apart from heating support, there were various small programs, supported by donors in partnership with public institutions, NGOs; or financed by private companies. E.g. Improving Energy Efficiency in Households and Low-Income Communities in Romania (Îmbunătățirea eficienței energetice în gospodăriile și comunitățile cu venituri reduse din România) – a project in 2012 to 2016, supported by GEF and UNDP, which originated as a direct response to international pressure to reduce energy consumption through the implementation of energy efficiency measures. The measure was aimed specifically at low-income communities and households in Romania as these groups are most subject to energy poverty; it covered investments in EE in public buildings (schools etc.) and private houses. The measure seeks to remove barriers to the implementation of energy efficiency measures and acts at national and local level to meet energy efficiency needs, develop appropriate measures, stimulate the development of a local market for local products of materials used in the field of building insulation, and build new capacities for the implementation of energy efficiency measures in poorer regions. Other initiatives were Romania Eficienta (a project financed by Petrom oil and gas company, providing energy efficiency demonstrative works in public buildings or homes and policy advocacy for energy efficiency in buildings, including to vulnerable consumers); and smaller projects financed by foreign donors such as to connect poor households to electricity. Such measures are all small-scale and are mostly demonstrative for potential future scale-up by national policy programs. This measure's comparative impact is low.

National - Social tariff (Tariful social)

This measure provides financial assistance to households to pay their energy bills through a social tariff introduced in 2005; it was gradually phased out in recent years, while the energy market was being liberalized, though it is still applicable for suppliers of last resort. The tariff is

[61] http://legislatie.just.ro/Public/DetaliiDocument/131200

only provided to consumers who have an average per family member monthly net income that is less than or equal to the minimum wage in the economy; and granted to locations with permanent residency. Additionally, only 'small' household energy consumers are eligible for support, defined in terms of consumption thresholds (kWh/month). This measure's comparative impact is low.

8.2.2 Measures currently (or recently) implemented

National – legislation on vulnerable consumers

The discussion on a proper definition and actual protection of the vulnerable energy consumers has been long-winded. The energy law 123/2012 (amended)[62] introduced initially a concept of vulnerable consumer, defined as persons with low income and/or with health conditions. In time, specific provisions for vulnerable energy consumers were meant to completely replace Ordinance 70/2011 and introduce support for energy beyond heating in the winter season. For such consumers, Ministries (mostly energy and labor and social protection) and ANRE were supposed to prepare an action plan, implement measures and monitor the implementation, respectively. Vulnerable consumers had certain rights (e.g. not to be disconnected; ensured access to networks and energy; targeted income support etc.). However, though on paper, such rights were mostly inoperable because the action plan was never subsequently prepared. The proper identification of vulnerable consumers remains a challenge and, in practice, "vulnerable consumers" remain those that can be identified by the Ministry of Labor for the Heating support in Ordinance 70. In the absence of a clear action plan, there was also no other institutionalized public form of non-financial support (e.g. support for poorer households for energy efficiency in buildings or access to energy, including advice on optimizing consumption, preparation of EE design for the house etc.).

Law 226/2021 was meant to finally introduce an effective concept of vulnerable consumer (in the EU meaning, which includes not only poor households but other forms of vulnerability as well). In effect, however, while the law copies the correct EU definition of vulnerable consumers, the actual beneficiaries of support remain largely those identified since 2011 for the targeted income heating support – households below certain thresholds of income or energy consumption, who submit requests to the local administration. The law allows in principle other forms of non-financial support (e.g. targeted programs of the Ministry of Development for energy efficiency in buildings etc.) but these would be prepared subsequently. One improvement compared to the heating support is also the fact that support is extended to other forms of energy (e.g. gas for cooking, electricity for lighting etc.) apart from heating to the same beneficiaries.

For 2021/2022, given the current global energy crisis, there are other forms of support to help a larger number of households cushion the temporary hike in prices. Currently, the support is provided in Ordinance 118/2021, which is now revised in Parliament and will probably be adopted in a final form by end-October. The current applicable law provides electricity and gas

[62] http://legislatie.just.ro/Public/DetaliiDocument/139677

bill support by levels of energy consumption (as proxies for current vulnerability), as fixed sum per kWh or proportion of the bill; the amendments in Parliament include various price caps; VAT reduction from 19 to 5%; delays in payment for vulnerable consumers; exemption from cogeneration tax and green certificates contributions for consumption up to a certain threshold. The number of beneficiaries (consumption threshold to be eligible for support) has also increased. The whole support scheme is designed to be financed through a "windfall tax" on energy producers. The provisions of the law are not well designed, do not cover district heating; affect cogeneration in district heating by excessive taxation through the "windfall tax"; apply the "windfall tax" twice on gas producers etc. This measure's comparative impact is small to medium, with the potential to increase in future years.

Reaction to Current Rising Costs of Electricity

On 7 September 2021, the Romanian Parliament passed a law to shield vulnerable groups from the energy price increases from the 1 November 2021, which includes a single person or family who, due to health, age, insufficient income or isolation from energy sources, needs social protection measures and additional services to ensure their minimum energy needs. Through this law, subsidies will be given for home-heating assistance, energy consumption, energy-efficient house equipment as well as for the purchase of products and services improving the energy performance of buildings or connection to the energy network. Between 1 and 5 million people will benefit from state support once the Vulnerable Consumer Law enters into force. Just one month following the announcement of this Law, the Romanian Minister of Energy announced compensation for both electricity and gas bills from the t of November 2021 to the 31 of March 2022, affecting approximately 6 million families or 85% of the Romanian population.

Clean heating data from EEB[15]

Type of Technology		Type of Subsidy
Ground and air/water heat pumps	→	The Casa eficientă scheme covers up to 60% of the installation costs of a heat pump (except for air heat pumps) through grants and loans.
Solar thermal system	→	The Casa eficientă scheme grants 2,500 EUR for the installation of a solar thermal system.
Gas boilers	→	Subsidies exist for gas boilers and micro co-generation (CHP) technologies based on gas. Grants can reach ≥ RON 70,000 (around 14,000 EUR) for each project and can cover 40% to 60% of the investment.

A total of 26% of heat is produced by renewable energy.

8.2.3 Forthcoming measures

Europe - Students Achieving Valuable Energy Savings 2 (SAVES2)

Aims to catalyze sustainable energy behaviors among over 219,000 university students in seven countries to help them reduce their exposure to energy poverty. This measure's comparative impact is small.

Although there are other policy measures that are related to combatting energy consumption, and improving energy efficiency as well as combatting poverty through a minimum income, these measures do not directly target energy poverty and are for this reason not considered in this review.

TABLE 8: Romanian ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	Heating aid during winter (Ajutoare pentru încălzirea locuinței)
Description and results	This measure provides financial assistance to households to pay their heating bills during winter (November 1 - March 31).
Start year	2011
Organisation	National Government
Target groups	Vulnerable households and low income households
Source	http://legislatie.just.ro/Public/DetaliiDocument/131200

Measure	Disconnection Protection vulnerable consumers (Interzisă deconectarea clienților vulnerabili)
Description and results	It is prohibited to disconnect vulnerable consumers from the electricity network.
Start year	2012
Organisation	National Government
Target groups	Vulnerable households
Source	http://legislatie.just.ro/Public/DetaliiDocument/139677

Measure	Improving Energy Efficiency in Households and Low-Income Communities in Romania (Îmbunătățirea eficienței energetice în gospodăriile și comunitățile cu venituri reduse din România)
Description and results	This program worked on integrating energy poverty in Romanian policies, as well as carrying out energy efficiency measures in a few locations.
Start year	2012
Organisation	National Government
Target groups	No specific target group
Source	https://www.mdlpa.ro/lucrari-publice/-3144/-7907

Measure	Social tariff (Tariful social)
Description and	This measure provides financial assistance to households to pay their energy bills through a social tariff.

results	
Start year	2015
Organisation	National Government
Target groups	Low income households
Source	http://legislatie.just.ro/Public/DetaliiDocument/65190

Measure	**Students Achieving Valuable Energy Savings 2 (SAVES2)**
Description and results	This measure aims to catalyse sustainable energy behaviours among over 219,000 university students in seven countries to help them reduce their exposure to energy poverty.
Start year	2017
Organisation	European Union
Target groups	No specific target group
Source	https://saves.nus.org.uk/

9. SLOVAKIA

9.1 Energy Poverty Status

9.1.1 Energy efficiency

9.1.1.1 Thermal Insulation

In terms of thermal insulation, the u-value[63] for external walls and roofs in residential buildings has decreased between 2008 and 2017, proving better insulation. Starting at 1.2 in 2008 down to 0.8 in 2017 for external walls, and 1.4 to 0.9 for roofs.

Figure 80: U-value of external walls. Source: Buildings Observatory

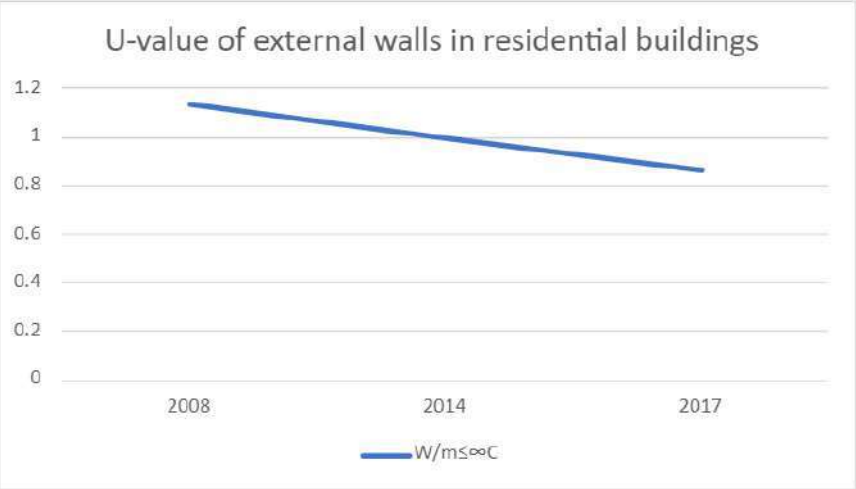
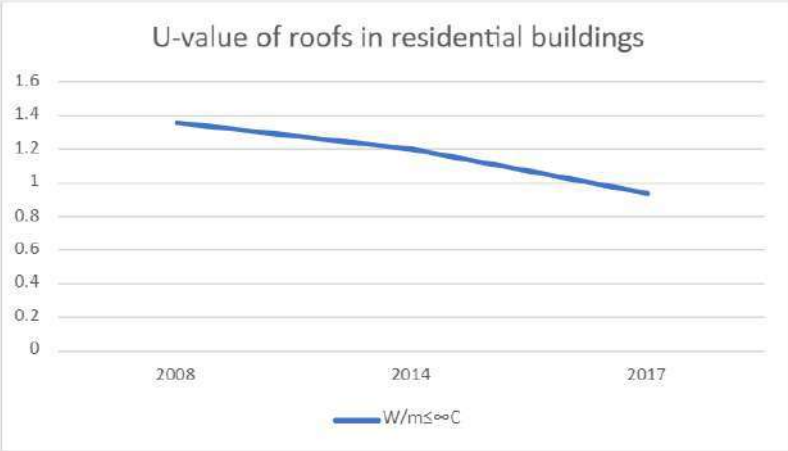


Figure 81: U-value of roofs. Source: Buildings Observatory



[63] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

9.1.1.2 Heating and Cooling

No data

9.1.1.3 Ventilation

No data

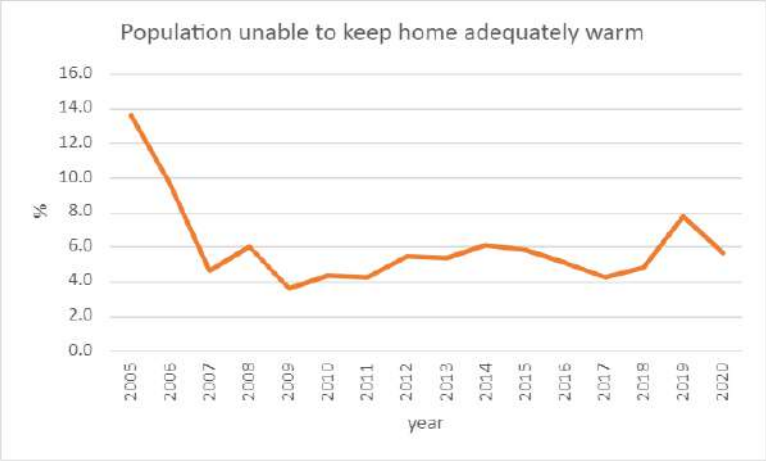
9.1.1.4 Energy consumption for basic needs

No data

9.1.1.5 Adequate temperature in winter and summer

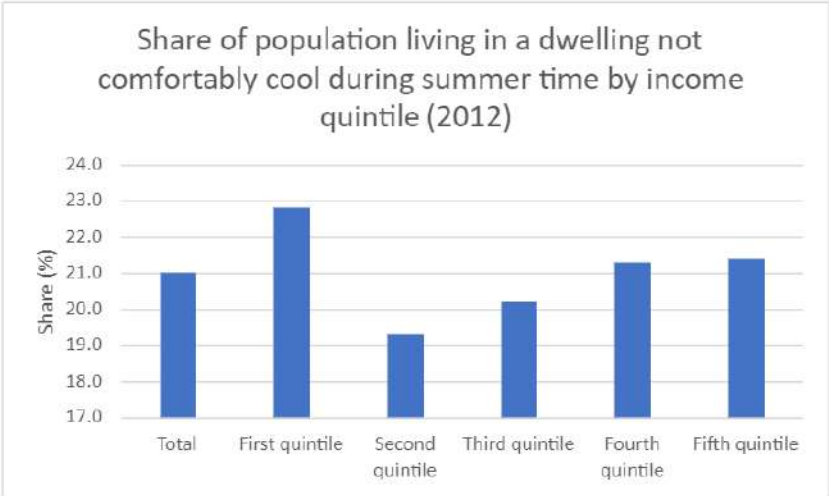
In Slovakia, 92.6% of dwellings were able to keep their homes comfortable warm in the winter of 2012. As shown in the graph below, up to 14% of households were unable to keep their homes warm in 2005, the number has since cut down in half with under 6% of the population in 2020, and a peak up to 8% of the population in 2019.

Figure 82: Percentage of population unable to keep home adequately warm. Source: Eurostat



In total, 21% of the population struggled to keep their homes comfortably cool in the summer of 2012. The first and fifth quintiles were the most affected with almost 23% and 21%.

Figure 83: Share of population not comfortably cool during summer by income quintile in 2012. Source: Eurostat



9.1.2 Social and economic poverty

9.1.2.1 Household income and expenses

Household incomes have increased between 2015 and 2019, from 440.91 to 495.84 just as households have increased from 40.45 EUR to 43.52 EUR. This underlines that most households' expenditures are dedicated towards paying electricity (15.21 EUR in 2019) followed by gas (13.53 EUR in 2019).

Figure 84: Household income vs. Energy expenditure. Source: datacube

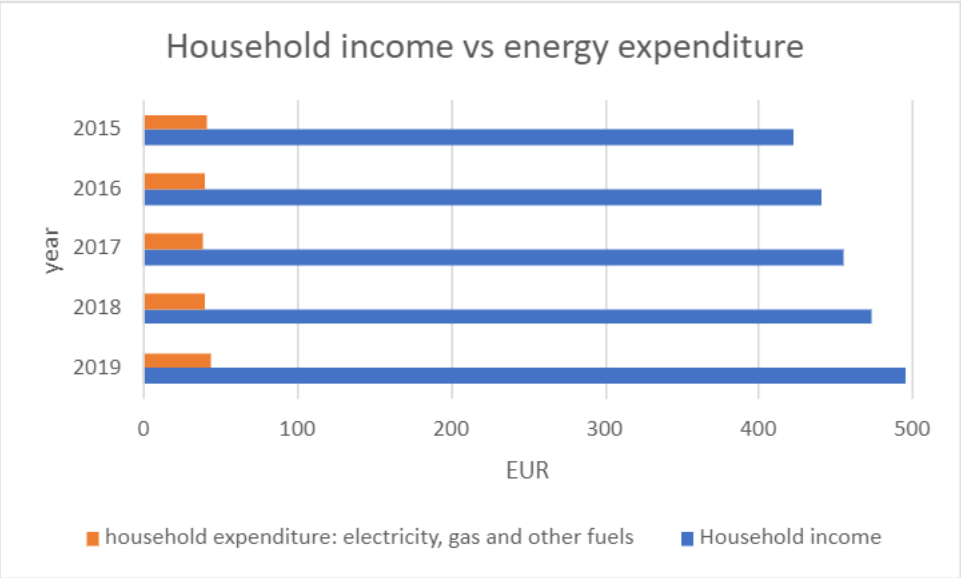
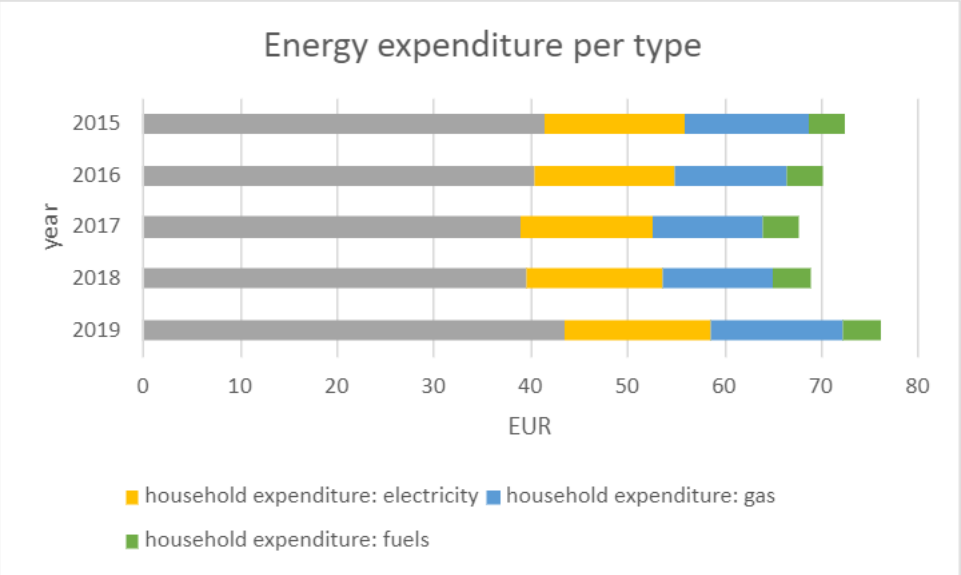


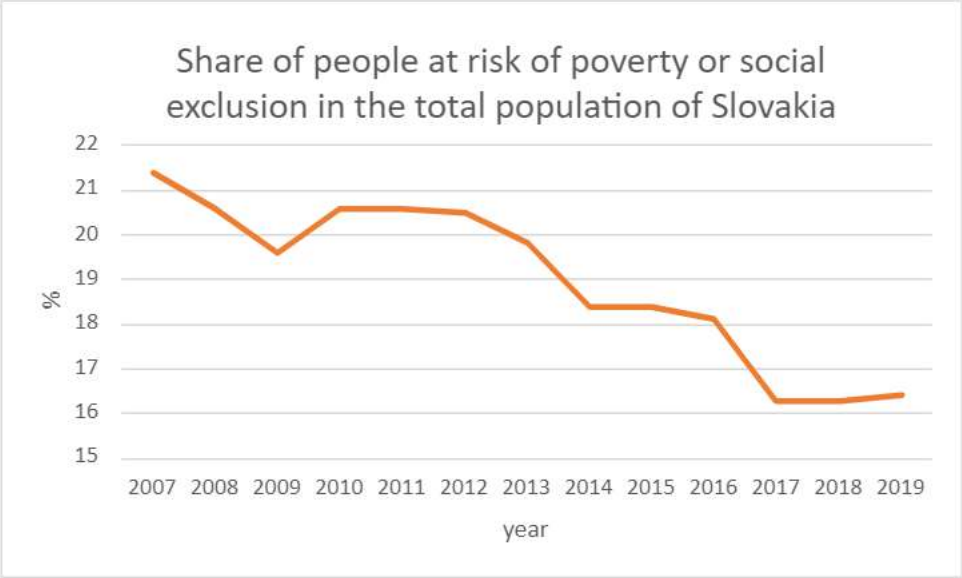
Figure 85: Energy expenditure per type. Source: datacube



9.1.2.2 Relation between energy poverty and income poverty

The share of people at risk of poverty or social exclusion was at its highest in 2007 with 21.5% of the population, it has since gone below 20% since 2013 and reached its lowest in 2017 with 16% of the population. Furthermore, Eurostat reported that in 2020, 96.5 million people in the EU were at risk of poverty or social exclusion; this was equivalent to 21.9 % of the EU population.

Figure 86: Share of people at risk of poverty or social exclusion. Source: Eurostat



9.1.2.3 Identify households that cannot afford energy due to low income

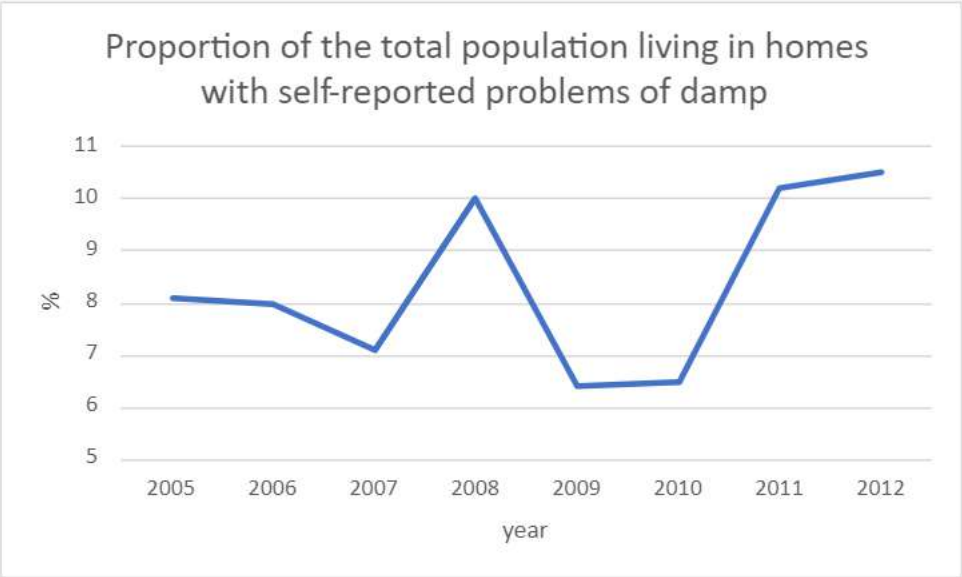
In 2018, 7.9% of households were unable to pay utility bills on time in the past twelve months.

9.1.3 Wellbeing and health

9.1.3.1 Household health and wellbeing

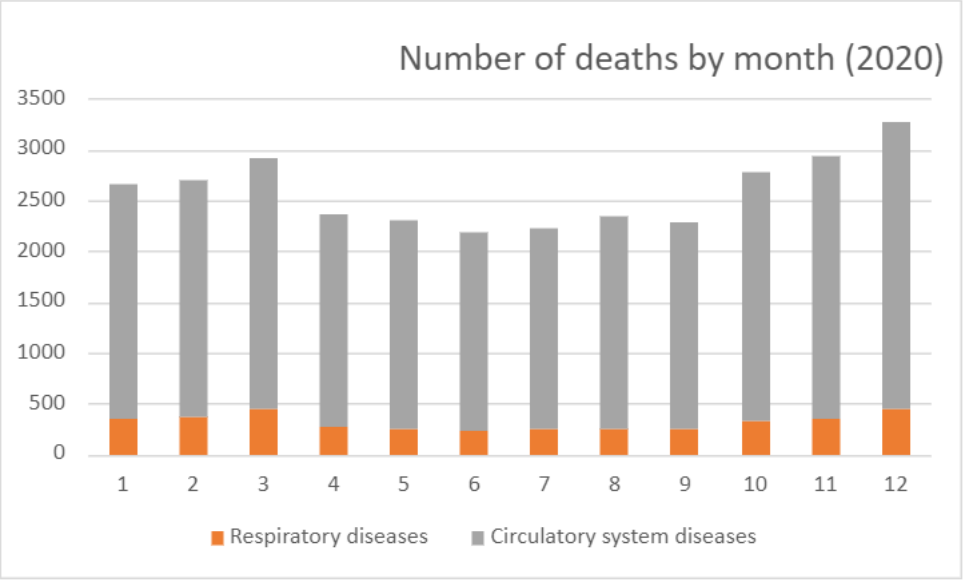
The percentage of households living in homes with reported problems of damp has varied between 2005 and 2012, starting at 8% in 2005 and experiencing a first peak in 2008 of 10% and going down to its lowest of 6.5% in 2009 and then peaked higher again in 2012 of 10.5%. Showing there has been no resolve to damp homes and that these fluctuate year after year.

Figure 87: Households living with damp in their homes. Source: WHO Environment Health



Poor household living conditions can lead to diseases, in Slovakia circulatory system diseases caused over 2,000 each month deaths in 2020 and over 2,500 in the coldest months.

Figure 88: Number of deaths per month, due to respiratory and circular system diseases Source: Statistical Office of the Slovak Republic



Winter deaths are higher in January, March, November and December showing that not being able to keep one's home adequately warm can have high consequences in the coldest months.

Figure 89: Number of deaths per month in 2020. Source: Statistical Office of the Slovak Republic

9.2 Review of energy policies focused on low-income and vulnerable groups

9.2.1 Past measures

The measures which have been put in place to reduce energy poverty in Slovakia are still ongoing and are detailed below.

9.2.2 Measures currently (or recently) implemented

As part of the economic policy measures to support economic growth approved by Government Resolution No 227 of 15 May 2013, a number of tasks were imposed with direct or indirect impact on energy poverty issues, such as:

> *Assessment of the subsidy programme to support energy efficiency and to secure funds for the implementation of the measure in relation to the possibilities of the State budget,*
>
> *Assessment of the implementation of the subsidy programme to support renewable energy sources and to secure funds for the implementation of the measure in relation to the possibilities of the State budget, preparation of a Memorandum of Understanding on not increasing the tax, levy and fee burden on entrepreneurs; in this context, the role can be understood as adopting laws that will not result in rising energy prices,*
>
> *Provision of loans for thermal insulation of existing apartment buildings (State Housing Development Fund),*
>
> *Creating employment programmes, including providing investment incentives to increase employment.*

Also, operational solutions are being prepared in Slovakia that should contribute towards consumer protection:

> *A clearly defined procedure for energy companies for when a household finds itself in a situation where it cannot pay for energy. Such households may be offered the option of a repayment calendar, or the possibility of installing a special electricity meter that limits consumption to a certain value (credit meters)*
>
> *The use of appropriate mechanisms to motivate energy consumers to manage their consumption*
>
> *New housing allowance legislation is in a late development stage. Housing costs include expenditure on rent, energy, water and other housing-related services. The introduction of a housing allowance under new legislation will contribute towards reducing the housing burden on low-income households and will consequently reduce the risk of poverty.*

"The actual housing allowance should be a directed, direct, financial support by the state for households in apartment buildings, intended in particular to cover, or more exactly, reduce that portion of apartment household costs, for legal forms of housing, that have a direct impact on the retention of accommodation and which an apartment household typically cannot afford to pay for in part or in total because of the value of those costs or the low income of the household members. So this will not be a flat-rate benefit, the accommodation allowance will be paid only for apartment households that meet the statutory requirements.

Some systemic solutions have been elaborated in government departments in relation to energy poverty:

> *Development and support of information systems for the collection and integration of data on the population and the subsequent use of this data in the assessment of energy poverty in the population*
>
> *Prioritize support for job creation in sectors and regions whose renewal, restructuring and development will create the preconditions for increasing their contribution towards economic growth and hence employment growth*

In April 2018, the National Reform Programme of the Slovak Republic 2018 was adopted, describing the structural measures that the Government of the Slovak Republic plans to implement, especially in the next two years. This programme is being implemented and continuously updated with the aim of reducing unemployment, reducing poverty and material need as such, and thus reducing energy poverty."[64]

The assessment of the NECP from the European Commission states that Slovakia does not report the number of households affected nor any measures to reduce energy poverty, only the

[64] Quoted from NECP

number of households considered at risk of poverty. Slovakia did not include any policies or measures targeted specifically at fighting energy poverty in the plan[65].

According to the Regulation Act (250/2012), the Office for the Regulation of Network Industries (ÚRSO) is obliged to develop a concept for the protection of customers who meet the conditions of energy poverty. The program of the Government of the Slovak Republic for the years 2016-2020 states: "At the same time, the Government will strongly support the protection of vulnerable customers, including the solution of energy poverty." For the purposes of defining energy poverty, the 2016 URSO concept proposed the definition, mentioned in the first paragraph.[66]

Slovakian NECP states that Slovak Republic has exceeded its plan to eliminate the risk of poverty or social exclusion. The EU SILC 2017 survey showed that it has rescued 255 000 people from the risk of poverty or social exclusion. The measures adopted have had a major impact on the achievement of this objective, in particular in the employment policy, social policy and economic policy measures of the State.

However, there are different policies that might not directly target energy poverty but may contribute to its reduction. These are:

> *The National Reform Programme (NRP) – a document based on the Europe 2020 strategy, presenting national policies and measures to sustain growth and employment;*
>
> *The National Employment Strategy of the Slovak Republic to 2020 – an interdepartmental document that, with contributions from social partners, local governments and the civil society, identified mechanisms promoting increased employment;*
>
> *The National Framework Strategy for Promoting Social Inclusion and Combating Poverty;*
>
> *Networking and the Development of Public Employment Services.*

NECP also states that the Regulatory Office for Network Industries (RONI) has set objectives and priorities in the legislative area as follows:

> *Create conditions, in cooperation with other European Union Member States, to improve electricity and gas supply security;*
>
> *Ensure appropriate pricing for all customers through appropriate regulatory methods, with an emphasis on protecting vulnerable customers and ensuring the competitiveness of industrial customers;*

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65 https://ec.europa.eu/energy/sites/ener/files/documents/staff_working_document_assessment_necp_slovakia.pdf

66 R.Filčák, D.Dokupilová. 2019. Concept of Energy Poverty in Slovakia. In Prognostické práce – Foresight, Analysis and Reccomendations / PP – FAR, vol. 11, no. 1, pp. 21-45. DOI: https://doi.org/10.31577/PPFAR.2019.11.002

Optimize support for electricity generation from renewable energy sources and high-efficiency cogeneration, taking into account new criteria to reduce the financial burden and to ensure the adequacy of the impact on final energy prices;

Achieve a proper perception of regulation, emphasizing that regulation is done in accordance with European Union rules and always ensures all costs are covered with a reasonable profit;

Promote the introduction of smart metering systems to ensure energy consumption until a financial limit is reached;

Develop mutual cooperation among the V4 countries to achieve a leading position and encourage other EU Member States to address common interests in the area;

Help address energy poverty through appropriate regulatory methods.

Based on complete analyses and long-term preparation, RONI submitted a proposal for a new concept for the protection of customers meeting the conditions of energy poverty for an interdepartmental comments' procedure. However, they consider that a proper cooperation among stakeholders is needed for the definition due to the gaps in the competences in a specific body.

There is a legal framework in Slovakia that, in different ways, targets energy poor households:

Act No 321/2014 on energy efficiency and on amendments to certain Acts, set out measures to promote and improve energy efficiency and contribute towards reducing energy poverty

Act No 250/2012 on regulation in network industries, implementing the EU Third Energy Package for the Internal Market in Electricity and Gas of 2009

Act No 443/2010 on subsidies for the development of housing and on social housing, providing subsidies for the elimination of systemic defects in apartment buildings

Act No 150/2013 on the State Housing Development Fund, which provides loans for the insulation of existing apartment buildings

Act No 417/2013 on assistance in material need and on amendments to certain Acts, as amended, on the basis of which it is possible to provide a housing allowance, which is part of the total assistance provided in material need

Decree No 18/2017, laying down price regulation in the electricity sector

Decree No 248/2016, laying down price regulation in thermal energy

Decree No 223/2016, laying down price regulation in the gas sector

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
All types of heat pumps	→	The Zelená domácnostiam II scheme incentivizes the uptake of heat pumps, covering about 272 EUR/kWp.
Solar thermal system	→	The Zelená domácnostiam II scheme incentivizes the uptake of solar thermal systems, covering about 400EUR/kW.
Gas boilers	→	The replacement of old combustion systems with condensing gas boilers is supported with grants of ≥ 3000 EUR for the cost and installation as well as connection to the gas grid. A new call for the program is expected by the end of 2021.
A total of 20% of heat is produced by renewable energy.		

9.2.3 Forthcoming measures

LTRS

LTRS states that in Slovakia, more than 64% of dwellings in apartment buildings and more than 48% of dwellings in family houses are refurbished if we also count in partial refurbishment. Therefore, it can be assumed that the number of least energy efficient apartment buildings and family houses is significantly lower than twenty years ago, when the renovation began and the buildings with the lowest energy efficiency were primarily refurbished. This also implies the need to increase the incentive for owners to renovate buildings that have not yet been insulated. With the predominant form of private ownership (more than 90.5% of inhabited flats in the Slovak Republic are in private ownership), the motivation of owners is a basic pillar on the way to renovation.

Final prices of electricity and gas for household customers in the Slovak Republic are below the average of the European Union countries, but in terms of purchase power parity, due to lower incomes and costs of other goods and services, electricity prices and gas prices for the population in Slovakia are above the EU average.

In the area of housing, there is a targeted form of support is the housing allowance (Section 14 of Act No. 417/2013 Coll.), which is intended to partially cover the costs associated with housing, including energy. The contribution is provided as a part of the benefit in material need according to Act no. 417/2013 Coll. on Assistance in Material Need and on Amendments to Certain Acts. The housing allowance represents a significant part of the eligible income for people in material need and amounts to EUR 55.80 per month if it is a household with one household member or 89.20 EUR per month if it is a household with more than one household member or on renting an apartment by several tenants.

The suggested approach is to mobilize the setting up of existing support mechanisms in the field of EHB specifically for vulnerable households in the future, especially in connection with the implementation of measures to support the renovation of family houses financed in the context of the Modern and Successful Slovakia Plan (Moderné a úspešné Slovensko).

The Slovak Republic has established effective systemic support mechanisms which are not directly linked to the amount of income but to the fulfilment of energy criteria and serve to prevent energy poverty in the future.

These are the following support mechanisms:

- contribution for the insulation of a family house,
- contribution to the installation of small installations for the use of renewable energy sources in households (family and apartment houses),
- subsidies provided for the elimination of system failures of apartment buildings,
- state premium for building savings (provided to natural persons as well as legal entities, e.g., the association of owners).

TABLE 9: SLOVAK ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS[67]

Measure	**SlovSEFF**
Description and results	This measure provides financial assistance to energy efficiency projects. The measure is developed by the European Bank for Reconstruction and Development (EBRD) and is co-funded by the Slovak and Spanish government.
Start year	2007
Organisation	National government Regional government Local government
Target groups	Not specified
Source	http://www.slovseff.eu/index.php/sk/vhodne-projekty/energeticka-ucinnost-v-obytnych-budovach

Measure	**MunSEFF**
Description and results	This measure supports energy efficiency measures in municipalities, including apartment buildings owned by municipalities.
Start year	2011
Organisation	National government Regional government Local government
Target groups	Not specified
Source	http://www.munseff.eu/komponent-2.html

Measure	**Pomoc v hmotnej núdzi**
Description and results	Assistance in case of material distress
Start year	2014
Organisation	National government
Target groups	Low-income households
Source	https://www.employment.gov.sk/sk/rodina-socialna-pomoc/hmotna-nudza/

[67] Measures were part of EPOV Member State Report

Measure	Zelená domácnostiam
Description and results	The financial contribution for the installation of equipment for the use of renewable energy sources in households: 1. small installations for the production of electricity (up to 10kW) - photovoltaic panels 2. heat generation installations that cover the energy needs: solar collectors, biomass boilers, heat pumps
Start year	2015
Organisation	National government
Target groups	Not specified
Source	https://zelenadomacnostiam.sk/sk/domacnosti/

Measure	Žiť energiou
Description and results	This measure provides households with free advice on energy efficiency and renewable energy.
Start year	2016
Organisation	National government
Target groups	Not specified
Source	https://www.siea.sk/bezplatne-poradenstvo/o-projekte-poradenstva/projekt-zit-energiou/

Measure	Cenová kalkulačka/Price calculator
Description and results	This measure allows households to compare electricity and gas prices of different suppliers.
Start year	
Organisation	Regulator
Target groups	Not specified
Source	https://www.eru.cz/en/informacni-centrum/kalkulatory-srovnani-nabidek;jsessionid=E911CEA5ADE14D452AE400731239D633

10. SPAIN

10.1 Energy Poverty Status

10.1.1 Energy efficiency

10.1.1.1 Thermal Insulation

Spain has known better thermal insulation for external walls, as the u-value decreased from 1.8 to 1.3 in 9 years, however the u-value[68] for roofs has increased from 2008 to 2017 from 1.2 to 1.4.

Figure 90: U-value of external walls. Source: Buildings Observatory.

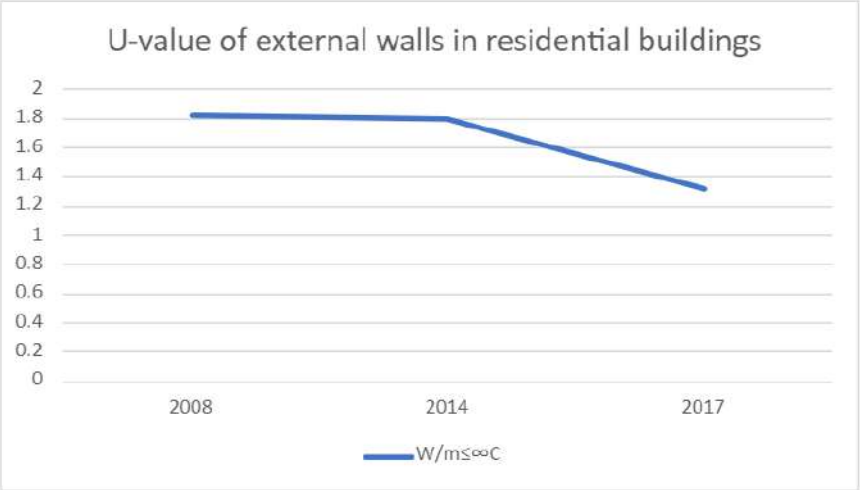
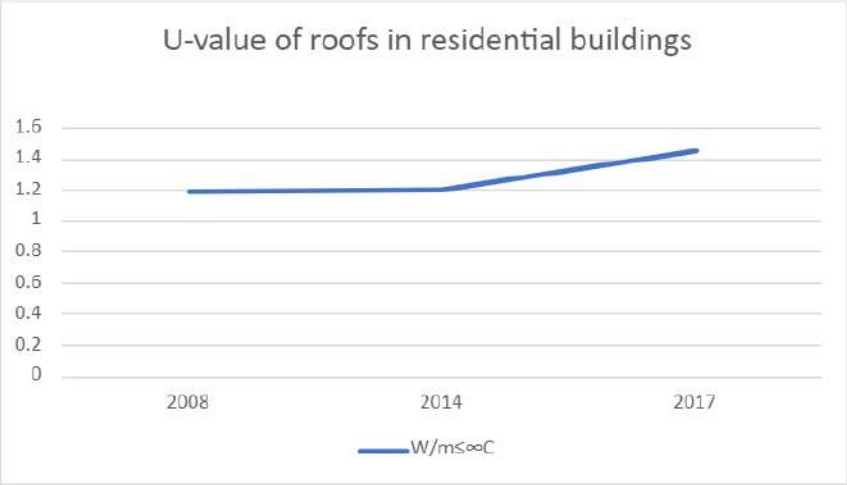


Figure 91: U-value of roofs. Source: Buildings Observatory



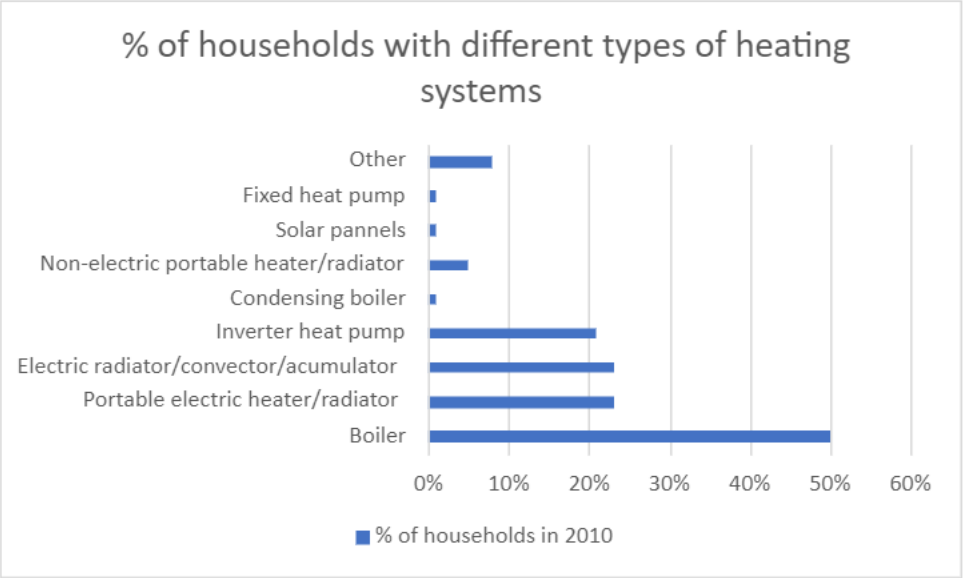
[68] A U-value is a measure of heat loss through a building element. It is also called "heat transfer coefficient". A low U-value means a high level of insulation.

10.1.1.2 Heating and cooling

In 2010, most heating systems of households were used through boilers (50%) and electric heaters and radiators (23%) and inverter heat pumps (23%).

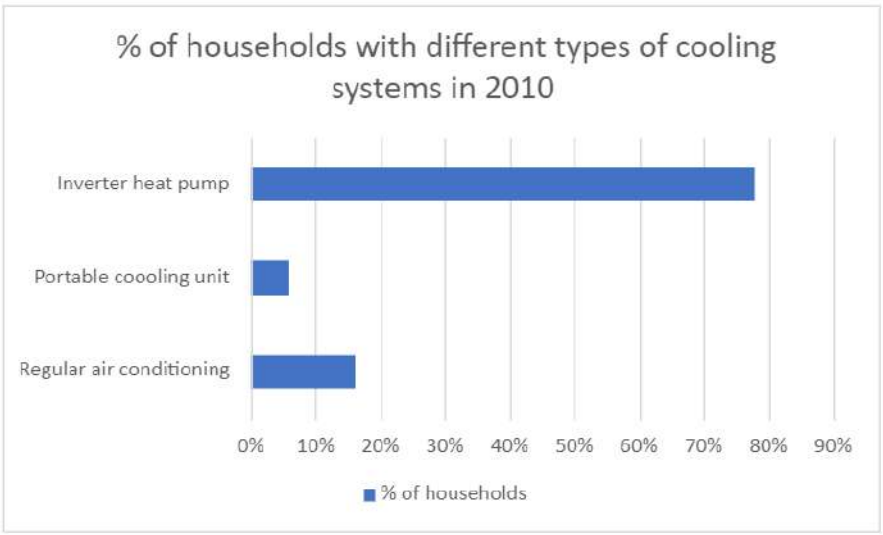
It is important to underline that in recent years where natural gas prices have remained stable or even diminished the fix term of natural gas supply contract has increased. Residential apartment buildings built since the 1990s all come with individual natural gas boilers and therefore do not have any communal space (e.g., a boiler room in the basement) in which a boiler can now be installed, thus locking people into expensive individual boiler systems.

Figure 92: Percentage of households with different heating systems. Source: IDAE



In 2010, cooling systems were used through inverter heat pumps by 78% of households, followed by 16% of households using regular air conditioning.

Figure 93: Percentage of households with different types of cooling systems in 2010. Source: IDEA



10.1.1.3 Ventilation

No data

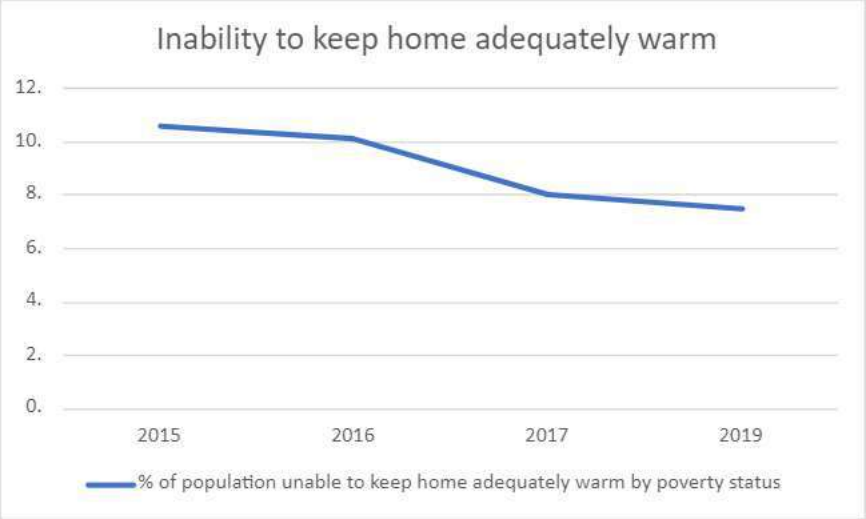
10.1.1.4 Energy consumption for basic needs

No data

10.1.1.5 Adequate temperature in winter and summer

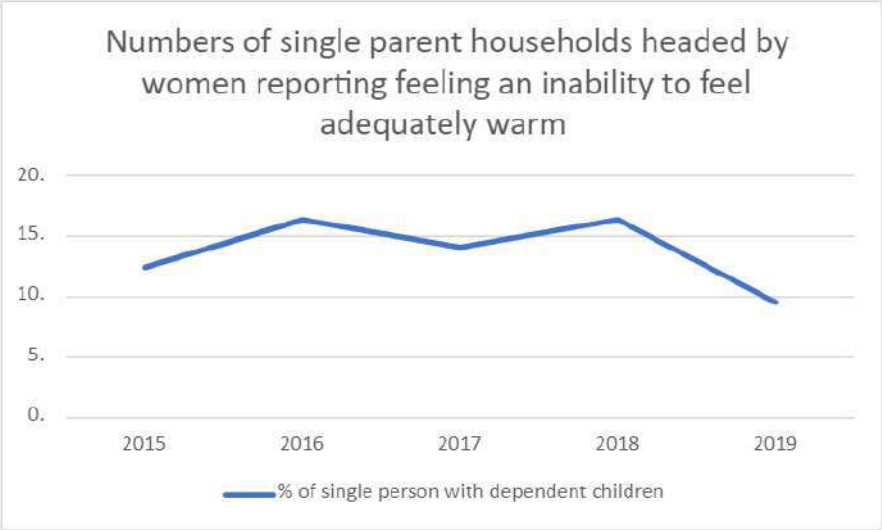
The percentage of households unable to keep their home adequately warm has decreased by 3% between 2015 and 2019, starting at 10.6% in 2015 and has gone down to 7.5% in 2019.

Figure 94: Percentage of population unable to keep warm. Source: Eurostat



Research has shown that women tend to feel colder than men, therefore data has been collected showing that single women managed to keep warm in their homes more. The percentage of women not being able to keep their home in 2015 was of 12 % and has gone down to 9% in 2019. It did rise to 16.4% in 2016 and 2018 showing instability over the years.

Figure 95: Percentage of single parent household led by women, unable to keep home adequately warm Source: Eurostat

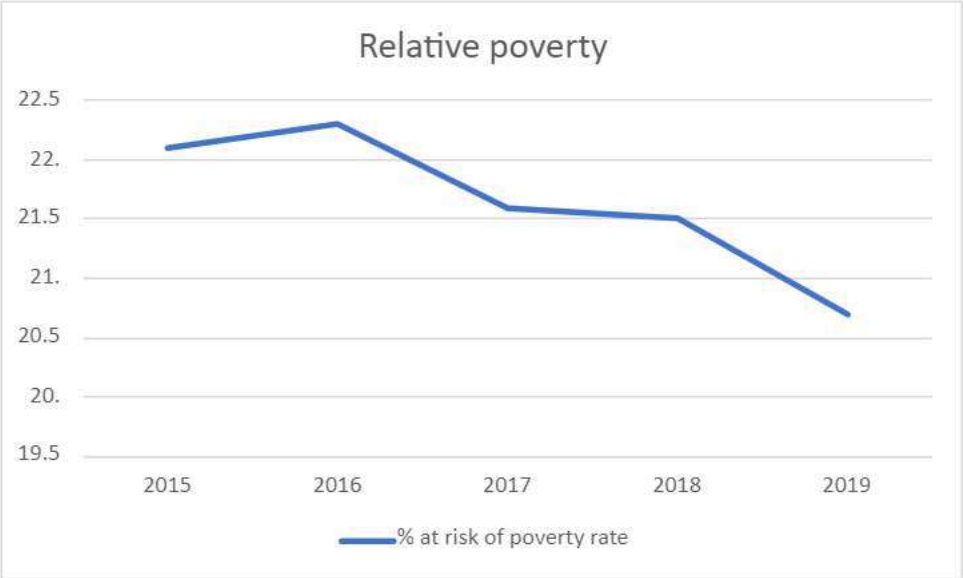


10.1.2 Social and economic poverty

10.1.2.1 Household income and expenses

Relative poverty has decreased in Spain between 2015 and 2019, from 22.1% to 20.7%. Furthermore, Eurostat reported that in 2020, 96.5 million people in the EU were at risk of poverty or social exclusion; this was equivalent to 21.9 % of the EU population.

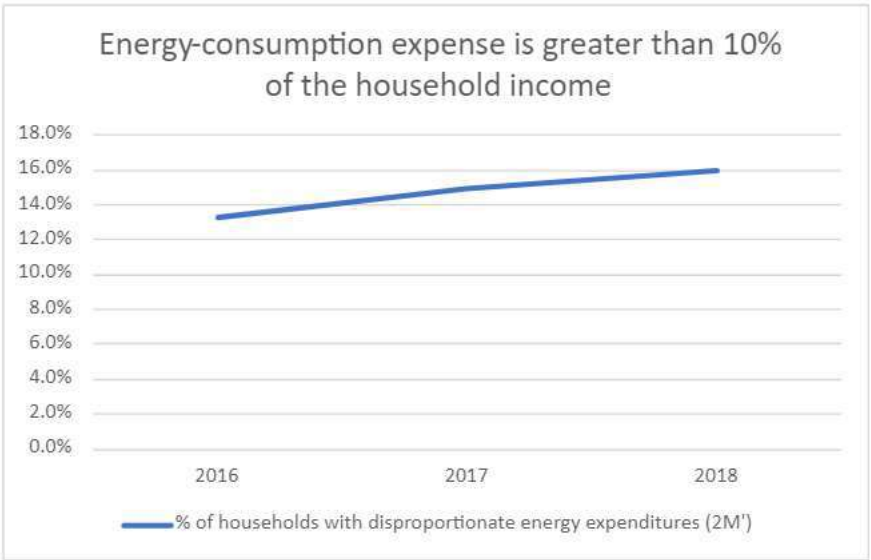
Figure 96: Percentage of population at risk of poverty. Source: Eurostat



10.1.2.2 Identify households that cannot afford energy due to low income

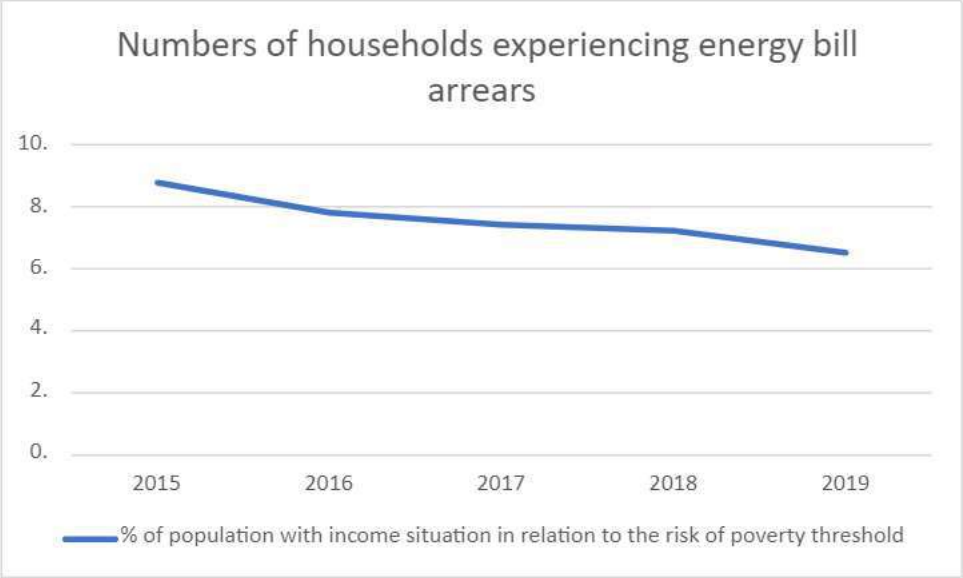
The number of households facing energy consumption expenditures higher than 10% of their income was of 13.9% in 2016. Households at this risk have increased by 2% since then, as there was 16% of the population with expenditures that were 10% higher than income in 2018.

Figure 97: Percentage of households where energy consumption is greater than 10% of household income. Source: Ministerio para la transicion ecologica y el reto demografico



Households experiencing energy bill arrears has consistently decreased from 2015 to 2019, from 9% to 6%.

Figure 98: Percentage of households experiencing energy bill arrears. Source: Eurostat

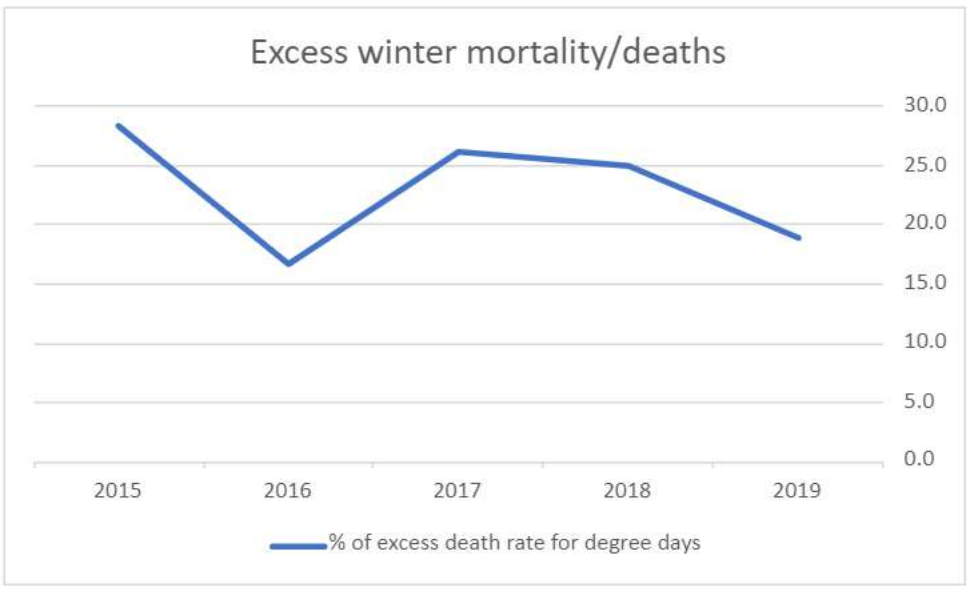


10.1.3 Wellbeing and health

10.1.3.1 Household health and wellbeing

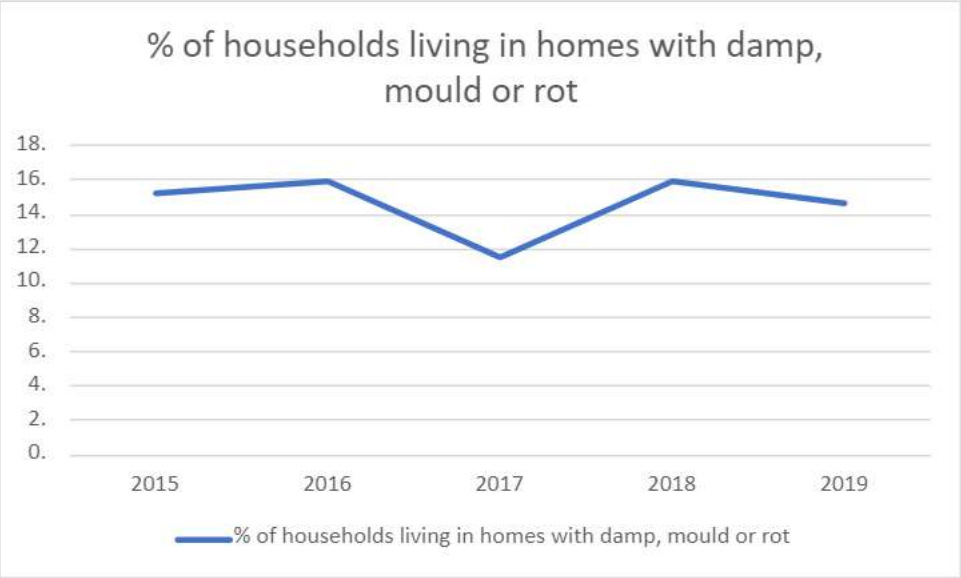
Winter mortality has varied over the years in Spain, showing a high drop in 2016 to 16% after 28% death rates in 2015 and has since gone down to 18% in 2019.

Figure 99: Excess winter mortality. Source: EWDI Spain



Households living with damp, mould or rot in their hoes has stabilised to 14%-15% between 2015 to 2019, with a high drop in 2017 of 11.9%.

Figure 100: Percentage of households living in homes with damp, mould or rot. Source: Eurostat



10.2 Review of energy policies focused on low-income and vulnerable groups

Spain is quite active in combatting energy poverty, with 7 measures at national level targeting solely or also socially vulnerable groups and a dense (non-exhaustive) list of local and regional measures. In particular, the Autonomous region of Catalunya seems particularly attentive to the issue. The national measures are mainly characterised as follows:

- **National and local measures focused on financial assistance for reducing the energy bills** (bono social termico, bono social de electricidad);
- **National and local programmes (grants) for improving the energy efficiency of households** (Ley 8/2013 de rehabilitación, regeneración y renovación urbanas; Programa de fomento de la rehabilitación edificatoria; Programa PAREER-CRECE; Ayudas en comunidades autónomas);
- **National financial measures for improving the energy efficiency of households** (ICO financiación para la rehabilitación de viviendas)
- **Disconnection protection measures** (Ley del Sector Electrico);
- **Subsidies to low-income families** (Ayudas de Urgencia Social), and
- **EU-funded Projects linked to energy poverty** carried out in Spain such as EmpowerMed, ASSIST, SMART-UP and POWERTY

10.2.1 Past measures

National and local measures focused on financial assistance for reducing the energy bills

The electricity and thermal bonuses are social tariffs in the form of a bill discount which is provided to low-income families. The social electricity tariff (*bono social de electricidad*) was first introduced in 2009 and lays its foundations on the Spanish constitution (article 31.3) and on European Directive 2009/72/EC (which requires electricity companies to guarantee security, regularity, quality and price of supply). In 2018, the total amount granted by the government was 200 M Euro.

In 2018, the Spanish government decided to introduce a second bonus of other energetic uses other than electric. The Royal Decree Law 15/2018 approved on the 5 of October introduced the social bonus for thermal energy services (bono social para usos térmicos). The amount of the thermal social bonus depends on the degree of vulnerability and on the climatic zone of the household. The thermal social bonus is automatically granted to the beneficiaries of the electric social bonus, without the need to introduce a request. In 2019, the total amount granted by the government was 80 M EUR.

THE ELECTRIC and THERMAL SOCIAL BONUSES*

*The **electricity social bonus** is a discount on the bill amounting to:*
- 25% for vulnerable consumers who meet the eligibility conditions;
- 40% for severe vulnerable consumers who meet the eligibility conditions;

For consumers at risk of social exclusion (cared for by the social services of an autonomous region or local administration who pays for at least half of the bill) the electric social bonus cover the entire amount.

After the outbreak of the Covid-19 pandemic, on top of vulnerable consumers, other categories can have access to the bonus:
- those who are unemployed;
- those who are affected by a "temporary file for the regularization of employment";
- those who are entrepreneurs and saw their income severely reduced.

*The **thermal social bonus** integrates the electricity one and varies between 25 and 123,94 EUR.*

National and local programmes (grants) and financial measures for improving the energy efficiency of households

As described in the Spanish Long Term Renovation Strategy, "**Law 8/2013** (Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbanas) introduced the Building Assessment Report (Informe de Evaluación de Edificios, IEE) at national level as a report on conservation status, compliance with basic accessibility conditions and energy efficiency, which is obligatory for collective residential buildings over 50 years old. The idea was to convert this into a key component for promoting energy renovation. In Spain, conservation of buildings and compliance with basic accessibility conditions from parts of the legal obligations inherent in ownership, such that owners must carry out the necessary conservation works and make any reasonable adjustments in terms of accessibility that result from the Building Assessment Report. Although energy efficiency improvements are not obligatory, the requirement to have an Energy Performance Certificate (which must include recommendations on voluntary energy efficiency improvements) as an integral part of the Building Assessment Report aims to create

synergies between obligatory conservation works on facades and roofs and voluntary energy efficiency improvements. At the end of 2017, Constitutional Court Ruling 143/2017 of 14 December 2017 ruled that a large part of the regulation on the Building Assessment Report in state legislation was unconstitutional. As a result, as of that Ruling, the detailed regulation of the procedure and contents of the Building Assessment Report has been the exclusive responsibility of the Autonomous Communities. Although the current situation in the different Autonomous Communities is very unequal, various studies have shown that, in the majority of cases (although not all), regional regulations have adopted the basic content laid down in the State legislation at that time."

In the preamble of lay 8/2013, the fight against energy poverty is mentioned as one of the three main reasons why the law was necessary.

Similarly, the **aid programme for the energy rehabilitation of existing buildings**[69] (program PAREER-CRECE) provides grants for building renovation, but also for integration of renewables. This programme runs since 2016 and is funded through the European Regional Development Funds (ERDF). It covers the following interventions, with the basic support into parenthesis: improvement of the energy efficiency of the thermal envelope (30%), improvement of the energy efficiency of thermal and lighting installations (20%), substitution of conventional energy for biomass in thermal installations (25%) and substitution of conventional energy for geothermal energy in thermal installations (30%). On top of the basic support, an additional one can be granted in cases of: interventions in social housing or under social protection; improvement of two energy classes or with class A or B as result of renovation works; integrated actions (2 or more measures). On top of that, the programme offers the possibility to access loans for up to 90% of the total amount with very favourable terms (Euribor interest rate for a maximum of 12 years).

In terms of loans, the **ICO housing and urban and rural regeneration programme**[70] offers loans to finance construction or renovation of social or affordable housing for rent, energy efficiency measures, measures for conservation and improvement of accessibility in housing, urban and rural renovation.

On top of national grants and loans, Spanish regions also provide financial assistance for energy efficiency renovations and renewable energy.

Disconnection protection measures

The Law 24/2013 del Sector Electrico foresees that the supplier can cut the electricity provision in case of non-payment, two months after the notification. However, in its article 52, it establishes the prohibition to disconnect the electricity supply to domestic consumers in the following cases:

- when "there is documentary proof provided by medical personnel that the electricity supply is essential for the functioning of medical equipment that is indispensable for keeping a person alive";

[69] https://www.idae.es/en/support-and-funding/renovation-buildings/calls-closed/aid-program-energy-rehabilitation-existing
[70] https://www.ico.es/programa-ico-vivienda-y-regeneraci%C3%B3n-urbana-y-rural

- consumers at risk of social exclusion, i.e., severe vulnerable consumers beneficiaries of the social electricity tariff and supported by the social services of an autonomous region or local administration;

- vulnerable consumers beneficiaries of the social electricity tariff when there are children un16 or persons with a degree of disability in the household.

Article 52 of law 24/2013 (26 December)[71] also states that in the case of vulnerable consumers benefiting from the social bonus, after 4 months from the notification of the first payment request, the Minimum Vital Supply (SMV) will be applicable. The Minimum Vital Supply (SMV) is an instrument of social protection in the fight against energy poverty: consumers in a situation of vulnerability will have a maximum capacity (in KW) controlled power that guarantees minimum conditions of comfort. The SMV is valid for a period of six months during which the supply cannot be interrupted. After these 6 months, the electricity provider may request the suspension of the supply.

As part of COVID-19 emergency measures, the Spanish government issued in March 2020 Royal Decree-Law 11/2020 (Real Decreto-ley 11/2020, de 31 de marzo, por el que se adoptan medidas urgentes complementarias en el ámbito social y económico para hacer frente al COVID-19)[5] that established a ban to the disconnection of water, electricity and natural gas as essential household supplies. The ban will be in place at least until 28 February 2022.

In Catalonia, Law 24/2015 (Ley 24/2015, de 29 de julio, de medidas urgentes para afrontar la emergencia en el ámbito de la vivienda y la pobreza energética) disconnections from basic utility supplies (water, natural gas and electricity) of households certified to be 'at risk of housing exclusion' by local social services. It also introduces the so called 'precautionary principle' according to which utility providers are obliged to inquire social services about a household with a record of unpaid bills is at risk of housing exclusion before proceeding to disconnect.

Subsidies to low-income families

On top of energy related measures, other measures targeting vulnerable consumers in general are active at national and regional level. A detailed Description and results of ongoing and foreseen measures is provided in the **National Strategy to Combat Poverty and Social Exclusion 2019-2023 (EAPN)**[72], approved by Agreement of the Council of Ministers of March 22, 2019, it is aligned with the objectives of the European Pillar of Social Rights, the Europe 2020 objectives and the 2030 Agenda of United Nations, responds to the Government's commitment to cohesion and social progress, providing adequate coverage to the needs of citizens and paying special attention the most vulnerable people in situations of poverty or social exclusion**.** The strategy contemplates the fight against energy poverty as a line of action.

[71] https://boe.es/buscar/act.php?id=BOE-A-2013-13645#a52

[72] https://www.eapn.es/ARCHIVO/documentos/noticias/1553262965_estrategia_prev_y_lucha_pobreza_2019-23.pdf

10.2.2 Measures currently (or recently) implemented

Spanish strategic framework

Spain created a strategic framework for Energy and Climate planning based on five documents and with high attention to energy poverty.

The **National Energy and Climate Plan (NECP)**[73] is accompanied by the **Climate Change and Energy Transition Bill**[74] - which sets minimum targets for emissions reductions for 2030 and 2050, providing predictability and a sense of direction - and by the **Just Transition Strategy**[75], which, based on solidarity, is designed to anticipate and manage the consequences on those regions and people directly linked to technologies that will be progressively displaced as a result of the energy transition promoted by the NECP. The JTS is also part of the **national Recovery and Resilience Plan**[76]. In addition, Spain adopted the **National Strategy on Energy Poverty**[77] in the year of 2019.

The national **programme for the promotion of building renovations**[78] runs since 2013. The one in place currently is valid between 2018 and 2021 and targets all types of residential buildings (single or multi apartments, owned by natural persons or have legal personality of a private or public nature). There are minimum renovation levels required, which vary depending on the climatic zones: 35% for areas D and E, 25% for C and 20% for A and B. The program supports 40% of investment (75% in case of low-income households).

National Energy and Climate Plan

The Spanish NECP includes a specific measure (measure 4.11) on energy poverty and makes direct reference to the Spanish National Strategy on Energy Poverty (2019-2024).

The NECP states as one of its objectives for the Internal Energy Market dimension to "respond to the need for a more competitive, transparent, flexible and non-discriminatory energy market […] which should, at the same time, be focused on consumers and their protection while establishing the necessary conditions to ensure a just transition and address situations of energy poverty".

However, NECP policies will result in negative impacts for the low income as it puts too much emphasis on heat pumps for domestic heat. The performance of a heat pump depends on external temperatures: if temperatures drop their performance is compromised unless high-capacity equipment is installed. More financial support would be needed for vulnerable households to adopt better technologies for heat provision.

[73] https://ec.europa.eu/energy/sites/default/files/documents/es_final_necp_main_en.pdf
[74] https://www.boe.es/boe/dias/2021/05/21/pdfs/BOE-A-2021-8447.pdf
[75] https://www.lamoncloa.gob.es/temas/fondos-recuperacion/Documents/16062021-Componente10.pdf
[76] https://ec.europa.eu/info/sites/default/files/spain_recovery_and_resilience_plan_es.zip
[77] https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenergetica2019-2024_tcm30-496282.pdf
[78] https://www.mitma.gob.es/arquitectura-vivienda-y-suelo/programas-de-ayudas-a-la-vivienda/programa-de-fomento-de-eficiencia-energetica-y-sostenibilidad-en-viviendas

National Strategy on Energy Poverty (ENPE)

The National Strategy Against Energy Poverty, which was approved in 2019, is an instrument that enables the phenomenon of energy poverty to be addressed with an integrated approach and a medium- and long-term vision. The Strategy provides a definition of energy poverty (*Energy poverty is the situation in which a household cannot satisfy the basic needs of energy supplies, as a consequence of an insufficient level of income and that, where appropriate, may be aggravated by having an energy inefficient* home) and, in relation to it, of a vulnerable consumer (*A vulnerable consumer is a consumer of electrical energy or thermal energy who finds him/herself in a situation of energy poverty, and who is an eligible beneficiary of the measures of support established by the administrations*). It has made an initial diagnosis and has characterized the problem by designing official measurement indicators in line with the 4 headline indicators (2M, M/2, inability to keep the home adequately warm and arrears on utility bills) by the European Observatory on Energy Poverty (EPOV, now Energy Poverty Advisory Hub - EPAH), which will allow comparison with other Member States and also monitor progress towards the ENPE goal of reducing the incidence of energy poverty by 25% between 2019 and 2024. The IDAE, a public business entity attached to MITERD through the State Secretariat for Energy, has been designated as the body responsible for monitoring and updating the indicators for measuring fuel poverty in Spain. Annual updates of the four headline ENPE indicators are published every autumn since 2019.

The National Strategy on Energy poverty is articulated on 4 axes, which include 9 lines of action and 19 measures. As reported above, some of these are ongoing, others foreseen for the future.

1. **<u>AX 1: improving knowledge on energy poverty</u>**
    a. LINE 1: establishing and implementing a solid calculation methodology of key indicators and identify responsible bodies.
        - Measure 1: implement a solid calculation methodology of key indicators
    b. LINE 2: making indicators transparent
        - Measure 2: the Ministry of Ecological Transition will publish the key indicators the 15th October of each year
    c. LINE 3: deepening the knowledge of minimum energy expenditure
        - Measure 3: carrying out a detailed study of energy expenditure of consumers according to the climatic zone in which they live.
2. **<u>AX 2: improve the response to the current energy poverty situation</u>**
    d. LINE 4: Improving grants for energy poverty
        - Measure 4: creation of a new electric social bonus;
        - Measure 5: establish a minimum vital income;
    e. LINE 5: consumers protection in extreme weather conditions;
        - Measure 6: disconnection protection in case of extreme weather conditions;
3. **<u>AX 3: structural change for energy poverty reduction</u>**
    f. LINE 6: reduction of people in the condition of energy poverty
        - Measure 7 (short term): light home renovation measures;

- Measure 8 (medium term): promotion of the public housing stock for social rent with subsidies for the costs of energy supplies for especially vulnerable groups
- Measure 9 (medium term): substitution of electric appliances with more efficient ones (e.g. refrigerators, ovens, washing machines, boilers, etc.)
- Measure 10 (long term): deep renovation of buildings;
- Measure 11 (long term): other measures for building renovation foreseen in the LTRS;

4. **AX 4: consumer protection and other awareness raising measures**

g. LINE 7: training professionals in the fight against energy poverty
- Measure 12: preparation of protocols to early detect situation of energy poverty;
- Measure 13: homogenization of data and creation of common datasets and databases

h. LINE 8: training and informing consumers
- Measure 14: create awareness raising mechanisms and improve collective knowledge on energy poverty in Spain;
- Measure 15: create a web page as central focal point on energy poverty;
- Measure 16: information campaigns on smart meters' functions;
- Measure 17: information campaigns on energy use, energy savings and energy efficiency;
- Measure 18: establishment of a permanent communication channel on the news regarding energy poverty to interested subjects;

i. LINE 9: improve regulatory conditions for consumers' protection
- Measure 19: inclusion of the energy poverty perspective in

Reaction to Current Rising Costs of Electricity[9]

On the 24 of June 2021, the Spanish Government adopted a Royal Decree Law 12/2021 including a series of tax and market measures to address energy price increases. Some of these included the reduction of the VAT rate from 21% to 10% for customers with less than 10 kW of contracted power until the end of 2021, as well as the temporary suspension of the 7% generation tax until the end of September 2021.

On 14 September 2021, Royal Decree Law 17/2021 was passed which established a temporary deduction of market revenues for non-CO2 emitting power plants with the aim of reducing customers' bills and is set to last from 15 September 2021 until 31 March 2022. The figure is calculated as a proportion of the excess of natural gas prices over a base gas price set at 20 EUR/MWh, where the total amount of this deduction initially foreseen was around 2.6 billion EUR. Other measures included in this Royal Decree Law are the reduction of the Special Tax on Electricity (IEE) from 5.11% of the electricity bill to 0.5% until the end of 2021, the extension of

the suspension of the 7% generation tax until the end of 2021 and the freezing of VAT at 10% for modest energy-consumption households. In addition, it introduces a cap on gas price reviews for the regulated tariff of natural gas, known as the "last resort tariff" (TUR) for customers that have annual consumption of less than 50 MWh and are not in the liberalised market. Furthermore, the RDL increases from 1,1 to 2 billion EUR the amount of revenues from CO_2 emission allowance auctions to finance levies in the electricity bill.

A new Royal Decree Law 23/2021 was adopted on 26October, increasing the social bonus to vulnerable consumers from the current 25% to 60% and from 40% to 70% in the case of the severely vulnerable until the 31 March 2022. Moreover, the budget for the thermal social bonus announced by the Council of Ministers has doubled in 2021, rising to 202.5 million EUR resulting in up to 90 EUR on average (35 in the warmest areas and 124 in the coldest) to help vulnerable families face the escalation of electricity and gas.

Clean heating subsidy summary from EEB[15]

Type of Technology		Type of Subsidy
Air-to-air heat pumps	→	The Rehabilitación Energética de Edificios scheme covers ≥40% of the cost of a heat pump in villages and small towns through grants. Municipal incentives are also popular in some areas. Households living in major cities can expect an average subsidy of about 1.100 EUR.
Solar thermal system	→	The Rehabilitación Energética de Edificios scheme covers ≥40% of the cost in villages and small towns through grants. Municipal incentives are also popular in some areas. Households living in major cities can expect an average subsidy of about 1.800 EUR.
Gas boilers	→	There are no national support schemes to fund fossil boilers in 2021.

A total of 19% of heat is produced by renewable energy.

10.2.3 Forthcoming Measures

The NESP and ENPE detailed above include measures which will be implemented the future to reduce energy poverty. Aside from these two, the LTRS identifies different interventions which may be put in place by the Spanish government.

Long term renovation strategy[79]

The LTRS has a whole section focused on considerations regarding vulnerable consumers and energy poverty (section 7.6). In particular, the strategy identifies different renovation scenarios quantifying in monetary terms the intervention needed by the government.

[79] https://ec.europa.eu/energy/sites/default/files/documents/es_2020_ltrs_en_version.pdf

TABLE 10: SPAIN'S ENERGY POLICIES AND MEASURES FOCUSED ON LOW-INCOME, VULNERABLE AND/OR ENERGY POOR GROUPS

Measure	**Bono social de Electricidad / Social bonus for electricity**
Description and results	This measure implements a bonus for the electricity bill for vulnerable households and protects severely vulnerable households from disconnection. The recently approved Royal Decree 897/2017 substitutes the previous social tariff started in 2009 and sets new eligibility criteria.
Start year	2009
Organisation	National government
Target groups	Disabled Low-income households Pensioners Unemployed Vulnerable households
Source	EPOV ENPE (estrategia national contra la pobreza energetica)

Measure	**Ley del Sector Electrico - Suministros esenciales / Electric sector law - essential services**
Description and results	This measure prohibits the disconnection of electricity for families receiving the electricity bonus or the social bonus with kids minor than 16 or vulnerable components
Start year	2013
Organisation	National government
Target groups	No specific target group
Source	ENPE: https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenergetica2019-2024_tcm30-496282.pdf

Measure	**Ley 8/2013 de rehabilitación, regeneración y renovación urbanas / Law 8/2013 on building renovation**
Description and results	This law provides a framework for the renovation of buildings and includes the fight against energy poverty as an objective. Energy efficiency measures are prioritized in serious situations of energy poverty. In 2019, the bonus was granted to over one million vulnerable customers.

Start year	2013
Organisation	National government
Target groups	No specific target group
Source	EPOV

Measure	**Programa de fomento de la rehabilitación edificatoria / Program for the promotion of building renovations**
Description and results	This measure provides financial assistance to households for energy efficiency works.
Start year	2013
Organisation	National government
Target groups	No specific target group
Source	EPOV

Measure	**Ley 24/2015, de 29 de julio, de medidas urgentes para afrontar la emergencia en el ámbito de la vivienda y la pobreza energética / Disconnection protection Catalonia**
Description and results	This measure prohibits the disconnection of electricity, gas and water supply for vulnerable households as certified by local social services. It also applies a precautionary principle according to which utility companies are obliged to check first with local services whether the consumer with arrears is vulnerable or not.
Start year	2015
Organisation	Regional government (Autonomous Government of Catalonia)
Target groups	Low-income households Vulnerable households
Source	EPOV

Measure	**Puntos de asesoramiento energético / Energy Advice Points**
Description and results	The Energy Advice Points give advice to households in case of disconnection risk, as well as providing information on energy savings and energy efficiency. During the first year of service, the energy advice points attended to 23,000 people and prevented services from being cut off in 5,000 cases.
Start year	2017

Organisation	Local, city of Barcelona
Target groups	No specific target group
Source	EPOV

Measure	**Bono Social Térmico / Social Bonus for heating**
Description and results	Vulnerable customers that receive the social tariff for electricity also receive the social bonus for heating. The amount of the bonus depends on the vulnerability level of the household and the climate zone the household lives in. In 2019, the bonus for highly vulnerable households ranged from 40 EUR to 123,94 EUR. In 2019, the bonus was granted to more than one million vulnerable customers.
Start year	2019
Organisation	National government
Target groups	Vulnerable households
Source	EPOV ENPE (estrategia national contra la pobreza energetica)

Measure	**Programa PAREER-CRECE / PAREER-CRECE programme**
Description and results	This measure provided financial assistance to carry out energy efficiency improvements and substitution of conventional energy sources with geothermal energy or biomass in buildings.
Start year	
Organisation	National government
Target groups	No specific target group
Source	EPOV

Measure	**ICO financiación para la rehabilitación de viviendas / ICO loans for housing renovation**
Description and results	This measure provides loans for building renovations.
Start year	
Organisation	National government
Target groups	No specific target group
Source	EPOV

Measure	**Ayudas en comunidades autónomas / Regional energy efficiency programmes**
Description and results	Spanish regions provide financial assistance for energy efficiency renovations and renewable energy.
Start year	
Organisation	Regional governments
Target groups	No specific target group
Source	EPOV

Measure	**Ayudas de Urgencia Social / EMERGENCY FINANCIAL SUPPORT**
Description and results	This measure provides emergency financial support to households, which could also be used for energy expenses in case of disconnection risk.
Start year	
Organisation	Local
Target groups	Low-income households Vulnerable households
Source	EPOV

Measure	**Ayudas del Programa de Rehabilitación de Viviendas para personas en situación de vulnerabilidad / Housing renovation programme for vulnerable households**
Description and results	This measure funds improvements in the housing conditions of vulnerable households, including targets to increase energy efficiency levels to protect households against energy poverty. Beneficiary households can be reimbursed 100% of the costs of retrofitting measures up to 20,000 EUR. During the first year of service, the energy advice points attended to 23,000 people and prevented services from being cut off in 5,000 cases.
Start year	2017
Organisation	Local, city of Barcelona
Target groups	Low-income households Vulnerable households
Source	EPOV