POWERPOOR

Sofia Energy Agency – SOFENA

Bulgaria. Baseline Assessment Report

POWERPOOR 'Empowering Energy Poor Citizens through Joint Energy Initiatives'

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Table of Contents

Tables

Figures

1. INTRODUCTION

1.1. Statistics on energy poor households

1.1.1. Defining the scope of energy poverty in Bulgaria

The term "energy poverty" is not defined in the Bulgarian legislation. It is tackled as part of a broader set of social policies, making no distinction with income poverty. Bulgaria lacks a definition and monitoring system for energy poverty and only the concept of "vulnerable consumers" is used. The Energy Act defines the term "vulnerable consumers" as "household customers in whose property, supplied with electricity, live persons who for reasons of old age, health or income are exposed to the risk of social exclusion about the supply and consumption of electricity and who benefit from social assistance measures to ensure the necessary electricity supplies".[1]

According to the National Energy and Climate Plan[2] the mechanism for the protection of energy vulnerable customers in the process of liberalisation of the electricity market aims to ensure a minimum quantity of electricity, other than heating needs. The "vulnerable consumers" definition has been developed by the Ministry of Labour and Social Policy, the Ministry of Energy, and the Energy and Water Regulation Commission and includes a wide range of categories: persons over 70 years of age, living alone whose sole source of income is their pensions up to the poverty threshold for the respective year, persons with 90% or more limitation of workability and who need additional help, families with children with disabilities who rely on additional help, and persons and families who already receive targeted aid for heating according to the law on social welfare.[3]

The expert analyses on energy poverty in Bulgaria suggest using more complex approaches. Energy poverty is perceived as a multidimensional concept that needs a combination of measuring indicators such as direct measuring, energy expenditure approach reflecting the affordability of energy prices for households, which depends on their income, and consensual approach. Experts suggest for the specific Bulgarian conditions to use as working definition that "energy poor are those households that after covering the costs for providing adequate thermal comfort, remain with disposable income below the average monthly cost of other consumer goods and services (or other measurable indicator)". In addition, the definition of energy poverty is also affected by the increased competition between different energy suppliers and the facilitated entry of individual RES installations, thus introducing another important indicator according to which "energy-poor are those households that do not have access to modern energy services". According to experts, the energy poverty in Bulgaria is also influenced by the energy poverty awareness and culture of citizens that determine their behaviour and ability to optimise energy costs.[4]

[1] Ministry of Energy, Definition and measures for protection of the vulnerable customers, 2016 https://www.me.government.bg/files/useruploads/files/vop/ppt_26may.pdf

[2] https://ec.europa.eu/energy/sites/default/files/documents/bg_final_necp_main_en.pdf

[3] Za Zemiata, Energy benefits for the poor or burning money and health, 2016 http://archive.zazemiata.org/v1/uploads/media/Energiina_bednost-Bg.pdf

[4] EnEffect, Energy poverty in light of the local elections, 2019 http://ecoenergy-bg.net/UserFiles/File/NOVINI/Report-EnglishA4_compressed.pdf

1.1.2. Dimensions and level of energy poverty

Energy poverty continues to be a serious and widespread problem in Bulgaria both in terms of territorial distribution and in view of the various demographic groups. General poverty and social exclusion are linked to energy poverty, despite the existing differences in the root causes. Although there is a trend of gradual reduction of energy poverty after 2011, in 2019 still 30.1% of households are unable to keep their homes adequately warm while the corresponding EU average is 6.9%.[5] In 2019, 27.6% of households have overdue utility bills and were at risk of supply disconnections, while the respective EU average is 6.2%.[6] As a consequence, these households constantly limit their energy consumption below the level of their actual needs. The situation is further exacerbated by the low energy efficiency of the existing housing stock and the insufficient coverage of the social benefits system. These two key indicators define Bulgaria as the country with the highest levels of energy poverty in the EU.

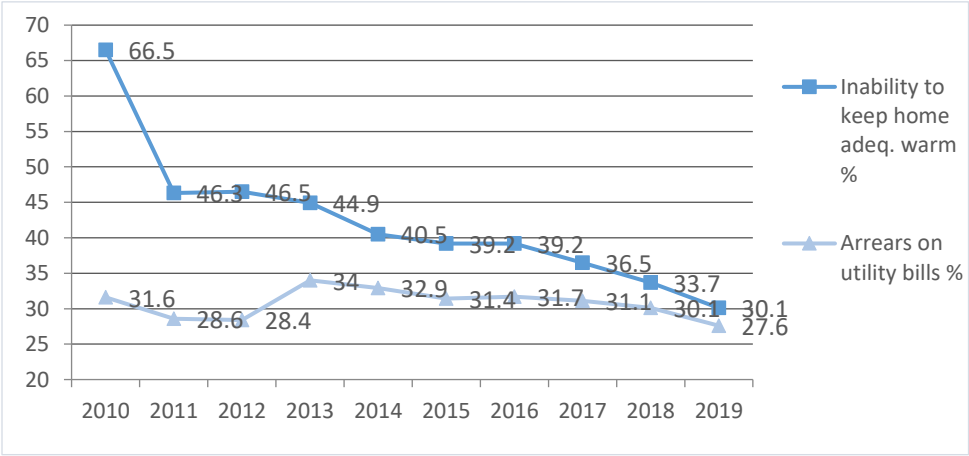

Figure 1: Performance over time, Source: Eurostat EU-SILC survey 2020

According to national statistics, in 2019 the consumer total household expenditure for housing, water, electricity, gas and other fuels is 16.5% while the share of households that spend an unusually high share of their income on energy expenditure is 11.5%[7]. These households live in dwellings with poor thermal and energy efficiency and gradually deteriorating living conditions. The latest statistics confirm the already clear trend for particularly high levels of the two consensual indicators “arrears on utility bills” and “inability to keep home adequately warm” in the Central and Eastern European countries. For another year, Bulgaria shows the highest rates of energy poverty according to these indicators - 27.6% and 30.1%,

[5] Population unable to keep home adequately warm by poverty status. Eurostat EU-SILC survey, 2020 https://ec.europa.eu/eurostat/databrowser/view/sdg_07_60/default/table?lang=en

[6] Arrears on utility bills. Eurostat EU-SILC survey, 2020 https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_mdes07&lang=en

[7] https://www.nsi.bg/sites/default/files/files/publications/Btdom2019.pdf

respectively. Recent research on the topic notes the two typical trends for Bulgaria, namely increasing household energy expenditures, accompanied by the largest decline in energy poverty levels.[8] Furthermore, when considering the deferent measurement types the energy poverty levels in Bulgaria vary from 12% up to 54.6% according to the applied measurement method. Research reveals that, depending on the method used, energy poverty affects 11.9% of the population with the method "low income - high expenditure", 34.6% of the population with the method "poverty after energy consumption", and 54.6% of the population using the "ten percent rule" method.[9]

The analysis of the territorial distribution of energy poverty in Bulgaria shows the lowest values of the indicators ability to keep the house adequately warm and having arrears on utility bills in the rural areas, where 32% of the Bulgarian population lives. Among the main reasons for this is the prevalent typology of dwellings, namely the low-rise single-family residential buildings that require more heating and cause higher heat dissipation. At the same time, national statistics show a continuous trend of lower disposable incomes, resulting in a higher share of the rural population with arrears on utility bills.[10]

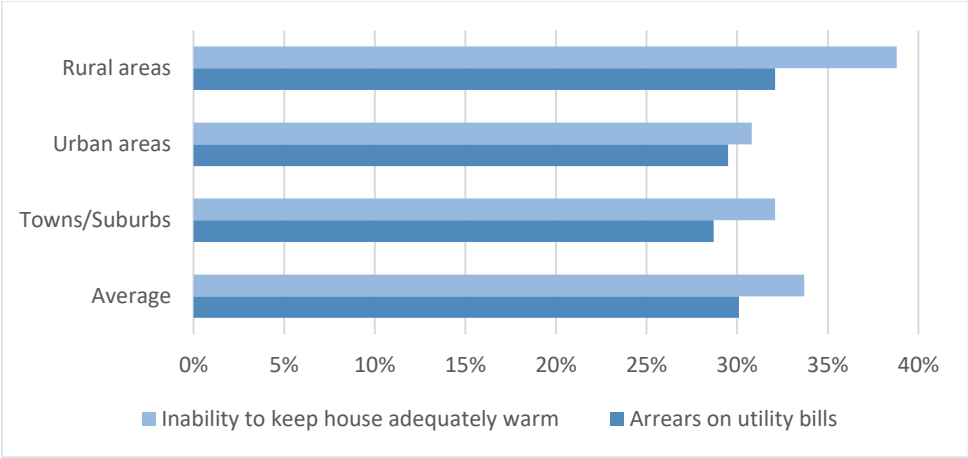

Figure 2: Inability to keep home warm and Arrears on utility bills disaggregated by urban density, Source: EPOV. Member State Report Bulgaria

[8] Bouzarovski, S., Thomson, H., Cornelis, M., Varo, A. and Guyet, R. 2020. Towards an inclusive energy transition in the European Union: Confronting energy poverty amidst a global crisis, Publications Office of the European Union

[9] Peneva, T. 2017. Analysis of the methods of investigation of energy poverty in Bulgaria file:///C:/Users/User/Downloads/TPeneva_Avtoreferat%2020.07.2017.pdf

[10] Member State Report Bulgaria, EU Energy Poverty Observatory, 2020 https://www.energypoverty.eu/sites/default/files/downloads/observatory-documents/20-06/extended_member_state_report_-_bulgaria.pdf

1.2. Energy prices

The household energy costs gradually increase over the past decade and in 2020 the prices for household consumers are 9.97 €ct/kWh for electricity and 3.96 €ct/kWh for gas[11]. Household electricity prices showed a slight and consistent incline while household gas prices fluctuated according to global wholesale gas prices with a decreasing trend in the last two years. Moreover, Bulgaria is characterised by relatively lower electricity and gas prices when compared to EU average. This is a result of the still ongoing governmental policy to address energy poverty by subsidising electricity prices.[12] Bulgaria is among the EU member states with heavily regulated energy prices, which contributes to their relative stability. The full electricity price liberalisation in the household sector will take place only after a mechanism for the protection of energy vulnerable consumers of electricity is put in place.[13]

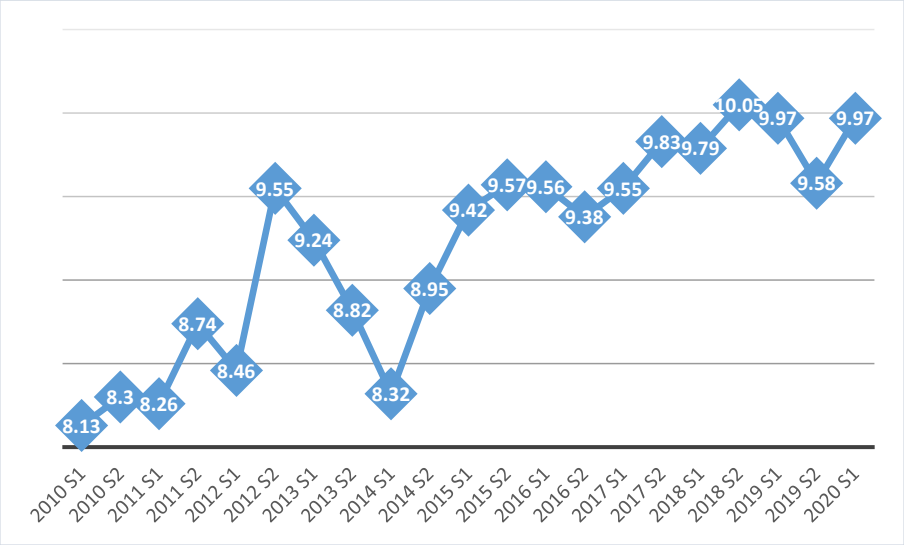

Figure 3: Price of electricity for medium-sized households Euro cents/KWh
Source: Bulgaria; Eurostat; 2010 to 2020, Statista 2021

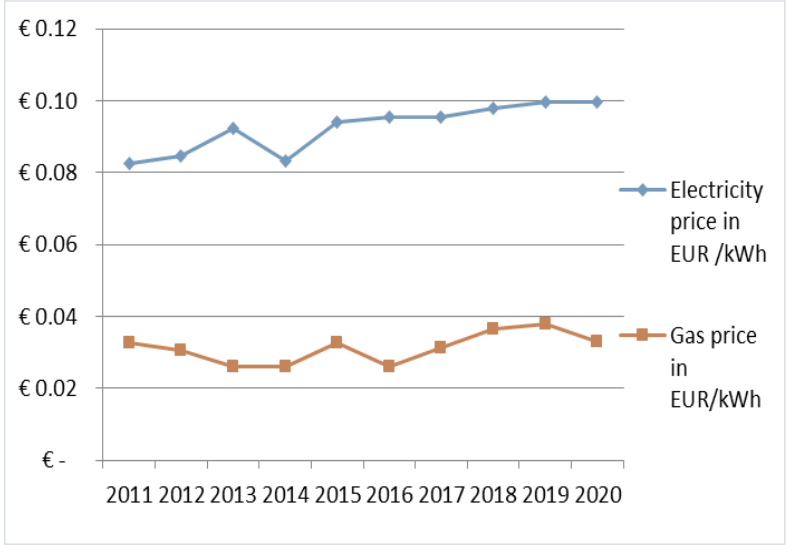

Figure 4: Gas and Electricity Prices for household consumers
Source: Eurostat 2020

[11] https://ec.europa.eu/eurostat/statistics-explained/index.php/Natural_gas_price_statistics#Natural_gas_prices_for_household_consumers
https://www.statista.com/statistics/418072/electricity-prices-for-households-in-bulgaria/

[12] Hajdinjak, M., Asenova, D. 2019. Sustainable Energy Consumption and Energy Poverty: Challenges and Trends in Bulgaria. In Energy Demand Challenges in Europe: Implications for Policy, Planning and Practice, Cham: Springer International Publishing, 115-26.

[13] Country Report Bulgaria, European Commission, 2020 https://ec.europa.eu/info/sites/info/files/2020-european_semester_country-report-bulgaria_en.pdf

1.3. Building stock efficiency

1.3.1. Housing indicators and the energy poverty

According to last census data from 2011 the total number of residential buildings in the country is 2,060,745. The number of dwellings in these buildings is 3,887,149 with a total usable area of 283,833,436 м^2. It is important to mention that the total number of inhabited residential buildings is 1,505,945 (76% of all residential buildings) with 3,345,819 dwellings and a usable area of 248,286,757 m^2. The existing housing stock is characterised by a massive vacancy with a very high incidence of vacant or "uninhabited" housing - some 1.2 million housing units, which is more than 30% of the country's housing stock[14]. The incidence of vacancy is 43% in rural areas, and 25% in urban areas.

	Total dwellings	Uninhabited or "vacant" dwellings	% Uninhabited or "vacant" dwellings
Total	3 887 149	1 220 416	31.4
Urban	2 566 601	653 105	25.4
Rural	1 320 548	567 311	43.0
Sofia district	176 842	85 277	48.22
Sofia municipality	607 473	142 608	23.48

Table 1: Vacant dwelling units in Bulgaria, Source: 2011 Census, National Statistical Institute

More than 85% of the total number of inhabited residential buildings are single-family houses with a usable area of approximately 50% of the total. Multi-family residential buildings are less than 5% of the total number of inhabited residential buildings, but their useful area (47.2%) is approximately equal to the useful area of single-family houses (47.7%). The large relative weight of multi-family residential buildings as share distribution of usable area implies significant potential for energy savings.

Type of building	Year-round inhabited buildings		
	Buildings, no.	Useful area, m^2	Housing, no.
Family houses	1 291 549	118 300 032	1 490 460
Multi-family residential buildings / blocks	66 865	117 158 877	1 640 120
Mixed type buildings	6 465	4 052 585	53 838
Dormitories, collective household building	1 019	1 103 153	20 157
Total	1 365 898	240 614 647	3 204 575

Table 2: Year-round inhabited residential buildings according to purpose/functional categories, Source: 2011 Census, National Statistical Institute

[14] Bulgaria. Housing Sector Assessment. World Bank, 2017 https://www.mrrb.bg/bg/ocenka-na-jilistniya-sektor-v-republika-bulgariya-svetovna-banka-2017/

As a result of the dynamic urbanisation processes and spatial transformations of population, as of 2015, 66% of the housing stock and 73% of the population is located in the cities. The remaining 34% of the dwellings and 27% of the population are in the villages. By analogy with extensive urbanisation with cities growing in area with decreasing population, it can be stated that the housing sector in the country suffers extensive development over the last almost three decades. The existing housing stock is dominated by low-rise buildings (residential and mixed buildings up to 10 m high). 96% of the inhabited residential buildings built before 2011 are on one, two or three floors and fall into the category of low-rise construction, as the useful area of the dwellings in them is 54% of the total. The buildings with medium and high construction are only 4%, but the useful area of the dwellings in them is 46%.[15]

97.6% of the existing residential buildings are privately owned, as 96.5% are owned by individuals and 1.1% by legal entities. Only 2.4% of the buildings are owned by state or municipal authorities. This is a specific feature of the country, which gives a significant imprint in the existing barriers in organizational, legal and behavioural terms to the process of energy renovation of the housing stock.

The age profile of the housing stock in Bulgaria is comparable to that of most Central and Eastern European countries. 65% of existing housing is built in the period 1950-1990. The largest share 39.8% of the housing stock in the country is built in the 70s and 80s during the period of industrial construction. Panel dwellings have a share of 18.1% (710,972 dwellings in 21,718 buildings), located almost entirely in cities (98.2%, 698,454 dwellings). Reinforced concrete dwellings have a share of 11.6% (457,726). In the cities, every sixth dwelling is in such a building. The category massive buildings has the largest share - 61.5%. For cities, this share is 54.6%, and in rural areas is absolutely dominant - over 75%.

Type of buildings according to building structure	Total	In cities	In villages
Wild buildings	8.8%	2.4%	21.5%
Massive buildings (brick with concrete slab)	61.5%	54.6%	75.3%
Reinforced concrete buildings	11.6%	16.4%	2.3%
Prefabricated buildings	18.1%	26.7%	0.9%

Table 3: Structure of the housing stock by construction in 2015, Source: National Statistical Institute

According to expert analyses and evaluations of the age of the housing stock combined with the insufficient maintenance, the existing housing stock in Bulgaria is depreciated. This assessment is especially valid for the villages and towns of national and regional peripheries. Expressed in indicative figures, the depreciation estimate includes about 9% for demolition (approx. 340,000 dwellings) and 70% for renovation, including energy rehabilitation (approx. 2,750,000).[16]

[15] Overview and analysis of the national housing building stock in the Republic of Bulgaria. BACC, 2020 https://www.mrrb.bg/bg/pregled-i-analiz-na-nacionalniya-jilisten-sgraden-fond-v-republika-bulgariya/

[16] Analysis of the state of the housing sector. National Centre for Territorial Development, 2017 https://www.mrrb.bg/bg/analiz-na-jilistniya-sgraden-fond-2017g/

According to last statistical data[17], in 2019 the average number of rooms per person is 1.2 (1.6 EU average) and the average number of persons per household is 2.4 (2.3 EU average). The quality of housing is far from the EU average as 41.1% of Bulgarian homes are overcrowded (17.2% EU average), 30.1% of the population does not have the ability to keep the house adequately warm (6.9% EU average), 7.5% of the population lacks a toilet, shower or bath (1.6% EU average), and 11.6% of the population is living with leaking roof (12.7% EU average). The house price evolution in Bulgaria is 131.4 (120.2 EU average), and the rent evolution is 106.9 (105.2 EU average). The housing costs are 64% below the EU average. The price level for housing (including water, electricity, gas and other fuels) is 37.2% from EU average.

The compromised housing affordability is illustrated by the share of population living in a household where the total housing costs represent more than 40% of disposable income is 15.6% in cities and 18.5% in rural areas (11.8% in cities and 7% in rural areas EU average). Thus, Bulgaria is among the countries with the highest housing cost overburden rates in the EU. In addition, Bulgaria is also among the member states with highest share of housing cost in total disposable income 24.8% (20% EU average). Bulgaria is also among the countries with the largest share of households with arrears on mortgage, rent or utility bills - 29.3% (8.2% EU average). Deteriorated housing affordability combined with the prevailing share of homeownership are the basis of “poor homeowners” phenomenon that is typical for the housing sector in Bulgaria. It causes the continuous lack of maintenance of the existing homes and the subsequent negative impact on their energy performance.

The average usable area of a dwelling is 73.10 m^2 (73.96 m^2 in cities and 71.41 m^2 in rural areas). The average living area per person is 30.01 m^2, (27.34 m^2 in cities and in 37.25 m^2 in rural areas). However, the real housing consumption, calculated only on the basis of “inhabited dwellings”, is much lower given the large unevenness and the presence of a significant number of overcrowded dwellings. Nearly 327,000 homes are inhabited by two or more people in a room. Nearly 85,000 of these homes are inhabited by three or more people in a room and their occupants (395,000 people) qualify as “homeless” by European standards.

1.3.2. Energy efficiency of the existing housing stock

The main finding from the analysis of the existing housing stock and the energy consumption is that it is inefficient in terms of energy efficiency. At present, only 7% of the area of inhabited buildings (built after 2010 or already renovated) is in line with current regulatory requirements for energy efficiency in accordance with the requirement of Directive (EU) 2018/844 of the European Parliament and of the Council amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency. Residential buildings with poor energy performance (classes E, F and G) represent 91% of non-renovated buildings in Bulgaria: class E (with limits from 291 kWh/m^2 year to 363 kWh/m^2 year of primary energy) - 39%, class F (with limits of 364 kWh/m^2 year to 435 kWh/m^2 year of primary energy) - 34%, and class G (with primary energy consumption > 435 kWh/m2 per year) - 18%.[18]

[17] Housing in Europe. Eurostat, 2020 https://ec.europa.eu/eurostat/cache/digpub/housing/index.html?lang=en&fbclid=IwAR0MSxjwPlIQsfpaxFmkZH5uikdYYfayFjH8MoGpSnCCevkZ7SJqEoKnQF8

[18] https://www.me.government.bg/files/useruploads/files/ltrs_bg_1.pdf

The energy efficiency of the existing housing stock is an important factor of the housing standard. In 2011, nearly 603,000 homes (15.5%) have thermal insulation, providing regulatory thermal conductivity, respectively, energy efficiency. Spatial distribution of dwellings with thermal insulation by districts is uneven and varies from 31.9% in the capital city to the symbolic 4.6% in the northwest part of the country. There are significantly more homes with energy-saving windows - nearly 1,130,000 (29%) with the same uneven distribution from 48.9% in the capital city 10.8% in the northwest part of the country.

The results of the analysis of statistics on the heat supply of 2,666,733 inhabited dwellings as of 2011 show that the consumption of fuels and energy for heating in the residential buildings is highly unbalanced. Only 16.4% of the inhabited dwellings mainly in the big cities are heated from a central heat source (central heating or gas), and the remaining 83.6% are heated by their own local heat source. The main energy expenditure in the residential buildings is associated with providing the parameters of comfort and the microclimate - almost 80% of the energy determined by the baseline and 64% of the real energy consumption. The value of the actual energy consumed for heating is approximately twice lower than the necessary to reach the normative microclimate parameters in the existing condition of the buildings (before renovation). The main reason for this is the maintained low temperatures of conditioned spaces (10-15°C) in the residential buildings - the phenomenon of under heating of homes.

1.4. Economic and energy indicators: energy intensity, heating fuel shares

1.4.1. Country context

The negative impact of the global COVID-19 crisis on the Bulgarian economy has been relatively mild compared to other EU members, thanks to its lower exposure to global value chains and foreign tourism. For 2020, the forecast is a contraction of 5.1% of GDP and the average unemployment to grow moderately by 1.8 percentage points to 6%. Bulgaria entered the crisis in a strong fiscal position: public debt of 20% of GDP. However, the expectations are the public debt to increase to 27.7% of GDP.[19]

Indicators	2019
Population, million	6,951,482
GDP, current US$ billion	67.9
GDP per capita, current US$	9,732
Gini Coefficient (Gini coefficient of disposable income - 2019, Eurostat)	40.8

Table 4: Economic indicators of Bulgaria, Source: Bulgaria Overview. World Bank, 2020

Poverty at the US$5.5 per day line is expected to increase between 2019 and 2020, reversing a previous trend of sustained, albeit slowing, decreases in poverty since 2016. The share of people at risk of poverty or social exclusion is high, while the capacity of social transfers to reduce poverty remains limited. The recovery in the labour market is likely to be uneven with negative impact on the incomes of the vulnerable households.

[19] https://www.worldbank.org/en/country/bulgaria/overview#3

The Bulgarian economy reports a tendency to improve the levels of energy intensity for the whole period 1990-2017. However, in this indicator Bulgaria lags behind the average indicators for both the European Union and the European Economic Area.[20]

Countries	1990	2000	2005	2010	2017	Annual average change 1990-2017	Annual average change 2005-2017	Relative energy intensity 2017	Gross inland energy consumption 2017
EEA	100	85	81	76	65	-1.6	-1.8	97	3.1
EU28	100	84	81	74	63	-1.7	-2	100	3.3
Bulgaria	100	83	68	51	46	-2.8	-3.2	166	2.7

Table 5: Energy intensity of Bulgaria in the European context, Source: Energy Intensity in Europe. European Environment Agency, 2019

Although the key energy indicators show a gradual improvement in absolute values in the period 1990-2018[21], Bulgaria's energy profile shows that the largest share in the consumption of energy resources is occupied by solid fuels, followed by petroleum products. The third most used resource is the electricity. Bulgaria remains highly dependent on the import of energy sources with small quantities extracted from its territory.[22]

Indicator	Annual average change 1990-2018	2018
Energy production (Mtoe)	+27.85% from 1990	11.89
Total primary energy supply (Mtoe)	-33.88% from 1990	18.5
Electricity final consumption (TWh)	-13.40% from 1990	35.93
Total CO_2 emissions (Mt of CO_2)	-44.18% from 1990	39.89

Table 6: Bulgaria key energy statistics, Source: World Energy Balances 2020. International Environmental Agency, 2021

1.4.2. Energy use and heating fuel shares in the residential sector

According to statistical data from the last Census in 2011 the main types of fuels and energy used for heating homes in Bulgarian cities are central heating - 22.5%, electricity - 38.5%, gas - 0.1%, coal - 14.9%, wood - 22.8%. In rural areas the households use for heating mainly wood, coal and partly electricity. Statistical data show differences in the proportion of energy used on average in end energy consumption of households in Bulgaria and the EU - the share for Bulgarian households is about 40%, which is significantly above the EU average of 24%. Among the main reason for this is the low level of gasification of households in Bulgaria and consequently the low rate of use of natural gas in the total energy needs of households - 2.3% at an EU average of 39% in 2015. Natural gas used in the EU for heating and domestic use is replaced by electricity in Bulgarian households.[23]

[20] https://www.eea.europa.eu/data-and-maps/indicators/total-primary-energy-intensity-4/assessment-1
[21] https://www.iea.org/countries/bulgaria#overview
[22] Eftimova, D. (2017). A Comparative Analysis of the Energy Profiles of Bulgaria and Romania https://core.ac.uk/download/pdf/226107323.pdf
[23] Kulinska, E. (2017). Defining Energy Poverty in Implementing Energy Efficiency Policy in Bulgaria. Economic Alternatives, 2017(4), 671-684.

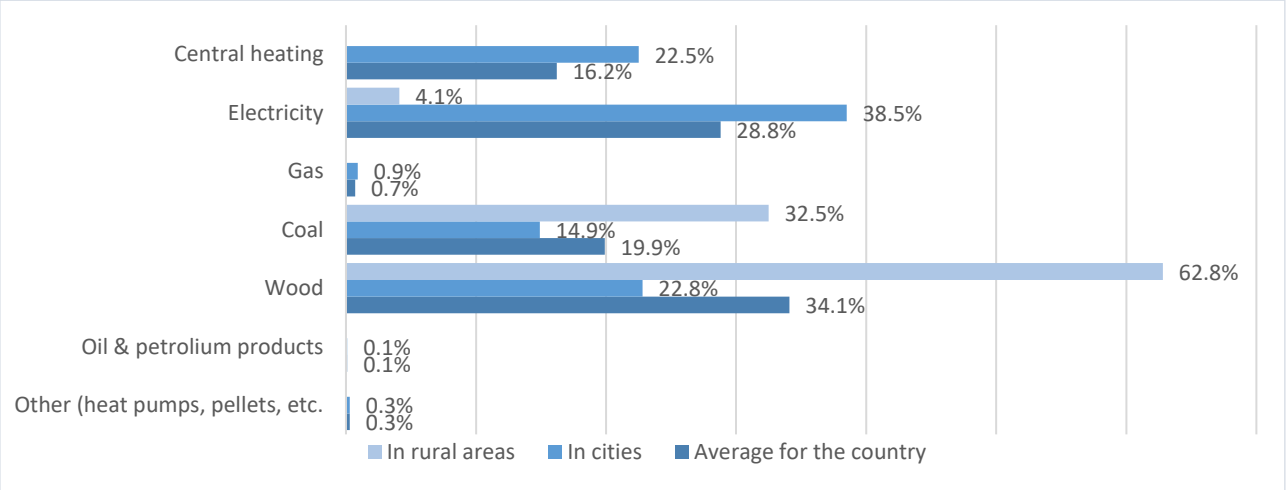

Figure 5: Type of fuels and energy used for heating homes, Source: 2011 Census, National Statistical Institute

These negative environmentally and socially harmful trends deepen over time, as seen in the energy mix of the residential sector in 2017[24].

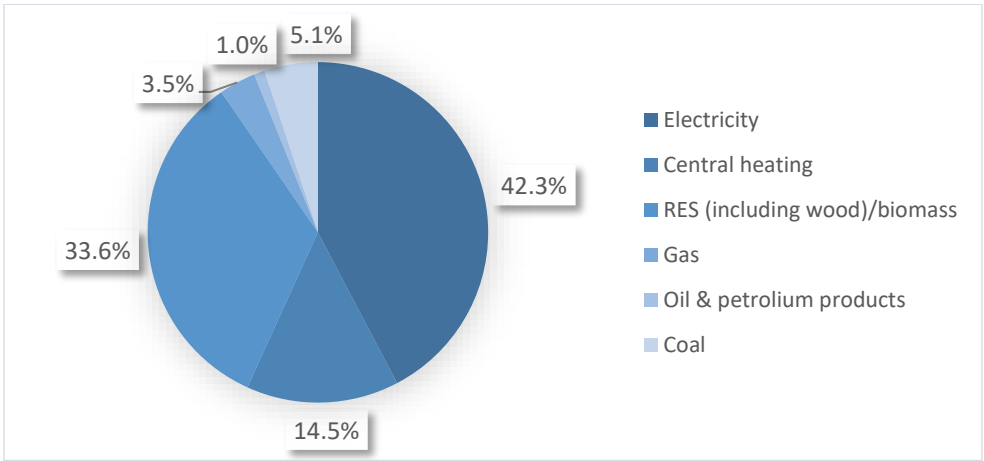

Figure 6: Energy mix in the residential sector in 2018, Source: Eurostat, 2020

[24] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Share_of_fuels_in_the_final_energy_consumption_in_the_residential_sector,_2017_(%25).png

In addition, experts' analyses show that carbon intensive electricity is the most widely used source of heating in multi-family residential buildings, which are for the most part energy inefficient. It can be assumed that the appliances used are also inefficient. As a conclusion, it can be stated that the implementation of energy efficiency measures in this type of buildings has a serious potential for energy savings, especially if the replacement of appliances and the optimisation of the heating system are included.[25]

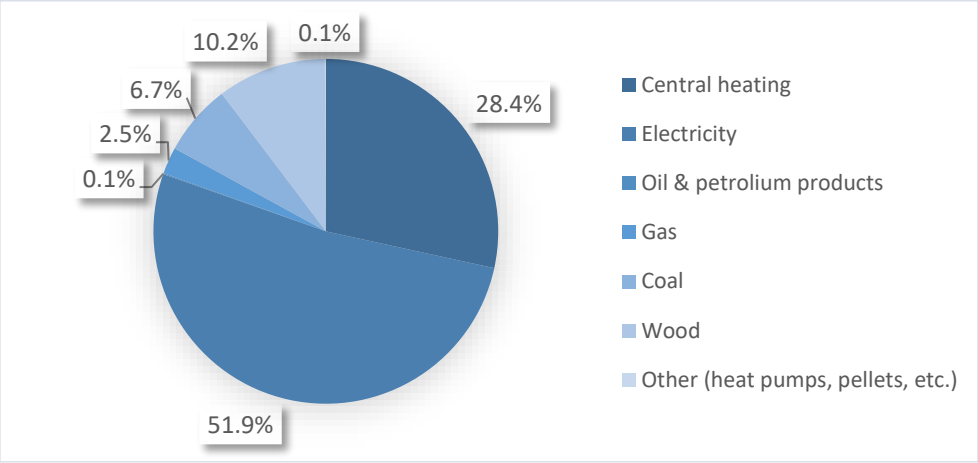

Figure 7: Type of fuels and energy used for heating in multi-family residential buildings, Source: Expert estimations

The data on the average energy consumption per dwelling clearly shows that the residential sector in Bulgaria consumes twice less energy than the EU average. The share of energy consumed for space heating per dwellings is also lower than the EU average while the energy efficiency status of residential buildings is poorer, which indicates the under heating of Bulgarian homes.[26] [27]

	Bulgaria in 2018	EU average 2018
Total energy consumption per dwelling	0.78 toe/dw	1.34 toe/dw
Consumption per dwelling for lighting & electrical appliances	1,617 kW/dw	2,398 kWh/dw
Consumption per dwelling for space heating	0.52 toe/dw	0.88 toe/dw
Share of the heating consumption from the of final energy consumption in the residential sector%	52.8%	63.6%

Table 7: Average energy consumption per dwelling, Sources: ODYSSEE-MURE, 2021 & Eurostat, 2020

[25] EnEffect, Energy poverty in light of the local elections, 2019 http://ecoenergy-bg.net/UserFiles/File/NOVINI/Report-EnglishA4_compressed.pdf
[26] https://www.indicators.odyssee-mure.eu/online-indicators.html
[27] https://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_consumption_in_households#Energy_products_used_in_the_residential_sector

1.5. Environmental, social and health consequences of energy poverty

The energy poverty has serious negative impacts on people's health due to the under heating of dwellings and the subsequent deterioration of the living environment in Bulgarian home. The energy poverty is also related to the predominant use of carbon-intensive solid fuels for heating in combination with inefficient old heating appliances with serious negative impact on the climate resilience including the air pollution in Bulgarian settlements. Energy poverty is associated with increasing household indebtedness and reducing spending on food, education, health care, etc. Energy poverty results in social exclusion and reduced chances for personal development.

1.6. Programmes and tools addressing energy poverty

The following table summarises the existing programmes and tools addressing energy poverty in Bulgaria.

Name of the policy and measure	Relation to the energy poverty phenomenon
Winter Supplement Programme[28]	Direct heating allowance on energy bills for energy vulnerable/low-income consumers implemented by the Ministry of Labour and Social Policy (since 1999).
Energy Efficiency of Multi-Family Residential Buildings National Programme[29]	National programme launched by the Ministry of Regional Development and Public Works to provide 100% grant from the state budget for energy renovation of multi-family residential buildings at the level of energy class "C" (2015-2020).
Operational Programme "Regions in Growth"[30]	Programme co-ordinated by the Ministry of Regional Development and Public Works to provide 100% grant for the energy renovation of multi-family residential buildings at the level of energy class "C" (2014-2020).
REECL Residential Energy Efficiency Credit Facility[31]	Credit line developed by the European Bank for Reconstruction and Development with 20% grant for energy efficiency measures to help Bulgarian households reduce their energy bills and consumption (2005-2019).
Operational Programme "Environment" and LIFE+ Project "Bulgarian Municipalities Working Together to Improve Air Quality"[32]	Scheme with 100% grant for the replacement of old inefficient coal and wood-burning stoves and transition to more efficient forms of heating with pellets, gas or use of the central heating network (2018-2024).

[28] https://pomosti.com/socialni-pomosti/pomost-za-otoplenie/
[29] https://www.mrrb.bg/en/energy-efficiency/energy-efficiency-of-multi-family-residential-buildings-national-programme/
[30] https://www.mrrb.bg/en/infrastructure-and-programmes/op-regions-in-growth/priority-axes/
[31] https://reecl.org/en/about-us/
[32] https://lifeipcleanair.eu/en/index.html

DESIREE Gas - Demand Side Residential Energy Efficiency Through Gas Distribution Companies In Bulgaria [33]	Programme launched by the Ministry of Energy to provide 30% grant for the installation of high-efficiency gas boilers and expenses for connection of households to gas network (since 2015).
Microfinance and Community support[34]	Credit line operated jointly by Microfund and Habitat for Humanity Bulgaria to provide access to financial solutions for low-income families for improving the energy efficiency of their homes and reduce their energy costs. Habitat for Humanity Bulgaria also operates a Community Support Programme aiming to provide interest-free loans for low-income families to improve their homes.
One-time support[35]	Social support granted under exceptional circumstances to vulnerable/low-income households implemented by the Ministry of Labour and Social Policy (since 1999).

Table 8: Programmes and tools addressing energy poverty in Bulgaria

The targeted heating allowances on energy bills are the main social policy tool for direct support to energy vulnerable households. During the heating season 2019-2020, nearly 253,000 households are included in the Programme, and the costs for the paid benefits are BGN 117.4 million. In 2020, the upward trend continues and the monthly amount of this targeted social aid for the current heating season is increased again.[36]

	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Amount of paid monthly heating allowances (in million BGN)	85	78	75	77	117	124
Number of beneficiaries (for the season starting from the year)	237 207	217 635	204 635	209 647	252 616	250 000

Table 9: Total costs for funding Winter Supplement Programme per season, depending on the number of approved recipients, Source: Institute for Market Economy, 2021

The energy efficiency programmes are not yet specifically targeted at energy vulnerable households, but have their undeniable positive impacts on energy poverty in Bulgaria by reducing household energy costs and improving housing and living conditions. They are at the heart of long-term sustainable solutions to the problems of energy poverty in Bulgaria.

[33] https://desireegas.bg/en/about-the-project
[34] http://hfh.bg/en/microfinance-and-community-support/
[35] https://www.energypoverty.eu/sites/default/files/downloads/observatory-documents/20-06/extended_member_state_report_-_bulgaria.pdf
[36] Institute for Market Economy, Analysis of the main programmes for social assistance, 2021 https://ime.bg/var/images/Social_assistance_programs_Jan_2021.pdf

2. POLICY LEVEL

2.1. Existing national policies, plans and strategies that include energy poverty targets and serve as general frameworks

Table 10: Key policies

National key policies, plans and strategies	Date of official adoption on a national level	Short description	Existing targets/goals	Coordination authority
Integrated Energy and Climate Plan of the Republic of Bulgaria[37]	Adopted by the Council of Ministers on 27 February 2020	Main goals set in IECP are: - Promoting low-carbon economic development; - Developing a competitive and secure energy sector; - Reducing dependence on fuel and energy imports; - Ensuring that energy is available at affordable prices to all consumers. National energy priorities are: - Increasing energy security and diversifying the supply of energy resources; - Developing an integrated and competitive energy market; - Using and developing energy from renewable sources based on available resources, network capacity and country specifics; - Enhancing energy efficiency by developing and implementing new	To ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market by: - Ensuring adequate protection of people at risk of energy poverty by providing target heating allowances; - Implementation of a mechanism for the protection of vulnerable consumers following full liberalisation of electricity prices for final consumers, including households. - Building stock renovation. The renovation of multi-family residential buildings with a view to upgrading them to energy class B 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;	Ministry of Energy

[37] https://www.me.government.bg/files/useruploads/files/national_energy_and_climate_plan_bulgaria_clear_22.02.20.pdf
https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_en.pdf

		technologies for a modern and sustainable energy sector; - Consumer protection by ensuring fair, transparent and non-discriminatory conditions for the use of energy services. The policy document adopts the definition of "vulnerable consumers", criteria for identifying them and measures for their protection as already defined by the Energy Act.	- 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 consumers, including households affected by energy poverty and, when appropriate, in buildings used for social housing.	
Long-term National Strategy to Support the Renovation of the National Building Stock of Residential and Non-residential Buildings until 2050[38]	Adopted by the Council of Ministers on 27 January 2021	The Strategy is developed in connection with the requirement of Directive (EC) 2018/844/EC. It contains an overview of the national building stock of residential and non-residential buildings based on statistical samples. Cost-effective approaches to energy renovation are identified, taking into account the type of buildings and the climate zone. A roadmap with indicators for measuring the achieved results for the following periods is developed: 2021-2030, 2031-2040 and 2041-2050, which reflect the stage target values of the process of energy renovation of the building stock of Bulgaria. An assessment of the necessary funding for achieving the objectives of the Strategy is made and the possibilities for using public funding to attract additional investment from the private sector are considered. However, the	The Strategy envisages that by 2050, 60% of the housing stock and nearly 17% of the non-housing stock will be renovated. This is expected to save 7,329 GWh of energy per year, reducing greenhouse gas emissions by 3,274,453 tonnes of CO_2. The implementation of the Strategy will also lead to the creation of 17,600 new jobs and additional annual GDP growth of BGN 557 million by 2030 for the period 2021-2030. Critical for the implementation of the Strategy is the development of policies and measures tailored to the different needs and capabilities of the homeowners in multi-family buildings with a closer link between existing and envisaged future social assistance measures for heating during the winter months and support for insolvent persons in the context of their participation in	Ministry of Energy and Ministry of Regional Development and Public Works

[38] https://www.me.government.bg/files/useruploads/files/ltrs_bg_1.pdf

		necessary financial instruments are not yet developed.	energy renovation programmes. Special attention is given to the need of measures to improve the energy efficiency of homes of energy poor consumers in order to reduce their energy costs and increase their living comfort.	
Recovery and Resilience Plan of Republic of Bulgaria[39]	Under preparation	Pillar 2: Green Bulgaria, Policy Area: Circular and Low Carbon Economy, Programme for Energy Efficiency. Within the first component of the Programme it is intended to finance measures to increase the energy efficiency of the existing housing stock in the country. The energy renovation of residential buildings will be implemented in accordance with the objectives of the newly adopted Long-term National Strategy to Support the Renovation of the National Building Stock of Residential and Non-residential Buildings until 2050 and energy efficiency measures in residential buildings aimed at achieving a minimum class B of energy consumption will be financed.	The main goal of the Programme for Energy Efficiency is to reduce the energy intensity of the economy and to promote the green transition by taking measures to increase the energy efficiency of residential, industrial and public buildings. The energy renovation of Bulgarian homes is raised as a main priority. However, the Programme does not apply a differentiated approach to the participating households and in particular to the socially disadvantaged low-income households in order to support their participation in the energy renovation of their homes. The Programme relies on the general impacts and benefits for them.	Ministry of Regional Development and Public Works
National Strategy to Reduce Poverty and Promote Social Inclusion 2030[40]	Adopted by the Council of Ministers on 30 December 2020	The Strategy contains a vision, goals and priorities for establishing an integrated approach to the prevention of poverty, as well as managing the consequences of its spread.	The Strategy aims to improve the quality of life of vulnerable groups in Bulgarian society and to create conditions for their full realization through adequate income support, including the labour market and access to quality services.	Ministry of Labour and Labour Policy

[39] http://www.strategy.bg/PublicConsultations/View.aspx?lang=bg-BG&Id=5572
[40] https://www.mlsp.government.bg/strategii

2.2. Specific sectoral policies

Table 11: Sectoral policy tools/measures

No.	Specific policy sector	Name of policy affecting energy poverty	Short description	Financial instruments, measures, schemes (if any)	Existing targets/goals	Coordination authority
Policy 1.	Social Aid	Winter Supplement Programme "Targeted Heating Aid"	The Programme is regulated by the Social Assistance Act and Ordinance № RD-07-5[41] which defines the terms and conditions (income, property and health status, marital status, age, training and job employment, etc.) for granting target heating allowances during winter season. The regulation defines the risk groups with differentiated minimum income that are eligible for heating assistance depending on the degree of risk and the priorities set.	The eligible vulnerable households get direct financial support towards their district heating bills, electricity, coal briquettes, or wood. Social aid is provided through a one-time payment in advance in cash for the entire heating season.	The Programme goal is to contribute to poverty alleviation by reducing the social burden of rising prices of electricity and heating and thus, to provide additional social protection for low-income and energy vulnerable groups during the heating season.	Ministry of Labour and Social Policy
Policy 2.	Energy renovation of Bulgarian homes	Energy Efficiency of Multi-Family Residential Buildings National Programme	The Programme is launched by the Ministry of Regional Development and Public Works to provide 100% grant from the state budget for the energy renovation of multi-family residential buildings at the level of energy class "C".	100% grant support to homeowners' associations for the energy renovation of multi-family residential	The Programme aims to accelerate energy renovation of multi-family residential buildings and make it a large-	Ministry of Regional Development and Public Works

[41] https://www.mlsp.government.bg/uploads/1/zakoni/naredba-za-otoplenie-28-06-2019.pdf

			The Programme brings the energy renovation management at local level with the active participation of local authorities and thus, seriously increases the territorial coverage and the scale of the process. The central government keeps the controlling and monitoring functions. The 100% grant is provided without prior social eligibility criteria. About 2000 buildings are renovated till 31.12.2020.	buildings which results in a reduction of heating costs and the improvement of housing and living conditions.	scale process. It also aims to reduce household energy costs, improve housing infrastructure, save greenhouse gas emissions, extend life of buildings and increase their value.	
Policy 3.	Energy renovation of Bulgarian homes	Operational Programme "Regions in Growth"	The Programme is launched by the Ministry of Regional Development and Public Works to provide 100% grant from the EU funds under the Operational Programme "Regions in Growth" for the energy renovation of multi-family residential buildings at the level of energy class "C" and improve the quality of life in the medium-sized and large cities in Bulgaria. The 100% grant is provided without prior social eligibility criteria.	100% grant support to homeowners' associations for the energy renovation of multi-family residential buildings which results in a reduction of heating costs and the improvement of housing and living conditions.	The Programme aims to reduce household energy costs, improve housing infrastructure, save greenhouse gas emissions, extend life of buildings and increase their value.	Ministry of Regional Development and Public Works
Policy 4.	Energy efficiency measures in Bulgarian homes	REECL Residential Energy Efficiency Credit Facility	The REECL credit facility is developed by EBRD to provide loans with 20% funding for energy efficiency home	Loans and 20% grant for specific energy efficiency measures	REECL Facility aims to help Bulgarian households	Ministry of Energy

			improvements. The Programme is effectively organised with a low degree of bureaucratisation and timely subsidy provision. The Programme is limited for the energy-poor households due to their inability to borrow, despite the availability of a 20% grant.	including double-glazing, air conditioners, wall insulation, solar water heaters, etc.	reduce their energy bills and consumption.	
Policy 5.	Environment	Operational Programme ”Environment” and LIFE Programme Project “Bulgarian Municipalities Working Together to Improve Air Quality“	The Programme envisages the replacement of old and inefficient solid fuel stoves and transition to more efficient environmentally friendly forms of household heating with pellets, gas or use of the central heating network. The Programme has a strong social emphasis reflected in the eligibility criteria: presence of children in the household, number of household members, whether it receives targeted heating allowances and monthly social benefits, as well as the energy-efficient characteristics of the dwelling.[42]	100% grant for the new heating equipment, its installation, five-year warranty, annual technical inspection, on-site training for its operation and maintenance.	The Programme goal is to contribute to the air pollution reduction in Bulgarian cities. In addition, the Program aims to help socially disadvantaged households to switch to efficient forms of heating in order to avoid the negative effects of energy poverty on their health and quality of living.	Ministry of Environment and Water
Policy 6.	Energy efficiency measures in Bulgarian homes	DESIREE Gas - Demand Side Residential	The Programme goal is to provide funding, grants and technical assistance for	30% grant on the initial investment for the	The Programme aims to provide a dedicated and	Ministry of Energy

[42] https://www.sofia.bg/documents/20182/7139111/Pokana-Sofia-20-01-2020.pdf/

		Energy Efficiency Through Gas Distribution Companies In Bulgaria	transition from carbon-intensive electricity to natural gas in the Bulgarian households. It finances internal gas installations, high-efficiency gas water heaters and space heating in single-family houses and multi-family units. By 2020, 12,000 households benefited from the grant funding scheme.	installation of high-efficiency gas boilers and connection of households to gas network.	effective mechanism to support the gasification of Bulgarian households.	
Policy 7.	Upgrade and energy efficiency measures in Bulgarian homes	Microfinance and Community support	Credit line operated jointly by Microfund and Habitat for Humanity Bulgaria to provide access to financial solutions for low-income households for improving the energy efficiency of their homes and reduce their energy costs. Habitat for Humanity Bulgaria also operates the programme "Social protection and alleviation from deprivation for at-risk children and adolescents in Bulgaria through improving living conditions and other community based support" aiming to provide interest-free loans for low-income families, living in poor housing conditions, to improve their homes.	Interest free loans for low-income families to improve their housing conditions and reduce their energy costs.	The Programme goal is to help low-income households to reduce their energy costs and improve the energy status and the quality of living of their homes.	Microfund and Habitat for Humanity Bulgaria

Policy 8.	Social aid	One-time support	The social aid is regulated by the Social Assistance Act and is granted under exceptional circumstances to support energy vulnerable/low-income households including payment of overdue heating bills and replacement of broken heating appliances.	One-time safety net payment for vulnerable households in emergency cases when there are extra costs, which could include higher heating costs in winter or broken heating equipment.	To secure energy poor households in case of extreme emergency situations.	Ministry of Labour and Social Policy

Table 12: Sectoral policies analysis

Winter Supplement Programme "Targeted Heating Aid"	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Integrated Energy and Climate Plan of the Republic of Bulgaria aims "to ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "ensuring adequate protection of people at risk of energy poverty by providing target heating allowances".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	Very high
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	This social aid needs to be extended in scope to cover the whole spectrum of energy vulnerable households, not just those in extreme energy poverty. At the same time, models should be considered for redirecting these direct payments to participation in home renovation programs, which will have a positive long-term effect.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Expert analysis and intensive public discussions

Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Labour and Social Policy, Regional social assistance directorates NGOs: specialised NGOs and Energy Agencies
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	State budget
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	According to the latest statistics, in 2020 around 250,000 energy poor households benefit by this policy.[43] It can be assumed that this number will remain over time in case the programme conditions keep the same.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Indicative indicators to be monitored: 1) inability of households to keep their homes adequately worm, 2) arrears on utility bills, and 3) unusually high share of income on energy expenditure.
Energy Efficiency of Multi-Family Residential Buildings National Programme	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Recovery and Resilience Plan of Republic of Bulgaria (under preparation) provides for the extension of the National Programme. This is in line with one of the main objectives of the Integrated Energy and Climate Plan of the Republic of Bulgaria namely "To ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "Building stock renovation".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	Very high
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	It is necessary to introduce a differentiated approach with prior social eligibility criteria to the participating households, taking into account their social profile and risk of energy poverty.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Expert analysis and intensive public discussions. Communication campaigns to inform the households about the process of energy renovation and the benefits they will get. Provision of technical and legal advice to the interested households. Monitoring of the energy renovation process implementation and analysis of the result achieved.

[43] Institute for Market Economy, Analysis of the main programmes for social assistance, 2021 https://ime.bg/var/images/Social_assistance_programs_Jan_2021.pdf

Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Regional Development and Public Works, regional authorities, and municipalities NGOs: chambers of builders and architects, energy agencies, homeowners' associations Private companies: construction companies, building materials companies
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	State budget
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	According to latest statistics, energy poor households in Bulgaria are 30.1% of the population. A well targeted housing renovation program could bring long-term benefits to at least half of these households.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Indicative indicators to be monitored: 1) number of renovated dwellings, 2) number of energy vulnerable households and their share in the total number of households, 3) required and achieved energy efficiency class, and 4) achieved energy savings and energy costs reduction.
Operational Programme "Regions in Growth"	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Programme is in line with one of the main objectives of the Integrated Energy and Climate Plan of the Republic of Bulgaria namely "To ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "Building stock renovation".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	Very high
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	It is necessary to introduce a differentiated approach with prior social eligibility criteria to the participating households, taking into account their social profile and risk of energy poverty.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Expert analysis and intensive public discussions. Communication campaigns to inform the households about the process of energy renovation and the benefits they will get. Provision of technical and legal advice to the interested households. Monitoring of the energy renovation process implementation and analysis of the result achieved.

Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Regional Development and Public Works, regional authorities, and municipalities NGOs: chambers of builders and architects, energy agencies, homeowners' associations Private companies: construction companies, building materials companies
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	EU funding
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	According to latest statistics, energy poor households in Bulgaria are 30.1% of the population. A well targeted housing renovation program could bring long-term benefits to at least half of these households.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Indicative indicators to be monitored: 1) number of renovated dwellings, 2) number of energy vulnerable households and their share in the total number of households, 3) required and achieved energy efficiency class, and 4) achieved energy savings and energy costs reduction.
REECL Residential Energy Efficiency Credit Facility	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Integrated Energy and Climate Plan of the Republic of Bulgaria aims "to ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "improving energy efficiency for the benefit of vulnerable consumers".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	High
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	Such programme for energy efficiency home improvements need to be expanded to energy poor households with appropriate financial tools that take into account the possibility of redirecting existing social payments to the financing of energy efficiency home improvements.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Expert analysis and intensive public discussions

Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Energy, Sustainable Energy Development Agency Homeowners and homeowners' associations
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	Specialised funding institutions
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	During the project duration around 10,000 households benefited by this energy efficiency credit facility. It is necessary such programmes to become available to households at risk of energy poverty and the needed financial engineering to be timely applied.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Indicative indicators to be monitored: 1) number of renovated dwellings, 2) number of households at risk of energy poverty and their share in the total number of households, 3) type of energy efficiency improvements, and 4) achieved energy savings and energy costs reduction.
LIFE Programme Project "Bulgarian Municipalities Working Together to Improve Air Quality"	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Integrated Energy and Climate Plan of the Republic of Bulgaria aims "to ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "improving energy efficiency for the benefit of vulnerable consumers".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	High
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	The Programme implementation needs to comply with the following critical requirements: 1) a systematic approach to design and quality of the installations, 2) integrated solutions taking into consideration the different obstacles in the implementation process, 3) trust and acceptance on behalf of citizen, and 4) guarantees on behalf of the administration for achieving the desired results. The priority of energy vulnerable households needs to be preserved and developed in the implementation phase.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Communication campaigns on the benefits for households from the replacement of heating equipment. Provision of technical and legal advice to the interested households. Expert assistance in monitoring the implementation of the program and the achieved results.

Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Environment and Water, local authorities from the involved municipalities NGOs: Chambers of installers, Energy Agencies, Homeowners and homeowners' associations Private companies: Business in heating equipment Media: PR, TV, Radio, social media, etc.
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	EU funding
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	Approximately 10,000 households benefited by during the Programme duration.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Indicative indicators to be monitored: 1) number of households with replaced old inefficient stoves with emphasis on energy vulnerable households, and 2) achieved reduction of household energy cost.
DESIREE Gas - Demand Side Residential Energy Efficiency Through Gas Distribution Companies In Bulgaria	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	Yes. The Integrated Energy and Climate Plan of the Republic of Bulgaria aims "to ensure the protection of energy vulnerable customers in the process of liberalisation of the electricity market" by "improving energy efficiency for the benefit of vulnerable consumers".
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	High
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	To secure the project funding by the International Fund "Kozloduy", administered by the European Bank for Reconstruction and Development. To ensure access to the funding scheme for energy vulnerable households.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Communication campaigns on the benefits for households from the high-efficient gas boilers replacement. Provision of technical and legal advice to the interested households. Expert assistance in monitoring the implementation of the program and the achieved results.
Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Public authorities: Ministry of Energy NGOs: Chambers of installers, Energy Agencies, Homeowners and homeowners' associations

	Private companies: Business in gas equipment Media: PR, TV, Radio, social media, etc.
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	EU funding
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	12,000 households benefited for a five-year period from the beginning of the Programme
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	The indicative indicators to be monitored: 1) number of households with installed high-efficiency gas boilers with special emphasis on the households at risk of energy poverty, 2) reduced share of household energy costs, 3) achieved energy savings per year, and 4) achieved reduction of GHG emissions.
Microfinance and Community support	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	No
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	High
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	The Programme targets socially disadvantaged families and marginalised communities. Therefore, the implementation requires a flexible approach based on an extensive information campaign and ongoing support for households benefiting from the provided credit instruments.
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Stronger practical support for the Programme by local authorities would help to expand its scope.
Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Non-governmental organisations specialising in working with low-income families and marginalised communities. Public authorities providing social services at local level. Homeowners and homeowners' associations
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	International funding and charity

Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	The Program has the potential to help alleviate energy poverty through low-cost energy efficiency measures in marginalised communities.
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	The indicative indicators to be monitored: 1) total number of loans taken, 2) number of serviced loans and their share of the total number of granted loans, 3) number of improved dwellings, 4) number of households with improved housing conditions, and 5) achieved reduction of heating costs.
One-time support	
Has the selected policy been incorporated into the draft National Energy and Climate Plan? YES/NO	No
Could you estimate the importance of the selected policy for the alleviation of energy poverty until 2030? Use the following rate that (Very Low/ Low/ Neutral /High /Very High)	Neutral
Could you analyse briefly the main challenges, which must be confronted for the efficient design and implementation of the selected policy? (Criteria, Financing, Guarantee Administration…)	Limited scope
Could you propose what kind of support should be provided to the coordination authority for the efficient design and implementation of the selected policy? [Capacity building, Technical assistance, Legal assistance, Tools]. Describe briefly.	Capacity building of local authorities to monitor the energy vulnerable households in extreme social conditions and provided the needed emergency support.
Could you identify the potentially involved type of stakeholders (e.g. Ministry, CSO, local/regional authority, energy regulatory body, utility…) in the selected policy?	Regional social assistance directorates with the support of specialised civil society organisations
Could you provide information about the potential funding sources, which will be utilized within the framework of the selected policy?	State budget
Could you estimate the number of the energy poor households, which will benefit finally by the selected policy?	Limited capacity to support considerable share of energy vulnerable households
Could you describe the procedure for monitoring the outcomes of the selected policy including indicative indicators?	Monitor the extreme emergency cases in winter time

3. NATIONAL, REGIONAL AND LOCAL STAKEHOLDERS

Table 13: Stakeholder participation and support

Stakeholder groups	Name stakeholder organizations in your country that would be interested to support POWERPOOR activities	Have you contacted the stakeholder(s) organization regarding their participation in the Liaison group? If yes, have they agreed to join?	What do you think is the main interest of the stakeholder(s) organization to support POWERPOOR activities and benefit from the tools?	Name stakeholder organizations that can benefit from the POWERPOOR tools	Which experiences have you made with engaging these stakeholder organization? Is there any lessons learnt to inform the POWERPOOR project?
National Authorities	Sustainable Energy Development Agency	Yes, agreed participation in the Liaison Group	Interest in the innovative joint energy initiatives to be implemented and the National Roadmap to be developed by POWERPOOR.		
	Agency for Social Assistance	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty as well as the Energy Poverty Guidebook for Energy Planning.		
	Ministry of Labour and Social Policy	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty.		
	Economic and Social Council of the Republic of Bulgaria	Yes, agreed support	Interest in the project results and policy recommendations for		

			mitigating energy poverty.		
	Distance Learning Platform of the Building Institutional Capacity Centre at the Ministry of Labour and Social Policy	Yes, agreed support	Interest in the training programs for the energy supporters/mentors.		
Regional Authorities	Plovdiv Regional Social Assistance Directorate	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty as well as the Energy Poverty Guidebook for Energy Planning.		
Local Authorities	Sofia Municipality - Social Services for Children and Adults Directorate	Yes, agreed participation in the Liaison Group	Interest in the design and implementation of the energy poor support programme to be developed for the Bulgarian pilot.		
	Municipality of Plovdiv - Social Policy Directorate	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty.		
Civil Society	Energy Agency Plovdiv	Yes, agreed participation in the Liaison Group	As host of one of POWERPOOR energy poverty offices Energy Agency Plovdiv will benefit from all project results.		

	Habitat for Humanity Bulgaria	Yes, agreed participation in the Liaison Group	The Foundation will share experiences of working with low-income vulnerable families and upgrade their activities with the project results.		
	Za Zemiata (For the Earth)	Yes, agreed participation in the Liaison Group	Interest in the environmental aspects of energy poverty.		
	CAC Centre for Sustainable Housing	Yes, agreed participation in the Liaison Group	Interest in the project activities related to the energy efficiency of housing and the quality of the living environment for energy vulnerable households.		
	Centre for Energy Efficiency EnEffect	Yes, agreed support	The implementation of the ICT tools for the increase of the overall uptake of energy efficiency measures.		
	Sofia Energy Centre	Yes, agreed support	The implementation of the ICT tools for the increase of the overall uptake of energy efficiency measures.		
	Black Sea Energy Research Centre	Yes, agreed support	The implementation of the ICT tools for the increase of the overall uptake of energy efficiency measures.		

	Cluster Green Synergy	Yes, agreed participation in the Liaison Group	Interest in the project results and policy recommendations for mitigating energy poverty.		
	"Animus Association" Foundation	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty.		
	European Labour Institute	Yes, agreed participation in the Liaison Group	Interest in the project results and policy recommendations for mitigating energy poverty.		
	Regional Energy Agency of Pazardjik	Yes, agreed support	The implementation of the ICT tools for the increase of the overall uptake of energy efficiency measures.		
	Foundation of Social Change and Inclusion	Yes, agreed support	Interest in the replication capacity of the energy poor support programme for the Bulgarian pilot.		
	Energomonitor Bulgaria	Yes, agreed support	Interest in the monitoring capacities of the ICT tools developed by POWERPOOR.		
National Associations	Association of Bulgarian Energy Agencies	Yes, agreed participation in the Liaison Group	ABEA will share with its members the results of POWERPOOR and will		

			stimulate its replication.		
	Municipal Energy Efficiency Network EcoEnergy	Yes, agreed support	The Association will share with its members POWERPOOR results.		
	Association of Rhodope Municipalities		The Association will share with its members POWERPOOR results.		
Academia	Department of Architecture, New Bulgarian University	Yes, agreed participation in the Liaison Group	Interest in the implementation models for energy efficiency home upgrade and their impact on overcoming energy poverty		
	Social Services Department, Faculty of Pedagogy, University of Plovdiv	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty.		
	Social Services for children and families, Social Department, Faculty of Pedagogy, University of Sofia	Yes, agreed support	Interest in the project results and policy recommendations for mitigating energy poverty.		
Media	Facilities Magazine	Yes, agreed participation in the Liaison Group	Interest in disseminating information about the implementation of the project and its results.		

4. POWERPOOR tool kit

Table 14: POWERPOOR toolkit key topics and issues

POWER TARGET				POWER ACT			POWER FUND
Energy poor households subgroups recognized as vulnerable groups of citizens or considered to be experiencing or facing risk of energy poverty	Key identification features in your country for each subgroup (e.g. presence in your country, specific issues…)?	Key topics/issues that the POWER TARGET tool needs to address for each identified target citizens.	Do you have any direct or indirect contacts to these target groups?	Which experiences have you made with engaging these target groups? Is there any lesson learnt to inform the POWERPOOR project?	What approach do you expect to choose in order to ensure a high uptake and use by the identified target citizen?	Which is the technology adoption level of the stakeholders we are addressing? (1 innovators - 5 laggards)	What are the features/functionalities that should be included in POWER FUND for each identified target citizens?
Working poor with no social benefits – low incomes	Low comfort; Not eligible for social support; Low capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures; Energy monitoring; Planning for investment	Information campaigns; Face to face meetings	2 - motivated	Existing financial schemes – energy communities, present and future support programmes, credit lines
Part-time work, limited/ temporary contracts, low / no protection	Low comfort; Not eligible for social support; No capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measure	Information campaigns; Face to face meetings	3 - promising	Existing financial schemes – energy communities, present and future support programmes, credit lines

against dismissal							
Unemployed persons	Low comfort; Eligible for social support; No capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	4 - reluctant	Existing financial schemes – energy communities, present and future support programmes and grants
Persons under the pension age unable to work	Low comfort; Eligible for social support; No capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	4 - reluctant	Existing financial schemes – energy communities, present and future support programmes and grants
Persons over the pension age with low pensions	Low comfort; Not eligible for social support; No capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	3 - promising	Existing financial schemes – energy communities, present and future support programmes, credit lines
Households receiving housing benefit	Low comfort; Eligible for social support; Limited capacity to invest	Information, advise and consultations	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	3 - promising	Existing financial schemes – present and future support programmes and small grants
Families who receive child benefit supplement	Low comfort; Not eligible for social support; Low capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures;	Information campaigns; Face to face meetings	2 - motivated	Existing financial schemes – energy communities, present and future support programmes, credit lines

				Energy monitoring; Planning for investment			
Single parent families	Low comfort; Eligible for social support; Low capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	4 - reluctant	Existing financial schemes – energy communities, present and future support programmes.
Individual circumstances - health issues or disabilities	Low comfort; Eligible for social support; Low capacity to invest	Information, advise and consultations; Opportunities for financial support	Indirect contacts based on other project activities	Awareness raising; Behaviour change; Low cost measures	Information campaigns; Face to face meetings	4 - reluctant	Existing financial schemes – energy communities, present and future support programmes.
Refugees	Low comfort; Eligible for social support; No capacity to invest	Information, advise and consultations	Indirect contacts based on other project activities	Awareness raising, Behaviour change	Information campaigns, Face to face meetings	5 - laggard	Social support programmes
Others subgroups identified in your country (Specify)	NA	NA	NA	NA	NA	NA	NA