POWERTY
Interreg Europe

European Union
European Regional
Development Fund

ЕНЕРГИЙНА АГЕНЦИЯ ПЛОВДИВ
ENERGY AGENCY OF PLOVDIV

save • agency

POWERTY

Renewable energies for vulnerable groups

STATE OF ART & SWOT ANALYSIS

Interreg Europe
European Union | European Regional Development Fund

#POWERTY

Web **https://www.interregeurope.eu/powerty/**

STATE OF ART: ENERGY POVERTY AND RENEWABLE ENERGY

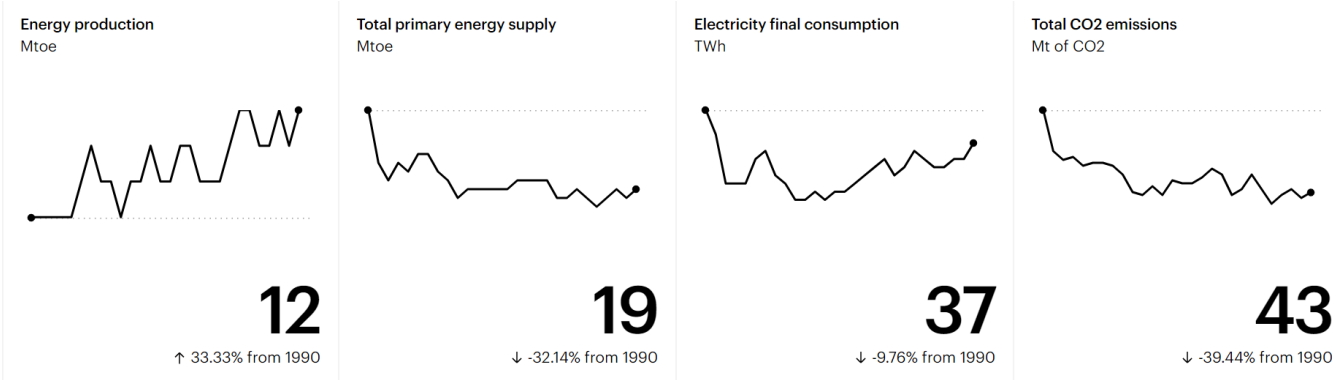
1. Brief Picture of the Region

The Republic of Bulgaria is a country in south-eastern Europe, located in the eastern Balkan Peninsula with population of 7.0 million people. It has a territory of 110,994 square kilometres, making it Europe's 14th-largest country. The population`s distribution is predominantly urban and mainly concentrated in the administrative centres of the countries` 28 provinces. The provinces subdivide into 265 municipalities that are run by mayors elected to four-year terms and by directly elected municipal councils. Bulgaria is a highly centralised state, where the national Council of Ministers directly appoints regional governors and all provinces and municipalities are heavily dependent on it for policies, programme and funding.

The economy of Bulgaria functions on the principles of the free market, having a large private sector and a smaller public one. Bulgaria is an industrialised upper-middle-income country according to the data from the World Bank.

1.1 Key energy statistics

Key energy statistics, 2018[1]



Total primary energy supply (TPES) by source, Bulgaria 1990-2017

[1] https://www.iea.org/countries/Bulgaria

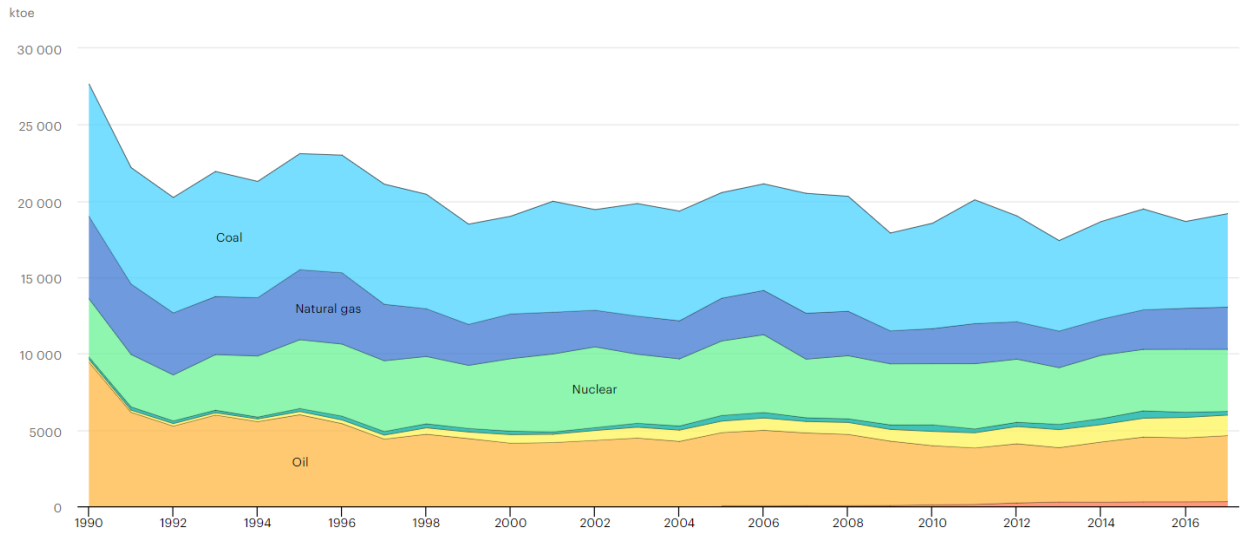


Fig. 1 Total primary energy supply (TPES) by source, Bulgaria 1990-2017

1.2 Bulgarian National Energy and Climate Plan

In order to ensure a coordinated and coherent EU-wide approach and implementation of the Energy Union strategy Bulgaria has elaborated its national energy and climate plan (NECP). The plan sets out the main goals and measures for the implementation of the national energy and climate policies, which are in the context of the European legislation, principles and priorities for energy development.

The main NECP goals are:

- stimulating low-carbon economic development;
- development of competitive and secure energy;
- reducing dependence on fuel and energy imports;
- Ensuring affordable energy for all consumers

Bulgarian energy priorities can be summarized as follows:

- enhancing energy security and diversifying energy supply;
- development of an integrated and competitive energy market;
- development of RES capacities, according to the available resources, network capacity and national specifics;
- improving energy efficiency by developing and implementing new technologies to achieve modern and sustainable energy;

- protecting consumers by ensuring fair, transparent and non-discriminatory conditions for the use of energy services.

The national plan also outlines how Bulgaria will intend to address:

- energy efficiency
- renewables
- greenhouse gas
- emissions reductions
- interconnections
- research and innovation

1.3 Liberalization of the electricity market

By the end of 2025, all electricity consumers will be supplied at freely negotiated prices. This is envisaged by the country's commitments to meet the European Union's regulatory requirements. The reform aims to accelerate the development of a competitive energy market integrated with the common European electricity market, to promote energy efficiency and **wider use of RES among consumers.**

According to data from the Energy and Water Regulatory Commission (EWRC) in 2018, the regulated share of the electricity market is 38%, while the retail electric energy market in Bulgaria is partially liberalized. Since 2007, all end customers are able to purchase electricity at agreed prices by freely choosing their supplier. In addition, for a certain category of end customers, including the majority of households, the possibility to purchase electricity at regulated prices from the end supplier for the respective territory is provided.

Currently Bulgaria is in phase of starting the full liberalization of electricity supply for Bulgarian households, who will be facing a new reality - a 5 years plan for smooth transition to a complete liberalization of the electricity market and the elimination of regulated electricity tariffs. At the beginning of the liberalization process, a minimum percentage of the stock market price will be included in the regulated household prices, subsequently the share of the market component will gradually increase. All these changes will lead to higher electricity prices, with an upward impact on household electricity costs, where the most affected will be the most vulnerable, namely the "energy poor".

The complete market liberalization roadmap will include the elaboration of the following actions:

1) Elaboration of a new energy strategy
2) Negotiation of the terms for long-term electricity purchase
3) Elaboration of a mechanism to protect the vulnerable consumers
4) Removal of cross-subsidization
5) Introduction of a demand-response model
6) Full elimination of the electricity regulated prices
7) Optimization of electricity consumption including decentralization of the energy system and introduction of smart grids and smart meters
8) Development of regional connectivity, including measures to build a single Day ahead electricity market with Romania, Greece, Serbia and R. of North Macedonia and Intraday market with Romania and Greece.

2. Renewable energy sector. Brief Description

2.1 Share of renewable energy in the gross final energy consumption

Bulgaria is among the 12 Member States that have already reached a share equal to or above their national 2020 RE binding targets. In 2018, the share of energy from renewable sources in Bulgaria in gross final energy consumption reached 20.5 %[2], while the 2020 RES targets required 16%. In 2018 the share of renewable electricity in the gross final electricity consumption has reached 22.15 %, while the renewable energy in heating and cooling has reached 33.3 %, mainly due to the extensive usage of wet biomass.

Member State	2004	2015	2016	2017	2018	EU 2020 target
Bulgaria	9.2	18.3	18.8	18.7	20.5	16

Table 1: Share of renewable energy in the gross final energy consumption

[2] https://ec.europa.eu/eurostat/documents/2995521/10335438/8-23012020-AP-EN.pdf/292cf2e5-8870-4525-7ad7-188864ba0c29

Renewable electricity generation by source (non-combustible), Bulgaria 1990-2017

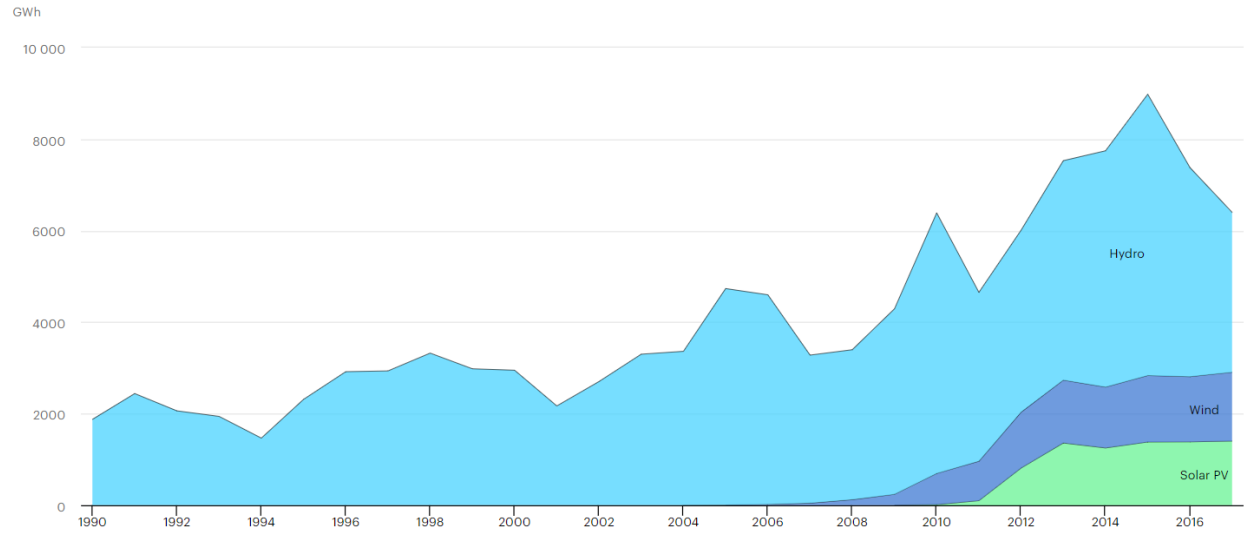


Fig. 2 Renewable electricity generation by source (non-combustible), Bulgaria 1990-2017

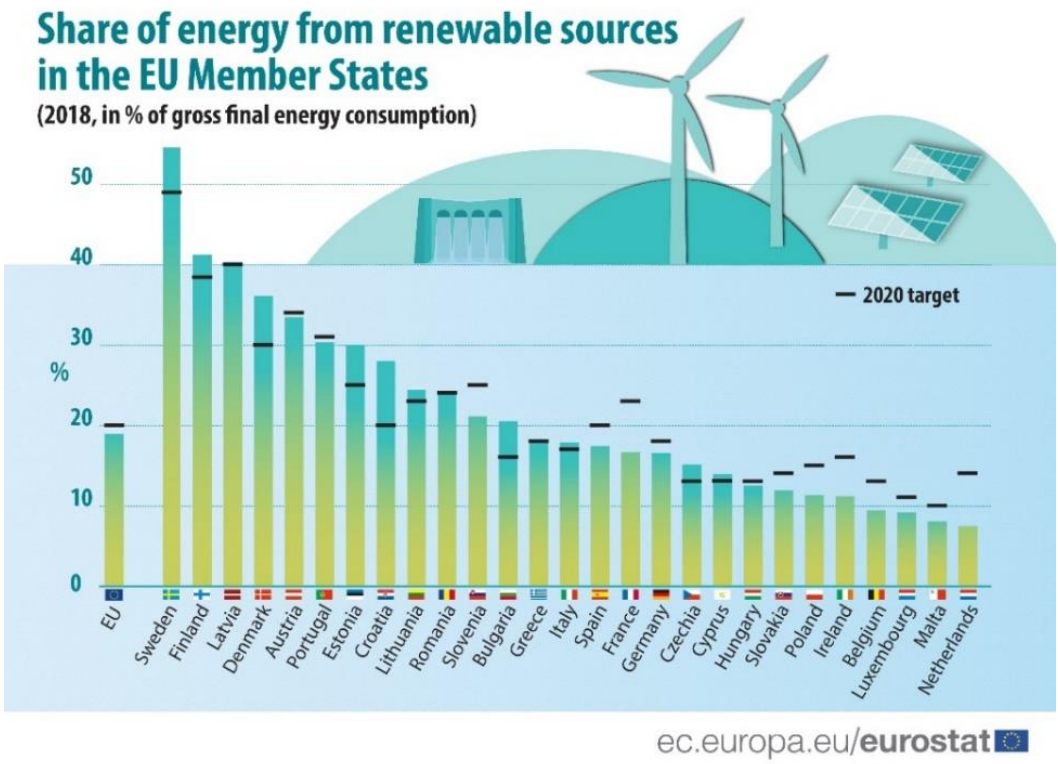


Fig. 3 Share of renewable energy in the gross final energy consumption in 2018

	2010	2015	2016	2017	2018
Electricity					
Hydro	342.7	363.0	358.5	368.1	373.1
Wind	52.0	117.4	121.0	122.8	121.1
Solar	1.3	118.9	119.2	120.6	115.5
Solid biofuels	1.7	13.0	14.0	15.5	110.1
All other renewables	1.3	10.2	16.4	18.6	18.3
RES-E [%]	**12.36%**	**18.98%**	**19.15%**	**19.02%**	**22.15%**

Table 2: Share of renewable electricity in the gross final electricity consumption

Heating and cooling	**2010**	**2015**	**2016**	**2017**	**2018**
Final energy consumption	928.9	1,070.8	1,103.4	1,125.0	1,144.2
Derived heat	1.9	11.4	17.7	17.3	112.7
Heat pumps	37.8	74.9	81.2	87.4	92.4
Total (RES-H&C numerator)	**968.6**	**1,157.1**	**1,202.4**	**1,229.7**	**1,349.2**
RES-H&C [%]	**24.33%**	**28.90%**	**29.99%**	**29.88%**	**33.30%**

Table: 3: Share of renewable heating & cooling

2.2 2030 Renewable energy targets

Bulgaria's contribution to the achievement of the goals of the European Union by 2030 is presented in the table below.

The figures have been revised in the light of the recommendations of the European Commission[3]

[3] INTEGRATED PLAN IN THE AREA OF ENERGY AND CLIMATE OF THE REPUBLIC OF BULGARIA

2030 Renewable energy targets	
Renewable Energy	
National target for the share of renewable energy in gross final energy consumption by 2030	27.09%
Renewable electricity	30.33%
Renewable heating and cooling energy	42.60%
Renewable energy in the transport sector	14.20%

Table: 4: 2030 Renewable energy targets

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
share of RE electricity, %	21.4	21.99	22.56	23.13	23.69	24.24	25.48	26.7	27.92	29.13	30.33
share of RE heating & cooling %	31.07	32.48	33.89	35.3	36.71	38.11	38.99	39.88	40.78	41.68	42.60
share of RE in transport %	9.89	9.91	9.92	9.94	9.95	9.97	10.80	11.62	12.45	13.27	14.20

Table 5: Indicative movement of the share of electricity from renewable energy in gross final electricity consumption for the period 2020-2030 - electricity sector

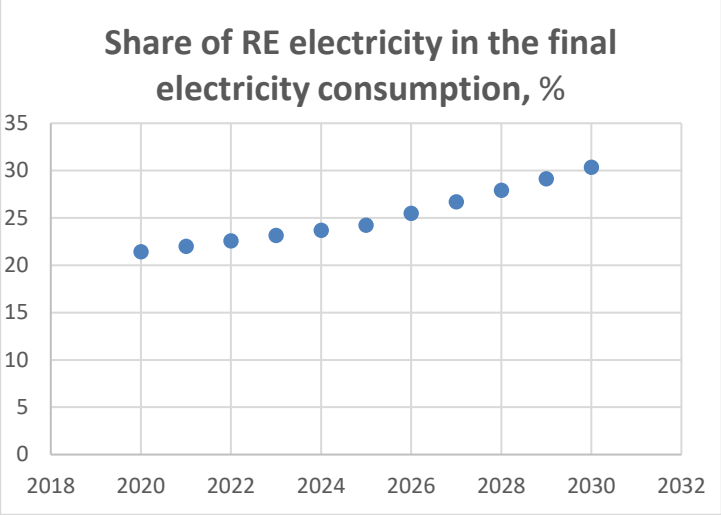


Fig. 4 Share of RE electricity in the final electricity consumption in the period of 2020 – 2030

In the period 2020-2030, the gross electricity production from RES will increase by more than 33%, due to a threefold increase in the electricity produced from PVs and an estimated increase of 41% in the production of Wind energy.

2.3 2030 Energy Efficiency targets

Based on the Bulgarian NECP, in 2030, Bulgaria plans to achieve a reduction in primary energy consumption of 27.89% and a reduction of 31.67% in final energy consumption, compared to the PRIMES 2007 benchmark.

Energy Efficiency	
Reduction of primary energy consumption compared to the PRIMES 2007 base forecast	27.89%
Reduction of final energy consumption in comparison with the PRIMES 2007 baseline forecast	31.67%
Primary energy consumption	17 466 ktoe
Final energy consumption	10 318 ktoe

Table: 6: 2030 Energy Efficiency targets

2.4 Installed capacities:

The total installed capacity in Bulgaria are 12.070 MW, while the total RES installed capacity is 5.026 MW. Specifically:

- Water: 3,204 MW (27%)
- Solar: 1,043 MW (9%)
- Wind: 701 MW (6%)
- Biomass: 78 MW (1%)

Among the RES capacities, the large scale >3 MW, are currently dominating the national energy system:

Type	Installed capacity	Number	Total capacity	Capacity of the 10 biggest
Wind	> 3 MW	63	568 MW	379 MW (66.7%)
PVs	> 3 MW	109	646 MW	223 MW (34.5 %)
RES	> 3 MW	172	1214 MW	602MW (49.6 %)

Table: 7: Installed RES capacities in the country

In the period 2020-2030, an increase of 2,645 MW of net installed capacity of renewable energy power plants is expected.

This increase will be accompanied by an increase in the net installed capacity of 2174 MW PVs power plants and 249 MW wind power plants. The projected increase of this type of power plants is related to the rapid development of technologies and reduction of investment costs for their construction.

2.5 Small scale RES capacity – Bulgaria

Since 2015, with the amendments in the **Renewable Energy Law** the Bulgarian government limited the available renewable energy support only to small-scale rooftop & facade PV installations of up to 30 kWp, located in urbanised areas.

For long time the FiT scheme has been the only available compensation policy for small-scale residential PV installations put on practise in the country. It is a policy mechanism designed to accelerate investment in renewable energy, where small-scale residential and non-residential PV installations are distinguished according to their capacity: of up to 5 kWp and up to 30 kWp.

- Small-scale RES installations (i.e. below 30 kWp) are a rarity;
- A total of just 929 PVs ≤30 kW have been officially registered and added to the distribution grid since 2006, majority of them within 2011 ÷ 2013;.
- The total RES generating capacity of small-scale installations is 19.52 MW -1.1% of the total wind and solar capacity (the ones that officially registered);
- There is no statistics available of systems for pure self-consumption;
- The majority of the small-scale RES capacities are established through the FiTs.

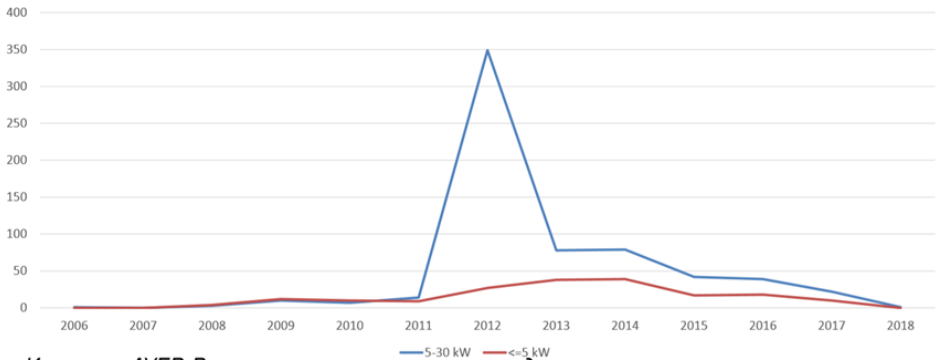


Fig. 5: *Small-scale RES installations deployment*

3. State of Play of energy poverty in your region

3.1 Energy poverty state of the art

Bulgaria remains the most affected country in EU in terms of energy poverty and in terms of percentage of population struggling to adequately heat their dwellings.

Energy poverty is still not defined in the Bulgarian legislation or within any scientific or other national literature, however there is strong push for alleviating energy poverty coming from the NGO sector.

All major factors that could escalate energy poverty are present in Bulgaria – the large share of the population living below the poverty line, the low incomes, and the poor energy efficiency of the dwellings coupled with very inefficient heating systems, lack of a modern heating system and the absence of wide-spread comprehensible energy services.

In 2020, the poverty line for Bulgaria is BGN 363 (EUR 185.60) per month per person, which is 4.3 % higher than in 2019. At the moment, there are 1,663,668 people below

the poverty line, or 23.4% of the country's population, according to the National Statistical Institute.

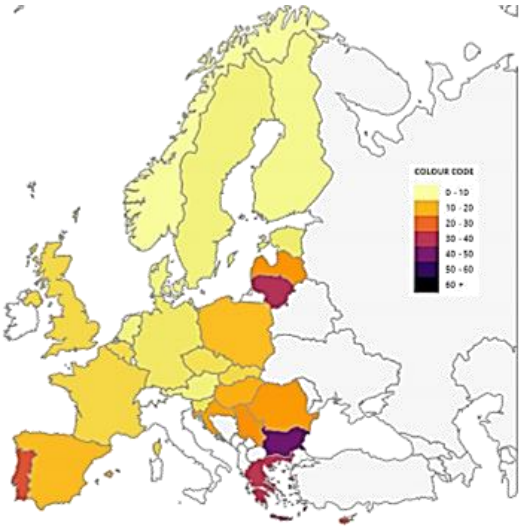
Although energy poverty is rapidly spreading all over EU, it has distinct specificities in the Eastern European countries and in Bulgaria in particular: majority of low-income households and the energy poor in Bulgaria rely on low-cost energy sources, such as wood with high moisture content and coal for heating, utilised in rather old stoves with low-efficiency. This is also coupled with the barrier that low-income households cannot afford to change the old inefficient heating equipment or replace the poor quality heating fuels, due to poverty and low-incomes.

Low-income households in Bulgaria live in poor housing conditions and cannot afford to change the old inefficient heating equipment or replace the poor quality heating fuels. Thus, they also become primary cause for dramatic seasonal increase in air pollution in their communities.

Due to the overall inefficiency of the whole heating process, households burn more wood than is technically necessary to stay warm, which drives up their actual costs and also creates additional indoor and outdoor pollution. A considerable share of struggling with energy poverty households are also relying on national social heating aid supplied through direct financial support, later on utilized for purchasing low-quality fuels, which further causes environmental issues. The undesired and negative effect of the low deployment of new and efficient heating technologies in the households' and the continuous use of inefficient heating equipment, which produces excessive polluting emissions, threatens and deteriorates the population's health.

Unfortunately, the multidimensional nature is often neglected in the political perception of energy poverty – especially the link between energy poverty and air quality is not considered by the current policies and measures. As a result, policies for energy, environment and climate issues are not integrated. In addition, there is a lack of ambitious targets for energy efficiency and reduction of climate and air pollutants.

In 2020, burning coal in primitive stoves continues to be a heating practice in Bulgaria, deteriorating further the situation with air pollution in most urban areas. Nevertheless, institutions in Bulgaria are in demand who is energy poor and whether, how and to what extend to support them.



However, it has been identified that energy poverty in Bulgaria is a serious problem; and

- It covers a significant proportion of the population, both in large cities and in smaller villages;
- it causes serious environmental problems with high levels of (PM 2.5 and PM10) due to its nature and context in Bulgaria;
- there is a lack of in-depth studies at national level and on the specific number of those affected.

Energy poverty drivers:

Statistical analysis on the heat supply of 2 666 733 dwellings in 2011 showcased that consumption of fuels and energy for heating in residential buildings is very unbalanced, whether mainly four energy sources are used - wood, electricity, coal and district heating.

The analysis also revealed that the value of the actual energy used for heating is approximately twice lower than the required to reach the normative parameters (20 °C) of the microclimate (before renovation).

The largest energy consumer in residential buildings is the heating consumption - almost 80% of the baseline demand (20 °C).

The share of electricity used for heating remains relatively high, while the percentage of natural gas used to generate heat from combustion in a local or central heat source is very small.

A review of energy consumption by energy sources shows that consumption is unbalanced, with a significant share of non-green and low-cost energy sources. District heating supplies only 18% of total energy consumption, the electricity supplies 45% (incl. heating), while the share of solid fuels is 36%. Among the European countries Bulgaria has the highest share of electricity in households` final energy consumption (39%) compared to 30% on average in the EU.

A huge barrier remains the underdeveloped centralized and gas supply networks for households, as well as the availability of appropriate heating systems to utilize the service, leaving a large number of households with no energy service alternatives. The gasification process of households in Bulgaria is progressing at a very slow pace. As of 2016, only 2.5% of households in 20 cities in the country use natural gas for heating and DHW compared to an average use of 50 % in EU. Another huge barrier in utilizing gas for domestic use is the lack of internal heating infrastructure (appropriate heating system) within the majority of households. The lack of a heating system based on a water coolant might be also witnessed even in many newly constructed buildings. Hence, in order for the energy poor household to get utilize gas for heating, they have to get connected to the gas network and hence pay connection fees, as well as the investment required for the establishment of an appropriate heating system. Connection, licensing and exploitation procedures are also fee demanding and remaining a huge barrier for energy poor households.

District heating, on the other hand is available in only 18 Bulgarian cities, serving around 16%, of the population, while the share in EU varies between 23-64%. Among the district heating users, 74% are residential customers. In most of the district heating supplied buildings, the substations have been completely modernized, but the heating systems supplied by them are, due to the specificity of the condominium, heavily depreciated and with high level of heat losses in the building distribution networks. Within the multifamily residential buildings the heating systems are constructed with vertical risers, which is a typical scheme for all buildings in Bulgaria constructed before the year 2000. In most buildings, the heating systems are in poor operating condition, with outdated elements and piping and are considered with very poor performance. This causes also difficulties in its operation due to the uneven heat load of the heating systems, as a result of the subscribers who have refused from district heating, as well as the citizens` abuses who have declared the refusal of the service, but actually consume heat. A number of expert assessments and analyzes show that in more than

10 % of panel residential buildings, indoor heating installations require an immediate repair.

For many years in the past district heating usage have been subsidized. Since the abolishment of this practice and for the above mentioned reasons a rapid decrease in district heating users took place, which made the distribution costs for those remaining on district heating higher and bills unpredictable, thus the district heating became not a solution, but a cause for energy poverty. This lead that many users have switched to electricity and fuel wood and coal, especially among low-income households, in order to have a better heating control and therefore on their energy bills.

Since 1st April of 2020, Bulgaria has witnessed a 42.8 % drop of the gas prices, since the State Energy and Water Regulatory commission has regulated new lower price for natural gas, but this service remains unavailable for the majority of the population, due to the lack of access to the service and for the many barriers pointed above.

The gas price drop also led to an average price decrease of 21.84 % of the centralized heating.

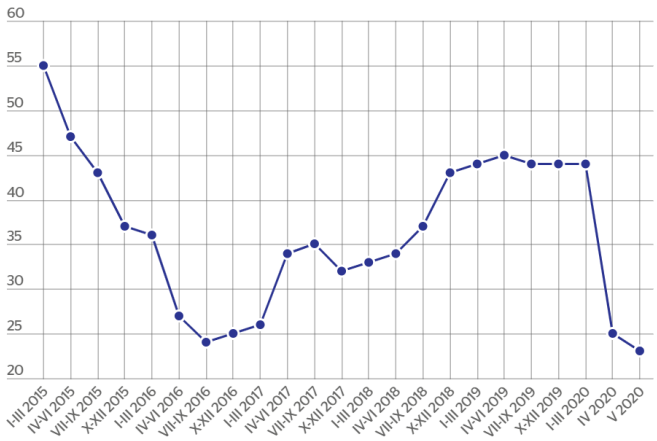


Fig. 6 Natural gas prices (2015-2020) in BGN per MWh (excluding prices for access, transmission, excise duty and VAT)

Current practices for low-income households:

Currently, there are only principles for providing social support for heating purpose through the Winter Supplement Program (WSP), concentrated on assisting people whose average monthly income for the past six months is lower than the differentiated minimum income.

The WSP program (*more details p.23÷24*) is entirely based on income and is orientated on short term household budget support, failing to address the factors causing the condition. Programme` activities are focused on ensuring minimum subsistence though income support, accompanied by a lack of interest in the long-term energy efficiency dimensions of the problem. The policy of direct financial support for heating is extremely insufficient in the fight against energy poverty and cannot be addressed as a such tool.

At the same time, it is becoming increasingly clear that "effective" energy poverty reduction activities must include measures to improve energy efficiency in the housing stock and in the heating patterns at the same time as social policy measures.

Experience from the national energy efficiency retrofitting programme.

The implementation of the National Energy Efficiency Retrofitting Programme (NEEP), which had 100% public support (financial and administrative) and provided equal access to all municipalities and multi-family buildings in the country showed significant disbalance of results between the northern and southern part of the country. The northern happened to be much lower under-performing compared to the southern part of Bulgaria.

- 25.6% (517) of all refurbished multifamily residential buildings are located in the northwest, north central and northeast areas of NUTS 2.
- the remaining 74.4% (1505) of all refurbished multifamily residential buildings are located in the southwest, south central and southeastern NUTS 2 regions.

Liberalization of the electricity market

Households in Bulgaria are facing a new reality - a smooth transition to complete liberalization of the electricity market and the elimination of regulated electricity tariffs.

At the beginning of the liberalization process, a minimum percentage of the stock market price will be included in the regulated household price, subsequently the share of the market component will gradually increase. All these changes will lead to higher electricity prices, with an upward impact on household electricity costs, where the most affected will be the most vulnerable, namely the "energy poor".

The phasing-out of the regulated end-user prices will lead to increased competition between electricity providers, but at the same time exposes consumers to greater price

volatility. In order to guarantee the protection of the vulnerable to electricity liberalization customers, the government will introduce support measures to allow a smooth liberalization process without high social disturbance.

A definition of vulnerable consumers is already adopted, while an identification of protective mechanism is underway.

The vulnerable to electricity consumers are "Vulnerable Consumers" whose households are supplied with electricity and are occupied by persons who, due to age, health or income, are at risk of social exclusion. Vulnerable Consumers use social protection measures to secure their electricity supply. They are also household users who are in energy poverty situation due to the combination of low income, high energy costs and low energy efficiency of their homes.

The national authorities have identified nearly 500,000 individuals and families (1.1M people) in Bulgaria, or up to 14% of the population, to be "vulnerable customers" and be eligible of receiving social protection in conjunction with the supply and consumption of electricity.

This group includes individuals and families who are currently:

- receive energy aid (for heating) (256,000 families)
- persons over 70 years of age who live alone and earn only a pension income, below the poverty line determined for the year in question,
- people with over 90% disability with some foreign assistance;
- families with children with disabilities.

New financial instruments and energy poverty

Measures to improve energy efficiency in the building stock are of particular importance, so long as they not only achieve immediate relief for the socially vulnerable population, but also permanently contribute to poverty alleviation, so long as they affect its causes. It should be noted that the vulnerable population is not concentrated in segregated buildings or territories, which would facilitate the implementation of targeted energy efficiency policies and measures.

A wide range of programs and financial instruments for improving the energy efficiency of the building stock with differentiated aid intensities, coupled with the level of renewal and/or expected energy savings are envisaged in near to long term. **This requires addressing the issue of providing targeted assistance for the participation of insolvent owners and the energy poor in multi-family buildings, as such assistance will enable the participation of low-income owners.**

However, this type of aid should be distinguished with the aid provided by the WSP as they are used in different contexts and for the achievement of different goals: the social heating assistance aims to satisfy the basic heating need, while the energy renovation targeted aid enables the participation of low-income owners who, are very likely to have troubles participation and thus to stop the whole renovation process. At the end, **it is important to distinguish** between the two target groups, as well as the **approaches and criteria for obtaining the aid**, as long as renovation aid is needed in buildings where a condominium initiative has emerged.

3.2 Energy poverty data for Bulgaria

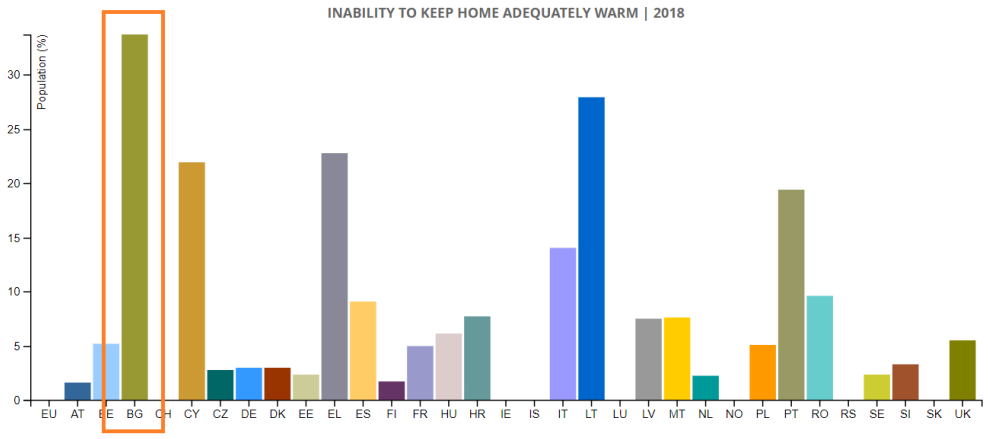
In order to approach and quantify the problem we can refer to the three available statistics for the state of the art of energy poverty in Bulgaria.

i. Eurostats **Statistics on Income and Living Conditions**
ii. National statistics on the households receiving heating aid (the beneficiaries of the Winter Supplement Program)
iii. The mechanism for protection of the vulnerable clients

1) **EUROSTAT defines and provides data for three energy poverty indicators, namely:**
   a. Inability to keep home adequately warm
   b. Arrears on utility bills
   c. Dwellings with leakages and damps walls

The most widely used indicator capturing self-reported affordability is the Inability to keep home adequately warm.

- *in 2018, 33.7% of households (2.342.150 people) in Bulgaria are struggling to adequately heat their dwelling and have reported an inability to keep warm, while the average EU-28 number is 7.4 %.*



2) Beneficiaries of the WINTER SUPPLEMENT PROGRAM

The Winter Supplement Program (WSP) administrated by the Ministry of Labour and Social Policy remains for many years the only existing program providing support for vulnerable households. Given some indicators the number of

---

for the 2019/2020 252.615 households (682.060 people) out of 303.195 households have successfully applied and received heating aid.

---

3) The mechanism for protection of the vulnerable consumers

In the Bulgarian context “Vulnerable consumers "are customers, whose sites are supplied with electricity, where there are persons who, due to age, health or income, are at risk of social exclusion and who need to benefit from social protection measures in order to secure the electricity supplies they need.

Given this

---

the national authorities have identified nearly 500,000 individuals and families (1.1M people) in Bulgaria, or up to 14% of the population, to be "vulnerable consumers" and be eligible of receiving social protection in conjunction with the supply and consumption of electricity.

The identified group of “vulnerable consumers” includes individuals and families who are currently:

- receiving energy aid through the Winter Supplement Program – approx. 256,000 families
- persons over 70 years of age who live alone and earn only a pension income, below the poverty line determined for the specific year;
- people with over 90% disability receiving external assistance; and
- families with children with disabilities.

3.3 Public authorities, NGOs & private businesses dealing with energy poverty

PUBLIC AUTHORITIES IN CHARGE OF THIS ISSUE			
Ministry of Labor and Social Policy	https://www.mlsp.government.bg/	National	Public Sector
Social Assistance Agency	http://asp.government.bg/	National	Public Sector
Ministry of Regional Development and Public Works	https://www.mrrb.bg/en/	National	Public Sector
Ministry of Energy	https://www.me.government.bg/en	National	Public Sector
Sustainable Energy Development Agency	https://seea.government.bg/en/home-en	National	Public Sector
Energy and Water Regulatory Commission	http://www.dker.bg/en/home	National	Public Sector
Operational body of OP "Regional Development"	http://www.bgregio.eu/	National	Public Sector
Fund Manager of Financial Instruments in Bulgaria	https://www.fmfib.bg/	National	Financial Sector
Residential Energy Efficiency Credit Line Operator	http://reecl.org/en/	National	Financial Sector

NGO SECTOR			
Center for Energy Efficiency - Eneffect	http://www.eneffect.bg/	Regional	Environmental Field
Friends of the Earth - Za Zemiata	https://www.zazemiata.org/	Regional	Environmental Field
Green Synergy Cluster	http://en.greensynergycluster.eu/	Regional	Environmental Field
Sofia Energy Center	https://www.sec.bg/en/	Regional	Environmental Field
Greenpeace Bulgaria	https://www.greenpeace.org/bulgaria/	Regional	Environmental Field
Union of Bulgarian Black Sea Local Authorities	http://www.ubbsla.org/en/	Regional	Environmental Field
Active Consumers Association	https://aktivnipotrebiteli.bg/	National	Consumers
Sofia Energy Agency	https://sofena.com/en/	Regional	Environmental Field
Ashoka Foundation	https://tackleenergypoverty.ashoka.org/en	European	Environmental Field
PRIVATE BUSINESSES			
Schneider Electric Bulgaria	https://www.se.com/bg	Local	Others

4 Link to the RIS3

Many European regions are currently implementing their Smart Specialisation Strategies in line with a common set of methodological principles initially designed by the European Commission.

Renewable energies are linked to objective#1, vertical activity #1 - Mechatronics and Clean Technologies (including energy conservation and savings) of the National Innovation strategy for smart specialisation. There is no link between RE and energy poverty in the RIS3 of Plovdiv for 2016-2020. Renewables and energy efficiency topic are part of the Regional plans for Renewable energy development and for Energy efficiency.

5 Policy Instruments. Regional and National Plans and Policies on renewable energies and energy poverty

1. Bulgarian National Energy and Climate Plan

The plan outlines the Bulgarian contribution to the achievement of the goals of the European Union by 2030, namely

- reaching a share of RE electricity in the final electricity consumption of 30.33 % in 2030
- reaching a share of RE heating & cooling in the final heating & cooling consumption of 42.60 % in 2030
- reduction of primary energy consumption compared to the PRIMES 2007 base forecast with 27.89 %
- reaching of 3216 MW installed PV capacity by 2030, compared to 1042 MW in 2020.
- Achieving energy savings of 2477 GWh in residential buildings by 2030.

The adoption of the Third Energy Package integrated **energy poverty** in EU energy policy. The Clean Energy Package for all Europeans came with further regulations to tackle energy poverty in the EU, which required Member States to acknowledge and recognize energy poverty and set up measures to address it in their **Integrated Energy and Climate Plans**. In particular, it was necessary to assess the number of households in energy poverty, taking into account the necessary domestic energy services needed to guarantee basic standards of living in the relevant national context, existing social policy and other relevant policies. It was also necessary to set national targets for

fighting energy poverty, including to identify the number of energy-poor and time range to mitigate the problem.

The objectives set by Bulgaria regarding the energy poverty context in the Integrated Energy and Climate Plan are mostly focused on four main steps, using the social assistance system, namely:

1) providing adequate protection for the energy poor by providing targeted heating aid;
2) implementation of a mechanism to protect vulnerable customers once starting the process towards full liberalization of the electricity market;
3) renovation of the building stock;
4) Increasing the energy efficiency of the vulnerable customers, incl. households affected by energy poverty

2. White Certificate Trading Scheme

White certificates or, more generally, energy efficiency obligation scheme is as a policy instrument to foster energy efficiency improvements, which are build-on suppliers' obligations. These portfolios are usually based on quantified energy savings obligations imposed on energy distributors or suppliers, possibly coupled with certification of project-based energy savings (via white certificates), and the option to trade either certified energy savings resulting from energy efficiency measures, or energy efficiency measures or energy saving obligations.

The scheme sets out a number of obliged parties:

- end suppliers, suppliers of last resort, dealers with issued license for the "electricity trading" business they **sell electricity to end customers more than 20 GWh per year;**
- heat transmission companies and heat suppliers that sell end-customer **heat energy more than 20 GWh per year**;
- end suppliers and natural gas traders selling to end customers **more than 1 million m³/y**;
- liquid fuel traders selling to end customers **more than 6.5 ktoe liquid fuels annually**, excluding transport fuels; solid fuel dealers **selling to end customers more than 13 ktoe solid fuels annually.**

The total energy saving targets in Bulgaria of the obliged parties in 2017 is 36,511 ktoe or 423,533 GWh, while the achieved are 3,083 ktoe and 35,777 GWh.[4]

3. Long-term national strategy to support the renewal of the residential and non-residential buildings stock - 2021-2050

The strategy aims to establish a single and unified approach for defining different cost-optimal set of measures in order to achieve 60 % of energy savings on primary energy per building category. It also provides a vision for the refurbishment rates of the inefficient building stock.

The strategy defines a wide range of programs and financial instruments for improving the energy efficiency of the building stock, which are to be established in long run.

The strategy mentions a lot of issues related to energy poverty and also provides a short context of the energy poverty dimension in Bulgaria, providing valuable recommendations.

4. National Housing Strategy

The document slightly mentions the energy poverty topic by providing statistical number available through Eurostat on the number of those affected.

5. The National Plan for Nearly Zero Energy Buildings

European Union's energy targets for 2030 include the transformation of conventional buildings to Nearly Zero Energy Buildings (NZEBs). NZEBs are characterized by reduced energy demand, where most of their energy needs are covered by Renewable Energy Sources (RES). Member states are developing plans to increase the number of NZEBs, which most probably employ PVs, to reach the 2030 climate change targets.

Official NZEB definition was presented in 2015, with the amended Law on Energy Efficiency, which transposed Directive 2012/27/EU. In Bulgaria, NZEB buildings needs to simultaneously satisfy the following two conditions:

[4] https://www.seea.government.bg/documents/Individualni_Celi_%D0%B7%D0%B02018_Priet.pdf

1) the energy consumption of the building, defined as primary energy, needs to meet **Energy efficiency Class A** of the scale of energy consumption classes for the type of the building (*9 type of buildings are considered*);
2) **not less than 55%** from the energy consumption for heating, cooling, ventilation, domestic hot water (DHW) and lighting should be **renewable energy**.

   Renewable energy should be produced on-site or near the building (the maximum distance is not specified).

The National Plan for Near-Zero Energy Buildings 2015-2020 aims to turn the concept of near-zero energy buildings into a practically viable alternative to the future construction of new buildings in Bulgaria after 2018, and with proven cost-effectiveness - in the renovation of existing buildings for the various sub-categories of the buildings.

6 Legislation, Regulation

All relations related to RES are mainly governed by The Energy from Renewable Sources Act;

The Energy from Renewable Sources Act;

The Energy from Renewable Sources Act (3.05.2011, amended 21.05.2019) governs the public relations related to the production and consumption of electricity, heating and cooling energy from renewable sources, as well as biogas, biofuels and bioenergy for the transport sector. Its main goal is to promote the production and consumption of energy produced from renewable sources mainly through development of support schemes and financing project activities.

The current Law on Energy from Renewable Source addresses only the generation, purchase, transmission, distribution and taxation of energy from renewable energies, as well sets out the rules and the procedure about accession of a renewable energy production systems. It does not recognize energy storage, respectively energy storage systems. Thus, energy storage systems have not been set in any way in any official document.

The State Energy and Water Regulatory Commission is the national regulatory body responsible for determination of preferential prices (Feed-in Tariffs) for the purchase of renewable electrical energy. The current PV FiT prices are set to guarantee each investor an average rate of return of 7%.

According to the Bulgarian regulations there are three ways of connecting a rooftop or façade PVs:

- **entirely for own consumption**, where the PVs could be coupled with BESS (battery energy storage system)
- **for own consumption,** where the surplus is backed to the grid (In 2018 the Net-billing scheme became available at 96,35 BGN/MWh; 49.26 €/MWh. The price equals to the forecasted market price for electricity for the relevant period and is depending on the primary energy source.
- The produced energy is **fully backed to the grid** through the FiTs. (Feed-in-tariff scheme)- the owners of new renewable electricity (RES) plants with a total installed capacity of up to 30 kWp, which are built on the roof and facade structures of a building connected to the electricity distribution network in urban areas, can sell the produced energy through

Law on the Energy Communities

Currently there in now law related to the Energy Communities, no Aggregator regulations are set. One of the first steps in this direction is the introduction of the necessary legislation and rules for the establishment and operation of energy cooperatives. This will enable groups of users to produce, store and lease renewable energy to each other, invest in such infrastructure, and be able to receive grants, e.g. in the case of vulnerable groups.

7 Financial Support and Instruments

1) The Winter Supplement Program – established

The Winter Supplement Program (WSP) administrated by the Ministry of Labour and Social Policy remains for many years the only existing program providing support for vulnerable households. The program provides direct financial support towards heating bills, electricity, coal briquettes or wood and natural gas for heating. According to the programme`s rules, all households earning less than the guaranteed minimum wage for a period of 6 months are eligible for heating assistance including some families above this line. In order to receive the social aid the applying households should also satisfy additional conditions including not having sold real estate in the last 5 years and not having travelled abroad on their own expenses for the last 12 months. The amount of the social aid is based on the equivalent of 500 kWh of electricity and is based on the

electricity prices at the beginning of the heating season. The aid is granted for a period of 5 months and through a one-time payment in advance in cash for the entire heating season.

The WSP currently falls under the jurisdiction of the Ministry of Labour and Social Policy, which has an extensive network of offices to distribute the aid, while maintaining a database of vulnerable consumers.

For the 2019/2020 252,615 out of 303,195 has successfully applied and received heating aid. The total amount of targeted heating aid for the five months of the 2019/2020 heating season. is 465.90 BGN

This results in the use of approx. 117.7 M. BGN per year, for income and energy support for vulnerable households (without improving their living conditions or creating sustainability in energy consumption).

	2010	**2011**	**2012**	**2013**	**2019**
Supported households	**206 452**	**219 760**	**210 711**	**251 876**	**252.615**
Household amount granted, euro	**145,36**	**148,07**	**168,00**	**168,00**	**238.21**

Thus operating program is focusing on short term household budget support, which is highly inefficient. The program looks more like an income supporting program rather than a programme fighting with energy poverty. In order to be a genuine energy poverty program, it must certainly lead to energy efficiency improvements and it has to monitor certain number of energy indicators – energy consumption, energy efficiency levels, etc.

The policy of direct financial support for heating, which is extremely insufficient in the fight against energy poverty, has been also highlighted within the Long-term national strategy to support the renewal of the residential and non-residential buildings stock - 2021-2050. The Strategy also addresses that it is becoming increasingly clear that "effective energy poverty

reduction activities" have to include measures improving the energy efficiency in the housing stock at the same time as social policy measures"

---

2) **Mechanism for Protection of Vulnerable Clients – still not in force**

Currently Bulgaria is in phase of starting the full liberalization of electricity supply for Bulgarian households, who will be facing a new reality - a 5 years plan for smooth transition to a complete liberalization of the electricity market and the elimination of regulated electricity tariffs. **The process** of full liberalization of the electricity market for residential customers **will start after the introduction of a mechanism to protect the vulnerable to electricity consumers**

This mechanism will be designed to assist vulnerable to electricity consumers by providing them with year-round minimum coverage of their electricity needs beyond the heating needs.

3) **Available Schemes for prosumers at low voltage level**

a) Two different FiTs are available for PVs up to 5 kWp and for PVs from 5 kWp up to 30 kWp, with a compensation limit at the total yearly produced energy both limited to 1,261 kWh per kWp installed capacity.

Hence, two different FiTs become the only available instruments for small-scale PVs support:

1. PVs ≤ 5 kWp; 250.64 bgn/MWh ; 128.15 €/MWh – current rates (2019-2020)
2. PVs > 5÷30 kWp; 208.74 bgn /MWh; 106.73 €/MWh– current rates (2019-2020)

The installed residential PV systems are bound with long-term contracts (20 years) for directly selling and distributing renewable energy into the grid.

b) **Net-Billing Scheme**

In 2018 the Net-billing scheme became available, where the surplus energy can be backed to the grid. The price for backed up energy is estimated at 96.35 BGN/MWh; 49.26 €/MWh. The price equals to the forecasted market price for electricity for the relevant period and is depending on the primary energy source.

Currently, PV prosumers have several options on how to deal with the generated and surplus energy. This is a process being negotiated with the local DSO during the contracting phase:

1) The generated energy could be utilized for own consumption onsite, where the surplus is fed-in the electricity grid;
2) The generated energy could be utilized for own consumption onsite, where the surplus will not be fed-in the electricity grid;
3) The generated energy will be fully fed-in to the electricity grid (usually through FiTs).

4. Better Air Quality programme through OP Environment

28 Municipalities are eligible to apply for funds for practical measures at local side for better Air Quality through OP Environment.

As winter Air pollutants of PM10 are several times higher than those in the summer season, which proves the strong influence of household burning during this period.

The main aim of the programme is to reduce air pollution from domestic heating, which is one of the main air pollutants by free replacement of old combustions plants/ stoves on solid fuel with alternative forms of heating-

The campaign, initially started within Sofia Municipality, where nearly 20,000 households are eligible to apply

Homeonwers are eligble to switch to:

- Gas through efficient Condensing gas boilers (efficiency above 94 %)
- Electricity – individual A2A heat pumps with SCOP > 4.0 and energy efficiency class in heating mode – at least A+ / cooling A++
- Combustions plant on pellets with efficiency above 91 %
- District heating

8 Preliminary Good Practices

Project REACH (Reduce Energy use And Change Habits) - http://reach-energy.eu/

REACH project aimed at empowering energy-poor households in Bulgaria, Croatia, North Macedonia and Slovenia to save energy and water, while at the same time

establishing energy poverty as an issue that demands tailor-made structural measures. To do this, REACH targeted energy-poor households, local actors that can help address energy poverty (such as social support services, local authorities or schools), and decision makers at local, national and EU level.

More specifically in Bulgaria, students and volunteers from two technical vocational schools were trained to perform energy audits and become energy advisors to energy-poor households. To do so, energy training modules adjusted to the local needs were designed. Hence students during their summer practice hours passed several days training events in order to further deeper their knowledge and perform the energy visits. The next key step in the action was to visit the energy-poor households and introduce the practical measures to reduce their energy and water use and providing them additional energy and water saving related advices, as well. Visits were implemented in two steps:

1) During the first visit, energy audit was performed by the energy advisors. The advisors reviewed the energy and water bills of the households, conducted a set of measurements (use of appliances, water use, etc.) and discussed the household's habits with regard to energy and water use. They also agreed on the procedure for the second visit. Inserting data on energy and water use and costs (from bills), electricity using devices (lightning, cooking, washing, entertainment, cooling, heating, etc.), state of the building (heating system, insulation, windows, position of flat, etc.), and behaviour of the inhabitants enabled the energy advisors to run analysis and shape advice for each household.
2) During the second visit, the advisors were equipped with devices, which helped the household reduce energy and water use, and advice for using those devices, changing energy use habits and further possible steps. The package of devices for the households was tailored to the needs of the households. The advice for the household was also tailor-made, taking into consideration the situation and habits of the members. The household was notified about the structural problems, such as poorly insulated building, too old heating system, or mould. Apart from tailor-made advice, the households also received a list of general tips for reducing their energy and water use and contacts to institutions that can support them in making further steps (e.g. insulation funds), as well as instructions for understanding their energy and water bills.



Schneider Electric Bulgaria through the Schneider Electric Foundation

Based on the success of REACH project several small scale campaigns were organized and funded through Schneider Electric Bulgaria and the Schneider Electric Foundation.

- **Namely, in 2016 the Energy Agency of Plovdiv** trained 10 volunteers from Schneider Electric Bulgaria and the Red Cross Bulgaria, who have become energy advisers to energy-poor households. The aim of the project was to assist 50 families living in energy poverty through provision of low-cost energy-saving and water-saving appliances leading to a sustainable reduction of energy and water consumption, as well as to provide advice on smart resource consumption.
- **In 2017**, we continued our partnership with the Schneider Electric Bulgaria & Schneider Electric Foundation and, within the Fighting Energy Poverty programme we trained students from the Vocational School of Electrical engineering and Electronics. As a total 10 students become volunteers and have successfully completed their training on energy advising. At the end a total of 130 households received professional advice and various energy-saving appliances and appliances. A specially designed book by EAP on how to save energy in your home and how to be energy efficient has also been supplied.

  Students were also able to visit some RES sides, like PVs with sun tracking mechanics and a geothermal heat pump installation.

Foundation Schneider Electric

- **In 2018**, Schneider Electric volunteers who have already passed training participated in a targeted campaign to inform energy poor households about energy efficiency. As a result of their participation in the project, 50 participating households received energy-saving devices worth over BGN 100. The expected savings from the campaign are an average energy savings of 129 BGN and cut of 0.343 tCO_2/y per household.

Project IDEA, Erasmus+ - http://www.project-idea.eu/

Innovative Direction in Energy Advising is an Erasmus+ project aiming to improve the quality of practices in the education of adults on the challenges and opportunities related to energy poverty education by identifying the existing practices and methods and build on them. This is done by developing a high quality educational approach which is able to address both technical and social sides of the problem and also highlight the entrepreneurship possibilities in the area of energy advising meaning help the unemployed to identify energy advising as an opportunity for them to find new job

opportunities. The project has developed 15 innovative ICT tools to be used in education on energy poverty:

- **Energy Advising Tool for Energy Poor Households (Restricted access):**

A tool that energy advisors use to record the collected and assessed data about energy and water consumption and habits in households. It is able to calculate potential and possible savings. It also provides individual energy reports for households. The tool has restricted access to citizens, only energy advisors will have access to use it.

- **Open Access Toolbox:**

It presents a Toolbox, including 5 energy tools for assessing energy consumption in households. The tool is open to any individuals to use (online). It helps households to calculate easily their energy and water consumption and to assess potential energy savings. Toolbox components are the following different tools: Electricity tool, cooling tool, heating tool, lighting tool and water tool.

- **Energy and Water Saving Tips for Households**

This tool represents a package with energy saving tips. It provides tips on energy efficiency and energy behaviour change. The tool is open for any individual to use online and is downloadable, as well.

- **Educational e-manual tool:**

A downloadable document which consists of an educational programme to educate advisors on how to tackle energy poverty. It includes the following main sections: Energy poverty, energy efficiency, social issues, entrepreneurship possibilities and communication skills.

- **National Contacts Tool**

A tool that provides a catalogue of organizations, stakeholders or other people that can help persons facing energy poverty, considering the country and area of interest. It also provides information about financial mechanisms for increasing energy efficiency and social support.

- **The Webinars tool:**

The webinars tool is directed at stakeholders (energy poverty and energy efficiency actors, adult education). The objective is to present the ICT tools for energy poverty and to influence text-based discussion (Q&A).

- **Video Tutorial Tool:**

Video tutorials about the ICT tools is produced.

- **The "video for dissemination" tool**

It represents the project, the partners and the Educational program that is created. It provides an overview of the different themes, communication materials and digital media.

- **Educational Games Tool:**

Interactive online games with educational purpose are produced. They are related to education on energy poverty and energy efficiency issues.

- **Role-Play Game Tool (Optional):**

A 3D game is established with different scenarios, focused on how the advisors can better react to various social situations, how to deal with potential conflict in the household they visit and how to apply their energy saving knowledge in the household setting. They will use an avatar to move in the virtual space. Energy advisors are using this game for their education.

The final "Guide of Good Practice" is available in the LIBRARY of the POWERTY website.

9 References

- *National Statistical Institute*
- *Bulgarian Energy and Climate Plan 2021-2030 (Integrated Plan in the area of Energy and Climate of the Republic Of Bulgaria)*
  https://ec.europa.eu/energy/sites/ener/files/documents/bg_final_necp_main_bg.pdf
- *The Energy from Renewable Sources Act*
- *SEDA – Sustainable Energy Development Agency*
- *Bulgarian Plan for Nearly Zero Energy Buildings 2015-2020*
- *Bulgarian Housing Strategy*
- *International Energy Agency*
  https://www.iea.org/countries/Bulgaria
- *The Energy Magazine of Bulgarian TSO*
  http://www.eso.bg/fileObj.php?oid=2537
- *Eurostat - Renewable energy in the EU in 2018*
  *https://ec.europa.eu/eurostat/documents/2995521/10335438/8-23012020-AP-EN.pdf/292cf2e5-8870-4525-7ad7-188864ba0c29 *
- *REACH project - National situation in the field of energy poverty*
  http://reach-energy.eu/wordpress/wp-content/uploads/2014/12/D2.2-EAP_EN.pdf
- *REACH project*
  http://reach-energy.eu/
- *PV-ESTIA project*
  https://www.pv-estia.eu/
- *Invent Air project*
  https://www.inventair-project.eu/
- *EU energy poverty observatory*
  https://www.energypoverty.eu/

SWOT analysis

TOPIC 1. INNOVATIVE RENEWABLE ENERGY TECHNOLOGIES AIMED AT VULNERABLE GROUPS, INCLUDING COLLECTIVE AND URBAN ENERGY SYSTEMS.

WEAKNESSES

- The innovative renewable technologies are not competitive enough given the current energy prices in Bulgaria.
- Bulgarian electricity prices are still regulated and thus kept low due to not fully liberalized electricity market.
- There are no specific rules on the energy cooperatives establishment and operation of energy cooperatives and on the role of the aggregators.

THREATS

- There are no clear models for promoting renewable energy resources in the context of energy poverty amelioration.
- Vulnerable groups consume low-cost fuels.
- Nearly one-quarter of the population lives with incomes before the poverty line.
- Broad phase-out of renewable energy support due to the early achievement of the 2020 renewables target, and the aim to reduce household energy prices.

STRENGTHS

- The national energy and climate policies are in the context of the European legislation and thus aiming to ensure affordable energy for all consumers.
- Innovative Renewable technologies and services at household level are widely offered and available on the market.
- Several NGOs remain very active on the EP & RES domains, pushing it foreword.

OPPORTUNITIES

- New ambitious energy and climate targets set relying on renewables within the Bulgarian NECP.
- The renewable energy sources could decrease the pressure on using fossil fuel for heating.

- New form of social participation and innovation is available through "Improved Air Quality" programme, which is available for 28 Municipalities – aiming to replace individual and multifamily solid fuel household appliances with new efficient heating devices (some of them on renewable source - pellets).

TOPIC 2. NEW FINANCING FORMULAS FOR RENEWABLE ENERGIES SUITABLE FOR VULNERABLE GROUPS.

WEAKNESSES

- RES are highly sensitive to financing terms in order to be suitable for vulnerable groups.
- There are no adequate financing formulas available for renewable energies suitable for vulnerable groups.
- There is a lack of differentiated aid intensities, coupled with the renewal level (expected energy savings) and/or the implementation of RES during national building refurbishments.
- The recently existing national buildings` retrofitting programme didn't implement any specific energy poverty criteria during application, assessment and implementation phases.
- There is a lack of corporate social responsibility models in the energy sector in Bulgaria.

THREATS

- There is a lack of trust in such schemes, which happen to be the main problem during the national programme for EE in buildings.
- Financial tools are hard to be understood by the energy poor.
- Financial tools are often connected with complex and time-consuming procedures.

STRENGTHS

- A wide range of programs and financial instruments for improving the EE of the building stock are envisaged in near to long term.

- Corporate social responsibility models in the energy sector in Bulgaria are a matter of an organizational challenge rather than financial.

OPPORTUNITIES

- The new tools will require addressing the issue of providing targeted assistance for the energy poor.
- High level of differentiated aid intensity when building refurbishment is coupled with RES.
- Better awareness among policy makers for more ambitious national retrofitting programme, which will include renewables.

TOPIC 3 IMPROVEMENTS IN THE REGULATORY FRAMEWORK FOR RENEWABLE ENERGIES AND VULNERABLE GROUPS

WEAKNESSES

- There is a lack of appropriate legislation on the establishment and operation of energy cooperatives and on the role of the aggregators.
- There is a lack of targeted policies for renewable energy implementation among vulnerable groups.
- There is a lack of targeted assistance towards renewable energy systems at vulnerable groups.
- There are policy and technical barriers in implementation of PVs in buildings.
- There is a lack of adequate PV legislation as to facilitate higher PV penetration with adequate profits for the prosumers and the vulnerable groups.

THREATS

- Policy improvements are a time-consuming procedure.
- “How” it should be done causes problems.
- Interest groups and constituents alike heavily influence the motivations of elected officials.

STRENGTHS

- A new mechanism to protect vulnerable consumers when starting the process towards full liberalization is being currently developed.
- Somehow adequate PV framework for PVs ≤30 kWp - FiT RE support available for small-scale rooftop & facade PVs.
- Strong nZEB definition, defining a high-share of RE (55 %) in the final energy consumption.

OPPORTUNITIES

- EU requirements for more ambitious government policies - Member States need to recognize and put in place energy poverty in their NECP.
- New ambitious energy and climate targets set within the Bulgarian NECP.
- EU Green deal - commitment to tackling climate and environmental-related challenges.
- The Net-Billing scheme is available for all prosumers with rooftop PVs ≤ 30 kWp.

TOPIC 4 EMPOWERMENT OF VULNERABLE GROUPS AND SOCIAL INNOVATION TO STIMULATE CITIZEN PARTICIPATION OF THESE SOCIAL GROUPS

WEAKNESSES

- Policy makers are not aware with social innovations in terms of citizens engagement.
- Low level of engagement among citizens in the policy development.
- Lack of enough practices on citizen's engagement on energy topics and within collective systems.

THREATS

- Lack of culture of trust and risk-taking which is needed to promote scientific and technological innovations.
- Such practices would be new for the vulnerable groups and may also suffer from difficulties in the implementation process.

- Difficult in engagement and empowerment of citizens, especially the vulnerable groups.

STRENGTHS

- Existing initiatives for public engagement in policy development.
- There are already some implemented information campaigns among citizens about energy saving and energy behavior change.
- Existing National action plans on building renovation are including and emphasing citizens' engagement.

OPPORTUNITIES

- With the EU currently engaged in a new growth strategy for a smart, sustainable and inclusive Europe by 2020, social issues are being brought to the fore.
- The new social innovation models are still to be developed in near future in our country (products, services and models).
- Social innovation simultaneously meet social needs in a more effective manner.
- Social challenges are also opportunities.