MANAGING CLIMATE POLICIES IN BULGARIA'S SOCIAL CONTEXT

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ABSTRACT

The social impact of the EU's climate policies is usually analysed putting the focus on climate neutrality goals, and not on citizens' well-being. The affordability of energy and energy efficiency is rarely analysed through both running costs and investment costs. Unfortunately, when implemented, climate policies meet limitations from a number of social factors, including poverty and inequality, the share of disposable income spent on energy expenditure, and low incomes. They impact the population's investment ability, and undermine the country's capacity to overcome climate change challenges. In Bulgaria, there is no in-depth analysis of the overall economic and social impact of climate policies, despite the presence of separate studies partly examining some aspect or specific climate instrument. This article uses theoretical and secondary statistical methods and data to provide an analytical framework for such an analysis, and offers an identification of the social risks and a systematisation of the social factors impacting the management of climate policies set out in the National Energy and Climate Plan: a reduction of greenhouse gas emissions, an increase in energy efficiency, and an increase in the share of renewable energy sources in consumption.

KEY WORDS: *climate policy, public policy, social factors, risk mitigation, energy poverty*.

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Introduction

The scientific problem that this article envisages is the lack of an in-depth discussion on the combined effects of climate policies on citizens' incomes and well-being, and therefore the presence of a significant underestimation of the social factors impacting the implementation of climate policies. The social impact should be regarded in relation to several climate policy instruments, introduced and expected for introduction with the Emissions Trading System in the industry and energy sectors (ETS 1) (with the energy price increase and related consequences), and the Emissions Trading System in the building and transport sectors (ETS2) (the extension of ETS to the building and transport sector), the Carbon Border Adjustment Mechanism (CBAM), and also the exclusion of a certain energy source (gas for the EU in 2022, or coal power plants for countries in Central and Eastern Europe [CEE] in the next few years). In fact, all these causes have their own weight in the change of citizens' welfare. Underestimating them caused inadequate reactions by governments in 2022, and resulted in worsening citizen's welfare (the 'cost-of-living crisis'). A possible increase in unemployment rates, lower GDP, and lower country budgets could, and will, directly impact households' ability to invest in improving their capacity in the worsened climate conditions.

The purpose of this article is to systematise and analyse the social factors impeding the implementation of climate policies, and to discuss the solutions to overcome these challenges. Managing climate policies in the social context of Bulgaria requires a clear risk identification, diagnostic and prescription of risk mitigation measures, which are the tasks of this article. As part of the public management cycle, this step precedes

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efficient and adequate planning and policy management. This article limits its scope to shaping the analysis framework and possible interconnections between impact factors and consequences.

The object of the article is the social factors impacting the welfare and the capacity of households to deal with climate change. The subject is citizens, presented and discussed as 'households', and not businesses or public housing.

The methods used to achieve the purposes of this article include a study of literary sources, theoretical analysis, statistical data analysis, the systematisation of information, and the drawing of conclusions.

Key tasks include the systematisation of social factors under the climate policies framework, and the identification of the risk and possible risk mitigation measures needed to reach climate neutrality goals.

The policies and mechanisms to reduce carbon emissions discussed in the article are divided into three groups: 1) greenhouse gas (GHG) emissions reduction policies refer to the 'Just Transition' fund for coal-fired power plants, carbon tax in the energy, industry, building and transport sectors (ETS1 and ETS2), and the carbon border adjustment mechanism; 2) energy efficiency improvement refers to the EPBD and the Renovation Wave; 3) renewable energy refers to the DEE directive and the RePowerEU mechanism.

1. Background

The European energy and climate directives of the last few years oblige countries to develop sustainable energy and climate policies in order to achieve net zero carbon emissions by 2050, and to update these policies according to the situation with progress every two years. In its National Plan for Energy and Climate (NPEC), Bulgaria set ambitious targets to achieve by 2030, including a reduction of greenhouse gas emissions by at least 40% compared with 1990, an increase in energy efficiency to at least 32.5%, and an increase in the share of energy from renewable sources (RES) to at least 32%. These targets require the implementation of a set of policies that envisage a specific social context. This context may hinder the smooth implementation of the policy, and diagnostics are needed as an important part of the risk mitigation process.

Bulgaria is the country with the highest level of poverty and energy poverty of all EU member states (Peneva, 2022), which limits citizens' ability to invest in decarbonisation measures, and requires a specific holistic approach. Therefore, reducing carbon emissions and dealing with climate change may be regarded as a policy with a two-way impact. If managed well, it could improve the overall well-being of society (Aracharya, Sequeira, 2012). If managed poorly, it could worsen the situation. Policy makers need to know clearly the risks that each specific target entails, and to have a clear vision of the possible solutions in order to overcome these challenges (ESC, 2023).

There is official recognition of the possible negative social impact resulting from the introduction of a new emissions trading system (ETS) for buildings and road transport and fuel, from enlarging the existing ETS in the energy and industry sector, closing down coal-fired power plants, and phasing out natural gas. The affordability of energy and access to measures for the improvement of energy efficiency for the lowest income groups are a key concept in the legislative documents relating to the package 'Clean Energy for all Europeans', embodied in the principle 'no one left behind'. The European Commission requires member states to establish mechanisms for the identification and protection of energy-poor households (Directive [EU] 2019/944), and to prioritise these groups when conducting programmes for the increase of energy efficiency and the installation of renewable energy sources (Directive 2012/27/EU, and Directive 2010/31/EU [amended 2021]). A special Social Climate Fund will be established to secure financing for the most vulnerable, to avoid a negative impact from climate policies.

A number of studies discuss social justice and climate change (IMF, 2022) (Braun et al., 2022; Creutzfeldt et al., 2021), the social effects of climate change on specific groups (World Bank, 2021), the importance of targeted policies to protect consumers (OECD, 2022) (IMF, 2022; Sgaravatti et al., 2023), and the risks created by compensation with no targeting (Guenette, 2020). There is widespread agreement that providing 100% grants to all for efficiency measures, or imposing price caps, disproportionately benefits large energy consumers with higher incomes, and at the same time muffles price signals, limiting incentives to save

energy and use RES. Large financial losses are also created for energy companies/sectors, discouraging new investment in infrastructure (Guenette, 2020), and creating high budget deficits. At the same time, rising energy costs in 2022 found that countries were incapable of reacting, lacking sustainable mechanisms with sufficient capacity and flexibility in the system to cover a growing range of vulnerable groups. Budget risks were created with huge compensations (Sgaravatti, Tagliapietra, Trasi, Zachmann, 2023), and fiscal systems with flat rates were not able to support increased energy compensation (IMF, 2022). Targeted support was recommended by the OECD as a policy response to the impact of the war in Ukraine on energy prices (OECD, 2022). However, there are few estimations of the impact of energy and climate policies on household incomes (CSD, 2023), or on the energy poverty level and income (Poland NPEC; Boratyriski et al., 2015). The social impact of the EU's documents is analysed through a focus on the climate neutrality goals, and not on citizens' well-being (incomes and energy efficiency levels) (EU, 2021a).

As mentioned in the introduction, the combined effect on final users' incomes, citizens' incomes, is rarely discussed. In fact, all these causes have their own weight in citizens' welfare change. Underestimating them caused inadequate reactions by governments in 2022, and resulted in worsening citizen's welfare (the 'cost-of-living crisis'). A possible increase in unemployment rates, lower GDP, and lower country budgets, could and will directly impact households' ability to invest in improving their capacity in the worsened climate conditions.

Research on the social impact of climate policies is limited. In Bulgaria, there is a separate analysis on the energy security risk related to just the transition of the European Green Deal and the development of regions with much coal mining (Yarkova et al., 2021), on the impact of decarbonisation on employment in energy regions in Bulgaria (Hristoskov, 2020), on the impact of a carbon tax on the building and transport sector (ETS2), on energy poverty (Centre for the Study of Democracy, 2023), and on energy poverty (Peneva, 2021; Peneva, 2022). In 2023, the CSD published the energy and climate risk index (CSD, 2023b), in which however, citizens' well-being is still not considered. The 'affordability' aspect of energy and energy efficiency services is still a concept with various dimensions.

There is a need to combine all the factors into one single model, with a focus on the social impact when managing climate policies. Only on this basis could a sustainable and efficient mechanism for distribution funds be established, which is essential when the funding and resources are limited.

2. The identification of social risk and mitigation measures as part of the management of climate policies in Bulgaria

2.1. Risks related to the reduction of greenhouse gas emissions

Bulgaria has the most energy-intensive economy, and the economy with the largest greenhouse gas emissions per unit of GDP, in the EU, far ahead of all the other countries. Yet the country's overall emissions are minimal (39,140kt, or 1.4% of total EU emissions, as of 2019 [WB, 2019]). Energy and industry account for 90% of the total emissions, and represent the biggest task for decarbonisation in Bulgaria until 2050. The decarbonisation of the sector means the closure of coal-fired power plants, and the loss of nearly 40,000 jobs (Hristoskov, 2021), and the use of alternative sources for electricity price formation. Concrete parameters to be investigated include employment and social welfare in coal-producing regions, but also in the whole country, when discussing electricity price formation. The *identified risks* are an increase in poverty and energy poverty levels as a result of high energy costs and the share of the cost of energy in total income, the inability to heat or cool to an adequate level, the related consequences to people's health and well-being, and, moreover, resistance to climate policies and the creation of social pressure and anti-green deal movements.

Key social factors

The social factors determining the risks in this group are:

1. Direct, indirect and induced unemployment and related issues due to capacity closure and the related decrease in income. The number of jobs directly and indirectly related to

all thermal power stations (TPSs) and mines in the Maritsa-Iztok region as of 2020 is 33,752, including 13,900 direct, 19,345 indirect, and 507 induced jobs (Hristoskov, 2021). In the Bobov Dol-Pernik region, 8,129 workers and employees are engaged in the production of electricity and coal, including 3,585 directly employed, 4,411 indirectly employed, and 133 people in induced jobs. This makes over 23% of the jobs in the Stara Zagora region, and over 7.5% in the Bobov Dol-Pernik region.

2. Lower incomes in jobs created by new alternative activities. Current alternatives for the replacement of the coal-fired capacity include the development of a photovoltaic park and a battery factory. Changes in the income of workers in the region are expected not only in the short term, but also in the medium and long term, considering the wage levels of the new activities in which they are expected to be engaged in both scenarios. For many years, the Stara Zagora region has been second in terms of the income level of workers. As of June 2022, the gross salary is 1,556 Bulgarian lev (BGN), only 32 BGN lower than in Sofia, compared to levels of 1,167 BGN in Vidin, and 1,142 BGN in Haskovo (NSI, 2022). In this sense, the restructuring of employed people from the highly paid energy sector to other economic sectors and activities may reduce the average wages in these regions.
3. The price of replacement capacity electricity and resulting changes in the level of disposable income, and therefore the poverty and energy poverty levels in the country. In fact, the Bulgarian energy industry does not have reserve base capacities to replace over 3,100 MW, currently operating in the Maritsa East coal region (Yarkova, Yarkov, Tsacheva, 2021). The base capacity cannot be replaced with renewable sources. If not enough capacity is built before closure, the country may need to import electricity. This will increase the price, and therefore the size of the energy-poor population. Bulgaria's official definition of energy poverty will calculate households whose disposable income after energy expenditure falls below the official poverty line. In this regard, the end-user price of energy from substitute capacities and the quantity included in the energy mix in a regulated market for household customers need to be strictly controlled and planned in advance.
4. Cost for covering damages from unsolved climate risks. The inability to respond to climate change and build the capacity to deal with it will expose the country to higher poverty levels in the long term (IMF, 2022). Postponing the transition process has its alternative price, which comes with the slow pace of investment, not just in the new electricity production capacity, but also with the lack of investment in the household sector (the building sector) and in decentralised energy production (setting up energy communities).

The underestimation of the above challenges may result in risks, such as increased unemployment among all three types and lower incomes for employees who switch to other sectors. The increase in the price of electricity will certainly lead to higher numbers of energy-poor households, along with an increased share of energy in their income.

2.2. Risks related to policies to increase energy efficiency

The increase in energy efficiency in Bulgaria is related to the policies covered in ETS 2: the decarbonisation of the building and transport sectors, the introduction of a carbon tax, and the creation of a social climate fund to address the specific increase in costs for vulnerable groups in both the short and the long term, also with measures for energy efficiency. This part of climate policy is the main one related to households, and most of the social challenge here refers to energy poverty and its factors: low incomes, high energy prices and the share of energy costs in disposable income, and low building efficiency. The efficient implementation of climate policy should guarantee enough funds, and the allocation of funds in the most efficient way, applying a mechanism for the identification of and support for vulnerable and energy-poor consumers. The *identified risks* in this group are the slower speed of renovation than estimated, the inefficient allocation of funds and the lower renovation rate reached per unit of investment, and the inability to use private capital to reach overall goals for the energy efficiency of buildings.

Key social factors

As of 2020, the average income level of Bulgarians is a quarter of the EU average, with energy costs being nearly 60% of the EU average, which implies a much higher share of energy costs in the average household in Bulgaria compared to households in the EU. Nearly 60% of households in the country spend more than 10% of their net income on energy, and the average share of energy expenditure on income is 14% (Peneva, 2019). This percentage is twice as high as the average level for the EU, which shows the reduced ability of Bulgarian households to invest independently in measures to increase energy efficiency, due to the relatively smaller amount of disposable income, as well as to a 'choice' of low and efficient and low-quality ways of heating with solid fuel: wood and coal, polluting the atmosphere, but also the air inside the premises.

1. Low incomes and decreasing PPP of citizens. At the same time, the country has the lowest incomes, of which the purchasing power dropped even further in 2022, experiencing constant double-digit inflation rates. Nearly a quarter of Bulgaria's workers are paid the minimum wage, which forms a significant group of 'working poor' living on the edge of survival. This group is unable to invest in energy-efficiency measures to deal with climate change. It is a group that falls into the lowest income quintile, and if part of it is in the second-lowest quintile, it brings down the average quintile income for that group. In fact, after the deduction of tax (since the tax rate in Bulgaria is flat, the same for all income groups, without the deduction of a minimum revenue), the working poor fall very close to the poverty line, which was 240 EUR in 2022.

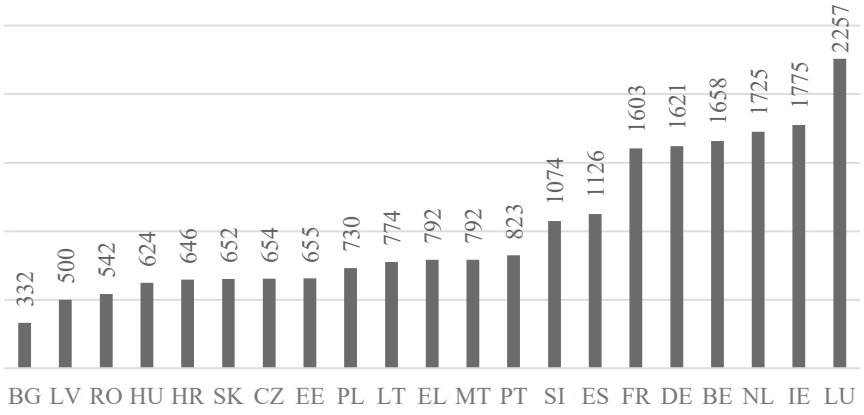

Figure 1: Minimum wages in 21 EU member states, January 2022, EUR/month

Source: Eurostat.

Double-digit inflation for two consecutive years additionally impacted the purchasing power of incomes in Bulgaria. A person earning 1,000 Bulgarian lev (BGN) per month at the beginning of the two-year period would have seen their purchasing power reduced by approximately 21% by the end of the period. This is because prices would have risen by approximately 21% due to the cumulative effect of the inflation rate.

2. The high share of energy and food expenditure in disposable income limits households' ability to invest in energy-efficiency measures and decarbonisation technologies. As the transition process would require 80% of private capital investment (EU, 2022), it is very likely that just 20% of Bulgarian households will have efficient buildings by 2050, as the rest will not be able to invest alone, and funds will be insufficient.

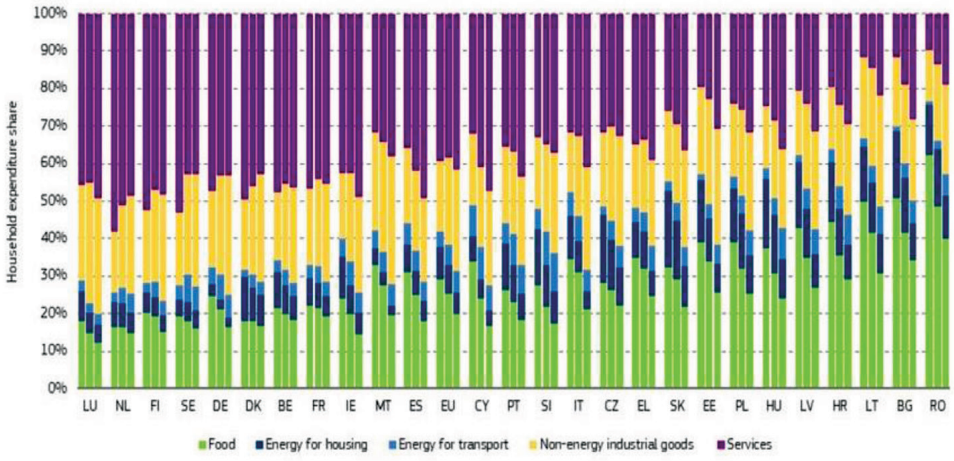

Figure 2: Expenditure structure of households by income quintiles, 2022

Source: European Commission, 2022.

3. High investment gap in funds and the inability to achieve goals. The investment gap is determined by the World Bank in a diagnostic report for the renovation wave (World Bank, 2022), with an estimated 81% insufficient funding for renovating residential buildings across the country. This means that when climate change also requires much more energy for cooling and the capacity to deal with, the Bulgarian population might not be prepared for it.

In addition, the country missed opportunities to secure investment funding from the Modernisation Fund, unlike many other countries, and has no established specific fund for energy-efficiency investment for the household sector in particular. Expectations for the Social Climate Fund may also fail, as is shown by Fig. 3. Per capita energy consumption for ETS 2 (kWh/capita/year) is the lowest in the EU, which means the generation of lower revenue for social climate funds, and dealing with climate change will have to rely on other sources and financial instruments, none of which have been developed.

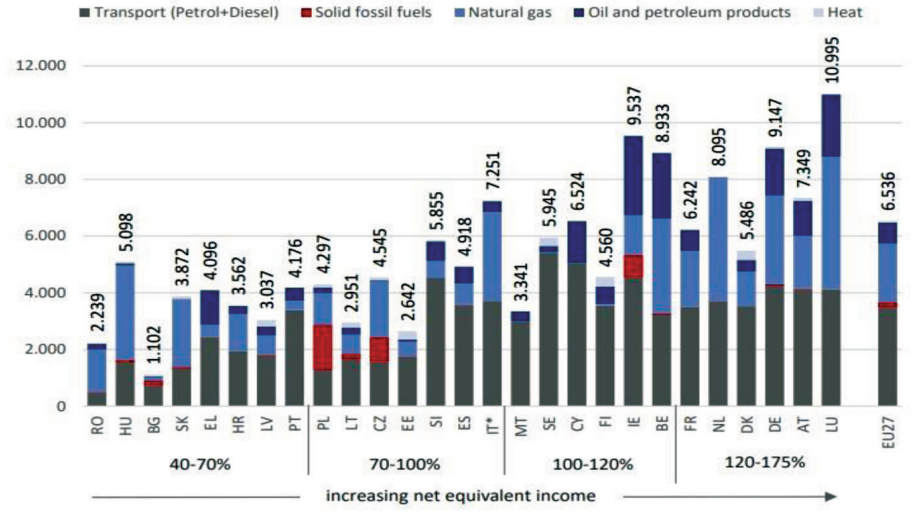

Figure 3. MS-specific energy consumption related to ETS 2

Source: B. Held et al., 2022.

4. The investment cost for the replacement of household equipment with more efficient equipment, including heat pumps and equipment allowing for cooling, as cooling needs will increase in the near future (World Bank, 2021). This cost is unaffordable for the average Bulgarian, due to the low incomes and the high shares of food and expenditure in income. Disposable income would hardly play a role in securing this investment cost. Switching to an energy source at a lower price has been one of the two main strategies to deal with energy poverty in Bulgaria; the second one being limiting consumption to control monthly bills. If electricity is too expensive to afford, households will have to switch to the cheapest alternative, which in this case, unfortunately, is firewood, often illegal.

2.3. An increase in the share of renewables

The increase in the share of renewables in Bulgaria is related to all groups: businesses, municipalities and households. The country has set a target to achieve a 27% share of renewable energy sources in gross final energy consumption by 2030. To achieve this goal, it has to implement measures such as feed-in tariffs, net-metering schemes, and other incentives for renewable energy production. However, not all of this is in place.

In 2022, the government published two schemes subsidising solar panels and solar collectors for SMEs and for 10,000 households under the National Resilience and Recovery Plan mechanism (NRRP, 2022). The schemes require the upfront payment of at least 2,000 BGN to about 7,000 BGN, which not a single energy-poor family will have (by definition), especially when there is no guarantee that applications for grants will be approved.

With no established mechanism for the support of vulnerable households and businesses, the allocation of funds to climate policies leads to increased inequality and sends money to those that have available finance to invest.

Identified social risks include:

1. The risk of exclusion of energy-poor households, which will lead to rising inequality and poverty, instead of following the principle 'leave no one behind', which is a central principle of the whole Green Deal ideology.
2. The risk of the rising cost of electricity if the cost of grid expansion is transferred to citizens through the electricity tariff for all. Decentralisation will be affordable only by the richest and cleverest people, who are able to invest or who have already invested in solar equipment. They will not need to pay for electricity, but instead, poor and middle-class people will pay for their grid; the investment cost is usually transferred through electricity tariffs, and just a part of it is funded by European programmes.

Recommendations

Bulgaria needs to negotiate its own pace and way of transition to bring mainly benefits for society, and avoid the possible negative consequences of a slow, ineffective or inadequate reaction to climate policies. Underestimating the risks will lead to poorer results and an inability to reach climate neutrality goals, which, on the other hand, will lead to the worsening of citizens' well-being.

The construction of a mechanism for the mitigation of social risks impeding the implementation of climate policies needs to go through the development of all phases in the management cycle of public policies. Cooperation should be created based on strategic, tactical and operational tools, such as strategies, policies, programmes and projects. In each management cycle, the first phase is diagnosis, then planning, implementation, monitoring and feedback.

The diagnosis phase needs to include a detailed social impact analysis in Bulgaria's NECP update, in 2023 or 2025, and to calculate the investment gap for each sector and each policy (see Poland's NECP, for example, but also to include ETS2). The country needs to elaborate a model that predicts prices, employment, and therefore incomes and shares of energy expenditure in households, as a result of all policies. The separate estimation of each policy is needed, as well as an aggregated estimation.

An analysis is needed of the sustainability of short-term measures with a holistic approach, considering all parties: customers, suppliers, state monopolies, and the state compensation budget. The balance between short-term and long-term measures for all types of financial mechanisms needs to be considered: the Recovery and Resilience Plan (RRP), the Social Climate Fund (SCF), the Decarbonisation Fund (DF), the Innovation Fund, and the Multiannual Financial Framework (MFF, 2021-2027). Any mechanism should be established not only by applying a definition and criteria for energy poverty, but also by requiring the reporting of results and monitoring in terms of the number of vulnerable households covered, and targeted towards climate neutrality.

The next step in the management cycle is planning. This phase should include measures that include goals for reducing energy poverty along with climate goals, and both goals should be synchronised and analysed together, and not separately. In this phase, a recommendation for risk mitigation is made for each risk group as follows:

Risk mitigation measures for the first group social risks related to the reduction of GHG emissions and the security of supply:

1. The pre-design of an alternative employment programme for redundant workers and employees in coal-producing regions. The timely planning of alternative steps to close coal-fired plants, the timely use of funds for the transition, and the efficient allocation of funds. The replacement of capacity and the creation of new job opportunities must be parallel and well before closure, otherwise social factors may impede the smooth and timely achievement of this goal.

2. Developing passive protection policies and active protection policies for workers in coal-producing regions. Passive protection policies include income compensation for workers for the temporary or permanent loss of a job. Active protection policies include the use of all possible political instruments, programmes and laws to secure job opportunities for the majority of workers.

3. Estimating the final price for consumers using different price scenarios when developing just transition plans. Bulgaria has developed three scenarios for the energy sector, with three sets of price scenarios, but these have not been used to estimate the social impact. Poland, for instance, has estimated the social impact of its energy and climate policies in the long run, with a specific focus on the energy poverty line and the energy cost for each income quintile of society (Poland NPEC, 2020). There is a need for a warning mechanism for price increases that may affect income poverty.

4. The estimation of the investment cost needed for households to decarbonise and to develop action plans. Unlike planning of industrial capacity construction costs and possible estimations of end-user price, there is a total neglect of the investment costs needed for residential users. The energy crisis and the cost-of-living crisis in 2022 focused attention on household consumers, and triggered disputes over the rules of the electricity market because of unprotected customers. Similarly, the lack of an estimation of the investment needed will leave many households far behind in the transition to a zero carbon emissions system. The country needs to quickly set its heating decarbonisation map for household users, to be in line with the renovation plans and energy poverty map, which are all absent and not even under creation.

Risk mitigation measures for the second group social risks related to investment gaps in energy efficiency:

1. Guaranteeing enough funds for long-term energy efficiency measures to enable people in energy poverty to meet the investment costs of switching to clean energy.

2. Introducing a co-financing mechanism that prioritises financing for the lowest income groups in a sustainable manner. The application of energy poverty criteria to all financial instruments.

3. Preparing solid data (an energy poverty map) for the elaboration of action plans (renovation plans, social climate plans, etc) and/or a strategic map for the reduction of energy poverty and the improvement of energy efficiency.

4. The early establishment of the Decarbonisation Fund and the Social Climate Fund, with clear targets for the reduction of energy poverty and the efficient allocation of funds.

Risk mitigation measures for the third group social risks related to an increase in the share of RES:

1. Free access to the grid for renewables constructed in areas with no people and with needed long-distance connections to the grid should be cancelled in all programmes and schemes for subsidies.

2. The prioritisation of projects that include the creation of energy communities, which include energy-poor families, etc, and also when grid construction fees are not charged to all people through the tariffs. Right now, poor people have to pay the grid cost for rich people, because only they can invest in renewable energy and earn money from it.

3. Incentives to investors in solar equipment to include energy-poor households and provide them with electricity at a low (affordable) price.

4. Ensuring an efficient distribution mechanism and allocating funds primarily to energy-poor households, establishing a sustainable co-financing mechanism where the richest receive the least support from the government, and vice versa.

The final step is securing efficient and adequate mechanisms for financial support. The funding expected from the EU for the next few years until 2030 is limited. Therefore, when developing a mechanism for the protection of energy-poor households, these specifics must be considered, in order to form a working and effective approach for determining and supporting the affected groups. Targets need to be achievable, without exposing the country to new additional risks.

In summary, planning measures considering risk factors in the social context comes first when managing climate policies. The Social Climate Fund, for instance, cannot be regarded as a complete and efficient solution for the affordability of the energy system's transition. Income poverty persists, as does underlying energy poverty. The transition itself should be regarded as a risk factor for deepening income poverty if not managed well, and all relevant elements and interconnections should be re-assessed to eliminate currently existing barriers that hinder smooth progress. Methodologies of schemes and programmes need a reassessment to better reflect inequality, the inefficiency of equipment at a household level, and investment capabilities. An analysis of challenges and solutions for the CBAM and ETS 1 and ETS 2 mechanisms could be included.

A mechanism for the protection of energy-poor households in Bulgaria seems to be a key to mitigate the negative effects of climate policies, and to ensure efficient and sustainable investment. This mechanism must have a sufficiently large scope, a clear definition, and flexible criteria for the application of various programmes and projects and goals, and should be easy to administer, sustainable and transformative.

Bulgaria needs a comprehensive vision for bringing households out of a state of energy poverty. For this purpose, in addition to the first two steps, defining and administering the assessment process, it is important to work on the third aspect, strategic planning and securing sufficient financial resources for targeted work with households to reduce energy poverty.

Countries in Eastern Europe face similar social and energy system challenges, and providing a framework for analysing the social risk factors may help policy makers. Many countries in the region have coal-fired power plants, a high use of firewood by households, high levels of energy poverty, a low use of solar panels for residential needs, low energy efficiency in their buildings, and relatively limited income and investment abilities.

Conclusions

Bulgaria faces a number of social risks related to the ineffective and inadequate implementation of climate policies, which may take numerous new groups of the population into poverty, only because of the possible rise in the electricity price due to poorly managed climate policies. The article has identified three groups of risks, which are variable in nature, and include:

The first group is social risks related to energy security and energy supply as a result of the reduction of greenhouse gas emissions: 1) direct, indirect, and induced unemployment; 2) lower incomes in jobs created by new alternative activities; 3) the electricity price of the replacement capacity; and 4) the cost of covering damage from unsolved climate risks.

The second group is for social risks related to an increase in energy-efficiency targets, and includes: 1) low income and decreasing PPP of citizens; 2) the high share of energy and food expenditure in disposable income; 3) the high investment gap in funds and the inability to reach goals; and 4) the investment cost for the replacement of household equipment.

The third group is related to the increase in the share of renewables, and includes the risk of the exclusion of energy-poor households in financing programmes and schemes, and the risk of the rising cost of electricity if the grid expansion cost is transferred to citizens through the electricity tariff for all.

The result of this article is the grouping of the above factors, and the conclusion that all these factors combined will lead to higher poverty rates and greater social inequality if not well managed.

At the same time, not taking action to prepare citizens for climate change, postponing the implementation of climate policies in the fields of energy efficiency and renewable equipment, and treating European funds as money for all citizens with no targeted allocation, there is a future risk of even higher income inequality and unprotected homes and energy neutrality at a household level.

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KLIMATO POLITIKOS VALDYMAS BULGARIJOS SOCIALINIAME KONTEKSTE

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Santrauka

Socialinis ES klimato politikos poveikis paprastai analizuojamas daugiausia dėmesio skiriant klimato kaitos mažinimo tikslams, o ne piliečių gerovei. Energijos įperkamumas ir jos vartojimo efektyvumas retai analizuojamas vertinant tiek einamąsias, tiek investicijų sąnaudas. Deja, įgyvendinant klimato politiką susiduriama su daugelio socialinių veiksnių, tarp kurių yra skurdas ir nelygybė, energijos išlaidų dalis dispo-

nuojamose pajamose ir mažos pajamos, suvaržymais. Jie veikia gyventojų galimybes investuoti ir neugdo šalies gebėjimo įveikti klimato kaitos iššūkius. Bulgarijoje nėra nuodugnios bendro ekonominio ir socialinio klimato politikos poveikio analizės, nepaisant paskirų tyrimų, kuriuose iš dalies nagrinėjamas tam tikras aspektas arba konkreti klimato priemonė.

Šiame straipsnyje taikomi teoriniai ir antriniai statistikos metodai bei duomenys, sudarantys šios analizės analitinį pagrindą ir leidžiantys nustatyti socialinę riziką bei susisteminti socialinius Nacionaliniame energetikos ir klimato plane pateiktus klimato politikos valdymo veiksnius: šiltnamio efektą sukeliančių dujų emisijos mažinimas, energijos vartojimo efektyvumo ir atsinaujinančių energijos šaltinių dalies suvartojimo didinimas.

PAGRINDINIAI ŽODŽIAI: *klimato politika, viešoji politika, socialiniai veiksniai, rizikos mažinimas, energetinis nepriteklius.*

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