REPORT

To overcome energy and transport poverty

Social Climate Plan as an instrument for structural change

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- A just and fair transition is a key element in the process of moving toward a zero-carbon economy. It involves a consideration of the needs of social groups that are particularly vulnerable to the negative effects of change. It provides a number of tools to mitigate these effects. One of them is the Social Climate Fund (SCF), from which Poland will receive the largest share among all Member States, potentially reaching up to EUR 11.4 billion.
- The SCF money must be used to minimize energy and transport poverty. However, its effective use requires a precisive identification of groups in special need. Meanwhile, energy poverty and transport poverty have not yet been sufficiently diagnosed.

Energy poverty – the current state

- Energy poverty is not only a matter of low income, but also high energy costs and low energy efficiency of buildings. Therefore, the definition and indicators should take into account the multidimensionality of this problem.
- Those most at risk of energy poverty are residents of old, poorly insulated buildings, as well as single-family homes or communal housing.
  The group includes people who are not connected to a district heating network and heat individually with coal. In this group, vulnerable people, i.e. women in single-person households, elderly citizens, farmers and people living on non-earned sources, require particular support.

Transport poverty – current status

- The phenomenon of transport poverty is less recognized in Poland than the problem of energy poverty. Transport poverty is a complex issue – it concerns both the availability of public transport, as well as its affordability. In Poland, there is a lack of integrated data on the availability of public transport (especially bus service). It is therefore necessary to aggregate, integrate and digitize them. This will effectively identify the areas most affected by transport poverty and support them first.
- Residents of rural and sparsely populated areas incur higher transport costs than residents of metropolitan areas. They are the ones who are more likely to travel further for work, education, medical treatment or entertainment.

Due to decisions in the recent years to eliminate local train services and privatize bus lines connecting small towns and villages, residents of these areas have been forced to use cars. This is the reason behind the higher transport costs affecting this group.

- The level of transport poverty can vary significantly even within a single household. The elderly, especially women (including widows and the childless elderly) and young people are particularly vulnerable to this phenomenon.

ETS2 impact – overall

- According to the Oeko-Institut[1] ranking, Poland will rank second in the EU in terms of increased household spending on heating and transport as a result of the introduction of ETS2. In Poland, the additional costs will consider mainly heating due to the sector's heavy reliance on coal in individual heating.
- It is therefore crucial to identify individuals and households exposed to the direct effects of ETS2 implementation. Only this group of beneficiaries will be able to receive direct income support from the SCF. For example, an energy- and transport-poor person who heats their home with electricity and does not own an internal combustion car (and thus will not be indirectly affected by ETS2 implementation) will not qualify for such support.
- These challenges point to the need for in-depth research into transport and energy poverty and the impact of ETS2 on the transport and buildings sectors. The criteria for selecting the Plan's beneficiaries must take into account both current and future groups at risk of increased heating or transport costs after ETS2 implementation. This group may thus include the relatively well-off households currently using coal.
- It is also worth identifying those affected by energy and transport poverty simultaneously, as they should be supported by the Social Climate Fund in the first instance.

1 The publication Putting the ETS 2 and Social Climate Fund to Work. Impacts Considerations, and Opportunities for European Member States is available here.

ETS2 impact – building sector

- The introduction of ETS2 will hit the lowest-income households that use coal for heating the hardest. The increase in expenses will also be felt by those with higher incomes who use coal. For gas heating, the scale of the increases will be lower.
- In 2030, for 30% of the poorest Polish households, the share of additional ETS2 costs in income may reach as much as 5% for those heating with coal and about 1% for gas users. In order to determine precisely who should receive support, it is worth reaching for data on heat sources.
- Particularly vulnerable to the rising heating costs are pensioners living in large and poorly insulated houses, as well as rural residents (including farmers) and small towns without access to a district heating network. However, it is worth remembering that some buildings in Poland are already subject to the ETS, so ETS2 will not affect their costs.
- Improving the energy efficiency of buildings is key to reducing the burden of ETS2 implementation. In 2030, insulating a coal-using house could mean up to PLN 1,000 less in annual energy bills associated with ETS2 entry. Therefore, programs implemented under the Social Climate Plan should first finance the retrofitting of low-energy-efficiency buildings, which will be most vulnerable to additional costs.

ETS2 impact – transport sector

- Determining the impact of ETS2 on transport users and choosing the appropriate criteria for determining SCF beneficiaries is difficult because of the greater variation in fuel consumption and, consequently, the higher variation in transport expenditures than in household heating. On the one hand, affluent people spend a larger share of their income on fuel. On the other hand, those with the lowest incomes often forgo travel by private car due to high fuel costs, making it difficult to accurately estimate their burden after the introduction of ETS2.
- In Poland, the less well-off spend a larger portion of their expenses on public transport. However, the potential increase in ticket costs resulting from the implementation of ETS2 is difficult to estimate. At the same time, an increase in fuel prices can be expected to exacerbate the problem of transport-related exclusion, which is widespread in Poland and requires significant investment in public transport.
- The introduction of ETS2 in the transport sector will directly affect drivers of fossil fuel vehicles, who will pay more per every liter of fuel. The biggest burden will be borne by the owners of diesel cars with the lowest incomes, who are forced to use their own car on a regular basis, such as commuting to work. This group is often overlooked in analyses based on average transport expenditures and should be taken into account when planning policy.

Recommendations

Horizontal recommendation

- **Establishment of a Government Plenipotentiary for Just and Fair Transition**
  We recommend that a Government Plenipotentiary for Just and Fair Transition be appointed within the structure of the Chancellery of the Prime Minister. Their task would be to coordinate actions related to the implementation of the Social Climate Plan, covering both the buildings and transport sectors. The Plenipotentiary's actions should take into account not only the initiatives under the Plan, but a fair transition both in the territorial (*just*) and distributional (*fair*) contexts.

Building sector

- **Develop public policies to minimize energy poverty**
  We recommend the development of a comprehensive public policy aimed at combating energy poverty. This document should:
  - set a framework for more effective transition planning in Poland, with particular attention to the context of a just and fair transition;
  - go beyond the time horizon of the operation of the Social Climate Fund;
  - be an integral part of the Social Climate Plan, with a guarantee of its implementation.

Such public policy could act as a bridge linking the current actions enshrined in the updated NECP (National Energy and Climate Plan) and the Social Climate Plan with the long-term vision for transition.

- **Modification of the National Fund for Environmental Protection and Water Management's Program "Clean Air".** We recommend modification of the National Fund for Environmental Protection and Water Management's "Clean Air". It should include a special pool of funds reserved for the already energy--poor and those who will be particularly vulnerable as a result of ETS2 implementation. This part of the program should include higher subsidies and special instruments to reduce the problem of illiquidity or equity shortfall, such as prefinancing or combining subsidies with repayable forms of assistance.
- **Introduction of a new energy voucher**
  We recommend developing assumptions for the implementation of a new energy voucher as a support tool for energy consumers at risk of energy poverty. This benefit should be available to those who meet certain criteria, such as being directly affected by the implementation of ETS2 (e.g., having to purchase fossil fuels for heating).
  At the same time, the new energy voucher should also cover people at risk of energy poverty who will not be directly affected by the ETS2 (e.g., who heat their homes with electricity or district heating). However, funding for the voucher for this group must come from sources other than the SCF, such as ETS revenues - EU ETS and ETS2.
- **Development of a program for increasing energy efficiency of municipal buildings**
  We recommend that a program be developed to support the residents of municipal buildings affected by energy poverty. The Social Climate Plan should provide funding for energy audits and increasing the energy efficiency of these buildings, without the need for local governments or tenants to provide their own contribution.
  In addition, local governments should be required to digitally and transparently aggregate data on municipal buildings in their areas. This solution would facilitate future action for the energy poor in these facilities.
- **Create a housing program for the energy and transport poor elderly**
  We recommend the implementation of a program to support elderly in energy and transport poverty, such as those living in large, very poorly thermally insulated and coal-heated houses, far from major population centers and lacking access to public transport. The program aims to increase the availability of elderly housing through construction, renovation and adaptation of vacant houses. Relocation would improve the quality of life, both in terms of thermal comfort and financial expenditures on energy, as well as access to services, including public transport. Such an approach would provide a sustainable solution to the energy and transport poverty problems of this group.

Transport sector

- **Develop public policy to minimize transport poverty**
  We recommend the development of a comprehensive public policy on the minimalization of transport poverty. Such document should:
  - set the framework to effectively identify gaps in the current transport policy, especially in the context of vulnerable people who are particularly at risk from the effects of ETS2 implementation,
  - constitute a strategic document that will help identify the scale and address the problem of transport-related exclusion, which is an important element of transport poverty,

  - expand the diagnosis of the situation, while proposing specific measures and reforms to the transport system in Poland, with particular attention to the availability of public transport,
  - specifythe mobility dimension.

- **Implementation of a consulting system for the organization of public transport**
  We recommend the introduction of a system of counseling for public transport organizers, especially in areas where transport poverty is most acute. Support for advisory services for organizing public transport should be directed to public transport organizers in areas larger than a district (powiat). A Social Climate Plan could offer funding for:
  - advisor or consultant positions to help develop public transport in these areas,
  - development of expert reports that take into account specific local conditions, with recommendations and an action plan,
  - support in raising funds for investment and public transport actions,
  - studies that build the competence of local governments and recommend a development plan in this sector, which have not yet been involved in the organization of public transport.
- **Modification of the Bus Transport Development Fund**
  We recommend modification of the Bus Transport Development Fund (FRPA), which is a key tool to support the development of local and regional bus transport. The FRPA mainly fights transport-related exclusion, which, according to EU terminology, is part of the broader problem of transport poverty. Therefore, the modification of FRPA should be based on expanding the Fund's existing scope to fighting transport poverty. After the changes, a pool of funds set aside from the Fund should go to mitigating the effects of ETS2 implementation. In the first instance, support should go to the organization of bus services in areas at risk of transport-related exclusion, particularly those operated by carriers covering an area larger than a district (powiat).
- **Creation of a non-urban public transport system on demand**
  We recommend the implementation of a systemic solution, which would include introducing non-urban public on-demand transport among the instruments to minimize transport poverty. This measure would consist of developing and implementing solutions to support local governments in organizing on-demand transport in non-urban areas where transport poverty is particularly acute. At the first stage, assumptions should be developed for the implementation of non-urban public on-demand transport, and at the second stage, a pilot should be carried out in a small area. After evaluation, as part of the third phase of the project, a systemic solution should be developed and prepared for implementation on a larger scale.
- **Investments in pedestrian and bicycle routes between villages in rural areas**
  We recommend investment in pedestrian and bicycle routes connecting villages in rural areas. In the first instance, they should be built on trails in areas between neighboring villages, where residents regularly move to meet their daily needs. Particular attention should be paid to the areas most at risk of transport poverty. Such infrastructure will create an alternative, for example, for schoolchildren, who will thus avoid waiting at the bus stop or not be dependent on car transport with a guardian.

1. Introduction

The societal challenges of the green transition process, including the upcoming implementation of the emissions trading system in the buildings and road transport sector (the so-called ETS2), have mobilized the European Commission to propose a Social Climate Fund (SCF). Regulation 2023/955 of the European Parliament and the Council (EU) on the establishment of the Social Climate Fund was adopted in May 2023. According to the EU regulations, ETS2 will become effective in 2027 or 2028, with funding from the SCF available as early as 2026.

Poland will receive the largest share from the ETS among all member states, which it will be able to use until 2032. In the scenario of ETS2 coming into force in 2027, the pool of funds could reach as much as €11.4 billion. Together with the required national contribution (at 25% of the cost of measures), this means €15 billion available between 2026 and 2032 for national measures to minimize energy and transport poverty.

Activation of the Fund requires each member state to prepare a national Social Climate Plan by June 2025. This plan must identify effective tools to shield vulnerable groups from the potential costs of ETS2 implementation in the buildings and road transport sectors, as well as identify instruments to combat the already existing and profound phenomena of energy and transport poverty. At the same time, it is necessary to define at the national levels a definition fitting the national context and a way of measuring energy and transport poverty. In addition to diagnosing existing social phenomena, it is equally important to determine the impact of ETS2 implementation.

According to Regulation 2023/955 on the establishment of a Social Climate Fund, the Social Climate Plan should identify investments and measures to support households, transport users and microenterprises that will be disadvantaged by the entry into force of the ETS2.

This publication focuses on households and individuals, leaving out the microenterprise group. Micro-enterprises may be energy and transport poor when a significant portion of their expenditures constitute activities requiring the purchase of fossil fuels to meet transport and heating needs (such as heating or transport by internal combustion vehicle) in the absence of technology change. However, support for micro-entrepreneurs under the SCF requires further analysis, which is not yet available at the time of writing this report.

While the Social Climate Fund provides funding for reform and investment, it also motivates a systemic examination of long-standing social problems in Poland, such as energy and transport poverty. Implementation of the Social Climate Plan is also an opportunity to design new state policies in these areas, including the implementation of reforms that will result in minimizing the scale of energy and transport poverty, even after 2032.

The implementation period of the SCF is also a chance to prove that climate policy can be a tool for overcoming long-standing and acute social problems in an era of uncertainty. The stakes are high, as inappropriate criteria for support could make the Social Climate Fund an argument for the thesis that climate policy serves to subsidize the wrong groups (e.g., policies that mainly benefit top earners) and for an insufficient sensitivity of those in power to social problems.

This report by the Reform Institute shows the complexity of the topic and recommends a direction for constructing a Social Climate Plan which can be used as a foundation for public administrations to build their solutions and the participants in the public debate to formulate their opinions. A broad, multi-level dialogue is necessary for the Social Climate Plan to be an effective tool for minimizing energy and transport poverty.

2. Energy and transport poverty in Poland – already a significant issue

A Social Climate Plan is not created in a vacuum. To be effective, it must take into account both the EU and national legislative frameworks and experiences. For this reason, in addition to the EU requirements for preparing the Plan, this chapter describes the national experience to date in defining and mitigating energy and transport poverty. National socio-economic conditions that must be taken into account are also presented.

The Social Climate Plan, in order to identify effective tools to support vulnerable groups from the potential effects of ETS2 implementation and to combat the already existing phenomena of energy and transport poverty, must identify a national definition and a way to measure energy and transport poverty. Their selection is extremely important, as it affects the definition of the scope of beneficiaries, and thus also the effectiveness of the measures in achieving the set goals. In doing so, the definitions must be consistent with EU guidelines.

2.1 Characteristics of the energy poverty phenomenon in Poland – challenges and beneficiaries

Applicable definitions

Regulation (EU) 2023/955 on the establishment of the Social Climate Fund provides the following definitions in the context of energy poverty:

- 'energy poverty' means a household's lack of access to essential energy services that underpin a decent standard of living and health, including adequate warmth, cooling, lighting, and energy to power appliances, in the relevant national context, existing social policy and other relevant policies;
- 'vulnerable households' means households in energy poverty or households, including low income and lower middle-income ones, that are significantly affected by the price impacts of the inclusion of greenhouse gas emissions from buildings within the scope of Directive 2003/87/EC and lack the means to renovate the building they occupy;

In Polish law, energy poverty was not taken into account until the Act on the Energy Shield Benefit of December 17 2021[2]. As a result, the following provision was written into the Energy Law Act of 1997:

- Article 5gb. (1) Energy poverty is a situation in which a household run by a single person or by several persons jointly in a stand-alone dwelling or in a single-family dwelling in which no economic activity is carried out, cannot secure

2 Available in The Internet System of Legal Acts – ISAP database.

sufficient heat, cooling and electricity to power appliances and for lighting, where the household jointly meets the following conditions: 1) earns a low income; 2) incurs a high energy costs; 3) resides in a dwelling or building.

Table 1. Values of the LIHC (Low Income, High Costs) index and the average of the four NECP project indicators for Poland.

Indicator		Indicator					
		2015	2018	2019	2020	2021	2022
Low Income, High Costs		**10.3%**	**9.4%**	**9.3%**	**10.1%**	**10,.3%**	**10.47%**
Average of 4 indicators (NECP)	Inability to maintain adequate room temperature [ilc_mdes01].	7.50%	5.10%	4.20%	3.20%	3.20%	4.90%
	Energy bill arrears [ilc_mdes07].	9.20%	6.30%	5.80%	4.70%	5.20%	4.50%
	Total population living in an apartment with leaking roof, damp walls, floors and foundations or rotten windows or floors [ilc_mdhod01].	11.90%	11.60%	10.80%	6%	5.90%*	5.80%*
	Poverty risk index [ilc_li02].	17.60%	14.80%	15.40%	14.80%	14.80%	13.70%
	Arithmetic average	**11.55%**	**9.45%**	**9.05%**	**7.18%**	**7.28%**	**7.23%**

**For the value of the [ilc_mdhod01] indicator in 2021 and 2022, in the absence of data in Eurostat, a linear interpolation was assumed between its values for Poland for 2020 (6%) and 2023 (5.7%).*

Source: own study based on Eurostat and GUS ("Household energy consumption - 2022 data estimates").

Characteristics of energy poverty in Poland – challenges and beneficiaries

By the source of heat and access to infrastructure

A very important criterion for combating energy poverty and projecting shielding instruments in the context of ETS2 implementation is the heat source used. As highlighted by the Institute for Structural Research (IBS) in 2022, 380,000 of the 1.3 million households struggling with energy poverty used coal or wood burning stoves.

The report indicates that the popularization of connections to the district heating network limits the scale of the phenomenon of energy poverty. Examples of that are Tychy and Ruda Śląska, where the percentage of the energy-poor was 26% among residents heating their household individually, while among those using the district heating network it was only 7%[3]. A similar study was conducted two years ago at the level of municipalities in the Małopolska Voivodeship. There, among the energy-poor, as much as 53% heated their household individually, 45% used the gas network, and only 2% were connected to the district heating network[4].

By the energy efficiency of building

It is important to remember that energy poverty is not only due to low income. As IBS highlighted in 2016, as many as 2.1 million people were energy-poor, despite being above the income poverty threshold. The report indicated that residents of single-family homes were particularly vulnerable - they accounted for as much as 75% of the energy poor.

Another criterion to consider in identifying potential SCF beneficiaries is the age of the buildings. According to IBS, 40% of energy-poor residents of multifamily buildings live in pre-war tenements[5]. The WiseEuropa report, in turn, shows that regardless of the adopted energy poverty indicator, its severity increases with the age of the building[6].

3 IBS Working Paper 10/2020 is available here.

4 The report from municipalities in the Małopolska Voivodeship available here.

5 The IBS infographic showing the cited data can be found here.

6 The WiseEurope report is available here.

According to another 2022 IBS study, special attention should be paid to residents of municipal buildings. Almost half of this group lives in pre-World War II buildings with poor energy performance (more than 12% are humid). They are three times more likely to have fuel stoves than the Polish average (26% are heated with solid fuel stoves).

Heating problems in municipal housing are linked to low incomes. More than two-thirds of their residents (67%) earn below the median (2020 data), and 37% belonged to the poorest group. According to IBS, the main reason for the poor condition of municipal buildings is the underfunding of municipal housing policies[7].

7 IBS Policy Paper 02/2022 is available here.

By geographical location

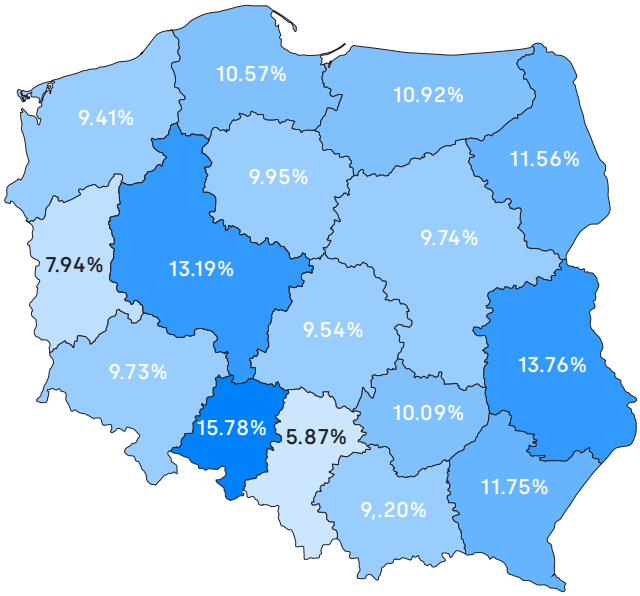
IBS data from 2016 shows that as many as ¾ of the energy-poor lived in rural areas or small towns. Simultaneously, 20% of rural residents were exposed to the phenomenon[8]. The National Centre for Emissions Management (KOBiZE) emphasizes that residents of sparsely populated areas spend a larger share of their income on heating than urban residents[9]. In rural areas, significantly more people spend a large portion of their wages on solid fuels, such as coal, on which additional costs will be imposed under ETS2. In cities, by contrast, the largest expenditures are on electricity and system heat, which are not directly affected by ETS2 (with the exception of heat supplied by small heating plants).

8 The IBS infographic presenting the cited data can be found here.

9 GO250 Report by IOŚ-PIB- KOBiZE-CAKE is available here.

Another way to analyze energy poverty is by voivodeship. In accordance with the LIHC indicator, the most difficult situation is in the Opolskie, Lubelskie and Wielkopolskie voivodeships (see Figure 1). It is worth noting, however, that the results vary depending on the adopted energy poverty indicator.

Figure 1. Regional variation of the scale of energy poverty in 2020 according to the value of the LIHC index.



Source: GUS data in supplement to the publication "Energy consumption in households."

By population group (age, gender, income, health status)

Energy poverty largely depends on a household's income level. The WiseEuropa report indicates that the most difficult situation applies to the 1st and 2nd decile groups. Among the 10% lowest earners, the percentage of the energy-poor ranges from 30 to over 40%[10].

Women who run households alone are another group particularly vulnerable to energy poverty. According to the IBS report, in 2021 such households accounted for up to 23% of energy-poor households (350,000), while households run by single men accounted for only 6% (80,000). Reasons for this disparity identified by the IBS include: lower pensions, longer life expectancy, a wage gap due to more frequent care for relatives, and greater sensitivity to thermal discomfort, including a preference for higher temperatures in winter[11].

Age, health and occupational status are other important criteria. In 2016, 25% of the energy-poor were pensioners[12]. WiseEuropa's 2024 report confirms this observation, with the percentage currently ranging from 18% to 30%.

Other groups include those living from non-earned sources (15-28%), farmers (10-18%), and the chronically ill[13].

10 The WiseEurope report is available here.

11 IBS Research Report 01/2023 is available here.

12 The IBS infographic presenting the cited data can be found here.

13 The WiseEurope report is available here.

Conclusions for the Social Climate Plan – energy poverty

1. **Energy poverty is a multidimensional phenomenon,** and its causes are not limited to low income. High energy costs and low building energy efficiency are also important factors. Therefore, the definition and indicators for measuring the scale of this phenomenon should take into account various aspects.

2. **Those particularly vulnerable to energy poverty are:**
   - residents of old buildings with low energy efficiency;
   - **people in areas without access to a district heating network, where coal heating is prevalent;**
   - residents of single-family homes;
   - tenants of municipal buildings.

3. When designing support instruments, it is therefore necessary to pay attention to these factors and particularly vulnerable groups, such as:
   - single female run households,
   - retirees and pensioners,
   - farmers,
   - persons living from non-earned sources.

Conclusions for the Social Climate Plan from the review of implemented national energy poverty policies

1. **The Social Climate Plan should build on already existing instruments to support people experiencing energy poverty.** Many years of experience in their implementation (developed recognition of programs and institutional frameworks) will allow faster and more effective support for citizens. Creating only new tools from scratch may slow down the effects of activities and make it more difficult to gain public support for change.

2. **However, adjustments to existing mechanisms are needed.** Program criteria should take into account not only income, but also the energy efficiency of buildings and the type of heat source. It is also crucial to prevent misuse and prioritize energy efficiency measures. Another important step is to align with the guidelines for the Plan by creating a separate pool of funds for the beneficiaries most directly affected by ETS2.

3. Among the investment measures to reduce energy poverty, it is particularly worth considering the continuation (or application of the mechanisms contained therein): Programs "Clean Air"; "Warm Housing", "Thermo" and "Stop Smog".

4. **At the same time, direct support for the most vulnerable groups is needed, as potential investment projects will bring the expected relief only after a certain period of time.** The energy voucher and housing allowance are instruments worth using for such direct support. However, this requires increasing funding for these programs and linking the assistance to the direct impact of ETS2 on the beneficiaries.

5. **Support should not be limited to the financial dimension** (pre-financing or loans) but it should also include the technical dimension (consulting services). The announcement of the implementation of consulting services on a larger scale in the "Clean Air Program" is a step in the right direction.

6. With greater investment in energy efficiency and increasing direct support for vulnerable groups, moving away from universal and unconditional freezing of energy prices should be considered.

2.2 Transport poverty

EU definitions in force

Regulation (EU) 2023/955 on the establishment of the Social Climate Fund defines the terms "transport poverty" and "vulnerable transport users." According to Article 1: 'transport poverty' means individuals' and households' inability or difficulty to meet the costs of private or public transport, or their lack of or limited access to transport needed for their access to essential socioeconomic services and activities, taking into account the national and spatial context; 'vulnerable transport users' means individuals and households in transport poverty, but also individuals and households, including low income and lower middle-income ones, that are significantly affected by the price impacts of the inclusion of greenhouse gas emissions from road transport within the scope of Directive 2003/87/EC and lack the means to purchase zero- and low-emission vehicles or to switch to alternative sustainable modes of transport, including public transport;

Such a broad understanding of the phenomenon allows member states to take into account national contexts in establishing the definition and its specific criteria.

Transport poverty in Polish documents

Transport poverty was defined for the first time in Polish strategic documents in the draft update of the National Energy and Climate Plan to 2030 (NECP), published in October 2024:

- "Transport poverty refers to the difficulties individuals and households face in accessing private or public transport, resulting in limitations in the use of basic services and participation in socioeconomic life."[14]

In Poland, this phenomenon is mainly related to the deficit of transport infrastructure and limited public transport offerings. Lack of access to public transport - felt most often among residents of rural areas and small towns - makes people dependent on personal cars. This can lead to social exclusion. For this reason, "ensuring transport accessibility for Poland's residents" was identified as the main goal.

However, Polish documents lack measures to determine the scale of transport poverty. This is an important gap that should be taken into account when developing the Social Climate Plan. Introducing appropriate indicators and a more encompassing definition could help address this problem more effectively.

14 Draft National Energy and Climate Plan until 2030 – version for public consultation from October 2024 is available here.

Characteristics of the phenomenon of transport poverty in Poland –challenges and beneficiaries

By mode of transport - drivers and users of public transport

Car ownership does not eliminate all aspects of transport poverty. Drivers can still be exposed to: high fuel prices and operating costs; having no alternatives to owning and operating a car; poor safety and discomfort due to poor road conditions; exhausting trips that last for hours; health costs associated with operating older model cars; and the dangers of inadequate pedestrian and bicycle infrastructure (greater risk of accident and liability).

Drivers typically incur the highest financial costs associated with transport. According to a Santander Consumer Multirent study, as many as 59% of those surveyed spend up to PLN 12,000 a year on car maintenance. However, the cost of operating older, used cars is proportionally higher than that of new cars, which particularly affects those with lower incomes. The higher failure rate of such used vehicles, resulting from their age and technical condition, motivate owners to replace their cars more often[15].

For a just and fair transition, it is desirable to reduce the need for vehicle replacement by convincing citizens to use public transport more often. However, this is difficult in many parts of Poland – according to the Institute of Rural and Agricultural Development of the Polish Academy of Sciences, about 10,500 villages (26% nationwide) have no access to public transport at all[16]. A Multiconsult study showed that residents of the Świętokrzyskie, Opolskie and Lubuskie voivodeships rated the state of public transport in their area the worst[17].

In areas where there are no direct connections by public transport, people who don't use motorised means of transport rely on the help of neighbours, friends or family members who own cars. However, not everyone can count on such assistance, and using it often requires adjusting to the driver's schedule, which can mean waiting for the whole day to return.

When trying to diagnose the situation, the lack of available and consistent digital timetable data on bus service throughout the country is particularly noticeable. Despite ideas that have been appearing for years, Poland still has not created an integrated digital connection search system to which carriers would be required to submit data. The lack of properly aggregated information on connections, combined with the dispersion of competencies and the multiplicity of entities responsible for public transport, seriously hinders synchronization and optimization of the sector's functioning.

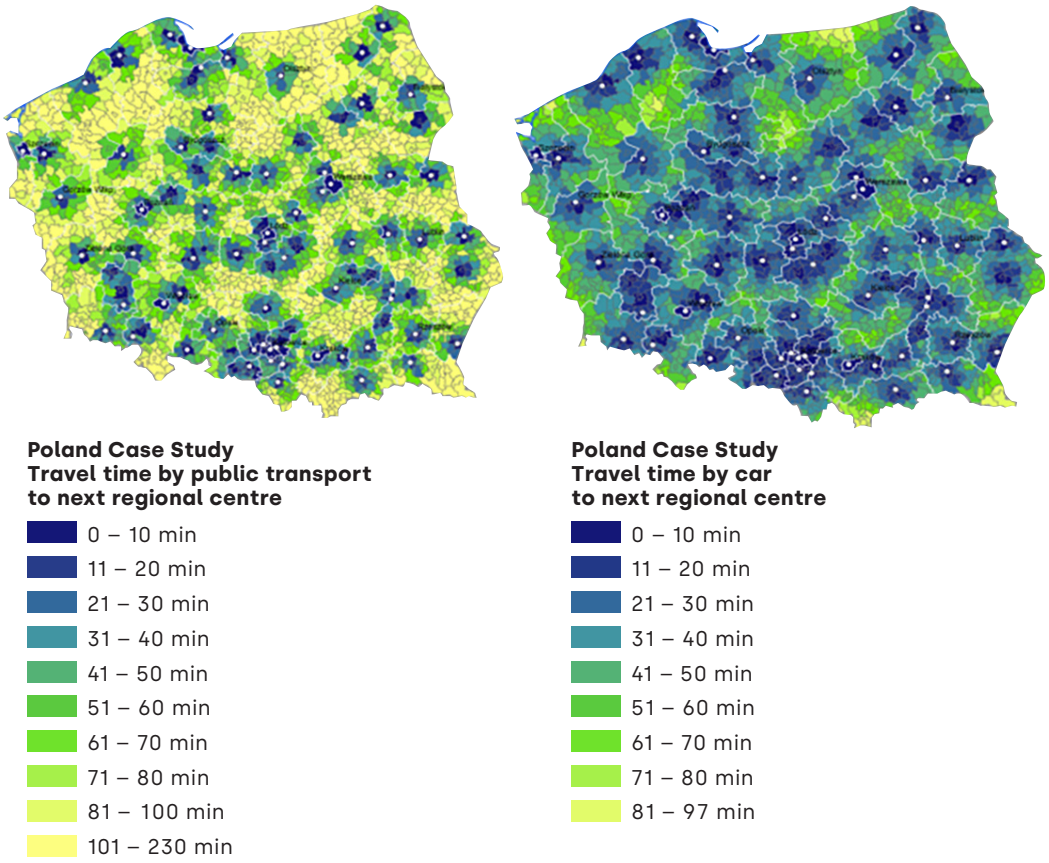
Nonetheless, research on land accessibility conducted by Institute of Geography and Spatial Organization Polish Academy of Sciences (IGSO PAS) (based on available data) and used in the 2015 TRACC report gives an overall picture of the state of public transport versus individual self-driving transport. In the case of travel time by car, the travel time to a major city in the region was on average 30 minutes. This time increased significantly (up to 65 minutes) when using public transport. Similarly, comparisons of the availability of medical and educational services and workplaces were unfavorable for public transport - especially in areas far from major cities.

15 The Santander Consumer Multirent report is available here.

16 Publication Monitoring of Rural Development IV by the European Fund for Rural Development Foundation and the Institute for Rural Development and Agriculture of the Polish Academy of Sciences is available here.

17 Mulitconsult Poland publication is available here.

Figure 2. Comparison of accessibility of regional centers by: public transport (left) and car (right).



Source: TRACC Transport Accessibility at Regional/Local Scale and Patterns in Europe Applied Research, 2013/1/10 Final Report, Version 06/02/2015, Volume 2, TRACC Scientific Report.[18]

In the context of identifying transport poverty among public transport users, it is worth noting the bus service. Between 1993 and 2016, the number of bus routes fell by 50% and the number of customers by as much as 75%. In the second decade of the 21st century, the number of bus lines also decreased from 15,000 in 2014 to 13,000 in 2017[19]. According to data from the Central Statistical Office, between 2016 and 2020, the total length of bus lines in Poland fell by a third, from more than 710,000 kilometers to about 480,000 kilometers. Mostly, connections in the areas of small towns and villages were eliminated.

For rail users, the situation in Poland is also not improving as expected. According to the Office of Rail Transport, the total length of rail traction in Poland was almost 20 thousand kilometers in 2023. Compared to 1989 (about 25 thousand kilometers), this represents a clear decline. The average density of traction in Poland is 6 km per 100 km^{2}of the country's areaand has not changed significantly since at least 2014. The highest density is in the Śląskie Voivodeship (15 km/100 km^2), and the lowest - in the Podlaskie Voivodeship (4 km / 100 km^2). Significant limitations of Poland's railroad infrastructure is the continuous fairly high occurrence of single-track lines (about 55% in 2023) and non-electrified lines (37%)[20].

Although the passenger transfer service is increasingly developing (in January 2012, Polish railroads carried 23 million passengers and performed work worth 1.43 billion passenger-kilometers, and in January 2023 it was already almost 32 million passengers and 2 billion passenger-kilometers)[21], this growth is largely due to the modernization of the

18 TRACC Report ESPON is available here.

19 The article presenting this process is available on the Jagiellonian Club portal.

20 The Office of Rail Transport railroad length data is available here.

21 The Office of Rail Transport operational data is available here.

main connections between major cities, rather than the expansion of network within the country. In addition, the number of rail passengers per capita in Poland is low compared to other EU countries - in 2023 it was almost 10 against the EU average of about 18[22].

22 Eurostat data are available here.

By age – elderly and youth

Those at the opposite ends of the age piramide, i.e. the young and the elderly, are particularly vulnerable to transport poverty. People before the age of 18 have already developed needs that require mobility (education, casual work, social life, etc.), but they cannot yet have a driver's license and usually cannot afford to buy their own car.

The elderly (over 65) often experience an increased need for public services (especially medical services) outside of their place of residence due to their health condition. As Raczyńska-Buława (2017) wrote, referring to research conducted in the United Kingdom, the elderly in transport poverty are forced to give up less important travel destinations (such as those related to sports, leisure or visiting family) in favour of trips necessary to meet life needs (doctor's appointments or grocery shopping). The elderly also lack digital literacy, making it difficult for them to purchase tickets and limiting access to information related to public transport[23].

The second particularly vulnerable group is youth. According to the UNICEF study *Transport-related exclusion of Children and Youth in Poland*, transport-related exclusion is a threat to 1 in every 6. a person aged 12 to 19 years. Municipalities are not obliged to organize free transport for students after elementary school or if the educational institution is less than three kilometres from the place of residence. However, even if such transport is organized, oftentimes the hours of the buses depend on the school schedule. This leads to a situation in which access is possible only twice a day: in the morning and in the afternoon. Pupils who miss such a bus are forced to walk home or drop out of extra-curricular activities. As a result, their academic performance and quality of life may be weaker compared to the situation of their peers from better-connected towns. The problem is exacerbated in secondary school, as it is usually located further from the student's place of residence. Therefore, the choice of a further educational path may be determined not by interests, abilities and performance, but by the public transport offer. This fact is pointed out by Komornicki in a 2019 study,[24] by Ciechański in a 2023 monograph[25], as well as by UNICEF in the previously report cited report. The latter publication indicated that as many as 21% of students would choose another high school when there was a bus to it.

23 The publication by Justyna Orchowska University of Warsaw, Center for European Regional and Local Studies (EUROREG) describing the problem is available here.

24 Tomasz Komornicki's publication for the Batory Foundation is available here.

25 Ariel Ciechański's monograph is available here.

The above diagnosis of the situation should not lead to the organization of closed transport offerings for selected groups (for example, closed school transport). Such a solution would reduce the efficiency of transport, which should be available to all interested parties along the route.

By gender, social factors and health status

Although women hold approx. 40% of all driver's licenses issued in Poland, their share among those authorized to drive is much lower in the over-65 age group (27%[26]. Elderly women are more likely than older men not to use a car despite having a driver's license. Thus, widows and childless elderly, who have no one to drive them to their place of service, are in a particularly difficult situation.

26 The Public Opinion Research Center survey is available here.

Single parents are also an excluded group - here, too, women predominate according to Statistics Poland (GUS), single mothers make up about 20% of Polish families (nearly 2 million people), while single fathers - about 4%[27].

27 GUS data are available here.

Regardless of age and gender, health limitations affecting physical mobility can prevent

the use of a car or bus if it is not adapted to the needs of such people. In this context, it is important to ensure that not only vehicles are properly adapted, but also bus stop infrastructure, as well as information and ticket distribution.

By geographical location – large versus smaller cities

Residents of smaller towns regularly travel from their places of residence to larger provincial cities for work, education, medical treatment or entertainment. Data from the Institute of Rural and Agricultural Development of the Polish Academy of Sciences shows that it took an average of about 70 minutes to commute from a village to a provincial city in 2019, a reduction in travel time of just 10 minutes compared to the beginning of the decade[28]. Approximately 26% of villages (sołectwo) had no public transport connection to the seat of their own municipality.

Decisions to dismantle local rail services and privatize bus lines usually concern unprofitable provincial routes, affecting the population of small towns and villages. Spending on transport - individual and mass transit - is usually felt more there than in large cities. Nonetheless, residents of small towns and villages are less likely than people in metropolitan areas to perceive themselves as being affected by transport poverty (or exclusion), even if they can identify its symptoms in their lives[29].

In many smaller towns, the rolling stock is not adapted to the needs of people with reduced mobility, and ticket prices can be relatively high compared to large cities. Buying tickets is also hampered by complicated fares and poorer access to schedules.

The problem is exacerbated by a low frequency of travel and poor synchronization of schedules, making transfers difficult. This is particularly acute outside of commuting hours to work and school - especially in the evenings, at night and on weekends[30]. An example of this is the local transport in the Piła area, where "public transport mainly serves young people commuting to school. On school days in the subregion, 22 percent of its residents are excluded from transport. The rate rises to 44 percent during school holidays, 60 percent on Saturdays, and even 63 percent on Sundays"[31].

Although poverty and transport-related exclusion are felt mainly by residents of smaller towns and villages, it can also affect residents of large cities, for example due to economic poverty, transport deficiencies within the city or difficult access to other cities, including voivodeship cities.

28 The MROW IV publication by the European Fund for Rural Development Foundation and the Institute of Rural and Agricultural Development of the Polish Academy of Sciences is available here.

29 The study by the Polish Ecological Club of the Mazovian District is available here.

30 The study by the Polish Ecological Club of the Mazovian District is available here.

31 The Multiconsult Poland study is available here.

Conclusions for the Social Climate Plan - transport poverty

1. In Polish strategic documents and public debate, **the phenomenon of transport-related exclusion is erroneously identified with transport poverty,** which is the subject of the Social Climate Plan. Meanwhile, **transport poverty combines** two key aspects: **accessibility and affordability** of transport.

2. **Identification of transport poverty** therefore requires consideration of both dimensions. First of all, it is necessary to look at the spatial nature of the problem – **the availability of public transport is a key element in minimizing transport poverty in a given area.** To assess affordability (the acceptable cost of tickets), one can use disposable income statistics at the subregional level or an indicator: High Cost, Low Income (LIHC), which allows you to take into account the increase in costs and exclude the relatively wealthy.

3. **Unfortunately, in the public transport sector (especially bus transport), the availability of consistent data is limited, making it difficult to study the scale of the phenomenon.** It is therefore necessary to aggregate available regional and national data on public transport. This will make it possible to incorporate the aspect of travelers' dependence on individual modes of transport into policies more effectively.

4. **Residents of small towns and rural areas incur higher transport costs** – individual and mass transit – than residents of large cities. They are the ones who are more likely to travel to larger centers for work, education, medical treatment or entertainment. They have had to switch to using their own cars due to the decisions in recent years to eliminate local train services or privatize bus lines connecting small towns and villages. At the same time, they are less likely to perceive themselves as suffering from transport poverty (or exclusion), despite experiencing its symptoms.

5. However, even between members of the same household, the level of transport poverty can vary. **Particularly vulnerable groups are young people, the elderly, women (including widows and the childless elderly among others).** However, it would be a mistake to create a closed transport service for selected groups (eg. school transport). Such a solution would limit the efficiency of such transits.

6. Reducing transport poverty requires a broader view of the destinations of movers. Instead of creating new connections, it is worth to first assess whether providing adequate services locally would be more efficient. **Fighting with transport poverty should be part of a broader strategy** to address poverty itself, as well as social exclusion.

7. An in-depth diagnosis of the current scale and diversity of the phenomenon is needed, taking into account the most vulnerable areas. The Plan should prioritize supporting areas particularly at risk of transport-related exclusion.

Conclusions for the Social Climate Plan from the review of implemented national transport poverty policies

1. **The development of public transport,** including the expansion of its range as well as its frequency, **is a key tool to fight transport poverty.** In the Social Climate Plan, the expansion of transport options should be prioritized over the decarbonization of individual transport.

2. The existing sources of EU funding allow investment support in the area of public transport, including the purchase of rolling stock and modernization of railroad lines. Therefore, it is worth using **the Social Climate Fund to support more structural and holistic measures** that will increase the accessibility of public transport. A valuable source of experience in this regard is the process of introducing Sustainable Urban Mobility Plans, which combine long-term planning with the implementation of solutions to provide better access to services and other destinations.

3. **The Social Climate Plan is an opportunity to review existing public transport regulations,** as well as to make reforms that remove legal barriers limiting its development.

4. **Special attention should be paid to the integration, digitization and availability of public transport data.** It is worth accelerating the implementation of the EU directive on digital timetables, creating a unified database of bus stops with the obligation to provide data in electronic form, and launching a fully functional National Access Point for data on multimodal passenger travel (KPD MMTIS).

5. One of the loopholes in the legislation is the failure to provide public transport offerings on school holidays, leading to increased transport-related exclusion on weekends, vacations and vacations. There is also a lack of support for young people attending high school.

6. It is also necessary to finance the operation of public transport at the supra-local level. In this context, it is worth **using the Bus Transport Development Fund (FRPA),** which already serves to increase the availability of bus transport in regions threatened by transport poverty. **However, this fund needs to be modified.** Experts recommend in this regard, among other things, increasing subsidies, changing the rules for the selection of beneficiaries, extending support beyond one year, an obligation to transmit a digital version of the schedule to a nationwide database of connections, or linking subsidies to service frequency requirements.

7. **Railroads,** while important, **are not always the most effective solution to combat transport poverty.** High investment and operating costs and the scarcity of existing infrastructure, in many cases make **buses a more efficient means of transport.**

8. **On-demand transport can be a valuable addition** in places where traditional public transport is difficult to implement. It can also support people with special mobility needs. A limitation to developing such offerings is the lack of a national legal framework, standards and support.

9. The experience of renting or leasing electric vehicles can be used to support micro-enterprises for which public transport does not solve the problems caused by the ETS2 burden.

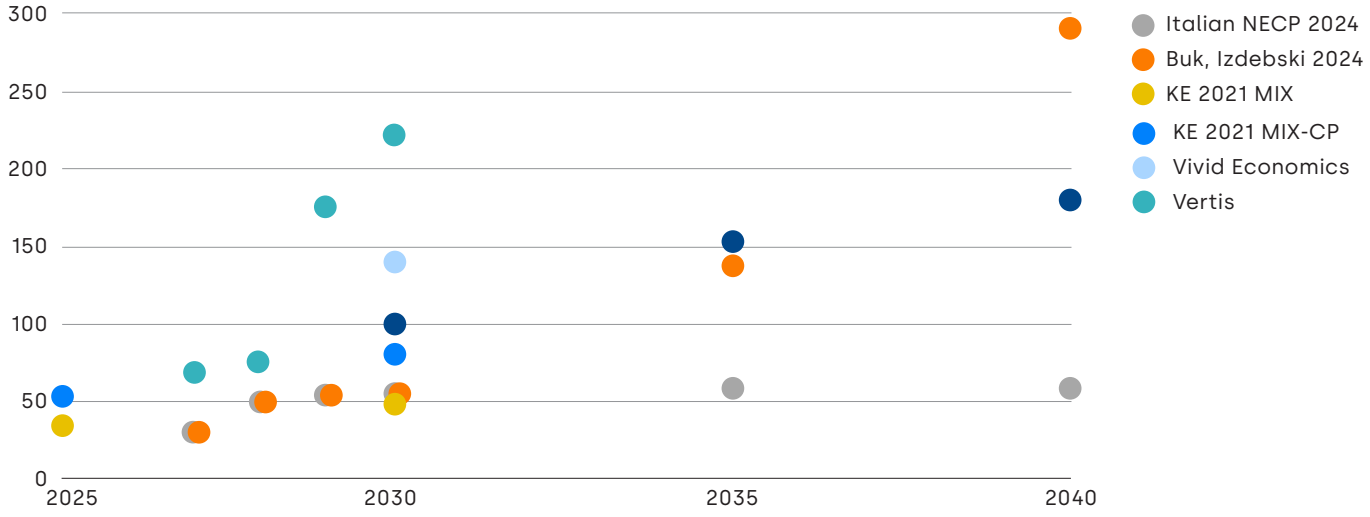
3. ETS2 impact in Poland

Mobilization of funds from the Social Climate Fund requires not only defining and measuring the scale of energy and transport poverty that currently exists, but also identifying potential beneficiaries, i.e. individuals and households most vulnerable to the implementation of ETS2. This is important given the limited pool of funds available for direct income support under the SCF (37.5% of the total budget, or up to PLN 18 billion). For example, an energy- and transport-poor person who heats their home with electricity and does not own a combustion engine vehicle will not qualify for such support.

It is also worth remembering that some buildings in Poland are already covered by the ETS. The implementation of ETS2 will therefore not raise their costs. These are, among others, households supplied with district heating provided by large heating plants (with a capacity of more than 20 MW). In a similar situation are people heating apartments and houses with electricity using, among other things, heat pumps. These groups are not the subject of this analysis.

In order to determine the scale of additional expenses associated with the implementation of ETS2, it is necessary to create a forecast and identify the groups bearing the greatest burden. Only this way can the most vulnerable be successfully defined and appropriate support can be planned. Legislative decisions on this issue will be key to the final cost of ETS2 implementation and its impact on households.

Figure 3. ETS2 allowance price scenarios through 2040 [EUR/ton].



Compiled from: ***Buk and Izdebski (2024); KOBiZE 2024*** *(assumption of EU ETS and ETS2 merger after 2030);* ***updated NECP 2021-2030 Italy (2024); SWD(2021) 601 final - EC 2021; Vertis*** *(baseline scenario);* ***Oko-Institut e.V.. The Social Climate Fund - Opportunities and Challenges for the The buildings sector, 2022.*** *The price for 2025 was estimated in sources published before 2027 was chosen as the system's launch year.*

3.1 Own estimates of ETS2 impact

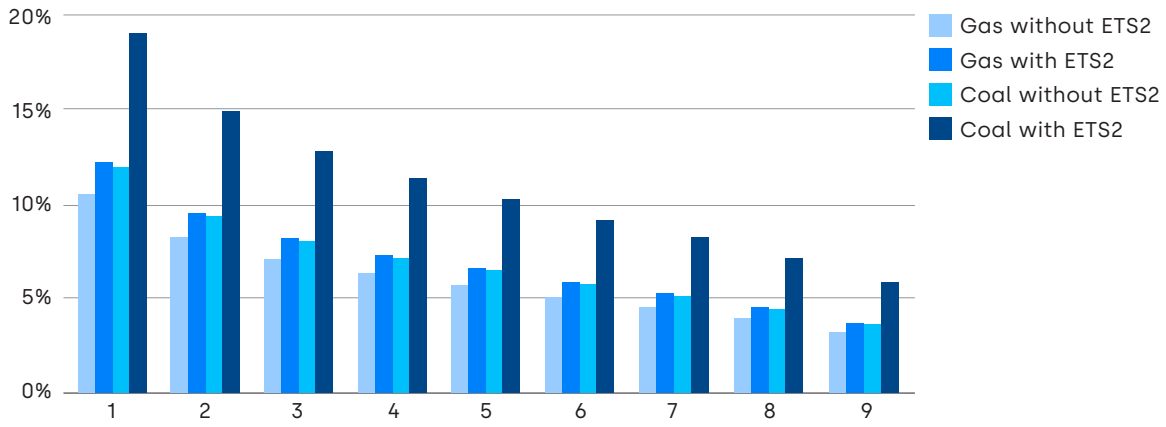
In order to identify the magnitude of the impact of ETS2 implementation on households and the most desirable beneficiaries of the Social Climate Plan, a simplified projection of the additional costs associated with ETS2 in the buildings and transport sector was made. The methodology of the following calculations and the list of accepted data are presented in Appendix 1.

3.2 ETS2's impact on the buildings sector

To illustrate the likely scale of change in the building sector, the share of natural gas and hard coal heating costs in income for individual income deciles was compared in the scenario without ETS2 and with additional costs resulting from its implementation. The analysis was carried out assuming implementation of the changes as early as 2022 and with an allowance price of 55 euros (the likely value around 2030). Both scenarios are based on GUS data for 2022 for an average building – average prices of heating with gas (PLN 30.83/m^2) and coal (PLN 34.96/m^2), as well as the average area heated in residential buildings (76,99 m^2) at the time[32].

32 GUS 2022, Open Data

Figure 4. Share of natural gas and coal heating costs in the income of an average home for each income decile in 2022in a scenario without and with additional ETS2 costs (55 EUR/t).



Source: own compilation based on Eurostat (income by decile in 2022 [ilc_di01]; assumed average PLN/EUR exchange rate for 2022: 4.69) and GUS ("Energy consumption in households - Data estimates for 2022" [average heating price [PLN/m(2)]]).

In the buildings sector, as Figure 4 indicates, the costs of ETS2 implementation will be felt most acutely by households using hard coal for heating, especially those in the lowest income deciles. It is worth noting that the additional costs associated with ETS2 will also significantly affect those in the higher income deciles who heat their homes with coal. Residents using natural gas to provide adequate room temperature are also exposed to higher expenses, but their estimated scale is much lower. For example, after the implementation of ETS2, the share of coal heating costs in income may be higher for the 3rd decile than when using natural gas in households in the 1st decile.

The importance of increasing energy efficiency of buildings

The results of the calculations presented in this chapter are based on the assumption of maintaining household consumption of natural gas and coal for heating purposes at the average level of 2022. Due to the ongoing energy transition, including the implementation of programs to increase energy efficiency and induce replacement of the heat source

(including a ban on subsidies for coal boilers), this assumption is a significant limitation in the long term. Among the goals of the "Clean Air" Program alone, embedded in the National Recovery Plan, is to improve energy efficiency in 3 million buildings[33].

In order to show the importance of increasing the energy efficiency of buildings, while adding the additional costs associated with ETS2, the projected costs of heating with gas and coal are presented for two scenarios of the level of insulation of the building (without changing the heat source) in a single-family building. A variant with "inadequate insulation" and "technical standards (WT) 2017" was assumed, using data from the Sectoral Energy Efficiency Agreement (POBE) calculator (see Table 2) [34].

33 Information about the program "Clean Air" is available here.

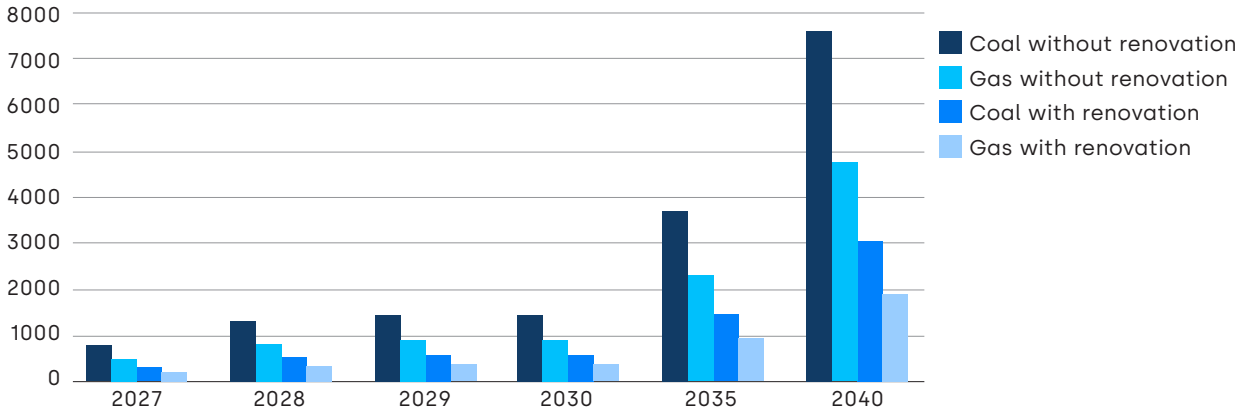
34 POBE Calculator PC PORT available is here.

Table 2. Level of utility heat demand for heating a single-family building

Variant	Energy standard of a single-family building	Usable energy for heating [kWh/(m²*year)].	Description
0	Inadequate insulation	200	A building with poor or no insulation of the external envelope, non-combined windows, gravity ventilation.
1	Technical standards (WT) 2017	80	Building with increased insulation of the envelope (12 cm walls, 20 cm attic), composite windows (double-glazed), gravity ventilation

Own elaboration based on: ***the POBE calculator – PORT PC.***

Figure 5. Annual additional heating cost after ETS2 implementation in the scenario of no renovation (variant "0") and with renovation (variant "1") for a heated area of 76.99 m(2) [PLN/year].



Own elaboration based on: ***POBE calculator, GUS; KOBIZE; EWE;***
ETS2 path based on Izdebski and Buk 2024

Figure 5. clearly indicates that the level of energy efficiency of buildings is a key variable of the burden of ETS2 implementation. Modernising buildings can reduce the additional heating costs associated with emissions in 2030 by up to 60%. Programs funded under the Social Climate Plan should therefore prioritize investments in increasing the energy efficiency of buildings, especially those with the worst performance, as they will bear the greatest additional costs after ETS2 implementation.

Changes over time – rising allowance prices and revenues

When analysing the impact of ETS2, it is worth considering the changes over time in the additional burden on households. This is due to the increase in the cost of allowances and revenues from the scheme from 2027 to 2040. Estimates run until the end of the next decade, because this is when the complete shift away from domestic coal combustion should take place. This is the goal indicated in Poland's Energy Policy until 2040 (PEP2040)[35] and reiterated in October's draft update of the NECP[36].

Based on the price path of emission allowances presented in the Buk and Izdebski report, as well as the KOBiZE methodology for estimating average emissions for heating with hard coal and high-methane natural gas (see Appendix 1), approximate values of the additional cost associated with ETS2 implementation were calculated. The burden was calculated using GUS data for 2022 on the average value of coal and gas consumption, as well as the average heated area[37]. Due to the lack of relevant forecasts, the same income growth dynamics was assumed for all deciles, analogous to the dynamics of real gross wages in the national economy until 2040 forecast by the Ministry of Finance[38].

35 Poland's Energy Policy to 2040 is available here.

36 The draft National Energy and Climate Plan 2030 (version for public consultation dated 10.2024) is available here.

37 GUS data are available here.

38 MF guidelines are available here.

Table 3. Additional cost from ETS2 for average gas and coal consumption for heating from 2022 in a house with a heated area of 76.99 m².

Year	EUA ETS2 [EUR/t]	Hard coal [PLN]	Natural gas [PLN]	Average disposable income [PLN]*
2027	30	807	188	38017
2028	50	1346	314	39082
2029	55	1480	345	40176
2030	55	1480	345	41301
2035	140	3768	878	46865
2040	290	7805	1819	52355

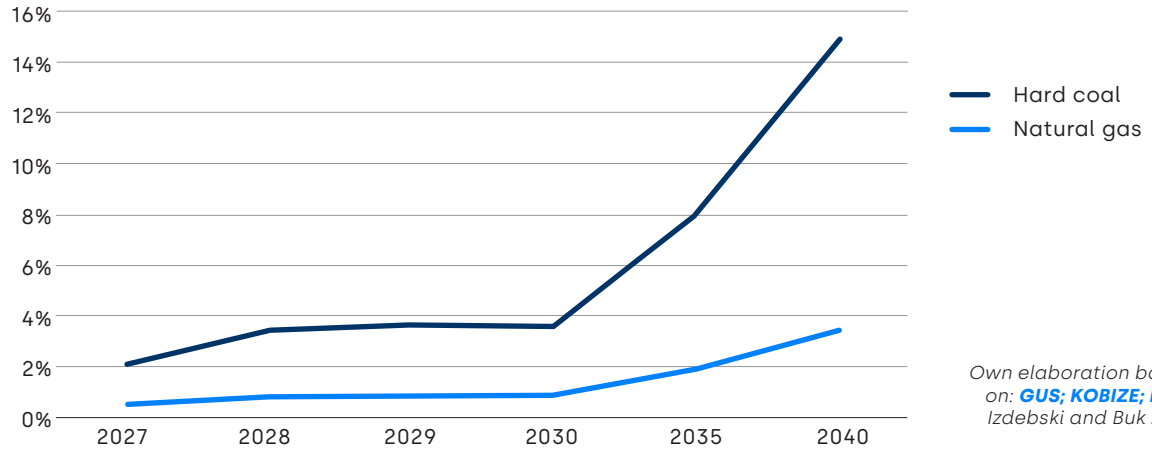
Average disposable income estimated based on 2023 level **(GUS - 2678.30 PLN).*

*and the dynamics of real gross wages in the national economy until 2040 and the average exchange rate for 2027-2040 PLN/EUR (4.34) from the **Finance Ministry's guidelines.***

*Own elaboration based on: **GUS; KOBIZE; EWE;** Izdebski and Buk 2024 (ETS2 pathway).*

For the estimates, the additional average cost was related to the average disposable income to illustrate the scale of additional costs for households in Poland over the years.

Figure 6. Share of additional expenditure on coal and natural gas for heating associated with ETS2 for average consumption in 2022 in average annual income in 2027-2040 [PLN].

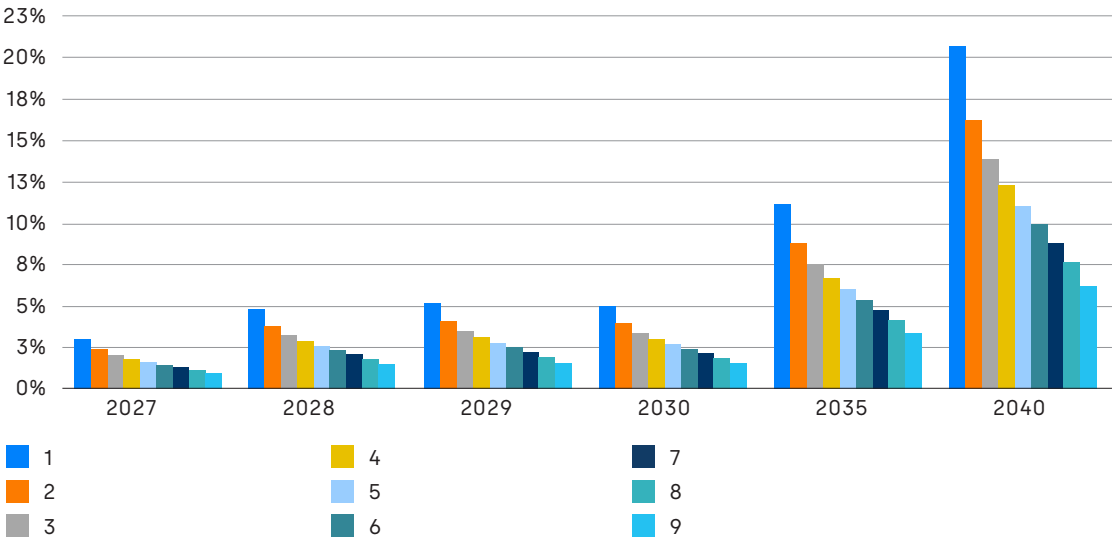


*Own elaboration based on: **GUS; KOBIZE; EWE;** Izdebski and Buk 2024*

Based on Figure 6, it is clear that the additional financial burden of implementing ETS2 in the buildings sector will increase over time, especially for households using coal for heating. In 2035, the difference in the burden for different energy carriers is significant - from about 8% of the income share for coal to about 2% for natural gas. Only in 2040 could the additional costs associated with gas heating reach the level of the burden for coal observed in 2030.

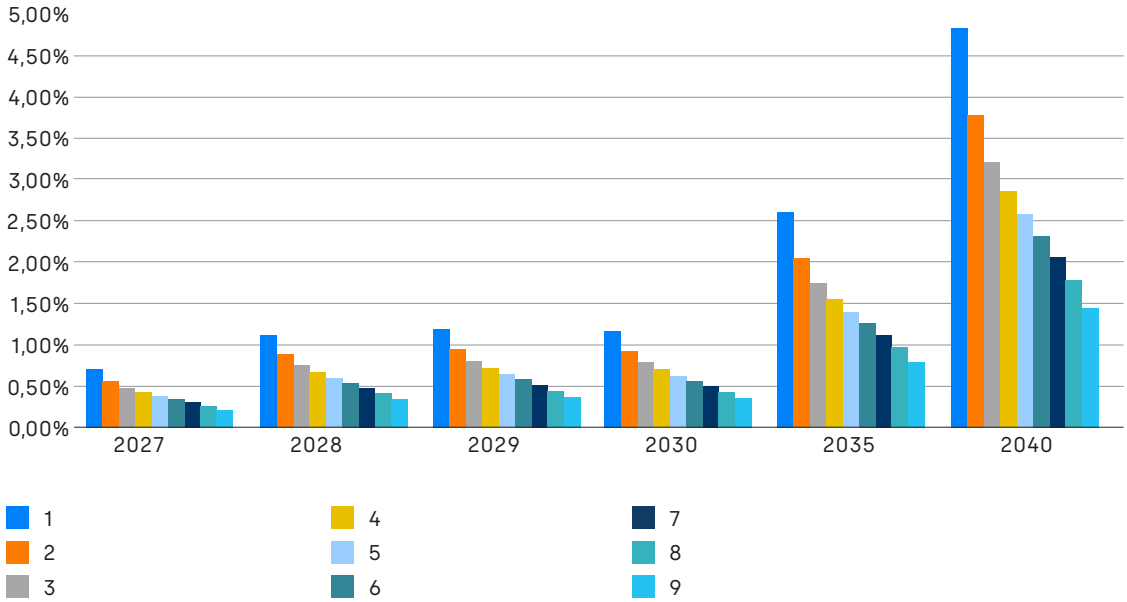
Another important dimension of the cost analysis is to determine the variation in burden severity by income level during the period under review. For this purpose, the estimated additional costs of ETS2 (Table 3) were used and related to individual income deciles.

Figure 7. Share of additional expenditure on ETS2-related heating coal in income for average consumption in 2022 for each income decile in 2027-2040 [PLN].



*Own elaboration based on: **GUS; KOBIZE; EWE;** Izdebski and Buk 2024, Eurostat, Ministry of Finance.*

Figure 8. Share of additional spending on natural gas for heating related of ETS2 in income for average consumption of 2022 for each income decile from 2027 to 2040 [PLN].



*Own elaboration based on: **GUS; KOBIZE; EWE;** Izdebski and Buk 2024, Eurostat, Ministry of Finance.*

The two charts above show the increase in additional ETS2 costs across all income groups. In 2030, for the first three income deciles, the share of additional ETS2 costs in income could range from 3.3% to 5% for those heating their homes with coal, and from 0.8% to 1.2% for natural gas users. These figures again point to the need to extend support beyond the first income decile group, especially for coal heating.

Conclusions for the Social Climate Plan - the impact of ETS2 on the buildings sector

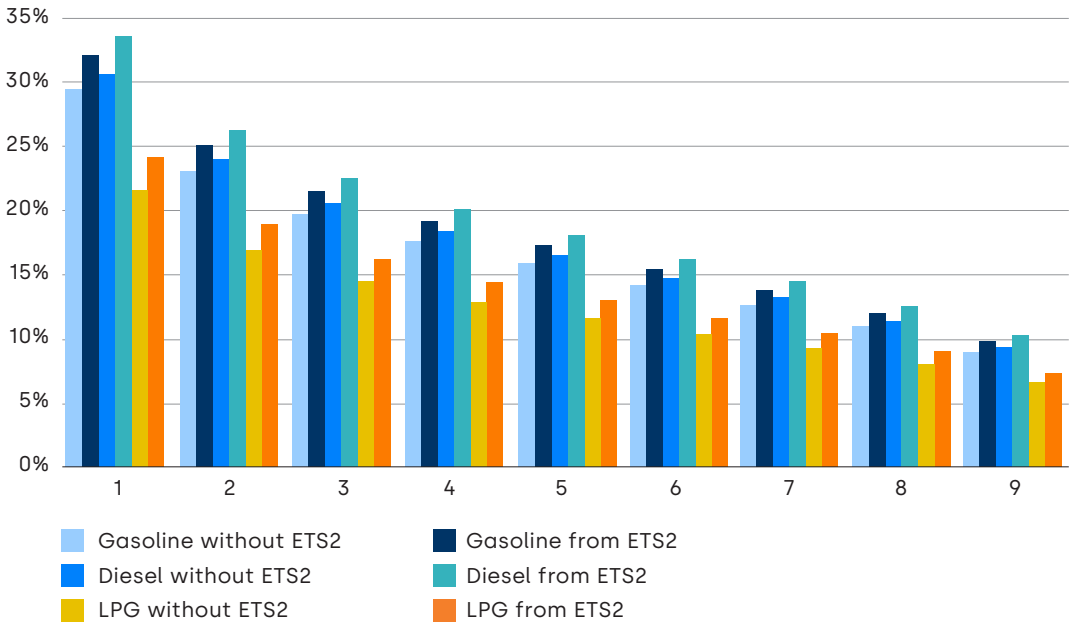
1. **Poland ranks second** in the Oeko-Institut's ranking **for the largest expected increase in household expenditures on heat and transportation after the introduction of ETS2.** In our country, the main source of these costs will be the heating of buildings, due to the dependence on coal.
2. The key **challenge is to identify the people and households most vulnerable to the direct effects of ETS2.** Only this group will be able to receive direct income support from the ETS **(the budget for these beneficiaries** is 37.5% of the total ETS pool, or **up to PLN 18 billion).** For example, an energy-poor person who heats their home with electricity is not eligible for such assistance.
3. **Households using coal will be hit the hardest,** especially those in the lowest income groups. However, better-off people heating their homes with coal will also experience an increase in costs. Users of natural gas to ensure adequate room temperature will also incur additional expenses, although they will be significantly lower than for those using coal. Therefore, data on heat sources from the Central Emission Inventory for Buildings (CEEB) should be the basis for profiling the Plan's beneficiaries.
4. **The energy efficiency of buildings is a key factor affecting the ETS2 burden. Thermomodernisation can reduce additional heating costs** from emissions by **up to 60% in 2030.** Programs under the Social Climate Plan should prioritize investments in improving the energy efficiency of buildings, especially for coal-heated households.

3.3 The impact of ETS2 on the transport sector

The implementation of ETS2 will also directly affect drivers of vehicles that use fossil fuels, who will pay more for every liter of fuel they buy.

Figure 9. illustrates the likely scale of change in the individual transport sector, by comparing the share of costs of using the most popular fuels for each income decile in the scenario without and with additional ETS2 costs (60 euros per ton of CO_2 is assumed, which is a likely prognosis for 2030). Both scenarios are based on GUS data for 2022 – the average mileage and fuel consumption per vehicle.

Figure 9. Share of fuel costs per vehicle per household in income for each income decile in 2022 in the scenario without and with additional ETS2 costs (55 euros/ton).



Source: own compilation based on Eurostat (income by decile in 2022 [ilc_di01]; PLN/EUR exchange rate: 4.69) and GUS ("Energy consumption in households - data estimates for 2022". [Average annual fuel expenses for 1 car]). Average expenditures and mileage for each fuel based on GUS data for 2022.

Calorific values and emission factor based on ***KOBiZE.***

The greatest additional cost awaits owners of diesel cars from the lowest income decile (see Figure 9). Particularly vulnerable are those who have no alternatives and must travel frequently in a diesel car, such as when commuting to work. However, the additional costs for households after the implementation of ETS2 will be less in the transport sector than in the building sector.

The importance of diversifying mobility

Defining the impact of ETS2 on transport users and choosing authoritative criteria for selecting beneficiaries in this sector is more complicated than in the buildings sector. An analysis of spending allocated to transport does not show the complete picture. Moreover, we have less available data in the transport sector, including public transport, than in the buildings sector.

Mobility, and therefore fuel consumption and expenditures, varies more among users than with household heating (the ability to reduce mobility is often greater than to reduce heating expenditures). Some of the poorest in the 1st income decile may forgo travel by private car due to high fuel costs. This means that the costs shown in Figure 9 for the rest of the group of people forced to travel by car are even higher than average and extremely severe at low incomes.

Moreover, in Poland, the poorer spend a larger share of their expenditures on bus and rail transport. Meanwhile, the decline in affordability of public transport after the implementation of ETS2 is difficult to estimate[39]. Rising fuel prices will make it more difficult to combat the widespread transport-related exclusion in Poland, which will require greater investment in public transport.

39 The KOBiZE report proving this thesis is available here.

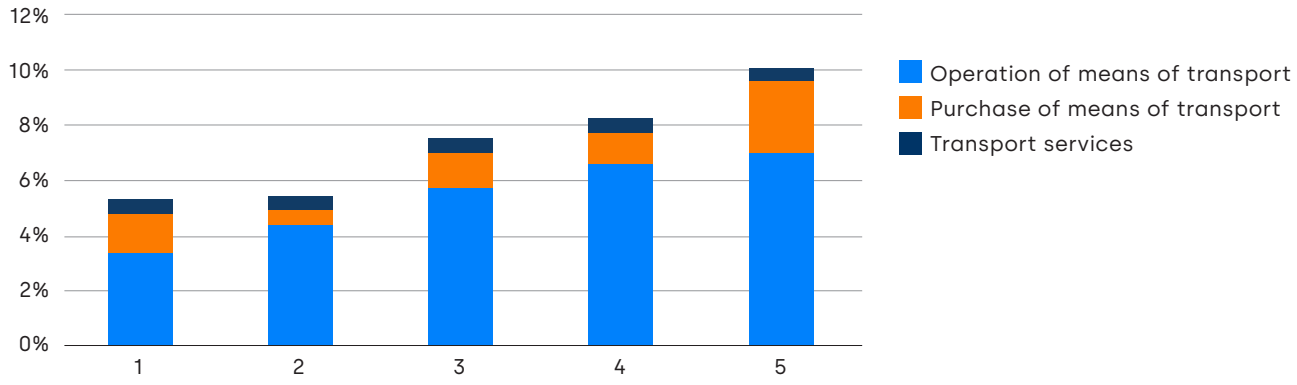
In view of the above doubts, Figure 9 should be treated only as an illustrative figure, which is intended to show only the estimated impact of EST2 on the cost of individual transport. It is worth noting that the assumed average annual expenditure on motor fuels per car in 2022 (PLN 6929) was significantly higher than in the preceding years (2020 - PLN 4277; 2019 - PLN 4830), so the baseline share of costs shown (without EST2) may be less severe for consumers in the coming years[40]. This chart, for simplicity's sake, does not distinguish fuel consumption and mileage for cars between income deciles and considers average spending values.

This is an extremely important caveat in the Polish reality, where the share of fuel spending in total expenditures is more than twice as high for the wealthy as among the lowest earners[41]. Similar conclusions can be drawn from Eurostat data for 2020 shown in Figure 10 – the share of spending for the fifth quintile is two times higher than for the first.

40 GUS data is available here.

41 The KOBiZE report is available here.

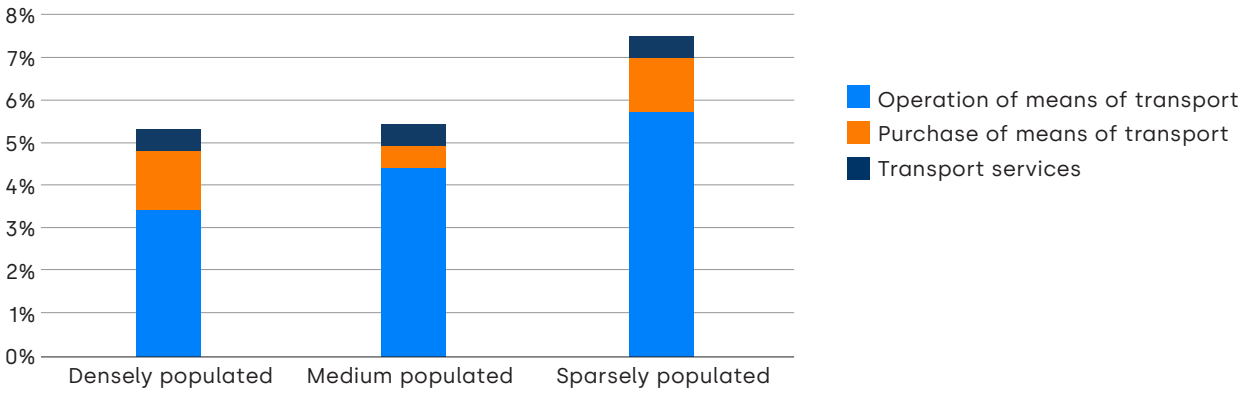
Figure 10. Share of transport expenditures in total expenditures by household income quintiles in Poland in 2020



Compiled from Eurostat [hbs_str_t223].

Another dimension worth taking into account in forecasting the burden is the spatial aspect. The place of residence influences the share of vehicle operating expenses in total expenditures (e.g. fuel, among other things). As Figure 11 indicates, in less densely populated areas the share of transport expenditures in total expenditures is higher - 3.4% for densely populated areas versus 5.7% for sparsely populated areas. In addition, as indicated in Section 2.2, in less urbanized areas the public transport alternative is often less accessible.

Figure 11. Share of transport spending in total spending by level of urbanization in Poland in 2020



Compiled from Eurostat [hbs_str_t223].

Changes over time – rising allowance prices and revenues

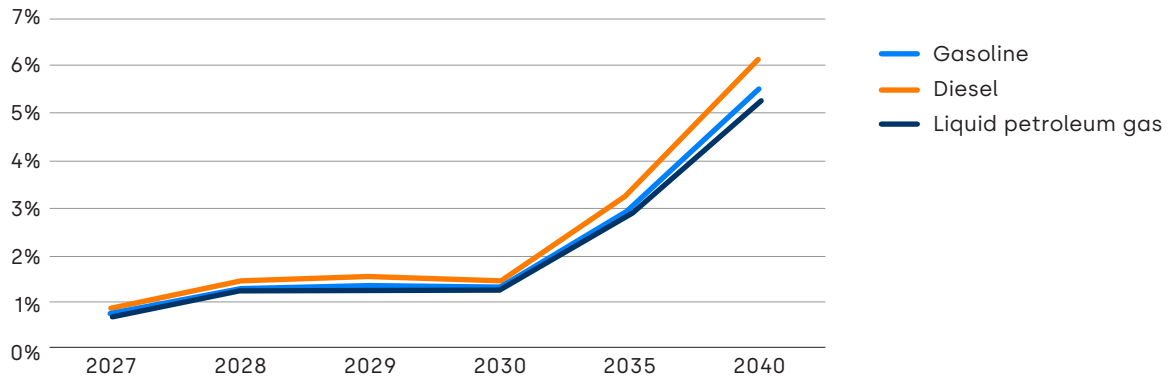
The transport sector will also see a change over time in the level of burden on households. On the one hand, it will be related to an increase in the cost of entitlements, and on the other - to the rising household incomes. The estimates presented in Table 4 and in Figure 12 are based upon same methodology as in the section on the buildings sector. The calculation methodology and data used are also presented in Appendix 1.

Table 4: Additional cost from ETS2, using Buk and Izdebski's EUA ETS2 price path, for average transport fuel consumption and mileage in 2022.

Year	ETS2 [EUR/t]	Gasoline [PLN]	Diesel [PLN]	Liquified petroleum gas [PLN]	Average disposable income [PLN]
2027	30	300	334	288	38017
2028	50	500	556	479	39082
2029	55	550	612	527	40176
2030	55	550	612	527	41301
2035	140	1399	1557	1342	46865
2040	290	2898	3225	2780	52355

*Own elaboration based on GUS, **KOBiZE** and ETS2 path from the Buk and Izdebski 2024 report.*

Figure 12. Share of additional costs associated with ETS2 in average income.

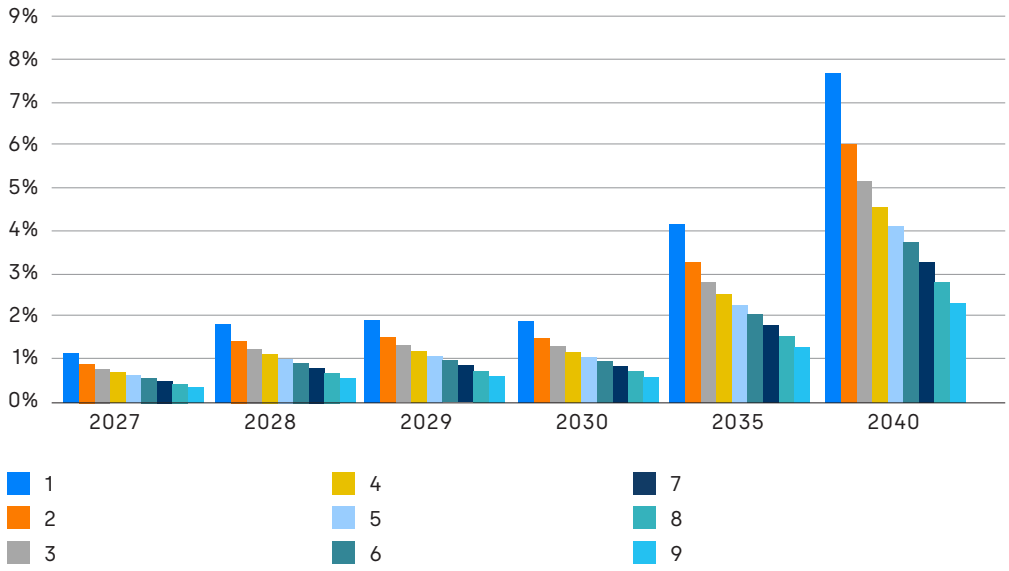


*Own elaboration based on: **GUS; KOBIZE;** Izdebski and Buk (ETS2 track).*

Over time, the additional fuel purchase costs associated with ETS2 implementation will increase. Their level is similar for gasoline, diesel and liquefied petroleum gas. However, a stronger expected price increase for owners of diesel-fueled vehicles can be seen from 2030.

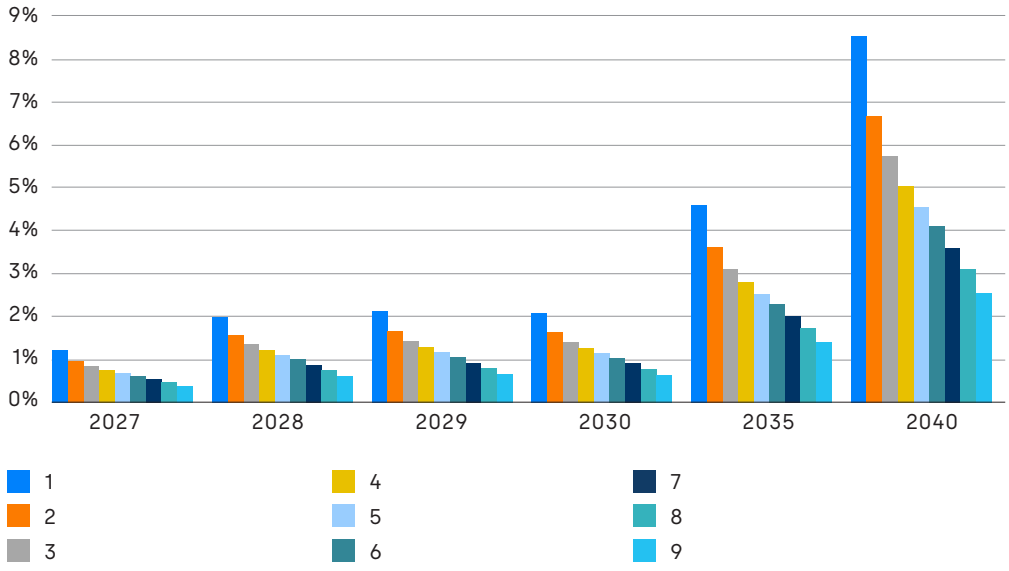
Analogous to the buildings sector, the additional cost of ETS2 implementation in the transport sector was divided into income deciles using Eurostat data.

Figure 13. Share of additional ETS2-related expenditures on gasoline per vehicle for average consumption in 2022 for each income decile between 2027 and 2040.



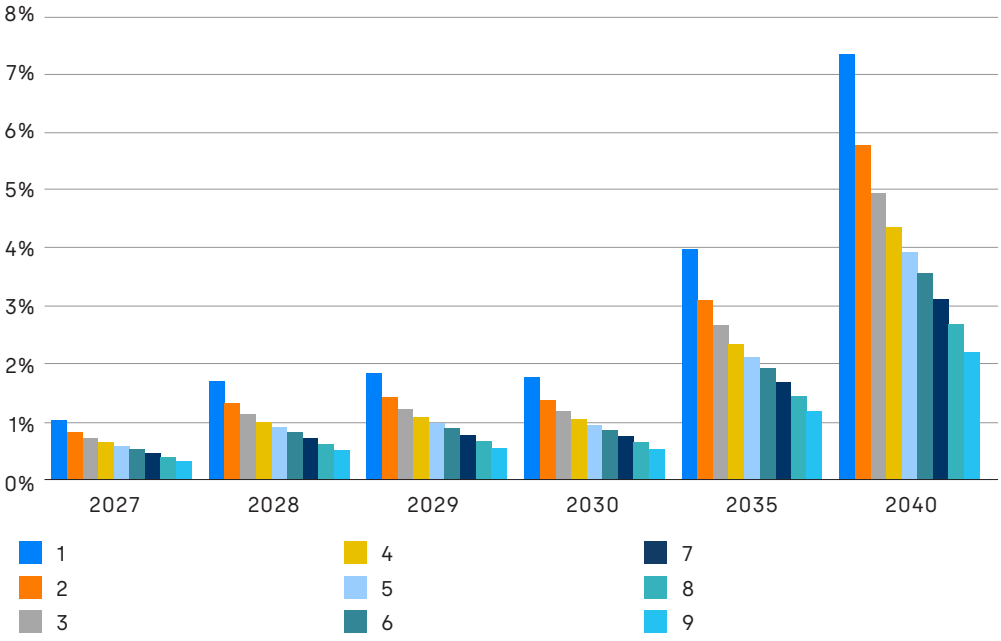
Own elaboration based on: ***GUS; KOBIZE;*** *Izdebski and Buk 2024, Eurostat, Ministry of Finance.*

Figure 14. Share of additional ETS2-related expenditures on diesel fuel per vehicle for average consumption in 2022 for each income decile from 2027 to 2040.



Own elaboration based on: ***GUS; KOBIZE;*** *Izdebski and Buk, Eurostat, Ministry of Finance.*

Figure 15. Share of additional ETS2-related expenditures on liquefied petroleum gas per vehicle for average 2022 consumption for each income decile



Own elaboration based on: ***GUS; KOBIZE;*** *Izdebski and Buk 2024, Eurostat, Ministry of Finance.*

Regardless of the type of fuel used, the additional costs of ETS2 will increase for all income groups, especially after 2030. Particularly at risk are the poorest (in the first decile), who can expect an increase in fuel expenses of 7 – 8.5% of income in 2040.

All of the above conclusions point to the need for in-depth research on transport poverty and the impact of ETS2 on the transport sector. At the same time, it is necessary to choose criteria carefully when designing the Social Climate Plan, taking into account the multidimensionality of the transport poverty problem.

Conclusions for the Social Climate Plan - ETS2 impact on the transport sector

1. **The implementation of ETS2 in the transportation sector will directly affect drivers of internal combustion vehicles.**
2. **Precisely determining the impact of ETS2** on transport users, and thus identifying authoritative criteria for selecting beneficiaries, **is more complicated than in the buildings sector.** The reason for this is less available data and greater variation in fuel consumption.
3. **Mobility, and therefore fuel expenditures, are much more varied than heating expenditures.** The poorest, especially those in the 1st income decile, often forgo travel by private car due to high fuel costs, making it difficult to fully understand the burden on this group.
4. An analysis of fuel expenses in transportation does not provide a complete picture. In Poland, the share of these costs in overall spending is highest among the wealthy, making it difficult to identify potential beneficiaries.
5. The spatial aspect plays a key role in analyzing the burden of ETS2 in the transportation sector. **Residents of sparsely populated areas spend a larger share of their budgets on vehicle operation, and public transportation alternatives in these areas are often less accessible.**

6. **Diesel car owners from the lowest income groups will feel the greatest burden.** Particularly vulnerable are those who have no alternative to frequent use of their own car, such as for commuting to work.

7. Additional fuel costs associated with ETS2 will increase across all income groups, especially after 2030. Owners of diesel cars can expect significantly higher cost increases in the next decade already. By 2040, on the other hand, for the poorest people (from the first decile), fuel expenses could reach as much as 7 - 8.5% of income.

8. **Rising fuel prices will exacerbate the problem of transport exclusion.** To counter it, **more investment in public transportation will be needed.**

4. Recommendations for the Social Climate Plan

This chapter presents recommendations on measures (reforms) and investments for the Social Climate Plan. The proposals mainly focus on systemic changes and their connection to investments and take into account the public administration's years-long experience with spending EU funds for investment purposes.

The challenge remains what are known as "means," i.e., actions or structural changes, other than investments, that lead to policy improvements with significant and lasting impact. Difficulties have been observed in recent years in adequately designing and implementing the reforms necessary for an effective zero-carbon transition process or those aimed at rebuilding the economy after the pandemic, as included in the National Recovery Plan. However, it is indeed the “means” that are able to bring benefits in the long-term minimization of energy and transport poverty in Poland. Investments alone will not eliminate the source of the problem and will not fully mitigate the potential negative social effects of ETS2 implementation. It is necessary to focus on the measures now, also due to the limited possibility of making changes after its approval by the European Commission (EC).

The recommendations take into account the time constraints arising from the need to submit the Plan to the EC in the coming months - by June 2025 at the latest. Therefore, some of the proposals require the development of specific systemic changes already in the course of the Plan's implementation, which, combined with the Plan's implementation and monitoring mechanisms (such as the appointment of a plenipotentiary), increases the chance of their acceptance by the European Commission.

The entry into force of ETS2 will not only be a price stimulus for consumers, but also for policymakers, who will be faced with the need to propose systemic solutions that respond to new conditions that are potentially disadvantageous to the poorest. Therefore, it is relevant to include in the Plan a framework of actions that require political decisions to be made once the Plan is adopted and the ETS2 is operational. It is worth keeping in mind a broader time horizon than 2032 when preparing the Plan (the end of the availability of funds from the SCF), since the ETS2 system will stay in place for longer and will be a potential source of funding for actions beyond this point in time.

The following section presents the most important recommendations.

4.1 Horizontal recommendation

Establishment of a Government Plenipotentiary for Just and Fair Transition

Problem

Poland lacks a coordinator at the governmental level for issues related to the fair transition aspect – both in the territorial (just) and distributional (fair) contexts. This is one of the major challenges of climate policy. Tasks are realized by various ministries, but only within the scope of the government departments assigned to them. Some ministries avoid active participation in inter-ministerial work related to climate policy. They consider that these issues do not concern them.

Creating an effective and just climate and energy policy requires greater government coordination and involvement, as well as the inclusion of government departments less frequently identified with climate policy, such as construction, land use planning, housing, national defense, agriculture, regional development, transport, social security and health. The preparation of the Social Climate Plan is an opportunity to organize and strengthen the energy transition process.

Action

We recommend the establishment of a Government Plenipotentiary for Just and Fair Transition, based on Article 12 of the Act of August 8, 1996, on the Council of Ministers.

This is a horizontal recommendation, as its implementation will allow for the efficient management and implementation of the Social Climate Plan measures in both the buildings and transport sectors, as described in the following proposals. Moreover, it will support systemic solutions to minimize energy and transport poverty, not only those included in the Social Climate Plan.

The Polish administration has experience with the functioning of Government Plenipotentiaries, such as the Government Plenipotentiary for Strategic Energy Infrastructure and the Government Plenipotentiary for the Transition of Energy Companies and Coal Industry, which enables rapid implementation of this solution[42].

The appointment of the Plenipotentiary should take place at the stage of preparation of the Social and Economic Plan. The Plenipotentiary should coordinate the finalization of work on the Plan, concentrating primarily on the purpose for which the Social Climate Fund was established, i.e. minimizing energy and transport poverty. Therefore, the key task for the Plenipotentiary at this stage should be to create space in the Plan to carry out systemic changes. At the same time, the Plenipotentiary should be a key actor in the system of monitoring and implementation of the Plan and ensure consistency with other initiatives.

The scope of the Plenipotentiary's activities will be broader than the ones covered by the Plan. Their task should be to develop a holistic policy for all coal regions, to actively participate in the implementation of the measures set out in the NECP update, and to cooperate in updating Poland's Energy Policy and other documents of a strategic nature.

The Government Plenipotentiary should function within the structure of the Chancellery of the Prime Minister, which will raise their profile and facilitate coordination of the work of the various ministries.

42 The list of representatives is available here.

The person serving as Plenipotentiary should have political support, which will ensure effective implementation of actions. The functioning of the Plenipotentiary can be financed from the SCF under a dedicated action provided for in the Plan or from other sources, such as state budget revenues from the sale of EU ETS and ETS2 allowances.

The inclusion in the Action Plan of the establishment of a Government Plenipotentiary for a just and fair Transition could be a positive signal of the government's serious interest in the challenge - both for the EC and for stakeholders in the transformation process.

Implementation time horizon

The establishment of the Plenipotentiary should be implemented as early as 2025 as an element of institutionalizing the Social Climate Plan preparation process.

If a Plenipotentiary is not appointed at the Plan preparation stage, it is reasonable to appoint one within a year of the adoption of the Social Climate Plan.

Entity responsible for implementation

Chancellery of the Prime Minister

4.2 Proposals for reform and investment in the buildings sector

Develop public policies to minimize energy poverty

Problem

The European Commission in its publication[43] indicates that the four most common gaps among current EU member state efforts to diagnose energy poverty are:

- lack or inadequacy of an up-to-date definition at the national level;
- lack of a proper official strategy to combat the phenomenon;
- absence or inadequacy of indicators and targets;
- poor quality or availability of data.

43 EC publication "Study on optimization of energy poverty indicators collected at EU and national level - Publications Office of the EU" is available here.

All of these shortfalls also affect Poland. Already at the level of strategic documents, there are no coherent measures defined for combating energy poverty. The state's actions to minimize this phenomenon are scattered in various documents and programs.

The lack of consistency in state policy hinders effective inter-ministerial action in this area. The public administration has not developed a consistent approach to measuring the phenomenon, does not make full use of regularly collected data, and has not developed adequate access to qualitative stakeholder data and instruments to monitor it on an ongoing basis.

Action

We recommend developing a public policy on combating energy poverty. Public policy, according to the Act of December 6, 2006 on the principles of development policy, is a type of document that defines the basic conditions, objectives and directions of the country's development in the social, economic and spatial dimensions in a given area or in a given field, which follow directly from the development strategy. Thus, such document of a strategic nature will enable the overall management of the issue of energy poverty in Poland.

Adoption of the document will provide a framework for better planning of the green transition in Poland, including the appropriate addressing of issues related to the just transition over a longer period of time than that for the operation of the SCFs.

The national energy poverty strategies that Greece, Spain, Ireland, Italy, Portugal and Slovenia have adopted can be used as a source of inspiration for the document[44].

[44] Information on good practices on this topic is available here.

The development of such a document should be written into the Social Climate Plan and be linked to a system for its implementation and subsequent monitoring of actions. A public policy on minimizing energy poverty would be a cohesion point between the ongoing actions enshrined in the updated NECP and the Social Climate Plan in a broader time horizon.

The preparation of a comprehensive national policy for minimizing energy poverty will outline a new timetable of actions aimed at, among other things:

- confirming the existing definitions (or, if necessary, adjusting them appropriately);
- developing a diagnostic work from the adopted Plan, including additional indicators, objectives and conditions for studying the phenomenon;
- clearly defining responsibility for combating the phenomenon and collecting data;
- creating a unified framework for obtaining qualitative data, as well as commissioning and aggregating studies of the phenomenon, which can be accessed on a specially created open public website (along the lines of the EU's Energy Poverty Advisory Hub);
- creating a permanent institutional framework for cooperation and dialogue on the fight against energy poverty between relevant units of public administration, local governments, NGOs and industry organizations. These tasks will be continuous, and their implementation will extend beyond the term of the Plan.

The tight schedule does not allow these actions to be carried out as part of the preparation of the Social Climate Plan. Therefore, it is reasonable to prepare the document as a measure, included in the Plan. This document will allow the continuation of the analytical work carried out during the preparation of the Plan. The preparation of such a document will be an important input to subsequent updates of the National Energy and Climate Plan and other national documents of a strategic nature. It will also allow to make effective use of new EU and national funds that will support a just green transition.

Implementation of the measure can be financed by either the SCF technical assistance or other funds, such as state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

Adoption of the document is possible in 2026/2027.

Entity responsible for implementation

Ministry of Climate and Environment

Modification of the "Clean Air" Priority Program of the National Fund for Environmental Protection and Water Management.

Problem

The National Environmental Protection and Water Management Fund's Priority Program "Clean Air", after years of refinement, has become an effective tool for combating energy poverty in Poland, but the challenge to guarantee funds for its continuation remains. The Social Climate Fund may play a key role in financing this Program for the energy-poor and those particularly vulnerable to ETS2 entry in the coming years. In the long term, stable financing can be provided by ETS2 revenues.

Action

We recommend modifying the National Environmental Protection and Water Management Fund's Priority Program "Clean Air" under the Social Climate Plan.

The requirements of this program should be aligned with Regulation 2023/955 on the establishment of a Social Climate Fund and with the definition and objectives of the Plan. The program should be expanded to include a special component with a separate pool of funds for those affected by or at risk of energy poverty as a result of ETS2 implementation. The funds under this component should be allocated on the basis of criteria that take into account not only income, but also, inter alia, the type of heat source, the level of energy efficiency of the building and the projected additional costs resulting from ETS2.

The group of people who are particularly vulnerable to energy price increases should be provided with a higher level of subsidies and instruments to reduce the lack of liquidity and shortage of equity capital in households (e.g., pre-financing and combining subsidies with loans).

In doing so, these funds should be an addition to, and not a replacement for, existing financing (additionality principle).

The introduction of conditionality, making additional SCF funding contingent on the program's realisation, will better align the new iteration of the “Clean Air” program with the requirements to fight energy poverty, taking into account Regulation 2023/955.

Modification of the existing “Clean Air” Priority Program of the National Fund for Environmental Protection and Water Management on the basis of past experience and the institutional framework will enable part of the Program's actions to be financed from SCF funds and to be used effectively. The implementation of this action can be financed from either SCF technical assistance or other financial resources, including, for example, budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

The update of the “Clean Air” Program should be carried out by mid-2026 at the latest, in order to trigger rapid financing of the program from SCF.

Entity responsible for implementation

Ministry of Climate and Environment

Entity supporting the implementation of the action

National Fund for Environmental Protection and Water Management

New energy voucher

Problem

The entry into force of the ETS2 as part of the climate transition will have economic and social impacts that are difficult to assess ex ante. However, there is no doubt that fossil fuel price increases will disproportionately affect vulnerable households.

According to Regulation 2023/955 establishing the Social Climate Fund, temporary direct financial support for vulnerable households is possible. Such support may be provided only in connection with direct burdens of ETS2 implementation (e.g., purchase of fossil fuels for heating or meeting transport needs). At the same time, the total cost of such income support may not exceed 37.5% of the total budget of the Social Climate Plan.

Action

We recommend developing assumptions for the implementation of a new energy voucher.

The Social Climate Plan should include an action to adapt the up-to-the-minute mechanism of the so-called "energy voucher" to the requirements of Regulation 2023/955, and most importantly to the definitions and objectives of the Plan.

The new energy voucher will be an instrument to support energy consumers at risk of energy poverty. Its beneficiaries will be able to receive a monetary benefit after meeting the relevant criteria regarding, among other things, the direct impact of ETS2 implementation on them. The introduction of the new instrument would coincide with the principle of additionality required by the European Commission. The instrument should make use of Poland's previous experience in implementing the energy voucher.

It is worth remembering, however, that the implementation of ETS2 is - in addition to the SCF - also the creation of an additional source of financing from the sale of allowances, which is not restricted by similar caveats. These proceeds (as well as income from the EU ETS) can be used for a new energy voucher for the energy poor, who will not be directly affected by ETS2 (e.g., they heat their homes with electricity or system heat).

Implementation of the measure can be financed by either SCF technical assistance or other financial resources, such as state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

Preparation of the new energy voucher should take place in 2026, so that it can be implemented from January 1, 2027.

Entity responsible for implementation

Ministry of Family, Labor and Social Policy

Supporters of implementation

Ministry of Climate and Environment and Ministry of Finance

Program for renovation of municipal buildings

Problem

According to the IBS study, special attention should be paid to the residents of municipal buildings when identifying those affected by energy poverty. These people often earn below the median income and additionally live in old buildings with low

energy efficiency, in which individual heating is three times more common than in Poland overall. One of the main reasons for the poor state of municipal buildings is the underfunding of municipal housing policy[45].

45 Results from the IBS study are available here.

Action

We recommend the development of assumptions and the implementation of a program for residents of municipal buildings affected by energy poverty.

The Social Climate Plan should include subsidizing energy audits and significantly increasing the energy efficiency of municipal buildings without requiring a contribution from local governments and building occupants. In doing so, local governments should be required to consistently aggregate digital data on municipal buildings in their areas, which will facilitate future action for the energy poor in these buildings.

Already existing programs can be used to improve aid delivery by adjusting the criteria to the needs of the Social Climate Plan and setting aside a corresponding pool of funds from the program for this purpose. In addition to the SCF, the measure can be financed from other sources, such as state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

The program for residents of municipal buildings in energy poverty should be implemented throughout the implementation period of the Social Climate Plan, starting January 1, 2026.

Entity responsible for implementation

Ministry of Economic Development and Technology

Entity supporting the implementation

Ministry of Family, Labor and Social Policy

Establish an elderly housing program for the energy and transport poor

Problem

One of the areas defined in EU Regulation 2023/955 is housing. Among the eligible reforms and investments, the regulation indicates in Article 8:

"support public and private entities, including social housing providers, in particular public-private cooperatives, in developing and providing affordable energy efficiency solutions and appropriate funding instruments in line with the social goals of the Fund";

Many of the problems associated with energy and transport poverty stem from unfavorable places to live. In addition, the problems that the ETS is intended to help overcome often involve the elderly. The WiseEuropa report on ETS2 indicates that among pensioners, the percentage of energy poor is 18 - 30%[46]. A typical representative of such a group is an elderly, single person (elderly citizen) with a low income, without a driver's license, living in an uninsulated house too large for their needs and at a significant distance from public services.

46 The WiseEurope report is available here.

Supporting such a target group is complex. Standard measures within the framework of today's functional programs (costly insulating, introducing an unpopular bus service) may be ineffective or inefficient.

Action

We recommend the implementation of an elderly housing program for the energy- and transport-poor, including the creation of elderly housing through the construction, renovation and adaptation of vacant buildings into apartments.

The elderly housing program will respond to these challenges by encouraging the relocation of those affected by energy and transport poverty, according to the definitions established in the Social Climate Plan.

Implementation of the project can improve the quality of life of these people. Such an approach will make it possible to solve problems permanently. Properly structuring such a program will ensure that SCF funds are spent effectively.

At the first stage, the scope of implementation of the pilot investment should be worked out, including the preparation of formal and legal conditions for the organization of so-

cial housing. At the second stage, the investment should be implemented, and at the third stage, the project should be evaluated, considering its upscaling. If the evaluation is positive, the program can be expanded to other social groups at the risk of energy and transport poverty.

The undertaking would combine two elements: on a combination of so-called "measures", i.e. actions or structural changes other than investment (preparatory actions, such as concept development and piloting), and investment, i.e. expenditures on the implementation of elderly housing for the energy and transport poor. As part of the piloting of the project, conditions would be prepared for scaling the program and securing its financing from sources other than the SCF, such as ETS2 or other funds (including the EU ETS).

In case of a positive evaluation, the program could be expanded to other social groups at risk of energy and transport poverty.

Implementation time horizon

The implementation of the project should be carried out throughout the implementation period of the Social Climate Plan, with a launch on January 1, 2026.

Entity responsible for implementation

Ministry of Family, Labor and Social Policy

Entity supporting the implementation

Ministry of Economic Development and Technology and the Chancellery of the Prime Minister (inter alia, Minister for Senior Policy)

4.3 Proposals for reform and investment in the transport sector

Develop public policy on minimizing transport poverty

Problem

Poland does not have defined consistent measures to combat transport poverty. There is a lack of a consistent definition, access to statistical data (e.g., in the public bus transport sector), and effective instruments to enable

its minimization and ongoing monitoring. Existing documents and implemented programs address the phenomenon of transport-related exclusion, but do not define it sufficiently.

The Social Climate Fund and the preparation of the Social Climate Plan oblige Poland to develop measures focused on the target group defined as the transport-poor, which also includes the transport affordability factor under the EU definition establishing the SCF.

Action

We recommend developing a public policy on minimizing transport poverty.

Public policy, according to the Act of December 6, 2006 on the principles of development policy, is a document that defines the basic conditions, objectives and directions of national development in the social, economic and spatial dimensions. Thus, the document will allow for the holistic management of the problem of transport poverty in Poland. Adoption of the policy will provide a framework for better planning of the transition, including appropriate addressing of justice issues over a longer period than the operation of the SCF.

The development of such a document should be part of the Social Climate Plan and be combined with a system for its implementation and monitoring. A public policy on combating transport poverty would set the current measures enshrined in the existing strategic documents on transport and mobility in a long-term time horizon. A strategic document is necessary to identify gaps in the current transport policy toward the disadvantaged and those at risk of ETS2. It will also help address the problem of transport-related exclusion, which is a key element of transport poverty.

In such a document, it would be worthwhile to include the mobility dimension, by combining transport planning with spatial planning. Such an approach could lead to organizing public services where people live as an alternative to creating new bus or train connections. A feature that distinguishes mobility management from transport management is the focus on service availability, rather than transport itself. In such a view, transport policy must also take into account the assumptions of housing, employment, health care or education policies.

The document should not only expand the diagnosis of the situation, but also propose specific measures and reforms to the transport system in Poland, including reforming the organization of public transport, simplifying and making more consistent the system of benefits, popularizing multimodality and improving the digitalization of timetables. The new architecture of the transport system should enable the implementation of measures to support the fight against transport poverty, including the introduction of higher minimum frequency requirements for public transport connections in regions affected by transport-related exclusion.

Due to the tight schedule, it may be difficult to implement these actions within the scope of preparation of the Social Climate Plan. Therefore, it is reasonable to develop a separate document within the Plan. Such a document will allow the continuation of analytical work and the effective use of new EU and national funds for a fair and green transition. The preparation of such a document will be an important input to subsequent updates of the National Energy and Climate Plan and other national documents of a strategic nature (including those strictly related to transport).

Implementation of the measure can be financed by either SCF technical assistance or other funds, including, for example, state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

Drafting and adoption of the document is possible over the years 2026/2027.

Entity responsible for implementation

Ministry of Infrastructure

Advisory system for the organization of public mass transport

The Problem

The organization of public mass transport is a key tool for minimizing the negative phenomenon of transport poverty. The development of public mass transport in Poland in recent years has been characterized by a wide variation in pace depending on the area. Some local governments, despite vague regulations defining responsibility, have done well in organizing public transport. A particularly positive example is the units that have joined forces and established district-municipality (powiat-gmina) associations. However, a large number of local governments have not been up to the task, which is why many areas in Poland are affected by transport-related exclusion, which often accompanies (or even is a component of) transport poverty.

The introduction of ETS2 will increase the pressure and challenges for local governments to organize public mass transport. Particularly since in recent years EU funding for public transport has often gone to the largest and most efficient local governments through an open call for proposals procedure, further increasing the gap in transport accessibility between different areas, including cities and villages.

The key element for improving the organization of public mass transport is system and technical support, and only secondarily the infrastructural support of public transport organizers. Local governments should primarily receive substantive support for the organization of this form of transport - infrastructural support should only be a tool for improving the situation, not an end in itself.

Action

We recommend the development of an advisory system for public transport organizations.

The Social Climate Plan should support public transport organizers in particular in areas where the problem of transport poverty is greatest. The support could take the form of developing materials to increase the knowledge and competence (know-how) of local governments that have so far been passive in organizing public transport, organizing an additional position of advisor/consultant for public transport development, developing an expert report for the needs of public transport organizers, taking into account specific local conditions with recommendations and an action plan. The organizers could also receive support in applying for funding for actions and investments from the SCF or other sources (e.g., EU ETS and ETS2).

Support in the field of consulting for the organization of public mass transport should be aimed at the organizers of public transport in an area larger than a district (several districts, a functional area or the entire voivodeship). This is because the phenomenon of transport poverty goes beyond the administrative boundaries of municipalities (gmina) or districts (powiat).

Thus, the advisory system should support the expansion of the public transport network.

In addition, introducing the condition of using the advisory system as a requirement for SCF funding for the purchase of transport infrastructure would allow for a greater effect of spending funds to minimize transport poverty.

Realization of the advisory system could bring systemic changes in the organization of public mass transport without the need for legislative changes.

The public administration has experience in organizing projects to support local governments. One example is the project implemented by the Ministry of Development Funds and Regional Policy, in cooperation with the Ministry of Infrastructure, the Center for EU Transport Projects, the European Commission and the Jaspers Initiative supporting cities, urban areas and metropolitan areas in the preparation of Sustainable Urban Mobility Plans (SUMPs)[47]. Another valuable example is the so-called Advisory Support Center, a project implemented by the Ministry of Development Funds and Regional Policy to increase the administrative efficiency of local self-governments[48]. Another experience in systemic support for local governments can also be the Partnership Cities Initiative, a program for the exchange and promotion of knowledge between cities and other entities involved in the formulation and implementation of urban policy[49]. An example of the development of specific analyses for local governments is the MPA44 project, under which the Ministry of Climate and Environment developed Urban Adaptation Plans for 44 of Poland's largest cities, which form the basis for applications for investment funding from the European Funds for Infrastructure, Climate, Environment 2021-2027[50].

47 Information on the SUMP pilot is available here.

48 Information on Advisory Support Center is available here.

49 Information on Partnership Cities Initiative is available here.

50 Information on MPA44 is available here.

The realization of the Support System of local governments in the form of advice to public transport organizations should also be a condition for enabling financing of the purchase of rolling stock and associated infrastructure.

Implementation time horizon

The implementation of the system of support for local governments in the form of advice for the organization of public transport should continue throughout the implementation of the Social Climate Plan. It is important to launch the system in 2026-2028, if the investment component (investments resulting from the advisory system) is included.

Entity responsible for implementation

Ministry of Infrastructure

Entity supporting the implementation

Center for EU Transport Projects

Modification of the Bus Transport Development Fund.

Problem

Public transport is a key tool for minimizing the negative phenomenon of transport poverty. However, in Poland it is hampered in many places - according to the Institute of Rural and Agricultural Development of the Polish Academy of Sciences, about 10,500 villages (sołectwo) (26% nationwide) have no access to public transport at all[51]. Particularly important in increasing its accessibility are bus services, the number of which in small towns and villages has declined in recent decades.

When trying to diagnose the situation, the lack of consistent data on timetables throughout the country is felt. Despite the ideas that have been coming up for years,

Poland has not yet developed an integrated system for finding connections, to which carriers would be required to submit data. The lack of appropriately aggregated connection data, combined with the dispersion of competencies and the multiplicity of sub-entities responsible, seriously hinders attempts to synchronize and optimize the operation of public transport.

51 Publication Monitoring of Rural Development IV of the European Fund for Rural Development and the Institute for Rural Development and Agriculture of the Polish Academy of Sciences is available here.

Action

We recommend modifying the Bus Transport Development Fund (FRPA).

The Bus Transport Development Fund is a key tool for local and regional bus transport. FRPA mainly fights transport-related exclusion, which, according to EU terminology, is part of the broader problem of transport poverty.

Modification of the Bus Transport Development Fund (FRPA) may be an appropriate element to address in the transport part of the Plan. The modification could involve expanding the Fund's existing scope to include actions to reduce transport-related exclusion and to fund them from a specially allocated pool of funds to combat transport poverty and protect against the effects of ETS2 implementation.

The Social Climate Plan should include an action to bring the Fund in line with both the requirements of Regulation 2023/955 and the Plan's definitions and assumptions.

The modification of the Fund should prioritize areas where poverty and transport-related exclusion already exist and may be exacerbated after the launch of ETS2. Setting aside a pool of funds for servicing connections in at-risk areas will meet the demands of the EU principle of additionality. In parallel, the existing FRPA actions financed from national funds should be implemented.

Support should go first to the organization of more frequent bus services in at-risk areas, going beyond a single municipality (gmina) or even district (powiat). This will help popularize the integration of public transport organization, which effectively increases accessibility and efficiency, and is in line with the objectives of Regulation 2023/955.

The indication in the Plan of the modification of the FRPA as one of the key actions will allow it to be adapted to the context of fighting against transport poverty adopted in the Plan itself. As a result, the Fund in its new version will become a tool for implementing the SCF and mitigating the effects of ETS2. At the same time, the Plan can introduce conditionality making FRPA financing from the SCF conditional only after the Fund is aligned with the requirements of Regulation 2023/955.

Funding of the FRPA will be possible only if it meets the assumptions defined in Regulation 2023/955. Adaptation of the Fund to the requirements of the Regulation and placing it in the context of minimizing transport poverty associated with the entry into force of ETS2 should take place within the framework of the implementation of the Social Climate Plan. Thus, the Plan should include an action modifying FRPA.

The use of the already existing FRPA will allow the effective use of funds from the Social Climate Fund, thanks to the existing institutional framework and the experience of local governments.

Completion of the measure regarding modification of the Bus Transport Development Fund should be a prerequisite for enabling FRPA to be financed with SCF funds.

Implementation of the measure can be financed by either SCF technical assistance or other financial resources, such as state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

Preparation of the modification of the Bus Transport Development Fund should take place in 2026, in order to enable to financing FRPA with SCF funds for as long as possible.

Entity responsible for implementation

Ministry of Infrastructure

Non-urban public on-demand transport system

Problem

On-demand transport is not regulated in Polish law, and the lack of national standards hinders its development. The Public Transport Act of December 16, 2010 does not define this type of transport. Moreover, the adopted definition of public transport excludes the operation of so-called demand-responsive transport (DRT). The aforementioned definition indicates that public mass transport is "publicly available regular transport of passengers performed at specified intervals and along a specified transport line, transport lines or transport network."

So far, certain local governments have introduced on-demand transport according to their own needs, but their actions have rarely been supported at the central level. Meanwhile, the on-demand transport system is an effective tool that can provide access to public transport for residents of non-urban areas where regular public transport is inadequate or impossible to organize (e.g., due to low population density or long distance from major roads).

In Poland, experience with on-demand transport is mainly in urbanized areas. In non-urban areas such solutions have been used sporadically, even though these areas are in greatest need of their implementation.

Action

We recommend the systemic implementation of non-urban on-demand public transport system as a tool to minimize transport poverty. Developing and implementing systemic solutions to support governments in organizing on-demand transport in non-urban areas, where transport poverty is most acute.

The undertaking would consist of two key elements:

- **non-investments,** e.g., involving the conception and implementation of a pilot on-demand transport program,
- **investments,** e.g.financing the purchase of rolling stock and financial support for the local governments in maintaining certain connections in the demand transport system.

At the first stage, the assumptions of an on-demand transport system should be developed. At the second - a pilot on a small representative scale should be conducted. At the third stage, after the pilot is evaluated, system solutions for implementation and financing after 2032 should be prepared, e.g. from ETS2 funds or other sources (e.g., EU ETS).

Implementation time horizon

Preparation of the assumptions of the on-demand transport system should take place in 2026. The entire project will be implemented during the implementation period of the Plan.

Entity responsible for implementation

Ministry of Infrastructure

Entity supporting the implementation

Center for EU Transport Projects

Investments in pedestrian and bicycle routes between localities in rural areas

Problem

Pedestrian and bicycle infrastructure in Poland is being developed mainly in cities. Outside them, bicycle paths are being developed mainly for tourist purposes. Meanwhile, rural residents do not have a sufficient network of convenient and safe pedestrian and bicycle routes to get to services located near where they live. In rural areas, even short distances have to be travelled along roads unsuitable for pedestrians and cyclists, jeopardizing safety. The lack of such infrastructure can make it difficult to abandon emission-intensive individual transport.

Action

We recommend investment in pedestrian and bicycle routes connecting towns in rural areas.

Infrastructure should be built primarily between neighbouring localities, where residents regularly move to ensure access to basic services and socio-economic actions. Priority should be given to areas most at risk of transport poverty.

While such a solution will not solve the problems of all residents (e.g., those with health constraints or living too far from work or services), it will create an alternative for some of them. For example, students in villages could use bicycles for short distances (up to 5 kilometres) instead of being driven by adults or waiting for infrequent buses.

Financing of such infrastructure could be realized from the SCF or state budget revenues from the sale of EU ETS and ETS2 allowances.

Implementation time horizon

Initial assumptions and identification of priority areas should be ready in 2026. Implementation can be carried out throughout the Plan's implementation period.

Entity responsible for implementation

Ministry of Infrastructure

Entity supporting the implementation

Center for EU Transport Projects

Annex 1 – ETS2 cost estimation methodology

In order to calculate the potential impact of the implementation of ETS2 in the building secture in Poland for this report, we primarily used the methodology described in the KOBiZE publication Pollutant emission factors from fuel combustion for sources with a rated thermal power of up to 5 MW, used for the automatic calculation of emissions in the report to the National Base for 2020, including the formula for calculating emissivity:

$E = (B \times Wo \times EF) / (10^6)$

Where:

- EF – emission factor [g/GJ or $g/m^{(3)}$];
- B – fuel consumption expressed in megagrams [Mg] or thousand cubic meters [thousand $m^{(3)}$];
- Wo – heating value expressed in kilojoules per kilogram of fuel [kJ/kg] or kilojoules per cubic meter of fuel [$kJ/m^{(3)}$][52].

The price level for CO_2 allowances in the ETS2 presented in the Buk and Izdebski report was also assumed due to the lack of public access to the European Commission's estimates on the matter. It was also based on data from the Central Statistical Office, *Household energy consumption - data estimates for 2022*[53].

Assumptions:

- Arithmetic average heated area for 2022 (GUS): 76,99 m^2
- Arithmetic average consumption for 2022 (GUS)
  - Natural gas: households using gas for space heating: 97.79 [kWh/m^2]
  - Hard coal: Households using hard coal for space heating: 33.86 [kg/m^2].
- EF – emission factor (KOBiZE):
  - Gas - CO_2- 57650 [g/GJ].
  - Hard coal - CO_2- 92200 [g/GJ][54]
- Wo – calorific value (KOBiZE):
  - Natural gas in liquid or gaseous state, high-methane; unit of consumption: thousand m^3: 36,540 [kJ/m^3]
  - Thermal coal, excluding briquettes; unit of consumption: Mg: 25,800 [kJ/kg].

52 The KOBiZE publication with the cited indicators and methodology is available here.

53 GUS data are available here.

54 Boilers that meet the requirements of Ecodesign and Class 5 according to PN-EN 303-5:2012 o nominal thermal power≤ 0.5 MW

ETS2 cost estimates for the transport sector are the result of using the same methodology as in the building sector section in the following chapter. The assumed constants are shown below (see Table 5).

Table 5. average fuel consumption for 2022 according to GUS

Type of fuel	Average mileage [km]	Average consumption [l]	Average consumption [m³]	Average density [kg/m³] at 15°C	Average consumption [kg]
Gasoline	13 290,22	1003.41	1.003	747.5	750.05
Diesel		968.86	0.969	830	804.15
LPG		1366.23	1.366	557	760.99

Own elaboration based on GUS - Energy consumption in households - data estimates for 2022.