

# COUNTRY REPORT

Study of the Impact of EU ETS 2  
on Household Welfare in Poland  
in the Context of Energy and Transport  
Poverty - Recommendations  
for the Social Climate Plan

Piotr Gutowski, Krzysztof Głowacki



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This report was produced under the project "Facilitating Socially Just Carbon Pricing in Central and Eastern Europe", a part of the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The opinions put forward in this policy report are the sole responsibility of the author(s) and do not necessarily reflect the views of the Federal Ministry for Economic Affairs and Climate Action (BMWK).

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Welfare in Poland in the Context of Energy  
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# Introduction

## European context

- In response to the resolution of the European Parliament (EP) of November 2019 regarding the "alarming climate and environmental situation", the European Commission (EC) has developed an action plan aimed at reducing greenhouse gas emissions, and thus limiting global warming so that by 2050 the European Union (EU) achieves climate neutrality.<sup>1</sup> The package of policy initiatives to make this happen has been called the European Green Deal. Its most important elements include the European climate law, under which EU environment ministers approved a new reduction target in December 2020, stipulating that by 2030, the EU's net greenhouse gas emissions (i.e., after the deduction of removals) *will fall* en bloc by at least 55% compared to 1990.<sup>2</sup> To achieve this task, it is necessary to adapt EU regulations. The legislative changes are being carried out as part of the so-called "Fit for 55" package and include the creation of a separate emissions trading system for buildings, road transport and fuels in additional sectors (EU ETS 2) and the establishment of a Social Climate Fund (SCF) to counteract the negative social and distributional impacts of the new system.

## Purpose of the study

- The EU's increased climate ambitions come at a higher cost to society for meeting its energy needs - which is especially relevant for less affluent citizens. EU ETS 2 will increase households' participation in the costs of implementing EU climate policy compared to the current legal situation, where participation is very indirect. The purpose of this report is to estimate the impact that the inclusion of buildings and road transport in the ETS will have on the welfare of households in Poland. The study also addresses the issues of energy and transportation poverty with the presentation of indicators to measure their levels. Quantifying these phenomena was used to identify the groups most vulnerable to the negative effects of the EU ETS 2 and requiring support in the form of direct cash transfers from the SCF. In addition, the study includes a qualitative aspect in the form of recommendations for decision-makers responsible for implementing the new EU regulations in Poland. They were based on a series of expert consultations (interviews, a focus group and a *policy lab* event), as well as the results of quantitative analysis.

## Methodology

- The analysis presented in the report was based on both qualitative and quantitative research. Part one included consultations on the EU ETS 2 and SCF conducted among national climate and environmental experts representing diverse positions and with complementary professional and research experience. The qualitative study was conducted in three stages. The first was in the form of structured interviews, the topics of which concerned the general

1 European Parliament Resolution of 28 November 2019 on the alarming climate and environmental situation: [https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:52019IP0078\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:52019IP0078(01)&from=EN).

2 Regulation (EU) 2021/1119 establishing a framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (European Climate Law): [https://eur-lex.europa.eu/legal-content/PL/TXT/?toc=OJ%3AL%3A2021%3A243%3ATOC&uri=uriserv%3AOJ.L\\_.2021.243.01.0001.01.POL](https://eur-lex.europa.eu/legal-content/PL/TXT/?toc=OJ%3AL%3A2021%3A243%3ATOC&uri=uriserv%3AOJ.L_.2021.243.01.0001.01.POL).

context of the EU ETS 2, the coverage of buildings and road transport in Poland under the new system, as well as necessary changes at the strategic level. The next part of the qualitative study was conducted in a focus group format, consisting of a moderated discussion among a small group of stakeholders. The topics discussed included social and climate policy instruments, energy poverty indicators, public policy priorities in the context of short-term measures related to household liquidity and long-term measures such as technological modernisation and behavioural change, as well as opportunities and risks related to the spending of SCF funds. The final stage of the qualitative study was conducted in the form of an on-site meeting with selected experts, during which participants co-created recommendations for optimal implementation of the EU ETS 2 in Poland in categories such as mitigation of energy poverty, optimal allocation of available funds for direct support and investment, as well as the institutional dimension of SCF implementation, including transparency of spending. Identified - and discussed in the context of future evaluation - were those activities whose implementation should be given the highest priority. The questionnaires and scenarios for each stage of the qualitative study are included in the annex to the report.

- The second part of the analysis took the form of a quantitative study, the initial stage of which involved calculating levels of energy poverty using a selection of commonly used indicators, such as:
  - 2M - the percentage of households with a ratio of energy expenses to disposable income that is more than twice as high as the national median;<sup>3</sup>
  - LIHC (*Low Income High Cost*) - the percentage of households with energy expenses above the national median; at the same time, these households, after paying for energy, are below the official poverty line (residual income less than 60% of median disposable income);<sup>4</sup>
  - 10% - the percentage of households where energy expenses account for more than 10% of net income.<sup>5</sup>
- The same indicators were then used to calculate the level of transport poverty by substituting energy expenditures for transport expenditures, derived from the cost of motor fuels. Based on the results, the validity of the previous practice of measuring transport poverty using methods known for measuring energy poverty was verified. The results of the calculations were then used to identify those groups of households most likely to be affected by the increase in energy and transport expenditures, i.e. those most exposed to the negative effects of the introduction of the EU ETS 2 in Poland. The division of households was based on characteristics such as belonging to a specific decile group of equivalent disposable income, voivodeship, socio-economic group, degree of urbanisation of the place of residence or date of construction of the inhabited building.<sup>6</sup> The calculations were made using data from the Household Budget

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3 Household disposable income is meant as the sum of current income from various sources, reduced by advance income tax payments, taxes on property income, taxes paid by the self-employed persons, and social and health insurance contributions.

4 Residual income was defined as disposable income after deducting energy expenses.

5 It is accepted to calculate this indicator based on disposable income, which, however, is also used to determine the value of the other two measures. In order to illustrate the level of energy poverty from a slightly different angle in this case, net income was used for the calculations. The term means all values flowing into the household, excluding advance income tax payments, as well as social security and health insurance contributions.

6 To determine a household's membership in a given decile group, its disposable income was related to the number of persons in the household according to the modified equivalence scale of the Organization for Economic Cooperation and Development (OECD), calculated as follows: 1 - for the first adult in the household, 0.5 - for each additional household member aged 14 and over, 0.3 - for each child under 14.

Survey conducted by Statistics Poland in 2020. The representative sample was 33,410 units.<sup>7</sup> The values of all indicators were adjusted using weights provided by Statistics Poland.

- The second stage of the quantitative study was to estimate the impact of EU ETS 2 implementation on household welfare in Poland. Based on expenditures for individual energy carriers that are currently not covered by the EU ETS, the related carbon dioxide (CO<sub>2</sub>) emissions were calculated. For each carrier, expenditures were divided by its average unit price in 2020 and multiplied by the corresponding emission factor. The prices of carriers and fuels were adopted based on the study "Estimates of Household Energy Consumption Data in 2020", prepared by the Energy Market Agency [pl. Agencja Rynku Energii, ARE) on behalf of the Ministry of Climate and Environment, and emission factors were based on data from the Intergovernmental Panel on Climate Change (IPCC). To calculate the additional expenses resulting from the implementation of the EU ETS 2, it was assumed that all costs associated with the new emission allowances would be fully transferred on to households. The price of allowances was assumed to be EUR 70 per tonne of CO<sub>2</sub>, converted to PLN at the 2020 average annual exchange rate published by the National Bank of Poland (NBP).<sup>8</sup> The share of additional costs resulting from the EU ETS 2 was presented in relation to expenditures, disposable income and net household income, and, as with poverty indicators, by income group, socio-economic group and degree of urbanisation of the place of residence. The calculations were based on the same data set and the same assumptions as in stage one.
- The final stage of the quantitative study was to estimate the impact of the direct aid measures specified in the SCF budget on changes in household welfare. It has been assumed that the new system will become operational in 2027, and consequently Poland will be allocated about EUR 11.4 billion under the SCF. Taking into account the additional 25% own contribution, the estimated total cost of the national Social Climate Plan for 2026-2032 should be around EUR 15.2 billion. However, the share of funds providing temporary direct income support may not exceed 37.5%, i.e. EUR 5.7 billion, which translates into the annual budget for direct support of about EUR 800 million. The results have been presented for household expenditures within three scenarios: 1) without direct aid; 2) dividing the annual support budget among all households, regardless of income; and 3) assuming that only the poorest households, belonging to the first three decile groups in terms of equivalent disposable income, will receive subsidies.

<sup>7</sup> The analysis omitted households for which the value of disposable income was negative, treating disposable income of 0 as correct.

<sup>8</sup> The adopted allowance price exceeds the limit of EUR 45 per tonne of CO<sub>2</sub> set by the ETS Directive revision of 20 April 2023. Maintaining this level, however, will depend on the effectiveness of measures to deal with excessive price increases. The value used in the calculations results indirectly from the Öko-Institut report of 2022: *The Social Climate Fund – Opportunities and Challenges for the buildings sector*.

# 1. Current situation

## 1.1. Current state of legislation within the "Fit for 55" EU package

According to the 2021 regulation on establishing a framework for achieving climate neutrality, the EU's target for reducing net greenhouse gas emissions in the member states by 2030 is at least 55% relative to emissions recorded in 1990, and assumes achieving net climate neutrality by 2050. This means that ultimately the EU has pledged to reduce emissions to a value equal to the amount of CO<sub>2</sub> absorbed both naturally (by soils, forests or oceans) and artificially.<sup>9</sup> Achieving this goal is expected to help limit the increase in global average temperature to 1.5°C relative to pre-industrial levels, which is the threshold recorded in the Paris Agreement and identified by the IPCC as safe in terms of climate change.<sup>10</sup>

*The legislative package "Fit for 55" proposed by the EC will contribute to the implementation of EU obligations.*

The solution is intended to provide a coherent framework for achieving climate goals, ensuring a socially just transition, sustaining or enhancing the innovation and competitiveness of EU industry, and strengthening the EU's position as a leader in the fight against climate change.

The projects included in the "Fit for 55" set are initially presented by the EC and forwarded to the EP and the EU Council in accordance with the EU legislative procedure. During the subsequent readings of each project, the EP and the EU Council review the text and amend it. In order to reach a common position on proposed legislation, it is discussed by working groups responsible for a given policy and ambassadors of EU member states. If no agreement is reached in the second reading, the proposal is

referred to the conciliation committee, whose meetings are also attended by representatives of the EC, in order to work out an agreement and finally adopt new regulations.<sup>11</sup> The "Fit for 55" package covers issues such as the EU ETS, SCF, carbon border adjustment mechanism (CBAM), member states' reduction targets, land use, land-use change, and forestry (LULUCF) greenhouse gas emissions and removals, CO<sub>2</sub> emission standards for cars and vans, methane emission reductions in the energy sector, sustainable aviation fuels, greener fuels in shipping, alternative fuels infrastructure, renewable energy, energy efficiency, energy performance of buildings, the gas and hydrogen package, and energy taxation.<sup>12</sup>

In the first half of 2023, some of the above-mentioned legal acts were approved, which were part of the "Fit for 55" package, such as the revision of the EU ETS, the review of the market stability reserve (MSR), the implementation of an instrument to combat carbon leakage, a joint effort to reduce emissions between EU countries, strengthening regulations to increase CO<sub>2</sub> absorption in the LULUCF sector, a project to guarantee net zero emissions of new cars and vans in the EU from 2035 and changes to emission allowances for aviation.

<sup>9</sup> European Parliament's News, 2023: *What is carbon neutrality and how can it be achieved by 2050?*

<sup>10</sup> IPCC, 2018: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.*

<sup>11</sup> <https://www.consilium.europa.eu/en/council-eu/decision-making/ordinary-legislative-procedure/>

<sup>12</sup> European Parliament's News, 2023: *Green Deal: key to a climate-neutral and sustainable EU.*



**In addition, the EP approved the implementation of the SCF, which will aim to support vulnerable households, small businesses and transportation users who are particularly affected by energy and transport poverty.**

The "Fit for 55" package was presented by the EC on 14 July 2021, and on 18 April 2023, the EP adopted five key legal acts aimed at reducing greenhouse gas emissions in major sectors of the EU economy. Those acts include the revision of the ETS Directive, an amendment to the Regulation on Monitoring, Reporting and Verification of Emissions from Maritime Transport, a revision of the ETS Directive in aviation, a regulation establishing the SCF, and a regulation establishing the CBAM.<sup>13</sup>

## 1.2. EU ETS reform within the European Green Deal

The main goal of the EU ETS, set in 2005, is to reduce CO<sub>2</sub> emissions from industrial sectors. The system obliges over 10,000 power plants and factories located in the EU to purchase an allowance to emit each tonne of CO<sub>2</sub>, the so-called European Union Allowance (EUA).<sup>14</sup> Enterprises purchase them at auctions as part of primary emissions or buybacks from other companies, and each year remit them in numbers equivalent to the previous year's emissions.<sup>15</sup> The system provides a financial incentive for companies to reduce emissions and/or invest in technologies to reduce them, with the market-based nature of the system allowing changes to be made where it is most economically justified. As part of the control mechanism, part of the EUA is held in the MSR reserve, from which it can be released in the event of a price increase that the regulator deems too high. In March 2023, the validity of this mechanism was extended until 2030.<sup>16</sup>

To bring the EU ETS in line with the new CO<sub>2</sub> reduction targets of the European Green Deal, the EP approved an update in December 2022, planning to reduce industrial emissions by 62% by 2030 relative to 2005 levels. The reform includes further reductions in the number of annual allowances available by 2030, increased funding for innovative technologies and energy system modernisation through the Innovation Fund and the Modernisation Fund, phasing out free allowances for industry by 2034 while introducing CBAM, extending the EU ETS to include maritime transport, including emissions from municipal waste combustion facilities from 2024, changes to the ETS for aviation, and creating a separate EU ETS 2 for buildings and road transport.<sup>17</sup>

The new system will start operating at the beginning of 2027, but there is a possibility of postponing its implementation by a year if energy prices are exceptionally high. The obligation to remit allowances will fall on distributors, supplying fuel to buildings and for road transport (and several additional sectors). Under the new system, a price stability mechanism will be set up to ensure that the price of EU ETS 2 allowances does not rise above EUR 45 per tonne of CO<sub>2</sub> - if the average price over two subsequent months exceeds this ceiling, 20 million additional allowances will be placed on the market. Part of the revenues from the new system will be

<sup>13</sup> Council of the EU, press release, 25 April 2023: <https://www.consilium.europa.eu/pl/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets/>

<sup>14</sup> European Parliament's News, 2023: *Reducing carbon emissions: EU targets and policies.*

<sup>15</sup> However, there are exceptions to this rule, and some companies can expect to receive allowances for free. This applies to sectors exposed to so-called carbon leakage. The pool of free allowances will be gradually reduced between 2026 and 2034.

<sup>16</sup> European Parliament's News, 2023: *Climate change: Parliament extends the Market Stability Reserve to 2030.*

<sup>17</sup> European Parliament's News, 2023: *The EU Emissions Trading Scheme (ETS) and its reform in brief.*

allocated to the SCF, which will be tasked with supporting households and businesses affected by energy and transport poverty.

### 1.3. Provisions for the operation of the Social Climate Fund

The entry into force of the obligation to purchase CO<sub>2</sub> emission allowances under the EU ETS 2 will result in an increase in the operating costs of fuel distributors, which is likely to be passed on to the end consumer in the form of higher prices for energy carriers. In order to reduce the social (including distributional) impacts of EU ETS 2 related to increased household expenses on energy and transportation, the SCF was established. Initial political agreement on it was reached by the EU Council and the EP in December 2022, and the new rules were officially adopted a few months later, in April 2023. The maximum amount of the financial allocation per member state under the SCF was calculated based on variables such as the population at risk of poverty living in rural areas, average CO<sub>2</sub> emissions generated from household fuel combustion in 2016-2018, the percentage of households with utility arrears, the total population, gross national income (GNI) per capita as measured by the purchasing power standard, and the share of reference emissions for selected source categories specified in the IPCC guidelines (2016-2018 average).<sup>18</sup> The national financial allocation under the SCF was calculated based on 2019 data. For the implementation of the Fund, a maximum amount of EUR 65 billion has been allocated for the period from 1 January 2026 to 31 December 2032, expressed in current prices. If the EU ETS 2 start date is postponed until 2028, the amount made available to the Fund will be reduced and will amount to EUR 54.6 billion.

**According to the regulation's methodology for determining the maximum financial allocation per member state, Poland will be the largest beneficiary of the SCF. Its share of the total budget is expected to be 17.6%, which amounts to about EUR 9.6 to 11.4 billion, depending on the year of EU ETS 2 implementation.**

**By 30 June 2025, each Member State is obligated to submit to the European Commission a Social Climate Plan containing an investment element promoting long-term solutions reducing the country's dependence on fossil fuels.**

In addition, the Fund assets can be used for temporary solutions, such as direct financial support to mitigate the negative impact of the EU ETS 2 in the short term. In the plans, the efforts should be made to provide households, micro-enterprises and other transport users in a difficult situation with the resources necessary to finance and implement investments in energy efficiency, decarbonisation of heating and cooling as well low-emission vehicles and mobility, including through vouchers, grants or interest-free loans. In addition, it is necessary to mitigate the impact of rising fossil fuel costs among the most disadvantaged, thereby preventing energy and transport poverty in the interim period until the aforementioned investments are made. Member states shall contribute at least 25% of the estimated total cost

<sup>18</sup> The detailed methodology for calculating the maximum financial allocation per member state under the SCF, along with a description of the variables used, is presented in Annex I to the EU Parliament and Council Regulation 2023/955 of 10 May 2023 on the establishment of a Social Climate Fund.

of their plans, and the share of measures providing temporary direct income support shall be no more than 37.5%.

Moreover, the EU EP and Council regulation on the establishment of the SCF includes a definition of energy poverty. This phenomenon is described as a situation in which households do not have access to energy services that are the basis for a decent living and health standards, such as heating or cooling, to ensure adequate temperature, and lighting and energy to power appliances. Determining energy poverty should take into account the national context, existing social policies and other related policies. It was also concluded that the problem is currently one of the significant challenges for the EU. The 2021 EU statistics on income and living conditions (EU-SILC) show that some 34 million Europeans, or nearly 6.9% of the EU population, cannot afford to heat their homes sufficiently.

In addition, the regulation included the first EU definition of transport poverty, which was defined as the inability of persons and households to cover the cost of private or public transportation, the difficulties in this regard, and the lack of or limited access to transportation necessary to use basic socio-economic services and activities, taking into account the national and spatial context. This phenomenon may be caused by factors such as low income, high fuel expenditures or lack of affordable access to private or public transport, which result in reduced access to employment, education or healthcare, particularly among economically disadvantaged household and persons, including those living in rural, peripheral and poorly connected areas.<sup>19</sup>

## 1.4. National context

Although according to the actual individual consumption per capita indicators published by Eurostat (AIC) and gross domestic product per capita (GDP), which are a method of measuring the material well-being of households, the standard of living of Poles is steadily rising, but it is still below the EU average.<sup>20</sup> Recent years have been particularly challenging for both the European and Polish economies due to the aftermath of the COVID-19 pandemic and the war in Ukraine. The first sharp increase in the price of energy carriers occurred in mid-2021, when, following the economic recovery, low production of energy resources could not keep up with rising demand. In February 2022, the European geopolitical situation was significantly destabilised by the outbreak of Russia's unprovoked war against Ukraine. These events affected energy and food markets, driving up fuel prices in the EU and raising concerns about the security of supply of energy resources. In the months that followed, there was an almost complete halt in the supply of natural gas, and later oil, from Russia to European markets. The prices of these raw materials increased to record-breaking levels, which also translated into higher electricity prices. In order to become independent of Russian fuels as quickly as possible, imports of more expensive alternative resources, such as liquefied natural gas (LNG) from the United States and Qatar and natural gas from Norwegian fields, have been increased.

In the wake of the ongoing energy crisis, household energy expenditures in Poland have risen. These events contributed to a sharp increase in the year-on-year inflation rate from 5.1%

<sup>19</sup> EU Parliament and Council Regulation 2023/955 of 10 May 2023 on the establishment of a Social Climate Fund.

<sup>20</sup> Eurostat, 2023: <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230620-2>. In the nomenclature of Statistics Poland, the index of actual individual consumption is referred to as adjusted individual consumption.

in 2021 to 14.4% in 2022.<sup>21</sup> In order to curb the rise in energy prices and minimise the effects of the energy crisis, the Polish government introduced the so-called Anti-inflation Shield in late 2021, reducing the VAT rate on selected energy carriers and basic foodstuffs. In 2022, the scope and duration of aid solutions have been expanded. In addition to fiscal support, the government has also used mechanisms that include direct support, such as a protective allowance with the per capita income criterion, a coal allowance and an allowance for other heat sources. Currently, two forms of support are still in effect in the form of the Government Solidarity Shield [pl. Rządowa Tarcza Solidarnościowa] and the Government Energy Shield [pl. Rządowa Tarcza Energetyczna]. The former freezes the price of electricity for annual consumption to a ceiling of 2,000 kilowatt-hours (kWh), and introduces the possibility of additional bill reductions based on reduced consumption.<sup>22</sup> The latter limits the increase in the price of district heating, freezes the price of natural gas, and allows reimbursement of VAT costs incurred by sensitive natural gas customers.<sup>23</sup>

Due to the energy crisis and the increase in energy prices, the topic of energy poverty has returned to the public debate in Poland.

### There has even been the first legal definition of this phenomenon, introduced in the Act of 17 December 2021 on the protective allowance.<sup>24</sup>

The act defines energy poverty as a situation in which a household cannot provide itself with sufficient heat, cooling and electricity to power appliances and for lighting, as long as the household collectively meets the following conditions: 1) has a low income, 2) has high energy expenses and 3) is located in a premises or building with low energy efficiency. Although the definition adopted is quite general, it gives a framework to the issue of energy poverty in Poland. It is worth noting, however, that prior to its introduction, legislation had already addressed issues relevant to combating this phenomenon, but social-climate policies in this regard have so far been ad hoc, non-strategic and ineffective.<sup>25</sup> In contrast, the concept of transportation poverty is currently not present in Polish legislation, and indicators for measuring it have not yet been defined at the EU level.

The national level of energy poverty reported by Statistics Poland is measured by indicators such as 2M and LIHC, described in more detail in the methodology section of the report and calculated using data from the Household Budget Survey, as well as measures determined based on the EU-SILC survey, such as:<sup>26</sup>

- Thermal (inadequate thermal comfort) - the percentage of households that are unable to maintain the temperature in their premises at a comfortable level; an indicator subjectively determined based on the condition declared by the household;

21 Values published by Statistics Poland in *Communications on the average annual price index for goods and consumer services in total in 2021 and 2022*. For more on the causes of inflation in Poland, see 2022 WiseEuropa report: *Inflacja w czasach kryzysów*. <https://wise-europa.eu/2022/06/13/inflationomics/>.

22 A higher limit – up to 2,600 kWh – applies to persons with disabilities, and up to 3,000 kWh to families with the Big Family Card [pl. Karta Dużej Rodziny] and farmers.

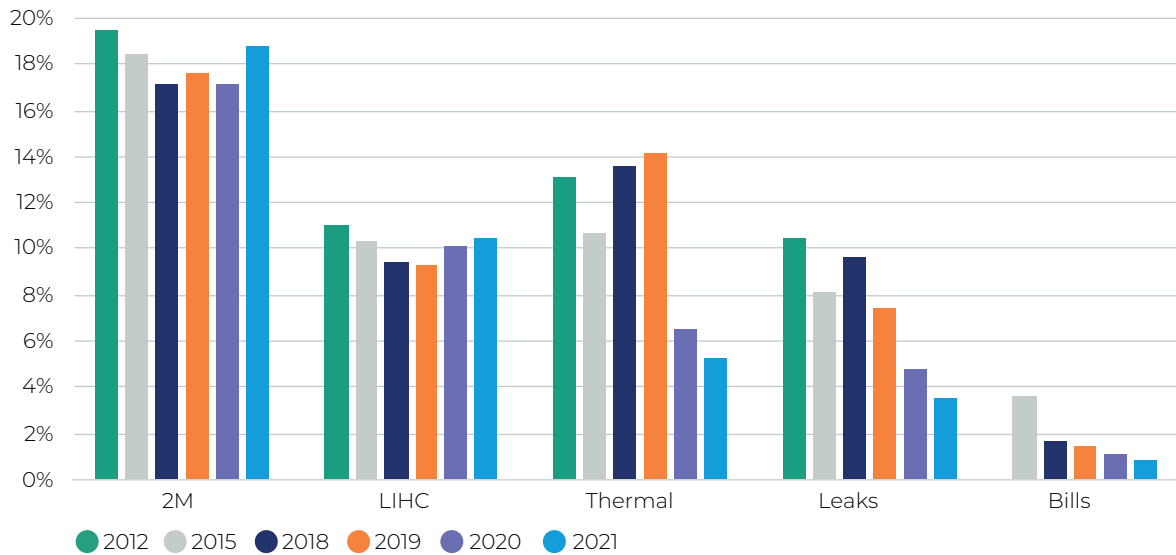
23 For more on the mechanisms used in Poland to support households in dealing with the effects of the energy crisis, see the adelphi report, Öko-Institut, Center for the Study of Democracy (CSD), WiseEuropa, 2022: *Supporting households in the energy price crisis: A comparative analyses of approaches in Germany, Poland and Romania*.

24 Journal of Laws 2022 item 1: <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20220000001>.

25 Jagiellonian Club, 2023: *Jest drogo, będzie drożej? Gospodarne państwo odpowiedzi na ubóstwo energetyczne*.

26 Statistics Poland, 2023: *Household Energy Consumption in 2021*.

- *Leaks* (building condition problems) - the percentage of households located in buildings with leaking roofs, damp walls, floors or foundations, rotting windows or floors;
- *Bills* (ability to pay bills on time) - the percentage of households showing arrears in energy payments.



**Chart 1** Values of selected energy poverty indicators in Poland between 2012 and 2021

Source: Statistics Poland, *Household Energy Consumption in 2021*.

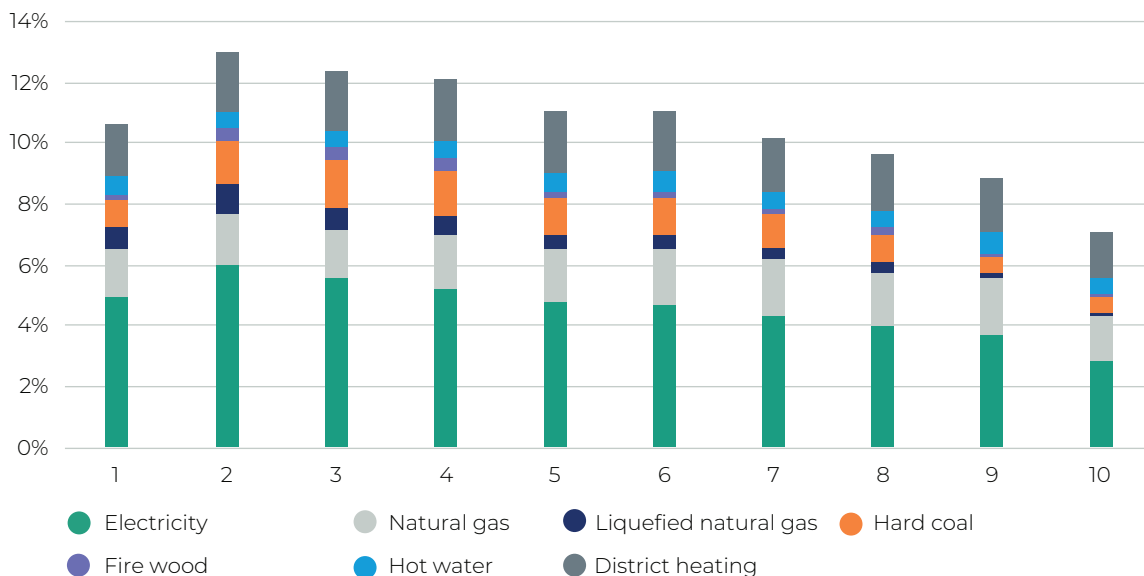
Based on indicators that take into account both income and energy expenditure levels (LIHC and 2M), the share of energy-poor households in 2020 in Poland ranged from 10 to 17%.

The values of the other measures of energy poverty (*Thermal, Leaks and Bills*) were much lower in the same year, ranging from 1% to more than 6%. Significant differences in the values of indicators highlight one of the problems of determining the level of energy poverty, which is the difficulty of choosing an identification criterion that allows precise selection of households affected by this phenomenon, in a difficult situation and in need of assistance. Comparing the values of the various indicators from 2012 to 2020, it can be concluded that the level of energy poverty has decreased during this period. In addition to the general improvement in the material situation of households, the stable situation in the energy market, resulting in relatively stable prices for energy carriers from 2012 to 2020, contributed to this. As a result of the sharp rise in raw material prices, however, the level of energy poverty in Poland, as measured by the LIHC and 2M indicators, increased in 2021, ranging from less than 11% to nearly 19%, despite consistently declining values for the other measures. Given last year's increase in energy prices, the level of energy poverty in 2022 can be expected to have been even higher.

### A) The heating sector:

The energy carriers used for heating purposes by households without access to a district heating network in Poland are mainly hard coal, natural gas and electricity.

The high share of households heating their premises with coal and natural gas poses the risk of a significant increase in energy expenses with the start of the EU ETS 2 due to their high carbon intensity.



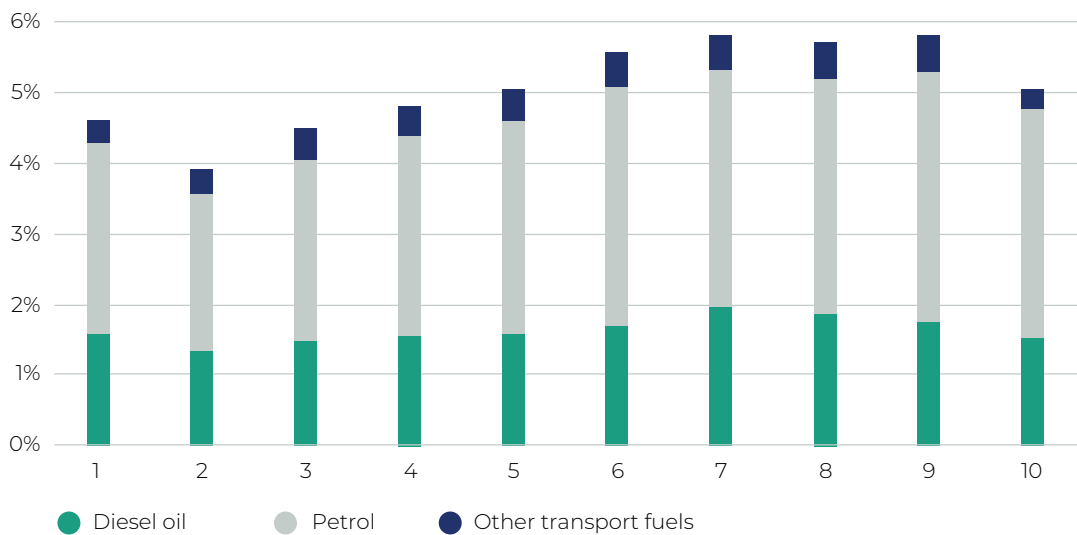
**Chart 2** Share of selected categories of costs for energy purposes with respect to total household expenditures in Poland in 2020 broken down by decile groups of equivalent disposable income

Source: Compiled by authors based on data from 2020 Household Budget Survey

The costs incurred by households for the purchase of energy and fuels for heating purposes account for approximately 10% of their total expenditures. However, these values vary considerably by decile group.

The lowest share of energy costs, at 7%, is found in the wealthiest households (10th decile), and the highest, at 13%, is found in the near-poorest households (2<sup>nd</sup> decile). Electricity accounts for the largest share of household energy expenditures, averaging over 4%. The costs of central heating, natural gas and coal also create a significant financial burden. The share of the latter carrier is highest among poorer households (2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> decile). Due to the high carbon intensity of hard coal, these household may face high additional costs related to the EU ETS 2.

### B) The transport sector:



**Chart 3** Share of selected categories of expenditures for transport purposes with respect to total household expenditures in Poland in 2020 broken down by decile groups of equivalent disposable income

Source: Compiled by authors based on data from 2020 Household Budget Survey

In terms of transportation, the costs incurred by households for the purchase of transportation fuels account for approximately 5% of their total expenditures. However, these values vary by decile group.

The lowest share of motor fuels, below 4%, is found in the near-poorest households (2<sup>nd</sup> decile), and the highest, at almost 6%, is found in the near-wealthiest households (9<sup>th</sup> decile). This means that, contrary to costs for energy purposes, the share of expenses related to transportation fuels increases with household income. The largest component of this burden is petrol, which accounts for about 3% of total expenses.

## 2. Survey results

### 2.1. Qualitative analysis

During consultations held with experts in the fields of energy, environmental protection, construction, transportation and related areas, the most relevant issues concerning the implementation and operation of EU ETS 2 in Poland were discussed. The talks were used to formulate conclusions on key aspects of the new mechanism and its implementation in Poland.

#### 2.1.1. EU ETS 2 for buildings

More than 80% of residential units in Poland are privately owned, and many of them are old and energy inefficient structures.<sup>27</sup> The introduction of EU ETS 2 will especially worsen, at least temporarily, the financial situation of low- and middle-income households. Spreading this process over time, for example by allocating free allowances and reducing their number linearly, would allow such households to gradually adapt to the increased standards by investing in energy efficiency and changing or diversifying their heat sources. However, such a solution was not provided for in the adopted EU legislation. This means that low-income, and to some extent the middle-low, households will certainly need direct support aimed at softening the impact of the new mechanism on their welfare, particularly in the first years of operation of the new system. The poorest groups will be most affected. Particular attention should be paid to the social groups which are most exposed to the risk of energy poverty such as seniors who live in houses or apartments that are inadequate in terms of square footage for their needs, and are energy inefficient.

**The use of ad hoc financial aid, while temporarily improving the overall situation of the poor, may lock them into a trap of excessive energy consumption if not accompanied by long-term measures.**

Economic hardship, often coupled with energy poverty, sometimes results from helplessness or insufficient knowledge. It would therefore be adequate to appoint energy assistants, for example, at the Municipal Social Security Centres (pl. Gminne Ośrodki Pomocy Społecznej, GOPS), who would carry out local activities to reduce energy consumption.<sup>28</sup> Assistance directed through energy assistants would include behavioural and educational actions, including training in the area of energy conservation combined with incentives for participation, as well as diagnosis of the household's energy status and support in applying for a grant or loan.<sup>29</sup> The subsidies would include appliances with higher energy grade, lighting replacement, thermal upgrades and heat source replacement.

<sup>27</sup> *Długoterminowa strategia renowacji budynków*, Warsaw, February 2022: <https://www.gov.pl/web/rozwoj-technologie/dlugoterminowa-strategia-renowacji-budynkow>.

<sup>28</sup> Energy counselling is not a new idea. It is promoted and implemented, for example, by the National Fund for Environmental Protection and Water Management, but the assistance offered should be more applicable to energy-poor households.

<sup>29</sup> A form of incentive to participate in energy-saving training could be parallel events, for example, for families with children or seniors, offering additional activities or competitions.



## 2.1.2. EU ETS 2 for transport

The average age of a car in Poland was about 14 years in 2020, and the vast majority of newly registered vehicles were used cars. The situation has not improved recently, and in 2021 the value has increased to 14.5 years.<sup>30</sup> Apart from the so-called archival vehicles, at the end of 2022, the number of cars registered in Poland was less than 19.7 million, of which only about 62,000<sup>31</sup> were electric cars.

### The advanced age of vehicles and the preponderance of cars with internal combustion engines will translate into a significant impact of EU ETS 2 on drivers.

Those most adversely affected by the new emission tax rules will be the economically weakest groups, driving the oldest cars and with limited replacement options. They will need subsidies or financial incentives to purchase low- and zero-emission cars, but reducing the average emissions of vehicles will be a much longer process and will also require infrastructure development. Local authorities should temporarily create privileges for electric and hydrogen cars, and then gradually phase them out as the technology becomes more widespread. Supporting green mobility, however, will not help the poorest who, despite subsidies, will not be able to afford to buy low-emission vehicles. In addition to direct financial assistance, the SCF funds and revenues from the sale of new emission allowances should be used to enable local governments to develop public transportation, including increased bus and train service, as well as investments in replacing their fleets with electric or hydrogen-powered vehicles and hybrids. Moreover, assets from the Fund should be used to subsidise public transportation tickets, covering the cost of their purchase in part or in full, depending on the financial situation of the household. This would provide an incentive to reduce the use of cars in favour of public transportation.

## 2.1.3. Use of SCF funds

Although the social costs resulting from the introduction of EU ETS 2 in Poland in the first years of the system's operation are unlikely to be eliminated in their entirety, the SCF should be able to significantly mitigate its negative effects.<sup>32</sup> Financial support should be directed in a way that maximises positive environmental impact for as many qualified stakeholders as possible. However, it is important to plan the redistribution of income so that direct aid goes to those who need it most.

30 Based on data from reports by the European Automobile Manufacturers' Association (ACEA) on the condition of cars in use in Europe: *Vehicles in use, Europe 2022 and Vehicles in use, Europe 2023*. The SAMAR Automotive Market Research Institute estimates the average age of cars in Poland in 2022 at nearly 16 years.

31 Based on data from the Central Register of Vehicles and Drivers (CEPiK) and the Polish Automotive Industry Association (PZPM). The term "archival vehicle" means a car existing in CEPiK databases, but realistically unused, not deregistered, non-cancelled, for which more than 10 years have elapsed since the date of first registration in Poland, but in 6 or more years no update message has been received from registration authorities.

32 This statement was verified in the further part of the study regarding the quantitative analysis in subsection entitled *Badanie wpływu wsparcia bezpośredniego z SCF na łagodzenie skutków EU ETS 2*.

## Supporting all households with subsidies will not solve the cause of the problem, which is high CO<sub>2</sub> emissions resulting from the structure of the energy carriers used.

Support for other social categories should be based on subsidising efforts to decarbonise households by improving energy efficiency and reducing consumption of fossil fuels such as coal, oil and natural gas. This implies the need to strengthen initiatives that promote and support the thermal modernisation of buildings and the replacement of heating sources and cars with low- or zero-emission ones. Assistance aimed at a wider audience could also include various forms of tax reductions, such as reliefs, deductions or exemptions. For other types of protective support, the application of an income criterion is key.

In the effective spending of the Fund's assets, the involvement of both central and local authorities will play an important role. The role of central authorities in this regard will be to develop appropriate legal conditions, control the legitimacy of funded initiatives and progress in their implementation. Local authorities should entirely take over the protective tasks aimed at reducing the regressive effects of the EU ETS 2 among the most needy households, as they are able to identify them more effectively.

By 30 June 2025, Poland should submit to the EC a Social Climate Plan containing a coherent set of existing or new national measures and investments to mitigate the impact of new greenhouse gas emission fees among vulnerable households, micro-enterprises and transport users. The plan will take into account national and, where appropriate, local and regional measures and investments aimed at renovating buildings and decarbonising their heating and cooling, including integrating renewable energy generation and storage, and increasing the use of zero- and low-carbon modes of transportation. Planned milestones, estimated costs and a timetable for implementation of activities to be completed by 31 July 2032 will be specified.<sup>33</sup>

The Social Climate Plan will require public consultation with local and regional authorities, representatives of economic and social associations, civil society organisations and other stakeholders. In order for future consultations to be substantive and constructive, it is crucial that the topic of EU ETS 2 and the SCF enter the public debate as early as possible. By raising citizens' awareness, the chances to be better prepared for the upcoming changes increase. This way, also public opinion will be focused on the transparency of the spending of funds - a key aspect of the future operation of the SCF, also in the context of insufficient transparency in the spending of funds from the current ETS in Poland.

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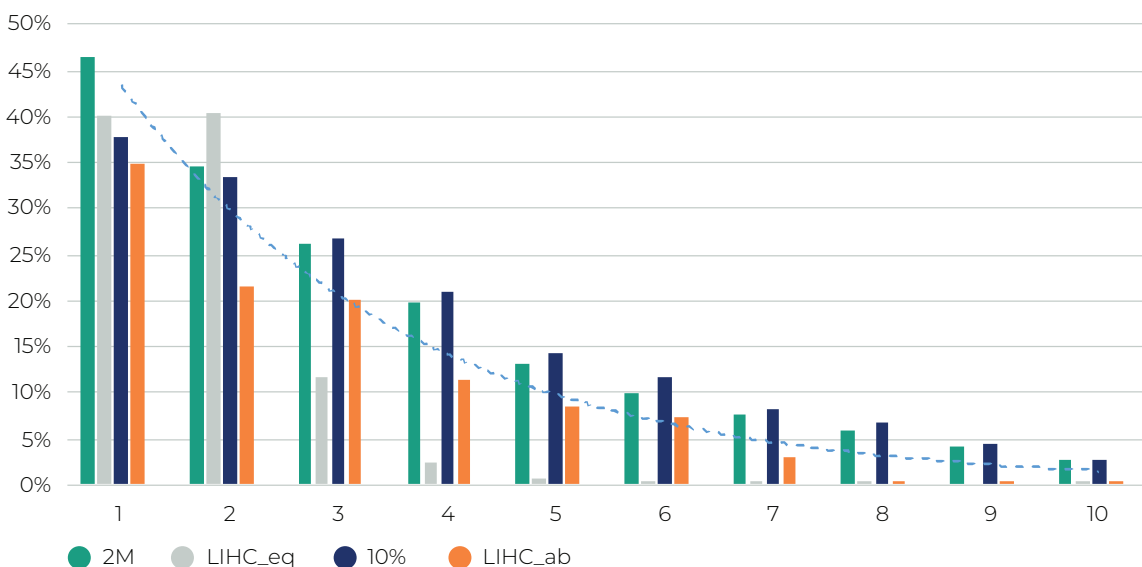
<sup>33</sup> For more on possible activities and investments to be financed under the SCF budget, see the adelphi report, Öko-Institut, CSD, WiseEuropa, 2023: *Putting the ETS 2 and Social Climate Fund to Work*.

## 2.2. Quantitative analysis

In order to verify the assumptions of the qualitative analysis regarding the groups of consumers (most) exposed to the negative effects of the introduction of the EU ETS 2 and requiring (most) support, the values of selected indicators of energy and transport poverty among households with specific characteristics were compared with each other. In addition, the approximate effects of the new system on the welfare of households in Poland and the impact of direct support on their mitigation are estimated.

### 2.2.1. Identification of households at risk of energy poverty

To better illustrate the phenomenon of energy poverty, the values of selected indicators for decile groups determined on the basis of equivalent household disposable income are presented below. The LIHC measure is presented in two variants, calculated based on the equivalent (LIHC\_eq) and absolute (LIHC\_ab) amounts of expenditure and income.

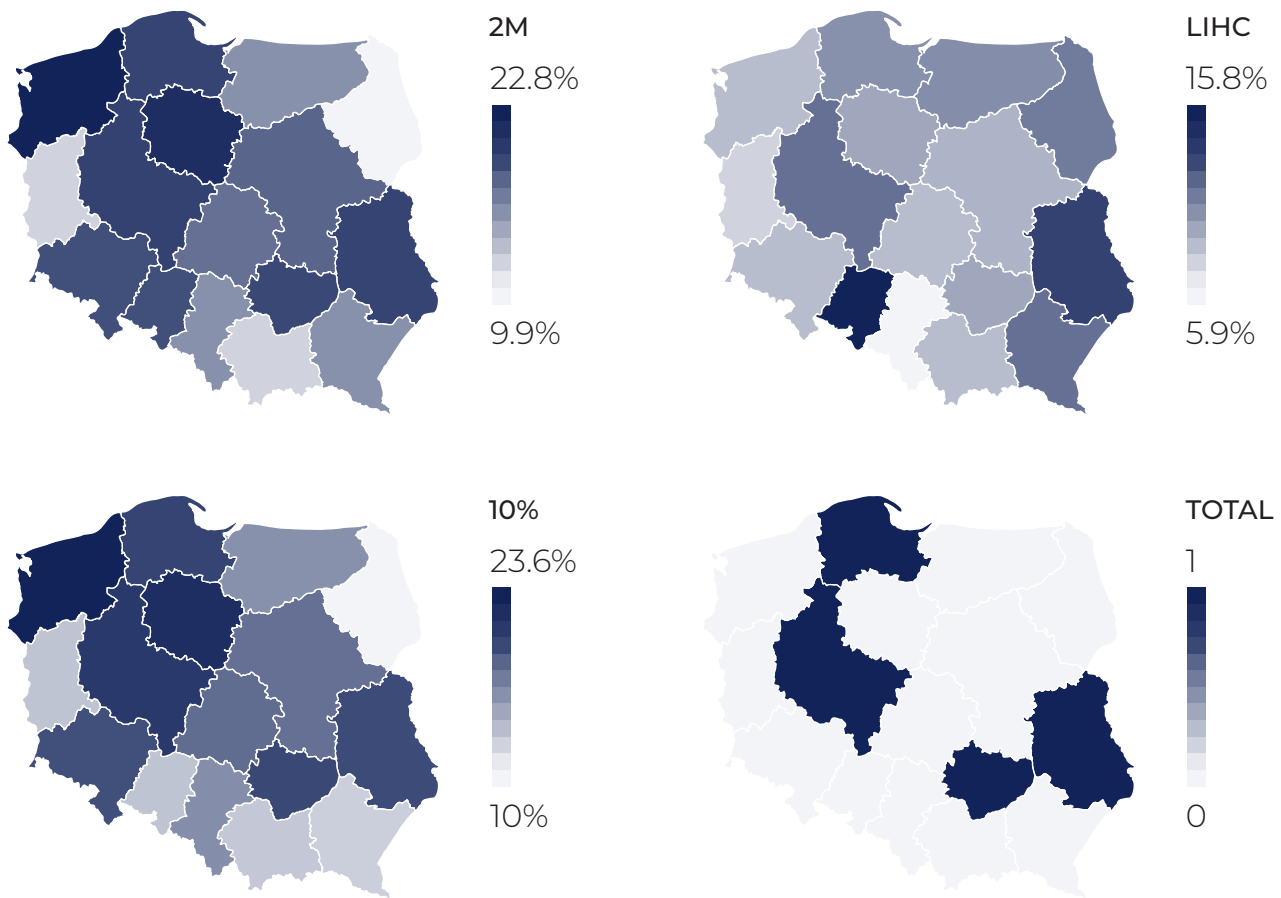


**Chart 4 Values of energy poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by decile groups of equivalent disposable income**

Source: Compiled by authors based on data from 2020 Household Budget Survey

Based on the results, it can be concluded that regardless of the measurement method used, the highest levels of energy poverty are found in households in the lowest decile groups, particularly the 1st and 2nd, where the percentage of energy-poor households for most measures ranges from 30 to over 40%. As income increases, the level of energy poverty decreases, particularly for LIHC.

Apart from the income aspect, other factors, including place of residence, can also affect the level of energy poverty. Below are the values of the indicators for households in each voivodeship. In addition to using the previously discussed measures, voivodeships for which the values of all three energy poverty indicators exceed the national average (TOTAL) were also specified.



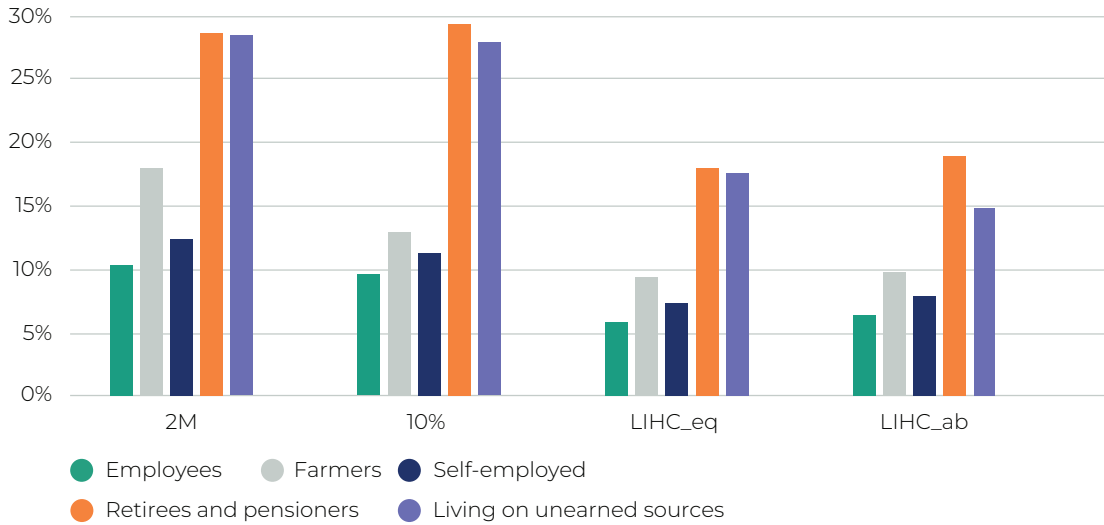
**Chart 5 Values of energy poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by voivodeships**

Source: Compiled by authors based on data from 2020 Household Budget Survey

The highest percentage of energy-poor households determined based on the 2M and 10% indicators is located in the Greater Poland, Kuyavian-Pomeranian and West Pomeranian voivodeships (from 21% to over 23%), while based on the LIHC indicator - in the Greater Poland, Lublin and Opole voivodeships (from 13% to almost 16%). Only in four voivodeships (Lublin, Pomeranian, Świętokrzyskie and Greater Poland) the values of all indicators are higher than their national averages.

Another criterion for dividing households is socioeconomic class. Here, the categories include employees, farmers, sole proprietors, retirees, pensioners and those living on unearned sources, for whom the sole or predominant source of livelihood is unemployment benefits, cash and non-cash benefits provided under the Social Assist Welfare Act, cash housing allowances, family allowances including supplements, alimony, donations, income from property and rental income from real estate<sup>34</sup>.

<sup>34</sup> Socioeconomic class categories were adopted according to Statistics Poland terminology used in the 2020 Household Budget Survey.

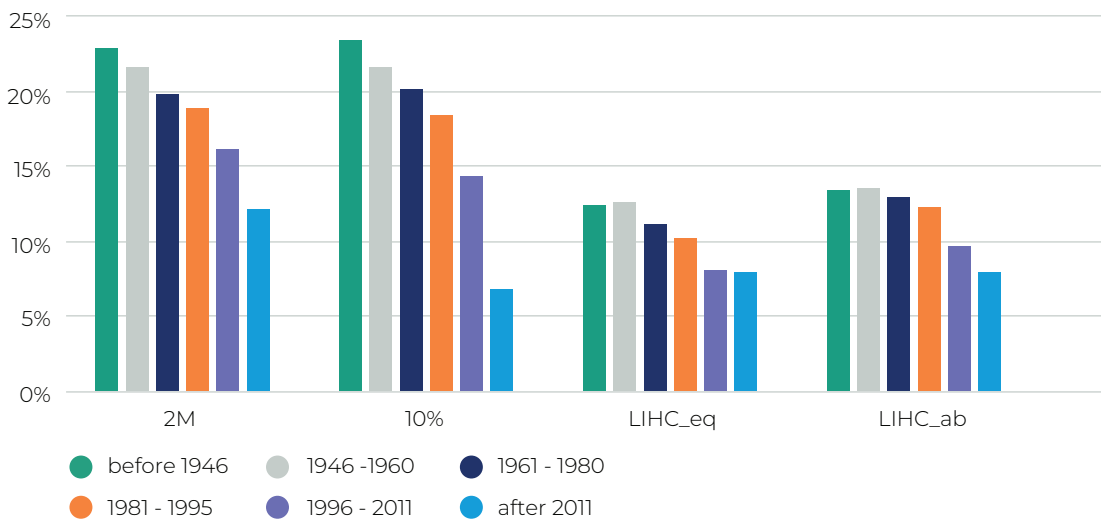


**Chart 6** Values of energy poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by socioeconomic groups

Source: Compiled by authors based on data from 2020 Household Budget Survey

The highest values of energy poverty rates were recorded among retirees and pensioners (from 18% to about 30%), persons living on unearned sources (from 15% to 28%) and farmers (from 10% to 18%).

In addition to the area of residence and socioeconomic characteristics, the level of energy poverty also depends on housing conditions, such as the technical condition of the building. The date of housing construction is used to approximate this parameter.



**Chart 7** Values of energy poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by the date of construction of the building

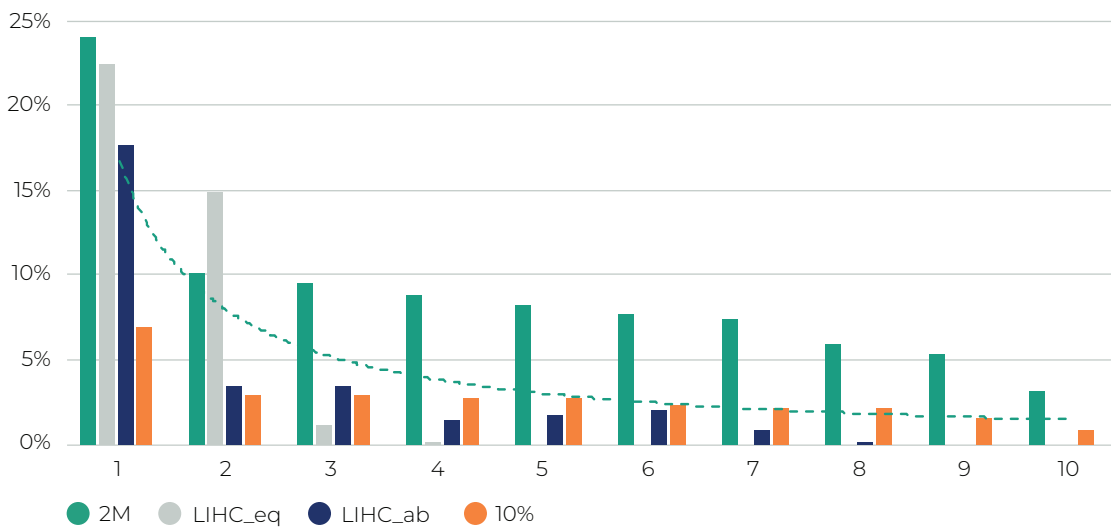
Source: Compiled by authors based on data from 2020 Household Budget Survey

For all measures used in the study, the level of energy poverty increases with the age of the building.

This is particularly evident in the case of the 10% indicator, for which values range from about 6% for housing built after 2011 to more than 20% for pre-1946 housing.

### 2.2.2. Identification of households at risk of transport poverty

Due to the lack of an official definition of transport poverty and indicators to determine its level, measures analogous to those for energy poverty were used to identify households exposed to this phenomenon, according to the methodology described in the introduction.

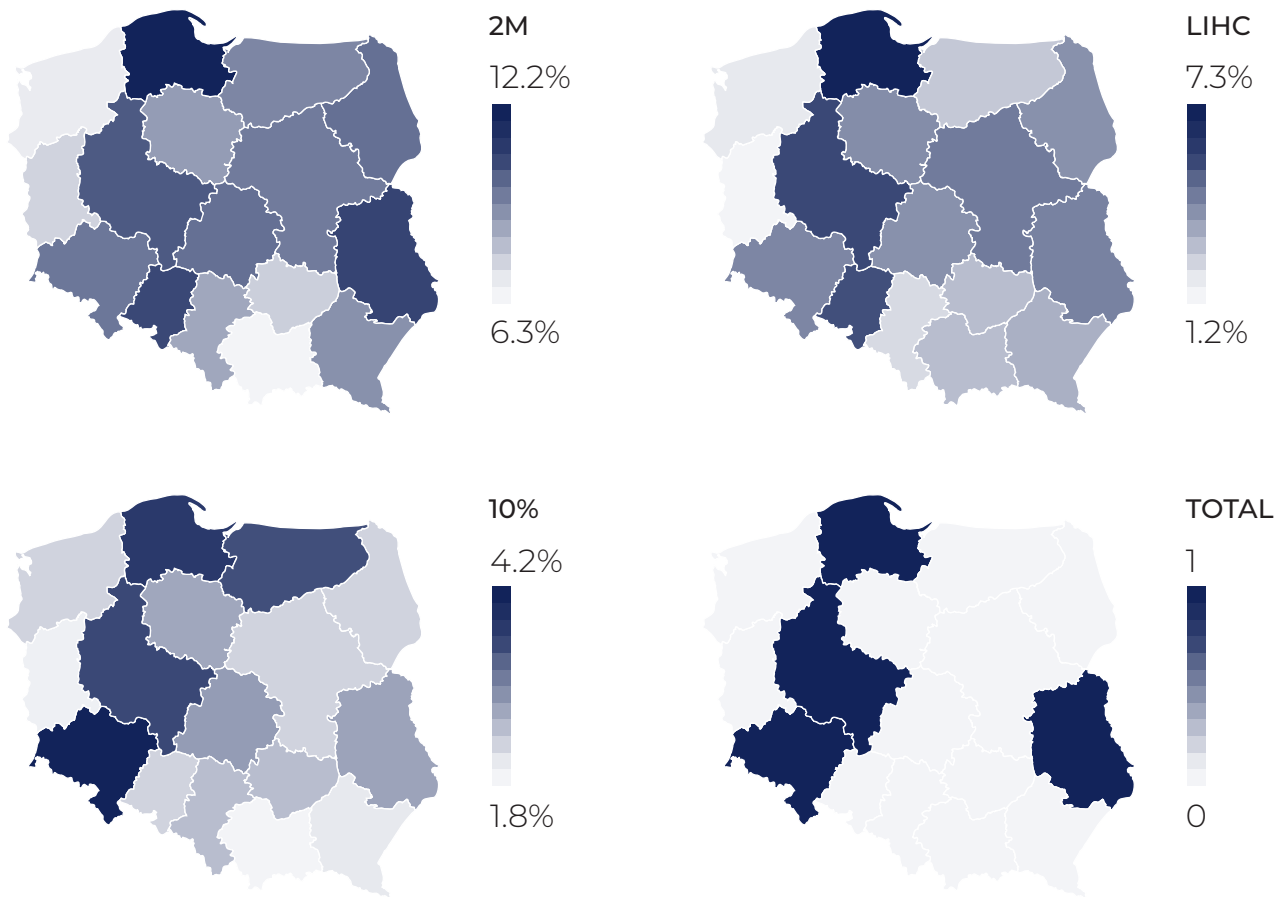


**Chart 8 Values of transport poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by decile groups of equivalent disposable income**

Source: Compiled by authors based on data from 2020 Household Budget Survey

The highest percentage of households affected by transport poverty is recorded in the lowest decile groups, particularly the 1st and 2nd deciles. Depending on the indicator adopted, the figure ranges from a few to more than 20% for the 1st decile group and about 15% for the 2nd decile group. While these figures are lower than those for energy poverty, they are still high, especially given the smaller total number of households affected by transport expenses.

As with energy poverty, in addition to the income aspect, the level of transport poverty can be influenced by the location of the household. Below are the values of the indicators in each voivodeship and identified areas for which the levels of all three energy poverty indicators exceed the national average.

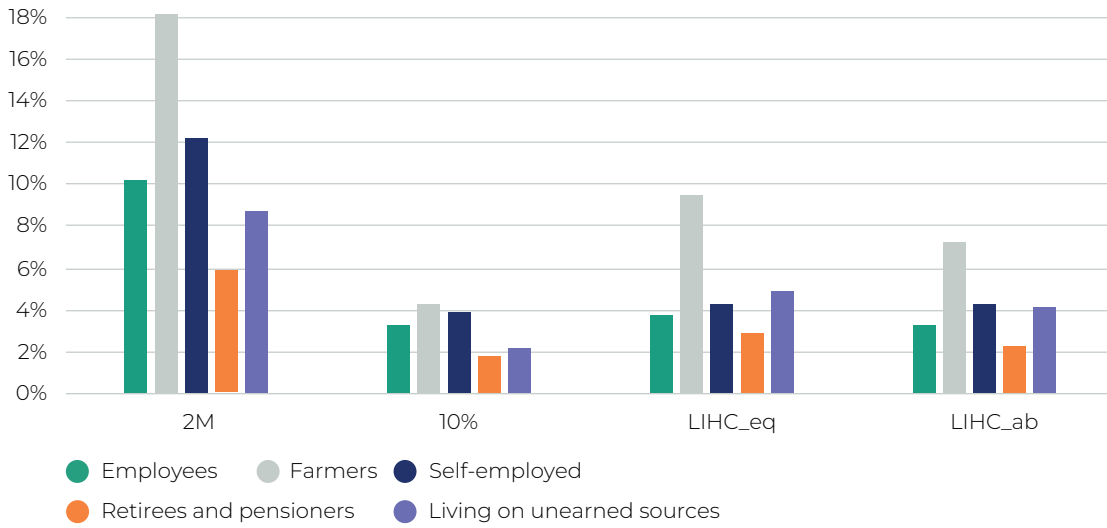


**Chart 9** Values of transport poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by voivodeships

Source: Compiled by authors based on data from 2020 Household Budget Survey

The highest percentage of transport-poor households determined based on the 2M indicator is located in the Greater Poland, Opole and Pomeranian voivodeships (from 11% to 12%), while based on the LIHC indicator - in the Greater Poland, Pomeranian and Opole voivodeships (from 6% to 7%), on 10% indicator - in Greater Poland, Pomeranian and Lower Silesian voivodeships (from 3% to 4%). Only in four voivodeships (Lower Silesian, Lublin, Pomeranian, and Greater Poland) the values of all indicators are higher than their national averages. In addition, three voivodeships (Lublin, Pomerania and Greater Poland ) were simultaneously included in analogous rankings for transport and energy poverty.

Further criteria for dividing households include socioeconomic class, similar to the determination of energy poverty indicators, as well as the urbanisation level of the place of residence, which can determine access to public transportation or the need for a private car.

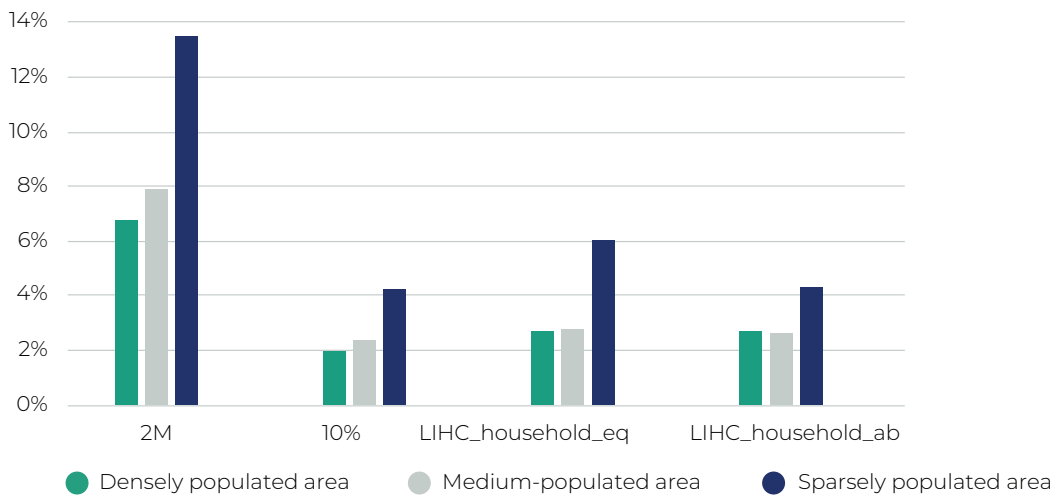


**Chart 10** Values of transport poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by socioeconomic groups

Source: Compiled by authors based on data from 2020 Household Budget Survey

The highest share of households affected by transport poverty is recorded among farmers, the self-employed and those living on unearned sources.

Depending on the indicator adopted, the level of transport poverty among farmers ranges from 4% to over 18%. The lowest share of households in transport poverty is among retirees and pensioners.



**Chart 11** Values of transport poverty indicators 2M, LIHC and 10% in Polish households in 2020 broken down by population density of the area of residence

Source: Compiled by authors based on data from 2020 Household Budget Survey

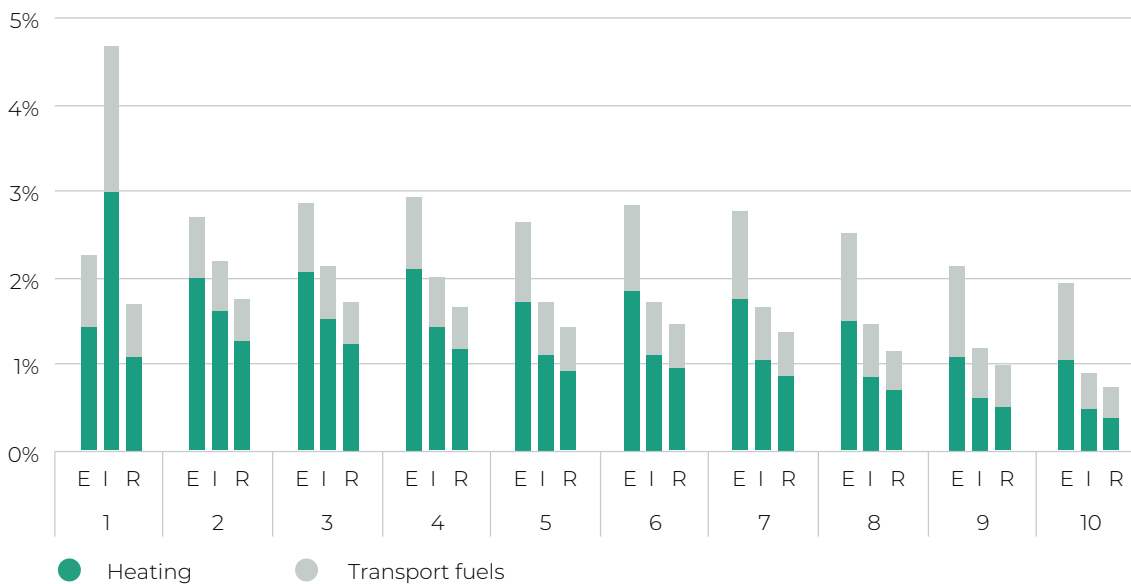


Based on indicators determined by the population density of the area where a household is located, it can be concluded that by far the most vulnerable to transport poverty are rural residents.

This corresponds to the previously demonstrated high level of transport poverty among farmers.

### 2.2.3. Study of the impact of EU ETS 2 on household welfare

To assess the impact of EU ETS 2 on household welfare, the volume of emissions per consumption of individual energy carriers was estimated.<sup>35</sup> The additional cost resulting from the EU ETS 2 was calculated by taking the price of new emission allowances at EUR 70 per tonne and then related to total expenses, disposable income and net household income.



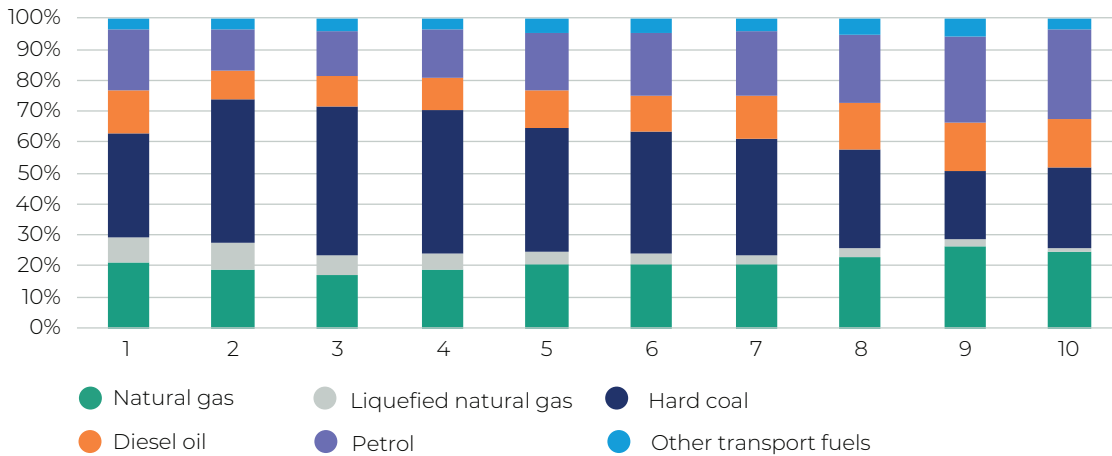
**Chart 12** Share of additional costs of heating and transportation fuels resulting from EU ETS 2 in expenditures (E), disposable income (I) and net revenue (R) of Polish households in 2020 broken down by decile groups of equivalent disposable income

Source: Compiled by authors based on data from 2020 Household Budget Survey

Depending on the chosen parameter (expenditure, disposal income, net revenue) and under assumption that no dedicated aid is provided, the introduction of the EU ETS 2 will be associated with a decrease in household welfare of about 1.2-2.5%. For households in the lower decile groups, this effect will be mainly due to higher heating expenses. The high share of EU ETS 2 costs in disposable income in the first decile group is due to the treatment of income values equal to 0 as correct and their inclusion in the analysis.

<sup>35</sup> A decline in household welfare is meant as a loss of financial resources in terms of total expenses or income.

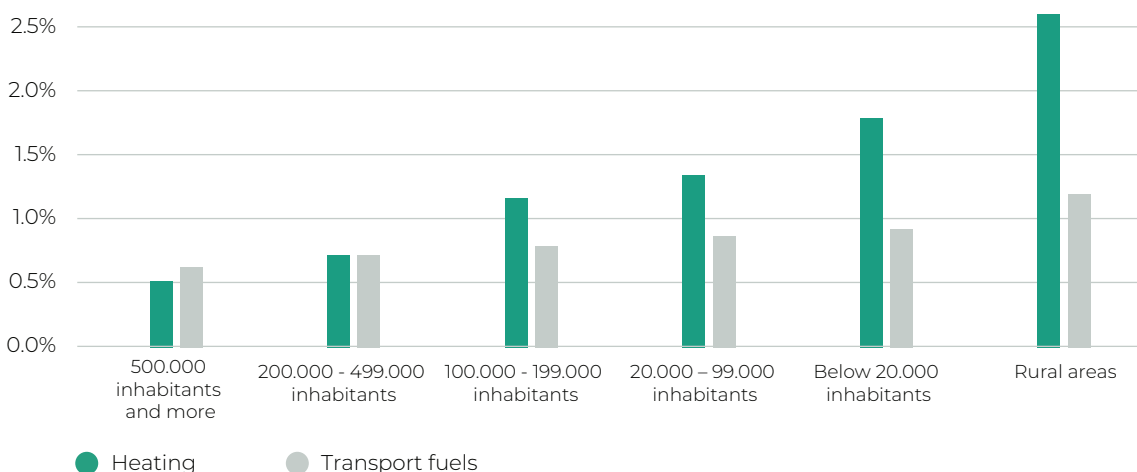
To find out the reason for the decline in welfare in various decile groups of households, the following presents the structure of the additional costs resulting from the implementation of the EU ETS 2 broken down by fuels.



**Chart 13** Structure of additional costs resulting from EU ETS 2 implementation in Poland broken down by selected fuels in individual decile groups of equivalent disposable income

Source: Compiled by authors based on data from 2020 Household Budget Survey

Among poorer households, the additional costs associated with EU ETS 2 are primarily due to CO<sub>2</sub> emissions from hard coal combustion - nearly 50% in deciles 2-4. For wealthier households, particularly the 9th-10th decile, the additional costs come mainly from the combustion of motor fuels such as petrol and diesel. Heating expenditures cannot be significantly reduced without thermal efficiency improvement or changing the heating source, and it takes time and financial resources to make these investments. This means that poor households, which are particularly vulnerable to the negative effects of the EU ETS 2, may initially require direct support to mitigate the sharp increase in the price of energy carriers.



**Chart 14** Share of additional costs of heating and transportation fuels resulting from EU ETS 2 in expenditures of Polish households in 2020 depending on the size of municipality

Source: Compiled by authors based on data from 2020 Household Budget Survey

The additional expenses associated with EU ETS 2 will be felt most by residents of rural areas and smaller towns, for whom the decrease in welfare could range from about 3% to more than 3.5%. This effect is largely due to the lack of district heating networks in rural areas and, to a lesser extent, to the increased consumption of transportation fuels.



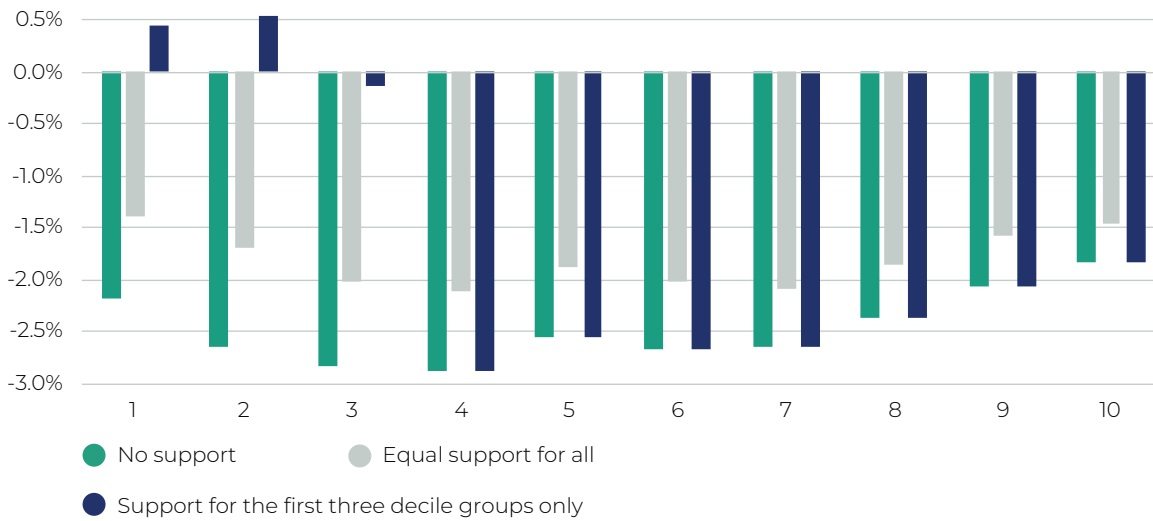
**Chart 15 Share of additional costs of heating and transportation fuels resulting from EU ETS 2 in expenditures of Polish households in 2020 broken down by socioeconomic groups**

Source: Compiled by authors based on data from 2020 Household Budget Survey

With regard to socioeconomic groups, EU ETS 2 will have the greatest impact on farmers, retirees and pensioners. In the case of the first category, this is related to both heating expenses and a relatively large increase in transportation costs. The significant decline in welfare among retirees and pensioners is primarily the result of additional heating costs.

#### 2.2.4. Study on impact of direct SCF support on mitigation of EU ETS 2 effects

Assuming that EU ETS 2 comes into force at the beginning of 2027, Poland will be allocated about EUR 11.4 billion under the SCF. Taking into account the additional 25% own contribution, the estimated total cost of the national Social Climate Plan for 2026-2032 should be around EUR 15.2 billion. However, the share of costs of measure providing temporary direct income support may not exceed 37.5% of them, i.e. EUR 5.7 billion. This translates into the annual budget for direct support of about EUR 800 million. The following presents the impact of allocating these funds to mitigate the decline in welfare resulting from the increase in the price of energy carriers after the implementation of the EU ETS 2 in Poland, under three scenarios - no support, equal support for all, support only for households belonging to the first three decile groups.



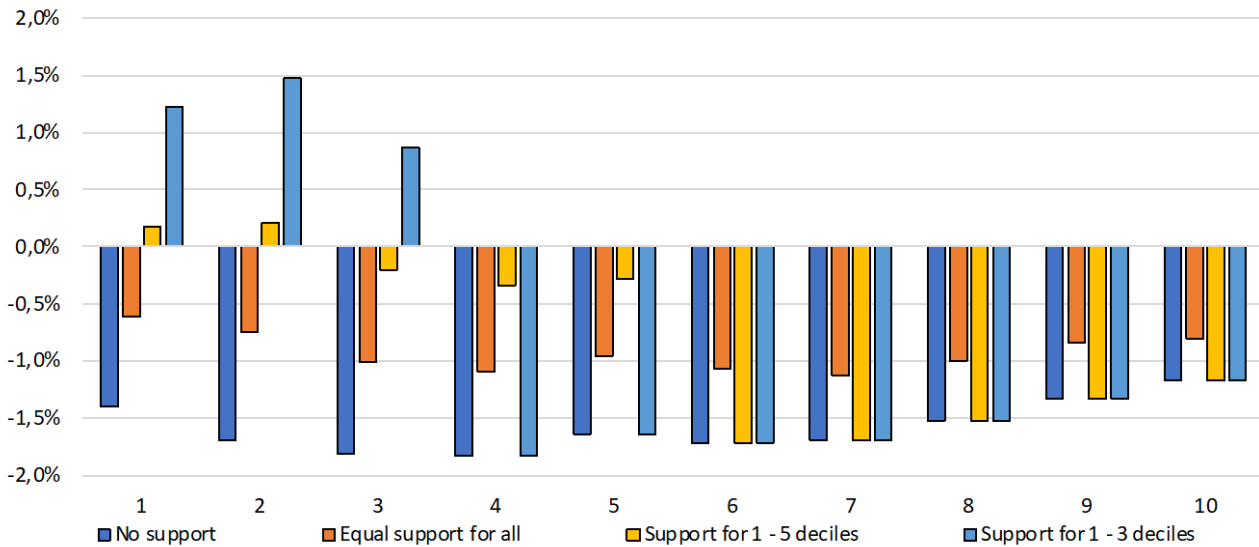
**Chart 16** Estimated changes in household welfare in Poland resulting from the entry of EU ETS 2 into force in three scenarios - no support, equal support for all, support for the first three decile groups - broken down by decile groups of equivalent disposable income with assumed price of allowance at the level of EUR 70

Source: Compiled by authors based on data from 2020 Budget Household Survey and EU Parliament and Council Regulation 2023/955 of 10 May 2023 on the establishment of a Social Climate Fund.

Based on the results, it can be concluded that the allocation of funds for direct support would not be sufficient to completely offset the impact of EU ETS 2 on the decline in household welfare in Poland. However, providing the aid to the first three deciles can completely address the welfare concerns in the first two deciles, which include the most vulnerable households, and significantly soften the impact of introducing the EU ETS2 for the households classified to the third decile. This is due to the limited funding for the purpose of softening the impact of new mechanism, and can be justified in the view of ensuring that these funds are used to protect the most vulnerable groups.

**If the funds from the national Social Climate Plan intended for direct support were spent only on aid targeted at the poorest, their situation would improve despite the introduction of the new system.**

It should also be borne in mind that in addition to direct support, the SCF primarily provides for the financing of investments aimed at reducing emissions, which is responsible for the presented decline in welfare. This means that by enabling the transition away from the more polluting fuels for heating & transportation, the overall impact of the planned SCF funds can shield the society from the potential welfare lost among the households by improving the thermal efficiency of buildings, replacing heating sources and developing public transport infrastructure. In addition, the values presented were calculated for relatively high CO2 price of EUR 70 per tonne. The new system implies the introduction of a price stability mechanism designed to keep the price of EU ETS 2 allowances at up to EUR 45 per tonne. In that case, the current allocation of direct support funds would be sufficient to offset the decline in welfare among the first five decile groups of households (see graph below).



**Chart 16** Estimated changes in household welfare in Poland resulting from the entry of EU ETS 2 into force in four scenarios - no support, equal support for all, support for the first five and equal support for the first three decile groups - broken down by decile groups of equivalent disposable income with assumed price of allowance at the level of EUR 45

### 2.3. Interpretation of results

The qualitative and quantitative study made it possible to achieve objectives described in the introduction to the report, such as characterising the phenomenon of energy and transport poverty in Poland, identifying groups of households most vulnerable to the negative effects of the EU ETS 2, and providing recommendations for the most efficient distribution of the SCF funds.

Based on the calculated indicators of energy poverty, it can be concluded that the most vulnerable households are those in the first three decile groups.

**However, this does not mean that energy poverty coincides with economic poverty. The issues are interrelated, and the lower-income the household, the greater the risk of being exposed to the energy poverty, but the problem also affects middle-income households and, in the case of the 2M and 10% indicators, to a small extent even those in the highest decile groups.**

It was also found that energy poverty is more common in Lublin, Pomerania, Świętokrzyskie and Greater Poland voivodeships. In addition, the value of the indicator of average monthly disposable income per person in the household in all of them was lower than the national average. Looking at households in the context of belonging to a particular socioeconomic group, the phenomenon of energy poverty is most common among retirees, pensioners, those living on unearned sources, and farmers. For the first two categories, this is primarily due to low income. This means that although energy expenditures in these groups are not high, their share in income is higher than the national average. The incidence of energy poverty is also influenced by the condition of the building occupied by the household, in the survey roughly reflected by the date of its construction. Based on the results, it can be concluded

that the older the building, the greater the risk of energy poverty. This indicates one of the key directions for future SCF spending in Poland is thermal efficiency improvement and renovation of inefficient buildings.

As part of the quantitative study, the values of transport poverty indicators were calculated, analogous to those used for energy poverty. Based on these, it can be concluded that transport poverty in Poland primarily affects the poorest households belonging to the first two decile groups. In addition, the highest percentage of the transport-poor is found in the Lower Silesian, Lublin, Pomeranian and Greater Poland voivodeships. Three of them also appear in the ranking for energy poverty. Additionally, farmers and persons living in sparsely populated areas are most vulnerable.

**Although the quantitative results obtained, and thus the identification of groups of transport-poor households on the basis of the methods used to study energy poverty, coincide with the opinions of experts, obtained during qualitative research, the use of these indicators alone in the analysis of transport poverty seems insufficient.**

They do not take into account one of the key aspects of the definition of this phenomenon, which is the lack of or limited access to transportation necessary for basic socio-economic services and activities, taking into account the national and spatial context. This means that the application of energy poverty identification methods to the identification of transport poverty only indicates factors that may contribute to the occurrence of this phenomenon, without depicting the real scale of the problem.

While the phenomenon of energy poverty is a well-known and defined issue in Poland, implicitly present in legislation and included in selected forms of support aimed at households, transport poverty is a new, still unexplored problem. More commonly used terms, but with slightly different meanings, are transport-related social exclusion or transport exclusion. The EU's definition of transport poverty is related not only to the lack of or limited access to transportation necessary for basic socio-economic services and activities, but also to the inability or difficulty of persons and households to cover transportation costs.

**To study and measure the level of this phenomenon, it is necessary to develop appropriate methods and indicators.**

One of the main ways identified to reduce transport poverty in Poland is to develop public transportation services, aiming to increase the number and frequency of available bus and train routes. Moreover, the SCF funds could be used in part to subsidise tickets for such transportation services, particularly among poorer households. Reducing the carbon footprint of cars, on the other hand, will be a much longer process, requiring investment of resources not only in subsidies or financial incentives for the purchase of low- and zero-emission vehicles, but also the development of appropriate infrastructure. However, this will not help the poorest households, as, despite subsidies, they will not be able to afford to buy such cars. This means that after the introduction of the EU ETS 2 in Poland, they may require direct support. It applies especially to residents of rural areas and small towns, for whom the car is often the only available means of transportation to access basic services and socio-economic activities.

Depending on the criterion adopted, household welfare in Poland without taking into account direct support from the SCF will decline by an average of about 1.2-2.5% as a result of the introduction of the EU ETS 2.

**The most vulnerable to the negative effects of the new system are low- and middle-income households, residents of rural areas and smaller towns, farmers, retirees and pensioners.**

These groups overlap with the previously identified factors affecting the incidence of energy and transport poverty. This is due to both the lower income levels in these households and the structure and quantity of energy carriers and motor fuels used. Among poor households, the additional costs associated with EU ETS 2 are primarily due to the consumption of hard coal, and among wealthier households - from the combustion of transport fuels.

**Based on the results obtained, it can be concluded that the allocation of funds for direct support should be sufficient to offset the impact of EU ETS 2 on the decline in the welfare of households in Poland belonging to the first three or five decile groups, depending on the adopted maximum allowance price for emissions, respectively EUR 70 or EUR 45 per tonne of CO<sub>2</sub>.**

This means that direct financial support should be directed only to a select group of households, primarily those with low incomes. The majority of the SCF funds must be allocated to CO<sub>2</sub> reduction measures, contributing in the subsequent years of the EU ETS 2 operation to reducing the resulting additional costs on average across all decile groups of households. Actions are necessary not only to reduce energy consumption, but also to reduce the amount of fossil fuels used, especially hard coal, the price of which will increase the most due to its high emission intensity. However, for effective use of SCF funds, not only investment plans and programmes offering subsidies are needed, but also citizen awareness and appropriate administrative solutions to properly distribute these funds to households. Information on the possibility of obtaining support from SCF-funded initiatives should be widely available, and the application procedure itself should not be too complicated. To this end, the cooperation between central and local government representatives is essential. The role of the former should be to work out the appropriate legal conditions for obtaining funds from new or existing programmes, while the latter would be responsible for identifying households that fit the specific type of support offered, helping them to obtain it.

# Summary

## Challenges and opportunities related to EU ETS 2

- The entry into force of the new emissions trading system, which includes buildings and road transport, is a not-so-distant vision of the future. The legislative package establishing it has already been passed, which means that the coming years should be spent preparing for the coming changes. To this end, both the challenges and opportunities related to them should be recognised.

### One of the main challenges of implementing the EU ETS 2 in Poland pointed out by experts are socio-economic issues.

- Based on the analysis, it can be concluded that these are legitimate concerns. The new system will be a considerable financial burden, particularly for less affluent households. This is primarily related to the structure of the fuels used, in which hard coal still accounts for a significant share, as well as the energy and transport poverty that occurs in Poland. Given that only a part of SCF funds can be used for direct aid, it should be directed to those who need it most. Identifying such households, particularly those affected by transport poverty, can be difficult because methods and indicators for measuring this phenomenon are lacking. Social issues and challenges related to the implementation of EU ETS 2 in Poland also include political dilemma of introducing regulations affecting the social welfare of the society, in particular of its most vulnerable groups. This is due, on the one hand, to an awareness that the new regulations may increase the cost of living, and on the other hand, to a lack of understanding of the costs of “no actions”.
- In order for the new system to work as intended and effectively meet its stated goals, its implementation and operation will require significant administrative and human resources. The funds obtained by the state from the SCF and new emission trading require proper management. This means subsidising existing programmes and creating new ones that, on the one hand, will support households most vulnerable to the negative effects of the EU ETS 2, and on the other, reduce the consumption of fossil fuels that are responsible for these effects.

### For this purpose, human capital, organisational and technical preparation, as well as the cooperation of central and local government representatives are essential.

- Although the EU ETS2 legislation has already been adopted, there are still some implementation issues that could be considered problematic. Such issues include decision on which market level (i.e. on wholesalers or retailers) introduction of the new obligation will be most effective in terms of achieving the objective of the EU legislation. Other implementation issue is the need for closing potential loopholes caused by the exclusion of agricultural fuels from the EU ETS 2. Despite the price stabilisation mechanisms, that will kick in if the price of allowances in the ETS 2 raises above 45 EUR, there is a significant risk that the new system will impose an excessive burden on citizens, which will have to be addressed by the national governments, without additional funding from the EU.



- The preparation of a national Social Climate Plan, which should be submitted to the European Commission by 30 June 2025, can be described as both a challenge and an opportunity. Poland will be the biggest beneficiary of the SCF with its 17.6% share of the total budget, which amounts to about EUR 11.4 to 9.6 billion, depending on the year of EU ETS 2 implementation. These funds can be used to carry out building renovations, investments to decarbonise heating, such as replacing high-carbon boilers, developing renewable energy generation and storage, and increasing the use of zero- and low-carbon modes of transportation. In particular, in the long term, this represents an opportunity to improve the quality of life in Poland, on the one hand, because of clean air, and on the other, ultimately lower energy expenses.

**The Social Climate Plan will require public consultation with local and regional authorities, representatives of economic and social partners, relevant civil society organisations and other stakeholders.**

- This means that the topic of EU ETS 2 and SCF will soon become more prominent in the public debate. This should translate into increased awareness and citizen involvement in activities to prepare for the coming changes.
- In addition to the SCF funds, income from the new emission trading will also go to the state budget. It will be used in part to contribute to the total cost of the national Social Climate Plan. The remaining funds can be used for further investments aimed at reducing fossil fuel consumption in households, increasing the energy efficiency of buildings, or developing public transportation infrastructure, improving air quality and reducing transport-related exclusion.

## Key observations and resulting recommendations

- The qualitative and quantitative study made it possible to develop general recommendations for a Social Climate Plan, the preparation of which should now be one of the priorities of Poland's climate and energy policy.
  - 1. It is essential to identify the households most vulnerable to the negative effects of the EU ETS 2.**
- Although the implementation of the new system is still a few years away, work should already be underway on methods to identify households most vulnerable to increases in the cost of energy carriers and motor fuels caused by the implementation of the EU ETS 2 in Poland. Energy poverty indicators are a very good starting point for this, but first, there is a lack of methods for determining transport poverty, and second, support may also be required for households not currently affected by this phenomenon. In the future, it is essential to define clear criteria that will help select those to whom assistance must be directed first.

**2. Direct assistance from the SCF should be provided to a narrow group of households.**

- As the quantitative analysis has shown, the SCF funds to be spent on direct support may not be enough to significantly offset the effects of EU ETS 2 on all households. Moreover, this is not the purpose of the Fund. For the new system to serve its purpose, it must first and foremost motivate investment in heating replacement, energy efficiency and low-carbon transportation, reducing household dependence on fossil fuels. Depending on the adopted maximum price of new emission allowances, the allocation of SCF funds for direct support should be sufficient to protect the poorest households in the first three or first five decile groups in terms of equivalent disposable income from increased heating and transportation costs during the initial period of the EU ETS 2.

**3. Spending of SCF funds must be targeted and transparent.**

- Considering the principles of the currently existing programmes in Poland to support households in the energy transition, and learning from their mistakes, the new mechanisms should focus not on the implementation of the investment itself, but on the achievement of its intended effects. Subsidies should be targeted to the right groups of customers and allocated to investments with the highest potential to reduce the fossil fuel consumption in households. Moreover, it is crucial to establish an efficient controlling mechanism to ensure that funds are used for their purpose. In this context, it is also important to ensure that funds are earmarked and that investments benefiting from the support can be easily identified.

**4. Efforts should be made to simplify the procedures for applying for funds from new and existing subsidy programmes.**

- One of the main difficulties among poorer households, indicated by experts, is the correct completion of the procedure for joining support programmes. This is due to a misunderstanding of the complex applications and organisational problems. The energy assistants mentioned earlier could be helpful in this regard. It is crucial, however, to make the application process as uncomplicated as possible despite such solutions.

**5. Consultation of the Social Climate Plan should be carried out as soon as possible and with the widest possible range of stakeholders.**

- In order to optimally plan the use of SCF funds, the process of determining the key directions and solutions requiring funding should be carried out meticulously and include the participation of a diverse and knowledgeable group of experts, representatives of local authorities, economic and social partners, civil society organisations and all other stakeholders. Good practice in this regard is to be found in the 2021 public consultation of the National Recovery Plan (NRP).

**6. Long-term solutions should be promoted most strongly.**

- While social benefits and temporary financial direct support are able to provide ad hoc assistance to households vulnerable to energy and transport poverty, they do not address the causes of these problems. Targeted systemic measures are needed to promote the renovation of buildings, access to renewable energy and the reduction of transportation emissions, as well as education and outreach programmes to raise citizens' awareness of energy transition issues.



**7. Awareness and public involvement should be increased, with the goal of best preparing citizens for the coming changes.**

- The adoption of legislation establishing a new emission trading system covering buildings and road transport has become a reality. Although there is still some time left to prepare for the new regulations, it should be used appropriately. Increasing the level of knowledge among Poles about the challenges posed by EU ETS 2 and the opportunities associated with the SCF is an important issue. However, it should be done with diligence and substance, omitting emotions and political games.

# Annex

## Consultation questionnaire on EU ETS 2 and carbon taxation mechanisms

Taxes and allowance costs imposed on CO<sub>2</sub> emissions can be useful instruments for financing "green" projects, supporting decarbonisation programs and implementing environmental policies. In the context of the EU's "Fit for 55" package, which aims to reduce greenhouse gas emissions by 55% by 2030, there is an important discussion regarding CO<sub>2</sub> pricing mechanisms for decarbonising the road transport and building sectors, as well as the appropriate use of the EU Social Climate Fund.

The consultation to which you have been invited takes place in the broad context outlined above. The following set of questions addresses future CO<sub>2</sub> pricing strategies for buildings and transportation, the feasibility of their implementation, and the potential socio-economic challenges they pose.

Your contribution will be used only in aggregate form, without mentioning your name and the name of your organisation (unless you wish to do so). The collected responses will be used to develop recommendations on socially just ways to implement ETS 2 in Poland. The relevant scenarios will then be consulted among experts and presented in the form of a report. The consultation, to which you are hereby cordially invited, will be held this autumn (the exact date and formula will be announced in advance).

### A. The general context of ETS 2

- Looking at CO<sub>2</sub> taxation mechanisms such as the ETS from a broader perspective, what do you see as their most important positive effects? Do they entail adverse effects, and if so, what are they?
- What are the most important solutions that will help the EU achieve the climate goal included in the "Fit for 55" package, i.e. reducing CO<sub>2</sub> emissions by at least 55% by 2030?
- One of the tenets of the "Fit for 55" package is to extend CO<sub>2</sub> emission certification schemes to the road transport and building sectors. What are the most important related issues currently being discussed in Poland?
- One of the tenets of the European Green Deal is the just transition from the carbon-intensive economy to a green economy. How should CO<sub>2</sub> certification systems for transport and buildings be introduced with this tenet in mind?
- Emission taxation mechanisms in the above sectors can lead to worsening social inequalities and increasing poverty rates. What social solutions should EU member states put in place to avoid an increase in energy poverty rates?
- The EU plans to establish a Social Climate Fund to counteract the negative social impacts of ETS 2. Poland is expected to be the biggest beneficiary of the Fund. How can we use it to avoid increasing energy poverty rates and support environmental strategies?

- Do you expect the assets available under the Social Climate Fund to be spent purposefully and transparently? What institutional mechanisms might be advisable? What does the experience of spending ETS auction revenues teach us?

## **B. ETS 2 for buildings in Poland**

- More than 80% of residential units in Poland are privately owned, and many of them are old and energy inefficient structures. Many owners have low and average incomes. What impact could ETS 2 have on this situation?
- Which social groups in Poland are most likely to be adversely affected by the introduction of ETS 2?
- More than 10% of Poles are among the energy poor (based on the LHC index, low income - high energy expenditure). What mechanisms to protect these persons should be implemented with ETS 2?
- Studies show that a large proportion of households most at risk of energy poverty have high energy consumption as a result of low energy efficiency of buildings or, for financial reasons, they use too little energy in relation to their needs. ETS 2 means additional costs for these households. What mechanisms and measures should be introduced to protect them?
- How to use the Social Climate Fund to reduce the adverse effects of ETS 2 in the building area?
- Poland was the largest beneficiary of EU funds under the 2014-2020 Multiannual Financial Framework, receiving nearly EUR 80 billion from the cohesion policy fund. Only 2.8% of the funds obtained (about EUR 2.2 billion) were planned to be spent on energy efficiency in buildings, compared to the EU average of 3.9%. Of the additional EUR 27 billion received from International Financial Institutions (IFIs) such as the European Bank for Reconstruction and Development, the European Investment Bank and the World Bank, only 1.3% went to building renovations. Should we allocate higher funds to this purpose and what should be changed to make better use of them within the framework of European funds, especially from the Social Climate Fund?

## **C. Implementing ETS 2 for transportation in Poland**

- Based on the Central Register of Vehicles, the average age of a car in Poland was over 14 years in 2020, and the vast majority of newly registered vehicles were used cars. What could be the impact of ETS 2 on the transport sector in Poland?
- In your opinion, which social groups are most likely to be adversely affected by the introduction of new emission taxation rules?
- What measures can be taken to reduce these effects?
- Assuming that the adverse effects will affect the owners of the most polluting old cars the most, how should central and local governments respond?
- Could promoting green mobility at the local level be a way to reduce these impacts? What message should local authorities address to residents?
- What funding sources should be used to improve and promote sustainable mobility, such as rail and public transportation?

#### D. Changes at the strategic level

- How should we implement new emissions trading schemes in the areas of buildings and transportation to achieve actual emission reductions without negative social impacts?
- In the context of ETS 2, there is much talk about income redistribution. It involves allocating funds obtained from the sale of allowances to support households affected by increases in energy prices. How to do it efficiently and in a sustainable way? What tax solutions can be applied?
- What alternatives can be offered to consumers at risk of energy poverty so that they can become independent from high-emission fuels?
- In your opinion, do the currently existing financial support mechanisms sufficiently address energy poverty? If not, can the Social Climate Fund solve the problem?
- What role can local/central governments play in mitigating the regressive effects of an expanded ETS?
- Effective in Poland since 2022, the Protective Allowance Act defines energy poverty as a situation in which a household is unable to afford sufficient heating, cooling, lighting and electricity to power appliances, as a result of a combination of low income, high energy expenses and low energy efficiency. How can ETS2 impact this group? How to counteract its negative effects?
- Europe is experiencing an unprecedented energy crisis, exacerbated by the war in Ukraine. What impact does this situation have on the feasibility of the "Fit for 55" package? Is it still possible to implement ETS 2, and if so, how?

#### List of questions asked at the Focus Group

- Which energy poverty indicators (e.g., 2M - double median, LIHC - low income, high cost) should absolutely be taken into account when shaping intervention criteria, and which are auxiliary?
- What social policy instruments are appropriate to protect households from the risk of energy poverty in the short term (e.g. direct subsidies, tax reliefs, others)? What should be the criteria for support?
- What social policy instruments are appropriate to protect households from the risk of energy poverty in the long term – by supporting the use of low-carbon technologies (e.g., direct subsidies, tax reliefs, others) and by promoting energy-efficient attitudes? What should be the criteria for support?
- How should public policy balance short-term measures related to household liquidity and long-term measures related to technological modernisation and behavioural change?
- Which areas and activities should be a priority for public policy? Can either of the sectors analysed (construction or transportation) or any of the energy carriers used by households be identified as a priority?
- Should the intervention be universal, and to what extent should it be selective, targeting specific groups of energy consumers?

- In terms of targeted support - which demographic groups (e.g., by income, place of residence, age, gender, other) should be prioritised for intervention? What groups can be included conditionally?
- Given the EU's Social Climate Fund project and past experience with state disposition of ETS auction proceeds - what should be the institutional framework for the intervention, including its monitoring and ex-post evaluation, to ensure transparency and value for money spent?

## Policy Lab event agenda

### Discussion starter question (card sorting method)

On cards, each participant writes down three example answers to the following questions: What are the good/bad things about the implementation of ETS 2 in Poland? Then, the participants sitting next to each other, form pairs and, out of all their answers, decide together which two (for each question) are of the greatest importance. Based on the collected answers, we determine the issues for further discussion, i.e. opportunities and threats related to the new system.

Presentation of the recommendations obtained from the interviews and focus group, broken down into:

- energy poverty mitigation;
- optimal use of the funds obtained;
- administrative and regulatory issues, including transparency in the spending of funds.

### Discussion in the World Café formula

Participants are divided into four groups. Each of them is tasked with creating their own recommendations for one of the four categories mentioned above - these may be completely new ideas or modifications of the recommendations previously presented by us. After a specified period (15-20 minutes), the categories are swapped cyclically until each group has had a chance to discuss each of them. Groups receiving a new category do not start from scratch, but with what from where the previous group finished (there should be a person at each table to write down the group's recommendations).

After the initial category is returned to each group, the participants will have a moment to review the current content of the recommendations in order to present the results to everyone gathered. After the presentation of recommendations for each category, participants will be asked to individually assign weights from 1 (lowest priority) to 5 (highest priority) to each recommendation to determine what actions should be implemented in the short or long term.

The discussion should end with a question to the participants about their thoughts and conclusions that emerged during the discussion of each group. At this time, based on the weights assigned by participants, group moderators will sort the recommendations into categories according to the sum of the assigned weights.

## Discussion on the implementation of and evaluation of priority recommendations

Questions addressed to all participants:

- How to start the process of implementing the selected measures and what is required (what data, calculations, surveys) to justify the advisability of the recommendations?
- What should the procedure for creating new regulations involve and who should participate in it (stakeholder identification)?
- How should regulations be implemented (risk identification)?
- How should the effectiveness of implemented measures be verified (identification of evaluation measures)?





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## WiseEuropa Foundation

WiseEuropa is an independent think-tank specialising in macroeconomics, as well as economic, European and foreign politics.

WiseEuropa's mission is to improve the quality of national and European politics and the economic environment by basing them on sound economic and institutional analysis, independent research and assessment of the political impact on the economy. The Institute engages citizens, entrepreneurs, experts and public policy makers from Poland and abroad in a joint reflection on the modernisation of Poland and Europe and their role in the world. WiseEuropa's goal is to work for an active and committed role for Poland in the open, sustainable, democratic development of Europe. WiseEuropa's core activities focus on stimulating and inspiring public debate on the future of Poland and Europe.

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On 16 March 2023, at the Polish Climate Congress, the WiseEuropa Foundation was awarded the title of Energy Transition Leader 2023. The competition jury included representatives of the Polish Climate Congress, the Polish National Energy Conservation Agency and the Industrial Development Agency.



With the Energy and Climate Program, WiseEuropa analyses the processes of deep economic change necessary to combat climate change and ensure the long-term energy security of Poland and Europe. Using the extensive knowledge and experience of experts, we examine and also try to recommend (e.g. to policymakers) actions and measures to support the transition in the energy sector, so as to minimise its negative effects, protecting both citizens and the competitiveness of the Polish economy.

*We recommend the following publications:*

*SHAPING THE SUSTAINABLE FUTURE. POLAND'S HEAVY INDUSTRY DECARBONISATION POLICY AND FINANCING ROADMAP, K.Laskowski, M.Giers, Warsaw 2023*

*Activity Review 2022, M.Olczyk, Warsaw 2023*

*SUMMARY OF CCS4CEE PROJECT. Poland, K.Laskowski, Warsaw 2023*

ISBN 978-83-67829-19-9

This report was produced under the project "Facilitating Socially Just Carbon Pricing in Central and Eastern Europe", a part of the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The opinions put forward in this policy report are the sole responsibility of the author(s) and do not necessarily reflect the views of the Federal Ministry for Economic Affairs and Climate Action (BMWK).

Supported by:



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by the German Bundestag