



# The cost of carbon-free buildings and transport

A proposal for a socially just energy transition mechanism in the EU

Forum Energii is a think tank operating in the field of energy. Our mission is to lay the foundations for an efficient, safe, clean and innovative energy sector based on data and analysis.

All Forum Energii analyses are provided free of charge and may be reproduced provided the source and authors are acknowledged.

#### AUTHORS

Dr Joanna Maćkowiak-Pandera

Dr Sonia Buchholtz

Tobiasz Adamczewski

#### IN COOPERATION WITH

Michał Borkowski

Piotr Kleinschmidt

#### GRAPHIC DESIGN

Karol Koszniec

#### PHOTO

shutterstock.com

#### PUBLICATION DATE

June 2021

## TABLE OF CONTENTS

|   |    |
|---|----|
| Preface (dr Joanna Maćkowiak-Pandera)   |    |
| 1. Key conclusions  | 3  |
| 2. Context  | 3  |
| 3. Diagnosis  | 4  |
| 4. How should the CO <sub>2</sub> pricing mechanism work?                         | 6  |
| 4.1. Purpose of the scheme  | 6  |
| 4.2. System properties  | 6  |
| 4.3. Policy challenges  | 7  |
| 5. Emission cost estimates for buildings and transport                            | 8  |
| 6. CO <sub>2</sub> pricing mechanisms<br>– proposals from the European Commission | 9  |
| 7. CO <sub>2</sub> pricing mechanisms<br>– proposals from Forum Energii           | 10 |
| 7.1. A new carbon allowance trading mechanism (CATM)                              | 10 |
| 7.2. CO <sub>2</sub> charge   | 10 |
| 8. Redistribution mechanism   | 11 |
| 8.1. Why redistribute?  | 11 |
| 8.2. How to redistribute?   | 11 |
| 9. Regulation of energy poverty   | 12 |
| 10 Summary  | 12 |

## Preface

Work on the European Green Deal is accelerating. The discussion on actions around the *Fit for 55* package has begun. One of its central elements is the introduction of carbon pricing in new sectors, as announced by the European Commission. We are therefore facing an important discussion about reducing emissions from transport and buildings.

It will be an uncomfortable debate for Poland, but a very necessary one. Over three decades, there has been no progress in reducing emissions in these areas. The combination of a lack of a decarbonisation strategy and political compromises over many years is a major contributor to this state of affairs. Catching up could prove costly for poorer households, putting a strain on public acceptance of the transition. But action must be taken not only for climate reasons but also for the necessary modernisation of ageing infrastructure.

Without reducing emissions from buildings and transport, the 2030 reduction target is out of reach for Poland. At the same time, given the lack of action in the past, it will be easy for Poland to achieve large emission reductions. However, this requires determination to change and a fair distribution of costs in society.

One key element is carbon pricing, which internalises the costs of pollution and creates incentives for investment in clean technologies. In this report, we propose how to introduce this mechanism, taking into account the characteristics of the sectors concerned. The right decisions taken today will improve the quality of life of Poles (clean air, comfort of heating and transport), while becoming an investment stimulus for the economy and an important contribution to climate neutrality.

I invite you to the discussion.

Yours sincerely,

**Dr Joanna Maćkowiak-Pandera**  
CEO Forum Energii

## 1. Key conclusions

- Correct investment signals are needed to support the reduction of greenhouse gas emissions from buildings and transport. In other words, the investor must have an incentive (not only ideological but also financial) to use clean technologies.
- Obsolete technologies used in transport and heating of buildings generate enormous external costs. These include costs associated with air pollution and climate change. These costs are passed on to society as a whole, irrespective of who uses clean technologies and how much they pay for it.
- The introduction of emission charges in new sectors (buildings and transport) is necessary to level the playing field and make clean technologies more attractive and to accelerate the reduction of emissions in these sectors.
- We propose two options for introducing the pricing of CO<sub>2</sub> emissions for buildings and transport:
  - A market-based system with a price corridor—CATM (*Climate Allowance Trading Mechanism*)— should have a separate pool for emissions from buildings and transport due to the different costs of CO<sub>2</sub> emissions.
  - A CO<sub>2</sub> charge introduced by Member States individually according to EU rules.
- The price of CO<sub>2</sub>, whatever the mechanism, must be increased gradually in order to avoid a sharp rise in heating and transport costs. It is important to design the corridor of the CO<sub>2</sub> price increase in such a way as to gradually strengthen the investment incentive.
- 100% of the revenues from the sale of emission allowances and the carbon fee be allocated to low-carbon transition and social support. It is important to level the playing field for citizens with different income levels to participate in the energy transition.
- The European Commission should prepare regulations that will stimulate the Member States to deal with issues of energy poverty in a systemic way. It is necessary to define it (including the supply of heat and electricity) to introduce constant monitoring and to persuade Member States to provide thoughtful and effective assistance.

3

## 2. Context

In December 2020 the EU adopted a target to reduce greenhouse gas emissions by 55% by 2030 compared to 1990. Soon, the Member States will start negotiations on the *Fit For 55* legislative package as part of the work of the European Council, the European Commission, and the European Parliament. These are 12 pieces of legislation (directives and regulations) to be adopted over the next two years with the aim of achieving the European Union's 55% emissions reduction target. One of the most important and comprehensive legislative processes within the package will be the reform of the Emissions Trading System (EU ETS) and accompanying policies. It will include reform of the ETS Directive, the introduction of a CO<sub>2</sub> levy on goods imported into the EU (CBAM—*Carbon Border Adjustment Mechanism*) and the introduction of carbon pricing of CO<sub>2</sub> emissions in buildings and transport.

Poland should reduce its own emissions by 44-51%<sup>1</sup> by 2030. Meanwhile, to date, CO<sub>2</sub> emissions from buildings have stagnated and from transport have significantly increased, with the result that air pollution is very high. At the same time, in view of its lagging effort, Poland will find it easier than other EU countries to achieve large reductions in emissions. By moving away from coal, more emissions can be reduced than by moving away from gas alone. From this perspective, Poland will be the beneficiary of a technological leapfrogging. Many measures need to be taken, not only for climate reasons but also for the necessary modernisation of ageing infrastructure.

Past experience leaves no doubt that price incentives are effective in mobilising consumers to reduce emissions and manufacturers to offer low-carbon technologies. At the same time, the introduction of carbon pricing for buildings and transport without the necessary adjustment and redistribution mechanisms may put further progress in doubt if it becomes a source of a growing social divide.

**The aim of the paper** is to analyse options for introducing emissions charges in the building and transport sectors, taking into account the major concerns that have emerged in the public debate. We estimate the impact of different prices on the costs of petrol (in transport) and coal and gas (in heating). We also propose mitigation mechanisms, which are important to level the social playing field associated with the transition.

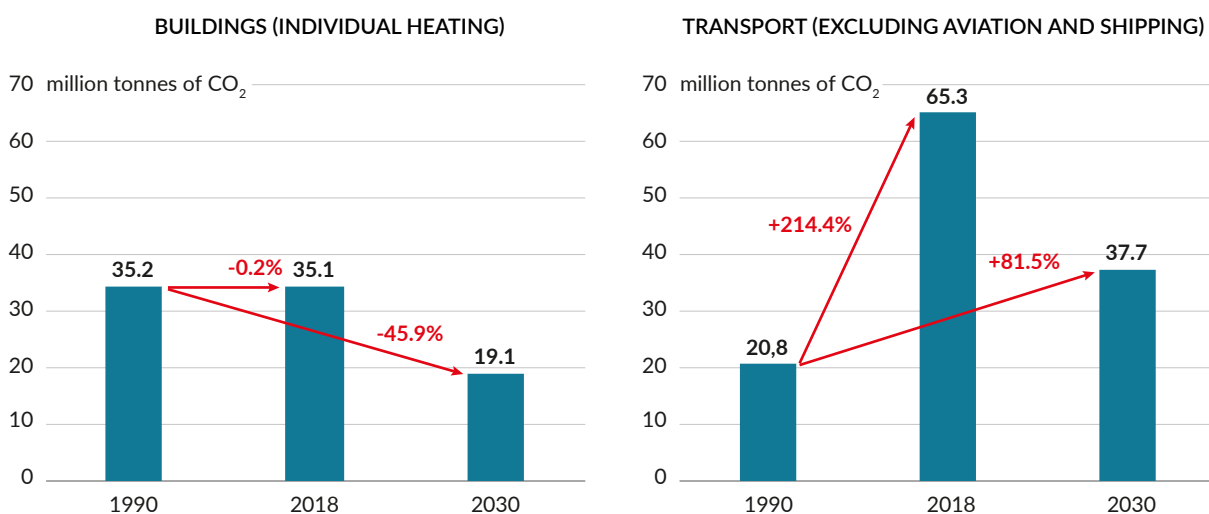
### 3. Diagnosis

Poland is facing a number of challenges related to the reduction of CO<sub>2</sub> emissions, modernisation of power generation, heating, and transport by 2030.

#### 4 • **PROBLEM 1: Lack of progress in reducing emissions**

Buildings and transport account for a third of greenhouse gas emissions in Poland. Between 1990 and 2018, emissions in these areas were not significantly reduced—in buildings, they remained at similar levels (-0.2% decrease), but transport emissions more than doubled (Fig. 1). What has not been achieved in the past three decades will have to be made up in the current one. To reach the intermediate reduction target in 2030, it will be necessary to reduce emissions by almost half.

Figure 1. Existing and projected emissions according to effort-sharing by sector



Source: Forum Energii, based on Trends and projections in Europe 2020, European Environment Agency (eea.europa.eu).

1 A. Gawlikowska-Fyk, M. Borkowski, *How Poland can achieve increased GHG emission-reduction targets by 2030*. Forum Energii, 2020, <https://forum-energii.eu/en/analizy/analiza-55ghg>.

This state of affairs is not surprising given the number and age structure of cars and buildings used by Poles. In 2018, 23.5 million passenger cars were registered in Poland (617 per 1,000 inhabitants, the 5<sup>th</sup> highest in the EU). As many as 36.5% of the vehicles were over 20 years old (the highest percentage in the EU), and 77.7% were over 10 years old<sup>2</sup>. Among cars in use in 2019, only 0.3% were electric (13.6% ran on liquefied petroleum gas, which is unique in Europe)<sup>3</sup>.

According to census data from 2011, around 76% of Poles lived in buildings erected no later than 1978. (over 30 years old at the time)<sup>4</sup>. Unless thoroughly modernised since then, these buildings use their original technologies, which do not meet current energy efficiency standards.

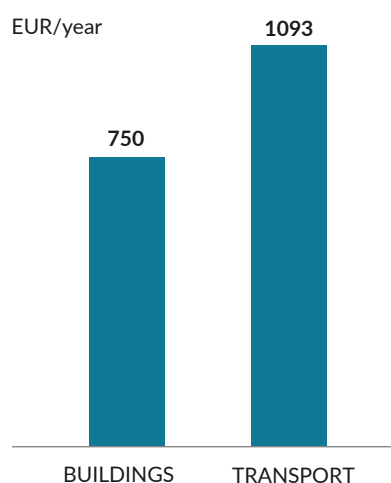
- **PROBLEM 2: High external costs of emissions**

**External costs** are costs caused by production that are not borne by the producer but by others. Such external costs are, for example, climate change or air pollution—borne by society as a whole, not by the emitter. Without pricing external costs, the emitter will have no incentive to reduce their emissions.

There is a lack of explicit methods for calculating external costs. However, there is no scientific doubt that industrial production is a source of environmental pollution, which has a specific cost to society. In this case, we use available published studies. According to estimates in a study commissioned by Ministry of Entrepreneurship and Technology in 2018<sup>5</sup>, the external costs of low-stack emissions in Poland reach up to EUR 30 billion per year (about EUR 750/person, see Fig. 2). Polish households use 12 million tonnes of coal per year—every second building uses it. As much as 87% of the coal used for heating in the EU is consumed by Poles. Despite the terrible state of air quality in winter, burning low-quality fuels is profitable—buildings with low energy standards compensate the cost of heat with low-quality fuel combustion, passing the costs on to society as a whole.

Estimates by DG MOVE<sup>6</sup> show that the external costs of transport for Poland amount to EUR 41.5 billion and include air pollution, climate change, noise, soil and water pollution, and vehicle crashes. This means that each citizen bears the cost of around EUR 1093 per year, although this depends on many factors, notably where one lives. It should be expected that the upward trend in the number of vehicles in Poland (and in the EU as a whole) will lead to a further increase in external costs.

Figure 2. External costs per capita by sector



Source: Forum Energii, based on MPiT and DG MOVE.

- **PROBLEM 3: Lack of an effective strategy in the pursuit of neutrality**

Poland does not have an effective strategy to pursue emission neutrality/reduction in buildings and transport. These areas have a low priority in the state administration, which is reflected in modest human resources in ministries and lack of analytical facilities. Aside from general non-ETS targets, emission goals for buildings and transport have so far been unregulated, with no targets set for their reduction. There has been a drift in these areas for years.

The situation began to change a few years ago with standards set for solid fuels and boilers, but this is far from enough. The government's activities are mainly focused on financial support under the Clean Air Programme, which finances the replacement of old boilers (without much thought given to CO<sub>2</sub> emissions), as well as thermal renovation (without

2 [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger\\_cars\\_in\\_the\\_EU](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU) [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger\\_cars\\_in\\_the\\_EU](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU)

3 <https://www.acea.auto/files/report-vehicles-in-use-europe-january-2021-1.pdf>.

4 <https://bdl.stat.gov.pl/BDL/dane/podgrup/tablica> – Inhabited dwellings by age of building construction.

5 <https://www.gov.pl/attachment/1a860ff4-f20d-4b17-a632-aa7014249f61>.

6 <https://op.europa.eu/en/publication-detail/-/publication/9781f65f-8448-11ea-bf12-01aa75ed71a1>.

promoting the most economical solutions). By committing a large amount of public funds, Poland is not taking into account the objective of climate neutrality by 2050. Without a new strategy to reduce emissions in buildings and transport, air quality will not improve nor CO<sub>2</sub> emissions be reduced.

- **PROBLEM 4: High economic and social costs of underdevelopment**

Outdated cars and unmodernised buildings are used every day by a significant part of Polish society, resulting in high emissions. For many households, emissions are not a matter of choice—they simply cannot afford to invest in more environmentally friendly solutions. This is very often the result of short-sighted public policy, such as a lack of spatial planning, limited access to communication infrastructure or public services (public transport, care, education, etc.). These deficits are patched up by households within their budgetary constraints—the more affluent will move to more expensive, better connected locations, the poorer will buy another second-hand car. There is therefore a significant risk that poorly constructed CO<sub>2</sub> pricing could disproportionately burden the poorer parts of society.

Looking at the statistics for buildings and transport, reducing emissions will require large investments and, given the 2030 target, will have to start immediately. However, it is worth noting that investments will have a lifespan of 15-30 years. If Poland does not impose appropriate standards and limits, Poles will spend money on technologies with no future, blocking the country's ability to achieve climate neutrality. Ultimately, the success of implementation will also depend on the ability to launch complementary public actions, such as educational activities or increasing the number of specialised construction workers. If high demand (with significant public funding) is not reflected in an adequate supply of products and services, the transition will become more difficult and expensive to implement.

## 4. How should the CO<sub>2</sub> pricing mechanism work?

6

### 4.1. Purpose of the system

To introduce a mechanism to price the cost of CO<sub>2</sub> emissions from buildings and transport in such a way that it leads to the timely achievement of environmental targets but does not result in widening social inequalities and loss of social consensus around the energy transition.

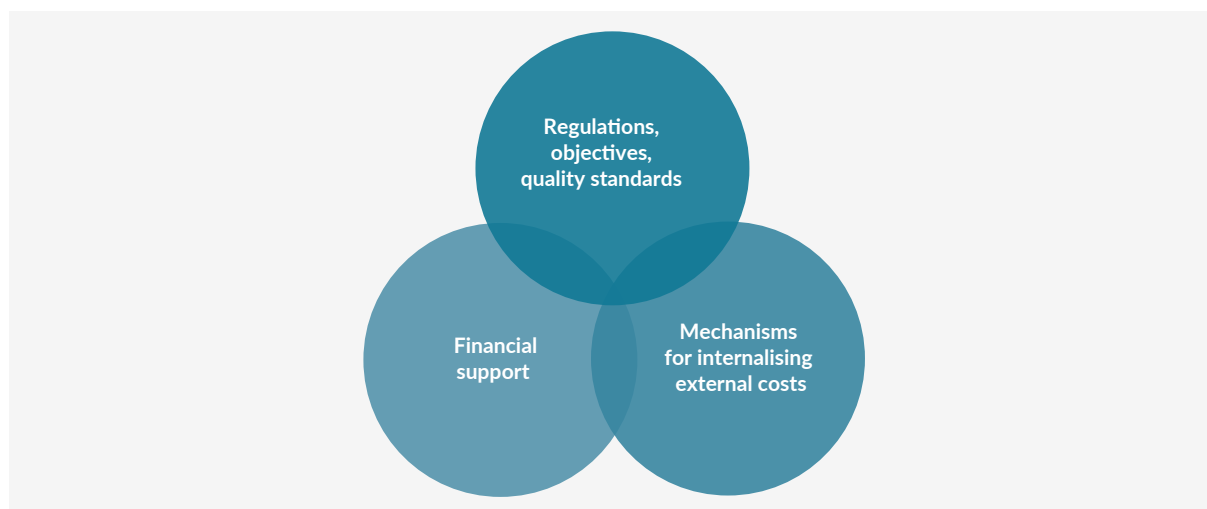
### 4.2. System properties

The introduction of a CO<sub>2</sub> cost-pricing mechanism for buildings and transport should be based on three principles:

1. **Cost internalisation: inclusion of external costs in the product price**  
It must be accepted that greenhouse gas emissions are not costless. The external costs are borne by society as a whole, not by the emitter, who has no incentive to reduce emissions on their own. The introduction of carbon pricing is intended to increase the price of emitting goods in relation to non-emitting goods, encouraging the choice of the latter. It is therefore not a side effect but a fundamental feature of the system.
2. **Regulation: signalling desirable solutions**  
The institutional and legal framework should consistently promote low-carbon solutions and create incentives for their substitution. The instruments will depend, among other things, on the target group and the maturity of the technology. The instruments are complemented by quality standards and bans as clear signals as to which actions and investments are desirable and which are not.
3. **Redistribution: reducing the severity of the mechanism for vulnerable groups**  
Redistribution should support targeted groups whose high emissions are not a result of choice but of financial constraints preventing them from acquiring low-carbon solutions. In order to ensure that reduction targets are met more quickly and to reduce the risk of short-sightedness, redistribution should consist of subsidising investment rather than compensating for the costs incurred through carbon pricing.



Figure 1. Principles for implementing climate policy



Source: Forum Energii.

### 4.3. Political challenges

The introduction of CO<sub>2</sub> levies on buildings and higher ones in the transport sector is being greeted with concern by policymakers. Ultimately, it will be Member State governments that implement the new rules after 2025. We identify four risks that could undermine the effectiveness of ongoing climate neutrality measures.

- **The risk of slowing down the transition**

Some environmental organisations are concerned that incorrect implementation of CO<sub>2</sub> pricing could slow down the transition. The cost of decarbonising 1t of CO<sub>2</sub> varies by sector. For example, an allowance price of EUR 70/t will increase the price of a litre of petrol by PLN 0.60 and a tonne of coal by more than 100%. If the price is too low, the incentive to transform will not be felt, and if it is too high, modernisation may also fail due to the impossibility of financing the change. There will be a temptation to achieve easy results in order to limit social discontent.
- **The risk of sudden price increases, as seen in the EU ETS**

The scenario of 'extending the ETS' to transport and buildings is causing concern. Recently, ETS allowance prices have increased several times in a short period of time. To a large extent, this is a consequence of political decisions, such as increasing the emissions reduction target from 40% to 55% in 2030. However, if the ETS situation were to be repeated for household emissions costs, the mechanism would be difficult to defend, especially as heating and mobility are essential for living.
- **The risk of widening social inequalities**

There are objections to the unequal distribution of costs between various social groups. Poorer households will not find the financial resources for necessary investments after covering the costs of emissions. Unlike the promise, the energy transition will leave less-well-off citizens behind.
- **The risk of losing support for the energy transition**

In a highly carbonised (and consequently carbon-intensive) country such as Poland, an aggressive market mechanism could disrupt the fragile consensus around the energy transition, driven by a sense of social injustice. The 'yellow vest' protests and citizens' outrage in France over the introduction of a transport emissions charge left their mark on policymaking in the European Union.

When designing an emissions-pricing scheme for new sectors, it is important to understand these objections and address them.

## 5. Emission cost estimates for buildings and transport

The CO<sub>2</sub> cost-pricing mechanism will gradually increase the price of energy as it will lead to the cost of pollution being factored in. Below, we show the scale of the increases that users of carbon-intensive homes and cars should expect.

### Buildings

Some heat consumers are already subject to CO<sub>2</sub> emission charges—this applies to those using district heating (above 20 MW) or electricity supplying, for example, heat pumps. This leads to an imbalance in the market for heating equipment in favour of those with higher emissions outside the ETS system.

Emissions in buildings are influenced by:

- the type of fuel used for heating buildings;
- heating surface;
- the energy efficiency of heating equipment as well as buildings themselves.

In the case of natural gas, imposing a charge of 5 EUR/t CO<sub>2</sub> means an increase in the variable costs of fuel purchase by 6 PLN/MWh (about 3.5%)<sup>7</sup>, while in the case of more emissive coal this will be an increase of about 69 PLN/t (8%)<sup>8</sup> (Fig. 3). For a thermally modernised building with an outside area of 150 m<sup>2</sup> this means an increase in annual maintenance charges of about 70 PLN and 160 PLN respectively. In an energy-intensive building, the cost increase will be higher—150 PLN and 350 PLN respectively. In the scenario of higher costs included in the emitted CO<sub>2</sub>, the burden for households increases accordingly.

8

Figure 3. Fuel prices for heating buildings taking into account different CO<sub>2</sub> prices - simulation

|                              | Natural Gas (PLN/MWh) | Coal (PLN/tonne) |
|------------------------------|-----------------------|------------------|
| Fuel costs today             | 158                   | 888              |
| 5 EUR/tonne CO <sub>2</sub>  | 6                     | 69               |
| 10 EUR/tonne CO <sub>2</sub> | 11                    | 138              |
| 25 EUR/tonne CO <sub>2</sub> | 28                    | 344              |
| 50 EUR/tonne CO <sub>2</sub> | 56                    | 688              |

Source: Forum Energii.

### Transport

Emissions in the transport sector are mainly influenced by:

- number of kilometres travelled,
- the emission performance of the vehicle type,
- fuel consumption per 100 km.

7 With the following parameters: calorific value of gas: 36 MJ/m<sup>3</sup>, CO<sub>2</sub> emissions 55 kg/GJ, tariff W-2.2.

8 With parameters: calorific value: 26 MJ/kg, CO<sub>2</sub> emissions 94 kg/GJ.

For a vehicle that travels 18 000 km per year burning 5.5l/100 km and emitting 110 g CO<sub>2</sub>/km, an additional emission charge of 5 EUR/t CO<sub>2</sub> would increase operating costs by 45 PLN/year (Fig. 4). At 50 EUR/t CO<sub>2</sub>, these costs would increase to 450 PLN/year. The additional operating costs for the consumer resulting from CO<sub>2</sub> prices would also increase with the age and emissions of the vehicle and the distance travelled.

Figure 4: Transport fuel prices with different CO<sub>2</sub> prices, a simulation

|                               | CO <sub>2</sub> emission fee |
|-------------------------------|------------------------------|
| Price of petrol today (PLN/l) | 5.00                         |
| 5 EUR/tonne CO <sub>2</sub>   | 0.05                         |
| 10 EUR/tonne CO <sub>2</sub>  | 0.09                         |
| 25 EUR/tonne CO <sub>2</sub>  | 0.23                         |
| 50 EUR/tonne CO <sub>2</sub>  | 0.45                         |

Source: Forum Energii.

## 6. CO<sub>2</sub> pricing mechanisms – proposals from the European Commission

9

In July 2021 the European Commission will present its proposals for putting a price on CO<sub>2</sub> emissions from the building and transport sectors. Among the options under consideration are:

- inclusion of emissions from transport and buildings in the existing EU ETS;
- creating a separate EU ETS for new sectors;
- imposing a CO<sub>2</sub> levy on buildings and transport individually by the Member States (e.g., by introducing national ETS or a carbon tax).

What remains to be decided is how to share the burden between the Member States (*effort sharing*)<sup>9</sup>.

## 7. CO<sub>2</sub> pricing mechanisms – proposals from Forum Energii

Responding to previous concerns, the mechanism for valuing emission costs should have the following features:

- a increase in the price of CO<sub>2</sub> emissions, starting from a low ceiling and increasing gradually and consistently;
- a stable price corridor over a 10-year horizon to avoid shock effects, increase the predictability of the system and signal determination to meet climate targets;
- a redistributive mechanism for households at risk of energy poverty.

Below are our two suggestions.

<sup>9</sup> REGULATION (EU) 2018/842 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0842&from=EN>.

## 7.1. A new Carbon Allowance Trading Mechanism (CATM)

The *Carbon Allowance Trading Mechanism* (CATM) for buildings and transport is the EU's new CO<sub>2</sub> allowance scheme with a price corridor.

Two separate pools of allowances are created—separately for buildings and transport—due to the different abatement costs in these sectors. The pace of valuation convergence can be calibrated depending on the level of ambition of European and national climate policies:

- Initial price corridor floor and ceilings are agreed between Member States: a minimum price (e.g. 5 EUR/tCO<sub>2</sub>) and a maximum price (e.g., 10 EUR/tCO<sub>2</sub>), as well as a rolling 10-year price-increase corridor.
- Member States can levy additional charges on top of the allowance price to ensure a stronger decarbonisation effect—this is justified for richer countries with higher household purchasing power and less carbon-intensive fuels.
- The entities obliged to purchase allowances are gas trading companies, fuel and coal distributors.
- Allowances are purchased on the exchange directly by obligated entities.

## 7.2. CO<sub>2</sub> charge

The carbon fee is a well-known instrument in climate policy. It allows countries to shape their climate policy autonomously depending on the level of emissions, their national specificities and the purchasing power of their citizens.

- A new charging mechanism operating according to unified principles established by EU regulations and implemented by the Member State.
- A minimum fee is set at the EU level (according to certain criteria) and individual Member States have the possibility to increase it.
- Charges vary by energy carrier and sector—a lower charge for fuels used in heating, a higher charge for fuels used in transport.
- The levy increases over time, reflecting national climate and economic policy targets.
- The entities liable to pay the charges are gas trading companies, fuel and coal distributors—in proportion to their emissions of CO<sub>2</sub> and other harmful substances.

# 8. Redistribution mechanisms

## 8.1. Why redistribute?

**Redistribution**– the intentional transfer of outcome from one entity to another, most often to increase the social equity of the system, sometimes also for other purposes, such as supporting the development of preferred technologies.

The introduction of redistribution is not a necessary condition for the existence of carbon pricing, but in the case under consideration it is applicable for two reasons:

- faster achievement of climate targets:
  - public investment in infrastructure, e.g., networks, renewables, low-carbon district heating and energy efficiency, which would not be reasonable or affordable for households;
  - investment in poorer entities, i.e., those with the largest development deficits—allowing emissions to be reduced significantly faster than if they had to finance them from their own resources;

- social justice—redistribution helps to avoid a situation in which the biggest burden of transformation is borne by catching-up countries and the poorest households. It should be emphasised that the purpose of redistribution understood in this way is to make poorer households more resistant to further increases in electricity and heat prices (through investments eliminating carbon-intensive technologies), not to mitigate high prices by the state. It is a way of reducing the social discontent associated with attempts to quickly achieve climate neutrality.

A fundamental element of ETS reform and the introduction of CO<sub>2</sub> pricing for buildings and transport is to ensure that all proceeds from the sale of allowances or payments to state budgets are earmarked for energy transformation and social support. The temptation to use this considerable amount of money for short-term political purposes will be great. But if we do not resist it, we will expose ourselves to inevitable increases in energy prices, posing a threat to household welfare and business competitiveness.

## 8.2. How to redistribute?

There are two redistribution levels: between countries and within countries.

The model for redistribution between countries depends to a large extent on which emissions pricing mechanism is implemented:

- In the case of the CATM mechanism, Poland would become a participant in the common allowance trading market. It is worth using the solution applied in the Modernisation Fund financed from the sale of allowances under the EU ETS. In this case, a certain percentage of allowances is transferred from richer countries to a special fund and later distributed as funding for dedicated projects. Allowances from both the building and transport sectors would be introduced, while the funding would cover a common list of interventions. Poorer countries with a high dependence on coal in heating should be the main beneficiaries of this fund.
- In the model of a CO<sub>2</sub> levy—an administrative charge introduced autonomously by each country—redistribution between countries would be very difficult for political and economic reasons. It would be difficult for governments to justify overcharging domestic consumers in the name of European solidarity.

11

Intra-country redistribution is simpler. First, groups vulnerable to energy, heating, and, optimally, also transport poverty would be identified. Second, the scope of investment (product and service standards), the corresponding expected emissions reductions and financing policy would be defined. Third, resources would be redirected to poverty-relieving investments, in descending order of merit, from those yielding the highest return per zloty spent, until the funds are exhausted.

## 9. Regulation of energy poverty

In Poland, assistance with energy for the poor does not function properly. Symbolic energy allowances are only available to households that have been granted so-called housing allowances—people living in small flats. People living in detached houses, often older people, are deprived of support. Transport exclusion of adults is not addressed at all.

Despite its high political importance, this topic has so far not received sufficient attention from those in power. Meanwhile, without better intervention, the decarbonisation of buildings and transport may contribute to a further deterioration in the social status of a significant proportion of Poles. To counteract this effectively, the phenomenon needs to be defined in a measurable way, effectively monitored and specific problems addressed.

Energy poverty refers to a household's difficulties with the supply of electricity and heat due to their high prices in relation to income. In Poland, the challenge is primarily the cost of heating. In other countries, it is often the supply of electricity.

At present, this area remains the domain of the Member States. It would be worthwhile for the European Commission to take the initiative. Standardising the topic of poverty caused by the energy transition, including the introduction

of clear definitions, joint monitoring and persuading the Member States to take active measures to counteract this phenomenon, are a factor conducive to eliminating inequalities and increasing social support for the transformation.

## 10. Summary

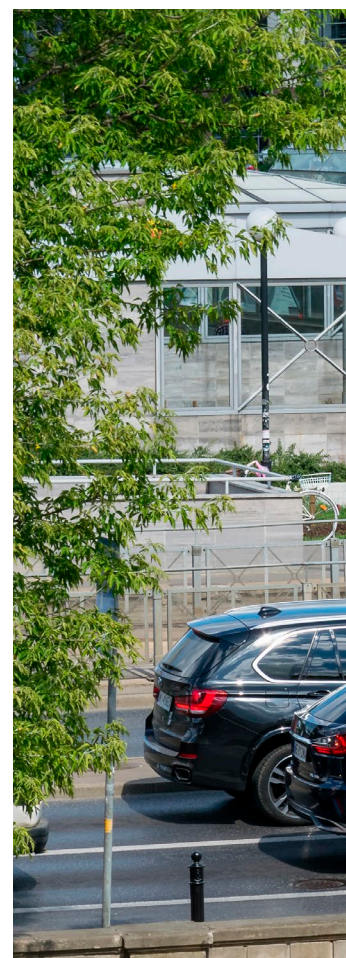
In the coming months, intensive discussions will begin in the EU on achieving the 55% CO<sub>2</sub> reduction target by 2030. CO<sub>2</sub> pricing of emissions in buildings and transport is an important part of achieving this strategy. The cost of energy production must cover the full cycle of production and consumption. In particular, it must include external costs. Without this, there will be no proper price incentive to invest in clean technologies. However, the mechanism for pricing CO<sub>2</sub> costs must be balanced and implemented gradually. It is also important to address social inequalities.

# Notes

A series of horizontal lines for writing notes.

## The cost of carbon-free buildings and transport

A proposal for a socially just energy  
transition mechanism in the EU



**FUNDACJA FORUM ENERGII**

ul. Wspólna 35/10, 00-519 Warszawa

NIP: 7010592388, KRS: 0000625996, REGON: 364867487

[www.forum-energii.eu](http://www.forum-energii.eu)