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**Buildings and energy efficiency
in the new architecture
of carbon pricing in the EU**

Reducing greenhouse gas emissions from buildings too slowly will entail costs for the state budget and, possibly, also for the owners of fossil fuel-heated buildings. Improving energy efficiency will play a key role in accelerating the reduction of emissions from the sector. For this, however, Poland needs to implement more ambitious supporting instruments and regulations aiming at the renovation of buildings.

Piotr Chrzanowski, Aleksander Śniegocki, Izabela Zygmunt



ENERGY, CLIMATE AND ENVIRONMENT

Forgotten Foundation.

Buildings and energy efficiency in the new architecture of carbon pricing in the EU

Authors:

Piotr Chrzanowski
Aleksander Śniegocki
Izabela Zygmunt



WiseEuropa – Warsaw Institute for Economic and European Studies

Ul. Królewska 2/26
00-065 Warsaw, Poland

www.wise-europa.eu

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Piotr Chrzanowski, Aleksander Śniegocki, Izabela Zygmunt

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Executive summary

- Greenhouse gas emissions not covered by the EU ETS emissions trading system (including those from the building sector), are not 'free'. They are covered by a mechanism similar to the one known from the Kyoto Protocol – emissions trading takes place not between companies, but between governments which are obliged to meet binding national reduction targets.
- Due to a combination of regulatory and market factors, in the past decade, Poland did not have a systemic problem with meeting the national emission reduction targets for the non-ETS sectors, so it did not incur any costs due to insufficient pace of emissions reductions.
- In the years 2021-2030, this situation will change. With the introduction of a much more ambitious reduction target, the pressure to rapidly and deeply reduce emissions in the entire economy, including in the buildings sector, will increase significantly. Regardless of whether the European Union decides to extend the EU ETS to new sectors or sticks to the current regulatory framework, GHG emissions from the building sector will start to generate significant costs, directly for businesses and citizens (if the EU ETS is extended) and for the national budgets (under the existing system of binding national targets).
- While the role of renewable energy sources in achieving emissions reductions is known and often emphasized, the role of energy efficiency is often overlooked. However, a closer look at the current system of EU emissions reductions tools and their potential evolution indicates that energy efficiency – which is particularly important in the sectors not covered by the EU ETS – should be treated as a priority on a par with the development of renewable energy sources, especially in the buildings sector.
- National policies to support energy efficiency should take into account the total cost of emissions in all sectors and their likely future increase as the EU transitions towards climate neutrality. The cost-benefit assessment of both support tools and state-imposed energy efficiency standards cannot be based solely on the current energy prices and ignore the current and future costs of emissions from fossil fuel combustion. Taking these factors into account should lead to:
 - setting higher energy efficiency standards, e.g. for new and renovated buildings,
 - rewarding investments in energy efficiency that bring greater energy savings (e.g. thorough deep renovation),
 - early introduction of national tools mitigating the expected future increase in the cost of fossil fuels use, such as banning the use of fossil fuels in new and renovated buildings, or gradual implementation of national taxation on emissions from sectors not covered by the EU ETS.

Introduction: Carbon pricing as the key element in the climate EU policy

The European Union and its member states joined the Paris Agreement in 2016, committing themselves to reducing greenhouse gas emissions in all sectors of the economy. In April 2021, a provisional agreement between the Council and the European Parliament was reached to increase the Union's climate targets for 2030. The EU's target now is to reduce net greenhouse gas emissions by at least 55% net compared to 1990 levels. The long-term goal of the European Union, included in the new European Green Deal strategy of 2019, is to achieve climate neutrality by 2050 at the latest.

Carbon pricing is one of the main instruments of the EU climate policy aimed at reducing greenhouse gas emissions. In the European Union, two mechanisms currently serve this purpose: **the EU ETS emissions trading system**, which covers the sectors of the energy-intensive industry, energy generation and aviation, and **the system of binding annual national targets under the so-called Effort Sharing**, which covers the building, transport and agricultural sectors.



1. Carbon pricing in the EU ETS sectors

The EU ETS emissions trading system is based on the cap and trade principle. It imposes a cap on the total volume of gas emissions from installations covered by the system. This limit is reduced over time (1.74% annually in the period 2013–2020, 2.2% from 2021, 5.15% from 2026 and 5.43% from 2028 according to the European Commission proposal of July 2021). Enterprises obligated to participate in the trading system receive or purchase emission allowances for free (at auctions organized by the Member States and the European Commission when introducing allowances to the market, or on the secondary market), and each allowance enables them to emit one tonne of CO₂ or an equivalent amount of other greenhouse gases covered by the scheme (CO₂ equivalent). Every year, enterprises redeem the number of allowances corresponding to the volume of their emissions in the preceding year. In case their emissions are lower than the allowances granted, saved allowances can be used in subsequent years or sold to other entities. In case emissions exceed the number of allowances held, the company needs to use the surplus allowances from previous years or purchase an appropriate number of allowances from other entities in the EU ETS system.

Figure 1. Prices of EU ETS emissions allowances



Source: WiseEuropa based on Sandbag Carbon Price Viewer and Ember Carbon Price Viewer data

For a long time, the prices of emissions allowances remained relatively low and had little impact on the costs of the companies covered by the EU ETS. However, as a result of the 2018 reform of the system, which reflected the growing level of the Union's climate ambitions, the prices of allowances started to increase much faster, rising from around EUR 10 per tonne of CO₂ in 2018 to more than EUR 50 per tonne today. Meeting the EU's climate targets will require further increases in the EU ETS prices, which are projected to exceed EUR 70 per tonne by 2030. In mid-2021, the work on a new reform of the EU ETS began. The reform aimed at adapting it to the new, increased climate targets of the European Union, i.e. the goal of reducing greenhouse gas emissions by at least 55% net by 2030 and achieving climate neutrality by 2050 at the latest. The proposed reform aims to reduce the number of allowances and increase the pace of their withdrawal from the market, which will eventually lead to more dynamic price increase.

2. Carbon pricing in the non-ETS sectors

Emissions from the buildings, transportation, agriculture and industrial sectors are not addressed by the EU ETS, which does not mean that greenhouse gas emissions in these sectors are cost-free. For sectors outside the emissions trading system (non-ETS), a mechanism of binding national reduction targets has been introduced along with a trajectory of their implementation in the years 2021–2030. The targets are defined in the so-called Effort Sharing Decision (ESD), issued by the Commission under the Effort Sharing Decision (ESR, Regulation (EU) 2018/842).

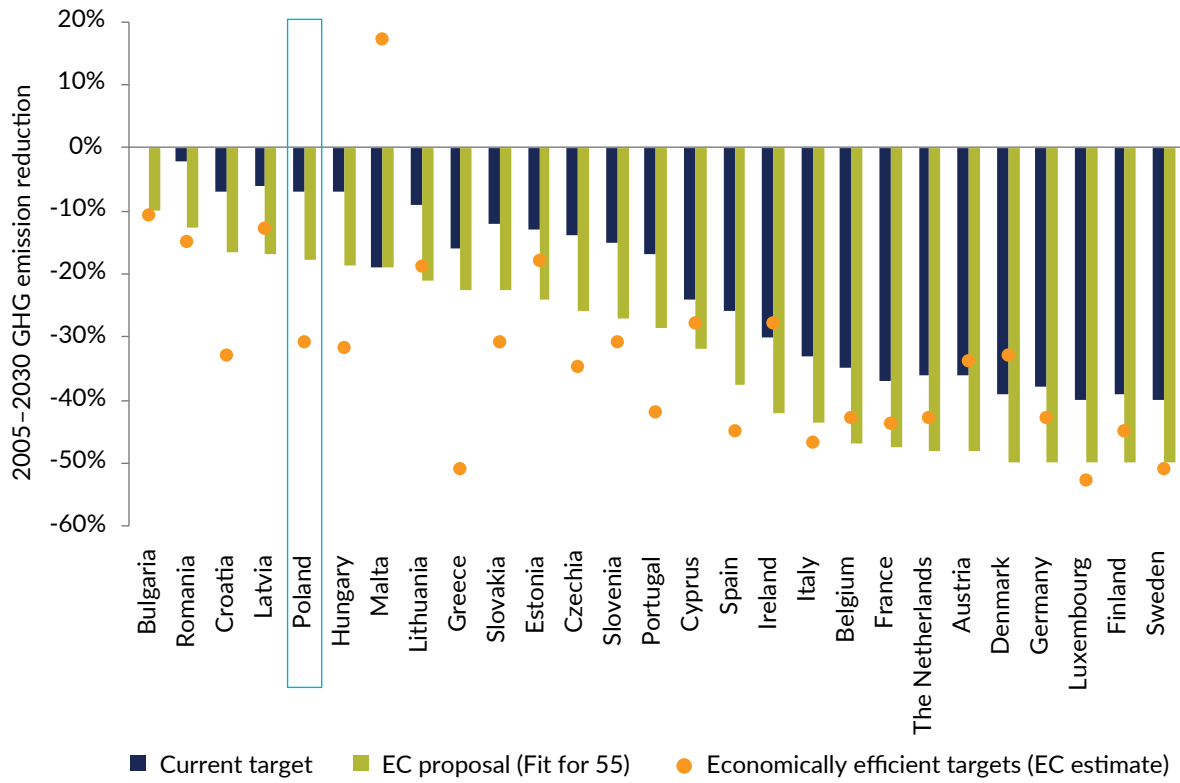
The reduction targets for individual Member States were set depending on their level of prosperity. In the case of some less affluent EU countries, the targets for 2013–2020 left the possibility to increase emissions: e.g. Poland was allowed to increase emissions from non-ETS sectors by 14% by 2020. Thanks to such a lax target, in the last decade Poland did not have a systemic problems with meeting its national emission reduction target for the non-ETS sectors, so it did not incur the costs of too slow actions in this regard. In the new period of 2020–2030, it is no longer possible to increase emissions. The reduction target for Poland for 2030 is 7% compared to 2005 levels, and Fit for 55% reform package presented by the Commission in July this year aims to increase this target to 17.8%.

Member States account for meeting their targets on the basis of annual AEA (*Annual Emission Allocation*), where one AEA unit corresponds to the emission of 1 ton of CO₂ equivalent.

Flexibility mechanisms may be used by a Member States to balance emissions against national targets. These include: 1) the possibility to borrow AEA units from the next year's allocation, 2) banking of allocations, i.e. the possibility to carry over the AEA surpluses to subsequent years in case the limit is not used in the given year, and use and safety reserve (in the case of meeting the ESR targets in 2030. members will be able to take advantage of an additional pool of AEA), 3) trading in AEA units.

In the case of a surplus of AEAs, a Member State may sell the surplus to another Member State which has not achieved an emission reduction in line with the limits. Countries that have not sufficiently reduced their greenhouse gas emissions have to purchase additional AEA units from other countries and bear a measurable financial impact.

Figure 2. The 2030 emissions reduction targets of EU and Member States for the sectors included in the Effort Sharing Regulation



Source: WiseEuropa based on the data from the European Commission

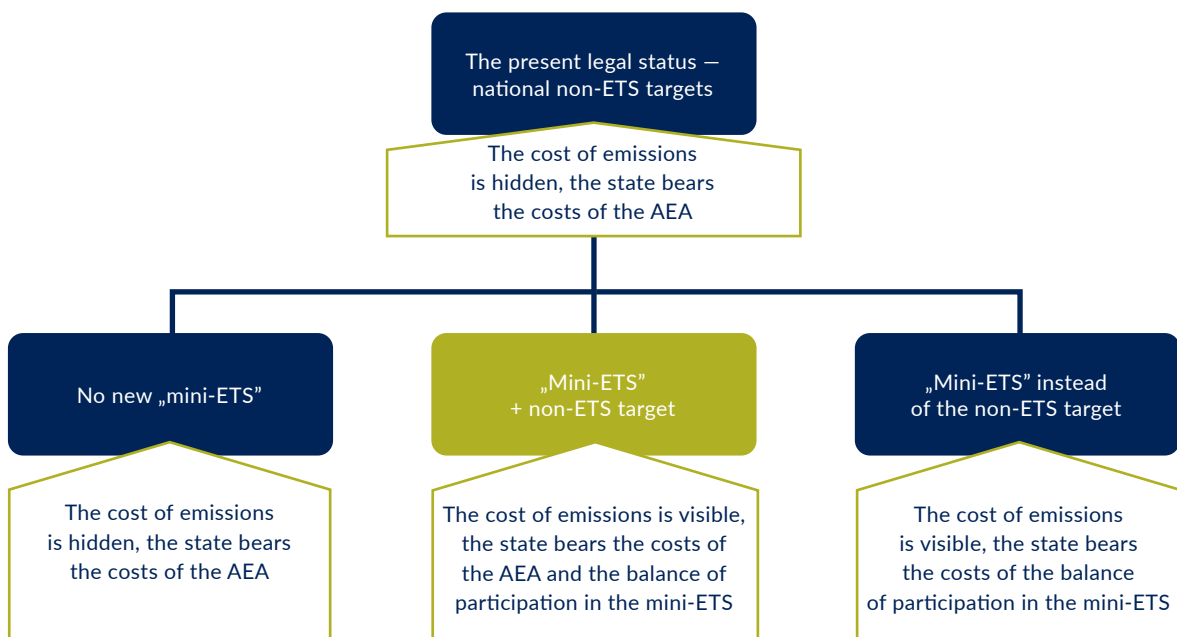
As the chart above shows, **within 10 years Poland and the other Member States face an ambitious task of significant reduction of greenhouse gas emission.**

In the present system, in the EU ETS sectors, the owners of large energy and industrial installations, e.g. power plants, steel mills, etc., pay the cost of emissions and the cost of purchasing allowances increases their operating costs. Moreover, as emissions trading takes place on the European market, slower pace of emission reductions in one country means that companies in that country buy more allowances than that country sells – so some of their emission fees do not contribute to the national budget but leak abroad. Under the Effort Sharing mechanism, the cost is not visible from the point of view of the individual organizations. **If the national emissions reduction target is not met, the cost of purchasing additional AEA units from another country is borne by the budget of the Member State** that has exceeded its emission limit for a specific year by an amount greater than can be covered under the flexibility mechanisms.

With the adoption of new, higher climate goals, the European Union is planning changes for the sectors covered by the Effort Sharing mechanism. The proposed changes are part of the **Fit for 55%** package presented by the European Commission, i.e. a set of legislative reforms in the field of energy and climate, aimed at enabling the EU to reduce greenhouse gas emissions by at least 55% net by 2030. The package includes a proposal to incorporate the road transport and buildings

sectors into an emissions trading system. Under the proposal those sectors, which are responsible for a significant portion of GHG emissions in the EU and in Poland and currently account for their emissions as part of the general national reductions targets, would be subject to an obligation to purchase emissions allowances in a separate emissions trading system (so-called **mini-ETS**), while remaining in the Effort Sharing system of national binding targets. The Commission treats emissions charges as an instrument that would facilitate the achievement of the binding national targets thanks to their dual role: a price signal to encourage emissions reductions and, at the same time, a source of revenues for the budget from which faster transformation can be financed. Pursuant to the Commission’s proposal, the obligation to purchase allowances would rest with sellers of fuels used in heating buildings and in transportation and would enter into force from 2026. Revenues would go to a state’s budget for financing investments in decarbonization. 25% of revenues would be held for protective measures to protect low-income households, micro-enterprises and transportation users from being adversely affected by the new mechanism. These funds would go to a newly established Social Climate Fund and would finance the implementation of plans for protective measures created by Member States.

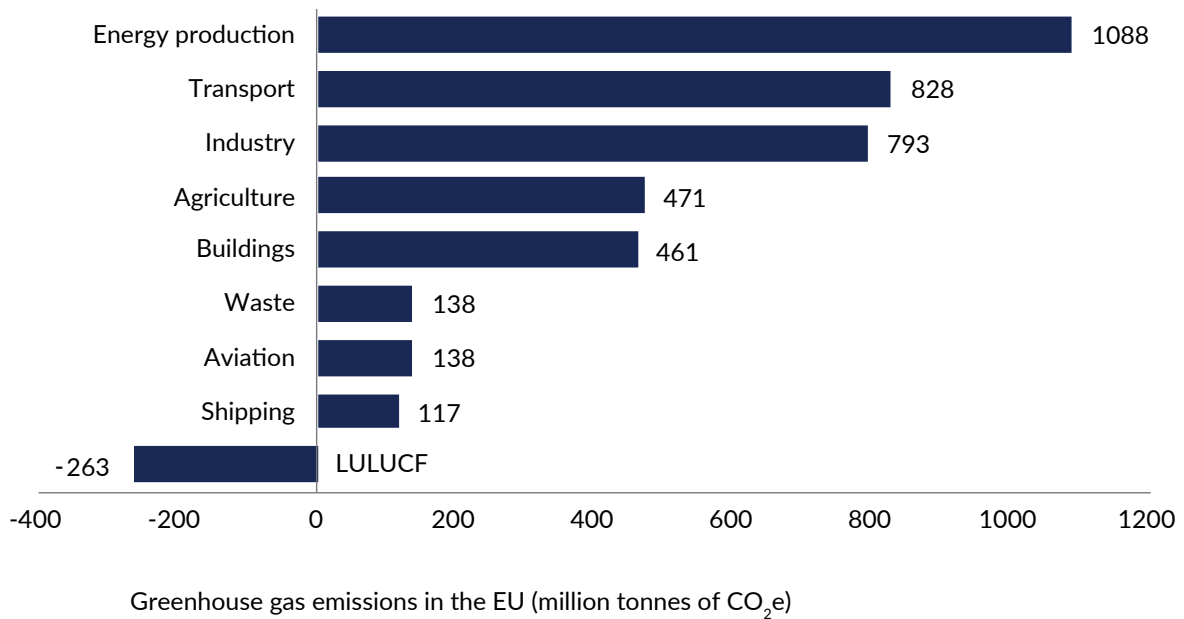
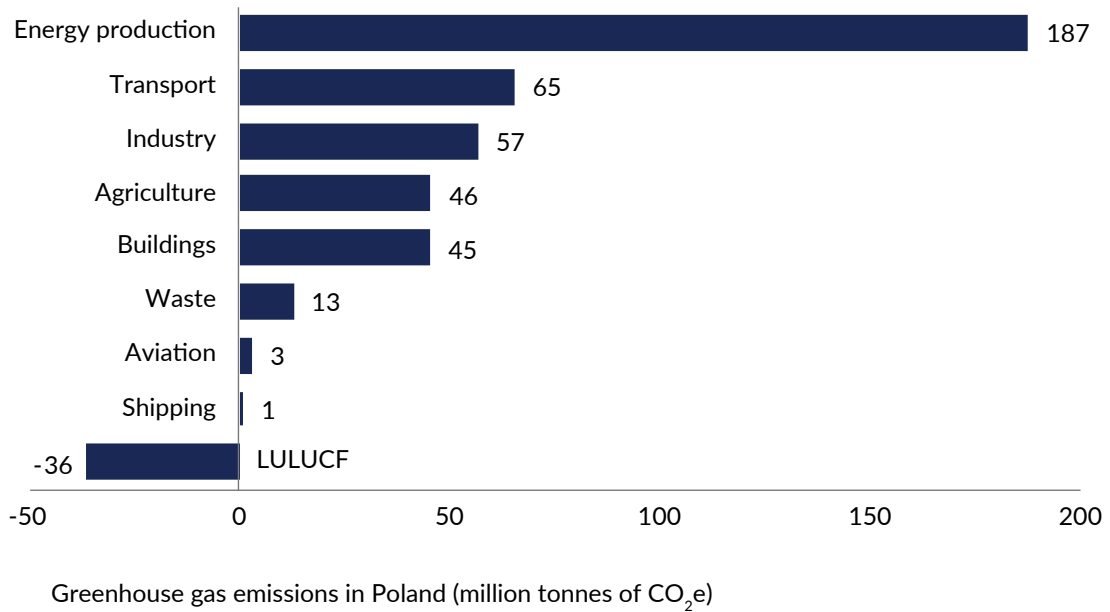
Diagram 1. State of play and reform options considered by the Commission



Source: The original study WiseEuropa

The proposed regulations increase the probability that, **in the absence of sufficiently ambitious actions aimed at rapid reduction of emissions from the buildings sector, Poland will be forced to purchase additional AEA units, as well as incur additional costs in the mini-ETS system**, if the national pool of allowances granted to Poland under the mini-ETS will prove insufficient to cover the actual emissions and it will be necessary to buy additional allowances on the European market. On the other hand, by taking ambitious measures and reducing emissions quickly, Poland could obtain additional budget revenues from the sale of AEA units to other countries and the sale of surplus emission allowances on the European markets. In the opinion of the Commission, Poland has the potential for cost-effective emission reductions that goes well beyond the national target and is therefore a potential net beneficiary of the proposed system.

Figure 3. Greenhouse gas emissions in the industries of Poland and the EU (million tons of CO₂e)



Source: WiseEuropa's own study based on data from the European Environment Agency

The proposals included in the Fit for 55% package will now be negotiated between the EU institutions and may be subject to certain modifications. However, regardless of their final shape, the necessity to incur costs in the case of too slow a pace of emissions reduction remains unchanged. If the buildings and road transport sectors are included in the ETS, fossil fuel users in these sectors will have to bear the costs of emission allowances for as long as they continue to use fossil fuel, and the cost will be the higher, the later a transition to non-fossil energy takes place.

In the Effort Sharing system, the cost of too slow emissions reduction will in any case be borne by the state budget, which will have to buy additional units from other, more ambitious countries in order to cover the emissions not reduced on time. The cost will be the higher, the greater the gap between the national target and the level of emissions reductions actually achieved.

The goal of public policy should be to avoid such a scenario. The national emissions trading system for the buildings and transport sectors introduced by Germany is an example of actions taken by other EU countries in order to accelerate the pace of decarbonization in those sectors.

Box 1. The German Emissions Trading System for Transport and Buildings

In 2021, Germany launched a national emissions trading system (Nationales Emissionshandelssystem, nEHS). The new system addresses GHG emissions in transport and construction, i.e. a majority of the GHG emissions not covered by the EU ETS.

The following fuels will be included in the system: gasoline, crude oil, heating oil, LPG, natural gas and coal (in the years 2021-2022 the system will not include coal). The system will cover entities that distribute the above-mentioned fuels (approx. 4,000 companies). The intention of the German government is to shift the cost of emissions to end users through increased fuel prices, which will result in behavioral change and positive climatic effects. According to the estimations, the prices of gasoline may increase by EUR 0.07, and diesel oil by EUR 0.08 for each liter of fuel in 2021. In the years 2021–2025, the costs of emission allowances will gradually increase, with prices rising from the initial level EUR 25 to EUR 55 per ton of carbon dioxide emitted. After 2026, allowances will be available through auctions with the assumption that in the first year the price of an allowance will not be less than 55 euros and greater than 65 euros. From 2027, prices will be driven by the market (unless a decision is made in 2025 to extend the operation of the price bracket).

The German government predicts that the new system will prevent 3.1 mln tonnes CO₂ emissions in 2025, 7.7 mln tonnes in 2030 and 12.4 mln tonnes in 2035. The nEHS will generate around 40 billion euros in revenues by 2024, to be spent on reducing the RES surcharge paid by final users and financial support for climate action.

Differences between the nEHS system and the EU ETS system

In the EU ETS CO₂ emissions are reported, and allowances redeemed, by large installations such as power plants or steel mills. In the nEHS system, the fee will be paid for introducing fuels to the market before they go to the combustion installation, and will be imposed on fuel distributors. In the EU ETS, the prices of emission allowances are regulated by the market in the auction system. In the case of the nEHS system, in the years 2021 - 2025, the price of emission allowances will gradually increase from a set level, and as of 2026, allowances will be auctioned.

Source: WiseEuropa based on information from the German Emissions Trading Authority at the German Environmental Protection Agency, https://www.dehst.de/EN/national-emissions-trading/national-emissions-trading_node.html

3. The role of energy efficiency in reducing emissions from non-ETS sectors

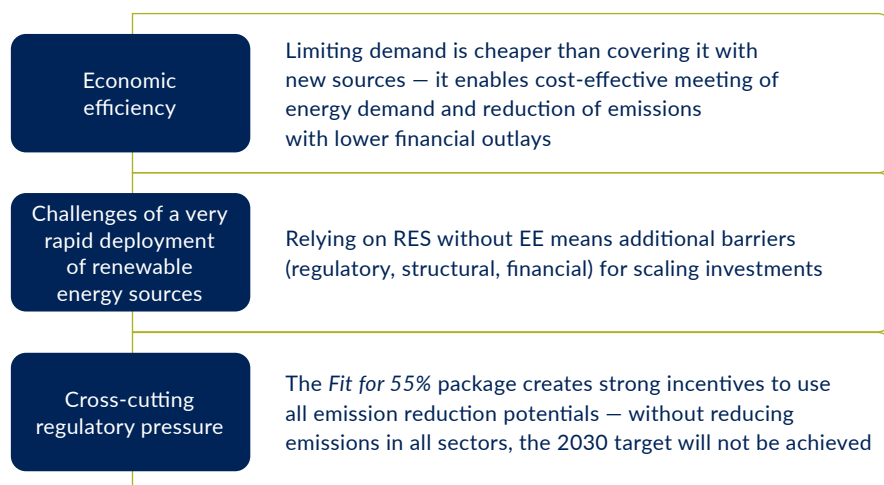
In the public debate on climate and energy policy, the financial consequences of the operation of the EU ETS are already relatively well recognized, as are the resulting need to reduce greenhouse gas emissions from the energy and industry sectors and the role played by renewable energy in achieving this goal.

However, the future costs of not meeting the reduction targets in the non-ETS sectors are much less understood. That is despite the fact that even in the current system of national targets under the Effort Sharing Regulation, Poland could have to pay, in the next ten years, nearly EUR 1 billion for additional AEA units if its emissions reductions from non-ETS sectors are lower by 1 percentage point than the target.¹ The cost will be proportionally higher if the gap between the target and actual reductions is greater. Following the proposed reform of the Effort Sharing system, and if the building and transport sectors are covered by an Emissions Trading Scheme similar to the current EU ETS, the costs of reducing emissions too slowly could be even higher.

Likewise, the role of improving energy efficiency in reducing emissions from the Effort Sharing sectors, in particular the buildings sector, is not fully understood. Energy Efficiency First is a horizontal principle in the energy policy of the European Union, which is based on the observation that investing in reducing energy demand in many situations allows to reduce emissions faster and at a lower cost. According to the reports by the International Energy Agency (IEA), the improvement of energy efficiency, named by IEA in 2013 as the „first fuel”, was the second most important factor reducing greenhouse gas emissions in the entire economy in recent years, after the increase in the share of renewable energy sources. Thanks to energy efficiency improvements, it was possible to avoid an increase in emissions by 200 million tonnes of carbon dioxide globally in 2019.²

1 Assuming that the price of AEA units will be based on the prices of allowances in the ETS system, which, according to forecasts, will exceed EUR 70 per tonne in 2030. The calculations assume that in each year the emission reduction is 1 percentage point lower than the emission ceiling for Poland for that year.

2 International Energy Agency (2020): Energy Efficiency Market Report 2020, https://iea.blob.core.windows.net/assets/59268647-0b70-4e7b-9f78-269e5ee93f26/Energy_Efficiency_2020.pdf

Diagram 2. Factors forcing the improvement of energy efficiency


Source: WiseEuropa

The buildings sector accounts for a very high share of total final energy consumption, and most of that energy is heat, generated in a disproportionately large degree by burning coal – either directly or via district heating installations. At the same time, this sector is characterized by a large untapped potential for improving energy efficiency, which can be achieved with relatively simple and widely available technologies. For these reasons, **improving efficiency in the buildings sector will be key to reducing emissions and avoiding the associated costs**. Regardless of their final shape, the EU's carbon pricing mechanisms will cause the burning of fossil fuels in buildings, previously not subject to fees, to be charged with the costs of emissions. This will transform the profitability calculations of investments in deep and comprehensive renovations of buildings, significantly reducing the payback period of an investment in improving the energy performance of a building and replacing a fossil-based heat source with a zero-emission alternative. In this context, it is worth paying special attention to the economic risk that, in the light of the current and planned EU regulations, is associated with investments in heat sources that use natural gas. According to the recently published IEA global climate neutrality scenario, no fossil fuel boilers should be installed in buildings from 2025 onwards. It should be assumed that the EU regulations currently undergoing a revamp will seek to move away from fossil heat sources within a timeframe similar to that indicated by the IEA, and that one of the main measures to this end will be carbon pricing, i.e. imposing charges on emissions from buildings.

There are other arguments in favor of focusing efforts to reduce emissions from the buildings sector on improving energy efficiency. Without taking into account the cost of carbon dioxide emissions, the most cost-effective solution at the level of an individual building may seem to consist in a shallow or partial renovation and the continued use of cheap, i.e. usually fossil, energy source. However, such an approach generates increased costs on the side of the energy system or the state budget. In the case of continued widespread use of fossil sources such as gas or coal, the state budget may be exposed to the need to purchase additional AEA units if the reduction target is not met, and building residents may have to bear high energy costs if the emissions trading system for the buildings sector takes effect. Neglecting energy efficiency will also be costly for clean heat sources such as heat pumps, including pumps powered by a PV array operating in the current net metering system. Without limiting the demand for thermal energy, heat pumps

can generate system costs in the form of the need to expand sources to generate a sufficiently large amount of energy in the winter season, expand and modernize power grids, deploy reserve capacity and other system components necessary to meet the increased demand for electricity. Finally, it should be noted that investing in the energy efficiency of buildings also brings additional benefits such as better air quality, reduced energy bills, and less energy poverty.

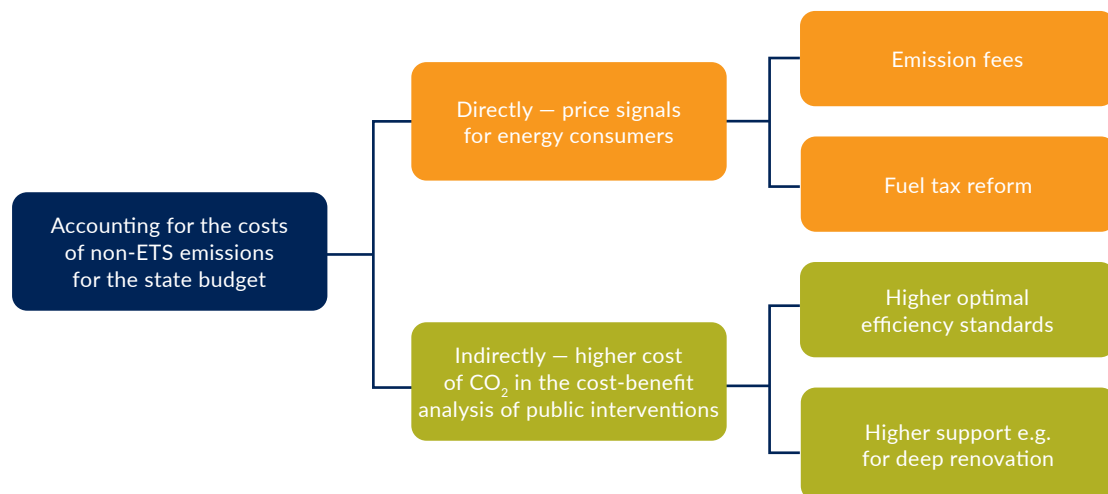
An analysis of the EU's final energy consumption in 2018 shows that the building sector, which accounts for 26.3% of the total final energy consumption, is one of the most energy-intensive sectors (compared to 30.9% for transport and 25.6% for industry). While the improvement of energy efficiency in the industrial sector in Poland is progressing (at a rate of approx. 4% annually), little progress has been observed in the case of buildings where the rate of improvement is approx. 0.4% annually. In Poland, there are clearly large untapped opportunities to make technical improvements in the building sector. According to the International Energy Agency, the renovation of existing buildings should aim at the maximum possible improvement in their energy efficiency and transition to renewable energy sources or energy sources that will be decarbonized in 2050, such as electricity and heating networks. In developed economies, less than 1% of existing buildings are renovated each year. In order to be climate neutral by 2050, it is necessary that this ratio increases to 2.5% by 2030. This pace of renovation will allow 20% and over 85% of buildings to be modernized by 2030 and 2050, respectively. Currently, only 5% of newly built buildings are zero-carbon-ready buildings, i.e. buildings that use energy sources that have been or will be decarbonized). The calculations of the European Commission concerning the scenarios of achieving the 55% reduction target for 2030 also envisage a significant acceleration of the buildings renovation rate.

4. Domestic public policy regarding carbon pricing in the buildings sector

Improving energy efficiency in the buildings sector is about reducing the energy demand in the building by eliminating heat losses and improving the efficiency of heating systems and other devices used in the building. Reducing energy demand in newly built buildings is much simpler than retrofitting existing buildings. By appropriate building construction planning and the use of appropriate materials at the construction stage, it is possible to achieve the most optimal performance. Ensuring high energy performance of a building at the stage of its construction is also associated with lower investment costs compared to the renovation of existing buildings.

In Poland, new technical requirements for buildings have been in force since 2021, laying down the maximum demand for heat expressed as annual demand for non-renewable primary energy in kWh / m² of building area. Newly built single-family buildings should have a maximum demand of 70 kWh/m², and multi-family buildings – 75kWh/m². While new buildings in Poland are close to meeting the required maximum demand, most old buildings have a demand several times greater, which means that they require costly renovation measures.

Diagram 3. Direct and indirect costs of emissions that should be taken into account when forming the policy of energy efficiency



Source: Original study WiseEuropa

When undertaking renovation, investors often choose cheaper solutions, which seemingly allow them to reduce the payback period. Only deep renovation involving insulation of walls, roof, and floors along with the replacement of window and door carpentry, combined with the replacement of an ineffective heat source and modernization of the central heating system, can bring a measurable effect and a real improvement of the building's energy efficiency and, thus, reduce operating costs and the return period of investment. Lowering the energy demand of buildings is also a prerequisite for the transition to zero-emission, renewable energy sources. Energy inefficient buildings require investments in large installation capacities, and, thus, unnecessarily generate high investment costs, which can be reduced with more energy efficiency.

For these reasons, the public policy should aim at a scenario of deep and comprehensive renovation of buildings implemented at a dynamic pace, which should be supported by financial and regulatory instruments.

Recommendations

Public policy in the field of energy efficiency should be made bearing in mind the total cost of emissions in all sectors and its probable growth in the coming years. When creating support tools for improving energy efficiency and determining efficiency standards, one should take into account not only the current prices of energy carriers and the current cost of measures aimed at improving efficiency, but also **the future cost of unreduced greenhouse gas emissions**. Such a policy should therefore aim to accelerate the pace of improving energy efficiency as a cost-effective way to reduce emissions and avoid the costs resulting from carbon pricing mechanisms. Reducing greenhouse gas emissions from the buildings sector requires development of a step-by-step strategy to limit the use of fossil fuels, and an emissions tax that passes on the cost of emissions to the end-users. It is also extremely important to follow a comprehensive action plan, both legislative and financial, for this type of investment.

Diagram 4. Recommended actions



- **more stringent energy performance requirements for new and renovated buildings**

The Ordinance of the Minister of Infrastructure on technical requirements to be met by buildings and their location (Journal of Laws of 2015, item 1455) presents the technical requirements to be met by buildings as of January 1, 2014, January 1, 2017 and January 1, 2021 (effective). Therefore, it is necessary to prepare an amendment to the current rules and define, in the long term, more stringent limits on the maximum energy demand for buildings in the coming years.

- **financial support for deep renovation – eliminating the difference in investment costs, optimizing the costs of using buildings**

Investments in modernizing buildings, in particular in deep renovation projects, tend to be costly. It is therefore necessary to prepare a comprehensive support program for investments in deep renovation. The plan should provide for co-financing in such an amount that investors, instead of opting for shallow renovation, decide to carry out comprehensive modernization that brings greater energy, environmental and economic effects, despite the higher investment costs.

- **gradual introduction of carbon pricing in the non-ETS sectors**

Forthcoming legislative drafts and strategies should gradually implement solutions that would make it possible to impose charges on emissions from private and public buildings in the long term. The aim should be to gradually increase these fees, which in the long term would allow a move away from fossil fuels.

- **gradual ban on the use of fossil fuels**

The introduction of carbon pricing should be done in parallel with the implementation of local and supra-local policies banning the use of fossil fuels for heating purposes.

- **program for the replacement of existing fossil fuel installations**

The gradual bans on the use of fossil fuels should be supported by programmes of local governments and the central administration to support the replacement of heat sources based on fossil fuels and finance alternatives.

- **protective means for vulnerable households**

Without adequate protective measures, energy-poor and low income households may be exposed to negative effects of the new regulations. Public institutions should support this group administratively and financially in reducing the need for fossil fuels as quickly as possible.

- **support for enhancing the competences and skills of energy efficiency contractors**

The unavailability of contractors with appropriate qualifications may be a barrier slowing down the pace of improvement of energy efficiency, therefore it is necessary to invest in the skills and



qualifications of enterprises and employees in industries related to the improvement of energy efficiency.

- **introducing tools to facilitate decision-making on investments in improving energy efficiency**

An important factor when making decisions about investing in energy efficiency improvements concerns the level of certainty that the investment will generate the expected results in the form of reduced energy demand and reduced costs. Therefore, instruments such as audits, reliable certification, energy performance classes, renovation passports are needed.

Summary

The recent increase in the prices of CO₂ emission allowances under the EU-ETS and its impact on electricity prices has been one of the most important topics in the public debate on the energy transition. Much less attention has been paid to greenhouse gas emissions from sectors currently not covered by the EU ETS, i.e. buildings, transport and agriculture, waste and small industrial installations outside the EU-ETS.

Meanwhile, reducing emissions too slowly in these sectors also carries the risk of increasing costs. The European Union has recently agreed new, higher reduction targets for 2030 and 2050, which will be implemented through a set of binding instruments, i.e. the EU-ETS system and national targets under the non-ETS system, as well as energy policies and non-binding national targets on renewable energy sources and efficiency. Instruments with financial implications will play an important role in this context, including in sectors which are not in the EU ETS at this stage. Those sectors now have annual national reduction targets under the Effort Sharing Regulation, which will be increased in the future and may be supplemented by the obligation to purchase emission allowances under the new system for the building and road transport sectors currently being considered by the European Union.

Regardless of the final shape of the proposed EU rules, it is certain that they will bring a gradual but rapid increase in the cost of greenhouse gas emissions from the buildings sector – this is what the implementation of the new EU climate goals requires. Emission reductions in the building sector will therefore soon become an urgent necessity in order to avoid a financial burden, be it on the part of the state, energy systems or end users.

While the role of renewable energy sources in achieving reductions is known and often emphasized, the role of energy efficiency has been overlooked – especially as it largely concerns the non-ETS sectors. But a closer look at the current architecture of the EU ETS system and the Effort Sharing system, as well as the possible future evolution of those systems, indicates that energy efficiency should be treated as a priority on a par with the development of renewables. Reducing energy demand is more cost-effective than investing in clean energy sources to cover unreduced demand, and reduces greenhouse gas emissions faster. It also brings important social benefits in the form of improving air quality and reducing the scale of energy poverty.

Accordingly, the aim of state policy should be to stimulate the improvement of energy efficiency in buildings as soon as possible through a set of regulatory and financial instruments. Their shape and choice should result from a consideration of all costs and benefits, taking into account not only the current prices of energy carriers and the costs of measures reducing energy demand, but also the future cost of emissions. With regard to the buildings sector, it is, therefore, necessary to introduce higher energy standards, to design supporting instruments to promote deep renovation, and to introduce, as early as possible, national tools to stimulate a faster pace of decarbonization of the sector and avoid higher emission costs in the future.



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Energy, Climate and Environment Programme

Poland, Europe and the world are currently facing unprecedented challenges associated with the environment and resources. Avoiding dangerous climate change, improving public health and increasing resource security requires a profound economic transition. Taking advantage of opportunities and avoiding the associated developmental traps requires in-depth evaluation of the short- and long-term impacts of environmental protection and natural resource management policies. Under the Energy, Climate and Environment Programme, we prepare comprehensive sectoral and macroeconomic analyses, focusing on the broadly defined low-emission economic transition in Poland and globally. We are active in areas such as: Polish and EU energy and climate policy, domestic resource policy, improving resource efficiency in the economy, protection of the environment and public health by limiting harmful emissions, sustainable transport policy.



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Other publications:

"Alternating Current. Landscape of climate finance in the Polish energy sector",
Bukowski M. (ed.), WiseEuropa, Warsaw 2020.

"Renovation. Landscape of climate finance in the Polish buildings sector",
WiseEuropa, I4CE, NCI, Warsaw 2020.

"Restart: how to break the deadlock in the Polish energy sector",
Bukowski M., Śniegocki A., WiseEuropa, Warsaw 2020.