



FORUM FOR
ENERGY ANALYSIS

REVENUES FROM ETS AUCTIONING
AS SOURCE OF FINANCING
FOR LOW-EMISSION MODERNIZATION IN POLAND

— JULY 2016



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The authors wish to thank Edith Bayer for her
valuable comments for the draft version of
the paper.

The aim of the Forum for Energy Analysis is
to conduct a dialogue focused on the power
sector that is open to the diverse opinions of
all stakeholders in Poland, based on analysis-
orientated strategic thinking about the
upcoming key challenges in the sector.

**Financed by the
European Climate Foundation**

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1. MAIN MESSAGE

- Revenues from auctioning of the national pool of ETS allowances may become the major source of financing for low-emission modernization of energy sector in the coming decade (2021-2030).
- Depending on the price of allowances, Poland could obtain approx. PLN 40-100 billion (EUR 10-25 billion) from ETS auctions in 2021-2030. Poland will also have two additional mechanisms for supporting low-emission modernization: derogations for energy generation (PLN 20-40 billion – EUR 5-10 billion) and the Modernization Fund (PLN 8-20 billion – EUR 2-5 billion).
- Well-designed redistribution of auction revenues may trigger modernization of the Polish economy, especially in selected areas of energy generation and energy efficiency.
- Domestic decision is required on how the auction revenues are to be distributed for two general purposes: support of energy transformation and support for the national budget.
- The ETS Directive recommends that at least a half of the auction revenues should be used for low-emission modernization. However, Poland's investment needs in this area weigh in favor of spending all the funds for financing of the broadly understood energy transformation.
- Auction revenues should support decreasing emission intensity of Poland's energy mix and improvement of the energy efficiency. At least 75% of auction revenues should be spent for financing these areas.
- The funds should be spent for the development of the transmission infrastructure, improvement of the energy efficiency in buildings, heating sector modernization and support for development of distributed energy generation. In addition, the scale of available financing weighs in favor of supporting the development of electromobility, which could contribute to emission reduction in transport and improvement of urban air quality.
- Large-scale electricity generation should be financed from the derogation mechanism within ETS, designed specifically for this purpose.
- Auction revenues may be also spent for preventing carbon leakage from energy-intensive industry. Compensation of indirect costs of emission can consume as much as 20-25% of auction revenues. The mechanism should encourage the development of innovation and improvement of energy efficiency. Assessment of actual demand of the individual industries for carbon leakage protection is of importance, including after the implementation of support measures.
- Approximately 2-3% of auction revenues should be spent for supporting restructuring of regional economies (including Silesia) indirectly affected by technological changes in energy generation. The pool is also worth considering to be spent for supporting the development of competency and expert framework for the energy transformation, including on the local level.
- Spending of ETS auction revenues should be coordinated both with the activity of the Modernization Fund and with support from Structural Funds before and after 2020.

2. BACKGROUND AND SUBJECT OF ANALYSIS

The debate around the reform of the EU Emissions Trading System (EU ETS) has been ongoing since October 2014, when the European Union made its decision on new climate and energy targets for 2030. Solutions are needed to help EU ETS support the achievement of the objectives in a manner that is cost-effective and acceptable for various groups of interest: electricity consumers (both industrial and domestic), energy companies, energy-intensive industries and suppliers of low-emission technologies, additionally, taking into account the specifics of the Member States.

The EU ETS system that has been in place for 10 years is now seen as no longer having the functionality it was designed for. Substantial surplus of CO₂ certificates has resulted in allowance prices going down to EUR 4-7 per tonne. This price level does not provide sufficient investment incentives, in particular, in terms of replacement of the oldest and least cost-effective generating units with new, low-emission sources. Therefore, in mid-July 2015, the European Commission (EC) presented a proposal for reform of the EU Emissions Trading System. The aim of the European Commission's efforts is to reduce the surplus of certificates and to take action for improved functioning of the market for CO₂ emission allowances.

However, arrangements regarding practical application of the auctioning mechanism for supporting emission-reducing measures constitute an equally important part of the EU debate around the future of the ETS. A range of decisions must be taken on national level, as the European Commission establishes only a general framework in this respect. In the last year's communication, new solutions were presented for:

- Support that some of the Member States (including Poland) will be able to provide for their energy sectors out of their pool of CO₂ emission allowances (derogation);
- Additional investment funds guaranteed for Member States with the lowest GDP per capita in the form of a "Modernization Fund;"
- Extended guidelines for possible use of the ETS auction revenues in compliance with the objectives stipulated in the Directive.

Among the said mechanisms, Poland will gain its greatest freedom in terms of use of ETS action revenues. The range of activities to be financed with this mechanism is a broad one. At the same time, this is the largest potential pool of funds for low-emission modernization after 2020. According to the Directive, at least 50% of the revenues from the auctioning of allowances received by the Member States (or their equivalent from general taxes) should be used to meet the objectives of the EU energy and climate policy.

This analysis covers possible uses of revenues from emissions trading, i.e. ETS auctioning, for supporting implementation of projects aimed at modernization, improvement of competitiveness and innovativeness in the Polish energy sector in synergy with the Modernization Fund and derogations. The public debate around this subject is of particular importance because so far, Poland has not developed a mechanism that would actually support the modernization of the domestic economy in a direction consistent with the long-term objectives of the EU policy: improvement of energy efficiency, substantial reduction of greenhouse gas emissions and other pollutants produced by combustion of fossil fuels, or enhancement of energy independence.

3. METHOD AND ANALYTICAL PROCESS

The first stage of the analysis involved estimation of the volume of potential revenues from the ETS that can be used for modernization, taking into account alternative paths for increase of the CO₂ emission allowance prices. In our second step, we studied the legal framework specifying the extent of possible choices and reviewed good practices for use of the ETS funds in other Member States of the European Union. Finally, we assessed various options for spending the ETS funds for low emission modernization in Poland, using the assessment for formulating proposals for distributing the funds among the individual investment areas.

The present study was compiled as part of an open process divided into four main stages:

Stage 1 The Forum for Energy Analysis team consulted the subject matter of the analysis with the Expert Panel.

Stage 2 The analysis was carried out by the Warsaw Institute for Economic Studies (WiseEuropa) team – the think tank experienced in cross-disciplinary analyses linking the energy issues with broader economic context.

Stage 3 WiseEuropa prepared the first version of the study, based on various sources of data including, inter alia, publicly available statistics and strategic documents.

Stage 4 The preliminary results were presented and discussed by the Expert Panel in October 2015. The meeting was attended by more than 20 experts related to the energy industry, and the conclusions of the discussion have been included in this paper.

Expert Panel

The Forum for Energy Analysis distinguishes itself by the fact that it not only prepares studies, but it also discusses the results of the studies with an interdisciplinary Expert Panel before the publication of subsequent policy papers. The purpose of such an approach is to increase the transparency of the process of preparing analyses and formulating recommendations and to improve their quality. The Expert Panel is composed of representatives of energy companies, academic institutions, independent experts, industry, government officials, and non-governmental organizations. It is important to underline, however, that although this text draws on opinions from the Expert Panel, it has not been jointly agreed upon with them.

4. BASIC INFORMATION ON EU ETS

4.1. MAIN ASSUMPTIONS

The EU Emissions Trading System (EU ETS) is an environmental policy instrument aimed at reducing the climate impact of the European energy generation and industry. The system works on the “cap and trade” principle, using market mechanisms for achieving the predefined objectives at the lowest possible cost. The system assumes setting of a limit for total greenhouse gas emissions in the EU area, whereas it does not cover the whole economy, but only the energy sector, aviation and the most energy-intensive industrial installations. The characteristic features of EU ETS and other “cap and trade” systems are as follows:

- The environmental impact is known in advance, i.e. there is ex ante decision on the maximum allowed limit for greenhouse gas emissions (“cap”);
- Companies can trade allowances with one another (“trade”);
- The future unit cost of emission allowances is not known, being dependent on the supply and demand for emission allowances.

The EU ETS operates not only in 28 countries of the European Union, but also in Iceland, Liechtenstein and Norway. This is the largest system of this kind in the world, covering more than 11,000 installations in energy generation and industry as well as aviation emissions in the Member States. Extension of its coverage to the transportation sector has been discussed as well, although no decisions have been made in this respect so far. From the economic point of view, the ETS resembles the pollution tax (or the excise tax on fuels), whereas it affects indirectly, and not directly, the price of goods which are produced involving greenhouse gas emissions. The regulator specifies not the tax rate, but the acceptable level of emissions across the EU. The price of emission of 1 tonne of CO₂ (effective tax rate) is set in the market, within which companies may, as needed, buy emission allowances in auctions and trade allowances with one another. Such a construction is required, on the one hand, for reasons resulting from the Treaty – the European Commission must not impose taxes – and, on the other hand, due to efforts aimed at enhancing the effectiveness of the system. Companies reducing their emissions can profit by selling their allowances to those entities which do not reduce theirs (for example, due to technological reasons or temporary increase of CO₂ emissions). The long-term objective of the system is to encourage investments and innovations for reducing greenhouse gas production where it is the least expensive subject to conditions of appropriate price and competition.

4.2. EVOLUTION OF THE SYSTEM TO DATE AND ANTICIPATED CHANGES

The Directive governing the European Union Emissions Trading System (referred to as the ETS Directive) was adopted by the European Parliament in 2003. The perspective for development of the EU ETS covers 4 stages for now:

Phase 1 (2005-2007), during which the operation of the system was tested and allowances exceeding the needs of companies were allocated free of charge;

Phase 2 (2008-2012), during which the system abandoned the pilot phase and entered the operational phase. The number of allowances allocated free of charge has been limited with a view to reduce emissions;

Phase 3 (2013-2020), during which auctions started to play an important role, whereas a substantial part of allowances are still allocated free of charge. Furthermore, aviation has been included in the system;

Phase 4 (2021-2030), the framework of which is under development.

On each stage of the system implementation, the general pool of allowances was allocated, and their allocations to the individual installations were performed by the Member State.

The aim of the present negotiations regarding the specific design of changes to the ETS Directive is to ensure the achievement of the objectives of the EU energy and climate policy until 2030. The design of the system as of today results from the reform implemented in 2013, required by the energy and climate package of 2008 and the objectives for 2020. At that time, one common limit of allowances for all states participating in the system was agreed. The limit is to be reduced

by 1.74% annually until 2020. Transformation of the free-of-charge allowance allocation system into an auction system was started as well. However, some of the states (including Poland) still use the option of free allocation of a limited number of allowances for power plants (in the form of derogation) in return for investments in modernization of the energy sector (performed under the national investment plan – in Polish: KPI).

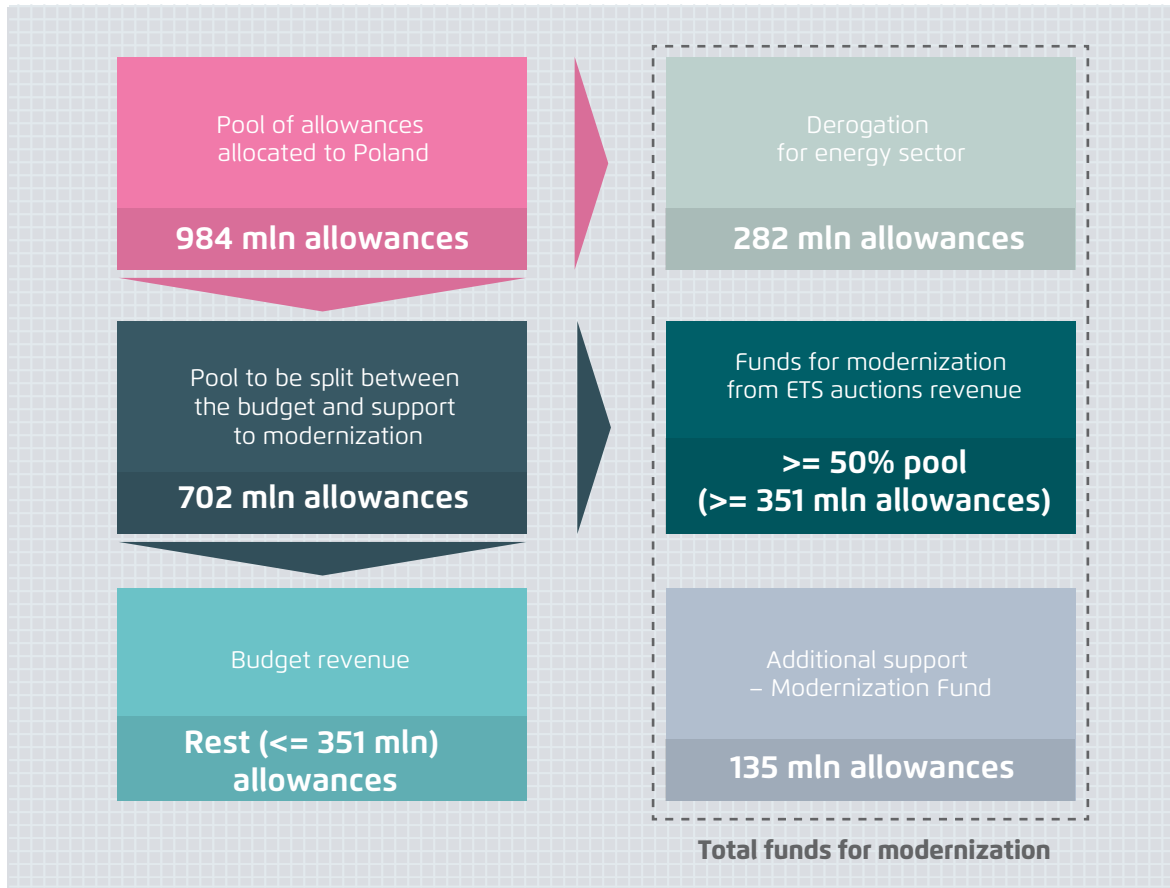
In the next phase, after 2020, it was agreed that reduction of the number of allowances will accelerate to 2.2% annually and that the rules for distributing emission allowances will change further. Pursuant to the rules, Member States shall sale 57% of the allowances on auctions, and the remaining 43% shall be distributed free of charge among industrial companies. The term of derogation has been also extended: Central and Eastern European countries will still be able to support the electrical energy sector with free allocation of a part of allowances. However, the pool of allowances subject to derogation will be limited and the rules for their allocation will change. Specific provisions in this respect are contained in the revision of the ETS Directive proposed by the EC in 2015. Investment plans prepared by Member States, implemented in return for receipt of free allowances, should be, according to the Commission, replaced with a tender approach: individual investment projects will compete for support in a transparent, competitive procedure. This means that if the Commission's proposal is adopted, energy companies will not be able to rely on automatic support in the form of free allowances (in the present KPI, it was proportionate to historical levels of emissions).

The ETS Directive stipulates also that at least 50% of the proceeds from ETS auctioning (or their financial equivalent) should be used for purposes directly or indirectly related to reduction of greenhouse gas emissions. The range of such purposes is specified in the Directive, which means that Member States willing to comply with its assumptions cannot proceed in an arbitrary manner. However, the range is broad enough to allow for adapting the auction revenues to the specific needs of the relevant country. Moreover, the list is to be extended in the future, but without prejudice to the general rule that funds originating from the ETS should be spent in compliance with the main objective of the EU energy and climate policy, being the reduction of greenhouse gas emissions. The provisions are not binding, yet they reflect the logic of the climate and energy policy generally applicable in Western Europe: ETS auction revenues should facilitate low-emission modernization, especially in less well-off EU states. The range of activities to be financed under the ETS Directive is presented in chapter 5.1.

4.3. REVENUES FROM EU ETS AS SUPPORT FOR LOW-EMISSION MODERNIZATION IN POLAND AFTER 2020

In 2021-2030, Poland will be able to auction allowances for emission of 984 million tons of CO₂, of which maximum 28% (282 million allowances) can be subject to derogation. This means that the allowances can be allocated free of charge to the energy sector in return for the modernization investments. The remaining part, i.e., at least 702 million allowances, will have to be auctioned, and the revenues will support the Polish budget. At least 50% of the funds thus obtained should be, pursuant to the ETS Directive, used for achievement of the EU climate policy objectives. The relevance of the support from the perspective of needs of the Polish economy depends on several factors, including, but not limited to: price of allowances that is currently not known, and the domestic decision on the volume of funds allocated for modernization and on how they should be spent.

Diagram 1. Revenues from auctioning of allowances of the domestic pool vs. other ETS-related sources of financing for low-carbon emission modernization



Source: WiseEuropa own elaboration

In general, three options are possible:

1. Compliance with the recommendations of the Directive to the least extent – use of 50% of auction revenues for purposes specified therein;
2. Compliance with the recommendations of the Directive with an excess – e.g. use of the whole auctioned pool for modernization;
3. Refusal to comply with the provisions of the Directive through referring to its non-mandatory nature.

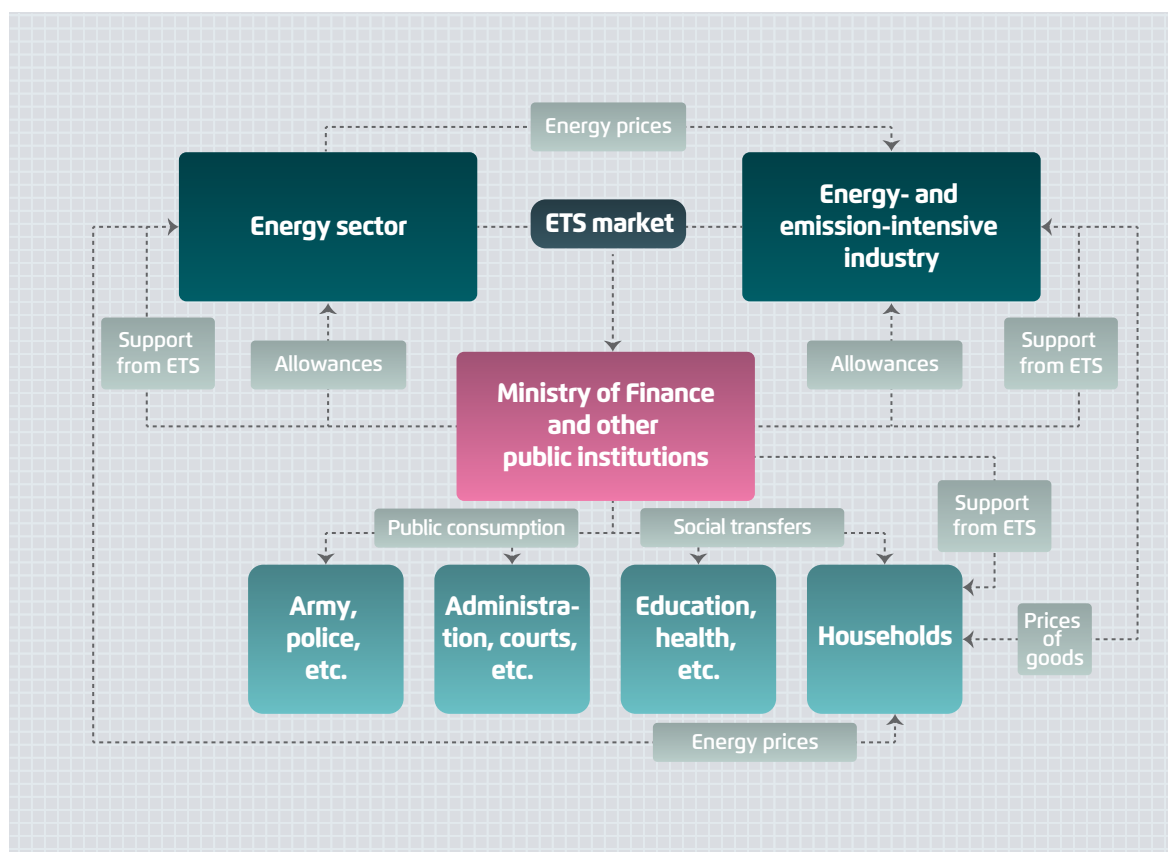
In each of the options, funds are redistributed in the economy, but contribution to the success of the modernization agenda is different.

4.4. REDISTRIBUTION OF EU ETS FUNDS

Use of a part of the funds to support reduction of greenhouse gas emissions, recommended in the ETS Directive, is not mandatory. However, due to the fact that ETS revenues constitute state budget revenues, the mere fact of existence of the system is bound with a mechanism for redistribution and reallocation of funds within the economy, the operating principle of which is unchanged. In other words, every PLN gained by the Polish budget from sale of CO₂ emission allowances implies *de facto* redistribution among various households. Free allowances for the industry or energy generation, support of investments in low-emission assets or combating

“energy poverty” constitute a modification of resource allocation within the economy which is implemented through public finances, even when the budget does not provide any support for the energy and climate policy.

Diagram 2. Redistribution of ETS funds



Source: WiseEuropa own elaboration

The form of redistribution – either through public expenditures or support for low-emission modernization – depends on the public choice made in the given country. If the state allocates funds obtained from the ETS for supporting restructuring of the energy sector or improvement of the energy efficiency, it shall most likely reduce the time needed for achievement of the assumed reduction objectives. Due to the fact that revenues from charges for greenhouse gas emissions depend, *ceteris paribus*, on the extent of the emissions, faster emission cuts also mean reduced impact of the ETS system on the economy. This is one of the arguments weighing in favor of an active approach to application of ETS revenues in Poland during the coming years. Another one is improvement of the domestic balance of emissions trading (i.e. the difference between the volume of allowances sold by the Polish state and the volume of allowances used by the Polish economy). Poland’s postponement of the reduction measures increases the risk of a permanent negative balance in emissions trading, i.e. a situation in which the costs of purchase of allowances for Polish entities exceed the benefits for the state budget.

The decision on support for low-emission transformation should take into account the impact of resource reallocation within the economy on its individual sectors and stakeholder groups. Increasing allowance prices affect the competitiveness of emission-intensive power plants and industrial plants, and indirectly also the electricity-intensive industry. However, the present climate and energy policy framework provides for derogation for the Polish electrical energy sector and

an EU-wide protection measures for energy-intensive industry¹. According to the present legal situation, protection of electro-intensive industries is implemented on the Member State level.

Low-emission transformation also requires adaptation on the part of households. For their economic well-being, the increased costs of heating can turn out to be of particular importance, related not as much with the climate policy as with efforts aimed at air quality improvement. Here, any support requires decision on the national level as well. In this context, support for investments in energy efficiency is especially favorable. Such investments foster achievement of a range of social and economic benefits, including savings on energy bills, improvement of air quality, increased comfort of use of buildings and emergence of new development incentives for local economies and the labor market.

On the other extreme, there is the passive policy, i.e., treating the ETS revenues as general taxes, such as: VAT, PIT or excise tax. In this variant, the ETS revenues shall either reduce the public debt or other taxes, or shall be redistributed for other purposes: administration, social transfers, defense, education, etc., allowing for increase of the public expenditures and increasing the general fiscal burden on the economy (level of taxation for households and companies).

4.5. LEVEL OF POTENTIAL REVENUES FROM EU ETS AUCTIONS IN 2021-2030

In order to estimate the level of revenues from EU ETS auctions after 2020, we have analyzed **three scenarios for development of allowance prices:**

- In the “low” scenario, the price of allowance for emission of one ton of CO₂ in 2021 will be EUR 10, and by 2030 the price will double.
- In the „high” scenario, the price of allowances will increase from EUR 20 in 2021 to EUR 50 in 2030.
- In the „medium” scenario, the allowances will cost EUR 15 in 2021 and EUR 35 in 2030.

Table 1. Scenarios for development of emission allowance prices in 2021 and 2030

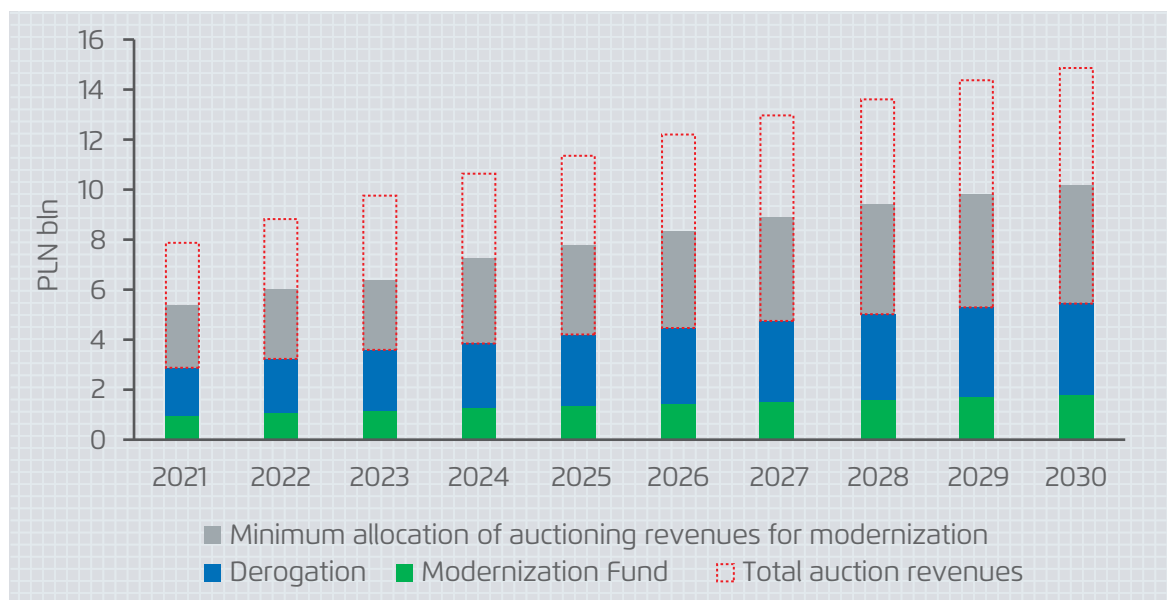
Price development scenario	Low	Medium	High
Allowance price in 2021	10	15	20
Allowance price in 2030	20	35	50

Source: WiseEuropa own estimates

The total value of funds to be used by Poland for low-emission modernization shall depend not only on prices of allowances, but also on the decision on how to distribute ETS auction revenues, which can range from PLN 44 billion to more than PLN 100 billion in 2021-2030. Use of a half of the revenues for low-emission modernization shall mean spending of PLN 22-51 billion for this purpose. Taking into account the Modernization Fund and derogation for the energy generation, the total pool of funds amounts to PLN 48-111 billion. However, if Poland used all the auction revenues for supporting low-emission investments, the total amount of funds at the country’s disposal in 2021-2030 would range from PLN 70 million to even PLN 162 billion.

¹ Detailed legal solutions in these areas are still being negotiated.

Chart 1. Forecasted funds for modernization originated from the ETS, medium allowance pricing scenario (PLN bln/year)



Source: WiseEuropa own estimates

Therefore, auctions of emission allowances may constitute the main source of financing of public support for low – emission economy, providing for 45-63% of all the ETS funds to be used to domestic modernization investments. Chart 1 shows the distribution of the total value of funds for modernization from the individual sources: ETS auctions, derogation and the Modernization Fund.

Table 2. Total value of Poland's funds for low-emission carbon modernization, 2021-2030 (in PLN bln)

Price scenario	Low	Medium	High
Modernization Fund	8	14	19
Derogation	18	29	41
Minimum allocation of auctioning revenues for modernization	22	36	51
Total auction revenues	44	73	101
Minimum total value of funds for modernization (use of 50% of auction revenues)	48	79	111
Maximum total value of funds for modernization (use of 100% of auction revenues)	70	116	162

Source: WiseEuropa own estimates

4.6. REVENUES FROM EU ETS VS. POLAND'S INVESTMENT NEEDS

Potential revenues from auction of allowances should be confronted with the investment needs that will emerge in the energy sector, in relation to the building thermal renovation and in the transportation sector (i.e., in the three main investment areas) until 2030. For this, the MEEP and POESSIA models developed by WiseEuropa experts have been applied. The models are used for estimating future changes in Poland's energy mix and the related economic and environmental consequences².

² For example, analyses for the transportation sector (Bukowski et al. 2015), improvement of energy efficiency or modernization of energy generation (Bukowski and Śniegocki 2014).

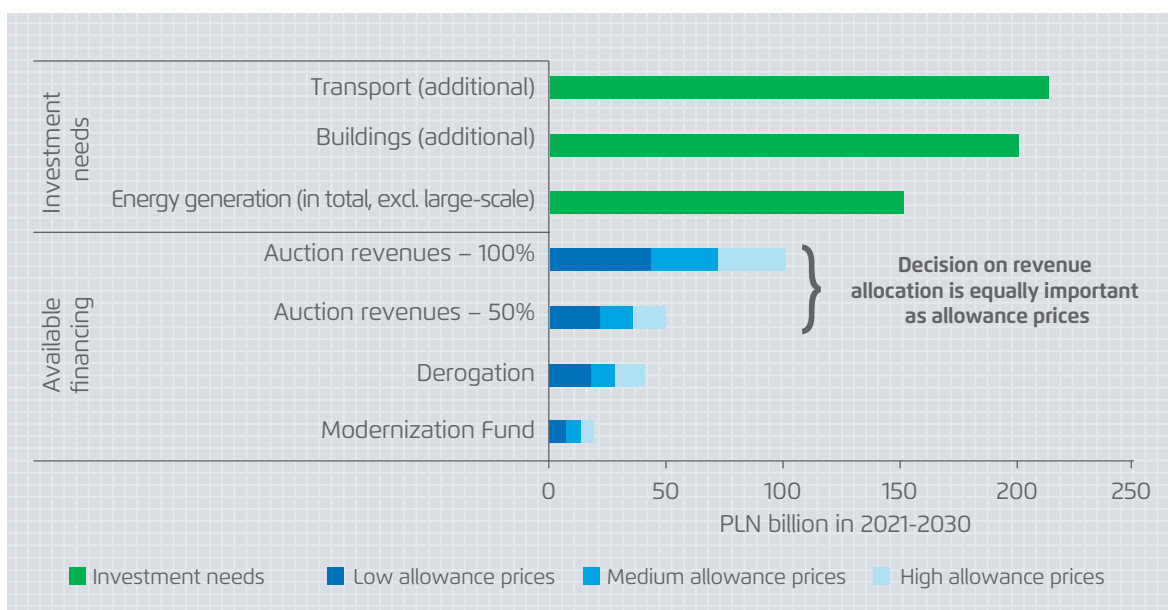
In the case of energy efficiency improvements in buildings, investment needs related to low-emission modernization exceed PLN 200 billion. The volume of total required investments in the electrical energy sector is similar (PLN 242 billion), which results mainly from the assumed deployment of capital-intensive generation technologies. In case of transportation sector, investment expenditures are also anticipated to reach a similar level (in total, PLN 241 billion), resulting particularly from increased costs of purchase of vehicles with improved environmental characteristics. Thus, the volume of the potential pool of revenues from ETS auction (supported by the Modernization Fund and the derogation mechanism) will be sufficient for satisfying a substantial part (approx. 10-30%) of the demand for financing low-emission investments in 2021-2030.

Table 3. Estimated investment needs for low-emission modernization in selected areas, 2021-2030 (in bln PLN)

Buildings: additional expenditures for improvement of energy efficiency	202
Transportation: additional expenditures for improvement of fuel efficiency	214
Transportation: additional expenditures for low-emission infrastructure	27
Heavy industry: additional expenditures for improvement of energy efficiency	6
Electrical energy sector: total investment expenditures, including:	242
- large-scale power plants (e.g. coal, gas, nuclear)	89
- combined heat and power plants	14
- RES, including distributed generation	78
- grid infrastructure	61

Source: WiseEuropa, MEEP and POEESIA models

Chart 2. Comparison of the level of potential support for low-emission modernization with the investment needs in three key sectors, 2021-2030



Source: WiseEuropa own estimates

It should be emphasized that it's the decision on allocating revenues from auctioning of the national pool of ETS allowances that will have the decisive impact on the scale of financial support for low-emission modernization in Poland. The role of domestic decisions in this area is comparable with the impact of future prices of allowances on the pool of available funds.

5. FRAMEWORK CONDITIONS FOR THE SUPPORT

5.1. LEGAL FRAMEWORK

The ETS Directive of 2003 stipulates that at least 50% of the proceeds from the auctioning of allowances should be used for the following purposes:

- To reduce greenhouse gas emissions, to adapt to the impacts of climate change, to fund research and development as well as demonstration projects for reducing emissions and adaptation to climate change;
- To develop energy from renewable sources as well as to develop other technologies contributing to the transition to a safe and sustainable low-carbon economy ;
- Measures to avoid deforestation and increase afforestation and reforestation in developing countries as well as forestry sequestration in the European Union;
- The environmentally safe technology of capture and storage of CO₂ (CCS);
- Social campaigns promoting low-carbon and public forms of transport;
- To finance research and development in energy efficiency and clean technologies in the sectors covered by this Directive;
- Measures intended to increase energy efficiency and to perform building thermal improvement or to provide financial support in order to address social aspects in lower and middle income households;
- To cover administrative expenses of the management of the Community scheme.

In the proposed amendment to Directive 2003/87/EC, the following objectives were added:

- To fund financial measures in favor of sectors or subsectors that are exposed to a genuine risk of carbon leakage due to significant indirect costs that are actually incurred from greenhouse gas emission costs passed on in electricity prices;
- To finance actions related to climate change in vulnerable third countries, including adaptation to the impacts of climate change;
- To promote getting qualifications by employees and reallocation of labor affected by the transition of jobs in a low-carbon economy.

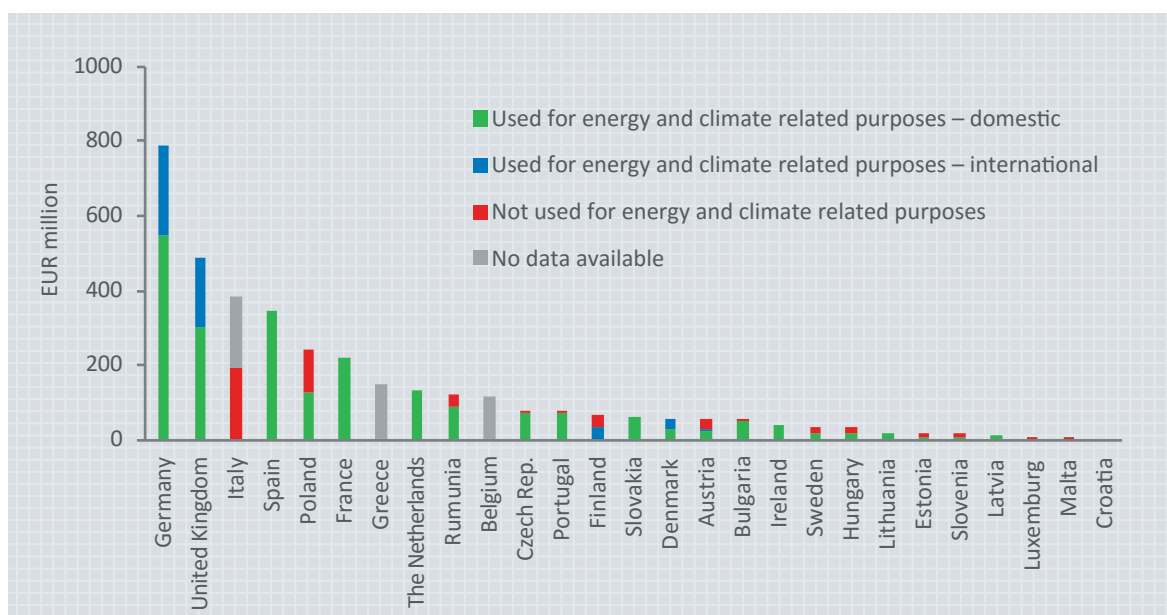
Thus, the Directive provides the Member States with a broad range of methods for use of the allowance auction revenues. Owing to the proposed amendment, it will be possible to use this source for financing not only investment actions in the area of energy generation, distribution and consumption, but also protective actions, if any, for electro-intensive sectors that are in total responsible for approx. 5% of added value generated in the Polish manufacturing (Bukowski and Śniegocki 2014³). From Poland's perspective, the option of use of ETS revenues for restructuring of regions affected by transformations caused by changing role of coal can be interesting.

³ www.fae.org.pl/en/analysis/electricity-prices-and-industrial-competitiveness.html

5.2. USE OF REVENUES FROM THE ETS BY OTHER COUNTRIES

Most countries use revenues from CO₂ allowances auction for financing actions supporting low-emission modernization of the European economy, as shown in chart 3. In most cases, they use the pool for supporting improvement of the energy efficiency of residential buildings, in particular those inhabited by low-income residents. A popular objective for support is also distributed energy generation based on RES, followed by low-emission transportation (electromobility) and industry.

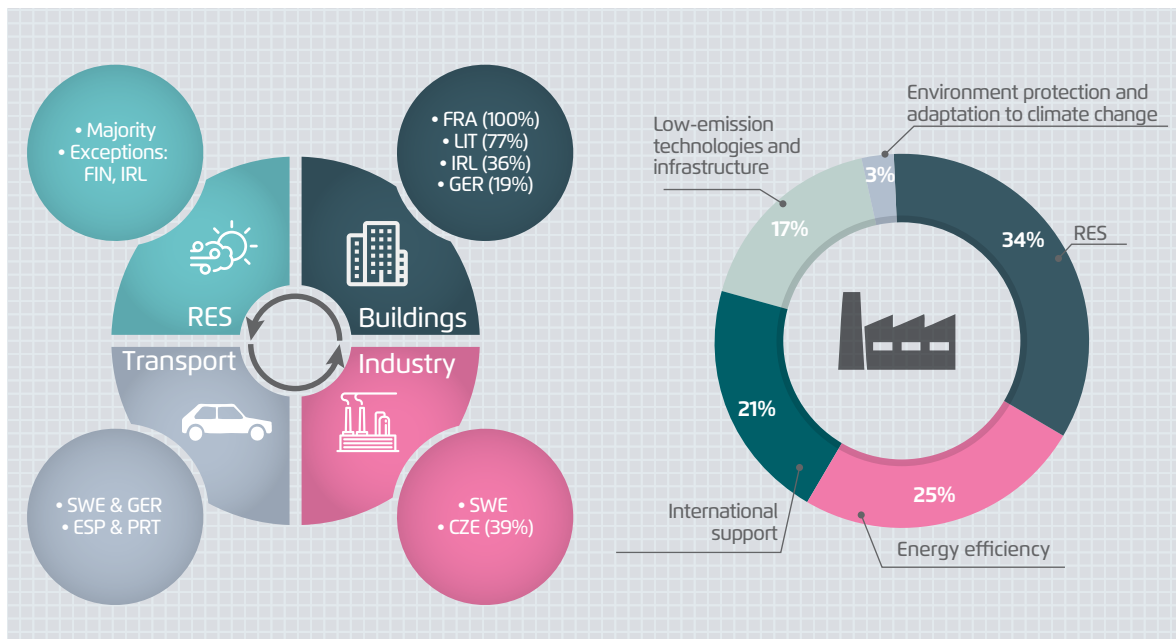
Chart 3. Use of EU ETS auction revenues in EU Member States, 2013



Source: European Commission

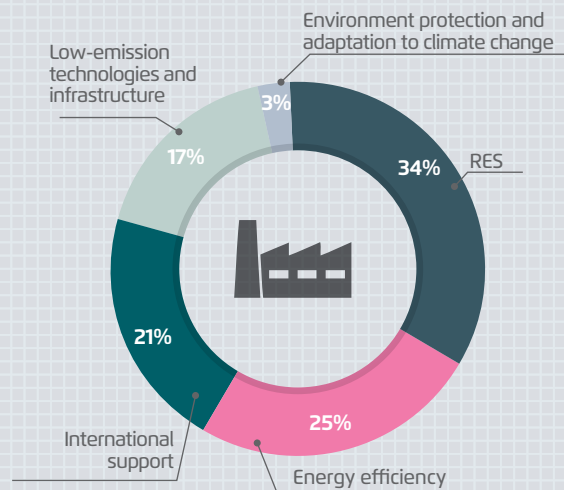
The most interesting example of active use of revenues from the ETS is set by Germany. Germany uses the total revenues from allowance auction for the EKF - Energy and Climate Fund (Energie- und Klimafonds), separated by the German government from the federal budget in 2010. Due to low prices of CO₂ allowances and their relatively limited number auctioned, the budget of the Fund has been relatively low so far. In 2013, the budget amounted to EUR 1.4 billion, of which EUR 790 million originated from the ETS. Almost one-third of its expenditures was used for the development of electromobility. Slightly lower amounts are allocated by the EKF for the development of RES and building thermal performance improvement as well as international activity.

Diagram 3. Sectors supported with EU ETS auction revenues in EU countries



Source: WiseEuropa own elaboration

Chart 4. Estimated structure of use of EU ETS auction revenues in the EU, 2013



Source: I4CE and Enerdata (2015)

Support for low-emission modernization from ETS auction revenues is not limited to Western European countries and the EU ETS. In the U.S., states associated in the RGGI (Regional Greenhouse Gas Initiative) use most of their auction revenues for supporting energy efficiency in buildings and for the development of RES. In turn, Poland and other Central European countries used the GIS (Green Investment Scheme), a derivative of the international emissions trading under the Kyoto protocol.

6. EVALUATION OF OPTIONS FOR SPENDING ETS REVENUES FOR MODERNIZATION

6.1. SUPPORT FOR ENERGY GENERATION

According to the ETS Directive, co-financing of energy sector investments from the ETS revenues may apply to renewable technologies, to capture and storage of CO₂, or to research and development. States with particularly high reduction challenges (including Poland) will have a greater choice of options for direct support of energy generation by derogation. Increase of prices of allowances in a long term shall concurrently boost the profitability of low-emission investments in energy generation. Therefore, in spite of a large potential and low unit costs of emission reduction, support from the ETS funds in the electrical energy sector does not seem to be necessary. The pool of free allowances that will be allocated by derogation is so extensive (approx. PLN

billion 18-41) that it can cover a substantial part of additional costs of the sector's low-emission modernization. In this case, it will rather be a challenge to effectively use the support – in compliance with the EU short- and long-term reduction objectives. The exceptions are the heating sector as well as combined production of heat and power. In Poland, this sector has an exceptionally large share in satisfying the energy demand of the economy, and at the same time it is missing public policy framework that would specify possible directions and scope of operational and capital support comparable to the electrical energy sector.

Limitations regarding public support for energy generation are also of extreme importance. The EU policy in this area heads towards the development of a single energy market, allowing for competition among suppliers from various Member States and continued efficient growth of the RES role in the system. Sustainable development of conventional energy generation shall be affected mainly by the future energy market reforms (e.g., decisions regarding regionalization of the energy market or introduction of capacity mechanisms), i.e. solutions of a systemic nature.

Considering the above factors, it seems substantiated that the funds of the "50% pool" should be used for purposes other than supporting large-scale energy generation. The situation of the heating sector is somewhat different, as it shall not benefit from the derogation mechanisms stipulated by the Directive. However, if combined production of heat and power is supported, the whole energy system should be taken into account, especially cooperation with RES and possibility of energy storage in heating networks. In the case of large-scale energy generation, efforts should be concentrated on effective use of funds available through derogation mechanism in the next decade, and on developing institutional solutions in the European energy market, allowing for sustainable growth of this area, consistent with the EU long-term energy and climate objectives.

6.2. SUPPORT FOR THE INDUSTRY

Although the energy-intensive industry is a relatively small part of the European industry, it consists of industries constituting particularly vulnerable elements of value chains: the steel industry, the cement industry, processing of non-ferrous metals, etc. They are subject to strong international competition, thus being particularly sensitive to changes in relationship between import prices and export prices in international trade (referred to as "terms of trade"). As a consequence, their voice is clearly heard in Europe and in Poland in discussions on the energy and climate policy, in spite of low average impact on the competitiveness of the industry as a whole (Bukowski i Śniegocki 2014⁴). Therefore and in spite of concerns that operational support for electricity-intensive industries might potentially strengthen the *status quo ante*, the ETS Directive stipulates such a possibility among acceptable options for public intervention. However, support for the industry should be based on detailed analysis of legitimacy in order to avoid unfair redistribution of costs of the energy and climate policy among market participants. It is important to combine the support with incentives for improvement of energy efficiency and development of innovations in companies. The legitimacy of support should be subject to regular reviews.

⁴ www.fae.org.pl/en/analysis/electricity-prices-and-industrial-competitiveness.html

6.3. SUPPORT FOR NON-ETS SECTORS

ETS funds can be used by industries not covered by the system itself (so called non-ETS sectors) which, similarly as the electrical energy sector and heavy industry, must contribute to the GHG emission reduction objectives set for 2030. The main non-ETS sectors are: transportation, buildings (individual heating) and agriculture. The most promising directions for supporting low-emission transformation are the buildings and transport. Studies performed in recent years (e.g., the World Bank's report *Transition to a Low-Emission Economy in Poland*, the *Low-Emission Poland 2050* project, the *Buildings modernisation strategy: Roadmap 2050* report) have shown a substantial reduction potential of both sectors in Poland, concurrently with noticeable economic benefits, including GDP growth and job creation (for buildings in particular).

Supporting the modernization of buildings from ETS funds is acceptable, for example, in the case of deep thermal renovation of existing residential and commercial buildings, including public utility buildings (schools, hospitals, universities, courts etc.), which are particularly energy-inefficient in Poland due to many years of negligence. For transportation, the Directive offers the possibility of "market opening" support (e.g. for electric cars or buses), in line with the declared directions of the Polish industrial policy. On the other hand, support for industries not covered by the ETS may be related with the risk of deadweight loss (supporting undertakings that would take place anyway). In addition, due to the dispersed nature of investments, supporting these industries can pose a serious administrative challenge.

However, in consideration of a high potential for reduction related with improvement of energy efficiency, taking transport and buildings into account for programs financed from ETS funds is desirable in spite of challenges related with supporting low-emission modernization in these areas. We suggest that the funds for this purpose should be integrated with the pool available through the Modernization Fund.

6.4. SUPPORTING RESTRUCTURING IN THE LABOR MARKET AND DEVELOPMENT OF NATIONAL COMPETENCY

Revenues from auctioning of allowances may be invested not only in infrastructure and equipment, but also in human resources and development of competencies necessary for effective modernization.

In the Polish context, financing a special program for Silesia from the ETS funds should be considered. It can support transformation of local economies dependent on hard coal, which is now facing the deep restructuring necessity. Such a program would include, among other elements, instruments of active labor market policy for miners. Based on the trends of previous years, it can be estimated that the costs of activation of 100,000 people in 2021-2030 will amount to approx. PLN 1.3-1.5 billion, which represents only 1-2% of total ETS auction revenues in that period⁵.

Investments in qualifications and human capital should not be limited to the personnel of emission- and energy-intensive industries. It should be also considered to use a part of the funds for developing Poland's intellectual potential for low-emission investments, innovation and expansion of expertise in terms of climate changes. The effective implementation of energy transformation, particularly on a local level, requires engagement of competent experts and

⁵ WiseEuropa estimates based on the historic data on costs of activation measures in Poland.

understanding of the modernization challenges among stakeholders and social acceptance for the necessary changes. From this point of view, directing part of available funds for research, education and training as well as social dialogue in the area of the broadly defined energy sector could, in the perspective of 2030, substantially boost sectoral, political and social acceptance for the entire process.

6.5. RELATION WITH THE MODERNIZATION FUND

Potential directions for spending revenues from ETS allowance auctions largely overlap with the areas identified in the analysis by the Forum for Energy Analysis concerning the Modernization Fund (<http://www.fae.org.pl/en/analysis/modernization-fund.html>, Bukowski et al. 2015). These were: development of distributed energy generation, heating sector modernization and thermal renovation of detached buildings, with special attention given to the projects which combine activities from different areas (e.g., plus-energy buildings). As the estimates shown in chapter 4.6 indicate, the Fund itself will not be able to cover the investment needs in all the indicated areas. The question is: should national ETS revenues be combined with the Modernization Fund and how can this be effectively achieved?

It is possible to have the supported areas divided between those two sources of financing. For example, the Modernization Fund can be used for supporting distributed energy generation, and revenues from auction can be used for solving the issue of urban air pollution through support for thermal renovation, heating sector and public transport. Another possibility would be to separate support for development of grid infrastructure (including for the heating sector and transportation) and support for other low-emission investments. Such a “thematic” division may prove to be advisable if the final wording of the EU regulations substantially restricts Poland’s freedom in terms of management of the Modernization Fund.

However, if regulations do not require implementing an explicit institutional and thematic division for spending funds from ETS auctions and the Modernization Fund, their combination is worth considering. There are several reasons for this:

- Facilitating support for integrated projects, allowing for transformation of local energy systems;
- Transferability of funds among the individual areas in case of emergence of new technological and organizational solutions better adapted to the country’s specific needs;
- Functioning of the National Fund for Environmental Protection and Water Management, BGK, BOŚ – experienced institutions that are able to effectively manage funds for low-emission investments in the areas of distributed energy generation, thermal renovation and district heating.

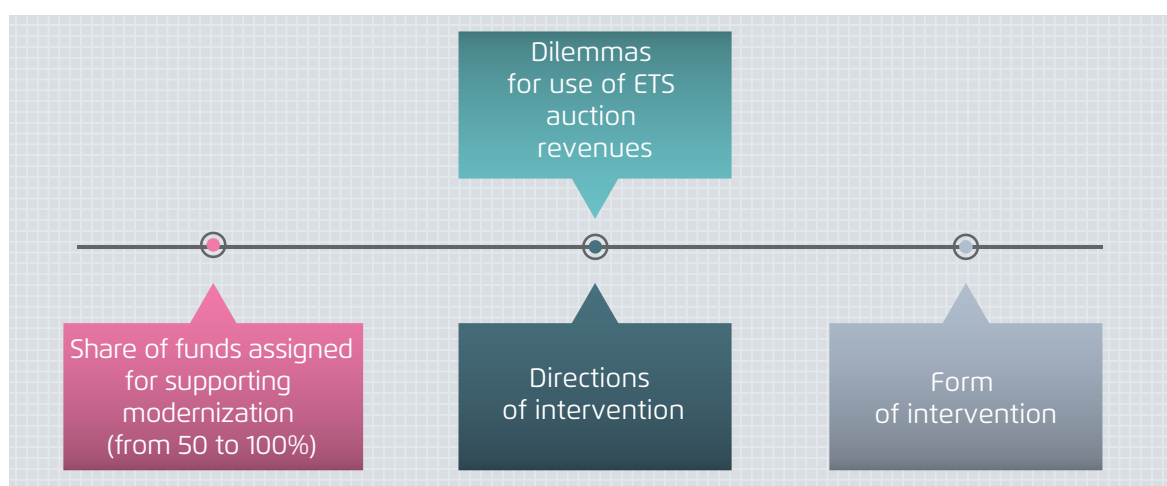
Therefore, it seems that in the case of areas qualifying for support both from ETS auction revenues and from the Modernization Fund, their centralized management (e.g., by the National Fund for Environmental Protection and Water Management, BGK or BOŚ) would be an effective solution. The solution would need to include EIB’s involvement in the use of the Fund’s resources, so instead of a simple creation of one pool for financing low-emission investments, it shall be rather necessary to create a range of programs financed (separately or jointly) from both sources. The solution shall allow for more efficient design of support instruments, allowing for maintaining flexibility in spending auction revenues and resources of the Modernization Fund (possible corrections of the support programs or transfers of funds among the programs).

7. SUMMARY: PROPOSAL FOR USE OF ETS AUCTION REVENUES

The above analysis shows that decisions on the use of ETS auction revenues after 2020 will have to be made not only in terms of the investment directions, but also in terms of their scale and form, including co-dependencies with other instruments for supporting low-emission modernization of the Polish energy sector.

Taking into account the scale of investment challenges faced by Poland in the next decades and still limited possibilities for mobilization of private funds in the case of multiple low-emission investments (in particular, in the areas of thermal renovation, district heating and distributed energy generation), **we recommend that all revenues from ETS auctions should be used for energy and climate purposes.** In addition to low-emission investments, implementation of a domestic mechanism for protection of electricity-intensive industries against indirect costs of emission through its association with ETS auction revenues can be also considered. Such a solution creates regulation framework for the industry, allowing for adaptation of the specifics of the individual industries to the requirements of the energy and climate policy. It also guarantees coverage of costs of the protective measures, irrespectively of the development of emission allowances prices (higher prices of allowances increase both the costs of protection and revenues from auctions) as well as short-term problems with the public finance deficit. The protective mechanism will require funds equivalent with sale of approx. 20-25% of the pool of emission allowances that Poland will be able to trade in auctions in 2021-2030 (after deduction of the allowances allocated by derogation), under assumption that the scope of support will comply with the European Commission's list of industries exposed to a risk of *carbon leakage* due to indirect costs of emissions.

Diagram 4. Dilemmas for use of ETS auction revenues



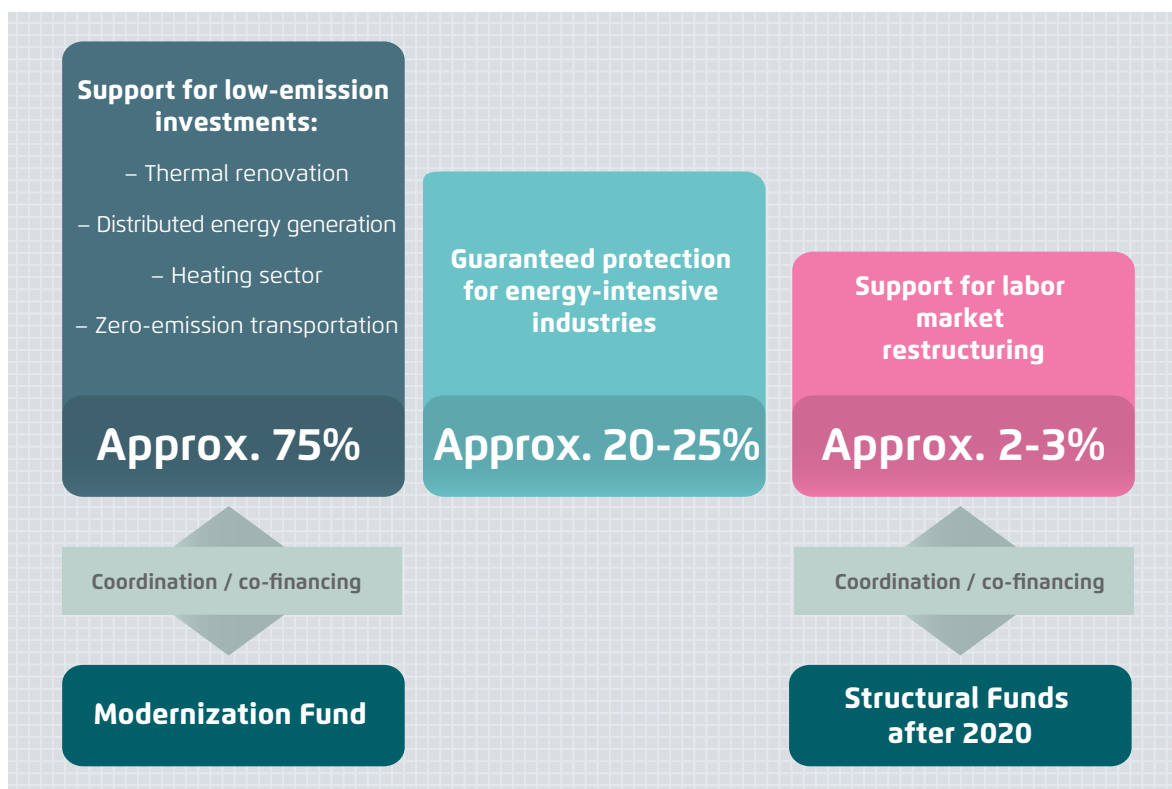
Source: WiseEuropa own elaboration

Revenues from auctioning of allowances should also support restructuring of employment in regions relying on the old fuel and energy model, in particular, in mining communities dependent on unproductive mines. Due to low capital-intensity and a relatively limited scope of activity in this area, allocation of 2-3% all auction revenues (i.e. the total amount of PLN 2-3 billion in 2021-2030, allowing for labor market activation of nearly 100,000 people) should constitute an

adequate support for transformation in local labor markets. In this area, it is also worth using the potential synergy with Structural Funds after 2020, particularly those administered on a local level and aimed at development of human capital. We recommend creating and financing through ETS of a special program for Silesia, to be used for restructuring of post-mining regions.

Support for low-emission investments – the main recommended direction for use of ETS auction revenues – should be (if allowed by the regulations) coordinated and/or combined with support for the Modernization Fund. As for recommended forms of support, repayable assistance is preferred, mobilizing private resources and closing the investment gap, as well as supporting integrated approach to development of a low-emission energy system. Taking into account the substantially larger pool of funds than the one reviewed in the analysis concerning the Fund, the key areas of support should be extended by establishing of a development incentives for zero-emission transportation, in particular, through expansion of relevant infrastructure and investments in low-emission urban transport.

Diagram 4. Proposal for distributing EU ETS auction revenues and their combination with other instruments



Source: WiseEuropa own elaboration

8. LIST OF ABBREVIATIONS

BGK – Bank Gospodarstwa Krajowego (State Development Bank of Poland)

BOŚ – Bank Ochrony Środowiska (Bank for Environmental Protection)

CCS – Carbon Capture and Storage

EIB – European Investment Bank

EKF – German Energy and Climate Fund (Energie- und Klimafonds)

EU ETS, ETS – European Union Emissions Trading System

GIS – Green Investment Scheme

RES – renewable energy sources

MSR – Market Stability Reserve

NFOŚiGW – National Fund for Environmental Protection and Water Management

RGGI – U.S. Regional Greenhouse Gas Initiative

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Table with multiple empty rows, likely representing data for revenues from ETS auctioning.

