



FORUM FOR
ENERGY ANALYSIS

EFFICIENT USE OF MODERNIZATION FUND

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The goal of the Forum for Energy Analysis is to support a debate that aims at designing a low carbon model of the Polish power industry. The Forum for Energy Analysis works in the context of decisions reached at the European level concerning the long-term strategy of the power sector until 2030 and beyond. The project aims at developing a comprehensive and cohesive vision for an economically viable transformation of the electricity market.

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1. MAIN MESSAGE

- The Modernization Fund will receive a relatively small capital injection in the amount of EUR 2–5 billion.
- The freedom of its development is limited by the Conclusions of the European Council of October 24, 2014.
- The Fund shall be allocated to urgent and important tasks that have no access to other sources of financing.
- We recommend that the Modernization Fund be used in the following areas:
 - retrofitting of existing single-family buildings,
 - heating sector modernisation – both heat generation and networks,
 - development of low-emission distributed generation.
- The sources from the Fund should:
 - stimulate private resources,
 - close the financing gap,
 - support integrated projects.
- The Fund should be used in coordination with other domestic economic policy tools.

2. BACKGROUND AND SUBJECT OF ANALYSIS

On October 24, 2014, the European Council established the Modernization Fund (MF) for years 2021–2030 supplied with revenue from the sale of 2% of the total pool of CO₂ emission allowances. The instrument is to support the modernization of power system and the improvement of energy efficiency in EU Member States, where GDP per capita in 2013 was lower than 60% of EU average (in nominal terms).

The present analysis focuses on the issue of how to make optimum use of the MF in Poland, taking into consideration the challenges and priorities of the Polish energy policy by 2030.

3. METHOD AND ANALYTICAL PROCESS

In step one, the boundary conditions of the Fund were set:

- estimating MF revenues based on alternative paths of increase in prices of CO₂ emission allowances,
- identification of institutional framework in which MF will be operating.

In step two, a comparative analysis of potential Fund activity areas was performed.

In step three, the broader regulatory environment that may significantly affect the rules and practice of the Fund operation was addressed.

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

1. The Forum for Energy Analysis team consulted the subject matter of the study with the Expert Panel.
2. The analysis was carried out by the Warsaw Institute for Economic Studies (WISE Institute) team – the think tank experienced in cross-disciplinary research linking the energy issues with broader economic context.
3. WISE Institute prepared the first version of the study, based on various sources of data including, *inter alia*, publicly available statistics and strategic documents.
4. Initial results were presented and discussed within the Expert Panel in February 2015. The Panel was composed of over 20 specialists related to the power sector and conclusions from the meeting were included in the present study.

Expert Panel

The distinctive feature of the Forum for Energy Analysis' works is the comparison of the results of the analyses carried out with the opinion of the power sector experts prior to policy paper publication. Thanks to such procedure, the transparency of the text preparation and the process of formulating recommendations is increased. The Expert Panel is composed of the representatives of public administration, companies from power sector, scientific institutions as well as industry and non-governmental organizations.

This study incorporates experts' opinions expressed during the Panel meeting, however it was not consulted therewith.

4. WHAT DO WE ALREADY KNOW ABOUT THE MODERNIZATION FUND?

4.1. MAIN ASSUMPTIONS

The Modernization Fund is a new European energy policy instrument for years 2021–2030. It is to be financed with the revenue from the sale of 2% reserve of EU ETS allowances, and according to the conclusion of the Council "allowances from the reserve will be auctioned according to the same principles and modalities as for other allowances."

The conclusions of the European Council indicate, in general terms, the final effect to be produced by the Modernization Fund – "access to cleaner, secure and affordable energy." By direct operation, the Fund is to address particularly high additional investment needs in the areas of:

- improvement of energy efficiency;
- modernization of energy systems.

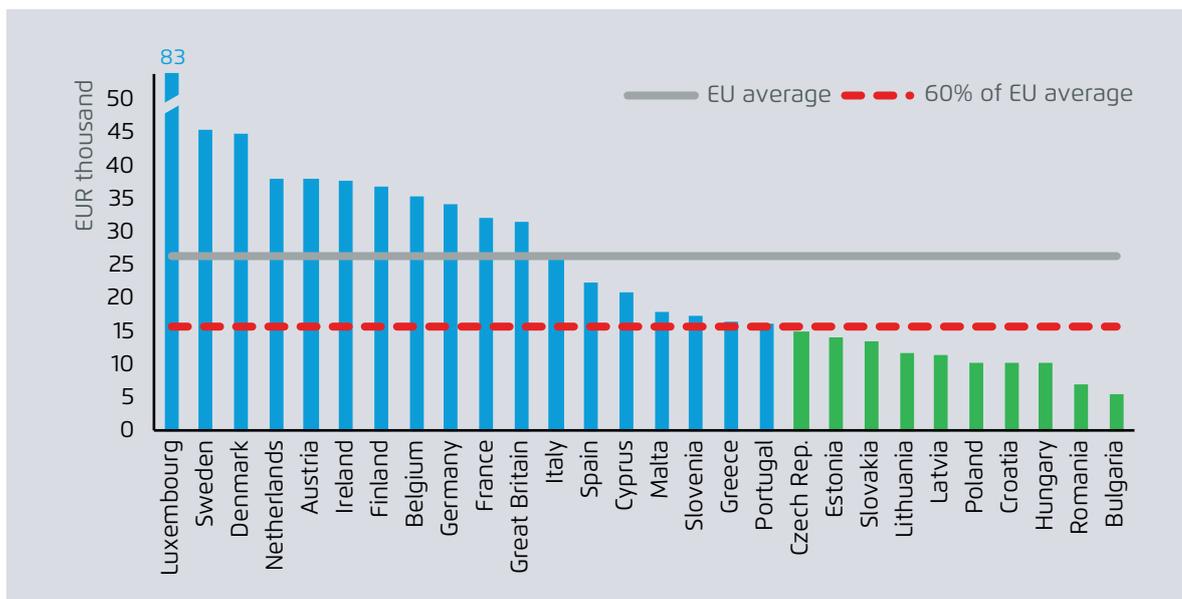
Co-financing will be granted to projects selected on the basis of a contest. Small-scale projects may use a simplified selection procedure. Member States and, alternatively, the European Investment Bank will be involved in the project selection process.

The European Council did not specify the Fund operation scheme. We do not know whether the Fund will comprise budgets allocated to particular Member States within one structure (located e.g. in EIB) or whether particular states will hold the resources directly. The key rule is the transparency of funds administration.

4.2. BENEFICIARIES OF THE FUND

The Modernization Fund will be available to the Member States whose GDP per capita expressed in EUR at market prices in 2013 was lower than 60% of EU average. These include: Bulgaria, Romania, Hungary, Poland, Croatia, Latvia, Lithuania, Slovakia, Estonia and Czech Republic. The project selection basis, i.e. the purpose and the volume of funds to be used by particular states, is to be reviewed by the end of 2024. Today we can say that, in accordance with the Conclusions of the Council, each Member State will be entitled to a specified amount obtained from the sale of allowances. The allocation is to be based on their distribution mechanism, i.e. 50% of verified emissions criteria and 50% of GDP criteria.

Chart 1. Nominal GDP per capita in the European Union in 2013



Source: WISE Institute based on Eurostat data

4.3. FUND VOLUME

According to estimates of the Ministry of Environment, Poland will, most likely, receive the funds from the sale of 135 million allowances, and the number may be affected by ongoing negotiations on the so-called Market Stability Reserve (MSR). The capacity of the Modernization Fund will be contingent upon the demand for allowances and their market prices.

Allowances intended for financing the Modernization Fund will be subject to the same trade rules as other allowances. This entails an additional risk of decreasing the pool of allowances for MF as a

result of their part being moved to the Market Stability Reserve which aims, inter alia, at counteracting oversupply on the ETS market.

In order to assess the potential of the Modernization Fund, three scenarios of allowance prices were assumed. In the „low“ scenario, the price of allowance to emit 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.

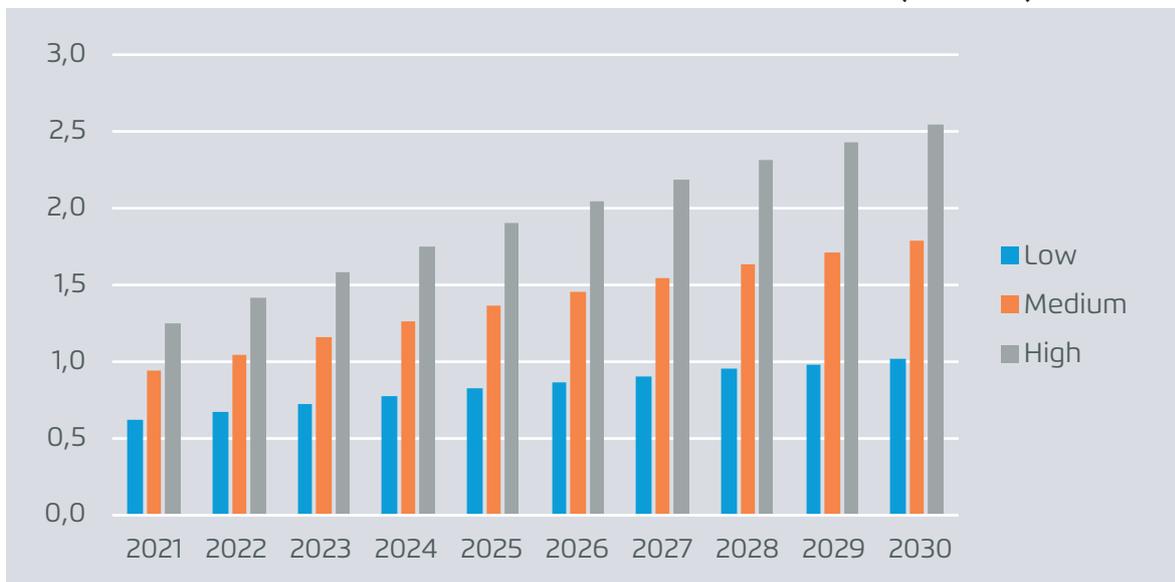
Table 1. Total value of the Modernization Fund for Poland in years 2021–2030.

Price scenario	Allowance price in 2021 (EUR)	Allowance price in 2030 (EUR)	Total value of the Fund for Poland (EUR billion)
Low	10	20	2.0
Medium	15	35	3.3
High	20	50	4.8
High	20	50	4.8

Source: WISE Institute estimates

Depending on which scenario best reflects the actual price path, the total value of funds available to Poland will vary from EUR 2 billion in the „low“ scenario, through EUR 3.3 billion in the „medium“ scenario to EUR 4.8 billion in the „high“ scenario. The results are consistent with estimates referred to in the public debate¹.

Chart 2. Estimate sources from the Modernization Fund for Poland (PLN billion)



Note: based on the assumption of annual sale of 2% of all ETS allowances in favor of all Members States entitled to benefit from the Fund.

Source: WISE Institute estimates

¹ P. Piela estimates the volume of the Fund at PLN 5.4–16.2 billion, R. Gawlik and M. Stoczkiwicz forecast the volume of the Fund at PLN 13.5 billion, whereas the Ministry of Economy assumes that the Fund will amount to PLN 12.8 billion. The amounts expressed in PLN are further uncertain on account of the exchange rate. Therefore, for the purpose of the analysis, the amounts in EUR were assumed. If, however, we use the PLN exchange rate similar to the rate as at the date of the analysis, i.e. 4.2 PLN/EUR, the range EUR 2.0–4.8 billion corresponds to the range PLN 8.4–20.1 billion, which is in line with other estimates..

The amount at the disposal of the Modernization Fund may significantly contribute to shaping the energy production and use patterns in Poland by 2030, provided that the MF funds are spent on a repayable basis or together with other public funds (e.g. a part of general revenues from ETS). In the non-repayable aid option, the resources of the Modernization Fund, on account of a limited scale, will not be sufficient to constitute an independent catalyst for change. Thus, it is extremely important to correctly set the priorities of the fund operation, so that the stream of funding is not excessively dispersed and the added value of projects co-financed therewith is as high as possible.

The ex-ante lack of knowledge about the scale of operation of the Fund may hinder the management of its sources. This problem may be solved in two ways. The first option is to limit the types of projects financed by MF to small, yet numerous undertakings. Should this be the case, depending on the actual scale of the Fund (ex-post) the sources from the Fund would finance, by way of further contests, fewer or more investments. The other option is to determine ex-ante the size of the Fund by obliging states to cover possible gap with the state budget funds. In view of a natural income reserve, formed by revenues from ETS, this strategy should not pose risk to public finance provided that a fiscally conservative approach is taken to spending ETS resources for the purposes not related to low-emission economy.

5. FUND AND CHALLENGES FOR POLAND

5.1. LOCATION OF THE FUND

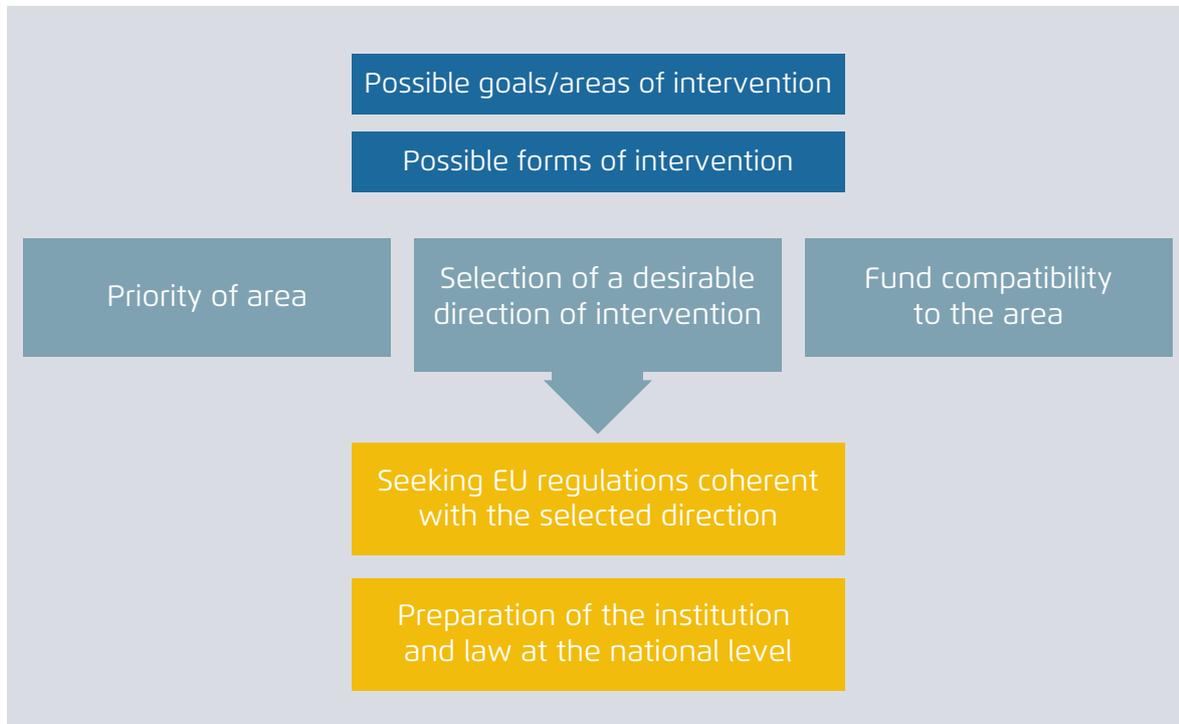
If the purposes of the Fund residually specified in the Conclusions of the European Council are not substantially clarified at the stage of legislative proposals, the interested Member States will have a quite wide margin of discretion in deciding on the areas of intervention. Such greater discretion is in the interest of Poland only if it does not lead to the postponement of national discussion about the Fund priorities. Providing a precise definition of the MF areas of operation in line with the Polish needs is a better alternative than seeking considerable operational freedom for years 2021–2030.

In this context, we should consider possible forms of support, and then seek community regulations coherent with Fund areas of operation which are desirable from the Polish perspective. For this purpose, two strategies may be followed. According to the first strategy, the purposes of MF should be open to the extent that each Member State could fit its own priorities therein, and this would have to be completed before the effective date of the Fund. According to the second strategy, we should strive to determine ex-ante common purposes being in line with joint interest of all beneficiaries of the Fund or even the entire EU.

The last stage of works on the MF should comprise correct and timely introduction of EU solutions to the domestic regulatory and institutional framework. Failure or delay in this respect may undermine even the greatest effort invested in the concept and negotiation phase. The Fund will not operate in an institutional vacuum. Quite opposite – the environmental and economic effects of projects co-financed from the Fund will be contingent upon broader regulatory context applicable in a given state. Therefore, priority areas and rules of the Fund operation should be specified jointly with other elements of public intervention in a broadly defined energy sector.

General formula for defining the concept and fulfillment of the Modernization Fund priorities is presented in Diagram 1.

Diagram 1. Definition of desirable areas of operation for the Modernization Fund.



Source: WISE Institute analysis

The Fund would finance only “particularly high additional investment needs [in energy and energy efficiency areas].” Based on Polish strategic documents, one may indicate a relatively long list of challenges that could be supported by the Fund:

- worn infrastructure for power generation and transmission;
- exposure of energy sector to climate policy risk;
- smog in cities;
- supporting innovation in grid infrastructure;
- need to develop industry resembling the Western industry.

The indicated undertakings are systemic in nature, which means that the Modernization Fund will not be capable of independently responding to any of them. The Fund could however become one of the components of a wider array of instruments for supporting the objectives of the European energy and climate agenda, composed now, inter alia, of: (i) standards of emission for the sector, (ii) ambient air quality standards, (iii) standards for devices in the distributed generation and construction, (iv) derogations on electricity sector within the ETS, (v) programs financed by the National Fund for Environmental Protection and Water Management (NFOŚiGW), etc. Thus, the Fund – as a mechanism for financing energy projects – would have to consider incentives to investors in connection with simultaneous tax and regulatory instruments. The foregoing assumption, in conception, is presented in Diagram 2.

Diagram 2. The location of the Modernization Fund (MF) in the context of existing and potential instruments of public intervention in the power sector



Source: WISE Institute analysis

When filling in the gaps left by other public intervention instruments, the Fund should at the same time avoid the risk of doubling the support to achieve synergy of the entire package. For instance, the issue of smog in cities may require both: granting financial aid to households for the modernization of domestic heating, as well as imposing relevant technical standards on manufacturers and distributors of heating equipment and fuels.

5.2. FUND PRIORITIES

We propose that the Fund potential areas of operation be selected on the basis of assessment of the significance of investments for improvement of a given part of energy infrastructure in terms of the entire system's needs. Whereas with respect to the areas whose investment priority may be deemed high, we applied a second criterion of selection, i.e. the assessment of the degree the assumptions of the Fund fit a given modernization challenge, taking into consideration the full spectrum of instruments addressing the investment needs in particular spheres of the energy sector. The results of our reasoning are presented in Table 2.

Table 2. Identification of the best fields of operation of the Modernization Fund

Category	Area	Priority		Fund compatibility		Selection
		High / Low	Why?	Good / Bad	Why?	
Large scale generation	Non-intermittent*	High	Decapitalization of assets CO ₂ target	Bad	Many sources of financing	No
	Intermittent	High	RES target CO ₂ reduction target	Bad		No
Distributed Generation	Non-intermittent	High	Power system management	Good	Small scale of projects fits the MF specificity	Yes
	Intermittent	High	RES target CO ₂ target	Good		Yes
Heating sector	Generation	High	Decapitalization of assets CO ₂ target Industrial Emissions Directive	Good	No alternative sources of financing	Yes
	Networks	High	Due to the link with generation	Good		Yes
Electricity networks	Transmission	Low	Depends on decisions on the location of plants, current decisions would be premature			No
	Distribution	High	Low quality of electricity, especially in low-urbanized areas RES integration	Bad	Stable, considerable regulated revenue	No
Energy efficiency	Industry	Low	Modern manufacturing Low potential Spontaneous processes related to modernization			No
	Transportation	Low	Poland is the recipient of innovation Expensive technologies at this development stage			No
	New buildings	Low	Regulations force high efficiency standards			No
	Existing multi-family buildings	High	High, untapped potential Smog	Bad	Possibility of own financing joined with credit	No
	Existing single-family buildings	High	High, untapped potential Smog Potential of domestic service providers	Good	Low creditworthiness High transaction costs	Yes

**Non-intermittent capacities may produce energy regardless of the conditions of the environment, whereas generation by intermittent capacities depends on the conditions of the environment (e.g. photovoltaic panels produce energy only when the sun is shining).*

Source: WISE Institute analysis

The table shows that in terms of investment needs and nature of financing through the Modernization Fund, the most significant and compatible areas include:

- intermittent and non-intermittent distributed generation;
- single-family buildings retrofit,
- modernization of district heating production and networks.

The optimal solution, from the point of view of Poland, should therefore comprise formulation of the purposes of the Modernization Fund operation so that the Fund provides for financing and co-financing of projects within the three indicated fields, including integrated projects that combine two or three of the listed areas.

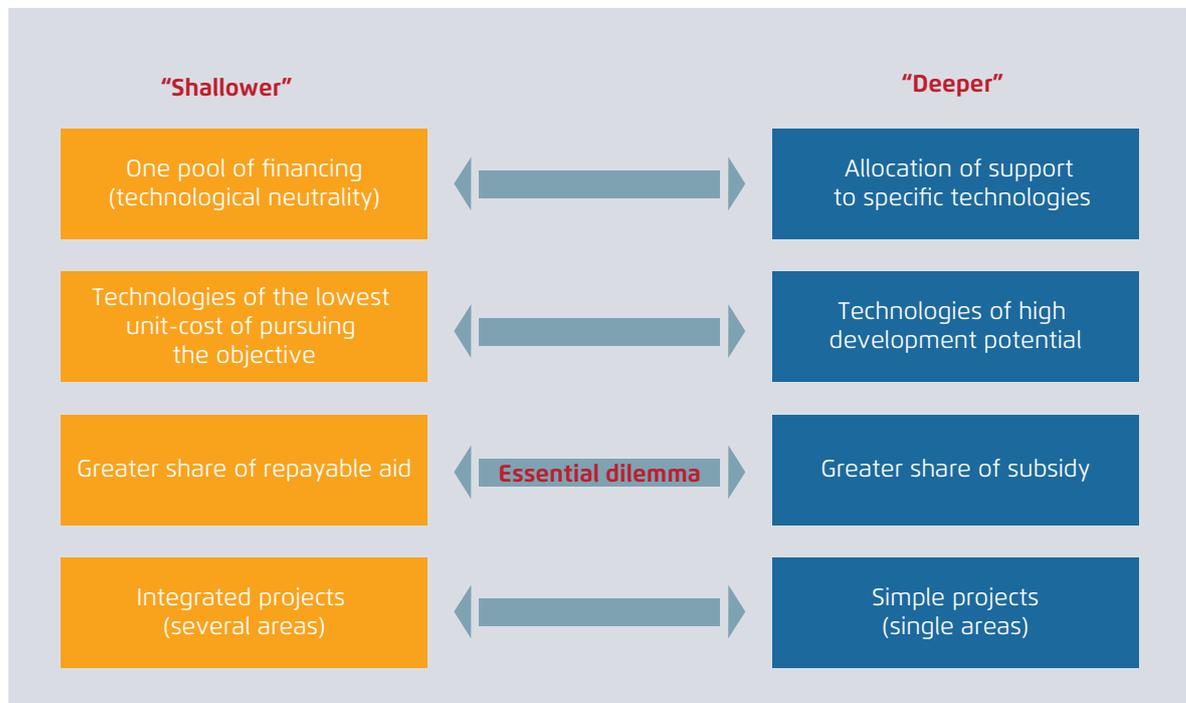
5.3. FUND MODEL

For the purposes of this text, we have identified two models of the Fund operation:

- model of “shallower” intervention,
- model of “deeper” intervention.

In the “shallower” option of support, the funds would be allocated to various technologies as per the principle of technological neutrality. More focus would be placed on simple projects, i.e. such as those referring to single areas (e.g. RES promotion). Whereas the “deeper” intervention model would focus on the support of integrated projects contributing to simultaneous achievement of a number of objectives of the Modernization Fund operation.

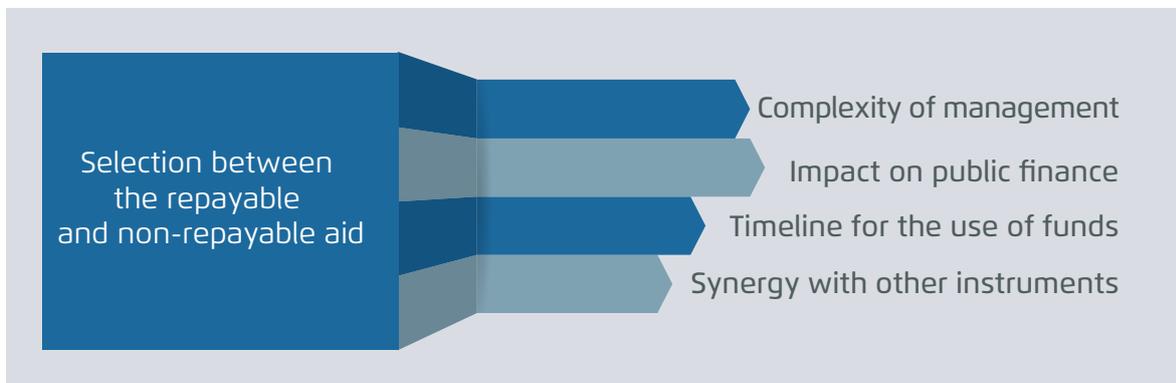
Diagram 3. Dilemma between choosing the “shallower” and the “deeper” intervention



Source: WISE Institute analysis

The greatest dilemma related to describing the appropriate structure of the Modernization Fund is the selection between the repayable aid and non-repayable subsidies. Relatively modest pool of resources at the Fund's disposal prompts to choose the repayable aid or partially repayable aid. Such solution would keep the resources in circulation for a longer time, which enables the financing of a larger number of projects. On the other hand, selecting the repayable aid would be a greater challenge for public institutions managing the Fund – such form of support has been applied so far in Poland only in a limited scope. Perhaps the best way out of this dilemma would be to implement the Fund through the banking system – in this option, the Fund would co-finance investment loans extended in areas consistent with their operation objectives, reducing their cost and increasing the availability. Possible consequences of the selection are provided in the graph below.

Schemat 4. Implications of selection between the repayable and non-repayable aid

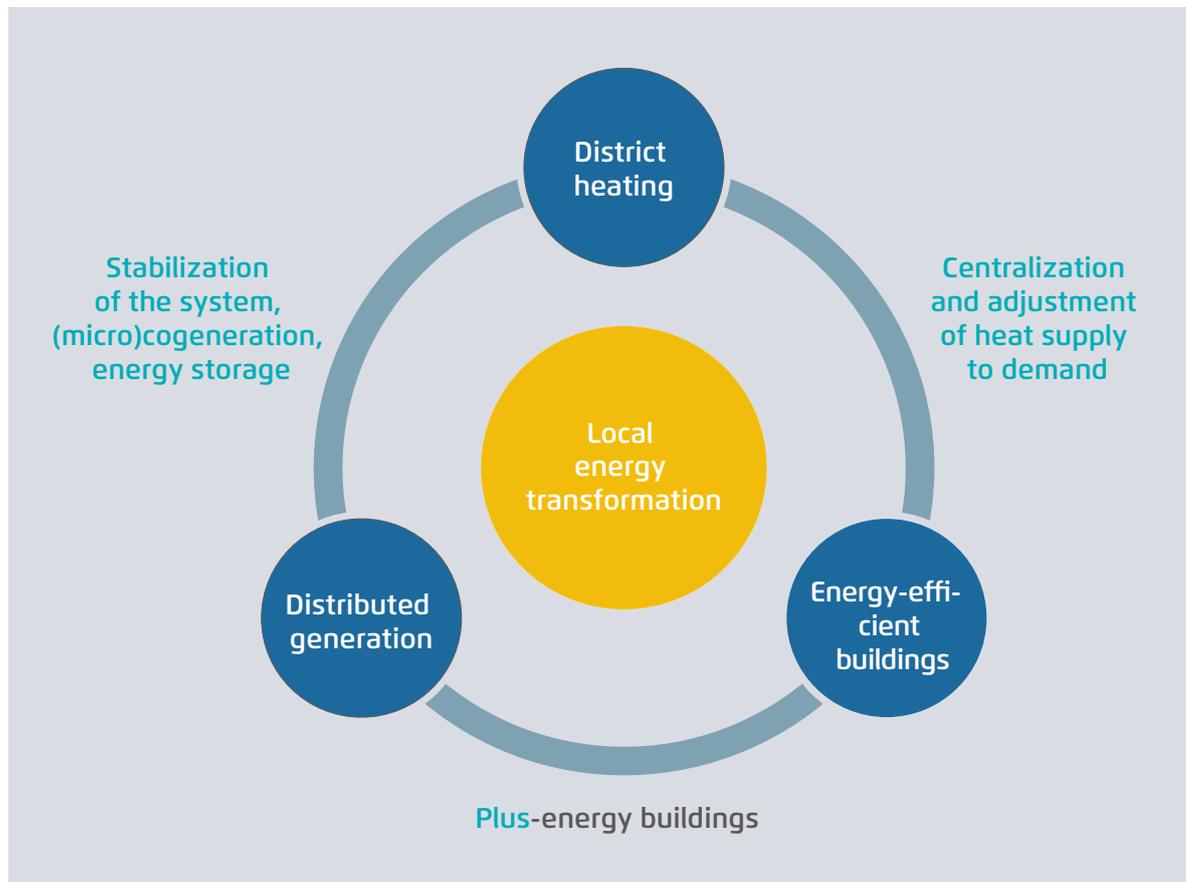


Source: WISE Institute analysis

On account of scarce resources to be at the disposal of the Fund, it should not be treated as the foundation of investment in a given area. However, if it were, the natural choice would be to seek greater intensity of the support, that is the decision of "deeper" nature of the Fund intervention. This would mean the necessity to render clear definition of possible objectives and scopes of its operation. Yet, it is more probable that the MF will constitute an addition to other national environmental and energy policy tools. This could mean a broader spectrum of its operations, yet performed in a less intense manner of support ("shallower" intervention).

The subsidiary nature of resources at the Fund's disposal calls for some thought on the possibility of propagating integrated projects. An example of such project is the support for local energy transformation, the effects of which should be assessed at the municipality or sub-municipality level being a relatively coherent energy system. Integrated projects should take advantage of additional benefits from the synergy between various elements of the energy system (e.g. generation of electricity, heat and efficiency of their use). Their implementation should contribute to more effective and greater reduction of CO₂ and smog emission in cities and small towns, provided that they are optimally adjusted to the local potential.

Diagram 5. Example of integrated project



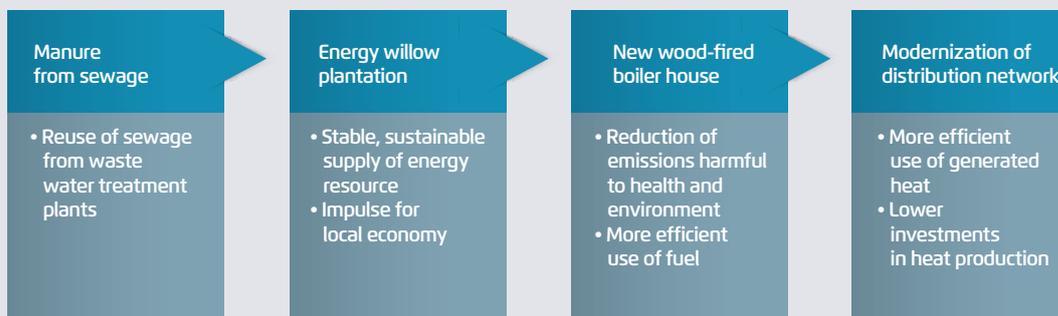
Source: WISE Institute analysis

Diagram 5 presents an example of integrated project structure as per which the local energy transformation is to be supported simultaneously by the retrofit program combined with the installation of distributed generation and modernization of local district heating system. In this perspective, CHP systems could constitute a significant addition to the distributed generation, producing the synergy effect, where different technologies in various elements of the power system are adjusted in the scale of operations providing each other with mutual support. This helps to avoid the risk of overlapping expenses, and at the same time reinforces the stability of the system. The complexity of integrated projects entails a certain risk for both the assessing party and the applicant. However, Poland is experienced in this scope owing to, inter alia, Eco-Fund and the National Fund for Environmental Protection and Water Management (cf. Frames). In the upcoming years, among other things due to the EU structural funds spending, one may expect that the systemic approach to energy issues will become more common, which will foster the possibility of integrated spending of resources from the Modernization Fund after 2020.

Frame 1. An example of an integrated project financed with EcoFund – waste water treatment plant and generation of thermal energy from biomass

Wood heating plant along with energy willow plantation in Nowa Dęba

1. At the beginning of the last decade, residents of Nowa Dęba (Podkarpackie Voivodeship) used the thermal energy produced in an old coal-fired boiler house located in the territory of the former arms production plant. The boiler house was ineffective, with considerable energy losses and emission of substances harmful to the health of local residents. The outdated transmission grid caused even more energy losses and greater emission of pollution.
2. In 2002–2004, thanks to the support from the EcoFund (40% of co-financing to PLN 10.5 million of investment), a new automatic wood-fired boiler house was built with the capacity of 8 MW, and replaced the old system. At the same time, a plantation of fast growing willow of the area of 80 ha was established to ensure stable and environmentally sustainable supply of fuel.
3. The project covered the installation of two boilers for firing wood residues with installations for feeding the fuel to the boiler, flue gas dedusting and slag removal as well as a stove near the boiler with a maneuvering area. A necessary fuel base and equipment infrastructure, including most of all low parameter district heating systems of the total length of 2.4 km were also built. The project comprised the preparation of technical documentation including the plan of supplying the town with energy. Moreover, the facility was equipped with installation for preparing manure for feeding the plantation with manure from sewage from the municipal waste water treatment plant in view of manuring the willow plantation. In this way the environmentally friendly synergy effect was produced. Apart from the reduction of the CO₂ emission, the investment also limited the damage to health, and owing to better management of local resources, it delivered an economic impulse to the community.

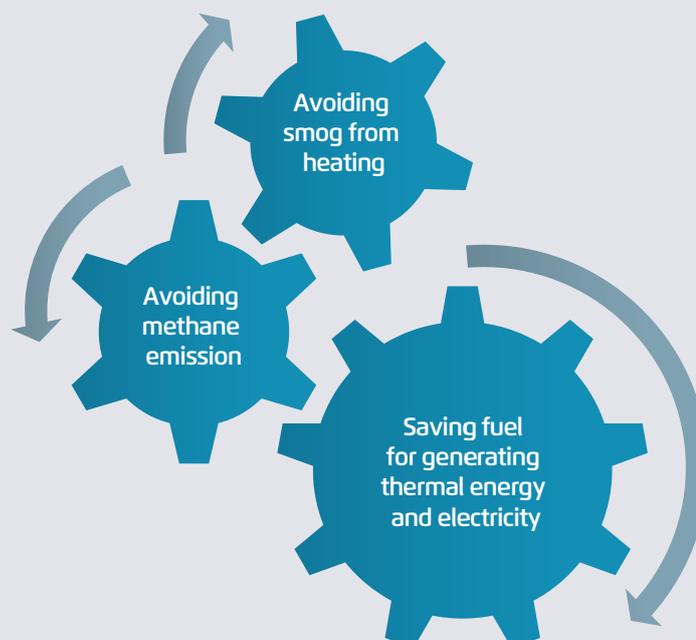


Source: WISE Institute analysis

Frame 2. An example of an integrated project financed with EcoFund – waste management and generation of energy

Extension of waste disposal site gas extraction system in Nowy Sącz

1. In 2009, the extension of municipal waste disposal site gas extraction system in Nowy Sącz was completed. Owing to the investment, the municipal waste disposal site, previously equipped only with a methane burning flare, was provided with an installation for generation of electricity and thermal energy from biogas. The electricity is used for installation own needs, and surplus thereof is transmitted to the power network. Whereas the thermal energy is applied to economic and technological processes.
2. The implementation of the project enables the production of low carbon electricity (1 GWh/year) with simultaneous generation of thermal energy (138 GJ/year), and also reduced the uncontrolled emission of methane. Burning the gas in a special container neutralizes it, which makes the power generation process much more environmentally friendly (a ton of methane has over twenty times greater impact on the climate change than a ton of CO₂).
3. The EcoFund covered 1/4 of the project investment costs amounting to PLN 2.6 million. A similar support was ensured by the Voivodeship Fund for Environmental Protection and Water Management in Cracow, and the rest was covered with the implementing company's own resources. The project not only enabled a more effective waste processing and generation of cleaner energy, but also limited the harmful emissions, in particular in the scope of quantities of greenhouse gas emitted to atmosphere.

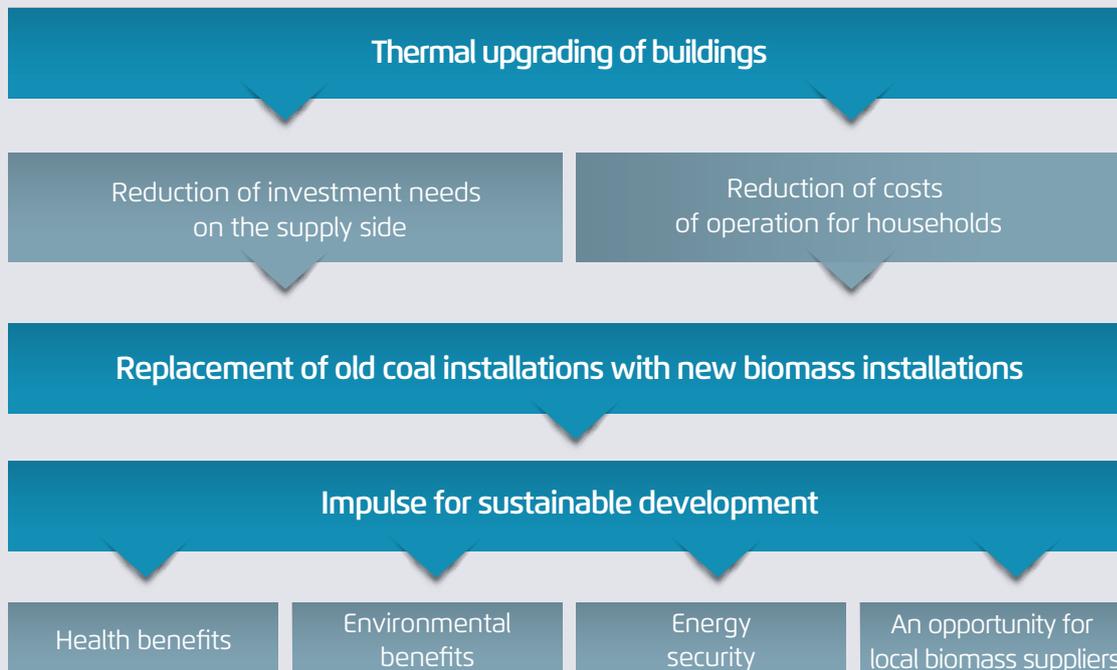


Source: WISE Institute analysis

Frame 3. An example of an integrated project financed with EcoFund – buildings retrofit and modernization of the district heating system

Modernization of the district heating system in Konstancinów Łódzki

1. Completed in 2009, the modernization of the district heating system in Konstancinów Łódzki aimed at improving the efficiency of generating and using heat in a complex of 35 multi-family residential buildings located in the center of the town.
2. Retrofits included insulation of external walls and flat roofs, modernization of internal installation and replacement of windows and external doors. Moreover, 875 domestic fire boxes and a boiler fired by coal dust were replaced by internal central heating systems. All buildings were connected to a new straw-fired boiler with the capacity of 1.6 MW.
3. The investment amounted to approx. PLN 9 million, and was co-financed with the EcoFund in 41%. The implementation of the project produced a considerable synergy effect. The thermal upgrading of the buildings allowed to reduce the costs of boiler modernization and replacement of coal heating with biomass, which in turn helped to considerably reduce the emission of CO₂ and substances harmful to health (dust, sulfur dioxide, nitrogen oxides).



Source: WISE Institute analysis

6. THE SHAPE OF REGULATORY ENVIRONMENT

6.1. EUROPEAN REGULATIONS

Main regulatory challenges pertaining to the contents of the provisions of EU law specifying the structure of the Modernization Fund include:

- determining the division of competence in the scope of management of the Fund among the European Investment Bank and the Member States;
- entering the MF into future regulations concerning the ETS sector;
- entering the MF into the rules on public aid.

The Conclusions of the European Council mention that the Modernization Fund “will be managed by the beneficiary Member States, with the involvement of the EIB in the selection of projects.” The issue of proper balance between the participation of national and EU factors may considerably affect not only the organizational efficiency of the Fund, but also determine the directions of support. The European Investment Bank has already developed standards of operation as per which the priority, as regards the support mechanism, is given to projects encouraging implementation of the EU climate and energy efficiency policy. The application of these standards to the Modernization Fund operation may considerably narrow the range of supported solutions.

One of the most important elements of the new regulatory framework is the proper placement of MF in the context of the public aid. Two options are possible. In the first option, the operation of the Fund will be subject to applicable guidelines on public aid for environmental protection and energy-related objectives. In this case it is worth considering that the EEAG directive provides that “it is expected that in the period between 2020 and 2030 established renewable energy sources will become grid-competitive, implying that subsidies and exemptions from balancing responsibilities should be phased out in a degressive way.” This could limit the possibilities of using the Fund for distributed generation purposes.

The other option is to develop separate guidelines for the Fund analogous to the Guidelines on certain state aid measures in the context of the greenhouse gas emission allowance trading scheme post 2012². This option of development of the regulatory environment is supported by the fact that funds intended for the Modernization Fund will come from a special pool of allowances. This option would be more favorable to Poland, as it would enable the definition of public aid rules that would not create conflict with the indicated areas of potential operation of the Fund.

6.2 NATIONAL REGULATIONS

The Modernization Fund will not operate in the regulatory vacuum. Quite opposite, it should be treated as an instrument complementing other categories of public intervention in the area of national environmental and energy policy. For instance, based on international experience, one may assume that in the scope of building retrofits and district heating, the main incentives to

² Communication from the European Commission: Guidelines on certain state aid measures in the context of the greenhouse gas emission allowance trading scheme post 2012 (OJ UE C 158, p. 4, 5.6.2012) (SWD(2012) 130 final).

households and companies to reduce the greenhouse gas emission and other pollution should include taxes for fossil fuel consumption and standards for fire boxes, as well as fuels per se. Appropriate formulation of the provisions of local spatial development plans may serve as a subsidiary instrument. In this scope the role of the Modernization Fund could consist in providing support to the poorest households, co-financing of district heating infrastructure modernization, providing support in obtaining capital and providing support for the new emerging technologies.

Whereas with respect to the distributed generation, in the scope in which it generates electricity from RES, existing frameworks of support are provided for in the Act of February 20, 2015 on Renewable Energy Resources³. Since the Act is temporary, the details of the public aid for RES after 2020 are not known. The aid will probably be still possible, however it has not been specified whether it should focus e.g. on providing greater support to new generation capacities or on subsidizing the already existing ones, and what does phasing out of subsidies to RES by 2030 in a degressive way postulated by the European Commission mean. In the context of the Modernization Fund, the most problematic issue is whether and to what extent combining the MF resources with other support mechanisms will be possible (e.g. color certificates or feed-in tariff system). In accordance with the currently applicable rules of public aid, cumulative use of various support mechanisms is possible, yet only provided that the resources obtained in this way do not exceed the permissible aid thresholds. Therefore, probably the best area of operation for the Fund would be the support for new technologies entering the market and help in obtaining investment capital by households. Table 3 illustrates the possible definition of the subsidiary role of the Modernization Fund in three proposed areas of its operation.

Table 3. Examples of the forms of subsidiary role of the Modernization Fund with respect to other public intervention instruments

Area	Main instruments	Role of the Fund	
Buildings retrofit	tax on fuels environmental standards for devices and materials	facilitating access to capital, support to poorest households	frameworks for integrated projects
Modernization of heating sector		facilitating access to capital, support to emerging technologies	
Distributed generation		facilitating access to capital, support to emerging technologies	

Source: WISE Institute analysis

³ As at the date of drawing up the analysis, the Act awaited the signature of the President of the Republic of Poland and the promulgation. We based our analysis on the version of the Act available on the websites of the Chancellery of the Polish Sejm.

7. SUMMARY

The presented analysis leads to the following conclusions in the scope of the size of the Modernization Fund, optimal use of resources and optimal shape of regulations contingent upon the above-mentioned issues:

1. the Modernization Fund for Poland in years 2021–2030 will amount to EUR 2–5 billion to be allocated to the modernization of energy infrastructure and improvement of energy efficiency.
2. The Fund will not satisfy all investment needs of Poland pertaining to the modernization of infrastructure for generating, transmitting and consuming the energy, however it may effectively fill in the financing gaps in several areas.
3. The operations of the Modernization Fund should focus on supporting investments in the scope of distributed generation, building retrofits and district heating.
4. On account of its size, MF is not an instrument for an effective stimulation of large-scale energy transformation. In this aspect, systemic instruments are more suitable, e.g. supply management, capacity market, contracts for difference. The derogation mechanism will also be a separate form of support for the large-scale energy generation.
5. Both the size of the Modernization Fund and its defined purposes of operation should constitute a guideline for formulating regulations, on which providing support to particular projects selected on the basis of call for proposals will depend.
6. The dilemma should be resolved whether to assume the model of “deeper” intervention, where the Modernization Fund will be the basic and often the only source of financing, or the model of “shallower” intervention, where the aid from the Fund will be supplemented with other national instruments or will play a subsidiary role in relation thereto. The arguments presented in the analysis support the second option to a greater extent.
7. It must be finally resolved whether the aid from the Modernization Fund is to be returnable or not – and the decision should be left to the discretion of the Member States.
8. Regulations concerning the Fund should favor also the financing of integrated projects, combining several elements of the power system. The Fund should at the same time become a part of a wider spectrum of legal regulations and tax solutions stimulating the modernization of Polish power industry by 2030.
9. Future EU regulations for the implementation of the climate and energy policy may restrict the scope of eligible investments to choose from. The proposed Fund areas of operation, as well as anticipated regulatory environment, are, however, in most cases consistent with the European priorities geared towards increasing the share of energy from renewable sources and improving the energy efficiency.

8. LIST OF ABBREVIATIONS

CHP – combined heat and power

EIB – European Investment Bank

EEAG – The Environmental and Energy State Aid Guidelines (Guidelines on State aid for environmental protection and energy 2014–2020)

ETS – Emissions Trading System

MF – Modernization Fund

MSR – Market Stability Reserve

NFOŚiGW – National Fund for Environmental Protection and Water Management

RES – renewable energy sources

