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CONCEPT OF JUST TRANSITION OF EASTERN WIELKOPOLSKA

WIELKOPOLSKA
DOLINA ENERGII
siła Wielkopolski Wschodniej

Concept of just transition of Eastern Wielkopolska

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in cooperation with: Working groups whose objective is to provide substantive support to the development of the *Territorial Plan of just transition of Eastern Wielkopolska*

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List of abbreviations used in the document

R&D	Research and Development
CIT	Corporate Income Tax
ERDF	European Regional Development Fund
ESF+	European Social Fund Plus
JTF	Just Transition Fund
ZE PAK Group	Grupa Kapitałowa Zespołu Elektrowni Pątnów-Adamów-Konin SA
CSO	Central Statistical Office
ICT	Information and communication technologies
BEI	Business environment institutions
LGUs	Local government units
KFA	Konin Functional Area
NECP	National energy and climate plan for 2021-2030
NSRD	National Strategy for Regional Development 2030
KWB	Kopalnia Węgla Brunatnego [Brown Coal Mine]
SME	Micro, small and medium-sized enterprises
NFEPWM	National Fund for Environmental Protection and Water Management
ASI	Areas of strategic intervention
RES	Renewable energy sources
PEP 2040	Poland's energy policy until 2040
PIT	Personal Income Tax
GDP	Gross Domestic Product
PKS	Przedsiębiorstwo Komunikacji Samochodowej [Car Transport Company]
RP	Republic of Poland
OP ID 2021-2027	Successor of the Intelligent Development Operational Programme for 2014-2020
OP IE 2021-2027	Successor of the Infrastructure and Environment Operational Programme for 2014-2020
OP DP 2021-2027	Successor of the Digital Poland Operational Programme for 2014-2020

OP KED 2021-2027	Successor of the Knowledge Education Development Operational Programme for 2014-2020
RADP 2021-2027	Successor of the Rural Areas Development Programme for 2014-2020
WRSDP	Wielkopolska Region spatial development plan. Wielkopolska 2020+.
DSWR	Development strategy of the Wielkopolska Region until 2030
TJTPEW	Territorial Just Transition Plan for Eastern Wielkopolska
EU	European Union
OMWR	Office of the Marshal of the Wielkopolska Region in Poznań
NFEPWM	National Fund for Environmental Protection and Water Management
WRTO	Wielkopolska Regional Territorial Observatory
WROP 2014+	Wielkopolska Regional Operational Programme for 2014-2020
WROP 2021+	Successor of WROP 2014+
ZE PAK	Pątnów-Adamów Power Plant Complex-Konin SA

1 INTRODUCTION

Just transition is currently one of the most frequently used terms related to achieving climate neutrality in coal regions. In Poland, the term became very popular with the presentation by the European Commission of the *European Green Deal*[1] strategy, which, in addition to expressing its ambition to make Europe the first climate neutral continent until 2050, emphasized the need to conduct the transition in a just and conducive to social inclusion manner.

An element of the *European Green Deal* is the just transition mechanism, which includes Just Transition Fund, focusing on the regions and sectors most affected by the transition to climate neutrality due to their high dependence on fossil fuels and high-carbon processes.

JUST TRANSITION HISTORICAL OUTLINE

Just transition has gained special importance now, but its history goes beyond Poland's membership in the EU, or even the existence of the Union itself. In the 1950s, the development of new technologies resulted in the liquidation of a significant part of jobs in the coal and steel sector, which translated into an increase in unemployment. To support workers who have lost their jobs, *Fund for the Retraining and Resettlement of Workers was established within the European Coal and Steel Community*. That fund, although it did not explicitly refer to the term of a just transition, was supposed to pursue its current objectives, i.e. retraining employees, assisting in finding employment and, in the event that other measures fail, supporting their relocation to places with greater opportunities for employment. The term just transition was not used until the 1990s. It was possible thanks to trade unions which conditioned a successful transition from the full involvement of employees and the communities associated with them and the use of social dialogue. In 2015, the International Labour Organization published the *Just Transition Guidelines*, which set out the principles to be followed when conducting transition of the economy to an environmentally sustainable model:[2]

- need to obtain strong public consent in relation to the sustainable development objectives and the pathways leading to them;

[1] The *European Green Deal*, Communication from the Commission to the European Parliament, the European Council, the Council, the Economic and Social Committee and the Committee of the Regions, COM (2019) 640 final, Brussels 2019.

[2]International Labor Organization, *Guidelines for a just transition towards environmentally sustainable economies and societies for all,* 2015.

- need to establish a comprehensive policy framework ensuring economic, environmental, social, educational and work-related coherence;
- need for meaningful and properly functioning social dialogue throughout the process and at all management levels.

Efforts to involve employees and communities in the transition process led to the inclusion of the just transition concept in the preamble to the *Paris Agreement in 2015, which included „The need for a just transition of employees and the creation of decent work and high-quality jobs, in line with the development priorities set at the national level"*[3]. Poland actively participated in including this issue into the mainstream of global climate policy, which resulted in the adoption of the *Solidarity and Just Transition Declaration* during the United Nations climate summit in Katowice in December 2018.[4] The document emphasizes the need for social dialogue, as well as the employment opportunities brought about by the transition. At EU level, the just transition concept was included in 2015 in the *Energy Union Package*[5], which stressed that a fair and just energy transition will require professional retraining or upskilling of employees in certain sectors and, if necessary, ensuring social resources at the appropriate level. It was also noted that the direct knowledge and experience of social partners was of key importance in this respect. The 2018 *Regulation on the Governance of the Energy Union and Climate Action*[6] extends this issue, with additional attention to mining regions, noting that a socially acceptable and just transition to a sustainable low-carbon economy requires changes in investment behaviour, both if it is about public and private investment. It also stressed the need to introduce incentives in all policy areas, with a particular focus on those regions and citizens for whom the transition to a low-carbon economy could be detrimental.

[3] Paris Agreement (OJ EU L 282/4 of 19.10.2016).

[4] *Solidarity and Just Transition Silesia Declaration*, Katowice 2018.

[5] *The Energy Union Package. Framework strategy for a resilient Energy Union with a forward-looking climate policy,* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM (2015) 80 final, Brussels 2015.

[6] *Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives of the European Parliament and of the Council 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ EU L 328/1 of 21/12/2018).*

In the area of Eastern Wielkopolska, including the city of Konin and the districts of: Konin, Koło, Słupca and Turek(hereinafter also: the subregion[7]), strongly dependent on the mining and energy sector, the idea of a just transition was not imposed on the inhabitants from above by the authorities, but was born from below in the community of Konin's municipal activists – The "Konin Action" and "We Change Konin" associations and the "Provincial Town" Foundation[8]. Also, the Wielkopolska Region Local Government saw the need and expressed the willingness to take actions related to the fastest possible achievement of the state of the zero-emission economy, while maintaining the principles of just transition. This was reflected in the selection of the following package in the *Development Strategy for the Wielkopolska Region until 2030*[9] as one of the key action packages[10]: „Transformation of Eastern Wielkopolska" (under which one of the first steps taken should be the development of a strategic document at the earliest possible stage of transition activities), as well as the appointment of the Representative of the Board of the Wielkopolska Region for the Restructuring of Eastern Wielkopolska or starting work on that Concept. Moreover, the Wielkopolska Region Parliament adopted the *Position on the Just Transition Initiative in the Eastern Wielkopolska*[11], in which it requested that all actions be taken to actively support this initiative. It emphasizes the need for greater involvement of national-level institutions in the just transition initiative, and the need for the RP Government to start work as soon as possible on a compensation program for miners and energy specialists from Eastern Wielkopolska (under similar terms to those adopted for Silesia).

PREREQUISITES FOR DEVELOPING A PLAN FOR EASTERN WIELKOPOLSKA

An important step towards the implementation of activities related to the implementation of the idea of a just transition was the signing on 3 April 2019 of the *Agreement for a just energy transition of Eastern Wielkopolska*, ratified by over 40 representatives of entities (currently nearly 70 entities) coming in particular from the subregion, representing both the public and private sectors, as well as non-governmental

[7] According to the Classification of Territorial Units for Statistical Purposes (NUTS), in the Wielkopolska Region there is a Konin subregion (NUTS 3) including city of Konin and the districts of: Gniezno, Konin, Koło, Słupca, Turek and Września. Therefore, Eastern Wielkopolska/subregion does not cover the entire Konin subregion.

[8] „Just Transition" Expert Group, *Proposals of recommendations for the area of Just Transition*, Katowice - Łódź - Poznań - Wrocław - Warsaw 2020.

[9] *Development strategy of the Wielkopolska Region Parliament until 2030, Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.*

[10] The action packages complement the development objectives of the Strategy in line with the project approach in strategic management. Thanks to this approach, DSWR combines the strategic and operational dimensions - it indicates not only the directions, but also the necessary packages of activities on which the Region Local Government will concentrate its program, financial and organizational activity in the next decade, thus striving to achieve the vision specified in the Development vision strategy.

[11] Resolution No. VIII/131/19 of the Wielkopolska Region Parliament of 3 June 2019.

organizations or trade unions operating in the ZE PAK Group. The agreement became the basis for the establishment of working groups in 2020 to develop recommendations for the *Territorial Plan of Just Transition of Eastern Wielkopolska*. As emphasized by the „Just Transition" Expert Group, operating as part of the Team for the Development of the Renewable Energy Sources Industry and Benefits for the Polish Economy at the Minister of Climate and Environment, multi-entity cooperation for the just transition of Eastern Wielkopolska is a unique social capital that should be used as a foundation for the entire process[12].

This Concept, including proposals of challenges, objectives, priorities and directions of intervention or the shape of the institutional system constitute a starting point for discussion (e.g. within the framework of the above-mentioned working groups), after which two documents will be ultimately developed:

- The territorial plan of the j*ust transition of Eastern Wielkopolska* (a short-term plan - for the years 2021-2027), compliant with the requirements of the *Regulation establishing the Just Transition Fund*[13], with a narrower scope, prepared in order to meet the requirements for obtaining EU funds under the new EU financial perspective;
- a long-term and comprehensive strategic document (with a time horizon until 2040) for achieving a zero-emission, resource-efficient and diversified economy and ensuring a high quality of life.

The development of The Territorial Just Transition Plan for Eastern Wielkopolska, which is an element of the wider programming system of the new EU financial perspective (the plan should be attached to the WROP 2021+ or to the Regional Just Transition Operational Programme for Eastern Wielkopolska), is necessary in order to enable the spending of EU funds under the Just Transition Mechanism, which consists of the following three pillars:

ONE CONCEPT FOR THE DEVELOPMENT OF TWO DOCUMENTS

1. Just Transition Fund implemented under shared management.
2. Special Just Transition Scheme under the *InvestEU Programme*.
3. Public sector loan facility to mobilize additional investment in transition regions.

[12] „Just Transition" Expert Group, *Proposals of recommendations for the area of Just Transition*, Katowice - Łódź - Poznań - Wrocław - Warsaw 2020.

[13] *Regulation of the European Parliament and of the Council establishing a Just Transition Fund,* Proposal, COM (2020) 22 final, Brussels 2020; *Regulation of the European Parliament and of the Council establishing the Just Transition Fund, Amended proposal, COM (2020) 460 final, Brussels 2020.*

Thus, the plan will, on the one hand, use the resources of the JTF, i.e. funds allocated to measures in the field of economic recovery, labour market support, and regeneration and rehabilitation of degraded areas[14], and on the other hand, its implementation may be supported by funds from the other pillars of the mechanism. The transition of Eastern Wielkopolska should include changes occurring in the process of multi-faceted transformations, bringing benefits not only economic, but also environmental ones (in particular in terms of restoring proper water conditions and biodiversity of degraded areas), spatial and social ones in order to ensure high quality of life and development opportunities in long time horizon. In the context of transition challenges, it is not possible to conduct the entire transition process in the next decade, in particular, limiting ourselves only to the scope of intervention defined by the EU regulation for the financial perspective 2021-2027 It is important in this respect to think and plan activities in the long term, which will result in the development of a comprehensive and long-term strategic document. Therefore, this Concept is not limited only to the elements and scope of the plan's intervention, as specified in the draft *Regulation establishing the Just Transition Fund,* but also takes into account analysis of problems and endogenous potentials of the subregion in other areas related to its transformations. It is, among others, about increasing investment attractiveness, improving health care and social assistance or strengthening communication cohesion.

Recognition of a wide spectrum of development needs is also important due to treating the funds from JTF as an impulse for the socio-economic mitigation of the effects of technological change related to the implementation of solutions in the field of renewable energy sources, as well as the popularization of green economy. In this respect, the said support must be strengthened with other European and national funds or funds from the European Investment Bank, making it possible to finance also other areas beyond the scope of JTF[15].

The Concept, which was developed with the participation of working groups, is the basis and point of reference for further strategic and program works for the transition of Eastern Wielkopolska. The document and the challenges, objectives, as well as priorities and directions of intervention, which define the field of possible projects, indicated therein,

[14] According to the draft Regulation establishing the Just Transition Fund, the Fund will only support the following activities: (a) productive investments in SME; (b) investments in the creation of new businesses; (c) investments in R&D and support for the transfer of advanced technologies; (d) investments in clean energy, reduction of greenhouse gas emissions, energy efficiency and energy from renewable sources; (e) investments in digitization and digital connectivity; (f) investments in the regeneration, decontamination and restoration of sites and their redevelopment; g) investments in strengthening the circular economy; h) improving and changing the qualifications of employees; (i) job search assistance for jobseekers; j) active involvement of jobseekers; k) technical assistance.

[15] „Just Transition" Expert Group, *Proposals of recommendations for the area of Just Transition*, Katowice - Łódź - Poznań - Wrocław - Warsaw 2020.

are open. It is assumed that at the stage of works on the Territorial Just Transition Plan for Eastern Wielkopolska (for the years 2021-2027) and the long-term and comprehensive strategic document (with a time horizon until 2040), they may be subject to modifications, e.g. in connection with the adopted legal requirements, conducted analyses or arrangements as part of further works of the working groups. In addition, the programming of the 2021-2027 perspective includes the preparation of not only the Territorial Just Transition Plan for Eastern Wielkopolska, but also implementing documents, such as the operational programme, and then a detailed description of the priority axes. Therefore, the Concept includes both general elements - of a strategic nature, and detailed elements - of an operational nature (e.g. concerning the directions of intervention), which will be useful at the stage of creating the above-mentioned implementing documents.

2 PROCESS OF TRANSITION AND IDENTIFYING THE TERRITORY THAT WILL BE MOST AFFECTED BY ITS NEGATIVE EFFECTS

2.1 Indication of the territory which, according to the forecasts, will be most affected by the negative effects of the transition and justification of the choice

One of the few areas in the country that will undergo the greatest transformation as a result of the transition towards a climate-neutral economy is Eastern Wielkopolska - an area distinguished by an economy based on the mining and energy industry.

It was identified in the *Spatial Development Plan for the Wielkopolska Region 2020+*[16] and the *Development Strategy for the Wielkopolska Region until 2030*[17] as a fuel and energy area particularly exposed to the effects of climate change and requiring integrated and coordinated actions towards socio-economic transition. Eastern Wielkopolska covers the city of Konin and the districts of Konin, Koło, Słupca and Turek, with a total area of 4.4k km^2 (i.e. 14.9% of the area of the Wielkopolska Region) and is inhabited by 433.3 k people (2019). That territory is characterized by many unfavourable trends. Considering the value of the GDP per capita indicator, it is one of the most economically underdeveloped areas of Wielkopolska, with the highest unemployment rate among all its subregions. In the social sphere, the problem of Eastern Wielkopolska is aging of the society, poverty and high, negative net migration.

The present character of that area is determined by the existing brown coal resources, combustion of which is one of the most polluting methods of generating electricity (the highest intensity of CO_2 emissions). The structure of the economy of Eastern Wielkopolska is characterized by a high degree of specialization focused on industrial activities, in which the Group of companies of Pątnów-Adamów Power Plant Complex-Konin SA plays a key role (the largest private energy group in Poland not controlled by the State Treasury), strongly affecting the environment and space.

Limiting or ceasing the activity of the mining and energy industries based on primary energy sources without taking appropriate transformational measures will cause a number

[16] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

[17] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

of negative effects resulting from the expected economic slowdown. This is due to the fact that the ZE PAK Group has a significant share in the creation of the subregion's GDP - in 2019 it generated approx. PLN 1.5 b of gross value added, i.e. approx. 6.1% of the GDP of the Konin subregion[18]. The local economy, including sectors not related to mining or energy, is also stimulated by significant funds from the remuneration of employees of the ZE PAK Group - in 2019 the costs of employee benefits were at the level of over PLN 406 million[19].

The ZE PAK Group is an important source of income for the public finance sector in Poland - the total value of funds transferred to it through taxes, contributions and fees in 2019 amounted to PLN 597.7 m. Moreover, the activity of the concern translates into the income of local government units. Part of the funds from PIT and CIT, real estate tax (only to municipal budgets) and a fee for using the environment, including the introduction of gases or dusts into the air (which is transferred to the Wielkopolska Region, and then redistributed to the bank accounts of the National and Regional Fund for Environmental Protection and Water Management and to communes and districts) go to the budgets of LGUs. In 2019, the local government administration received nearly PLN 127.8 m from the ZE PAK Group. The Group's operations generated the highest revenues for the budgets of local governments (communes and districts) located in the districts of: Konin (PLN 50.8 m, i.e. 46% of all public revenues), the City of Konin (PLN 27.0 m, i.e. 25% of all public revenues), Turek (PLN 26.0 m, i.e. 24% of all public revenues) and Koło (PLN 5.4 m, i.e. approx. 5% of all public revenues)[20].

The value of public and legal payments (resulting only from the mining activities of the Konin and Adamów Brown Coal Mines) paid by the concern in 2019 amounted to PLN 119.1 m. The gradual reduction in mining activities causes the value of those payments to systematically decrease - compared to 2016, there was a 10% decrease. A significant part of funds goes to commune and district local governments (approx. 60%, i.e. PLN 70 m), then to government administration bodies (approx. 25%) and the Office of the Marshal of the Wielkopolska Region (approx. 15%). The communes in which the open-cast mining is executed receive significant revenue for their own budgets. With the end of their operation, a decrease in tax incomes of some communes will inevitably be expected. In the case of some of them, the share of income from mining activities of the ZE PAK Group in own

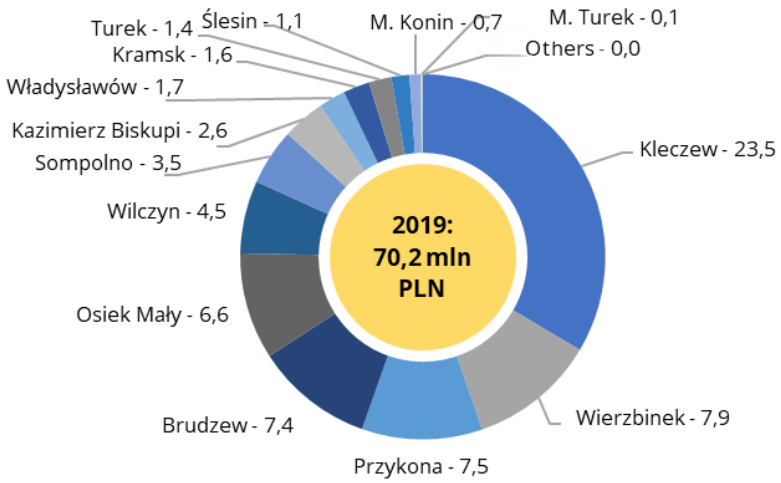
[18]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

[19] Szpor A., Kiewra D., *Coal transition in the Konin subregion*, IBS Research Report 06/2018, Instytut Badań Strukturalnych, 2019.

[20] Source: data from ZE PAK Group.

income reaches even 40-60%. A special case is the commune of Kleczew, where the headquarters of KWB Konin and the Jóźwin open pit are located.[21]

Figure 1. The largest recipients of payments made by the ZE PAK Group to public administration for mining activities among communes and cities with district status in 2019.

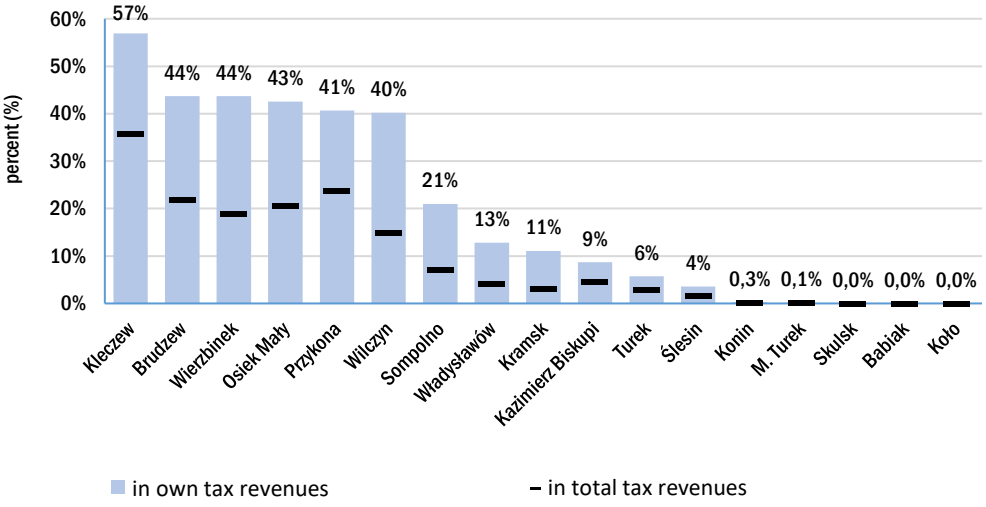


Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

The consequence of the loss of the aforementioned income, as well as the effect of the expected increase in unemployment or migration of inhabitants (the effect of closing mines and power plants), will be a reduction in revenues to the budget of local governments, which will further reduce the implementation of development investments. In particular, this phenomenon will apply to communes whose budget is largely based on the income of the ZE PAK Group. The above will contribute to further marginalization of the subregion.

[21]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

Figure 2. Share of payments made by the ZE PAK Group to public administration in the tax revenues of communes in 2019



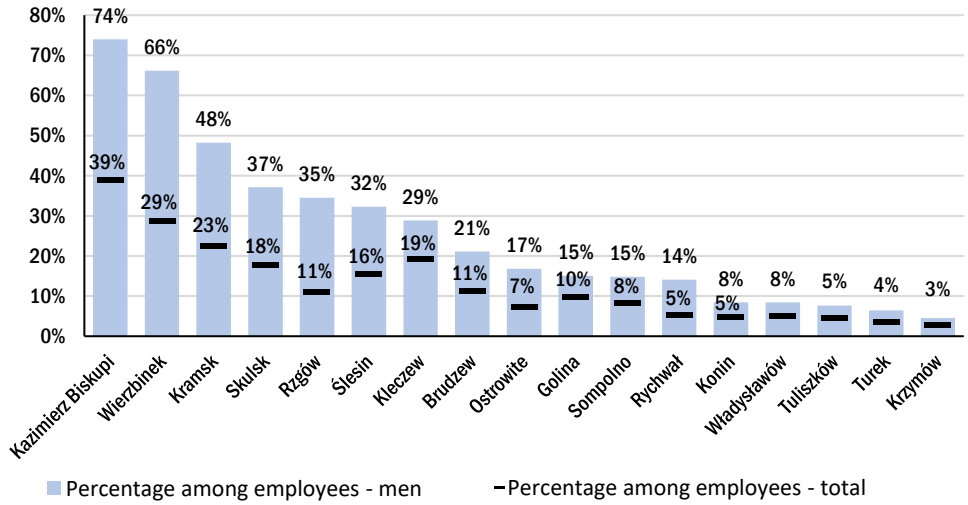
Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

Taking measures to mitigate the effects of the transition towards climate neutrality is also important from the point of view of the labour market in which the ZE PAK Group plays an important role. The energy transition will entail both job losses and the need to retrain employees. At the end of 2019, the Group employed over 4.6k people, 9% of whom were women. 98% of its employees came from the area of the subregion, most of them from Konin (28% of all employees), and then from communes of: Kazimierz Biskupi (9%), Kleczew (9%), Ślesin (7.5%) and Turek (municipality, 7%). The above-mentioned communes were inhabited by over 60% of the employees of the ZE PAK Group, and the other five (Wierzbinek, Sompolno, Kramsk, Golina and Wilczyn) a total of 18% of employees. Over 2% of employees lived in the Słupca and Koło districts, where historically more people were employed in ZE PAK.

In the case of smaller communes of Eastern Wielkopolska, the employees of the ZE PAK Group constituted a significant percentage of the working population (employed, residing in a given commune). A particularly high level was achieved in the communes of Kazimierz Biskupi (almost 40%), Wilczyn and Wierzbinek (approx. 30% each). It is worth noting that the above ratio was almost twice as high in the case of men, who in the ZE PAK Group constitute 91% of all employees - in the above-mentioned communes, as much as 75%, 66% and 48% of employed men, respectively, worked in the ZE PAK Group. This means

that about half of the men living in the aforementioned communes were employees of the concern, which proves its dominant position as a local employer[22].

Figure 3. Share of employees of the ZE PAK Group in the working (employed) population of communes in 2019 percentage of employees (%)



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

The creation and operation of the fuel and energy complex over the years had a great impact on the economic and social development of the subregion, providing an impulse for the dynamic development of other industries. The ashes produced during the combustion of brown coal in power plants have been successfully used in construction for years. Between 2015 and 2019, the ZE PAK Group transferred approximately 1.4 m tonnes of ash to road construction and cement plants, contributing to the reduction of the emission intensity of the economy and providing jobs in companies using this type of waste. A similar situation applies to gypsum formed as a by-product in the flue gas desulphurization process in power plant installations, which is used economically in the production of gypsum products, adhesives, drywalls, etc. In the last five years, the ZE PAK Group has transferred nearly 1.3 m tonnes of this raw material to the industry. Such a great interest in by-products of combustion contributed to the construction of processing plants directly on the premises of the Pątnów Power Plant. It was built, among others the

[22]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

processing plant of EKOTECH - Inżynieria Popiołów Sp. z o.o. (installation for the production of building materials and hydraulic binders) and Zakład Przerobu Gipsu of Dolina Nidy Sp. z o.o. (which employs approx. 80 people, and which produces building gypsum and gypsum plaster based on synthetic gypsum, which is a by-product of the flue gas desulphurization process). By-products of mining in KWB Konin (including clays and sub-coal sands), but also by-products of combustion of power plants (mainly ash and slag) are used by the Wienerberger Company as part of the plant in Honoratka (commune of Ślesin) for the production of a range of ceramic products.

The activities of the ZE PAK Group translate into employment in the direct and indirect environment, which may be reduced as a result of transition. Without taking actions aimed at retraining employees and creating new jobs in other sectors, as well as economic activation of people from economically inactive groups, there will be a significant increase in the level of unemployment, which is now relatively high - it results, among others, from the liquidation of a large number of jobs in the ZE PAK Group in recent years (employment in the concern has decreased by over 4.0 k people since 2011). The registered unemployment rate in the subregion in 2019 was 5.8%, compared to 14.7% in 2011, but its decrease was caused by the current economic situation - the invariably analysed rate was much higher than the average in the Wielkopolska Region (2.8% in 2019).

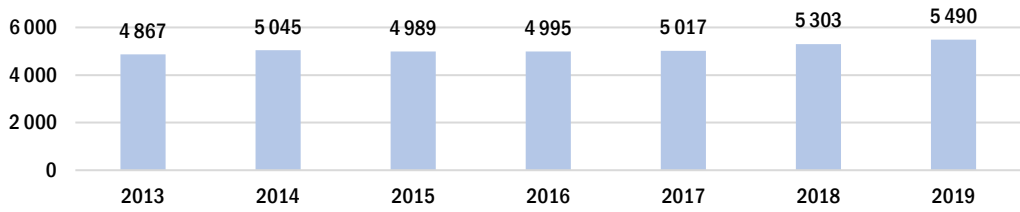
Average monthly gross wages and salaries are also important issues related to the labour market that should be considered in the transition process.

In the ZE PAK Group in 2019, its value increased to PLN 5,490, thus exceeding the average value for the Konin subregion (by 29%) and the Wielkopolska Region (by 17%). It was also higher (by 21%) than the index value in the largest city in the subregion - Konin.

The current, relatively high level of remuneration in the ZE PAK Group may constitute a barrier in seeking or finding a new job - due to the employees' expectations regarding the amount of remuneration (willingness to keep it at the level offered so far by the ZE PAK Group)[23].

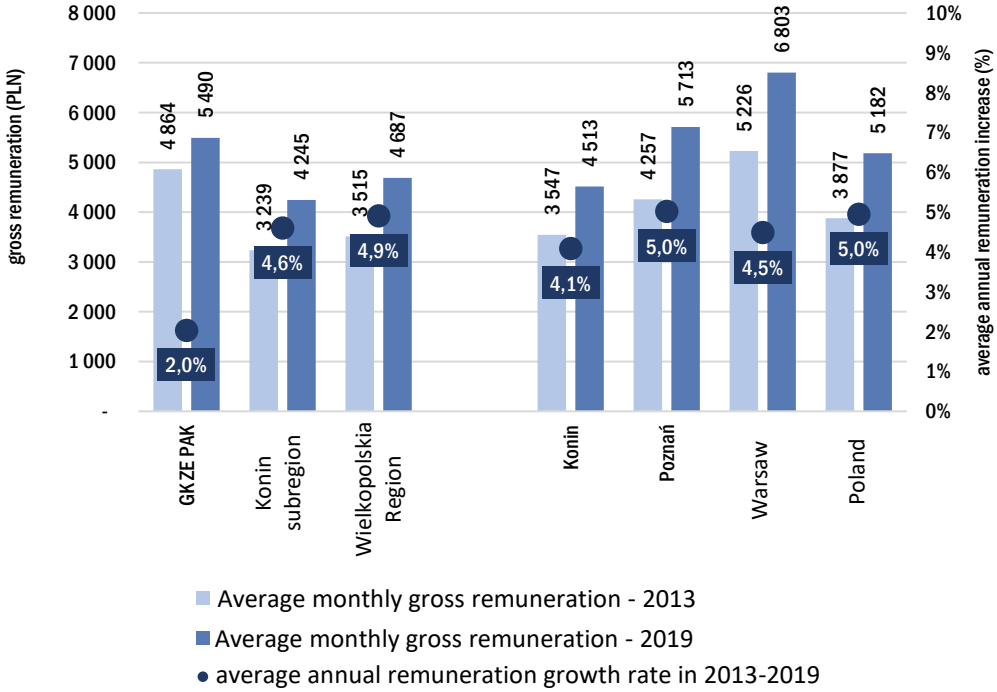
[23] Szpor A., Kiewra D., *Coal transition in the Konin subregion*, IBS Research Report 06/2018, Instytut Badań Strukturalnych, 2019.

Figure 4. Average monthly gross remuneration of employees of the ZE PAK Group in 2013-2019



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

Figure 5. Average monthly gross remuneration of ZE PAK Group employees compared to Poland, Wielkopolska, Konin subregion and selected cities in 2013 and 2019

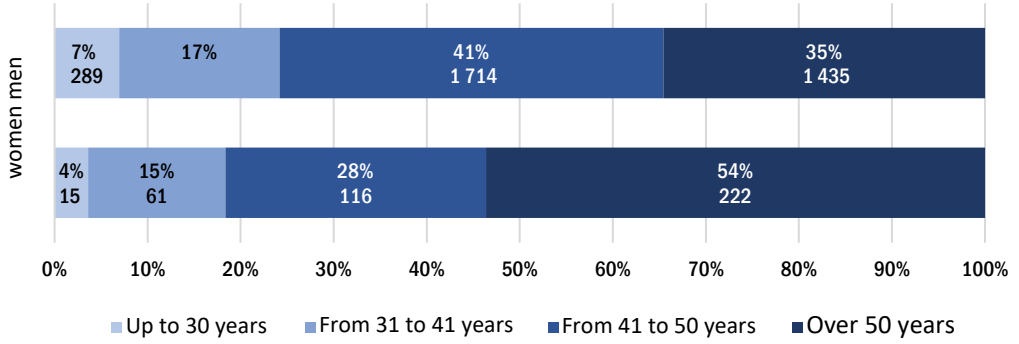


Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

Information on when a given group of employees of the ZE PAK Group will acquire pension rights is extremely important for conducting an effective transition. It is crucial for determining what proportion of employees will lose their jobs as a result of forced (economic-induced) restructuring, and what proportion will leave as a result of acquiring

pension rights. According to the current employment status[24] by 2025, 1.5k people of the concern's employees, i.e. 38% of employees will acquire pension rights, and by 2030 a total of 55% of employees will naturally acquire them[25]. Therefore, it can be concluded that in the next decade approximately 45% of people, i.e. 1.8 k currently employed in the ZE PAK Group may be dismissed before acquiring pension rights. The key factor, however, will be the pace of closure of open-pit mines and power plants (as discussed in subsection 2.2.2.), which will translate into employment reduction. Its greatest reduction is expected by 2025 - therefore it is estimated that even 2.5k. people may require support in finding a new job and in raising qualifications. It is also worth bearing in mind that there is a significant difference between the age structure of women and men working in the ZE PAK Group - men over 50 constitute 35% of all employed men, while in the group of women this percentage is higher and amounts to 54%. Therefore, the termination of the current operations of the concern in the next 10 years will primarily contribute to a further reduction in employment among men, working mainly in the direct exploitation of deposits and in power plants.

Figure 6. Age structure of ZE PAK Group employees in 2019



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

According to the plans of the ZE PAK Group, some of the employees who will receive a notice of termination will get a job offer in activities related to the construction and maintenance of photovoltaic farms[26]. However, the number of jobs in the concern and the

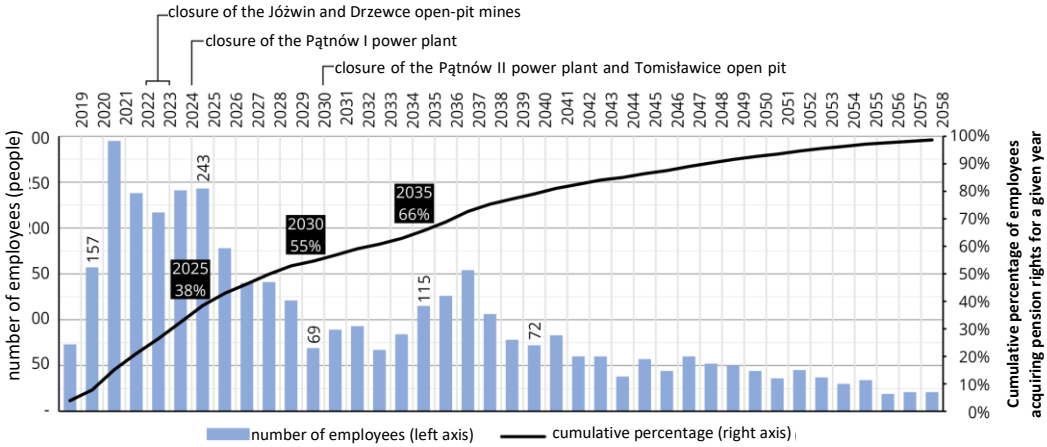
[24] According to the employment status as of November 2020.

The given values are higher than a few to a dozen pp. for a subgroup of employees with mining pension rights.[25]

[26]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

demand for work in the new value chain around RES will be insufficient to cover the oversupply of employees, therefore it is necessary to create jobs also in other sectors.

Figure 7. Acquisition of pension rights by employees of the ZE PAK Group in 2019-2058 - number of employees (left axis) and cumulative percentage of employees (right axis)



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

A just transition in the context of declining employment in the ZE PAK Group will constitute a significant challenge for the labour market in the subregion. It requires an in-depth analysis, cooperation of various entities and planning of appropriate actions. The future situation of the concern and the final shape of its transition depend on the Group's business decisions and public policies, as well as on regulations introduced at the level of Poland and EU. Examples of transition of other companies and mining sectors around the world indicate that the transition may be associated with a permanent increase in the unemployment rate in the subregion (due to a significant reduction in employment in the ZE PAK Group) in the absence of a wide package of measures mitigating the negative effects of changes towards climate neutrality.

The transition towards a zero-emission economy carries the risk of negative social, including demographic, effects. The liquidation of the mining sector, the reduction of employment in the energy sector, as well as the potential reduction of employment in the value chain of those sectors and problems in finding a new job (ensuring earnings at the current level) may contribute to an increase in the intensity of migration of inhabitants. This problem may affect young people in particular, thus exacerbating the already important problem of depopulation. Moreover, the expected changes may contribute to an increase

in the scale of social exclusion and poverty, which in the subregion are - in comparison to other areas of the Wielkopolska Region - at a relatively high level.

According to estimates by Climate Action Network, ZE PAK in 2016 was one of the most environmentally burdensome coal companies in Europe[27]. The generation units operated by the ZE PAK Group generated in 2016 external costs of PLN 8.7 b (Pątnów II Power Plant) to as much as PLN 67.5 b (Adamów Power Plant), and the total negative health costs of emissions from those power plants were estimated at the level of EUR 2.8-5.4 b, which meant external health costs per 1 MWh of produced energy in the amount of approx. EUR 104[28].

2.2 Description of the expected energy transition process towards a climate neutral economy

Meeting the challenges of climate and environmental change is the most important task facing the EU today. The answer is the European *Green Deal*,[29] a new growth strategy that aims to transform the Union into a just and prosperous society in a modern, resource-efficient and competitive economy with zero greenhouse gas emissions in 2050 and the economic growth will not be at the expense of using natural resources.

In the case of Eastern Wielkopolska, an approach was adopted according to which, in the field of energy transition, measures will be taken to lead the subregion to climate neutrality in 2040. Moreover, it is assumed that by 2030 the mining of coal and its use in the power and heating sectors will be discontinued. Achieving the above objectives should be possible thanks to various initiatives that will make Eastern Wielkopolska a national leader in green transition in 2040, and a zero-emission and energy-efficient industry, including the energy sector using innovative green technologies, will become the dominant sector of the economy.

It will be of key importance to undertake initiatives that will make the subregion a leading producer of green energy from renewable sources and a producer and exporter of hydrogen in the country.

[27] *Last Gasp. The coal companies making Europe sick*, 2018, https://beyond-coal.eu/wp-content/uploads/2020/02/Last-Gasp-2018.pdf [accessed: 04/12/2020].

The data covers 2016, i.e. the penultimate year of operation of the Adamów Power Plant.

[28] The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

[29] The *European Green Deal*, Communication from the Commission to the European Parliament, the European Council, the Council, the Economic and Social Committee and the Committee of the Regions, COM (2019) 640 final, Brussels 2019.

It is assumed that targeted and coordinated actions will be taken, including increasing energy efficiency, the use of climate-neutral energy carriers, transition of the economy into a circular economy, development of a modern bioeconomy sector and clean mobility. They will result in a reduction of CO_2 emissions in the electricity sector by over 90-95% by 2030, and in other sectors by 80-90% by 2040. At the same time, work will be conducted to balance other emissions by increasing the level of their absorption, including by increasing the forest cover of the area. **Actions will be implemented thanks to which by 2030 there will be: reduction of greenhouse gas emissions by over 55.0% (compared to the level from 1990), increase in the share of energy from renewable energy sources in total energy consumption to a level exceeding 32.0% % and an increase in energy efficiency above 32.5%**[30].

Continuation of the above-mentioned directions of action for the next decade (until 2040) will allow for further limitation of unfavourable climate phenomena and achievement of climate neutrality. The new energy system will be based on the energy of the sun, wind, geothermal energy, biomass, biogas and hydrogen. It will also consider new forms of energy communities and will be complemented by individual energy sources.

2030
CESSATION OF COAL MINING AND ITS USE IN ELECTRICITY AND HEATING

2040
CLIMATE NEUTRALITY OF EASTERN WIELKOPOLSKA

As a result of abandoning the combustion of brown coal, in the next decade, CO_2 emissions will decrease from the current 12.2 m tonnes per year across the entire Wielkopolska Region by up to 70%. Thanks to the decarbonisation process, the Wielkopolska Region is able to exceed the new EU target (defined for member states) adopted in December 2020 by the EU Council, assuming the reduction of greenhouse gas emissions by 55% in the years 1990-2030, while contributing to its achievement by Poland. The development of RES will result in the reduction of the emission intensity of the consumed electricity, improvement of air quality and improvement of the quality of life of the inhabitants. Moreover, it will stimulate employment growth in the region by creating jobs in the new sector, the so-called green technologies and will contribute to the improvement of energy efficiency. For companies, zero-emission and affordable energy will, on the one hand, increase resilience to the crisis and, on the other hand, strengthen the competitiveness of the manufacturing sector. The development of modern and sustainable construction and transport will contribute to the increase in the attractiveness of the area as a friendly place to live. Investments in improving energy

[30] Wielkopolska Spatial Planning Office in Poznań, *Assumptions of the regional strategy for climate neutrality. EASTERN WIELKOPOLSKA 2040 „PO WĘGLU"*, Poznań 2020.

efficiency in the municipal and housing sector will serve to reduce energy consumption, which will bring the greatest environmental effect. The comprehensive scope of support (heat source replacement and thermal modernization), according to the recommendations of the World Bank, will further reduce energy bills, reduce greenhouse gas emissions and reduce energy poverty.31

The implementation of the energy transition towards a zero-emission and resource-efficient economy is not only to reduce greenhouse gas emissions and improve energy efficiency, e.g. by increasing the use of alternative energy sources, but also make the inhabitants and entrepreneurs of the subregion (so-called prosumers) the owners of decentralized energy sources. In addition, the activities conducted in the field of energy will be aimed at supporting one of the principles used in the development of modern energy, i.e. the „Gigawatt per gigawatt" rule, which means replacing each unit of energy originally produced with coal with a unit of energy produced from renewable sources or saved[32]. In view of the above and taking into account the potential socio-economic effects of the energy transition (e.g. redundancies in the mining sector), it is important to determine the role that the ZE PAK Group should play in the process of just transition, being a significant domestic producer of electricity and an important player in the local labour market.

2.2.1 Contribution of the transition of Eastern Wielkopolska to the implementation of NECP and PEP 2040

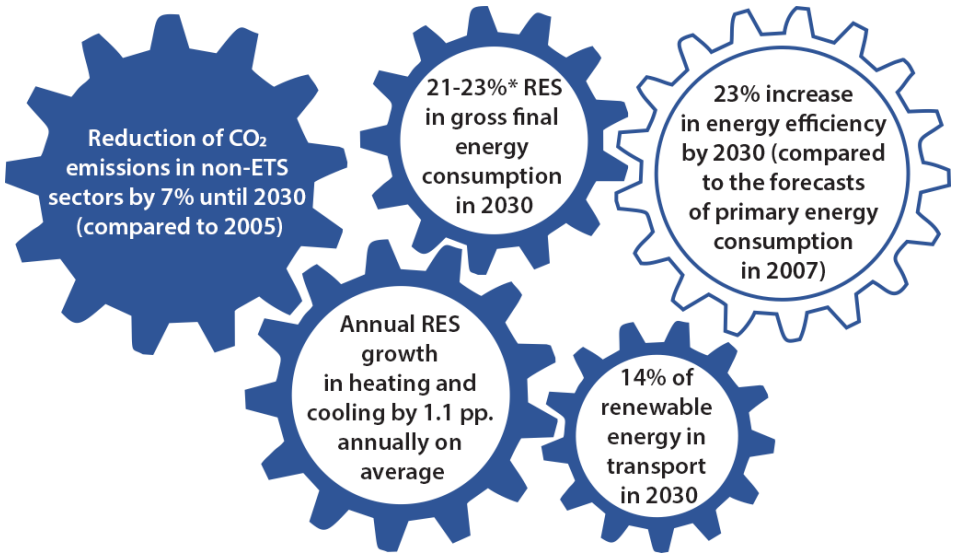
In the area of energy transition, measures taken to eliminate emissions, improve energy efficiency or ensure energy security will aim to implement the assumptions of the National Energy and Climate Plan for 2021-2030[33]. Thanks to this, they will contribute to the achievement of Poland's national climate and energy targets set for 2030.

[31]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

[32] PWC, *Transformation of the Upper Nitra Coal Region - Action Plan*, 2019.

[33] N*ational plan for energy and climate for 2021-2030*, version 4.1, Ministry of State Assets, Warsaw 2019.

Figure 8. Poland's climate and energy objectives until 2030



** The 23% target will be achievable if Poland is granted additional EU funds, including those allocated for a just transition*

Source: National energy and climate plan for 2021-2030, revision 4.1
Ministry of State Assets, Warsaw 2019.

Achieving the target of a **7% reduction in CO_2 emissions in non-ETS sectors** compared to 2005 will require appropriate measures to be taken in the above-mentioned sectors, in particular those with the highest share in greenhouse gas emissions (including municipal and residential, transport and agriculture).[34] Those activities will concern in particular: in the area of construction - increase in energy efficiency through thermal modernization of buildings, replacement of high-emission heat sources, use of RES; in the area of transport - increasing the use of RES, development of public collective transport while limiting the use of individual combustion-powered vehicles, modernizing the rolling stock, implementing innovative traffic management systems; in the field of agriculture - development of agricultural biogas plants or RES micro-installations. The agricultural sector, in addition to its potential for reducing greenhouse gas emissions, also has a significant potential to bind and store CO_2 in biomass and soil. Its contribution to the implementation of the objectives of climate policy should consist in the dissemination of a sustainable production structure, the use of good agrotechnical practices (including the use of precision farming techniques), rational management of fertilizers and plant protection, protection of permanent grasslands, creation of mid-field tree stands and ecotone zones, soil protection organic and proper water management.

[34] Sectors not covered by the emissions trading scheme.

In terms of achieving a **23% share of RES in final energy consumption**, the key will be technological progress, both in the field of currently known methods of energy production and in completely new technologies (including energy storage technologies)[35]. The measures taken will be aimed at increasing the share of RES in the **power industry, as well as in heating and cooling**, for which an **annual growth of RES** by 1.1 **pp is assumed. annually on average.** The development of distributed energy will also be supported, which should ultimately transform Eastern Wielkopolska into an energy-sustainable area, in which energy clusters and energy cooperatives should play an important role. The development of RES micro-installations, including prosumer installations, will also be of great importance.

An important element in the energy transition of the subregion will be the **decarbonisation of hydrogen production** through the production and use of green hydrogen from RES, aimed at creating a „**hydrogen valley**" in Eastern Wielkopolska. In order to achieve a **14% share of RES in transport**, the development of electromobility will be supported, including by increasing the use of alternative fuels in transport, primarily electricity and hydrogen, as well as the development of urban and intercommunal public transport. In addition to increasing the share of RES, decarbonisation of transport will also contribute to reducing the country's dependence on oil imports and reducing its harmfulness to the environment. In order to completely decarbonise this branch of the economy, zero-emission vehicles, e.g. powered by hydrogen, should be introduced. It is worth emphasizing that the potential of using hydrogen should not only be found in road transport, but also in rail, air and sea use.[36] In terms of **increasing energy efficiency by 23%**, it will be important to develop ecological and effective heating systems, heat production in cogeneration, smart grids, as well as improve the energy efficiency of buildings. Actions will also be taken to increase energy efficiency in transport through the development of more sustainable methods of transporting goods (e.g. intermodal transport) and the inhabitants of the subregion (public transport). One of the key principles used in the transition should be the principle of **energy efficiency, especially in transport and construction**[37]**.**

[35] N*ational plan for energy and climate for 2021-2030*, version 4.1, Ministry of State Assets, Warsaw 2019.

[36] *National plan for energy and climate for 2021-2030*, version 4.1, Ministry of State Assets, Warsaw 2019.

[37] Pursuant to Article 2 point 18 of *Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives of the European Parliament and of the Council 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council* „Energy efficiency first" means that energy planning, policy and investment decisions take the utmost account of cost-effective alternative energy efficiency measures, to increase the efficiency of energy demand and supply, in particular through cost-effective end-use savings, demand response initiatives, more efficient conversion and distribution, and more efficient energy transmission, while continuing to meet the objectives of those decisions.

The energy transition of Eastern Wielkopolska will also have a positive impact on another objective set out in the NECP, i.e. **reducing the share of coal in electricity generation to 56-60%.**Its achievement will be due to the **cessation of brown coal mining in the subregion until 2030**, which in turn will translate into a reduction in the amount of energy produced using this carrier, **in particular in the power industry and heating industry**. Instead, technologies characterized by high efficiency of energy generation will be implemented, which will lead to a gradual increase in the share of low- and zero-emission technologies, mainly RES.

The above-described objectives to be achieved under the NECP are consistent with the objectives set out in the *Poland's Energy Policy until 2040*[38], adopted by the Council of Ministers in February 2021. It was based on three pillars concerning just transition, zero-emission energy system and good air quality, assuming, among others:

- increase in the share of renewable energy sources in all sectors and technologies - in 2030, the share of RES in gross final energy consumption will be at least 23%, including:
  - not less than 32% in the power industry (mainly wind energy and photovoltaics),
  - 28% in heating (increase by 1.1 pp on average annually),
  - 14% in transport (with a large contribution of electromobility);
- increase in energy efficiency - a target of 23% primary energy savings has been set for 2030;
- reduction of the share of coal in electricity generation - in 2030 it will not exceed 56%, and the reduction of its use in the economy will occur in a manner ensuring a just transition;
- covering the heat needs of all households (by 2040) by system heat and by zero- or low-emission individual sources.

PEP 2040 also assumes a significant increase in the installed capacity in photovoltaics - to the level of approx. 5-7 GW in 2030 and approx. 10-16 GW in 2040, a departure from burning coal in households in cities by 2030, and in rural areas by 2040, and reducing energy poverty to less than 6% of households.

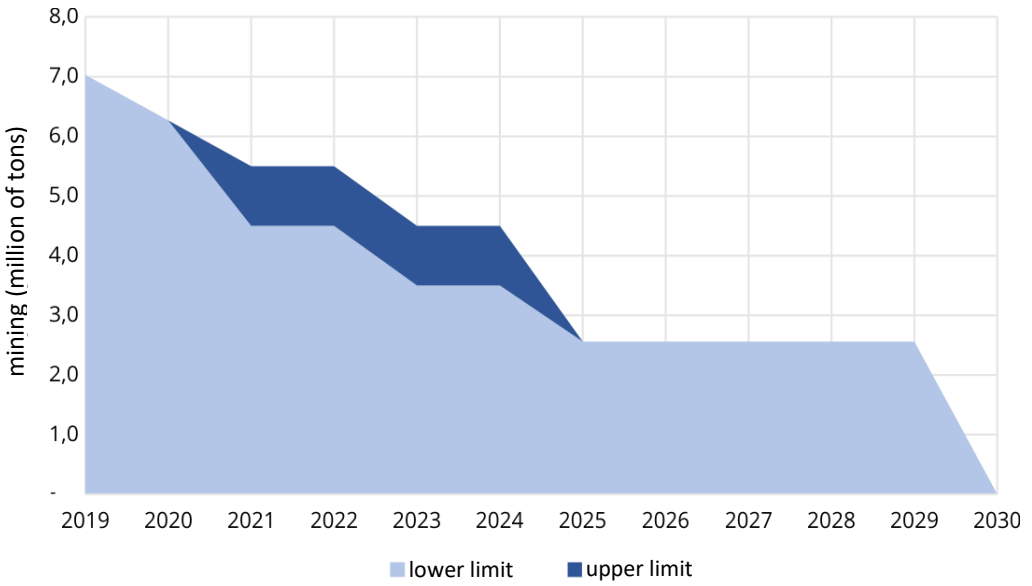
Therefore, it can be concluded that the activities planned as part of the transition of Eastern Wielkopolska will have a significant contribution to the implementation of the objectives of PEP 2040.

[38]*Poland's Energy Policy until 2040, Resolution of the Council of Ministers of 2 February 2021,* an increase in the share of RES in all sectors and technologies - in 2030, the share of RES in gross final energy consumption will be at least 23%, including:

2.2.2 Schedule of cessation of brown coal mining and electricity generation in coal installations in Eastern Wielkopolska

There are 22 documented brown coal deposits in the area of Eastern Wielkopolska[39]. Kopalnia Węgla Adamów SA operating in the PAK subregion. (under liquidation) in February 2021, finished the extraction of coal from the Adamów open pit, i.e. the only exploited open pit in this mine, while PAK Kopalnia Węgla Brunatnego Konin SA (supplying the Konin, Pątnów I and Pątnów II power plants) currently operates three open-pit mines, i.e. Drzewce, Jóźwin and Tomisławice (for the needs of their operation at the end of 2019, nearly 2.5k people were employed, of which Adamów approx. 550 people, Jóźwin - over 870 people, Drzewce - approx. 450 people, Tomisławice - over 570 people).

Figure 9. Brown coal mining within KWB Konin in 2019-2030 according to the new ZE PAK Group Strategy



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

The area currently used for opencast activities, as well as being in the process of reclamation, covers nearly 7.5k hectares. The brown coal resources in the mined open pits allow the mine to operate - at the current level of extraction - until the end of 2030. The

[39] Szuflicki M., Malon A., Tymiński M. (ed.), *Bilans zasobów złóż kopalin w Polsce wg stanu na 31.12.2019 r.*, Państwowy Instytut Geologiczny – Państwowy Instytut Badawczy, Warszawa 2020.

exploitation of the Jóźwin open pit will end in 2021, in the case of Drzewce the open pit coal mining will end no later than in 2022, while the Tomisławice open pit until 2030.

The activity of the ZE PAK Group in the field of energy production from brown coal consists of three active power plants[40]:

- Konin Power Plant - the oldest brown coal-fired power plant in Poland, which is also a heat supplier for the city of Konin and the surrounding area. When operating three boilers, it has a nominal thermal power of 391 MWt, including a biomass boiler with a nominal power of 169 MWt (other reserve coal boilers with a capacity of 111 MWt each). The shutdown of two coal-fired units is scheduled for 31 December 2022. In addition, after the reconstruction of the K-7 boiler, which is to be completed by the end of 2021, the power plant will use biomass as the primary fuel[41]. It is worth noting that in accordance with the decision of 30 June 2020, 93 MW of the installed capacity generated from the operation of coal-fired boilers in power plants was excluded;
- Pątnów I Power Plant - the largest power plant in the ZE PAK Group, equipped with six power boilers with a nominal thermal power of 604 MWt each. Boilers 3, 4 and 6 have been decommissioned, while boilers 1, 2 and 5 (with a total rated thermal power of 1,812 MWt), according to the integrated permit, will be decommissioned by 31 December 2030[42]. Despite the possibility of operating some of them by 2030, the ZE PAK Group plans to end the power plant's operation in 2024;
- Pątnów II Power Plant EP II company - equipped with a power unit with a nominal thermal power of 1,080 MWt, which is the first supercritical power generating unit in the national power system. It is characterized by high efficiency of energy production, which is associated with lower fuel consumption and a reduced amount of post-production waste. This block was equipped with the most modern installations for the protection of the atmosphere - wet flue gas desulphurization

[40] It is worth noting that in January 2018, the operation of one power plant belonging to the ZE PAK Group, i.e. the Adamów Power Plant, with an installed capacity of 600 MW, was shut down.

[41] In March 2020, ZE PAK signed a contract for the design and conversion of the K-7 boiler into a fluidized bed boiler operating in the BFB technology. The modernized 50 MWe installation will produce electricity and will act as a backup for the currently operating biomass unit supplying heat to the city of Konin. After the modernization of the K-7 boiler at the Konin Power Plant, approx. 100 MWe (2 x 50 MWe) of power will be available with the use of biomass as the primary fuel.

[42]The integrated permit includes exemptions from the emission limit values specified in the Commission Implementing Decision (EU) 2017/1442 and in accordance with the Act of 27 April 2001 - Environmental Protection Law. The following emissions were exempted: Hg and SO_2 for units 1, 2 and 5, until their decommissioning, i.e. by 31 December 2030. The rationale for the time derogation granted to the power plant is the fact that the benefits are not proportionate to costs, the air quality requirements are met, and the geographical location is also a factor. The decision in this respect is not final. When issuing it, the provisions of both EU and Polish law were applicable.

and reduction of nitrogen compound emissions[43]. The end of the power plant's operation is scheduled for 2030.

The amount of energy produced in the above-mentioned power plants reached the level of 6.6 TWh in 2019, consuming 7.3 m tonnes of brown coal. They emitted a total of 7.2 m tons of CO_2 (the Konin power plant - 0.5 m tons, Pątnów I - 4.2 m tons, Pątnów II - 2.5 m tons). The brown coal mines were also the emitter of this gas - they were responsible for the emission of 22.8k tonnes of carbon dioxide. Such significant emissions make the ZE PAK Group the largest source of CO_2 emissions in the Wielkopolska Region for years - in 2019 it was responsible for over 60% of its emissions in the region and almost 90% of its emissions in the subregion. Therefore, the end of operation of coal-fired boilers will translate into a significant reduction in CO_2 emissions, which will be a significant contribution to the achievement of the target of reducing emissions of this gas at the national level by 2030.

The ZE PAK Group, taking into account the new growth strategy, the European Green Deal and the global challenge of climate change, changed its business strategy and ceased the exploitation of the Ościsłowo deposit in favour of conducting transition of its operations towards zero-emission energy production, which will result in the end of brown coal extraction until 2030[44] Significant circumstances of decommissioning this field were also external factors negatively affecting the profitability of electricity production from brown coal (in particular, rising prices of CO_2 emission allowances) and the growing import of electricity to Poland, putting pressure on the level of electricity prices on the wholesale energy market in Poland[45]. Moreover, the exploitation of the Piaski and Dęby Szlacheckie deposits was abandoned. After the mining of coal from the mined pits ceases, the activities of the Pątnów I and Pątnów II Power Plants will be terminated, while the Konin Power Plant,

[43] Pątnów II Power Plant obtained a temporary permit to derogate from the emission limit values for nitrogen oxides, dust, mercury and sulfur dioxide until 17 August 2024.The justification for the temporary derogation for Pątnów II Power Plant, pursuant to Article 204 paragraph 2 of the Act of 27 April 2001, Environmental Protection Law, is to meet air quality requirements. The daily average concentrations proposed by ZE PAK in terms of nitrogen oxide emissions (sums of nitrogen oxides (NO) and nitrogen dioxide (NO2) expressed as nitrogen dioxide (NO2)), dust and sulfur dioxide, during the derogation period, will not exceed the emission standards specified in the Regulation of the Minister of the Environment of 1 March 2018 on emission standards for certain types of installations, fuel combustion sources and waste incineration or co-incineration devices, i.e. they will be consistent with the legal requirements. The decision is final. When issuing it, the provisions of both EU and Polish law were applicable.

[44] The *European Green Deal*, Communication from the Commission to the European Parliament, the European Council, the Council, the Economic and Social Committee and the Committee of the Regions, COM (2019) 640 final, Brussels 2019.

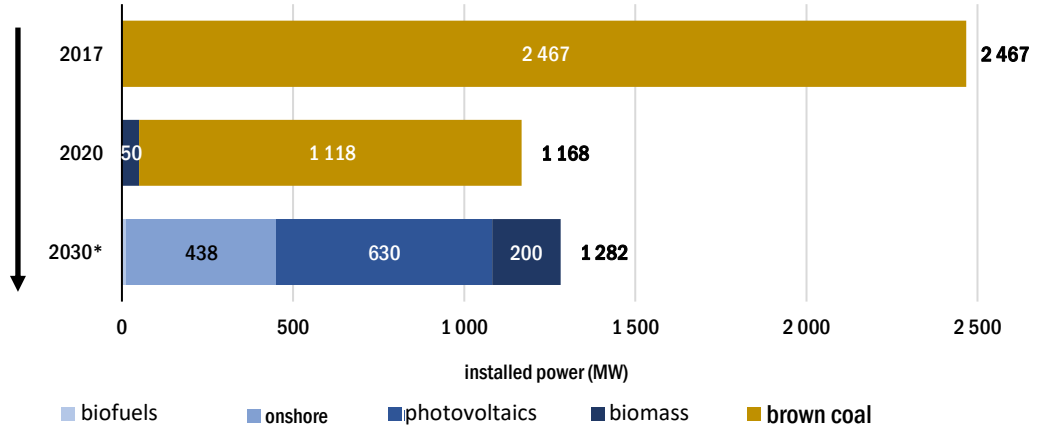
[45] Grupa Kapitałowa ZE PAK, *Raport bieżący ZE PAK nr 45/2020*,45/2020,https://ri.zepak.com.pl/pl/raporty/raporty-biezace/1465-informacja-o-zamiarze-ujecia-w-sprawozdaniach-finansowych-za-pierwsze-polrocze-2020-roku-odpisow-aktualizujacych-wartosc-aktywow-oraz-ich-szacunkowym-wplywie-na-wyniki-finansowe.html [dostęp: 09/10/2020].

extremely important for the City of Konin and its surroundings, will be adapted to the production of energy based entirely on the use of alternative energy sources. By 2030, it is also planned to abandon the use of coal in the entire heating sector in Eastern Wielkopolska.

However, the end of coal mining does not mean the end of the ZE PAK Group's activities in the business segment related to energy and heating. Based on the analyses conducted, in the context of shaping energy policy at the international (EU) and national level, which aims to gradually eliminate the share of fossil fuels in the energy mix, and thus reduce the sources of pollutant emissions, the ZE PAK Group decided to transform the main areas of the current operating activities. The current plans assume a wide diversification of activities through the use of other technologies, based in particular on renewable energy sources. At the same time, using the experience and knowledge as well as the existing infrastructure, the ZE PAK Group plans to develop its activities in new areas. Its key strategic objectives include the production of energy from RES as well as the production and distribution of green hydrogen. According to the adopted plans, in 2030 RES will be produced with an installed capacity of 1,282 MW (630 MW photovoltaic, 438 MW wind turbines[46], 200 MW biomass and 14 MW biogas plants), which will significantly affect the achievement of the objective specified in the NECP, i.e. achieving 23% share of RES in final energy consumption. The set objectives constitute the basis for the ZE PAK Group to achieve tangible benefits in the: climate, economic and social areas.

[46]As long as the so-called distance regulation, introducing the requirement to maintain the minimum distance of wind farms at the level of ten times the total height of the device from the building and selected forms of nature protection, is repealed.

Figure 10. Structure of the installed capacity of ZE PAK in 2017, 2020 and 2030 according to the new Strategy of the ZE PAK Group



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

2.3 Just transition

TRANSFORMATION OF EASTERN WIELKOPOLSKA AS A PROCESS OF MULTI-FACETED TRANSFORMATIONS GOING BEYOND THE AREAS OF JTF SUPPORT

Conducting transition the EU economy towards a sustainable and climate-neutral economy will require significant investments throughout Europe, and for Eastern Wielkopolska, an area strongly dependent on the economic monoculture of the mining and energy sector, it is a particularly important challenge. As shown by the experience of other coal regions undergoing transition, e.g. the Lusatian region in Germany or the Upper Nitra region in Slovakia, comprehensive transition should not only consist in the safe closure of mines, revitalization of degraded areas and the creation of new jobs for people leaving mining and energy using high-emission energy sources energy.

It should include changes occurring in the process of multi-faceted transformations, bringing not only economic but also spatial, environmental and social benefits. A comprehensive approach to the transition of Eastern Wielkopolska is in line with the idea of a just transition and means equal access to environmental resources (water, clean air, green areas), the labour market, social and technical infrastructure, as well as eliminating development disproportions in order to ensure a high quality of life and opportunities long-term development. Employees and local communities affected by transition processes as well as environmental protection not limited only to counteracting climate change are of

key importance here[47] This approach will translate into improvement of the situation on the labour market, in accordance with the principle of decent work adapted to the qualifications, to improve the living conditions of the inhabitants of the subregion and to provide new sources of income for LGUs.

A similar approach was also expressed by the „Just Transition" Expert Group in the document *Proposals of recommendations for the area of just transition*. According to the Group (consisting mainly of representatives of the scientific community and experts), in the broadest sense, a just transition is a comprehensive restructuring and transition of coal regions. It is an idea of socio-economic policy, perceived as the second (or even third) wave of changes in the fuel and energy sector in the post-socialist economy, entailing not only adjustments in the labour market or changes in the production structure, but also identity changes. On the other hand, in the narrowest sense, it is a technological transition of the economy, in which emission technologies are replaced with low- and zero-emission technologies, and a competence and generational exchange occurs on the labour market, in accordance with the 1: 1+ principle (loss of value in traditional activities should be compensated by creating at least equivalent value in new activities). The document also emphasizes that transition is an opportunity to better consider the social factor in the context of the upcoming changes.

Eastern Wielkopolska, highly dependent on the fossil fuel sector, will need to restructure the economy (in particular, domestic industry towards a sustainable and climate-neutral economy) and ensure that new specializations are able to maintain economic and social stability. It should also offer employees the necessary support in terms of raising their competences and qualifications, enabling them to work in new areas. In the economic sphere, the key measures mitigating the negative effects of transition (such as increased unemployment or increased migration of young people) are associated in particular with the development of an innovative and diversified economy, one of the elements of which will be the development of a new subregional smart specialization (Renewable Energy Sources and modern energy technologies), as well as the energy transition - which is to ultimately lead the subregion to climate neutrality as early as in 2040. In the social dimension, a just transition will include processes occurring at various levels: employees and their families, local communities or communes.

In order to ensure the greatest possible effectiveness of the actions taken, it will be crucial to correctly define the problems and select the appropriate tools to solve them. The activities conducted at individual implementation levels may therefore require different approaches with opposite characteristics. It will also be important to undertake projects

[47] „Just Transition" Expert Group, *Proposals of recommendations for the area of Just Transition*, Katowice - Łódź - Poznań - Wrocław - Warsaw 2020.

aimed at counteracting climatic and environmental problems, in particular in the field of water deficit, and also related to strengthening the spatial cohesion of the subregion.

The transition process of Eastern Wielkopolska in the next two decades will be very complex, deep, difficult and will be conducted simultaneously on many different levels. Therefore, it should be seen not only as an opportunity to build a zero-emission and resource-efficient economy, but as a source of diversification of the economic structure and economic restructuring. By discounting the endogenous potential, the subregion will become a leader in implementing solutions for the use of alternative energy sources, which will contribute to building an innovative economy and increasing the competitiveness of enterprises and will provide inhabitants with a high quality of life.

2.3.1 Pillars of just transition

The just transition of Eastern Wielkopolska aims to conduct structural changes in the subregion in a way that brings economic benefits and is sustainable in terms of the environment, providing inhabitants with an adequate, and above all socially acceptable, standard of living and development conditions with a view to minimizing the social and economic negative effects of the transition towards a climate neutral economy. Therefore, a comprehensive approach should be adopted, including, in particular, support for employees who lose their jobs as a result of transition, the development of innovation, research and science, support and development of micro, small and medium-sized enterprises, ensuring access to qualified employees, as well as the development of culture, tourism or infrastructure. In terms of the energy transition of the subregion, it will be important to maintain its energy character, as well as strive to become the national leader of green transition and achieve climate neutrality as early as 2040.

In view of the just transition, Eastern Wielkopolska needs a new development model, which should be based on three pillars that are interrelated and interact with each other:

- **Pillar 1 - Economic;**
- **Pillar 2 - Spatial;**
- **Pillar 3 - Social.**

The above pillars will be an element of the functional model adopted at the level of the Development Strategy for the Wielkopolska Region until 2030, according to which the development of Eastern Wielkopolska should also be conducted[48]. It assumes territorially balanced development, mutually beneficial relations in spatial, economic and social dimensions, as well as inter-institutional links and partnership cooperation. According to

[48] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

the DSWR, in the functional model, supporting growth poles is insufficient for diffusion to the surrounding areas. It is important to simultaneously strengthen the ability to perceive this impact. Space should develop as a result of the mutually beneficial interaction of the poles and the environment, i.e. through the diffusion of development from the poles to the environment, but at the same time thanks to the increasing ability of the environment to absorb the beneficial influence of external factors. In this model, intersectoral links, and therefore mutually beneficial relations both in space, enabling territorially balanced development, and in the system of individual economic and social spheres, which are a source of synergy, are important. In Eastern Wielkopolska, the key role in the above-mentioned model is played by employees and local communities affected by transition processes, as well as environmental protection, focusing not only on climate change, but therefore activities also aimed at these groups/areas should be treated as superior. In the functional model, an important element are also inter-institutional links, i.e. close cooperation, participation, responsibility and solidarity of various entities representing the public, economic, scientific and social spheres. Thanks to them, it is possible to combine the potentials of various entities in activities for the development of Eastern Wielkopolska, thus enabling mutual complementation of activities, increasing their effectiveness, as well as better use of available resources.

2.3.2 Principles of just transition

The process of just transition, implemented on many levels, should be conducted in accordance with several principles that will allow for its better organization:

- **Collaboration and partnership** means collaboration between public and private actors, NGOs, the science sector and civil society, both before and during the transition process.

  Ensuring the participation of a wide group of stakeholders from the subregion will allow for the development of a range of activities appropriately adapted to the conditions, considering local growth factors - the image of Eastern Wielkopolska, its potentials and limitations, is not only the result of the research, but also, which is very important, the image of expectations and assessments that cannot always be described by statistical parameters.

  Understanding local conditions is crucial as local issues and challenges related to just transition can interact with each other. Moreover, dialogue and cooperation contribute to building trust between individual entities participating in the transition and strengthen the sense of shared responsibility for its course.

  Extensive cooperation and partnership are in line with the principles set out in the Just Transition Guidelines, which should guide the transition of economies and societies towards an environmentally sustainable model[49]. This concerns, in particular, the necessity to conduct a meaningful and properly functioning social dialogue throughout the process and at all management levels, and the necessity to obtain strong social consent in relation to the sustainable development objectives and the pathways leading to them.
- **Concentration of support focused on smart specializations,** which means focusing on those products, technologies or sectors that will allow to create a sustainable, modern, competitive and sustainable economy based on innovative solutions.

  The Concept of supporting smart specializations is still continued, and therefore the assumptions adopted in the European Commission Communication of 2010[50], which emphasized that the region's ability to know and innovate depend on many factors - business culture, skills of employees, education and training institutions, innovation support services, technology transfer mechanisms, research and

[49] International Labor Organization, *Guidelines for a just transition towards environmentally sustainable economies and societies for all,* 2015.

[50] *Regional policy as a factor contributing to smart growth under the Europe 2020* strategy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2010) 553 final, Brussels 2010.

development infrastructure and information and communication technologies, researcher mobility, business incubators and local creativity potential, do not lose their relevance.

Furthermore, it points out that smart specialization strategies in leading regions may be based on investment in improving general technology or innovation, while other regions often benefit more from investing in innovation in a specific sector or several related sectors. The second approach seems to be a desirable direction for Eastern Wielkopolska, which should be based in particular on **subregional smart specializations:**

(1) Renewable Energy Sources and modern energy technologies (especially on the development of hydrogen technologies or electromobility) and **(2) Tourism,** derived from its tradition and internal potential, as well as (3) **Logistics or (4) Production of healthy food.**

The European Commission document indicates that the ability to face long-term challenges, and now also recover from the crisis caused by the COVID-19 epidemic, should be supported by the cultural and creative sector, by developing people's creativity and skills and shaping strong social values. In line *with the Green Paper on Unlocking the Potential of Cultural and Creative Industries*[51], the cultural and creative sector often contributes to the recovery of declining local economies, including by creating new and permanent jobs or increasing the attractiveness of a given area.

- **Considering the principles of sustainable development and environmental protection**

  at all stages of preparation of the transition process and during its duration, which is particularly important in the case of mining regions, which were heavily burdened by the environment in the past. Environmental protection should be understood as taking actions that enable the preservation or restoration of natural balance, which consists, in particular, in the rational shaping of the environment and management of environmental resources in accordance with the principle of sustainable development, restoring natural elements to the proper state or counteracting pollution.

  On the other hand, sustainable development is understood as socio-economic development in which the process of integrating political, economic and social activities occurs while maintaining natural balance and the durability of basic natural processes, in order to guarantee the possibility of satisfying the basic needs

[51] Green Paper on *Unlocking the Potential of Cultural and Creative Industries*, COM (2010) 183 final, Brussels 2010.

of individual communities or citizens of both the modern generation and future[52]. To implement this principle, it will be important to implement the concept of a circular economy to increase resource efficiency and reduce waste.

- **Reducing territorial inequalities** understood as supporting weaker areas without giving up the support and using the potentials of more developed areas. Individual areas of the subregion should be supported in terms of strengthening their specific potentials and eliminating development barriers. Particular attention should be given to areas that will be most affected by the transition to climate neutrality.
- **Integration of activities** involving the integration of social, economic and spatial dimensions and complementarity of activities undertaken at various levels of the administrative division, using various sources. Its implementation will allow to achieve the synergy effect.
- **Inclusive nature of the transition of Eastern Wielkopolska with regard to all inhabitants**, which means that the following issues are taken into account in the undertaken activities: equal employment opportunities, education, free use of goods and services, respect for human rights, including equality regardless of age, gender, ethnic origin, sexual orientation, religion and worldview. It also includes the pursuit of social cohesion, respect for cultural diversity and cultural heritage, engaged society and civic participation[53].

[52] *Act of 27 April 2001, Environmental Protection Law* (consolidated text, Journal of Laws of 2020, item 1219, as amended).

[53] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

3 ASSESSMENT OF TRANSITION CHALLENGES

The transition of the subregion should consider the problems and challenges facing this area, both those specific to this part of the Wielkopolska Region, as well as those characteristic of other areas covered by the just transition mechanism, such as digitization, demographic or climate changes, which will shape societies and economies in the coming years.

The key development challenges of Eastern Wielkopolska have been identified on the basis of analyses of the socio-economic situation and the work of working groups. They also consider the country's development challenges formulated in [54]*the Strategy for Responsible Development until 2020 (with a perspective until 2030),* [55]*the National Strategy for Regional Development until 2030* and [56]*the Development Strategy for the Wielkopolska* Region until 2030. They include:

1. **Building an innovative, resource-efficient and diversified economy.**
2. **Energy transition towards a zero-emission and energy-saving economy.**
3. **Developing and improving the use of human capital potential – the most important resource of the subregion.**
4. **Counteracting environmental degradation and adaptation to climate change.**
5. **Improving internal transport cohesion and mobility of inhabitants.**
6. **Counteracting unfavourable demographic trends.**
7. **Poverty reduction and improvement of access to social services**
8. **Building sustainable social capital and cultural potential.**
9. **Reducing territorial inequalities.**

[54] *Strategy for Responsible Development until 2020 (with a perspective until 2030)*, Resolution No. 8 of the Council of Ministers of 14 February 2017.

Challenge 1.

Building an innovative, resource-efficient and diversified economy.

Utilization of the subregion's potentials for the development of new economic specializations; increase in innovation and digitization of the economy; creating conditions for maintaining and creating stable jobs; increasing the use of information and communication technologies (including teleworking) in enterprises and in the public sector; using the existing industrial specialization of the subregion to create innovative products; entrepreneurship development; implementing a circular economy.

- Due to the necessity to achieve the ambitious objectives of the *European Green Deal*,[57] the further development of the subregion will depend on the economic transition. It will contribute to the development of a competitive industrial base and market services, ensuring new sources of GDP growth and revenues of LGUs. Without action in this regard, there will be an economic slowdown, an increase in the risk of marginalization and a further loss of the socio-economic functions of this area. The just transition in the economic sphere should be perceived not only as an opportunity to build a zero-emission and energy-saving economy, but also as a source of building a more diversified economic structure.
- The economic potential of the Konin subregion (which, apart from the districts of Eastern Wielkopolska also includes the Gniezno and Września districts), calculated by the value of the generated GDP, places it on the 4th place among the subregions in the Wielkopolska Region[58]. In 2018, its value in current prices reached the level of PLN 28.1 b, which accounted for 13.5% of the region value. In the period 2010-

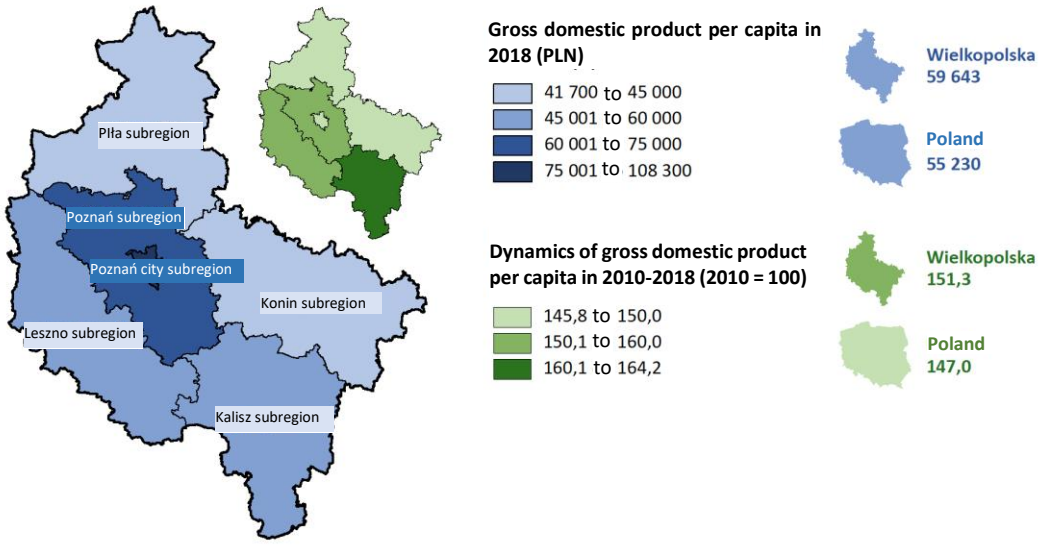
[57] The *European Green Deal*, Communication from the Commission to the European Parliament, the European Council, the Council, the Economic and Social Committee and the Committee of the Regions, COM (2019) 640 final, Brussels 2019.

[58] According to the Classification of Territorial Units for Statistics (NUTS), there are six subregions (NUTS 3) in the Wielkopolska Region, i.e. subregions of Kalisz, Konin, Leszno, Piła, Poznań and the City of Poznań.

2018, the dynamics of GDP growth generated in the Konin subregion was 148.4, with the average for Wielkopolska at the level of 153.4.

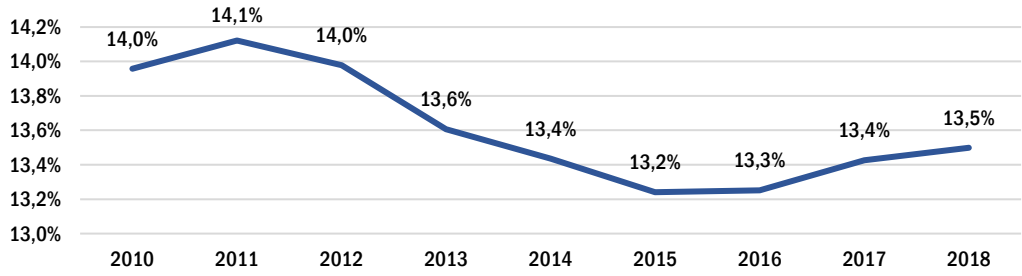
Converting GDP *per capita*, the Konin subregion, with the value of PLN 42,697, was ranked 5th among the subregions of Wielkopolska (ahead of only the Piła subregion) In 2018, the indicated value accounted for 71.6% of the region average.

Figure 11. GDP per capita in 2018 and its dynamics in 2010-2018



Source: WRTO study based on the Local Data Bank of CSO.

Figure 12. Share of the Konin subregion in generating GDP for Wielkopolska in 2010-2018

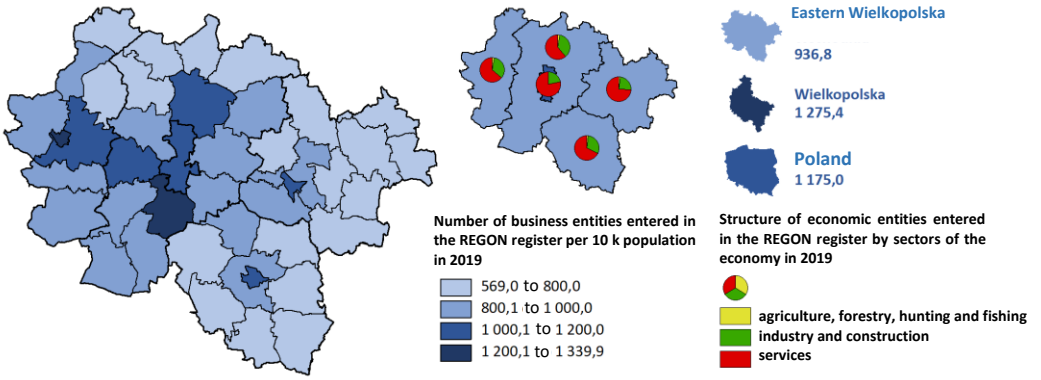


Source: own study based on the Local Data Bank of CSO.

- The subregion is characterized by a relatively low level of entrepreneurship, measured by the number of economic entities per 10k. of population (districts from the subregion achieved one of the lowest values of the index in the region) and the number of newly registered business entities per 10k. of population. In 2019, the

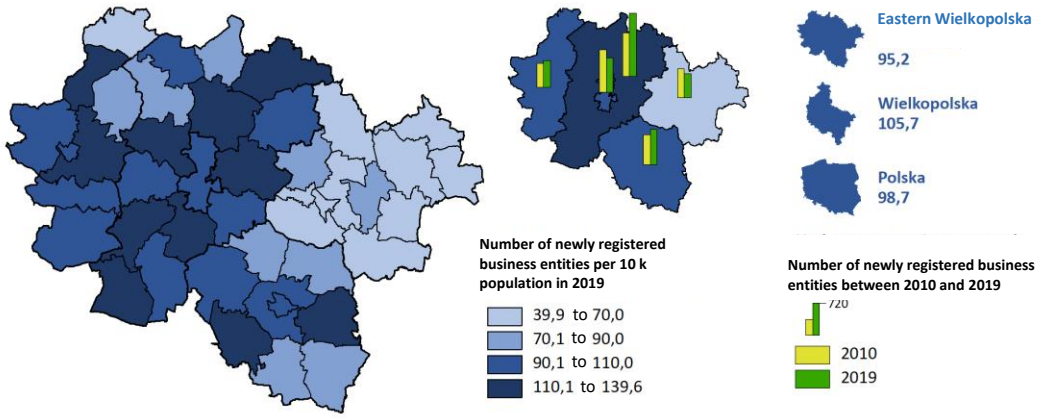
values of the above-mentioned indicators for Eastern Wielkopolska amounted to 937 and 95 respectively, being at a level lower than the average for the Wielkopolska Region (1,275 and 106, respectively) and the country (1,175 and 99, respectively). The highest level of entrepreneurship in the subregion, considered as the absolute number of business entities (2019), is characteristic of district cities (Konin - 8,417; Turek - 2,870, Koło - 2,558, Słupca - 1,830), as well as the communes of Stare Miasto, Ślesin, Golina, Kazimierz Biskupi and Kramsk, in which there are over 1,000 entities.

Figure 13. Business entities entered in the REGON register per 10k. population and their structure by sectors of the economy in 2019



Source: WRTO study based on the Local Data Bank of CSO.

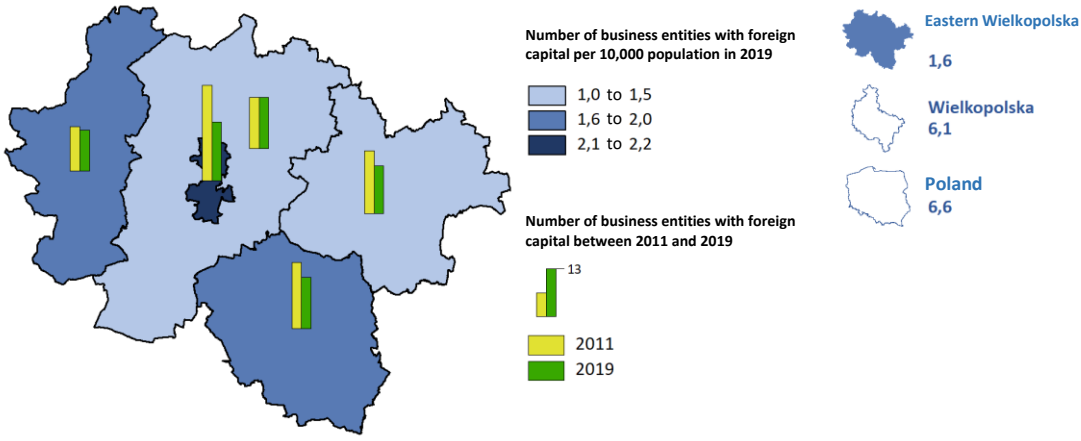
Figure 14. Business entities newly registered in the REGON register in absolute values in 2010 and 2019 and per 10k. population in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- The picture of low entrepreneurial activity of the inhabitants of the subregion is complemented by the much lower number of economic entities with foreign capital per 10k population than for the Wielkopolska Region. population - in 2019 the value of the indicator for Eastern Wielkopolska was 1.6, while the average for Wielkopolska was 6.1.

Figure 15. Economic entities with foreign capital in absolute values in 2011 and 2019 and per 10k. population in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- The structure of economic entities by size class (number of employees) is similar to the general situation in the Wielkopolska Region: in 2019 the smallest entities - employing up to 9 people (96.4%) dominated, followed by enterprises employing 10 to 49 people (3.0%) and medium-sized entities - employing from 50 to 249 people (0.6%). The smallest number of identified entities were large entities (less than 0.1%) - 36 enterprises, including nine employing over 1,000 people (four of them were located in Konin, three in the Turek district, and the rest in Słupca and Konin districts). Two of them, i.e. ZE PAK and Konimpex Sp. z o.o., were included in the group of 200 largest entities in the country.

Table 1. Number of economic entities entered in the statistical register by size class in 2019

Territorial unit	Total number of entities	Number of entities by size class (number of employees)				
		0 - 9	10 - 49	50 - 249	250 - 999	1,000 and more
District of Koło	7,100	6,860	192	41	7	0
District of Konin	11,926	11,556	319	46	4	1
District of Słupca	5,885	5,668	182	30	4	1
District of Turek	7,259	6,991	218	40	7	3
Municipality of Konin	8,417	8,032	291	85	5	4
Eastern Wielkopolska	**40,587**	**39,107**	**1,202**	**242**	**27**	**9**

Source: own study based on the Local Data Bank of CSO.

- In 2019, 29.8% of economic entities from the subregion operated in industry and construction, i.e. by 5.7 pp. more than the average in the Wielkopolska Region (24.1%)[59]. Most of them, i.e. 68.2%, operated in the construction sector, and the remaining part (31.8%) in industry. In industry, over 90% of enterprises operated under section C - industrial processing, and then under section E - water supply, sewage and waste management, and activities related to reclamation (5.6%). The largest number of entities from the industry and construction sectors was located in Konin (1,863), Turek (municipality - 593) and the commune of Ślesin (506), while the communes with the highest percentage of entities from the industrial and construction sector were Wierzbinek (50.9%), Tuliszków (45.2%) and Ostrowite (44.8%). It is worth noting that 67% of communes had the share of the above-mentioned industries above the average level for the subregion, and as much as 84% above the average level for the Wielkopolska Region.
- High location attractiveness of Eastern Wielkopolska, due to good transport accessibility and a higher percentage of economic entities operating in section H - transport and warehouse management than in the country and the Wielkopolska Region (6.5% in 2019; Wielkopolska – 5.8%). Poland - 6.1%), may become the basis for the development of the logistics and warehouse industry, i.e. industries with high development potential[60]. This type of industry in the subregion also includes the furniture industry (22% of economic entities in section C are related to the

[59] Polish Classification of Activities sections: B – mining; C – industrial processing; D – production and supply of electricity, gas, steam, hot water and air for air conditioning systems.

E – water supply, sewage and waste management and reclamation activities.

[60]It is worth emphasizing that the Wielkopolska Logistics Center operates in the subregion, associating the commune of Stare Miasto and the city of Konin, as well as private entrepreneurs, offering areas prepared for the needs of companies with a logistic profile.

production of wood and cork products, as well as the production of furniture) and the food industry (nearly 10% of entities operate in the production of food products). The above industries are part of smart specializations for Wielkopolska, i.e. Specialized logistics processes, Interiors of the future and Bio-raw materials and food for conscious consumers.

- Among the industries strategic for the subregion, it is indicated production of food products, construction and trade (city of Konin and Konin district); manufacture of furniture, manufacture of food products and manufacture of products from other non-metallic mineral raw materials (Koło district); production of rubber and plastic products, production of wood and cork products, production of plastic products for construction, production of metal joinery elements and production of food products (Słupca district); furniture production, trade and transport (Turek district)[61].
- The Wielkopolska Region, especially Eastern Wielkopolska, is characterized by a low level of innovation both at the European and national levels. This is mainly due to insufficient innovative activity of enterprises - the percentage of innovative enterprises and enterprises cooperating in the field of innovative activities, as well as expenditure incurred by enterprises on innovative activities, are most often at a level lower than the national average. Entities, in particular from the SME sector, are not fully aware of their current level of innovation but are willing to invest in this area (in a situation where it would increase their production or sales potential).The current degree of implementation of the Industry 4.0 idea among enterprises in Wielkopolska is not high, and most companies in the region are still at the stage of the second industrial revolution[62].
- In Wielkopolska (it can be assumed that a similar situation occurs in the subregion), the values of indicators concerning the number of entities operating in the research and development sector, people working in it and internal expenditure on R&D are still unsatisfactory, not exceeding the national average. This proves that the potential available in the region has not been fully used.
- In Eastern Wielkopolska, there are entrepreneurship support institutions, which include: The Regional Development Agency JSC in Konin, the Konin Chamber of Commerce, the "Enterprise Europe Network" Entrepreneurship Support Centre, the Turek Entrepreneurship Incubator and the Turek Chamber of Commerce.

[61]Regional Labor Office in Poznań - Department of Labor Market Research and Analyzes, *Who is the labor market looking for in Wielkopolska?*, Regional Labor Office in Poznań, Poznań 2019.

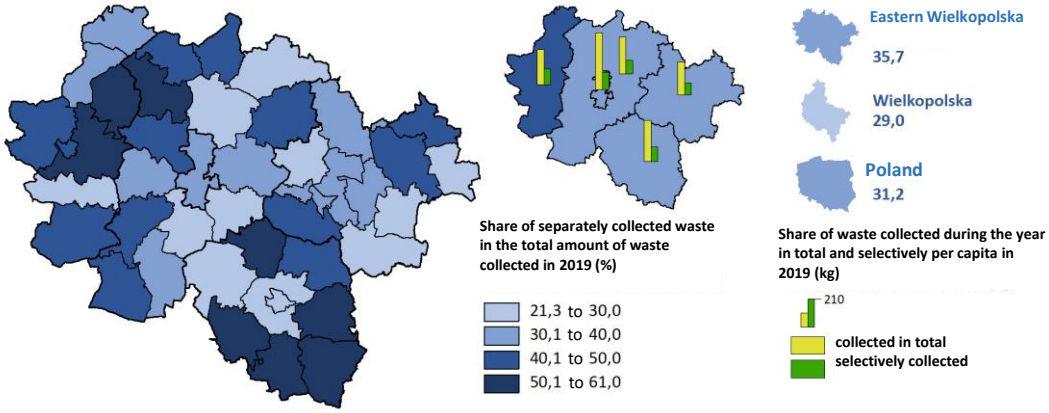
[62] Bondyra K., Zagierski B., *Przemysł 4.0. At what stage of the industrial revolution is the Wielkopolska Region?*, Wielkopolska Regional Territorial Observatory, Poznań 2019.

- Information and communication technologies will play an extremely important role in the process of adapting the economy of the subregion to the requirements of the fourth generation of industry. In the Wielkopolska Region, and it can be assumed that, by analogy, also in Eastern Wielkopolska, the use and offering of modern technologies, including Internet services, despite the systematic development of this sector on a global scale, is moderate[63].
- Shrinking natural resources can have negative social and economic effects. In this context, the implementation of a circular economy is of particular importance, in which the consumption of raw materials and the amount of waste as well as the emission and loss of energy are minimized by creating a closed loop of processes, while assuming that materials and raw materials should remain in the economy as long as possible, and waste from some processes is used as raw materials for others. The transition of the economy towards a circular economy involves a wide range of activities aimed at sustainable industrial production, sustainable consumption, the development of the bioeconomy or the implementation of new business models. The circular economy has great potential for the development of new economic activities in the subregion, as well as the creation of jobs, which are so important in the face of the liquidation of the mining sector.
- Eastern Wielkopolska is characterized, among others, by zero reuse of industrial wastewater (in the Wielkopolska Region - 0.04%) or marginal use in agriculture and soil reclamation of sludge from industrial wastewater treatment plants produced during the year[64]. In the subregion in 2019, only 1% of the sludge was used in agriculture (in Wielkopolska - 20.1%), 0.02% was used for land reclamation, including land for agricultural purposes (in Wielkopolska - 0.4%), while 4.6% was thermally transformed (in Wielkopolska - 16.5 %). Eastern Wielkopolska was also characterized by low waste recovery (excluding municipal waste) - the share of recovered waste in the total amount of waste generated was at the level of 5.0%. In the subregion, industrial waste definitely prevails over municipal waste, which is influenced by the activities of the mining and coal-fired energy sectors. In the case of municipal waste, the situation in this area is much better than in the Wielkopolska Region in general.
- In the subregion, the share of municipal waste collected selectively in the total mass of collected waste was 35.7% in 2019, while in Wielkopolska it was 29.0%.

[63]Wielkopolska Regional Territorial Observatory, Diagnosis of the socio-economic and spatial situation of the Wielkopolska Region 2019, Wielkopolska Regional Territorial Observatory, Poznań 2019.

[64] Nearly 94% of industrial wastewater generated in the subregion is cooling water (not requiring treatment) - discharged directly into waters or into the ground.

Figure 16. Municipal waste collected in total and selectively during the year and the percentage of municipal waste collected selectively in 2019.



Source: WRTO study based on the Local Data Bank of CSO.

A significant contribution to the achievement of this level was made by rural areas and smaller towns, where a total of 42.3% of waste was collected selectively (for comparison, for the four largest cities in the subregion, the indicator reached the value of 34.6%), which resulted from the fact that their inhabitants were used to selective waste collection and recovery. Despite the relatively favourable situation of Eastern Wielkopolska in terms of this indicator, it is necessary to take further measures to increase its value, and above all to implement measures to reduce the amount of waste generated.

- The future economic specializations of Eastern Wielkopolska, like the currently functioning fuel and energy industry, will not function in a vacuum.

  On the contrary - they are supported by the entire chain of various services, e.g. transport, maintenance, training, recreational, hotel and catering services or social activity services. The development of those functions should therefore also become an element of creating a new, more diversified economic structure of the subregion.

Challenge 2.

Energy transition towards a zero-emission and energy-saving economy.

Cease brown coal mining as soon as possible; development of prosumer energy and supporting energy clusters and cooperatives; elimination of the use of coal in electricity and heating; increase in the production and use of RES; prevention of decapitalization of power grids and energy losses in transmission and distribution; increase of the resistance of energy networks to extreme weather phenomena and their adaptation to connecting new RES capacities;
turning „dirty" jobs into „green" jobs by adapting them to the requirements of a zero-carbon economy; restructuring of the ZE PAK Group aimed at restoring production capacity based on environmentally friendly energy sources; development of energy storage technologies and technologies related to the production and use of hydrogen; reducing emissions and energy consumption in industry, construction, transport and agriculture; development of electromobility; development of urban and intercommunal public transport aimed at reducing the use of individual combustion-powered vehicles; development of enterprises from industries related to RES.

- In the economic transition of the subregion, the key will be to use the potentials in the form of favourable conditions for the development of energy based on alternative energy sources, such as developed electricity infrastructure and related human and intellectual capital, favourable environmental conditions, as well as high location attractiveness (due to good transport accessibility).They will constitute the basis for conducting a sustainable, economically effective and just energy transition towards a zero-emission and energy-saving economy with pro-ecological scientific and research facilities.

- In the area of Eastern Wielkopolska, there are 22 documented brown coal deposits[65], which together cover approximately 3.3% of its total area[66]. In 2019, the balance resources of brown coal in the subregion amounted to 493.6 m tonnes, which accounted for almost 6.2% of the resources in the Wielkopolska Region and 2.1% of the national resources.
- The activities of the ZE PAK Group in the field of coal mining include the following two mines: PAK Kopalnia Węgla Brunatnego Adamów SA (under liquidation) and PAK Kopalnia Węgla Brunatnego Konin SA, which operates three open-pit mines. On the other hand, the production of energy from brown coal occurs in three active power plants (a detailed description of their activities is presented in subsection 2.2.2.). The ZE PAK Group is a significant national producer of electricity and the largest producer of electricity in Eastern Wielkopolska. In 2019, the net production of electricity at the Pątnów I Power Plant was 3.09 TWh, at the Konin Power Plant 0.31 TWh, and at the Pątnów II Power Plant 2.26 TWh. 7.03 m tonnes of brown coal were used for its production[67].
- In 2019, Wielkopolska was one of the five regions with the largest electricity consumption in the country, amounting to 12,899 GWh, which accounted for 7.8% of the total consumption in Poland. Almost 35% of this value was used by the industrial sector, 10.3% by the energy sector, 21.4% by households, while the remainder was related to the transport sector (5.6%), agriculture (2.1%) and other sectors (25, 6%), including services. In the Wielkopolska Region, a general increase in electricity consumption *per capita* can be observed (except for 2018, when a decrease in electricity consumption was recorded). Households are an important group of low voltage electricity recipients, the number of which is systematically growing in Eastern Wielkopolska, which also increases the overall energy consumption. In 2010-2019, the number of these customers increased by 7.2% in the subregion (146.6k customers in 2019), while electricity consumption increased by 2.4%, reaching 316.5 in 2019 GWh, i.e. 11.0% of the region value. Energy consumption in households *per capita* in Eastern Wielkopolska has increased since 2010 by approx. 4% (with its decrease until 2015). An increase in the value of the indicator was recorded in this period in almost all districts of the subregion - the

[65] Szuflicki M., Malon A., Tymiński M. (ed.), *Bilans zasobów złóż kopalin w Polsce wg stanu na 31.12.2019 r.*, Państwowy Instytut Geologiczny – Państwowy Instytut Badawczy, Warszawa 2020.

[66] Based on the MIDAS database; Szuflicki M., Malon A., Tymiński M. (ed.), *Bilans zasobów złóż kopalin w Polsce wg stanu na 31.12.2019 r.*, Państwowy Instytut Geologiczny – Państwowy Instytut Badawczy, Warszawa 2020.

[67] Grupa Kapitałowa ZE PAK, *Sprawozdanie Zarządu z działalności Grupy Kapitałowej w 2019 roku*, Konin 2020.

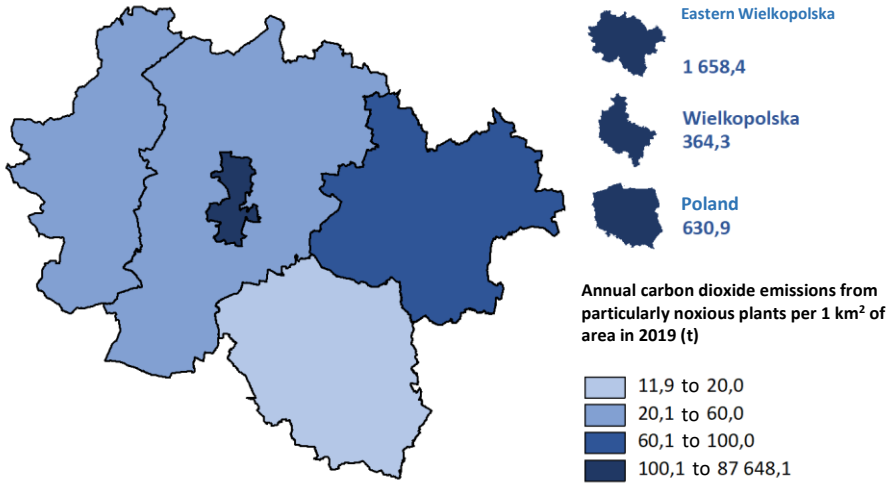
only exception was Konin, where energy consumption in households decreased, both in absolute terms and *per capita*.

- The forecast of Polskie Sieci Energetyczne indicates an increase in the demand for electricity in the country. It is expected that in the period 2019-2040 it will increase by approx. 46.5 TWh, which will translate into the value of the annual cumulative growth rate for this period at the level of 1.24%[68]. In order to reduce the demand for energy and fuels, measures should be taken to improve energy efficiency, which at the same time contributes to reducing the negative impact of the energy sector on the environment through the rational use of resources and reduction of pollutant emissions into the air.
- In 2019, the housing resources of Eastern Wielkopolska amounted to 142.5k. dwellings (46.5% in urban areas and 53.5% in rural areas), i.e. 11.4% of the resources of the Wielkopolska Region, and their total usable area was 11.9 m m^2. Since 2010, i.e. from the introduction of regulations on the energy performance of buildings requiring the use of architectural and installation solutions in a construction project that meet the requirements of energy-saving management, the subregion's housing resources increased by 6.7% (in Wielkopolska by 12.6%), including in cities by 3.9%, and in rural areas by 9.4%.
- Most (61.6%) of occupied dwellings in Eastern Wielkopolska (according to the 2011 National Census) were built in the years 1945-1988, of which over 25.2% were located in Konin, where they constituted as much as 72.9% of the city's housing stock overall. The share of the oldest housing resources in the structure of occupied dwellings, i.e. those built until 1970, was in the subregion at the level of 38.9%, while the percentage of dwellings built before 1945 was 12.3%. 15.0% of the housing stock came from the period 1989-2002, 4.0% from the years 2003-2007, while 2.6% of the dwellings were built in the years 2008-2011.
- In terms of point emissions, Eastern Wielkopolska is in the group of areas with the highest greenhouse gas emissions, which is mainly influenced by particularly burdensome plants, which in 2019 emitted 7.36 m tonnes of CO_2, i.e. 68% of the total emission of this gas in Wielkopolska[69].

[68] Polskie Sieci Energetyczne, *Development plan for meeting the current and future electricity demand for 2021-2030,* Konstancin-Jeziorna 2020.

[69] The ZE PAK Group was responsible for the emission of 6.61 m tons of CO_2 (source: ZE PAK Group, *Management Board's report on the activities of the Group in 2019*, Konin 2020).

Figure 17. Carbon dioxide emissions from particularly burdensome plants per 1 km² of area in 2019



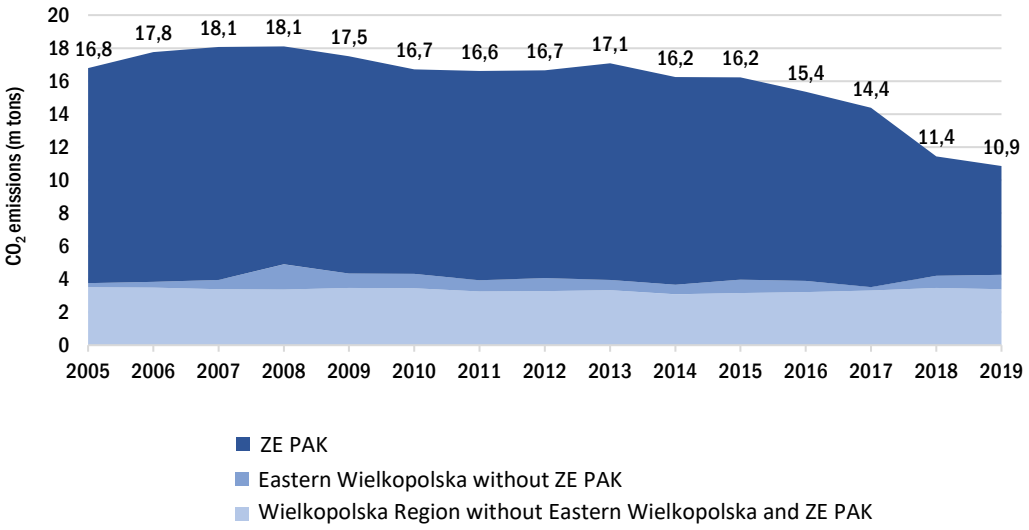
Source: WRTO study based on the Local Data Bank of CSO.

The point emission comes mainly from the combustion of fuels for energy purposes and from technological processes conducted in industrial plants.

In the case of Eastern Wielkopolska, the most important emission sources are fuel combustion installations with a nominal capacity of over 50 MW, i.e. the following power plants: Pątnów I, Pątnów II and Konin, which are also responsible for the highest dust emissions[70]. In 2019, the ZE PAK Group was responsible for over 60% of CO_2 emissions in the Wielkopolska Region and nearly 90% of its emissions in the subregion. It is worth noting that those values were significantly higher before 2015, when the Adamów Power Plant operated without restrictions resulting from the imposed regime of last years of operation before its shutdown in 2017.

[70] Regional Inspectorate of Environmental Protection in Poznań, *State of the Environment in Wielkopolska. Report 2017*, Biblioteka Monitoringu Środowiska, Poznań 2017.

Figure 18. Carbon dioxide emissions in 2005-2019



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

Other emission sources are the electricity and heating sector (excluding ZE PAK), buildings (individual heating) and transport (in Wielkopolska, the highest dust pollution from roads in 2016 was recorded, among others, in Konin). According to the NECP, in the structure of greenhouse gas emissions in Poland in the non-ETS sectors, households, i.e. the municipal and housing sector (approx. 30%), as well as the transport (approx. 27%) and agriculture (approx. 15%) sectors, have the greatest share. Therefore, the key areas for reducing greenhouse gas emissions should be, apart from industry, the following sectors: transport, agriculture and construction.

- In the case of buildings, diffuse low emitters related to home furnaces in the communal-living sector, local boiler rooms, small industrial and service plants dominate. This emission is very often responsible for exceeding the daily norm of PM10 dust, noted especially in the winter season[71]. Air pollution, primarily as a result of coal combustion, translates into local problems, such as health problems for inhabitants, or global problems in the form of accelerating climate change.

  In Eastern Wielkopolska, apart from the ZE PAK Group, there are also companies from outside the electricity and heating sectors, which are energy-intensive and/or are significant CO_2 emitters. In 2019, 25 (active) enterprises operated in the

[71] Regional Inspectorate of Environmental Protection in Poznań, *State of the Environment in Wielkopolska. Report 2017*, Biblioteka Monitoringu Środowiska, Poznań 2017.

subregion of high-emission industries (other than power engineering), operating in the following sectors: ceramics (including Wienerberger, Geberit), mineral, wood, metallurgy (e.g. Gränges Konin) and paper industry which generated revenue of PLN 1.6 b. In connection with the tightening environmental standards, it should be considered that in the perspective of 2030 some people working in those entities will have to change their place of employment (those enterprises currently employ several thousand people), and the enterprises themselves will require support in adjusting production processes[72]. The five largest companies account for over 75% of revenues and half of employment. In connection with the above, counteracting the negative economic effects of decarbonisation outside the power sector should focus in the first place on providing support to employees of several selected enterprises operating in the area of Eastern Wielkopolska. In the indicated industries, the need to change energy generation sources from fossil fuels to low- and zero-emission fuels (including green hydrogen) and the need for electrification and thus creating new jobs in the local value chain were identified.[73].

- The consequences of the implementation of the ambitious objectives of the climate policy will necessitate the transition of the district heating sector as well. The number of heating companies with medium fuel combustion sources in the subregion is limited - those are mainly the following companies[74]: GETEC - supplying the heating network in Turek with heat energy from brown coal, and MZEC Koło (Koło) and Veolia West (Słupca) - using mainly hard coal. A further increase in the prices of CO_2 emission allowances, without changing the fuel mix in those entities, will contribute to a noticeable increase in the cost of thermal energy for inhabitants, which will result in a decrease in interest in system heat, and even disconnection of buildings from the heating network.

  For this reason, further investments in new capacity installed in district heating are necessary, based primarily on zero- and low-emission sources[75].
- The development of a modern system of collective passenger transport, including bus transport, is of significant importance for the improvement of energy efficiency and the reduction of pollutant emissions. In 2019, there were 137 entities providing

[72]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

[73] Ibidem.

[74] Medium combustion plants are sources with a rated thermal input of not less than 1 MW and less than 50 MW.

[75]The „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

services in the field of passenger car transport in the subregion. The largest enterprises of this type included: PKS in Konin SA, PKS w Turku SA[76] and Miejski Zakład Komunikacji in Konin Sp. z o.o.

- Bus communication in the area of Eastern Wielkopolska is well developed. The proper functioning of regular communication is favoured by a very well-developed road infrastructure, both at the level of national and regional roads, as well as district and commune roads. The best-developed areas in terms of communication in individual districts of the subregion are located in the vicinity of the largest urban centres being the seats of schools and offices, as well as workplaces of the subregion's inhabitants. In total, in the area of Eastern Wielkopolska, approx. 6.5 m km (so-called vehicle-kilometres) are performed annually on regular lines.

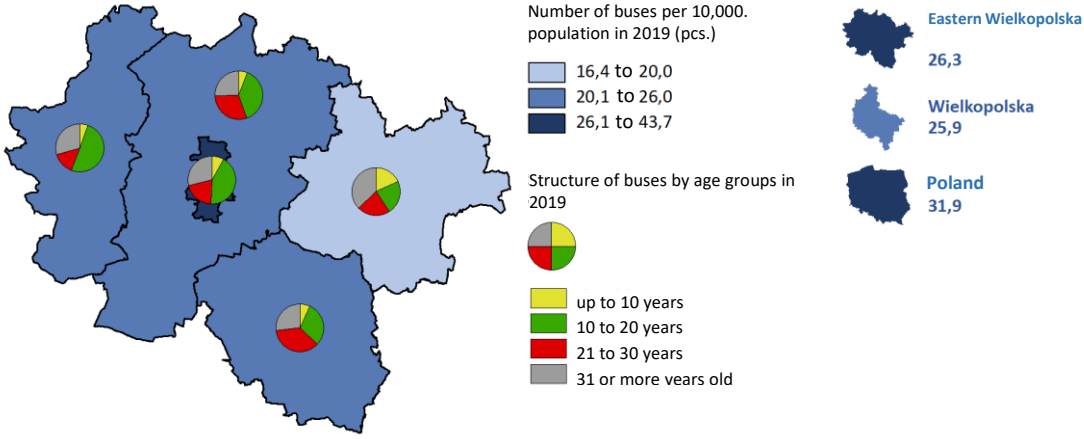
  An important indicator characterizing passenger transport is the percentage coverage of a city with regular bus transport. In this respect, the best situation in the subregion (apart from the city of Konin) was in the Turek district, where the city's communication rate was 74.7%, and the least favourable in the Konin district, for which it was 59.4%. In other districts, the coverage of cities with regular bus transport was at the level of 60.4% in the Słupca district and 65.0% in the Koło district[77]. Despite the relatively high values of the transport communication index, in Eastern Wielkopolska there are still the so-called white spots in access to public transport, in particular in rural areas remote from major urban centres.

- In 2019, 1,138 buses were registered in the subregion, and despite the gradual replacement of the bus fleet with a new one in recent years, as many as 92% of them were over 10 years old (90% in 2015), including 54% over 20 years (53% in 2015), and 29% over 30 years (21% in 2015) old. Over the last few years, there has been a significant aging process of the bus fleet (the service life of vehicles has increased), which has translated into increased emissions of pollutants from public transport.

[76] Currently bankrupt.

[77] *Plan for the sustainable development of public transport for the area of the Districts of the city of Konin - a city with district rights, Koło, Konin and Słupca,* Resolution No. 492 of the Konin City Council of 26 April 2017.

Figure 19. Buses for 10 k population and their structure by age groups in 2019



Source: WRTO study based on the Local Data Bank of CSO.

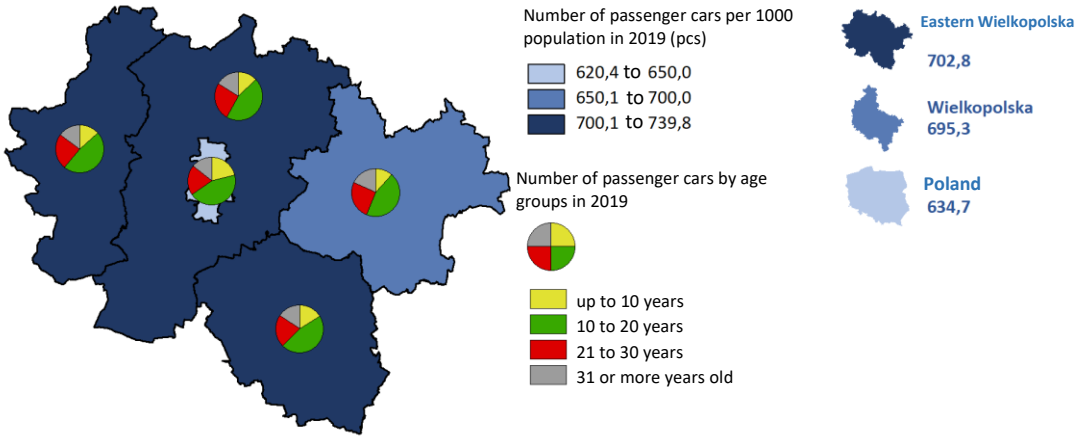
Considering the EURO 1[78] standard in force since 1993, it can be assumed that over 29% of buses in Eastern Wielkopolska do not meet any standards. The latest standards, i.e. EURO 5 (in force since 2011) and EURO 6 (in force since 2016), may not meet over 92% of vehicles. In 2019, the largest share of new buses in the total number of buses in the subregion was found in the Koło district (18% of buses up to 10 years old) and the city of Konin (8%), and the lowest in the Słupca district (5%). In the case of over 81% of buses in 2019, diesel was used as fuel, 4.7% gasoline, and 14.1% other fuels (excluding LPG)[79]. Despite the modernization of the bus fleet in recent years, which translates into to the decrease in the percentage of buses powered by diesel oil (by 13 pp compared to 2015), the changes occurring in this area should be considered insufficient.

- Activities related to road transport are important for reducing pollution and counteracting climate change. In 2019, among 304.5 k 86% of passenger cars registered in the subregion were over 10 years old, including 40% over 20 years old, and 16% over 30 years old (in 2015 those shares were respectively 85%, 34% and 13%). It is estimated that over 16% of cars do not meet any emission standards, while more than 86% of vehicles may not meet the latest standards (EURO 5 and EURO 6). Almost 50% of passenger cars registered in 2019 in Eastern Wielkopolska were used as fuel, 33.1% diesel and 16.4% LPG.

[78] European exhaust emission standard.

[79] Other fuels: natural gas CNG, electricity, gasoline and electricity (hybrid), diesel and electricity (hybrid).

Figure 20. Passenger cars for 10k population and their structure by age groups in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- In Eastern Wielkopolska, there is a pilot energy cluster - the „Green Energy - Konin" Energy Cluster, which was created to integrate potentials and entities related to the energy market, in particular with the RES market, and energy management by creating a cooperation network of entities for changes in the area low and zero carbon economy and sustainable energy. Moreover, Turek Cluster of Energy „Clean Energy" is being developed, whose mission is to increase the share of RES in the overall energy mix in the Turek district.
- In the area of the subregion, by the end of 2019, 109 installations for the production of energy from renewable sources had been installed, with a total capacity of 225.17 MW, which is 23.9% of the installed capacity in the Wielkopolska Region. Among them, installations using wind energy are dominant - 96 installations with a total capacity of 160.18 MW.

  The highest installed capacity of RES installations in Eastern Wielkopolska was in the Konin district, which is also characterized by the largest number of such installations, and the city of Konin, where four installations of this type were in operation, two of which used biomass (one of them is the installation at the Konin Power Plant with an installed capacity of 50 MW, which produces thermal energy from biomass). There are also two biogas plants operating in Konin (out of four in the entire subregion - the rest are located in Konin and Turek districts)[80].

[80]Source: Energy Regulatory Office, *Renewable energy installations as of 31 December 2019.*, https://www.ure.gov.pl/download/9/10922/Instalacjeodnawialnychzrodelenergiiwgstanunadzien31 grudnia2019r.xlsx [accessed: 09/10/2020]. During the consultation of the Concept, certain information gaps were diagnosed in the list of the Energy Regulatory Office regarding existing RES installations.

Table 2. Installed RES capacity by source type in 2019

Type of RES installation	RES installation capacity (MW)					
	district of Koło	district of Konin	district of Słupca	district of Turek	municipality of Konin	SUM
using biogas	-	1.60	-	1.90	3.01	**6.51**
using biomass	-	-	-	-	57.30	**57.30**
using the energy of solar radiation	-	0.05	-	1.04	-	**1.09**
using wind energy	46.35	73.00	35.20	5.64	-	**160.18**
using hydropower	-	0.10	-	-	-	**0.10**
SUM	**46.35**	**74.74**	**35.20**	**8.57**	**60.31**	**225.17**

Source: Own study based on the list of the Energy Regulatory Office Renewable Energy installations as of 31 December 2019.

- A great advantage and development opportunity for Eastern Wielkopolska are the geothermal waters found in its area, documented in two boreholes - in Ślesin and Dobrów (Koło commune) and geothermal waters lying under the Pociejewo island, located between the Warta river and Ulgi canal in Konin[81].

  It is worth noting that in August 2020, the National Fund for Environmental Protection and Water Management (NFEPWM) announced a list of projects selected for co-financing, which included projects for the construction of geothermal heating plants in Koło and Konin.
- The existing power system allows for the evacuation of significant electrical power from the Pątnów I, Pątnów II and Konin power plants. The operating substations 400/220/110 kV and 220/110 kV transmit electricity to consumers through the distribution network (facilities with a voltage of 110 kV and lower). High-voltage overhead lines and main power points have different ages and transmission capacities. Part of the medium voltage networks and transformer stations as well as part of the low voltage networks are heavily exploited and require modernization or reconstruction. It is necessary to increase energy security and reduce energy losses in transmission and distribution, as well as improve the capacity of power lines and limit long-distance transmission of energy via 110 kV lines. Increased interest in renewable energy, including prosumer energy from micro-sources, or the development of micro-grids of cooperatives and energy clusters, causes the need to reconstruct the medium and low voltage networks, mainly in rural

[81] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

communes and smaller towns, as well as the need to build dedicated low-voltage networks to power vehicle charging points electricity in larger urban agglomerations[82].

Challenge 3.

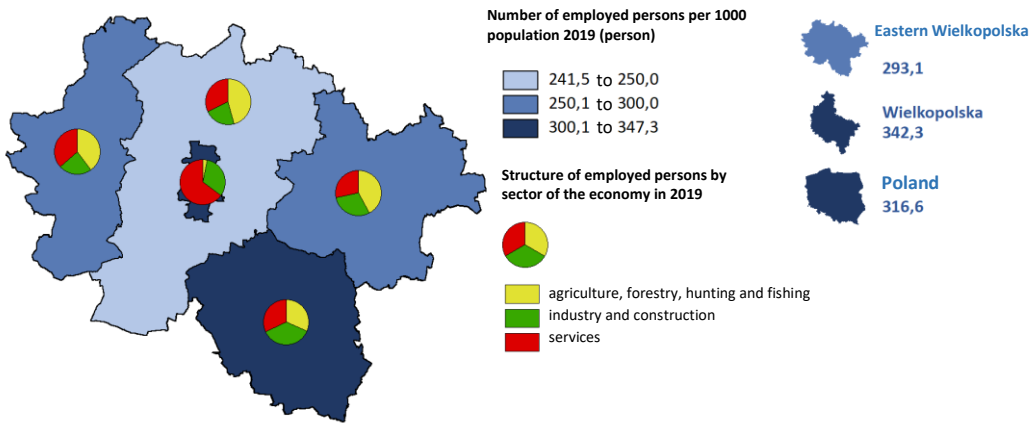
Developing and improving the use of the potential of human capital - the most important resource of the subregion

Creating conditions for maintaining and creating stable jobs, based in particular on the development of SME; development of entrepreneurship of the inhabitants; raising and changing the qualifications of employees, especially those leaving the fuel and energy sector; turning „dirty" jobs into „green" jobs by adapting them to the requirements of a zero-carbon economy; inclusion of large companies from the subregion in the transition process; increasing employability by improving the quality of education and adjusting the educational offer to the needs of the labour market; dissemination of lifelong learning; development of career counselling in schools, including the improvement of its quality.

- In 2019, Eastern Wielkopolska concentrated 10.6% of all employees in the national economy in the Wielkopolska Region. Most people in the subregion worked in the service sector (38.4%), followed by the sectors of agriculture, forestry, hunting and fishing (32.8%) and industry and construction (28.8%).

[82] Ibidem.

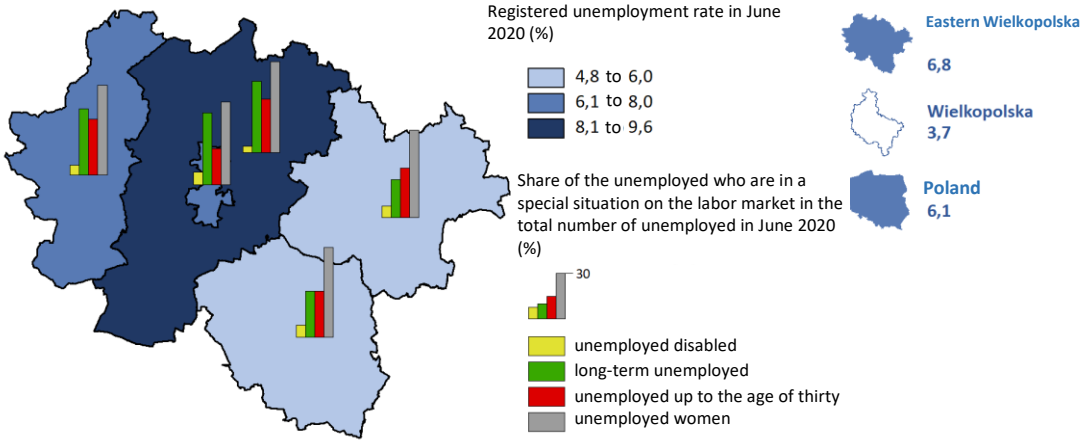
Figure 21. Employed persons per 1,000 population and their structure by sectors of the economy in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- The subregion stands out from the Wielkopolska in terms of the number and percentage of people employed in agriculture (agriculture, forestry, hunting and fishing sectors). In 2019, nearly 41.7 k people, i.e. 32.8% of the total number of people working in Eastern Wielkopolska, were engaged in agriculture. Thus, the percentage of people working in this sector of the economy was much higher than the average in the Wielkopolska Region (17.6%) and the country (19.4%), which indicates the significant importance of agriculture in the subregion both for the economy and for the labour market. In this respect, the districts of Konin (46.0% of people working in agriculture) and Koło (42.1%) stood out, followed by Słupca (39.8%) and Turek (31.8%). In the case of the city of Konin, the percentage of people working in agriculture was at a very low level - 3.4%.
- The restructuring of the industry, including the liquidation of some plants and the monopolization of the local labour market by the fuel and energy sector, and recently also the COVID-19 epidemic, led to an increase in unemployment in Eastern Wielkopolska. As at the end of June 2020, the registered unemployment rate in the subregion was 6.8%, so it was much higher than the average in Wielkopolska (3.7%) and Poland (6.1%). The least favourable situation in this respect was characteristic for the Konin and Słupca districts and the city of Konin, which were in the group of five districts with the highest value of the indicator in the Wielkopolska Region - they came in 1st, 2nd and 5th place, respectively.

Figure 22. Registered unemployment rate and the share of unemployed people who are in a special situation on the labour market in the total number of unemployed in June 2020.



Source: WRTO study based on the Local Data Bank of CSO.

- The structure of the unemployed indicates that Eastern Wielkopolska is characterized by the highest share of long-term unemployed people in Wielkopolska (41.5% in June 2020; Wielkopolska - 34.1%) and the unemployed up to 30 years of age (32.5%; Wielkopolska – 29.4%). In addition, the situation of unemployed women is relatively unfavourable, whose share in the total of the unemployed (58.7% in June 2020) also exceeded the average for the Wielkopolska Region (57.4%)[83].
- The transition towards climate neutrality without implementing measures to mitigate its effects will result in unfavourable changes in the labour market (liquidation of jobs). Employment reduction will be observed both in the mining and energy sectors (including in the ZE PAK Group, which plays a key role on the local labour market, employing over 4.6k people in 2019 with the average remuneration significantly exceeding national and regional average monthly gross remuneration[84]), as well as in associated sectors - it is assumed that each job in the mining industry generates no less than three additional jobs in other sectors[85]. The labour surplus coming from the mining sector and the insufficient number of jobs outside it will exacerbate the existing imbalance in the labour market, which will

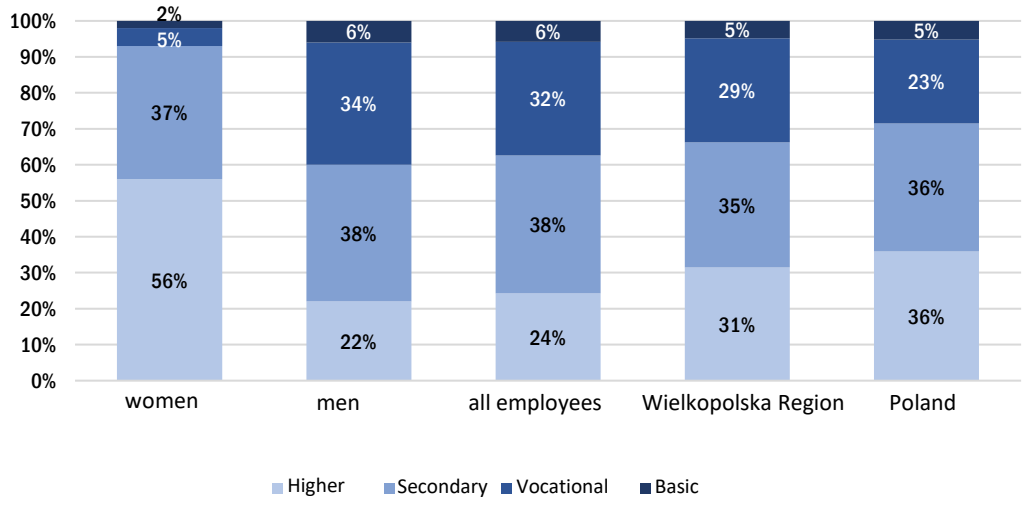
[83] Regional Labor Office in Poznań, *Newsletter 06.2020*, https://wupPoznań.praca.gov.pl /documents/161065/11630466/06_2020/07f48816-a556-4d5c-8947-1d47c8e29785?t=1595838868000 [accessed: 09/10/2020].

84 The „Instrat" Foundation, Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition, The Regional Development Agency JSC in Konin, Konin 2021.

result in a further significant increase in unemployment in the subregion. The aforementioned imbalance has also been recently influenced by a change in the macroeconomic environment and a slowdown in economic growth, not only in Poland, but also in Europe and beyond, resulting from the COVID-19 epidemic.

- The development of the subregion in the new conditions will require suitably qualified employees, who should be sought in the first place among people leaving the fuel and energy sector, the unemployed and young people entering the labour market. In the ZE PAK Group, most employees have secondary (high school, technical, post-secondary) and vocational (basic, vocational) education[86]. In 2019, the percentage of the Group's employees with vocational education was 32%, i.e. it was higher than in the Wielkopolska Region (29%) and the country (23%). The percentage of people with higher education (24%) was much lower in comparison to both Wielkopolska (31%) and Poland (36%). It is worth noting that the education structure of men and women working in the ZE PAK Group shows significant differentiation - in the group of women, the percentage of women with higher education was in 2019 over 2 times higher than for men, while the percentage of people with vocational education was almost 7 times lower than in the group of men.

Figure 23. Structure of the ZE PAK Group employees by education against the background of the economically active structure by education in Wielkopolska and Poland in 2019



Source: „Instrat" Foundation, *Economic analysis of the region of Eastern Wielkopolska in terms of the implementation of the process of just transition, including energy transition,* The Regional Development Agency JSC in Konin, Konin 2021.

[86] Grupa Kapitałowa ZE PAK, *Sprawozdanie Zarządu z działalności Grupy Kapitałowej w 2019 roku*, Konin 2020.

The unemployed in the subregion are mostly people with a lower level of education, although often professionally oriented. In June 2020, people with basic vocational education (27.9%), post-secondary and secondary vocational education (24.1%), as well as lower secondary and lower education (22.8%) had the largest share in the structure of the unemployed, which may indicate a certain mismatch between professional qualifications and the current needs of the labour market[87].

Table 3. Structure of the unemployed by education level in June 2020

Territorial unit	Structure of the unemployed by education (%)				
	Higher	Post-secondary and secondary vocational	General secondary	Basic vocational	Lower secondary and lower
District of Koło	13.9	24.5	9.9	30.1	21.6
District of Konin	12.8	23.8	10.9	28.9	23.6
District of Słupca	12.8	24.1	9.9	31.4	21.8
District of Turek	17.1	24.9	10.9	26.9	20.1
Municipality of Konin	16.8	23.8	11.5	22.7	25.2
Eastern Wielkopolska	**14.4**	**24.1**	**10.7**	**27.9**	**22.8**
Wielkopolska	**14.9**	**22.2**	**11.3**	**27.7**	**23.7**
Poland	**15.1**	**22.6**	**12.3**	**24.7**	**25.3**

Source: own study based on the Information Bulletin 06.2020 of the Regional Labour Office in Poznań.

- Insufficiently developed social infrastructure, in particular insufficient access to kindergartens or nurseries and residential social welfare facilities, has a large impact on the current, relatively low level of professional activity of women. According to statistical data, in 2019 the districts of Eastern Wielkopolska (except for the city of Konin) were characterized by relatively low values of indicators regarding the share of children aged 3-5 covered by pre-school education in the total number of children in this age group (from 74.1% in the Koło district to 86.0% in Słupca district) and the percentage of children cared for in nurseries (from 1.9% in the Słupca district to 8.8% in the Turek district). This is due in particular to the low concentration of those types of establishments in their area. Moreover, the analysis of data in this field for the last 10 years shows a relative deterioration in the

[87] Regional Labor Office in Poznań, Information Bulletin 06.2020, https://wupPoznań.praca.gov.pl/documents/161065/11630466/06_2020/07f48816-a556-4d5c-8947-1d47c8e29785?t=1595838868000 [accessed: 09/10/2020].

situation of the districts of Eastern Wielkopolska in relation to the rest of the Wielkopolska Region.

- In the upcoming years, an increasing problem resulting from the demographic changes faced by schools located in Eastern Wielkopolska will be the decreasing number of children and youth studying. In the 2018/2019 school year, 39,303 students in the subregion attended 197 primary and lower secondary schools (excluding special and adult schools) (i.e. 10.5% less than in 2010).[88].
- In the 2018/2019 school year, there were 59 post-primary/post-lower secondary schools in the subregion (excluding special schools and schools for adults), with a total of 14.3 k students. The most numerous group were general secondary schools (19) and technical secondary schools (18), followed by first degree industry schools (15), art schools (6, including a school in Konin offering vocational qualifications) and a post-secondary school. In the period 2010-2018, the decrease in the number of students was recorded in almost all types of schools, the highest in post-secondary schools (by 75.6%), and then in basic vocational schools transformed into first degree industry schools (by 29.2%), general secondary schools (by 28.7%), art school providing vocational qualifications (by 19.7%) and technical schools (by 10.0%). An increase in the number of students in this period was recorded in Eastern Wielkopolska only in the case of art schools not granting professional qualifications (by 33.0%).
- Vocational education is provided by technical technology, 1st degree industry schools (formerly basic vocational schools) and post-secondary schools. Despite the activities undertaken so far, further initiatives are necessary, including information and promotion activities, contributing to the change of educational preferences of young people and to refute the myth that any higher education guarantees success on the labour market. Graduates of general secondary schools are still the most numerous group among graduates of post-primary/post-lower secondary schools - 44.6% in 2018, which corresponds to the level of 2010. In recent years, a slight increase in the share of students graduating from technical schools has been observed in the structure of graduates (in 2018, the share was 35.7%, which meant an increase by 1.9 pp compared to 2010), with a simultaneous decrease in the share of basic vocational school graduates (in 2018 it was 19.7%, i.e. 1.9 pp less than in 2010).
- In the field of vocational education, the fundamental problem is insufficient cooperation between schools and the employers' community. It is particularly

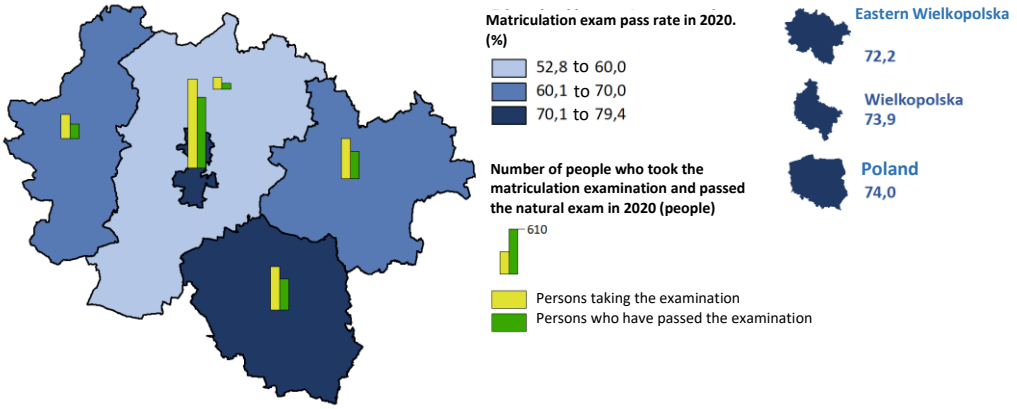
[88] The education reform meant that the 2018/2019 school year was the last year of the functioning of lower secondary schools.

important to ensure the participation of local companies in the process of educating vocational skills. Another problem at the interface between the areas of education and the labour market is insufficiently developed career counselling in schools, which often results in an accidental, based on non-substantive premises, selection of the direction of further education.

Moreover, some schools in Wielkopolska do not provide career counselling or do it to a minimal extent[89]. The problem of insufficiently developed educational and vocational counselling in Wielkopolska is confirmed by the results of a study by the Regional Labour Office in Poznań, which shows that its form and availability in schools does not provide sufficient support for young people, which in turn often results in incorrect decisions when choosing a profession[90].

- The indicator used to assess the level of education at the secondary (upper secondary) level may be the pass rate of the matriculation examination passing, which in the case of Eastern Wielkopolska in 2020 (72.2%) was slightly lower than the average for Wielkopolska and Poland (73.9% and 74.0%, respectively). In the subregion, the highest pass rate for the matriculation examination in 2020 was recorded in Konin (79.3%), which was the only one to exceed the average values for the Wielkopolska Region and the country, while the lowest one was in Konin (52.9%) and Słupca (60.3%) districts).

Figure 24. Passing the matriculation examination in 2020



Source: WRTO study based on data from the Regional Examination Board in Poznań.

[89] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

[90] Regional Labor Office in Poznań, Education and the needs of the labor market in Wielkopolska in 2019, Regional Labor Office in Poznań, Poznań 2020.

- In Eastern Wielkopolska, education at the higher level is concentrated primarily in Konin, where the State Higher Vocational School, Pedagogical and Technical University and the Higher School of Management Personnel, as well as the Out-of-Place Teaching Centres of the University of Social Sciences in Poznań operate. Higher education is also conducted in the form of branch departments in the Koło and Turek districts - in Koło there is a Out-of-Place Teaching Centre of the Social Academy of Entrepreneurship and Management in Łódź, and in Turek there are the Out-of-Place Teaching Centre of the University of Technology and Life Sciences and the Department of Civil Engineering and Municipal Installations. State Higher Vocational School in Konin.
- An important problem is the more and more often observed mismatch of skills possessed by employees with the needs reported by employers, which results in unemployment in some professional groups and a simultaneous shortage of employees in others.

  In the context of providing human resources for the modern economy, it is crucial to increase the percentage of people with basic and secondary digital skills, as well as to increase the interest of young people in vocational and technical education, which should be adapted to the current and future needs of the labour market[91].
- In Eastern Wielkopolska, as in the Wielkopolska Region and other regions of the country, many employers experience personnel shortages. For a long time, the demand for employees in many industries has exceeded the labour supply. In the *Occupations Barometer* 2019, 21 shortage occupations were identified that occur in all districts of the subregion[92]. Those are primarily professions supplying the transport and logistics, construction, service and furniture industries. People with education in those occupations have been sought after by employers for a long time, hence they are invariably in the deficit group. This deficit affects both specialists in many fields and workers performing simple work. In all districts of Eastern Wielkopolska, there was a shortage of well-qualified service workers with professional training, such as cooks, bakers, confectioners, butchers, as well as tailors, clothing production workers and upholsterers. In addition, there was a shortage of computer graphics, electronics, automation and robotics specialists, as well as nurses and midwives. Vocational schools, which still do not enjoy sufficient interest from students, should primarily play a key role in filling this gap in the

[91] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

[92] In the Konin and Konin districts, 74, in the Koło and Słupca districts, 35 in each, and in the Turek District - 46 deficit occupations were identified.

labour market. It is important to ensure high-quality education in those schools, as a frequent obstacle in taking up employment is lack of appropriate qualifications or skills necessary for the professional performance of a given profession. From potential employees with vocational education, employers often require professional experience and practical skills, as well as knowledge of modern technologies[93].

Challenge 4.

Counteracting environmental degradation and adaptation to climate change.

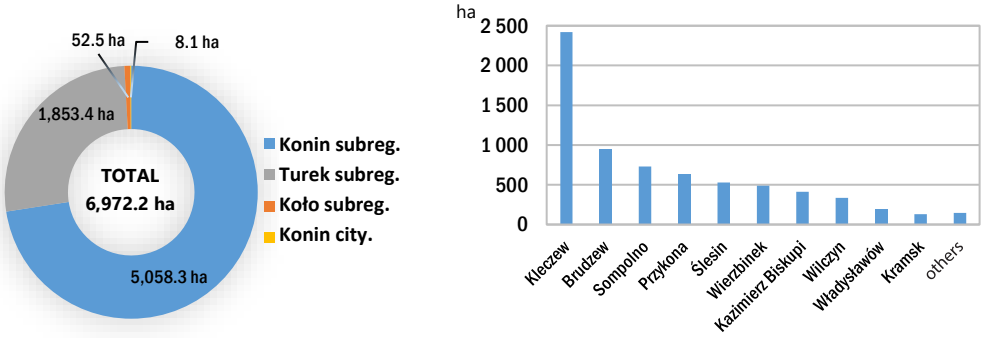
Limiting loss of natural retention; increasing the available water resources by levelling the depression craters of the Adamów and Konin open-pit mines; preventing too fast runoff of rainwater thanks to their retention; improvement of water quality and its sustainable use as an important element of increasing the quality of human life and ensuring the proper functioning of ecosystems; counteracting climate change and adapting to the forecast effects of its changes; protection of biodiversity; shaping green areas in cities; restoration of the former functions of the post-mining areas or their rational management in a new way, while restoring proper water conditions.

- Long-term industrial activity, including brown coal mining by opencast methods, resulted in the fact that Eastern Wielkopolska is characterized by a very large area of devastated land requiring reclamation - nearly 7k. ha in 2019 (i.e. 67% of all land devastated in the Wielkopolska Region), most of which in the district of Konin (nearly 5.1k ha) and district of Turek (over 1.8k ha). Coal mining has led to significant changes in the environment, visible not only in the morphology of the site, but also in a change in water conditions. They are of a large-space nature and entail transformations in other components of the natural environment, including the emergence of extensive depression craters. Industrial activity also contributed

[93] Regional Labor Office in Poznań, *Occupation Barometer 2019. Report summarizing the study in the Wielkopolska Region,* Regional Employment Office in Kraków, Kraków 2018.

to soil degradation and air pollution[94]. It is worth noting that the range of impact of open-cast mines exceeds the area of the subregion - the exploitation of brown coal from the Tomisławice open-pit mine on the border with the Kujawsko-Pomorskie Region reduces the water table in the areas affected by the open-pit mine also in this region[95].

Figure 25. Devastated areas in the subregion in 2019



Source: own study based on data from district offices and the OMWR in Poznań.

- The subregion is one of the scarcest water areas - low rainfall, on average 450-550 mm/year, and potential evaporation from the free water surface exceeding 700 mm/year translate into a negative climatic water balance, and as a result, water loss in its entirety area. Eastern Wielkopolska is also characterized by a relatively low unit runoff, oscillating between 0-2.5 l/s * km^2, with the average for Poland amounting to approx. 6.0 l/s * km^2 (average for the Warta Water Region, including the Noteć catchment area, on the other hand, it is 3.5-4.0 l/s * km^2). The lack of unit runoff is observed in the catchments of: Meszna, Ostrowo-Gopło Canal, Mała and Górna Noteć[96]. According to the climate projection for Poland until 2030, conducted by the Institute of Environmental Protection - National Research Institute, the average annual value of precipitation in the subregion may fluctuate in the coming years at the level of approx. 620 mm, which in combination with opencast mining of coal deposits, resulting in the disappearance of water resources

[94] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

[95] *Kujawsko-Pomorskie Region environmental protection programme for 2017-2020 with a perspective for 2021-2024*, Resolution No. XXXVI/611/17 of the Kujawsko-Pomorskie Region Parliament of 25 September 2017.

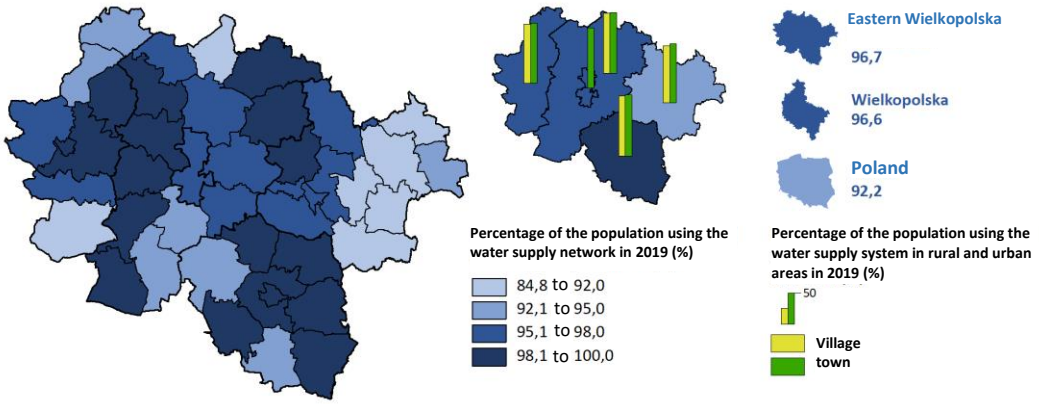
[96] Regional Water Management Authority in Poznań, *Summary of actions to counteract the effects of drought in the Warta Water Region,* https://Poznań.wody.gov.pl/aktualnosci/884-podsumowanie-dzialan-rzgw-w-Poznaniu-majacych-przeciwdzialac-skutkom-suszy-na-terenie-regionu-wodnego-warty

[accessed: 04/12/2020].

in the area affected by extensive depression craters, will intensify the occurrence of the drought phenomenon.

- The main user of water in Eastern Wielkopolska is industry, in particular the energy sector, whose share in the total consumption of fresh water in the Wielkopolska Region is 78.9%, and in the subregion itself it is 97%.
- Small water resources of Eastern Wielkopolska and their quality, as well as growing expectations regarding the living standards of the population determine the development of water and sewage management. The percentage of the population served by the water supply network in 2019 in the subregion was 96.7% and was similar to the level for the Wielkopolska Region (96.6%). Both urban areas (97.6% of the population used it; average in Wielkopolska - 98.0%) and rural areas (96.1%; on average in the region - 95, 0%). The problem is the outdated water supply networks and water treatment stations along with water intakes, which require expansion and modernization in order to ensure a constant supply of drinking water. In this respect, the construction of new water intakes is also important.

Figure 26. Population using the water supply network in total and by city and village in 2019



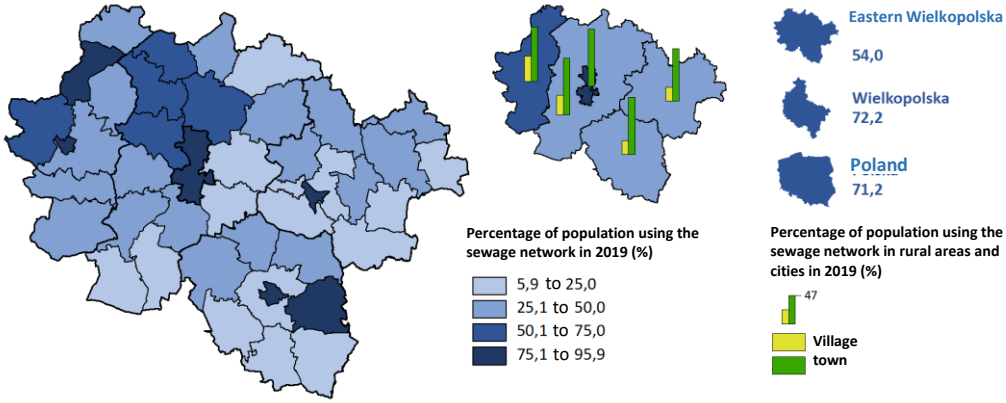
Source: WRTO study based on the Local Data Bank of CSO.

- Despite the successive works related to the construction and modernization of wastewater treatment plants, the main source of water pollution are still municipal and industrial wastewater discharges (due to their quantity, as well as the pollutant load that is discharged into the waters). The water status is also significantly influenced by the pollution resulting from the washing away of residues of fertilizers or plant protection products used in agricultural areas, which cover a large part of the area of Eastern Wielkopolska. Both point discharges of wastewater and outflows from arable crops and livestock farming with a high load of nutrients

contribute to the intensification of water eutrophication and disrupt the natural self-purification processes[97].

- In Eastern Wielkopolska, the length of the sewage network is systematically increasing, which translates into an increase in the percentage of inhabitants using the sewage system. However, the value of this indicator is still lower than the average in the Wielkopolska Region - in 2019, 54.0% of the subregion's inhabitants used the sewage network, while in Wielkopolska it was 72.2% of the population.

Figure 27. Population using the sewage network in total and by city and village in 2019



Source: WRTO study based on the Local Data Bank of CSO.

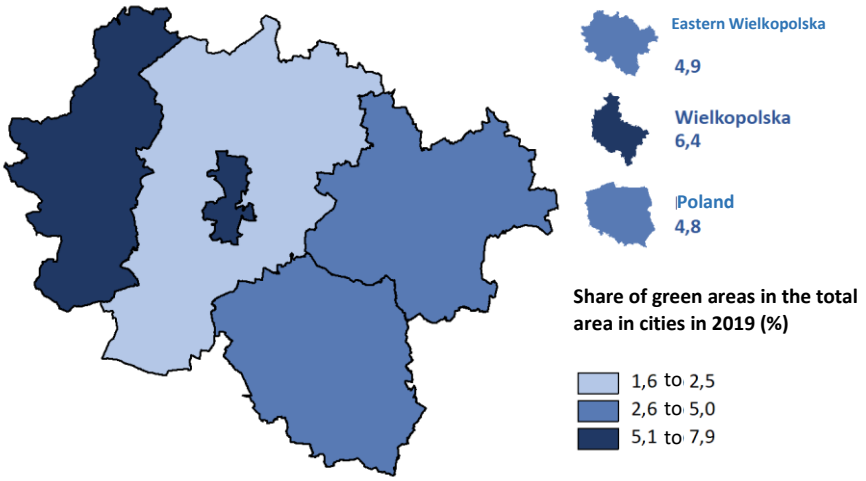
- Eastern Wielkopolska (in particular, larger urban centres), due to the emerging and increasingly frequent extreme weather phenomena (such as heat and torrential rainfall), is struggling with the problem of adapting to climate change. In the case of cities, one of the key elements contributing to their adaptation to climate change are green areas, which build a system of blue-green infrastructure and additionally have a recreational, social, aesthetic function and support the growth of the so-called ecosystem services. In the subregion in 2019, the average share of green areas in the total area in cities was 4.9%, i.e. lower than the average in the Wielkopolska Region (6.4%), which indicates the need for the development of green infrastructure in urban space[98]. In the case of urbanized areas, an unfavourable phenomenon is the sealing of the catchment area, which disrupts the

[97] Regional Inspectorate of Environmental Protection in Poznań, *State of the Environment in Wielkopolska. Report 2017*, Biblioteka Monitoringu Środowiska, Poznań 2017.

[98] The indicator considers the following green areas: parks, lawns, housing estate green areas, street greenery, cemeteries, communal forests.

natural water circulation and accelerates the runoff of rainwater and meltwater, resulting in a lower supply of groundwater resources.

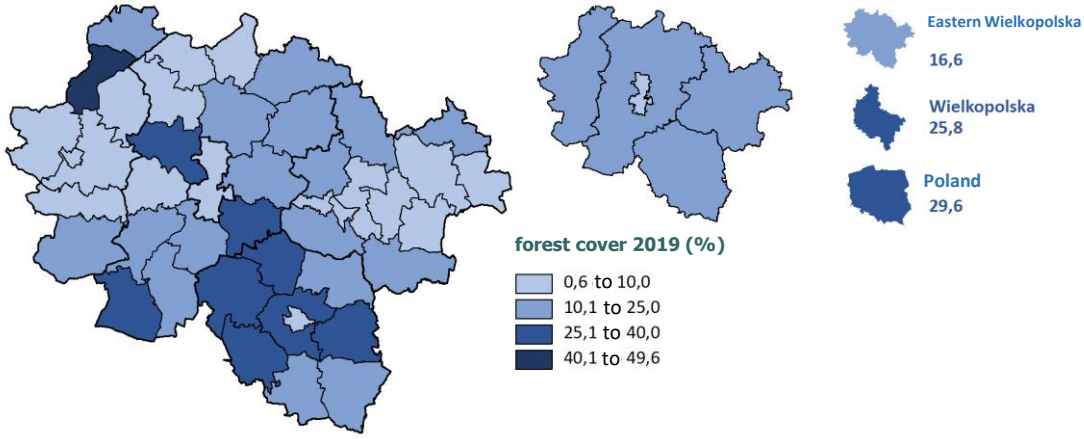
Figure 28. Green areas compared to the total areas of cities in 2019



Source: WRTO study based on the Local Data Bank of CSO.

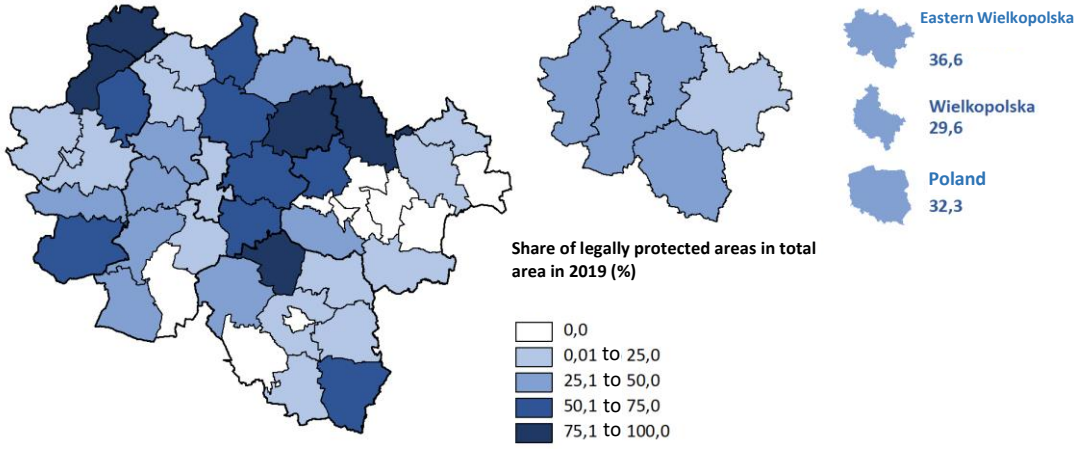
- Forests are also a key element in stabilizing the climate, retaining a significant amount of rainwater, increasing natural retention in the catchment area, and contributing to the absorption of pollutant emissions. However, the forest cover of the area of Eastern Wielkopolska has remained at a very low, unsatisfactory level for many years. In 2019, it reached the value of 16.6%, so it was significantly different from the average for the Wielkopolska Region (25.8%) and Poland (29.6%).
- Eastern Wielkopolska is rich in protected areas, the protection of which, apart from activities in the field of natural habitat restoration, is the main, cost-effective tool in the fight against climate change. The legally protected areas in the subregion has remained at a similar level for years and in 2019 accounted for 36.6% of its total area (regional average - 29.6%). The largest share of this type of area in the total area was recorded in the districts of Słupca (47.9%) and Konin (40.7%). As a result of the crisis related to the COVID-19 epidemic, an increase in both tourism demand and tourism supply in areas with high natural values should be expected. The growing interest in recreation in areas that are relatively least transformed by humans will translate into a further increase in tourist pressure on areas of natural value.

Figure 29. Total forest area in 2019.



Source: WRTO study based on the Local Data Bank of CSO.

Figure 30. Legally protected areas compared to the total area in 2019



Source: WRTO study based on the Local Data Bank of CSO.

Challenge 5.

Improvement of internal transport cohesion and mobility of inhabitants

Modification of the subregion's transport system adapted to the needs of its new economic profile and the needs of the inhabitants, where the priority will be to improve communication accessibility and energy efficiency of transport, including the development of collective transport (as mentioned in challenge 2) and road safety;

connectivity of degraded areas included in the socio-economic circulation, which will be restored or given new functions; improving the accessibility of business areas to major communication routes; ensuring efficient connections with transport nodes; construction of ring roads; improvement of rail accessibility; analysis of the needs and possibilities for the expansion of the railway system; development of intermodal transport.

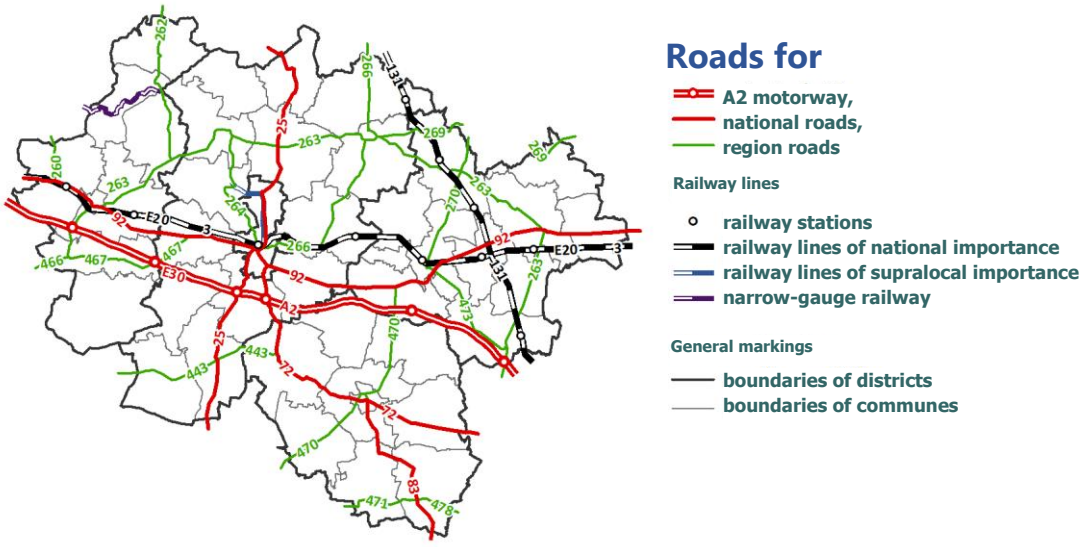
- An important element of the economic transition is properly adjusted transport infrastructure. While designing the existing one, the needs of the industrial sector, in particular the fuel and energy sector, were considered. As a result of the transition of Eastern Wielkopolska, the economic development model will change, which will contribute to the modification of the directions of the flow of goods and people, resulting from closing mines and creating new jobs in economic development centre, as well as from developing new functions in post-mining areas, which should be easily accessible. This forces changes in the development of infrastructure, the priority of which should be the development of zero-emission collective transport and the increase in road safety. It will also be important to improve the accessibility of business areas to the main communication routes in such a way that truck transport avoid residential areas as far as possible, as well as ensuring efficient connections with transport nodes.
- Eastern Wielkopolska is characterized by a favourable location in the system of key European transport corridors stimulating the development of transport connections.

  A trans-European transport corridor, i.e. Corridor No. II (Berlin - Poznań - Warsaw - Minsk - Moscow - Niżnyj Nowogrod), which includes the railway line No. 3 from

Warszawa Zachodnia - Poznań - Kunowice and the A2 motorway runs through its area. In addition, two of the nine TEN-T (Trans-European Transport Network) corridors run through the subregion, i.e.:

- the North Sea - Baltic Sea Corridor, which includes the above-mentioned: railway line No. 3 and the A2 motorway[99];
- the-Baltic Sea – Adriatic Corridor[100], which includes railway line No.31.

Figure 31. Network of national and regional roads as well as the railway network in Eastern Wielkopolska



Source: WRTO study based on the Local Data Bank of CSO.

- The road network in Eastern Wielkopolska is well developed. The basic layout of the road network, including national[101] and regional roads[102], ensures good accessibility of the main cities of the subregion, considering both internal connections - between district cities located in its area, and external connections - with cities (of supra-regional and regional importance) located outside its borders.
- The extensive network of district and communal roads in the subregion is not only of local importance - it also provides inhabitants and economic entities with access

[99] Connecting the ports of the eastern shores of the Baltic Sea with the ports of the North Sea through Finland, Estonia, Lithuania, Latvia, Poland, Germany, the Netherlands and Belgium. The Baltic-Adriatic Corridor which includes the railway line No. 131.

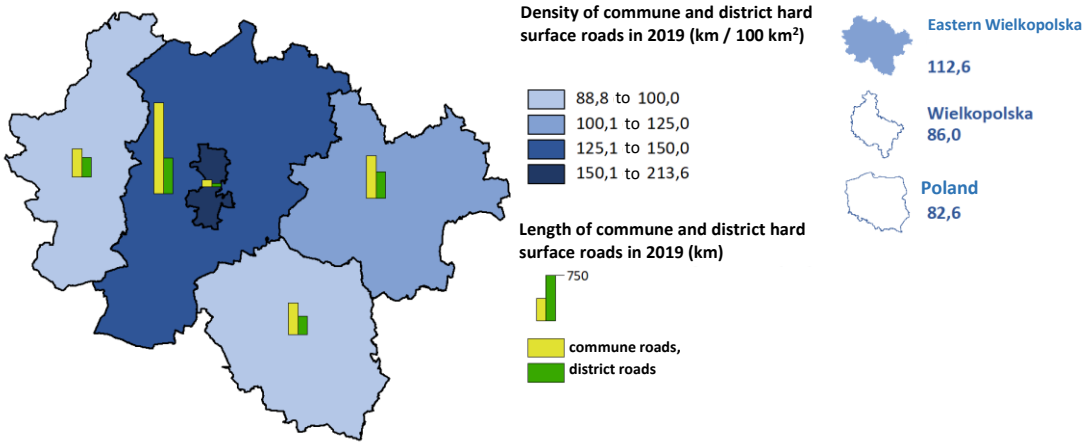
[100] It connects the Baltic Sea and the Adriatic through industrial areas: Upper Silesia, Vienna, Bratislava, north-east Italy.

[101] Four national roads (No. 25, 72, 83, 92) and the A2 highway run across the subregion.

[102] Fourteen regional roads (No. 260, 262, 263, 264, 266, 269, 270, 443, 466, 467, 470, 471, 473, 478)

to supra-local centre and the higher-order road network. In 2019, the density of commune and district hard surface roads in Eastern Wielkopolska was 112.6 km/100 km^2, with the average for the Wielkopolska Region being 86.0 km/100 km^2.

Figure 32. Commune and district hard surface roads in 2019



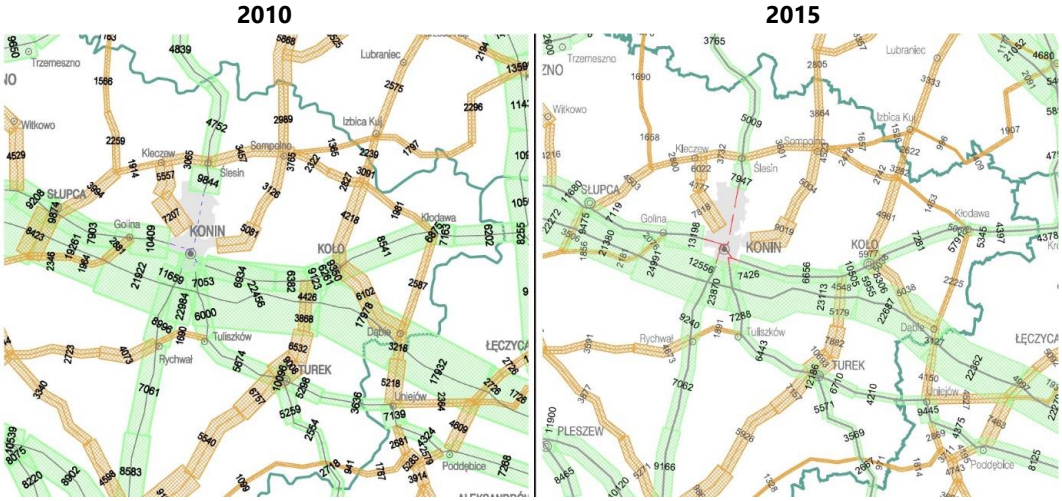
Source: WRTO study based on the Local Data Bank of CSO.

- The transport system of Eastern Wielkopolska, as in the case of the entire country, is insufficient in view of the current traffic intensity and the growing number of vehicles. This is confirmed by the results of General Traffic Measurements, which are conducted every five years on the network of national and regional roads. The average daily traffic volume on international roads in the Wielkopolska Region in 2015 was 20,835 vehicles per day (20,067 vehicles per day in the country). Compared to the previous study from 2010, it increased by 22%[103]. In the case of the A2 motorway, running through the area of Eastern Wielkopolska, the traffic volume in 2015 on all its sections exceeded the average daily traffic volume on international roads, both for the Wielkopolska Region and for the country. Its highest intensity was recorded on the section „Sługocin" junction - „Modła" junction - 24,991 vehicles a day, and then on the section „Modła" junction - „Konin Wschód" junction - 23,870 vehicles a day. Trucks and delivery vans had a significant share in the average daily traffic on national roads. The value of this indicator on regional roads in 2015 in Wielkopolska was on average 4,250 vehicles a day, so it increased by 6% compared to 2010. In the subregion, values above the region average were recorded, among others on roads located in the vicinity of motorway

[103]Wielkopolska Regional Territorial Observatory, *Diagnosis of the socio-economic and spatial situation of the Wielkopolska Region 2019, Wielkopolska* Regional Territorial Observatory, Poznań 2019.

junctions and running through district cities. In view of the high transit traffic load and the level of congestion, the lack of ring roads, in particular district cities, is a big problem.

Figure 33. Average daily annual traffic on national and regional roads in 2010 and 2015



Source: General Traffic Measurement in 2010 and 2015 - General Directorate for National Roads and Motorways.

- Heavy traffic on roads poses a threat to traffic safety and air quality. In 2019, 459 road accidents were recorded in the subregion, in which 39 people were killed and 524 people were injured (0.9% less than in 2011, but 79% more than in 2018). In the last two analysed years, the most accidents were recorded in Konin and the Konin district.
- Despite the recent increase in expenditure on the modernization of the road network, the insufficient standard of roads still remains a problem. The key in this respect is expansion of the national road No. 25 on the section Ostrów Wielkopolski - Kalisz - Konin.
- The number of passenger cars in Eastern Wielkopolska per 1,000 inhabitants in 2019 amounted to 702.8 and was higher than the average value for the Wielkopolska Region (695.3). Since 2010, the number of cars in the subregion has increased by 36.3% (i.e. by 81,022 cars), with the highest increase recorded in the Konin district (by 28,526 cars).
- Eastern Wielkopolska is characterized by limited internal accessibility of the railway infrastructure. Two railway lines run through its area, i.e. line No. 3 Warszawa Zachodnia - Poznań - Kunowice (on the east-west line) and line No. 131 Chorzów Batory - Tczew (on the north-south line), commonly known as the coal main line.

There is a gap in the railway infrastructure in the subregion, including the lack of direct access to it in the Turek district.

- Regional passenger transport by rail in the area of Eastern Wielkopolska is provided only on the railway line No. 3 and is served by the Koleje Wielkopolska company. The line also provides domestic and international passenger transport.
- In the field of freight transport, the following loading points at stations are important: Barłogi (Koło district), Cienin (Słupca district), Konin, Koło, Słupca - located in the vicinity of the railway line No. 3, as well as Dąbie nad Nerem (Koło district) and Zaryń (Konin district) - located in the vicinity of the railway line No. 131[104].
- The number of rail intermodal terminals in the country and their reloading capacity is insufficient. This indicates the need for the development of intermodal transport, which should include not only the modernization and expansion of the existing terminals, but also the construction of new ones with the necessary equipment. Due to its potential, Konin should become the location for the future intermodal railway terminal in Eastern Wielkopolska.
- Due to the mining activities in the area of Eastern Wielkopolska, there are industrial railway lines that can be used in the future for passenger transport. The railway network of the Adamów mine ceased to be used at the end of 2017 due to the closure of the Adamów power plant. Currently, due to the closure of the mine, the railway is being closed. In the case of the Konin mine, there is an industrial railway network with a length of 120 km, which is used to transport brown coal from opencast pits to the Pątnów and Konin power plants. It is connected to the railway network of PKP Polskie Linie Kolejowe through a delivery and collection point at the Kopalnia Węgla Brunatnego Przesmyk-Gaj station. The mining railway line consists of the following two main lines:
    - Lubstów Main Line - running from the Gosławice Zakład (Elektrownia) station to the Lubstów Police loading yard, with a branch to the Kramsk-Drzewce station starting at the Błonawa branch post and inactive branches to the Janów Węglowa and Mikorzyn Węglowa stations;

[104]Source: PKP Polskie Linie Kolejowe S.A., *List of generally accessible tracks for loading activities with an adjacent yard or a ramp managed by PKP Polskie Linie Kolejowe S.A., 2017.*

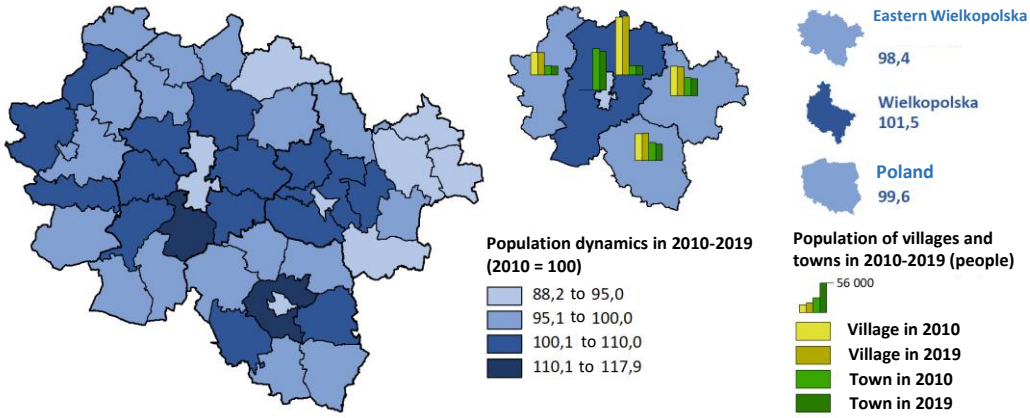
- Kleczew Main Line - running from the Estakada Wschód station to the Jóźwin Węglowa station, with a branch to the Rolling Stock Repair Workshops and the Kazimierz Węglowa loading facility[105].

Challenge 6.

Counteracting unfavourable demographic trends

Counteracting the progressive depopulation of the subregion, including limiting the outflow of inhabitants, especially young people; development of the silver economy; improving the health of inhabitants; improving the quality and availability of health care services; increasing the availability of specialized healthcare as well as health services and related social services in the local community; supporting the training of medical personnel and increasing the number of medical and paramedical personnel; implementation of innovative technologies in health care.

Figure 34. Population in 2010 and 2019 and the dynamics of its number in 2010-2019

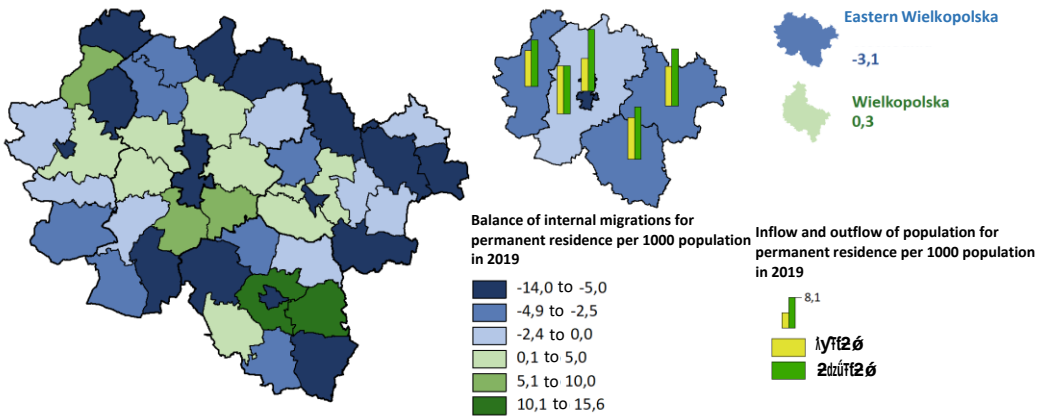


Source: WRTO study based on the Local Data Bank of CSO.

[105] Stowarzyszenie na Rzecz Spółdzielni Socjalnych, *Assumptions of the project of the Wielkopolska Center of Social Economy in Poznań concerning public rail transport in the Konin Agglomeration based on the launch of the „KONIŃSKI RING" rail bus line.*

- Eastern Wielkopolska is characterized by a difficult demographic situation. In 2019, the population of the subregion, unlike in the Wielkopolska Region, was lower than in 2010 by 7,056 people (i.e. by 1.6%; Wielkopolska - increase by 1.5%). During this period, the number of urban inhabitants decreased (by 11.1k people, i.e. 6.1%), while the rural population increased (by 4.1k people, i.e. 1.6%). A consequence of this phenomenon was the recorded decrease in the value of the urbanization index of Eastern Wielkopolska (the percentage of population living in cities) from 41.4% in 2010 to 39.5% in 2019 - in Wielkopolska it was 55.9% and 54.0%, respectively.
- The demographic forecast shows that the process of depopulation of Eastern Wielkopolska will continue to deepen. By 2030, the number of people living in it will decrease by 14.1k compared to 2019. (i.e. by 3.2%), and by 2040 by another 21.7 k (which means its decrease by 8.3% over two decades; in Wielkopolska by 3.1%). According to the forecast, the decline in the number of people will be observed in almost all districts of the subregion, the largest one in Konin, which will lose 18.4k by 2040. inhabitants, i.e. 25.0% of the current population, and in the Koło district - a forecast decrease by 9.1 k inhabitants, i.e. 10.5% of the current population. The only district of Eastern Wielkopolska where an increase in the number of inhabitants is expected is the Konin district.
- In the case of Eastern Wielkopolska, the decline in population is increasingly determined by migration (outflow of inhabitants). In 2019, the balance of internal migrations in the subregion amounted to -1355 people, which per 1,000 people gave the result of -3.1 people (in Wielkopolska 0.3).

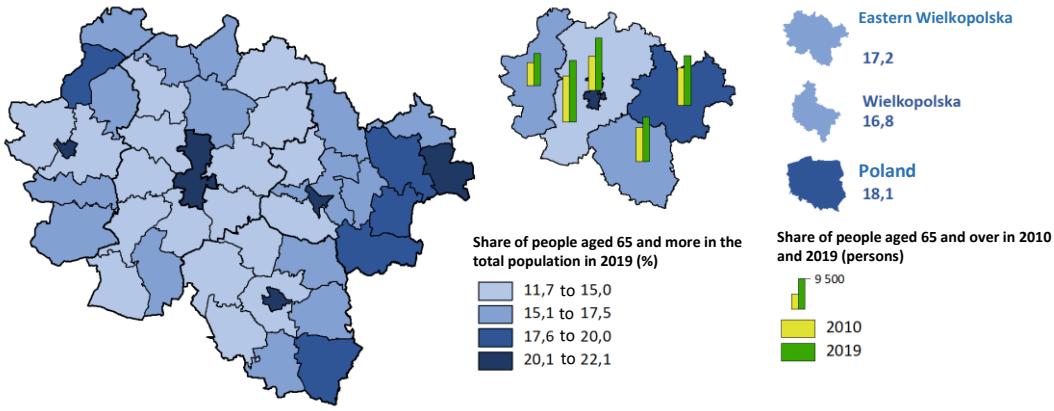
Figure 35. Balance of internal migrations and the migration inflow and outflow of the population per 1,000 population in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- In 2019, 4.3 k deaths were recorded in Eastern Wielkopolska. The death rate per 1,000 population was slightly higher than the average in the Wielkopolska Region and amounted to 10.0 compared to 9.8 in Wielkopolska. The greatest number of deaths in the subregion is caused by diseases referred to as civilization ones (i.e. cardiovascular diseases, malignant tumours, respiratory diseases), as well as injuries and poisoning.
- The high value of the death rate with a low value of the birth rate means that the natural increase in the subregion is negative (-0.6 ‰ in 2019; Wielkopolska 0.9‰). Among the districts of Eastern Wielkopolska, only the Konin district was characterized by a positive natural increase (0.9 ‰). The lowest values of this indicator were recorded in Konin (-2.4 ‰) and in the Koło district (-1.6 ‰).
- The subregion, similarly, to other parts of the country, is characterized by unfavourable changes in the age structure of its inhabitants related to the aging of the population. In 2019, the demographic old age rate (share in the population aged 65+) was 17.2%, so it was higher than the average in Wielkopolska (16.8%). It is forecasted that in 2030 people aged 65 and over will constitute 22.6% of the population of Eastern Wielkopolska, and in 2040 as much as 26.7% of its population.

Figure 36. Population aged 65 and over in 2010 and 2019 and its share in the total population in 2019

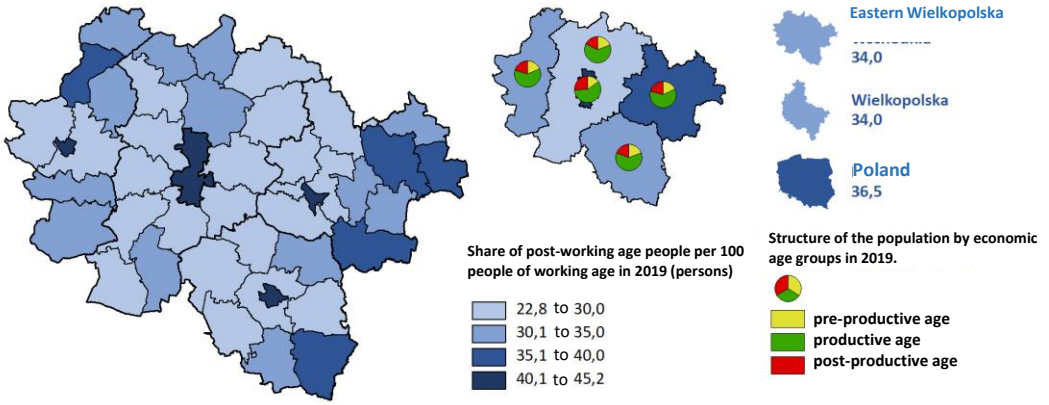


Source: WRTO study based on the Local Data Bank of CSO.

- In Eastern Wielkopolska, there is a low share of people of pre-working age (17 years and less) in the total population - 18.2% in 2019. (Wielkopolska – 19.4%). The

percentage of inhabitants in post-working age is above the region average - 20.8% (Wielkopolska - 20.4%). The above translates into the value of the demographic dependency indicator, which in 2019 amounted to, similarly to the Wielkopolska Region, 34.0 people of post-working age per 100 people of working age. The worst situation in this respect was characteristic for the city of Konin (in 2019 - 44.9), and the best for the Konin district (28.4), which in 2019 had the highest number of people of working age, accounting for 30.9% of the total their numbers in the subregion.

Figure 37. Demographic dependency rate and the structure of the population by economic age groups in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- Unfavourable demographic changes, including negative population growth, negative migration balance or aging of the society, are a great threat to the development of the subregion, therefore it is necessary to take actions aimed at counteracting those phenomena. The outflow of young people, with an aging society, causes a loss of human capital, which is an indispensable factor in economic development, influencing e.g. the investment attractiveness of the area.
- The main causes of diseases in the Wielkopolska Region (it can be assumed that a similar situation occurs in the subregion) causing incapacity to work are cardiovascular, musculoskeletal, mental, neurological, oncological and respiratory diseases. The growing scale of the obesity problem in the population of children and adolescents also deserves attention[106].

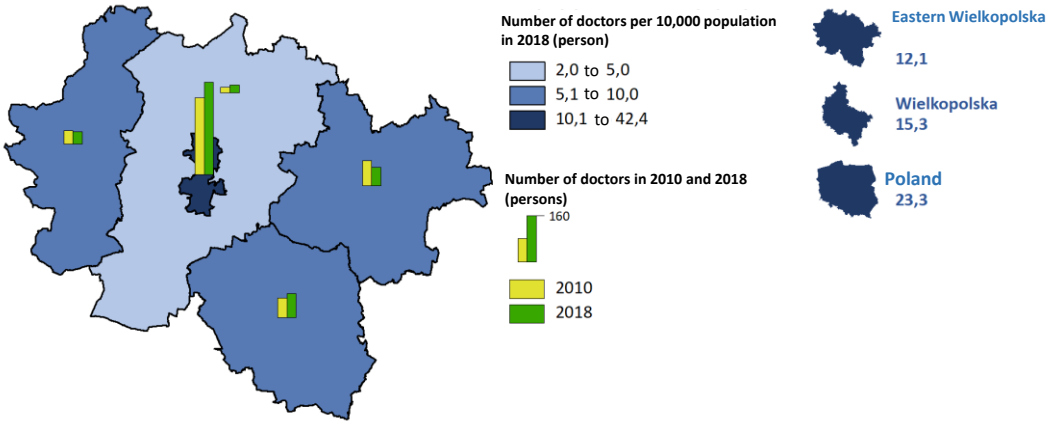
[106] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

- The progressive aging process of the population and the increase in the number of chronic diseases incidence increases the demand for health services, and thus the demand for medical personnel[107].

  In the case of Wielkopolska, ensuring the balance between (increasing) demand and supply for services in this field is a big challenge, because access to specialist doctors in the region is one of the worst in the country.
- In 2018, the number of doctors working directly with patients per 10,000 population in the subregion was 12 (Wielkopolska - 15; the last place among regions). The number of nurses working directly with the patient per 10,000 population, on the other hand, was at the level of 31, with the region average amounting to 36 (also the last place among regions).
- The problem is the uneven distribution of health care resources, including doctors. The inhabitants of Konin have much better access to them, where in 2018 there were 42 doctors per 10 k. population, while in the Konin, Koło and Słupca districts it was 2 and 7 doctors per 10 k population, respectively.

  Considering the city of Konin and the Konin district, the total number of doctors per 10 k. inhabitants amounted to 17. The situation was similar in the case of nurses - in Konin and the Konin district in total for every 10k population there were 38 nurses, while in the remaining districts the value of the indicator reached a relatively even level of approx. 26 nurses.

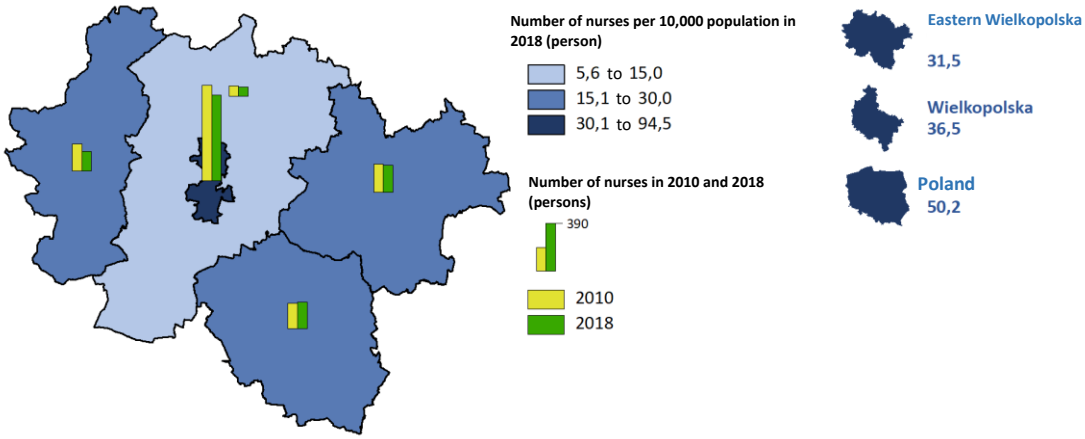
Figure 38. Doctors in absolute numbers in 2010 and 2018 and per 10 k population in 2018



Source: WRTO study based on the Local Data Bank of CSO.

[107] Central Statistical Office, Statistical Office in Krakow, *Health and health care in 2017*, Zakład Wydawnictw Statystycznych, Warszawa, Kraków 2018.

Figure 39. Nurses in absolute numbers in 2010 and 2018 and per 10 k population in 2018



Source: WRTO study based on the Local Data Bank of CSO.

- Eastern Wielkopolska is relatively poorly equipped with health care infrastructure. In the subregion in 2018, the number of hospital beds (in general hospitals) per 10 k population was 35.8, so it was much lower than the average in Wielkopolska (43.1) and Poland (47.3). A beneficial phenomenon is the growing pro-health awareness of the inhabitants of the subregion, which translates into an increase in the number of people using preventive examinations.
- The availability of long-term, hospice and geriatric care is extremely important.

  This aspect will become even more important, especially in view of the aging society of Eastern Wielkopolska, including considering the age structure of ZE PAK Group employees (over 36% of employees are over 50 years old). In 2017, despite a significant decrease in previous years, as many as 34.3% of Poles aged 65 and over assessed their health condition as bad or very bad (EU average - 18.5%).
- The improvement of the functioning of the health care system should be ensured by the use of new digital technologies, including the popularization of e-leaves and e-prescriptions. The development of telemedicine will improve health safety and will allow the inhabitants of the subregion to gain access to high-quality medical services.

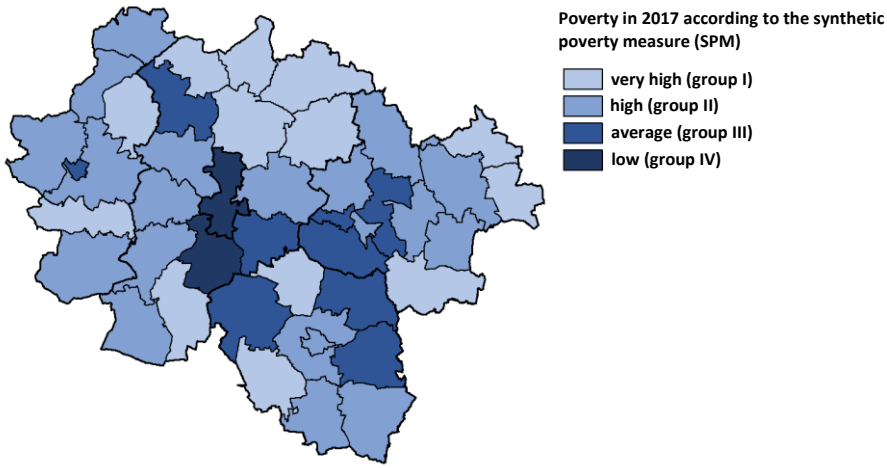
Challenge 7.

Poverty reduction and improvement of access to social services

Reducing the problem of poverty (including energy poverty) and social exclusion of families and people belonging to high social risk groups; development of social infrastructure in the local environment; improving access to specialized services, in particular for the elderly; coordination of social services with health services; development of services provided in de-institutionalized forms; development of social organizations and their activities to support the excluded people.

- A significant part of the communes of Eastern Wielkopolska, in particular from the districts of: Konin, Koło and Słupca, were characterized by the highest level of poverty in 2017 in the Wielkopolska Region[108].

Figure 40. Poverty in 2017 in Eastern Wielkopolska

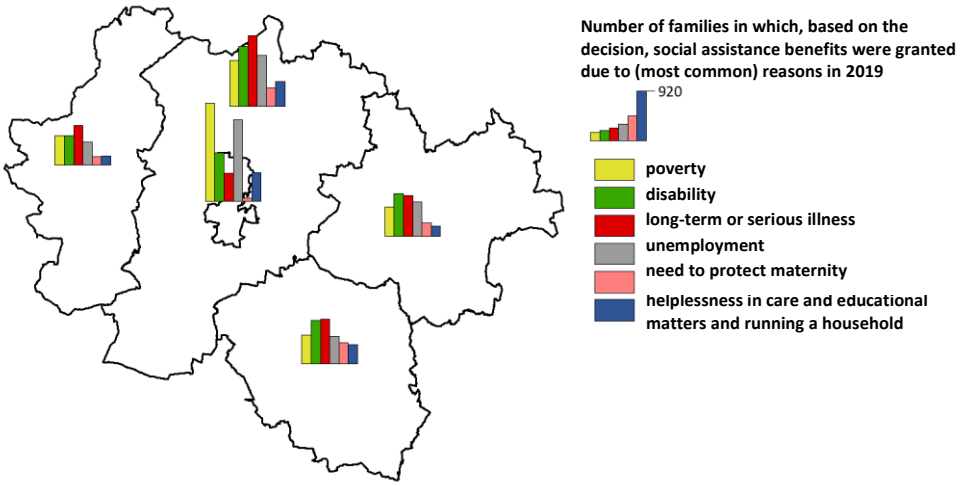


Source: WRTO study based on data from the Social Integration Observatory

[108] Szlachciak K., Szpyrka S., Zaręba M., *Poverty in the communes of the Wielkopolska region based on the synthetic poverty measure* (SMU) - 2017, Obserwatorium Integracji Społecznej, Poznań 2017.

- In 2019, social assistance benefits were awarded to 21.2 k families living in the subregion. Poverty was the most common reason for providing assistance, followed by long-term or severe illness, disability and unemployment. Over the past few years, the opposite trend has been observed in Eastern Wielkopolska to that at the Wielkopolska Region level - the number of families receiving social assistance benefits has increased by 20.5% since 2016, while the average decrease in Wielkopolska it increased by 19.5%. It should be noted that in recent years the number of families benefiting from social welfare benefits due to disability has increased significantly in the subregion (by 30.7%, i.e. 980 families compared to 2016), unemployment (by 22.8%, i.e. 752 families), long-term or severe illness (by 21.8%, i.e. 745 families), poverty (by 12.1%, i.e. 468 families) and alcoholism (by 83.4%, i.e. 411 families).

Figure 41. Families who were provided social assistance benefits by reason in 2019 in Eastern Wielkopolska

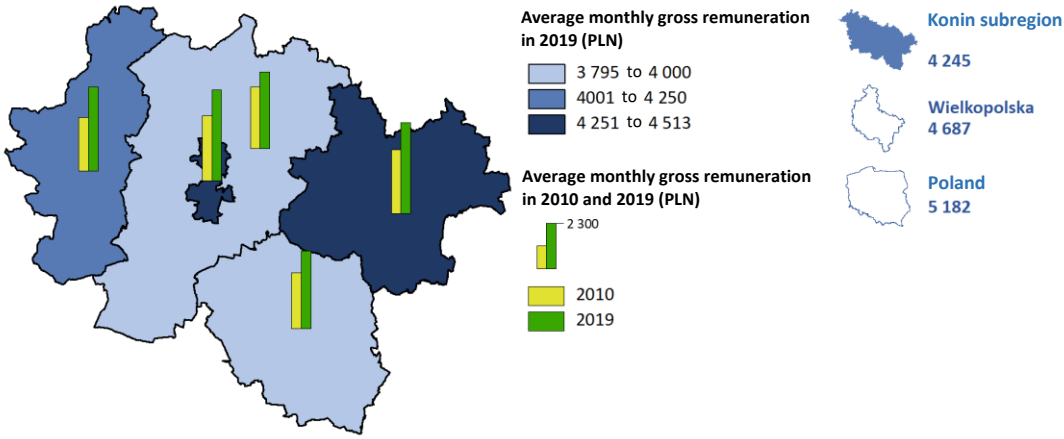


Source: WRTO study based on the Local Data Bank of CSO.

- In 2019, in Eastern Wielkopolska, there were 18 stationary social welfare centre (12% of their total number in Wielkopolska), inhabited by approx. 1,000 people (including 75 elderly people). Among them, there were eight social welfare homes, four shelters for the homeless and three night shelters.
- The insufficient standard of living of the subregion's inhabitants, which is manifested in a high level of poverty and a higher than the regional average percentage of families benefiting from social assistance benefits, is significantly influenced by the average monthly gross remuneration, which is lower than the

regional and national average (Konin subregion - PLN 4,244.8 in 2019; Wielkopolska - PLN 4,687.4; country - PLN 5,181.6). The best situation in this respect was in the city of Konin and the Koło district in 2019, where the value of this indicator was 96.3% and 95.8%, respectively, of the average for the Wielkopolska Region (87.1% and 86.7% of the national average). The average gross monthly remuneration in other districts was lower - in relation to the region average it amounted to: 88.9% in the Słupca district (80.4% of the national average), 82.4% in the Turek district (74.5% of the national average) and 81.0% in the Konin district (73.2% of the national average).

Figure 42. Average monthly gross remuneration in 2010 and 2019



Source: WRTO study based on the Local Data Bank of CSO.

- Wielkopolska is a heterogeneous region, with a different level of socio-economic development of its individual parts, the consequence of which is the existence of differences in access to the offered services or social infrastructure. When analysing the distribution of the social welfare resources and the support of the inhabitants existing in the region, attention is drawn to their uneven distribution. Their greater concentration occurs near the centre of the region, i.e. mainly in Poznań and its vicinity, as well as in the vicinity of other larger cities (Konin, Kalisz, Leszno, Piła), while the communes located on the outskirts of the region, especially the eastern ones, no longer have an offer so diverse and tailored to the needs of inhabitants. It

is also worth adding that some communes located in the east of the region belong to the group of units with the highest values of the local deprivation index[109,110].

- Another problem observed in Eastern Wielkopolska is the low standard of some dwellings - in 2019, over 16,000. dwellings (11.4%) were not equipped with a bathroom (Wielkopolska - 5.9%), and over 28 k dwellings (19.7%) had no central heating (Wielkopolska - 15.9%). This applied in particular to rural areas - 17.7% of the dwellings did not have a bathroom, and 27.4% had no central heating.
- An additional problem is energy poverty, which in 2017 affected 9% of households in the entire Wielkopolska Region, with this problem affecting more often people living in single-family houses. The risk of multidimensional energy poverty is much higher among households obtaining social benefits than among other socio-economic groups. Farmers, retirees and pensioners are also burdened with a high risk of energy poverty[111].

[109] The local deprivation index is understood as the degree of failure to meet the needs of the inhabitants of Wielkopolska communes and is expressed in absolute terms as the ratio of the number of people in families who have been granted social assistance benefits for each 1,000 inhabitants of the commune.

[110] Regional Center for Social Policy in Poznań, *Social Policy Strategy for Wielkopolska until 2030* - project, Poznań 2020.

[111] Sokołowski J., Lewandowski P., Kiełczewska A., Bouzarovski S., *Measuring energy poverty in Poland with the Multidimensional Energy Poverty Index*, IBS Working Paper 07/2019, Instytut Badań Strukturalnych, 2019.

Challenge 8.

Building sustainable social capital and cultural potential.

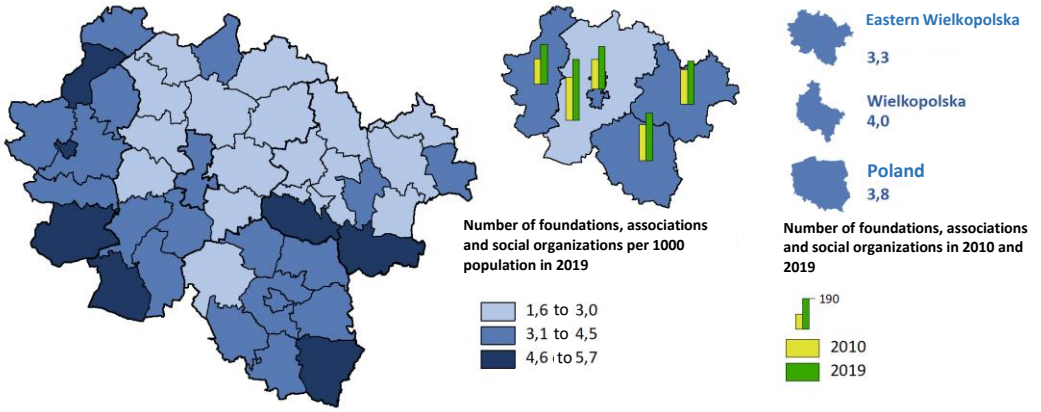
Increasing the level of participation of inhabitants in local social relations; increasing the civic activity of inhabitants, including their involvement in public life; development of the third sector and volunteering; strengthening identity and civic attitudes; strengthening the existing tourist potential and cultural values of the subregion; development of various forms of the leisure industry dedicated to all age groups, including tourism, sport and recreation, as well as rest and entertainment; development of social capital in areas in crisis due to concentration of social problems; preservation of heritage for future generations.

- The just transition requires strong social capital, which is an essential resource for the creation of its social „spirit". The successful transition of Eastern Wielkopolska will be determined by social trust, solidarity, focus on cooperation. Culture is of great importance for creating strong social capital - strengthening the sense of community and identity should occur through various types of events organized by cultural institutions, e.g. libraries, community centre, museums, cinemas and theatres. Of key importance for the successful transition of the subregion is also the active inclusion of non-governmental organizations and social economy entities in the widest possible scope of activities.
- The inhabitants of Wielkopolska declare trust in other people at the level of 78.8% (country - 79.4%). Moreover, 81.2% of the inhabitants of the Wielkopolska Region trust their neighbours (in the country - 75.3%), 63.3% of the population trust local authorities (in the country - 56.3%), while 36.0% of the region's inhabitants trust strangers (in the country - 34.3%)[112].
- In Eastern Wielkopolska in 2019, there were, on average, 3.3 foundations, associations and social organizations registered in the REGON system per 1,000 inhabitants (in the Wielkopolska Region - 4.0). The highest value of this indicator in

[112] Central Statistical Office, Statistical Office in Łódź, *Quality of life and social capital in Poland. Results of the Social Cohesion Survey 2018*, Zakład Wydawnictw Statystycznych, Warszawa 2020.

the subregion was characteristic for Słupca district (4.2), and the lowest for Konin district (2.9).

Figure 43. Foundations, associations and social organizations in absolute values in 2010 and 2019 and per 1,000 population in 2019.

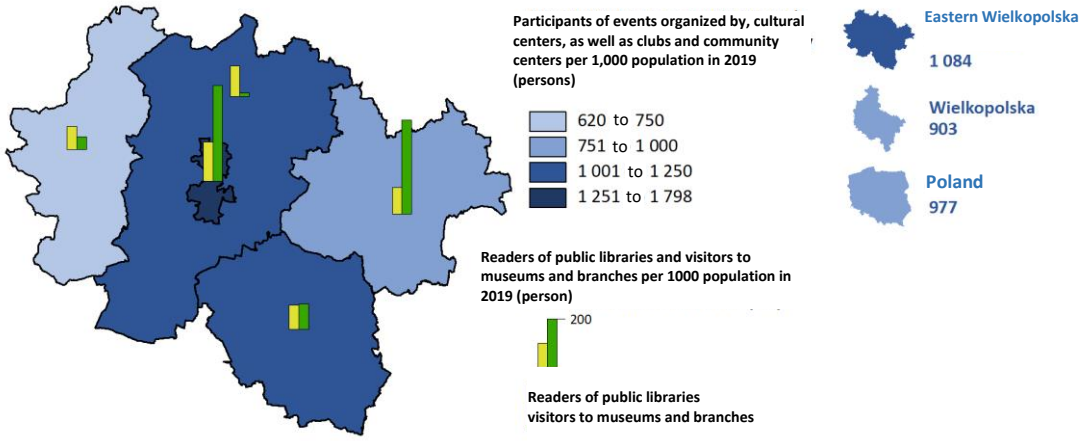


Source: WRTO study based on the Local Data Bank of CSO.

- The electoral turnout is a commonly accepted measure of civic activity, which proves the relatively high civic activity of the inhabitants of the subregion. Voter turnout in local government elections in 2018 was higher in all districts in Eastern Wielkopolska than in 2014. Moreover, in three districts, i.e. Konin, Słupca and Turek, it was (in 2018) higher than the average for the Wielkopolska Region.
- An instrument for the development of civic activity, involving inhabitants in the affairs of local communities, is a participatory budget, which includes the civic budget and the village council fund. In recent years, the civic budget was implemented in five cities of the subregion, while in 31 out of 39 rural and urban-rural communes (i.e. in 79.5% of communes), part of the budget funds was spent under the village council fund (in Wielkopolska - 81.2 % of rural and urban-rural communes).
- In 2019, in Eastern Wielkopolska, there were 91 libraries and their branches, and the number of readers per 1,000 inhabitants was 124 people (region average - 145 people).

  Moreover, 32 centre, houses, community centre, clubs and community centre operated in its area. When analysing the number of participants of events organized by those institutions per 1,000 population, it can be noticed that in this respect the subregion fared favourably compared to Wielkopolska (1,084 people in the subregion, while in the region it was 903 people).

Figure 44. Participants of events organized by selected cultural institutions per 1,000 population as well as readers of public libraries and visitors to museums and branches per 1,000 population in 2019.



Source: WRTO study based on the Local Data Bank of CSO.

- In 2019, six museums (including branches) operated in the subregion, including the District Museum in Konin and the Museum of the former German Kulmhof Death Camp in Chełmno nad Nerem, visited by 79.3 k people, which gave the indicator at the level of 183 visitors per 1,000 inhabitants (Wielkopolska - 346 visitors per 1,000 inhabitants). In Eastern Wielkopolska, there are also a number of cultural objects and routes that have become well-established in the public awareness and are of great importance for the cultural heritage. They include the following routes facilities: Piastowski, Cysterski, Romański, Bursztynowy and Europejski Szlak Megalitów, as well as Nadwarciańska Droga św. Jakuba. There is also an underground tourist route in the „KŁODAWA" Salt Mine in the subregion. The cultural heritage of the earliest traces of settlement, the beginnings of the Polish State, the history of partitions or World War II, along with post-industrial traditions, is the basis for the development of cultural tourism in this part of the Wielkopolska Region.
- In terms of free time, apart from participating in events organized by cultural institutions or active recreation, other forms of spending it are becoming more and more important, including meetings of housing estate groups, rural housewives' clubs, meetings in clubs and cafes (which are non-public cultural animation institutions and the cultural sector private enterprises at the same time).
- Integrating the local community, developing female entrepreneurship or cultivating traditions is supported by the activities of rural housewives' clubs. In Eastern Wielkopolska in 2020, a total of 271 such clubs were registered, i.e. 18.8%

of the total number in Wielkopolska (1,441 clubs)[113]. Volunteer fire brigades located in each commune of the subregion, as well as various non-governmental organizations and universities of the third age, also play an important role in local social life.

- Transport accessibility, valuable natural areas, the richness of lakes or post-industrial areas create the basis for the development of tourism and recreation in the subregion. The above potential may serve the development of hiking and cycling (related to, among others, environmental values), post-industrial (using specific resources in the form of post-mining areas that can be adapted to a new type of function) or sacred (related to, among others, the Marian Sanctuary in Licheń) tourism. New opportunities for the development of tourism and recreation are also created by geothermal springs (graduation towers, water parks). It should be noted that this advantage has not been properly used so far, and tourism in Eastern Wielkopolska has not played a large role in shaping the local economy[114].
- Currently, there is an increasing interest in a healthy lifestyle and sports activity among the population (this is a nationwide trend). Positive changes were also recorded in Eastern Wielkopolska, where in the years 2012-2018, despite the decrease in the number of sports clubs from 177 to 163, the number of people training increased (by nearly 1.3 k people).

[113] As of the end of September 2020; Source: Krajowy Rejestr Kół Gospodyń Wiejskich, https://krkgw.arimr.gov.pl [accessed: 23/09/2020].

[114] Hołub-Iwan J., Orsa-Chomiak I., Terlecki M., Gutta K., Gutta T., Gozdek P., *Stan i perspektywy rozwoju inteligentnych specjalizacji w subregionie konińskim*, 2019.

Challenge 9.
Reducing territorial inequalities

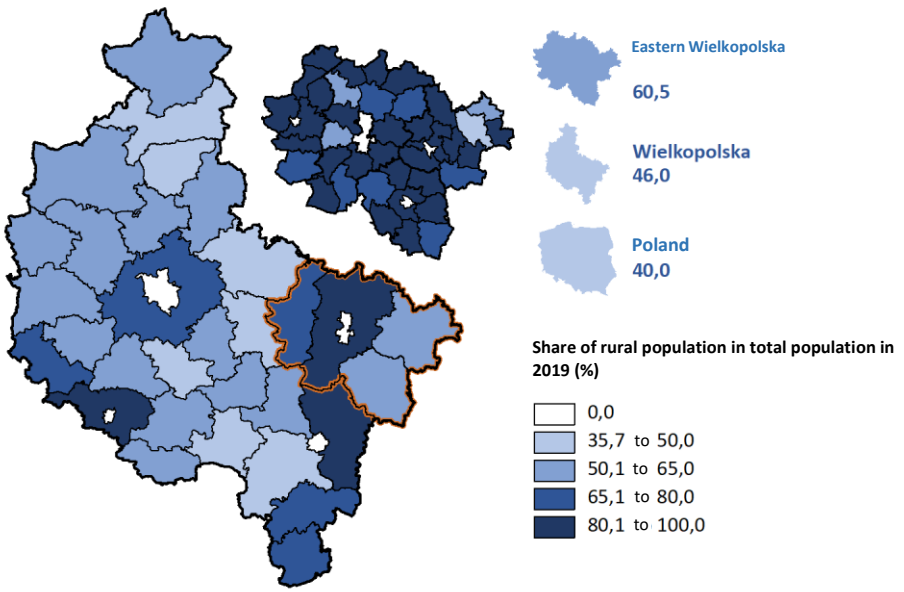
Support for rural development; strengthening potentials and eliminating development barriers of areas at risk of marginalization; support for areas experiencing difficulties in restructuring, adaptation and losing their socio-economic functions; increasing access to services for inhabitants from areas with limited development opportunities; revitalization of degraded areas.

- Without taking actions related to the levelling of territorial inequalities, it is impossible to conduct a comprehensive just transition. This is a challenge that can be considered horizontal to the eight challenges previously mentioned. Location inequality affects every aspect to a greater or lesser extent, from a strong and competitive economy to the development of social and cultural capital. From the point of view of threats to just transition, it is necessary to counteract the exclusion of various areas of the subregion, identified in various types of strategic documents, in particular rural areas.
- The settlement network of Eastern Wielkopolska, as in the case of the entire Wielkopolska Region, is relatively regular. It consists of 1,245 localities, including: 15 cities, 1,077 villages and 153 other units. The hierarchical structure of the subregion's settlement units includes three basic categories derived from their position in the settlement network, administrative rank and other functions[115]:
  - Konin - a centre constituting a subregional growth pole, which, together with functionally and spatially related communes, is distinguished by social and economic potential. It is an area that requires support due to the observed slowdown in socio-economic development and the occurrence of development problems, e.g. related to the decline in the population (especially in the working age), the aging of the population or the mismatch between supply and demand on the labour market, as well as with issues of quality of life (transport, natural environment, functional urban space);

[115] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

- district towns (Koło, Słupca, Turek) - local centre constituting centre of supra-communal services and development balancing, evenly distributed in the space of the subregion. They accumulate socio-economic problems related to depopulation, limited opportunities for economic development, or to a considerable distance from the capital of the Wielkopolska Region (Koło and Turek);
- other urban and rural centre - evenly distributed over the area of individual districts, distinguished by the number of inhabitants, service and infrastructure equipment as well as transport accessibility, constituting communal centre of population service in the field of basic services. They deal with problems typically related to rural development, as outlined below.

Figure 45. Rural population in total in 2019



Source: WRTO study based on the Local Data Bank of CSO.

- The area of the subregion is distinguished by the highest share and the absolute largest number of rural population, while only in the case of a part of the Konin district one can speak of inhabitants of rural areas engaged in non-agricultural activities („bedroom" of the city of Konin), while in other cases the typically agricultural nature of the activities undertaken by the rural population should be indicated.
- Although the Wielkopolska Region as a whole belongs to the regions with a high level of development of the agricultural sector, its eastern and south-eastern part

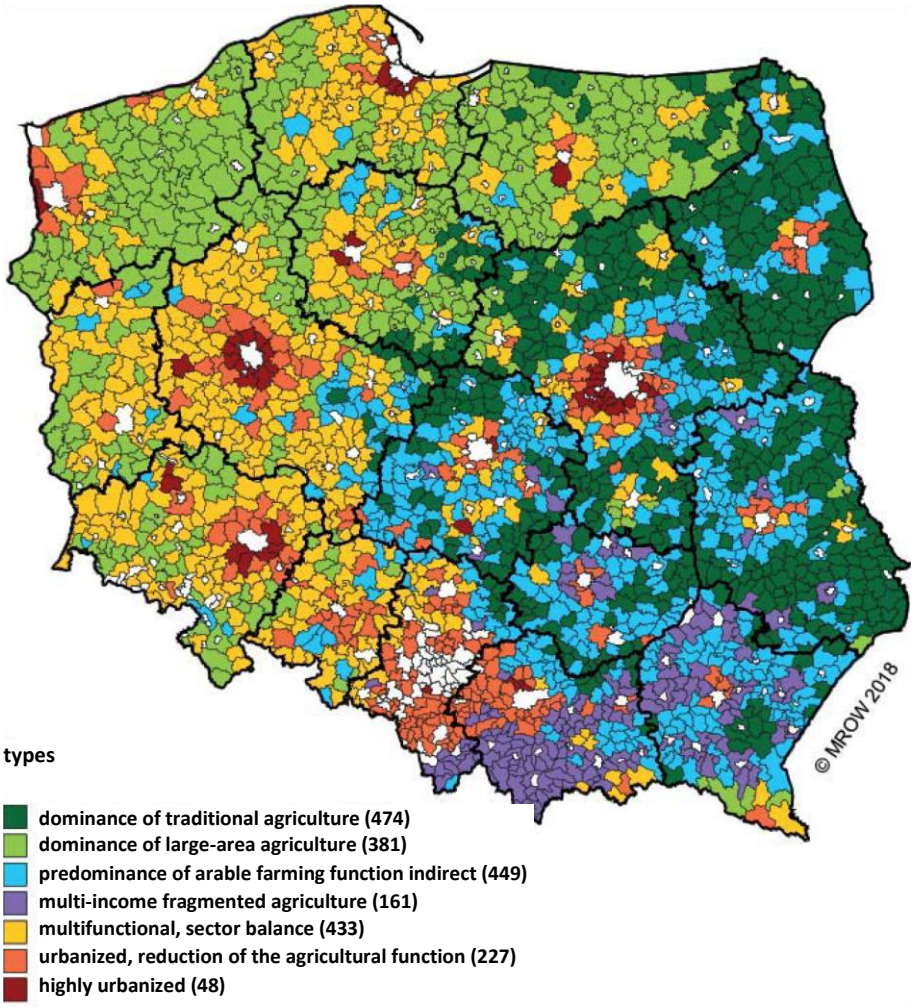
is already included in the group of areas characterized by an average or low level of its development[116]. The area of the subregion is additionally distinguished by the lowest level of disagrarisation of the local economy, understood as the advancement of the process of decreasing the share of agriculture in the structure of rural population livelihoods. For this reason, in the four districts of Eastern Wielkopolska, rural areas with a predominance of the agricultural function or the dominance of large-area agriculture prevail, and those are both units distinguished by highly productive agriculture, as well as those where agriculture struggled with difficulties of a structural nature, and which are threatened by permanent marginalization.

- The typically agricultural rural areas of the subregion are characterized by a lower standard of living and development deficits. This is related to progressive depopulation (limited access to major urban centre and, consequently, less development opportunities cause an outflow of inhabitants to more attractive socio-economic areas), low level of entrepreneurship and qualifications of inhabitants, and insufficiently developed infrastructure, mainly energy, water and sewerage, transport and small retention (important especially for agriculture). Another barrier to the development of those areas is the low access to the broadband network and public services, as well as the depreciation of the settlement tissue and the threat to natural values. In the WRSDP the areas of this type were recognized as „rural areas requiring support for development processes", where only properly targeted support can contribute to the elimination of disproportions in the level of the region's development, improvement of cohesion, and thus increasing their attractiveness[117]. A particularly difficult situation occurs in areas located at a considerable distance from the areas of influence of larger cities, mainly in the eastern outskirts of the subregion.

[116] Stanny M., Rosner A., Komorowski Ł., *Monitoring rozwoju obszarów wiejskich. Stage III.* Socio-economic structures, their spatial differentiation and dynamics *(full version)*, Fundacja Europejski Fundusz Rozwoju Wsi Polskiej, Instytut Rozwoju Wsi i Rolnictwa PAN, Warszawa 2018.

[117] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

Figure 46. Structural typology of rural areas



Source: Stanny M., Rosner A., Komorowski Ł., *Monitoring of the development of rural areas. Stage III.* Socio-economic structures, their spatial differentiation and dynamics *(full version)*, Fundacja Europejski Fundusz Rozwoju Wsi Polskiej, Instytut Rozwoju Wsi i Rolnictwa PAN, Warszawa 2018.

- In rural areas of a suburban nature, located in particular in the vicinity of Konin, but also in other district centre of Eastern Wielkopolska, the source of numerous spatial problems are the processes of suburbanization (including functional suburbanization) and the loss of the original rural functions related to them. They cause an increase in the costs of construction and maintenance of technical, transport and social infrastructure, the transformation of valuable agricultural and forest areas into urbanized areas, or increased car traffic related to daily commuting to work or school (transport congestion). In this type of rural areas, gradually

emerging social and cultural conflicts are observed, often caused by the influx of urban population. On the other hand, those areas, thanks to the immediate vicinity of larger urban centre, are in the zone of direct influence of the development potential („rural areas participating in development processes"), assuming a significant development impulse[118].

- An area with particularly intense suburbanization processes, but also changing socio-economic conditions, is the so-called Konin Functional Area covering the city of Konin with its neighbouring communes (Golina, Ślesin, Kazimierz Biskupi, Kramsk, Krzymów, Rzgów and the Stare Miasto). The features that negatively distinguish KFA in the Wielkopolska Region are loss of fuel and energy functions, depopulation, aging of the society, degraded post-mining areas, low social activity and low level of entrepreneurship[119]. The positive elements, in the case of KFA include high tourist values due to numerous lakes and a large percentage of areas under legal protection, as well as a rich base of sports facilities. The potential for the development of recreational services are also documented sources of high-quality geothermal waters, which can become a source of tourism and recreation development[120].
- Three cities in the subregion, i.e. Konin, Turek and Koło, were classified in the National Strategy of Regional Development 2030 to the group of medium-sized cities losing their socio-economic functions[121]. These are the areas where the concentration of socio-economic factors negatively influencing the dynamics of their development occurs. Those cities, in accordance with the provisions of the NSRD, are characterized by a regression in development and the loss of socio-economic and administrative functions, the outflow of people (especially those educated in the working age) to large centre, the decline of traditional local industries, an aging society, as well as a mismatch in demand and supply for labour market. According to the adopted classification, Turek was considered a city of declining potential (e.g. due to a strong increase in the unfavourable development distance and a moderately bad socio-economic situation), while Konin and Koło were considered to be cities threatened with marginalization (due to a moderate

[118] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

[119] *Strategy for the development of the Wielkopolska Region until 2030,* Resolution No. XVI/287/20 of the Wielkopolska Region Parliament of 27 January 2020.

[120] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

[121] *National Strategy of Regional Development* 2030, Resolution No. 102 of the Council of Ministers of 17 September 2019.

increase in the development distance), unfavourable development distance and moderately bad socio-economic situation).

- The so-called areas at risk of permanent marginalization within its borders, withing NSRD, are also identified as specific from the point of view of Eastern Wielkopolska. Those are internal periphery, the key barrier to development of which is the low spatial (temporal, communication) accessibility to region centre, which determines the inability to effectively use development stimuli generated by large urban centre. They are distinguished, in particular, by structural problems in agriculture, the slow process of disagrarisation of local economies, low level of entrepreneurship and a low resource of non-agricultural jobs. They are also characterized by a relatively low level of education and professional qualifications of the inhabitants, low professional mobility and thus a low level of investment attractiveness. Moreover, the unfavourable demographic situation of those areas (aging of the society, depopulation, including the outflow of young and better educated people), as well as poor access to basic public services and high demand for social assistance are indicated. Six communes of Eastern Wielkopolska have been classified by the NSRD as areas threatened with permanent marginalization: Babiak, Chodów, Olszówka, Przedecz, Wierzbinek and Wilczyn[122].
- A significant challenge from the point of view of territorial inequalities are social and infrastructural problems that affect both the urban areas and villages of Eastern Wielkopolska. The accumulation of social problems leading to exclusion occurs in degraded areas that require comprehensive, especially social, revitalization. The answer to this are the revitalization programs which are programmed to improve the state of development and living conditions in areas in crisis. Currently, as many as 72.1% of the communes of the subregion (31 out of 43 communes) have developed revitalization programs, which is a significant result for the entire Wielkopolska Region, where 63.3% of communes (143 out of 226 communes) have this type of document.

  In the areas covered by those programs, unfavourable phenomena accumulate, such as unemployment, dependence of inhabitants on social assistance, as well as their helplessness and passivity.

[122] Ibidem.

4 VISION, OBJECTIVES, PRIORITIES AND DIRECTIONS OF INTERVENTION OF JUST TRANSITION OF EASTERN WIELKOPOLSKA

Working groups in which representatives of various circles actively participated were of significant importance in developing the directions of just transition, including representatives of LGUs, science and economic and social stakeholders from the subregion, including trade unions operating within the ZE PAK Group. The proposals for a vision for the development, objectives and priorities of a just transition of Eastern Wielkopolska, as well as planned directions of intervention presented in this section, consider the demands made during the work of individual groups.

As mentioned earlier, the Concept is the basis and reference point for further strategic and program work for the transition of Eastern Wielkopolska, and the vision, objectives, priorities and directions of intervention indicated therein define the horizon of possible undertakings. Those elements are open, which means that they may be modified at a later stage. In addition, the need to include new issues in the work of the working groups and to deepen some of the topics already discussed makes it necessary to expand the discussion undertaken by including new stakeholders. Therefore, representatives of circles that have not participated in it so far and are important from the point of view of the transition process, will be invited to participate in further works. Further activities aimed at developing a long-term strategy for Eastern Wielkopolska will be conducted in an extended formula.

4.1 Vision of a just transition of Eastern Wielkopolska

The vision provides a synthetic description of the desired target state of Eastern Wielkopolska in 2040, which will be pursued as a result of the transition of the subregion. It is the result of making certain choices from among many possible variants of development directions. For the purposes of the document, the following vision of the transition of Eastern Wielkopolska was adopted:

Eastern Wielkopolska in 2040 is a region that is a leader in the development of a zero-emission, resource-efficient and innovative economy, as well as in green energy, providing inhabitants with very good living conditions and decent and qualified work, and new sources of income for local governments; respecting European values, protecting the natural environment and enabling self-realization for every inhabitant.

4.2 Main and specific objectives of just transition of Eastern Wielkopolska

The main objective, identical with the vision of development, will be achieved through the implementation of three specific objectives relating to the economic, spatial and social spheres. The identified objectives correspond to the three pillars of just transition and are assigned to the challenges related to the transition of Eastern Wielkopolska - they constitute a kind of response path to them.

	Challenges for Eastern Wielkopolska	Specific objectives
Challenge 9 Reducing territorial inequalities	Challenge 1. Building an innovative, resource-efficient and diversified economy. Challenge 2. Energy transition towards a zero-emission and energy-saving economy. Challenge 3. Developing and improving the use of the potential of human capital - the most important resource of the subregion	**Objective 1. Dynamic and zero-carbon circular economy**
	Challenge 4. Counteracting environmental degradation and adaptation to climate change. Challenge 5. Improvement of internal transport cohesion and mobility of inhabitants	**Objective 2. Integrated high-quality space**
	Challenge 6. Counteracting unfavourable demographic trends Challenge 7. Poverty reduction and improvement of access to social services Challenge 8. Building sustainable social capital and cultural potential.	**Objective 3. Active society**

Objective 1. Dynamic and zero-carbon circular economy

The objective is a response to changes occurring in the subregion as a result of the transition towards climate neutrality.

Its implementation will secure the future of Eastern Wielkopolska, shaping its competitiveness and innovation, and will also make the development of this area independent of the mining sector and energy sector using primary energy carriers. The existing and new branches of the economy, on which the subregion will build its competitive position, will be strengthened. The measures taken will create the „Wielkopolska Valley of Energy" in Eastern Wielkopolska and will allow it to become a leader in the field of green economy by 2040, in which the key sector will be zero-emission and resource-efficient industry using modern digital technologies.

Under the objective, the key will be the diversification of the economy, the creation of new jobs and the development of entrepreneurship, i.e. factors ensuring employment for people leaving the mining and energy sectors or the unemployed people, in particular people who have lost their jobs in the mining and energy industry, as well as smooth employment of young people entering the labour market. As part of strengthening Eastern Wielkopolska through the development of enterprises, preference will be given to investments that create high-quality, permanent jobs, competitively priced, possibly related to the economic specializations of the subregion. An important element of the innovative and competitive economy is the high quality of human capital, therefore the competences and qualifications of the inhabitants of Eastern Wielkopolska will be improved. The implementation of this objective, in conjunction with the effects of measures implemented under other specific objectives, will contribute to the increase in the wealth of the inhabitants of the subregion.

Objective 2. Integrated high-quality space

Economic development and improvement of the quality of life of inhabitants, while respecting, protecting and restoring environmental resources, requires the creation of an attractive and accessible space, the resources of which will also be used by future generations. In the case of Eastern Wielkopolska, one of the key activities aimed at improving the quality and functionality of space, and thus increasing the quality of life of inhabitants, will be the regeneration of areas transformed as a result of industrial activity by restoring their previous functions and properties.

This will be achieved by restoring proper water conditions and restoring impoverished biodiversity in those areas (in degraded areas and outside them) or by changing their management method by giving them new functions.

In the face of increasing climate change, it becomes necessary to intervene to counteract the effects of drought and extreme phenomena, as well as to improve water quality.

It should be of key importance to take care of the environmental potential of development, thanks to which it will be possible to use it to meet the current development needs, as well as to preserve development resources for future generations.

The transition of Eastern Wielkopolska, including mine closures and diversification of the economy, will contribute to a change in the direction of the flow of goods and labour. The new specializations of the subregion's economy will have different logistic and infrastructural requirements than the mining and conventional energy sectors, therefore it will be necessary for effective development to improve the internal and external transport accessibility of this area, which will additionally contribute to the increase of its attractiveness for new investors, which means that it will make it possible to increase the competitiveness of the subregional economy.

Objective 3. Active society

The main driving force behind the transition of the subregion is (and will continue to be) an active society. Therefore, it is necessary to eliminate significant elements lowering the social and economic development potential of Eastern Wielkopolska, which include negative demographic changes, social inequalities or insufficient health of the inhabitants. Developed social capital will also be an indispensable factor of economic development. This means that the transition of the subregion should actively involve jobseekers and contribute to the improvement of the quality of social and cultural life of the inhabitants, as well as social inclusion, which will translate into an economy with a high level of employment and entrepreneurship. It should also be necessary to provide comprehensive health protection for inhabitants, in particular for the elderly and those who work and are at risk of losing their jobs for health reasons.

It is necessary to adapt the economy to the observed demographic trends, in particular by ensuring the availability of services provided in response to those challenges. The aging society will require, on the one hand, the development of the white economy sector, and on the other hand, the development of the silver economy, which will contribute to the improvement of the quality of life and increased independence of the elderly, including the extension of their professional activity.

The concentration of the transition policy on three interdependent detailed objectives, related and mutually interpenetrating, corresponds to the needs and aspirations of the inhabitants of Eastern Wielkopolska.

The specific objectives indicate the priorities and directions of intervention, setting the path of transition of the subregion towards a zero-emission, resource-efficient and innovative economy and improvement of the living conditions of the inhabitants. Ultimately, within each of the defined directions of intervention, it is planned to identify potential applicants for the implemented measures and target groups to whom the support will be directed, or which will benefit from the effects of the measures implemented.

The global economic crisis that started in the first half of 2020 as a result of the COVID-19 epidemic has had negative consequences in almost all areas foreseen in the Concept. It should be expected that in the perspective of 2040 the effects of the current economic slowdown caused by the epidemic will not be noticeable, however, the current conditions and socio-economic changes resulting from it will have a significant impact on the development of the subregion in the coming years. Therefore, it is necessary to take this aspect into account when planning activities for the next few years. In this regard, measures aimed at rebuilding the economy and counteracting the increase in unemployment will be of key importance. According to the economic forecast of the European Commission published in autumn 2020, the Polish economy will shrink by 3.6% in 2020, and then it will grow by 3.3% in 2021 and by 3.5% in 2022. The epidemic will also have a significant impact on the labour market - according to the EU forecast, the unemployment rate in Poland in 2021 will amount to 5.3%[123].

[123] Directorate-General for Economic and Financial Affairs of the European Commission, *European Economic Forecast Autumn 2020,* Institutional paper 136, Publications Office of the European Union, Luxembourg 2020.

Vision/main objective

Eastern Wielkopolska in 2040 is a region that is a leader in the development of a zero-emission, resource-efficient and innovative economy, as well as in green energy, providing inhabitants with very good living conditions and decent and qualified work, and new sources of income for local governments; respecting European values, protecting the natural environment and enabling self-realization for every inhabitant.

Specific objective 1. **Dynamic and zero-carbon circular economy**	Priorities: 1.1. Energy (r)evolution towards climate neutrality 1.2. Diversified and innovative economy with developed entrepreneurship 1.3. E-Eastern Wielkopolska 1.4. Circular economy 1.5. Competent, qualified and professionally active inhabitants
Specific objective 2. **Integrated high-quality space**	Priorities: 2.1. Regenerated natural environment 2.2. Adaptation to climate change 2.3. Transport accessibility improvement
Specific objective 3. **Active society**	Priorities: 3.1. Strong social capital 3.2. Modern social services 3.3. Healthy inhabitants

Specific objective 1. Dynamic and zero-carbon circular economy	
Priority 1.1. **Energy (r)evolution towards climate neutrality**	Direction of Intervention: 1.1.1. Development of renewable energy sources and distributed energy 1.1.2. Development of hydrogen technologies 1.1.3. Zero-emission energy sector resilient to climate change 1.1.4. Zero-emission and energy-saving transport 1.1.5. Zero-emission and energy-saving industry and construction
Priority 1.2. **Diversified and innovative economy with developed entrepreneurship**	Direction of Intervention: 1.2.1. Development of research and development works, technologies and innovations in new specializations of the subregion 1.2.2. Development of BEI potential and professionalization of their activities as well as development of a cooperation network and knowledge exchange 1.2.3. Support for the creation of enterprises and the development of enterprises in the initial period of operation 1.2.4. Development of enterprises, in particular SME, in terms of adapting to the changing market and technological conditions 1.2.5. Development of agriculture and agri-food processing 1.2.6. Increasing the investment attractiveness of Eastern Wielkopolska 1.2.7. Support for the internationalization of enterprises and promotion of the subregion
Priority 1.3. **E-Eastern Wielkopolska**	Direction of Intervention: 1.3.1 Improving competitiveness in the new economic specializations of the subregion thanks to digital technologies 1.3.2. Improving the quality of service for inhabitants and businesses thanks to digital services (including e-administration, e-health) 1.3.3. Implementation of the Smart City and Smart Village concepts 1.3.4. Development of wired and wireless ICT infrastructure 1.3.5. Preparing society and various entities to create and use digital technologies
Priority 1.4. **Circular economy**	Direction of Intervention: 1.4.1. Sustainable industrial production 1.4.2. Sustainable consumption 1.4.3. Bioeconomy development

Priority 1.5. Competent, qualified and professionally active inhabitants	Direction of Intervention: 1.5.1. Improving the quality of education and training and their better adjustment to the needs of the labour market, new specializations of the subregion or the modern economy 1.5.2. Professional activation of human capital reserves and groups particularly threatened by unemployment and deactivation 1.5.3. Strengthening the adaptability of entrepreneurs and employees, as well as farmers to change

A dynamic, zero-emission circular economy will create a new development trajectory for the subregion thanks to implementation of the following priorities:

1.1. Energy (r)evolution towards climate neutrality;

1.2. Diversified and innovative economy with developed entrepreneurship;

1.3. E-Eastern Wielkopolska;

1.4. Circular economy;

1.5. Competent, qualified and professionally active inhabitants.

Priority 1.1. Energy (r)evolution towards climate neutrality

Solving the problems of climate change is the most important task facing the present generation. Limiting global warming and environmental pollution, as well as building the competitive advantages of Eastern Wielkopolska with the living conditions of future generations in mind, require an energy revolution, thanks to which it will achieve climate neutrality in 2040 and will provide an attractive place to live and work. Actions undertaken under the Priority will be directed to the reduction of greenhouse gas emissions, including by abandoning coal combustion in the subregion, limiting the use of other primary energy carriers and improving energy efficiency in power engineering, industry, construction, transport and agriculture sectors. In this context, priority should be given to the gradual increase in the use of RES, as well as the development of the supply chain of zero-emission products and services, stimulating SME to transform their business models.

The development of RES should be perceived on the one hand as an activity reducing the environmental burden and using the potential inherent in the subregion, and on the other hand as a response to the growing energy consumption and the need to decarbonise the energy sector. In Eastern Wielkopolska, the increase in the share of RES in total electricity production will be based on wind, solar, geothermal energy, as well as biogas and biomass. In subjective terms, distributed energy will be developed, aimed at covering its own energy needs, and then supplying the resulting surplus of the power grid. The development of distributed energy will involve support for the production of renewable

energy in micro-installations (by prosumers) and the creation of energy-sustainable areas with the help of energy clusters or energy cooperatives - supporting the development of this type of energy will be one of the most important priorities in the energy transition. In the area of RES development, support will be directed to installations created both in the public sector and as part of business projects implemented by various economic entities.

In the decarbonisation of energy, industry and transport sectors, it will be important to use hydrogen, which, apart from solar energy, wind, geothermal energy, biogas and biomass, is the basis of the new energy system, as well as creating one of the five national hydrogen valleys in the subregion. Hydrogen is gaining attention due to its physical properties (light, reactive, storable, high energy content per unit mass) and its ecological nature. It is planned to be used more and more, including in the transport, industrial, heating and power sectors. The development of the so-called green hydrogen, mainly produced from wind and solar energy is considered a priority. It is widely recognized that hydrogen technologies will contribute to solving problems related to energy storage and balancing the network.

On the one hand, decarbonisation of the energy sector will result in the decommissioning of existing coal-fired units (e.g. Pątnów I and Pątnów II Power Plants), and on the other hand the transition of some of them (e.g. Konin Power Plant) into RES-based units. Despite the gradual departure from the use of coal for energy production, Eastern Wielkopolska should still be an important element of the National Energy System, acting as the national leader in the production and consumption of energy from renewable sources. It will be possible thanks to the popularization of the use of RES, including by launching new RES installations (in particular regarding wind energy and photovoltaics) or increasing the area of energy crops in the recovered areas degraded and devastated by the existing mining activities.

Increasing the share of RES in the energy mix and ensuring the reliability and stability of energy supplies requires a properly functioning and developed power system. Individual elements of the system are characterized by different age, degree of wear and transmission capacity - some networks and transformer stations are worn out, require modernization or reconstruction. In view of the above, it is important to take steps to modernize and expand the transmission system, in particular to evacuate power from existing generation sources and connect new capacities, and the distribution system, the development of which is also extremely important from the point of view of electromobility (the possibility of connecting charging points). According to WRSDP, it is necessary, in particular, to reconstruct the medium and low voltage networks, mainly in rural communes and smaller towns, as well as to build dedicated low voltage networks to supply electric vehicle charging points in larger

urban agglomerations[124]. It will also be important to wire medium voltage overhead lines by resigning from traditional, uninsulated wires in favour of underground cables and insulated wires, which is of particular importance for improving the network's resistance to various types of failures caused by weather conditions.

The development of RES installations, a large part of which will be based on sources dependent on weather conditions (working a limited number of hours a year - wind and solar energy), also requires the development of energy storage and intelligent energy management systems.

For the construction of the „Wielkopolska Valley of Energy", a comprehensive approach to the issue of zero emission and energy efficiency is of key importance. Therefore, an important element of the energy transition will be low-emission and energy-saving measures in sectors with a significant impact on the climate and air quality, i.e. industry, construction and transport.

The greatest potential for improving energy efficiency and reducing air pollutant emissions lies in all types of buildings (thermal modernisation and ensuring effective and environmentally friendly heating installations - if there is no possibility of connecting to the heating network), lighting (using energy-saving solutions), production processes (reducing their energy consumption) and in public collective transport.

A significant element of the energy transition will be the development of the aforementioned electromobility and an increase in the use of alternative fuels (including hydrogen). The driving force behind their development in Eastern Wielkopolska will be the inter-municipal public transport and public transport in Konin, the development of which is extremely important for post-mining areas. Closing mines and creating jobs in new economic development centre of the subregion, in particular in cities and suburban areas, will change the direction of the flow of goods and labour. This will create an opportunity to develop zero-emission public transport (as well as alternative means of transport), aimed at reducing the demand for transport by individual car transport companies. In terms of the development of electromobility and the use of alternative fuels, the very poorly developed vehicle charging/refuelling infrastructure is a barrier. In order to solve this problem, it will be necessary to build an appropriate infrastructure, as well as develop demand management mechanisms, and in the case of electromobility, additionally, the development of smart networks and increasing the capacity of distribution networks necessary to connect and operate charging points.

In the area of energy efficiency improvement, the construction sector shows the greatest potential in terms of reducing energy consumption and emissions, therefore it is

[124] *Spatial Development Plan of the Wielkopolska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Wielkopolska Region Parliament of 25 March 2019.

crucial to take measures to improve the energy efficiency of buildings and replace heat sources with appropriate standards. It is important to include households in the process of improving energy efficiency, in particular those affected by the problem of energy poverty, which significantly contribute to the so-called low emissions through waste incineration (despite the statutory ban) and low-quality solid fuels, e.g. fine, low-calorific dust, usually used in buildings equipped with old, low-efficiency and non-class boilers and stoves[125]. Therefore, the planned activities should focus on the poorest ones by supporting thermo-modernization and replacement of heat sources with ecological ones. Such an intervention should be supplemented with social activities, without which it is impossible to achieve the objectives set out in the *A wave of renovation for Europe*. strategy[126]. In this regard, it is particularly about using renovation as a lever to tackle energy poverty and to ensure that all households, including disabled and the elderly people ones, have access to 'healthy' housing.

To cover the thermal needs, in the first place, network heat should be used, produced on the basis of environmentally friendly heat sources, and only then should one strive to use pro-ecological individual installations. Therefore, measures will be taken to expand and improve the efficiency of district heating, which will help to reduce the problem of low emissions (fine dust and carcinogenic dust B (a) P), improve the quality of life and counteract energy poverty of the inhabitants.

Achieving climate neutrality by the subregion by 2040 and the leading position in the country in terms of reducing greenhouse gas emissions and using RES will require the development of an action strategy in the field of a pro-climatic approach to development in Eastern Wielkopolska. According to the adopted assumptions, it should be developed in 2021.

[125] Low emission is the emission of dust and gaseous pollutants from the municipal and housing sector (heating stoves and coal-fired boiler houses) and combustion gas transport. It is caused by numerous sources introducing small amounts of pollutants into the air.

[126] *A wave of renovation for Europe - greening buildings, creating jobs, improving the quality of life*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2020) 662 final, Brussels 2020.

Types of planned directions of intervention:

1.1.1. Development of renewable energy sources and distributed energy;

1.1.2. Development of hydrogen technologies;

1.1.3. Zero-emission energy sector resilient to climate change;

1.1.4. Zero-emission and energy-saving transport;

1.1.5. Zero-emission and energy-saving industry and construction.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.1. Energy (r)evolution towards climate neutrality**
Direction of Intervention	**1.1.1. Development of renewable energy sources and distributed energy**
Planned main types of activities	– development of prosumer energy; – establishing and supporting the development of energy clusters and cooperatives, including the "Green Energy – Konin" Energy Cluster and the "Clean Energy – Turek" Energy Cluster; – development of biogas plants and micro-installations; – construction and expansion of RES installations in the field of electricity and heat generation along with energy and heat storage; – support for enterprises producing equipment for renewable energy; – support for enterprises producing energy storage places; – creating consultation and advisory points in order to conduct investments in the field of RES.
Planned effects	– reduction of greenhouse gas emissions; – air quality improvement; – ensuring energy supplies during decommissioning of conventional generation capacities; – increase in the share of RES in final energy consumption; – increase in the number of entities producing energy.
Potential applicants	– inhabitants; – enterprises; – energy producers; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– energy consumers.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.1. Energy (r)evolution towards climate neutrality**
Direction of Intervention	**1.1.2. Development of hydrogen technologies**
Planned main types of activities	– support for the development of installations for the production of green hydrogen and its storage; – building a research sector for the development of hydrogen technologies; – establishment of the H2Lab Hydrogen Application Centre; – creating a cluster of green hydrogen producers; – introduction of hydrogen-powered public transport fleet with the necessary equipment; – adaptation of technical facilities to hydrogen vehicles and devices for servicing this type of vehicles; – construction of hydrogen vehicle distribution and refuelling infrastructure.
Planned effects	– reduction of greenhouse gas emissions; – wider use of hydrogen; – creating a „hydrogen valley" in the subregion.
Potential applicants	– enterprises; – energy producers; – research units; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– energy consumers; – academics; – using hydrogen-powered public transport.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.1. Energy (r)evolution towards climate neutrality**
Direction of Intervention	**1.1.3. Zero-emission energy sector resilient to climate change**
Planned main types of activities	– replacing coal combustion in RES and heating; – development of low-emission cogeneration and trigeneration; – modernization and expansion of heat and cooling distribution systems; – development of energy storage; – development of smart energy networks, including those for the purposes of RES; – expansion and modernization of energy networks in the direction of ensuring the stability of supplies and reducing energy transmission losses, as well as the possibility of evacuating power from existing generation sources or connecting new powers;

	– promoting the use of smart metering devices.
Planned effects	– reduction of greenhouse gas emissions; – reduction of losses in transmission and distribution networks; – reducing energy consumption.
Potential applicants	– energy companies; – LGUs and their organizational units.
Target groups	– energy consumers.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.1. Energy (r)evolution towards climate neutrality**
Direction of Intervention	**1.1.4. Zero-emission and energy-saving transport**
Planned main types of activities	– promoting the use of zero-emission and energy-efficient means of transport, including electric and hydrogen ones; – production of hydrogen-cell buses; – construction or adaptation of technical facilities to environmentally friendly vehicles, including electric ones, and devices for servicing such vehicles; – development of infrastructure for charging and refuelling environmentally friendly vehicles, including electric vehicles; – actions to integrate public transport and improve the flow of passengers, incl. development of transfer nodes; – popularization of intelligent transport systems; – development of infrastructure and shaping of space for non-motorized traffic, including the development of a system of bicycle routes or city bike systems; – creation of reduced transport emission zones; – developing electromobility development strategies by LGUs or their associations; – shaping pro-ecological transport attitudes.
Planned effects	– reduction of greenhouse gas and dust emissions; – air quality improvement; – improving energy efficiency; – development of electromobility; – increasing the number of public transport passengers; – increasing the integration of various types of transport; – increasing the attractiveness of public transport in relation to individual car transport; – increasing the ecological awareness of the inhabitants.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – public communication companies; – enterprises.
Target groups	– inhabitants.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.1. Energy (r)evolution towards climate neutrality**
Direction of Intervention	**1.1.5. Zero-emission and energy-saving industry and construction**
Planned main types of activities	– improving the energy efficiency of public and residential buildings along with the installation of RES equipment; – reducing energy poverty, including by: ▪ thermo-modernization of residential buildings and replacement of low-efficiency heating installations, ▪ accompanying social support, including support from social workers/assistants in obtaining compensation benefits in the event of an increase in the cost of maintaining the premises (e.g. housing or energy allowances), or available solutions to experienced social problems, ▪ support in debt management and economic education; – development of energy consulting; – development of financial instruments for financing activities in the field of improving energy efficiency, including in the housing sector; – improving the energy efficiency of buildings and production processes in enterprises along with the installation of RES equipment; – replacement of ineffective and high-emission heat sources with modern and ecological ones, in particular in housing; – popularization of intelligent construction.
Planned effects	– reduction of greenhouse gas emissions; – air quality improvement; – reducing energy consumption in buildings.
Potential applicants	– inhabitants; – enterprises; – housing communities and cooperatives; – energy companies; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– inhabitants.

Priority 1.2. Diversified and innovative economy with developed entrepreneurship

The key effects of the economic transition of Eastern Wielkopolska will be a more diversified economic structure with new specializations, as well as an increase in

entrepreneurship and the scale of new investments, especially in the areas of smart specialization. The above will counteract the economic slowdown, which will consequently reduce the risk of marginalization of the subregion.

Due to the existence of dominant enterprises in Eastern Wielkopolska with limited R&D potential, low level of innovative activity and technological advancement, it is important to stimulate R&D activity of entrepreneurs from the SME sector (and other entities in order to build innovative potential, increase competitiveness and develop new specializations of the subregion). In this respect, it is important to implement the open innovation model, according to which enterprises should not rely solely on the results of their own R&D works, but also use external sources of innovation through cooperation with various entities. Supporting R&D works and the development of innovation transfer in the subregion should be in line with the vision of transition of its economy based on coal and conventional energy into a zero-emission, innovative and strong economy based on new specializations, such as green energy (RES, electromobility and hydrogen technologies), circular economy, logistics, furniture industry, tourism or agriculture and agri-food processing. The economy of Eastern Wielkopolska should also draw on new development trends in the field of Industry 4.0, such as robotics, automation and the Internet of Things.

Increasing the level of competitiveness and innovativeness of the subregion requires the involvement of many partners. In addition to entrepreneurs who introduce new solutions to the market, an important role is played by business environment institutions, including technology transfer centre, industrial/innovation hubs or technology parks that provide pro-innovative services for entrepreneurs from the SME sector. Therefore, it is necessary to develop the offer and potential of existing BEI and create new ones, which are missing in the subregion (e.g. innovation/technology hubs or a technology park). Success in the form of a developed and diversified economy will not be possible without cooperation between various entities in the process of creating and implementing innovations and technology transfer, i.e. between enterprises, enterprises and the science sector or enterprises, the science sector and other entities. The pro-innovative and pro-development nature of cooperation between business and science is characteristic of clusters acting for economic development or innovation, the creation and daily operation of which should be facilitated by the economic transition of Eastern Wielkopolska.

The key factor necessary for the dynamic socio-economic development of the subregion is building an innovative and competitive SME sector. Supporting the establishment of enterprises and the development of economic activities implementing new solutions should translate into the creation of new jobs, in particular for people leaving mining and conventional energy, as well as for the unemployed and young people entering the labour market. This will make it possible to limit the phenomenon of unemployment and migration of inhabitants.

The current and future limitation of brown coal mining and energy production in the subregion is associated with the loss of jobs in the mining and energy sectors. Therefore, the priority is to create sustainable jobs in the supported enterprises, both existing and new ones, where the priority will be to include people leaving the mining and energy industries. Activities aimed at creating jobs will be related to the support targeted at new economic specializations of the subregion. Therefore, when identifying projects necessary for a just transition, not only criteria relating to the compliance of a given investment with the needs of the economy of Eastern Wielkopolska, but also those relating to the creation of high-quality jobs or employment growth will be considered. High-quality permanent jobs (competitive in terms of remuneration) should attract the inhabitants of the subregion, and in combination with a high quality of life, they should limit their economic migrations.

One of the main branches of the economy in Eastern Wielkopolska, which will have an important role to play in the process of its transition, is agriculture and agri-food processing. Undertaking activities in the field of sustainable agriculture and food production, aimed at reducing food losses and increasing the efficiency of processing (including through the use of food processing by-products) should increase its competitive advantage and profitability of agricultural production, as well as open up new business opportunities for farmers, providing them with a fair income. It will be important to stimulate activities releasing efficiency reserves related to the structure, technology or market opportunities, environmental protection or adapting the sector to consumer preferences. In particular, it is about considering those who attach increasing importance to the environmental (climate) footprint of products and ethical issues (in animal husbandry), not only focusing on individual use values and prices. In addition, the growing expectations of farmers in relation to the farm environment, resulting from the professionalization of the farmer's profession (the use of more and more professional equipment) forces the development of the non-agricultural sector in rural areas, which may consequently translate into an increase in employment in the farm service sector. The activities identified under specific objective 2 are also significantly related to the development of agriculture. Integrated high-quality space, responsible for the challenges related to the consequences of long-term brown coal mining.

For the future development of the subregion, significant will also be its strong and widely recognized economic brand „Wielkopolska Valley of Energy", based on high-quality products and services, as well as strengthening the position of enterprises on domestic and international markets and searching for new sales markets. It will also be necessary to strive to increase the level of investments undertaken in Eastern Wielkopolska by investors from outside this area (including foreign ones), which requires providing them with access to properly equipped investment areas with convenient communication access, as well as professional investor service in local governments. A significant problem hampering the

economic development of the subregion is the lack or obsolescence of local spatial development plans, the development of which is a significant expense for local governments. Therefore, financial support from communes in terms of their preparation should be considered important. Due to the natural potential and the presence of post-industrial areas, an important area of support for the economy should also be tourism, which has been recognized as a smart specialization of the subregion.

Types of planned directions of intervention:

- **1.2.1.** Development of research and development works, technologies and innovations in new specializations of the subregion;
- **1.2.2.** Development of BEI potential and professionalization of their activities as well as development of a cooperation network and knowledge exchange;
- **1.2.3.** Support for the creation of enterprises and the development of enterprises in the initial period of operation;
- **1.2.4.** Development of enterprises, in particular SME, in terms of adapting to the changing market and technological conditions;
- **1.2.5.** Development of agriculture and agri-food processing;
- **1.2.6.** Increasing the investment attractiveness of Eastern Wielkopolska;
- **1.2.7.** Support for the internationalization of enterprises and promotion of the subregion.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.1. Development of research and development works, technologies and innovations in new specializations of the subregion**
Planned main types of activities	– development of R&D infrastructure of scientific units, enterprises or their consortia for the benefit of the knowledge-based economy; – supporting R&D activities; – commercialization of R&D results through the diffusion of knowledge and technology to the economy; – development of R&D personnel and cooperation between various entities necessary to conduct industrial research and development works. The activities will be focused on the development of new specializations of the subregion, regional smart specializations and new trends in the economy (including robotics and automation).

	Enterprises should first of all use the potential of units located in the subregion (e.g. the State Higher Vocational School in Konin). However, due to the small number of research units and universities operating in Eastern Wielkopolska, it is possible for entrepreneurs to engage in research work also entities from outside its area, in particular from the Wielkopolska Region.
Planned effects	– implementation of new technologies and solutions in industry and services; – increase in the number of enterprises from the SME sector basing their activities on innovative solutions; – development of R&D activity of enterprises; – increasing cooperation between enterprises and the science sector.
Potential applicants	– research units and their consortia; – enterprises; – universities; – industrial and scientific consortia.
Target groups	– entrepreneurs; – students, doctoral students, research workers.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.2. Development of BEI potential and professionalization of their activities as well as development of a cooperation network and knowledge exchange**
Planned main types of activities	– development of BEI in the provision of innovative, highly specialized, advisory and training services in response to signals from the market (e.g. through expansion, renovation, or purchase of equipment or improvement of personnel competences); – building a support network (innovation hub) of the local ecosystem for a just transition of the subregion; – implementation of BEI services provided to entrepreneurs by electronic means; – building cluster connections.
Planned effects	– increasing business interactions; – improving the efficiency of BEI operations; – achieving the synergy effect thanks to the cooperation of various entities.
Potential applicants	– BEI – entrepreneurs.
Target groups	– entrepreneurs; – BEI employees.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.3. Support for the creation of enterprises and the development of enterprises in the initial period of operation**
Planned main types of activities	– building a start-up ecosystem; – comprehensive support for the incubation of start-up companies by innovative and technological incubators; – acceleration of new enterprises; – support through capital instruments of companies at the initial stage of development, in particular those established on the basis of the implementation of R&D results; – preferential guarantees/sureties for financial liabilities, incl. credits or development loans for entrepreneurs. Within this direction of intervention, preference will be given to undertakings contributing to the creation of new jobs and employment of people who have lost their jobs in the mining and energy industries.
Planned effects	– increase in employment that prevents an increase in unemployment due to the cessation of mining activities; – increase in the entrepreneurship of the inhabitants; – strengthening the system supporting the process of initiation and development of enterprises at the initial stage of development; – increase in cooperation between enterprises and BEIs providing advanced services to companies.
Potential applicants	– BEI – financial institutions.
Target groups	– enterprises; – people planning to start their own business.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.4. Development of enterprises, in particular SME, in terms of adapting to the changing market and technological conditions**
Planned main types of activities	– investments in enterprises, including the implementation of solutions related to the concept of Industry 4.0 and the creation of new jobs; – investments in enterprises to counteract the negative effects of crisis situations, including the COVID-19 epidemic. Within this direction of intervention, preference will be given to undertakings contributing to the creation of new jobs and employment of people who have lost their jobs in the mining and energy industries.
Planned effects	– increase in employment that prevents an increase in unemployment due to the cessation of mining activities; – increase in the investment activity of enterprises.
Potential applicants	– enterprises; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– enterprises.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.5. Development of agriculture and agri-food processing**
Planned main types of activities	– modernization of farms and agri-food processing plants aimed at increasing the level of technology, organization, digitization, reducing energy-related costs, as well as adapting production conditions and techniques to the requirements of environmental and climate protection; – supporting the creation and development of local agricultural and agri-food markets; – development of agricultural cooperatives, groups and associations of agricultural producers; – support for the production and distribution of traditional, regional, ecological and high-quality products; – creating and implementing innovative solutions in agriculture and the agri-food processing sector; – advisory services for farmers.
Planned effects	– increasing the competitiveness of agriculture; – increasing the profitability of farms; – increase in the use of innovative technologies in farms.

Potential applicants	– farmers; – entrepreneurs from the agricultural or food sector; – entrepreneurs from sectors operating for the benefit of the agricultural and food sector (e.g. producers of feed, fertilizers, machinery and equipment for production).
Target groups	– farmers; – entrepreneurs from the agri-food sector.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.6. Increasing the investment attractiveness of Eastern Wielkopolska**
Planned main types of activities	– support for the preparation of local spatial development plans; – creation and development of investment areas; – creating and maintaining a system of investor service and investment support. The first two types of measures do not cover post-industrial areas, including post-mining areas - this type of intervention for those areas is planned in the direction of intervention 2.1.1.
Planned effects	– creating a system for servicing investors in the subregion, including external ones; – improving investment attractiveness.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– enterprises.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.2. Diversified and innovative economy with developed entrepreneurship**
Direction of Intervention	**1.2.7. Support for the internationalization of enterprises and promotion of the subregion**
Planned main types of activities	– promotion of the economic and tourist potential of the „Wielkopolska Valley of Energy", incl. by: ▪ organization of events promoting the economic and tourist potential of Eastern Wielkopolska, ▪ presentation of the economic and tourist potential of Eastern Wielkopolska during domestic and foreign events, ▪ supporting the cooperation of enterprises, in particular with foreign partners, incl. through the participation of entrepreneurs in organized economic missions;

	– support for the internationalization of enterprises from the SME sector, including by improving the ability of enterprises to create products and services with high export potential.
Planned effects	– increasing the degree of cooperation of enterprises with domestic and foreign partners in order to effectively develop new sectors of the economy; – increase of investment and tourist attractiveness; – increased recognition of the „Wielkopolska Valley of Energy" brand; – increase in employment that prevents an increase in unemployment due to the cessation of mining activities;
Potential applicants	– LGUs or their associations; – entrepreneurs; – BEI.
Target groups	– entrepreneurs.

Priority 1.3. E-Eastern Wielkopolska

In the face of the economic transition of the subregion and faster technological changes, the development of the digital economy will be one of the important factors of social and economic changes. Smart cities and society 5.0 will play an important role in ensuring a fair and just transition to climate neutrality, therefore the subregion should be striving to „not lag behind" and implement the most up-to-date solutions in the field of digital transition.

It should be assumed that the development of the digital economy will bring tangible benefits, will contribute to an increase in productivity and work efficiency, the development of new forms of work, rationalization of expenses or the broadly understood optimization of the use of resources. A modern economy, based on digital services and Industry 4.0, will stimulate innovation by adapting business models, manufacturing processes or the products themselves to them. It will also support the more efficient use of resources, contributing to a more integrated circular economy and reducing the consumption of materials. With regard to post-mining areas and the development of the subregion's new specialization related to energy, it will be extremely important to implement digital solutions supporting environmental protection, including remote monitoring of the level of water and air pollution or monitoring and optimization of energy and natural resources use.

An element that should be considered in the development of Eastern E-Wielkopolska is the issue of open public data, and thus ensuring universal access to data of institutions and offices, which can bring many benefits (e.g. saving money and time) for both administration and inhabitants.

Making public resources available will allow for their greater use by entrepreneurs both in terms of using public information in the basic scope and building entrepreneurship based on public data.

For post-mining areas heavily degraded and polluted by human activity, it is important to improve the health of their inhabitants, which will be contributed by the development of digital health services, which are also necessary - as the experience from the COVID-19 epidemic period shows - for the proper functioning of the economy.

Post-industrial areas, including those directly or indirectly related to mining activities, should not be considered only in the context of risk factors and spatial degradation, but also as a future development potential. However, there is no complete and systematic information on their economic value, which could contribute to increasing the pace of restoring their usefulness and re-use for new purposes, and which could be used by both inhabitants interested in the resources of those areas and entrepreneurs interested in investing in post-mining areas. Therefore, it is necessary to conduct a detailed inventory of post-industrial areas, including post-mining areas, estimate the costs of their revitalization, indicate preferred development directions, as well as assess their investment attractiveness and environmental potential. In this respect, a digital, publicly accessible database with an internet platform will be a helpful and useful tool. For the development of a new subregional smart specialization (i.e. Renewable Energy Sources and modern energy technologies) it is also important to conduct a comprehensive inventory of the entire area of Eastern Wielkopolska, which will allow to identify areas that can be used for investments in the field of RES and create a publicly available database containing its results.

Increasing the attractiveness of the subregion in terms of living and working conditions is favoured by the implementation of modern concepts at the local level, such as Smart City or Smart Village. Support for the Smart City concept is part of action plans and strategies in other coal regions, such as Upper Nitra in Slovakia, Limburg in the Netherlands or Lusatia in Germany, which are doing a lot to become more attractive regions, including through the development of modern management technologies cities or the coverage of city areas with Wi-Fi networks.

The development of new technologies as part of the diversified economy of the subregion (automation, robotization, Internet of Things) or smart cities and villages will not be possible without providing access to ultra-fast Internet throughout its area or gigabyte access to the Internet in places that are the main driving force of socio-economic development, such as schools, research units, transport nodes, investment areas. It will also be of key importance to ensure better availability of the latest generation wireless networks,

in the first place in urban areas and in other centre of economic development of Eastern Wielkopolska, in particular located on the main communication routes.[127]

Despite the measures taken to develop the information society infrastructure or improve digital competences, the values of indicators relating to areas such as e-state and e-competences are still below the EU average. Therefore, in addition to the digitization of public administration, the automation of many industrial processes or the use of the potential of the Internet of Things, it is also necessary to educate inhabitants and adapt them to life in the digital world.

Types of planned directions of intervention:

- **1.3.1.** Improving competitiveness in the new economic specializations of the subregion thanks to digital technologies;
- **1.3.2.** Improving the quality of service for inhabitants and businesses thanks to digital services (including e-administration, e-health);
- **1.3.3.** Implementation of the Smart City and Smart Village concepts;
- **1.3.4.** Development of wired and wireless ICT infrastructure;
- **1.3.5.** Preparing society and various entities to create and use digital technologies.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.3. E-Eastern Wielkopolska**
Direction of Intervention	**1.3.1. Improving competitiveness in the new economic specializations of the subregion thanks to digital technologies**
Planned main types of activities	– process automation in enterprises, in particular leading to the improvement of energy efficiency or reduction of material consumption; – using modern digital solutions in enterprises, including cloud solutions, artificial intelligence or mobile technologies; – support for the development of trade conducted via the Internet; – business management with the use of IT solutions.
Planned effects	– development of innovative solutions in new specializations of the subregion; – strengthening the position of entrepreneurs of Eastern Wielkopolska on the market; – enterprises entering a new, higher level of development based on digital technologies; – popularization of solutions that improve the operations of enterprises.
Potential applicants	– entrepreneurs.
Target groups	– entrepreneurs;

[127] Based on: *National Broadband Plan*, Resolution No. 27/2020 of the Council of Ministers of 10 March 2020.

	– inhabitants; – other entities using implemented digital solutions.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.3. E-Eastern Wielkopolska**
Direction of Intervention	**1.3.2. Improving the quality of service for inhabitants and businesses thanks to digital services (including e-administration, e-health)**
Planned main types of activities	– implementation of digital solutions in the areas of environmental protection, energy and circular economy; – creation and development of a digital database on post-industrial areas, including post-mining areas, along with valorisation of those areas; – creation and development of a digital database of areas that can be used for investments regarding RES; – sharing open public data; – development of e-health systems and telemedicine services; – electronic management of public sector information resources, including digitization; – development of electronic systems for servicing citizens and entrepreneurs.
Planned effects	– improving investment attractiveness; – improving the attractiveness of the subregion as a place to work and live; – inventory of post-mining areas; – increasing and disseminating access to public services; – increasing the transparency and efficiency of public administration.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – other public entities.
Target groups	– inhabitants; – entrepreneurs; – non-governmental organizations; – public entities.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.3. E-Eastern Wielkopolska**
Direction of Intervention	**1.3.3. Implementation of the Smart City and Smart Village concepts**
Planned main types of activities	– implementing intelligent technological solutions for better management of cities and improving the organization of the urban

	fabric, in particular in the field of eco-technologies, eco-solutions and the Internet of Things; – implementing intelligent technological solutions to improve the quality and standard of living of rural inhabitants, in particular with regard to reducing the burden on the natural environment.
Planned effects	– making cities and villages more friendly places to live and encouraging people to work in the subregion; – building the information society; – improving the quality of urban and rural management.
Potential applicants	– entrepreneurs; – LGUs and their organizational units; – unions and associations of LGUs; – Local Action Groups; – farmers.
Target groups	– inhabitants and entities from urban areas; – inhabitants and entities from rural areas.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.3. E-Eastern Wielkopolska**
Direction of Intervention	**1.3.4. Development of wired and wireless ICT infrastructure**
Planned main types of activities	– construction of an ultrafast broadband network, i.e. networks with high capacity (at least 100 Mbps); – development of the latest generation of wireless systems (at least 5G networks); – providing gigabit access to the Internet for all places that are the main driving force of socio-economic development; – development of public Wi-Fi networks.
Planned effects	– creating better conditions for the development of new specializations of the subregion; – increase of investment attractiveness; – reducing the digital exclusion of inhabitants.
Potential applicants	– telecommunications companies; – LGUs and their organizational units; – unions and associations of LGUs; – entrepreneurs.
Target groups	– inhabitants; – entrepreneurs; – other recipients of the offered telecommunications services.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.3. E-Eastern Wielkopolska**
Direction of Intervention	**1.3.5. Preparing society and various entities to create and use digital technologies**
Planned main types of activities	– support for the development of digital education at the stage of pre-school education, incl. through the development of algorithmic thinking, dissemination of coding or familiarization with ICT tools; – development of digital competences of students of schools providing education at different levels of education; – adjusting industry education to the needs of the labour market in terms of the development of digital technologies; – appropriate preparation of pre-school teachers and schools providing education at various levels of education in the field of digital and methodological competences, enabling the conduct of digital education; – increasing digital competences of adults, including people at risk of social exclusion (e.g. seniors or inhabitants of rural areas as groups most at risk of exclusion), in particular in the field of developing Internet skills; – development of digital competences of employees.
Planned effects	– development of digital competences of inhabitants, in particular people who are in a difficult situation on the labour market due to transition and low digital competences.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – universities; – schools and kindergartens; – entrepreneurs.
Target groups	– inhabitants.

Priority 1.4. Circular economy

The depletion of raw material resources and an increase in their prices make it necessary to implement the concept of a circular economy as soon as possible, in which materials and raw materials remain in circulation for as long as possible, waste production is minimized, and the resulting waste is properly managed towards their use as raw material. The circular economy has great potential for the development of new economic activities, as well as the creation of new jobs, which are so important in the face of the liquidation of the mining sector in the subregion. There are great possibilities, including in terms of reducing the production and disposal of waste in landfills, as well as their re-use (including reuse of industrial wastewater or use of sewage sludge for various purposes), which should

consequently reduce the costs of running a business by enterprises and reduce the amount of fees incurred by the locals. Changing the economic model from linear to circular is therefore associated not only with environmental protection, but also with large savings and the possibility of creating an innovative economic sector.

The development of a circular economy will consider all stages of the product life cycle, starting from its design, through production and consumption, to waste collection and management. Sustainable industrial production will be supported, in particular in the field of economic management and re-use of water, including that from mining drainage (e.g. for irrigation of agricultural and forest land or for the creation of water reserves, e.g. in fire reservoirs). In addition, sustainable consumption will be developed, considering the management of municipal waste towards its recycling and reuse, as well as the bioeconomy[128]. A special role in the development of the bioeconomy will be played by agriculture and agri-food processing, which should additionally contribute to the implementation of the assumptions of the *„Farm to Fork" Strategy for a fair, healthy and environmentally friendly food system*[129].

Research on sustainable consumption shows that the level of consumer knowledge of Poles is still low. They also have little confidence in the actual impact of consumers on the environment they live in, and the price is still a decisive criterion when making a purchase. Research on environmental awareness shows that Poles are aware of the dangers of excessive use of resources, but they do not know the practical ways to prevent this phenomenon[130]. In this context, environmental education is key to the successful transition towards a circular economy.

Types of planned directions of intervention:

- **1.4.1.** Sustainable industrial production;
- **1.4.2.** Sustainable consumption;
- **1.4.3.** Bioeconomy development.

[128] Based on: Roadmap for transition towards a circular economy, Resolution of the Council of Ministers of 10 September 2019.

[129] *A farm to fork strategy for a fair, healthy and environmentally friendly food system,* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2020) 381 final, Brussels 2020.

[130] *Roadmap for transition towards a circular economy*, Resolution of the Council of Ministers of 10 September 2019.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.4. Circular economy**
Direction of Intervention	**1.4.1. Sustainable industrial production**
Planned main types of activities	– reducing the resource and material consumption of production processes in enterprises, including through measures to reuse water used for industrial purposes and giving preference to investments contributing to the reduction of the water footprint; – activities for the use of sewage and sewage sludge in the economy; – implementation of clean technologies in various sectors of the economy in order to prevent or reduce waste, including the implementation of BAT (Best available technology) by entrepreneurs; – supporting the development of innovative services in the field of the circular economy; – support for cooperation between enterprises to use waste as a resource.
Planned effects	– reducing the resource consumption of enterprises; – reducing the amount of waste generated; – reducing the negative impact on the environment; – development of a new specialization of the subregion regarding the circular economy.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – entrepreneurs.
Target groups	– inhabitants.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.4. Circular economy**
Direction of Intervention	**1.4.2. Sustainable consumption**
Planned main types of activities	– measures to reduce food waste; – supporting the recycling of waste and its preparation for re-use, in particular as regards the development of infrastructure supporting recycling, such as: ▪ installations for the treatment of separately collected green waste and other bio-waste, ▪ separate collection points for municipal waste, ▪ installations for recycling waste, especially packaging waste, ▪ effective automated installations for thorough cleaning of selectively collected waste fractions; – development of installations for processing components of wind farms and photovoltaic panels; – management of sewage sludge from municipal sewage treatment plants; – creation of repair and product reuse points; – development of the second-hand market and the exchange of second-hand goods; – promoting the zero waste idea, including in the trade of food products; – environmental education in the field of circular economy, including raising public awareness of the concept of water footprint.
Planned effects	– increasing the percentage of municipal waste recycled; – reducing the amount of landfilled waste; – reducing the amount of generated waste and applying the hierarchy of waste management methods; – increasing environmental awareness.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – non-governmental organizations.
Target groups	– inhabitants.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.4. Circular economy**
Direction of Intervention	**1.4.3. Bioeconomy development**
Planned main types of activities	– organic farming development; – precision agriculture development; – functional food production support; – rational use of fertilizers and plant protection products in agriculture;

	– promoting the restriction of the use of mineral fertilizers; – fertilization by irrigation with high-trophic surface waters; – creating and strengthening short supply chains; – creating economic zones on the border of agricultural land and waters; – creation and development of biorefineries and biogas plants.
Planned effects	– reducing the demand for non-renewable resources; – reducing soil degradation; – reducing the pollution of surface waters with nutrients; – reducing greenhouse gas emissions, in particular CO_2 and methane emissions; – job creation, especially in rural areas.
Potential applicants	– entrepreneurs; – farmers.
Target groups	– inhabitants; – farmers.

Priority 1.5. Competent, qualified and professionally active inhabitants

For the development of Eastern Wielkopolska, access to an appropriately qualified workforce, necessary to build a „new" economy of the subregion, is of key importance, especially in the face of a zero-emission and resource-efficient economy, progressing digital transition or automation and robotization. In this regard, it is important to raise the level of skills and qualifications of the inhabitants, in particular by improving the availability of various forms of lifelong learning and better adjustment of education and training to the current and future needs of the labour market. The priority here should be education for the needs of modern economy, focusing on industries/specializations of strategic importance for transition. Developing qualified personnel requires striving to develop key competences (starting from preschool and early school education), both basic and transversal, necessary on the labour market, but also enabling social inclusion, self-fulfilment and personal development. It is also important to develop educational and vocational counselling (from the level of primary school). Actions should also be taken to increase the popularity of vocational education, which should contribute to the introduction to the labour market of a greater number of qualified specialists with profiles corresponding to the current needs of the economy.

As regards the development of higher education in the subregion, support should cover activities aimed at involving universities in building its new specialization through modern education of students in faculties offering high employment opportunities. It is

also important to undertake activities aimed at opening branches of universities in Eastern Wielkopolska. Education at the higher level should include not only technical sciences, science or modern technologies, but should be supplemented by building broad social competences, e.g. through parallel education in the field of social sciences and humanities, and supplementing science programs with a number of subjects in the field of those sciences.

In the transition of the subregion, a key role in the coming years will be played by the professional activation of human capital from groups particularly threatened by unemployment and deactivation, especially people related to the fuel and energy sector, with outdated, often low qualifications and skills, as well as young, unemployed or economically inactive people. Actions will be taken to reconcile work and private life, increasing the chances of employing people who perform caring functions, including through the development of the childcare system.

Changing the economic specializations of Eastern Wielkopolska, adapting to the requirements of a zero-emission or circular economy, as well as technological progress will affect, in the long term, the nature of jobs - especially those requiring the development of new and high skills and creative thinking. Moreover, faster and faster changes on the labour market will force entrepreneurs and employees to be more flexible, including the ability to quickly adapt to changes. Therefore, it is important to strengthen the adaptability of employees and entrepreneurs, in particular by developing their competences and qualifications. Activities aimed at increasing the awareness of entrepreneurs in the scope of using the potential inherent in the experience of older people and combining this experience with the possibilities of young people, as well as adjusting workplaces to the needs of older people will also be important.

Types of planned directions of intervention:

1.5.1. Improving the quality of education and training and their better adjustment to the needs of the labour market, new specializations of the subregion or the modern economy;

1.5.2. Professional activation of human capital reserves and groups particularly threatened by unemployment and deactivation;

1.5.3. Strengthening the adaptability of entrepreneurs and employees, as well as farmers to change.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.5. Competent, qualified and professionally active inhabitants**
Direction of Intervention	**1.5.1. Improving the quality of education and training and their better adjustment to the needs of the labour market, new specializations of the subregion or the modern economy**
Planned main types of activities	– improving the quality of vocational and dual education tailored to the needs of the labour market, economic specializations of the subregion or modern economy, with particular emphasis on education in the field of renewable energy, circular economy, materials engineering; – increasing the popularity of vocational education, incl. through programs that encourage students to enter vocational training; – development of educational and vocational counselling in schools and educational institutions; – development of key competences at all levels of education; – adult skills development and re-skilling - lifelong learning; – improving the skills, competences or qualifications of teachers; – development of higher education tailored to the needs of the subregion's specialization; – increasing the educational and vocational mobility of students and teaching personnel and the internationalization of institutions providing vocational education.
Planned effects	– adjusting the vocational education offer to the changing economy of the subregion as a result of the transition (including the needs of the labour market); – deepened cooperation of schools (also leading bodies) and universities with entrepreneurs in the field of preparing students for work in the changing subregional economy; – increasing the employability of school graduates; – increasing the participation of adults in education and skills upgrading.
Potential applicants	– educational units; – universities; – LGUs and their organizational units; – unions and associations of LGUs; – social organizations; – enterprises.
Target groups	– students and teachers, in particular of vocational schools; – preschool children; – university students; – apprenticeship instructors; – adults who on their own initiative improve their competences; – entrepreneurs.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.5. Competent, qualified and professionally active inhabitants**
Direction of Intervention	**1.5.2. Professional activation of human capital reserves and groups particularly threatened by unemployment and deactivation**
Planned main types of activities	– support for the flow of labour resources from sectors threatened with job liquidation as a result of transition to other sectors of the economy, including: ▪ co-financing of employers hiring employees from the mining and energy sectors, ▪ courses, training for the retraining of employees, e.g. training vouchers; – services supporting the individual preparation of employees for change, including individual development services packages: analysis of professional predispositions, coaching, counselling, psychological and psychotherapeutic support; – vocational activation of the unemployed people or people in a difficult situation on the labour market, including support for young people entering the labour market in a subregion with a changing economic profile; – outplacement support for people at risk of losing a job, scheduled to be dismissed for reasons relating to the workplace; – support for people who want to start a business; – increasing access to childcare up to the age of 3; – undertaking actions to improve the quality of cooperation between labour market institutions, educational institutions and local employers in order to define the needs of the labour market. As part of projects implemented by people who received support for starting a business, it will be preferable to create new jobs and employ people who lose their jobs in the mining and energy industries.
Planned effects	– reducing the risk of unemployment of employees of enterprises undergoing adaptation processes in connection with the transition; – employment growth; – decline in unemployment; – growth of newly created enterprises and new jobs created in them.
Potential applicants	– labour market institutions; – LGUs and their organizational units; – unions and associations of LGUs; – universities; – legal persons and organizational units without legal personality; – entrepreneurs; – social organizations; – social economy entities/social enterprises.
Target groups	– people at risk of unemployment and professional deactivation, in particular related to the mining and energy sector; – unemployed; – economically inactive people.

Objective	**1. Dynamic and zero-carbon circular economy**
Priority	**1.5. Competent, qualified and professionally active inhabitants**
Direction of Intervention	**1.5.3. Strengthening the adaptability of entrepreneurs and employees, as well as farmers to change**
Planned main types of activities	– support for employees from sectors undergoing adaptation processes in connection with the transition in their retraining (by acquiring new skills and professional qualifications); – training and advisory services to meet the needs of enterprises; – training services to develop farmers' professional skills; – professional development services, including vocational qualification courses or vocational skills courses; – promoting the use of flexible forms of work; – implementing solutions in the field of age management and supporting the employment of over 50 years old people, including adapting workplaces to their needs. The first four types of activities will be directed in particular at the area of green and modern technologies, digitization and solutions in the field of Economy 4.0.
Planned effects	– increasing the level of competitiveness of enterprises; – improvement of the competences and qualifications of the employees of enterprises; – improvement of farmers' competences.
Potential applicants	– entrepreneurs; – universities; – advisers; – labour market institutions.
Target groups	– enterprise employees; – company management personnel; – farmers.

Specific objective 2.
Integrated high-quality space

Priority 2.1. Regenerated natural environment	Direction of Intervention: 2.1.1. Degraded areas development 2.1.2. Reconstruction of proper water conditions in the mine impact area

Priority 2.2. Adaptation to climate change	Direction of Intervention: 2.2.1. Increasing water resources and improving their quality 2.2.2. Protection and restoration of biodiversity and natural retention in the landscape 2.2.3. Limiting the effects of extreme phenomena, including adaptation of urban areas to climate change 2.2.4. Adaptation of agriculture to climate change
Priority 2.3. Transport accessibility improvement	Direction of Intervention: 2.3.1. Road connections adjusted to the needs of the subregion's transition 2.3.2. A developed railway system that guarantees efficient internal and external connections of the subregion

Economic development and improvement of the quality of life of inhabitants, while respecting environmental resources, requires the creation of an attractive and accessible space, the resources. Shaping the high-quality space in Eastern Wielkopolska will be supported by the implementation of activities focusing on three issues (priorities):

2.1. Regenerated natural environment;

2.2. Adaptation to climate change;

2.3. Transport accessibility improvement.

Priority 2.1. Regenerated natural environment

The industrial sector, including brown coal mining, has brought numerous economic benefits to Eastern Wielkopolska in recent years. At the same time, it had a very negative impact on the environment, causing various types of damage. Elimination of the negative impact of industry on the environment is part of the intervention under this priority.

Long-term industrial activity and brown coal mining by opencast methods resulted in the fact that the subregion is characterized by a very large degraded and devastated areas. These areas require actions aimed at restoring previous functions (including restoring lost biodiversity, including meadows and wetlands, or restoring lost ecosystem services) or their rational management in a new way, considering the needs to restore appropriate hydrological conditions, groundwater resources, retention potential or hydrological network. On the one hand, reclamation will be aimed at compensating for unfavourable changes caused by industrial activity, and on the other hand, it will be a way of developing an area important for the transition of the subregion (including the development of new economic activities). In order to increase the effectiveness of the revitalization process, post-mining areas can be used as „testing grounds" for the implementation of innovative

land reclamation techniques aimed at initiating the formation of natural habitats with high potential for natural, recreational and economic functions.

In the field of energy transition, it will be of key importance to designate areas for the location of installations for the production of energy from renewable sources and areas for the development of energy crops, considering their communication accessibility and technical infrastructure. It will also be important to use the tourist potential of the post-excavation areas, the appropriate development of which may contribute to the development of various forms of tourism and recreation in the subregion. In order to limit global warming, part of the post-mining areas will also be recultivated in for the forests purposes, which will translate into increased forest cover and an increase in the level of CO_2 absorption.

An important problem for the development of post-industrial areas of Eastern Wielkopolska, including post-mining areas, is the lack or obsolescence of local spatial development plans, the preparation of which is a significant expense for communes. In connection with the above, it will be important to provide financial support to communes in the area of developing local plans for post-industrial areas.

Brown coal mining led to a disturbance of water conditions, manifested by the disappearance of water resources in the area affected by extensive depression craters, thus intensifying the effects of the occurring drought, causing transformations in other components of the natural environment and agricultural land. In order to counteract those phenomena, it is necessary to take actions aimed at restoring proper water conditions, as well as restoring impoverished biodiversity and degraded water (and water-dependent) habitats. One of the first steps towards rebuilding proper water conditions should be conducting the necessary analyses and developing planning documents, and then implementing the objectives developed within them. It should be remembered that activities in this area should not be limited only to the area of the subregion, but also cover the neighbouring areas which are also affected by brown coal mines (e.g. the areas of the Kujawsko-Pomorskie Region). Without waiting for the final result of planning work, also steps to prepare and implement the necessary investments planned in advance, should be taken.

It should also be borne in mind that in the Warta river catchment area, apart from the open-pit Adamów and Konin mines, KWB Bełchatów is located, in the area of which it is planned to create the deepest water reservoir in the country. Water reclamation of open pits from the area of Wielkopolska and Łódź regions will require significant amounts of water, which may translate into „competition" for water from the Warta River. Therefore, there is an urgent need to retain water, as well as to coordinate activities in the field of water resource management in Eastern Wielkopolska with the activities undertaken for the needs of the Bełchatów mine.

In addition, due to the size of the Warta River resources, measures should be considered to enable faster flooding of post-mining excavations with water supplied from the surplus of the Vistula River.

Types of planned directions of intervention:

2.1.1. Degraded areas development;

2.1.2. Reconstruction of proper water conditions in the mine impact area.

Objective	**2. Integrated high-quality space**
Priority	**2.1. Regenerated natural environment**
Direction of Intervention	**2.1.1. Degraded areas development**
Planned main types of activities	– support for the preparation of local spatial development plans for post-industrial areas; – inventory and valorisation of degraded and devastated areas, including post-mining areas, in terms of their natural potential; – reclamation of post-industrial areas, including reclamation of part of post-mining areas for the purposes of forest and agriculture or recreation and leisure; – adaptation of post-industrial areas to perform new economic functions.
Planned effects	– reducing the negative impact of post-industrial areas on the environment; – development of new functions in degraded areas; – increase in the CO_2 absorption level; – improvement of water conditions; – increase of investment and tourist attractiveness; – implementation of new investments in post-mining areas saving unconverted areas.
Potential applicants	– ZE PAK Group (for the activities under the third indent); – entrepreneurs; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– investors; – tourists; – inhabitants.

Objective	**2. Integrated high-quality space**
Priority	**2.1. Regenerated natural environment**
Direction of Intervention	**2.1.2. Reconstruction of proper water conditions in the mine impact area**
Planned main types of activities	– development of planning document (s) for the restoration of proper water conditions in Eastern Wielkopolska, also in the neighbouring areas affected by KWB Konin and KWB Adamów, and implementation of activities included therein; – development of post-mining workings in order to fill them with water; – creation and operation of surface and groundwater recharge systems in the area of depression craters of exploited open-pit mines; – restoration of the hydrographic network and restoration of transformed watercourses; – stabilization of the water level of the following most degraded lakes lying in the catchments: Meszna, Grójec Canal, Ostrowo-Gopło Canal, Mała Noteć, Panna, as well as the lakes of the upper Noteć; – restoration of wetlands in areas affected by mines.
Planned effects	– increase of amount of available water resources; – development of the economy, in particular tourism and agriculture.
Potential applicants	– Państwowe Gospodarstwo Wodne Wody Polskie; – ZE PAK Group; – LGUs and their organizational units; – unions and associations of LGUs.
Target groups	– inhabitants.

Priority 2.2. Adaptation to climate change

Activities in the field of adaptation to climate change are one of the main challenges of Eastern Wielkopolska. The key to this issue is to restore the natural retention and increase the available water resources. It may occur, in particular, by levelling the depression craters of the Adamów and Konin open pit mines, preventing too fast runoff of rainwater and meltwater as a result of their appropriate retention, as well as through the improvement of water quality and their sustainable use (extremely important for the quality of human life and the proper functioning of ecosystems). The directions of intervention of this priority are strongly related to the direction of intervention 2.1.2. Reconstruction of proper water conditions in the mine impact area.

An important „ally" in the fight against climate change is nature and biodiversity, which are limited by human activities. In terms of counteracting and adapting to climate change (in particular by water retention and increasing the level of CO_2 absorption), it is important to protect and restore wetlands and peatlands, as well as afforestation and improve the condition and diversity of agricultural ecosystems.

Progressive climate change also contributes to the occurrence of unpredictable, more frequent and more and more catastrophic extreme weather events (heat wave, torrential rainfall that can cause flooding at any time of the year, hurricanes or fires). In this respect, urbanized areas, which are characterized by insufficient adaptation to the progressing climate change, are in a particularly disadvantageous situation. It is caused, among others, by high levels of sealed surfaces and insufficient development of blue and green infrastructure. In the case of rainwater management, it is crucial to take measures to keep it and manage it as close as possible to the place where it is created.

Climate change has a negative impact on the agricultural sector, reducing the yield of crops and livestock. Moreover, they contribute to limiting the availability of water and the need to irrigate crops, which in the case of Eastern Wielkopolska is limited due to the water deficit in this area. The adaptation of agriculture to climate change is therefore crucial for the further development of this sector of the economy. Importantly, measures aimed at adapting agriculture to climate change will also serve to generally improve water conditions in the subregion.

Types of planned directions of intervention:

2.2.1. Increasing water resources and improving their quality;

2.2.2. Protection and restoration of biodiversity and natural retention in the landscape;

2.2.3. Limiting the effects of extreme phenomena, including adaptation of urban areas to climate change;

2.2.4. Adaptation of agriculture to climate change.

Objective	**2. Integrated high-quality space**
Priority	**2.2. Adaptation to climate change**
Direction of Intervention	**2.2.1. Increasing water resources and improving their quality**
Planned main types of activities	– types of measures listed in intervention direction 2.1.2, relating to the mine impact area; – development of micro and small retention; – development of water supply and sewage systems, including modernization and construction of new drinking water intakes, and municipal wastewater treatment; – activities aimed at the use of closed-circuit water or its re-use; – creation of highly efficient economic zones of the river system and water reservoirs, in particular at the border of agricultural land; – educational and training activities, including training on proper water management, as well as information and education activities.

Planned effects	– increase of amount of available water resources; – increasing resistance to the risk of drought; – biodiversity increase; – improving the quality of surface and groundwater; – ensuring access to clean water for society and the economy; – water losses reduction; – improving the conditions for running a business; – increasing the awareness and knowledge of inhabitants about proper and economical water management.
Potential applicants	– Państwowe Gospodarstwo Wodne Wody Polskie; – LGUs and their organizational units; – State Forests National Forest Holding.
Target groups	– inhabitants.

Objective	**2. Integrated high-quality space**
Priority	**2.2. Adaptation to climate change**
Direction of Intervention	**2.2.2. Protection and restoration of biodiversity and natural retention in the landscape**
Planned main types of activities	– preservation and restoration of natural habitats, especially meadow and wetland habitats; – creation of mid-field trees; – increasing forest cover and adapting forests to climate change.
Planned effects	– restoration of natural retention capacity; – slowing down the outflow of waters from the catchment area; – increase of amount of available water resources; – increased resistance of areas to the effects of drought; – biodiversity increase; – increase in the CO_2 absorption level; – reducing the risk of flooding; – improving the quality of water.
Potential applicants	– LGUs and their organizational units; – social organizations; – scientific and research institutions; – State Forests National Forest Holding and its organizational units; – forest land users; – Regional Directorate for Environmental Protection.
Target groups	– inhabitants.

Objective	**2. Integrated high-quality space**
Priority	**2.2. Adaptation to climate change**
Direction of Intervention	**2.2.3. Limiting the effects of extreme phenomena, including adaptation of urban areas to climate change**
Planned main types of activities	– anti-flood investments, incl. construction of hydrotechnical facilities or ecological flood protection; – preparation/updating and implementation of urban climate change adaptation plans; – development of green and blue infrastructure for micro and small retention in urbanized areas, in particular in areas with the highest intensity of development; – creating overhead corridors to maintain spatial connectivity between open and urban areas and within them; – protection of the existing and creation of new urban and rural parks or squares, restoration of trees along the streets; – elimination of paved surfaces and extensive implementation of good practices in the field of adaptation of cities to climate change and protection of urban biodiversity (including creating flower meadows, limiting mowing, creating „rain gardens"); – adaptation of infrastructure to extreme weather phenomena; – construction and modernization of storm water drainage.
Planned effects	– increased resistance to the risk of drought; – increase in retention of rainwater and meltwater at the place of their creation; – better adaptation of urban space to the effects of climate change; – counteracting the occurrence of flooding, including in urban areas.
Potential applicants	– LGUs and their organizational units; – The State Water Holding Polish Waters.
Target groups	– inhabitants, especially in urban areas.

Objective	**2. Integrated high-quality space**
Priority	**2.2. Adaptation to climate change**
Direction of Intervention	**2.2.4. Adaptation of agriculture to climate change**
Planned main types of activities	– development of micro-retention on agricultural land through restoration and protection of ponds, improvement of soil micro retention (e.g. by using humus), as well as collection and storage of water from the roofs of buildings and paved surfaces within farms; – reconstruction of the existing drainage facilities from drainage to irrigation-drainage and water storage; – liquidation of unnecessary drainage devices;

	– implementation of good agricultural practices minimizing the production of pollutants with the use of biotechnological and ecohydrological solutions; – promoting good agrotechnical practices conducive to water retention and adapted to new climatic conditions; – promoting the introduction of cultivars with high and stable yield in the current climatic conditions; – Retention payments for agricultural land outside Natura 2000 areas: meadows, pastures, grasslands and wastelands where ploughing and other intensive use have been stopped and water retention has been increased in line with the needs of natural habitats and the principles of agri-environmental programs.
Planned effects	– increase in soil water retention; – limiting/slowing down the runoff of waters from surface runoff to rivers; – slowing down the drying up of fields, which will contribute to reducing the risk of agricultural drought; – increasing biodiversity in agricultural areas.
Potential applicants	– farmers; – LGUs and their organizational units; – water users; – owners of land reclamation facilities.
Target groups	– inhabitants of rural areas; – farmers.

Priority 2.3. Transport accessibility improvement

One of the main factors of development is an efficiently functioning transport system. In this regard, it is important to improve the transport accessibility of labour markets and public services, as well as to increase the mobility of inhabitants. The above is of particular importance in the case of the transition of mining regions, where the reorientation of economic specializations occurs, which entails a change in the directions of the flow of goods and people.

The transition of Eastern Wielkopolska will certainly contribute to the growth of mobility towards the economic activity centre of the „new economy" of the subregion, which will require new or improved communication connections.

In this context, it also seems important to properly connect brownfields included in the socio-economic circulation, which will be restored or given new functions. In the field of road transport, it will be important to modify the subregion's road system, in particular to adapt the existing network to the needs of the changing economic profile and the increase in traffic intensity. From a technical point of view, the changes will include ensuring efficient

connections with junctions, construction of bypasses, as well as raising the technical standards of roads. The road investment of regional and national importance will be of key importance for the national road No. 25, connecting the subregion with other parts of the country on the north-south line, as well as the improvement of the standard of national roads Nos. 72 and 92. For a comprehensive approach to the modernization of roads, complementary elements should include investments in the construction of road traffic organization and safety devices, construction of sidewalks, bicycle paths, pedestrian and driveways, as well as accompanying infrastructure in the road lane not related to the road (e.g. in terms of environmental protection or information society infrastructure).

An efficient system of transport connections in Eastern Wielkopolska, including connections with the largest cities, is particularly important for ensuring the pro-development impact of those centre, activation of internal potentials, development of new specializations of the subregion, but also for ensuring territorial cohesion. Importantly, a good-quality transport system should not be associated only with a properly functioning network of roads, but also with a developed railway system, which is additionally a response to social expectations regarding environmental protection. Due to the limited internal availability of railway infrastructure, the construction of the Konin - Turek railway line, aimed at closing the gap in the railway network system, is of key importance. Increasing the internal accessibility of railway communication can also be seen in the adaptation of railway lines operating for the needs of the mining industry for internal public transport and freight transport. The first step towards building internal railway connections in Eastern Wielkopolska, using those lines, should be a feasibility study, including an analysis of the demand for rail transport, which should consider the outlined directions for the transition of the subregion.

The mere construction of new or the adaptation/revitalization of existing railway lines will not make railway communication an attractive alternative to individual car transport. Therefore, it is crucial to integrate rail transport with other means of transport, as well as ensure the appropriate frequency of trains and travel comfort, as well as the availability of railway stations and stops.

The success of public transport in Eastern Wielkopolska will also depend on well-functioning zero-emission and energy-efficient public (bus) urban and inter-communes transport. The effect of the measures taken within the analysed area should be the creation of an integrated transport offer tailored to the needs of inhabitants and entrepreneurs, covering both rail and bus transport. In this respect, this priority will be closely related to intervention line 1.1.4., Concerning the development of zero-emission and energy-efficient public transport and urban mobility. Investments in the development of rail freight and intermodal infrastructure, including the construction of an intermodal terminal in Konin, are also important for the further economic development of the subregion, favouring the

construction of supply chains based on environmentally friendly forms of transport.

Types of planned directions of intervention:

2.3.1. Road connections adjusted to the needs of the subregion's transition;

2.3.2. A developed railway system that guarantees efficient internal and external connections of the subregion.

Objective	**2. Integrated high-quality space**
Priority	**2.3. Transport accessibility improvement**
Direction of Intervention	**2.3.1. Road connections adjusted to the needs of the subregion's transition**
Planned main types of activities	– construction and modernization of road engineering structures for the needs of economic transition, including adapting the network of national and regional roads to the pressure of 11.5 t/axle; – construction of road bypasses in localities affected by heavy transit traffic nuisance; – construction of bicycle paths, footpaths and sidewalks as well as accompanying infrastructure in the road lane; – construction of road traffic organization and safety devices; – development of intercity collective passenger transport, including the replacement of rolling stock, in order to connect peripheral areas with subregional and local development centre.
Planned effects	– increased road accessibility to subregional and local growth centre and excluded areas; – road safety improvement; – improving the availability of development centre for the new economy of the subregion; – redirection of heavy goods transport related to the development of new economic centre outside the city areas; – improvement of technical parameters of roads; – increase in the mobility of inhabitants; – increase of investment attractiveness.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – General Directorate of National Roads and Highways JCS
Target groups	– inhabitants; – entrepreneurs; – road users; – tourists.

Objective	**2. Integrated high-quality space**
Priority	**2.3. Transport accessibility improvement**
Direction of Intervention	**2.3.2. A developed railway system that guarantees efficient internal and external connections of the subregion**
Planned main types of activities	– construction of the Konin - Turek railway line; – construction of a reloading terminal with warehouses; – purchase or modernization of rolling stock for the purpose of servicing the constructed/adapted lines; – development of railway connections with the use of post-mining railways; – construction, expansion or reconstruction of railway stations and stops.
Planned effects	– development of rail transport for the needs of the subregional economy; – improving the availability of development centre; – increased number of passengers of collective public transport; – elimination of the gap in the railway infrastructure in the subregion; – increase in the mobility of inhabitants.
Potential applicants	– railway infrastructure managers; – LGUs, their unions and associations; – Local Government of the Wielkopolska Region.
Target groups	– inhabitants; – entrepreneurs; – tourists.

Specific objective 3.
Active society

Priority 3.1. Strong social capital	Direction of Intervention: 3.1.1. Increasing the activity and cooperation of inhabitants 3.1.2. Protection of heritage and participation in culture, as well as strengthening the identity of the inhabitants 3.1.3. A wide range of leisure industry services, including sports and tourism 3.1.4. Revitalization of cities and rural areas
Priority 3.2. Modern social services	Direction of Intervention: 3.2.1. Social inclusion of people affected by the transition towards climate neutrality 3.2.2. Social integration of people and groups at risk of poverty and exclusion 3.2.3. Development of services and social infrastructure in the local environment

Priority 3.3. Healthy inhabitants	Direction of Intervention: 3.3.1. Disseminating prophylaxis and health diagnostics as well as health promotion 3.3.2. Improving the availability and quality of health services

This detailed objective is directed primarily to the inhabitants of Eastern Wielkopolska in the context of the issues of integration and social inclusion, demographic changes or building a subregional identity using cultural potential, as well as shaping appropriate attitudes and behaviours to develop social trust, community, cooperation, openness, creativity, innovation and communication. In this area, activities will be concentrated within the following priorities:

3.1. Strong social capital;

3.2. Modern social services;

3.3. Healthy inhabitants.

Priority 3.1. Strong social capital

A high level of social capital is considered to be an important factor in dynamizing the socio-economic development of a given area, therefore, in the transition of Eastern Wielkopolska, it is worth considering, apart from the competences and qualifications of the inhabitants, also the element related to their activity and involvement in the affairs of the local community. Increasing the level of participation of inhabitants in local social relations will be a tool for their adaptation to the changing environmental conditions as part of the ongoing transition of the economy. Increased availability of information, mutual trust and tolerance, as well as making new friends, should make it easier for inhabitants to make decisions about the future. They should also improve the situation on the labour market, which may be of significant importance, in particular, for people related to the mining and energy sectors. Increasing the quality of social capital will also contribute to better cooperation and increasing the effectiveness of activities undertaken for the development of the subregion. The increase in the level of social capital will be influenced by activities increasing the civic activity of inhabitants and their involvement in public life, aimed in particular at people who will feel the most negative effects of the transition of Eastern Wielkopolska.

It is planned to support the development of the third sector, i.e. non-governmental organizations, which very often initiate cooperation between various social groups. Priority will be given to strengthening the activities of social partners, civil society organizations and the development of volunteering. Active inclusion of non-governmental organizations

in the widest possible scope of activities is extremely important for the effective transition of the subregion, therefore they should be involved not only in projects aimed at creating strong social capital, but also in activities related to other areas, e.g. environmental protection or the labour market. Building social capital should occur from an early age, hence an important role in shaping attitudes and behaviour patterns as well as learning cooperation should be assigned to the education system.

Moreover, projects aimed at using and strengthening the existing tourist potential and cultural values of the subregion will be implemented, which in the first place are to meet the needs of inhabitants in terms of spending free time and strengthening the sense of community and identity. Active participation in culture will also shape communicativeness, cooperation skills, openness and imagination, and thus creativity and innovation. These features can be a significant catalyst for development activities, contributing to income growth and the creation of new jobs.

Actions will also be taken to strengthen the subregional identity, aimed at increasing the sense of identification and ties with Eastern Wielkopolska, as well as civic attitudes, which are the basis for building social capital, using the cultural potential of this area. In addition to strengthening the subregional identity, it is also necessary to strengthen the regional identity, which will be possible by referring to traditions and achievements, as well as cultivating the values of previous and modern generations of the inhabitants of Wielkopolska.

The development of social ties and active and joint spending of free time will be possible thanks to the development of various forms of tourism, sport and recreation in Eastern Wielkopolska. The development of social capital in areas in crisis due to the concentration of social problems, which are most often accompanied by economic, demographic, spatial and environmental problems, will also be important.

Types of planned directions of intervention:

- **3.1.1.** Increasing the activity and cooperation of inhabitants;
- **3.1.2.** Protection of heritage and participation in culture, as well as strengthening the identity of the inhabitants;
- **3.1.3.** A wide range of leisure industry services, including sports and tourism;
- **3.1.4.** Revitalization of cities and rural areas.

Objective	**3. Active society**
Priority	**3.1. Strong social capital**
Direction of Intervention	**3.1.1. Increasing the activity and cooperation of inhabitants**
Planned main types of activities	– supporting the development of the non-governmental organizations and voluntary sector; – supporting activities in the field of social dialogue and cooperation; – strengthening partnership and other forms of cooperation between public administration and third sector entities; – civic education; – animating the inhabitants' activity for local development; – development of civic competences and attitudes.
Planned effects	– increasing the involvement of citizens and various organizations in public life; – increasing the competences of third sector organizations; – developed partnership between the public sector and non-governmental organizations.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – non-governmental organizations.
Target groups	– inhabitants.

Objective	**3. Active society**
Priority	**3.1. Strong social capital**
Direction of Intervention	**3.1.2. Protection of heritage and participation in culture, as well as strengthening the identity of the inhabitants**
Planned main types of activities	– actions to improve the quality and diversity of the cultural offer, including with the use of digital technologies; – promoting various forms of participation in culture; – investments in the preservation of historic buildings; – developing cultural education programs; – organizing cultural events aimed at nurturing Polishness as well as developing and shaping national, regional and subregional awareness of the inhabitants; – development of cultural tourism; – improving the availability of cultural heritage resources, incl. through the use of digital technologies.
Planned effects	– strengthening the sense of subregional identity; – improving the quality of social and cultural lives of inhabitants; – increase of the tourist attractiveness of the subregion.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs;

	– cultural institutions; – non-governmental organizations; – churches and other religious organizations; – entrepreneurs.
Target groups	– inhabitants; – tourists.

Objective	**3. Active society**
Priority	**3.1. Strong social capital**
Direction of Intervention	**3.1.3. A wide range of leisure industry services, including sports and tourism**
Planned main types of activities	– development of sports, recreational and tourist infrastructure, including infrastructure for the protection of the natural environment, facilitating the channelling of tourist traffic; – creating public spaces conducive to undertaking physical activity; – promoting physical activity among inhabitants; – physical activation of inhabitants, in particular children, adolescents and the elderly people; – creating places of social integration that enable spending free time together in public spaces; – organization of free time for children and youth with particular emphasis on cultural, social, artistic and sports activities.
Planned effects	– increasing the quality of social capital; – improving the health of inhabitants; – improving the quality of social life of inhabitants; – increase of the tourist attractiveness of the subregion.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – entrepreneurs; – universities; – State Forests National Forest Holding and its organizational units; – social organizations; – non-governmental organizations.
Target groups	– inhabitants; – social organizations; – non-governmental organizations; – tourists.

Objective	**3. Active society**
Priority	**3.1. Strong social capital**
Direction of Intervention	**3.1.4. Revitalization of cities and rural areas**
Planned main types of activities	– comprehensive implementation of activities in degraded areas (resulting from revitalization programs) aimed at bringing them out of the crisis state and increasing the social and economic activity of their inhabitants, e.g. by restoring or giving them new social, economic, environmental, spatial-functional and technical functions.
Planned effects	– increased social and economic activity of the inhabitants of degraded areas; – giving and restoring degraded areas their functions, especially social ones; – taking degraded areas out of a crisis state; – improving the living conditions of the local community.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – non-governmental organizations; – institutions of assistance and social integration; – cultural institutions; – churches and religious organizations; – entrepreneurs; – educational institutions; – universities; – labour market institutions; – social organizations; – housing communities and cooperatives; – social housing associations.
Target groups	– inhabitants of degraded areas.

Priority 3.2. Modern social services

According to the 2030 Agenda, the transition effort should focus on eliminating poverty in all its manifestations, which in the subregion is at a relatively high level, compared to other areas of the Wielkopolska Region[131]. It is a necessary condition for sustainable development for the simultaneous implementation of a number of activities from various spheres. The socio-economic transition related to the extinction of the mining industry entails the need to develop and achieve a certain state of social mobilization, in the positive sense - readiness for changes. The transition occurring in the economy and

[131] *We transform our world: 2030 Agenda for Sustainable Development,* Resolution adopted by the United Nations General Assembly, A/RES/70/1, 2015.

industry must be accompanied by a profound social change, related to the acceptance of different functioning on the labour market, changes in lifestyle and the way of thinking about oneself in the context of the place in the local community. Therefore, in addition to projects implemented in the economic or environmental area, it is important to take actions to solve the problems of poverty and social exclusion of families and people belonging to high social risk groups, who are not able to improve their life situation without support. The aspect of empowerment of entire local communities and preventing the phenomenon of learned helplessness is also important. Actions in the field of social inclusion of jobseekers, especially women, people with disabilities and other social groups at risk of marginalization, will be necessary. In this regard, an important element will be the development in Eastern Wielkopolska of services provided by local communities and the development of social infrastructure in the local environment.

Actions in the field of social policy should focus on employees (and their families) who have lost their jobs due to the transition towards a zero-emission economy, in particular those employed in the mining and energy sector. The energy transition of the subregion, the key effect of which will be the termination of mining activities and coal-based energy, and thus the elimination of many jobs, may translate into an increase in the intensity of social problems resulting from difficulties in finding new employment. Currently, one of the main reasons for providing social assistance in Eastern Wielkopolska is unemployment, which confirms the need to strengthen services addressed to groups of employees threatened with changes related to the transition (and their families).

In actions related to poverty, the issue of energy poverty of the inhabitants of the subregion should also be considered. The increase in its scale, which will also be influenced by climate change, may result in an increased risk of social exclusion. Institutions operating and strongly rooted in local communities are social economy entities. Their influence on building social cohesion is crucial for supporting the transition towards climate neutrality. Therefore, the actions taken should also include those that will allow the inclusion of social economy entities in a green transition. Key in this aspect may be their involvement in projects aimed at reducing the scale of poverty, as well as at increasing the ecological awareness of the inhabitants of the need to use energy efficiently.

Due to demographic changes, including the aging of the population, it is important to target support also at seniors. They should have access to specialized services, as well as to information and advisory institutions and units. It is necessary to take steps to coordinate social services with health services. It is planned to develop services provided in de-institutionalized forms in the place of residence of older people, e.g. in the form of community self-help houses or day care homes, as well as protected and assisted dwellings. Actions should also be taken to strengthen senior communities through local animation of those communities. This will be achieved, among others, by creating senior clubs or local

senior councils, supporting universities of the third age, as well as undertaking intergenerational activities.

Types of planned directions of intervention:

3.2.1. Social inclusion of people affected by the transition towards climate neutrality;

3.2.2. Social integration of people and groups at risk of poverty and exclusion;

3.2.3. Development of services and social infrastructure in the local environment.

Objective	**3. Active society**
Priority	**3.2. Modern social services**
Direction of Intervention	**3.2.1. Social inclusion of people affected by the transition towards climate neutrality**
Planned main types of activities	– services supporting the individual preparation of employees to be changed, including individual packages of development services (analysis of professional predispositions, coaching, counselling, psychological and psychotherapeutic support, related to vocational training and other forms of improving competences and qualifications); – implementation of programs supporting the socio-professional activity of women from families affected by transition (analysis of professional predispositions, coaching, counselling, psychological and psychotherapeutic support, related to vocational training and other forms of improving competences and qualifications); – implementation of programs supporting educational, social and professional activity of children and adolescents from areas affected by transition (psychoprophylaxis in schools, programs supporting causative and entrepreneurial competences, strengthening the educational and vocational counselling system); – development of assisted, supported and social employment services and support for job creation in social enterprises; – building a counselling system (legal, psychological, family) and crisis intervention for people and families struggling with problems directly or indirectly related to the transition process (e.g. legal, economic, psychological problems); – implementation of programs supporting the social cohesion of local communities, especially in areas inhabited by people most affected by transition (e.g. using the method of local community organization); – implementation of programs concerning the preparation of inhabitants for the energy transition - environmental education, programs for reducing energy poverty; – support for the personnel of social integration institutions and the education system in the field of crisis intervention;

	– support for the availability of preventive services in the field of mental crisis prevention; – support for LGUs in the field of social change management in their area.
Planned effects	– reducing the risk of possible negative effects that may accompany the socio-economic transition, including, in particular: poverty, social exclusion, mental crises; – return to the labour market of people from high social risk groups; – full participation in the social life of people supported; – reducing poverty and exclusion; – increasing the potential of LGUs to manage social changes in their area.
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – social economy entities; – entities working for social integration and social inclusion.
Target groups	– people directly and indirectly affected by the socio-economic transition, especially workers losing their jobs (and their families).

Objective	**3. Active society**
Priority	**3.2. Modern social services**
Direction of Intervention	**3.2.2. Social integration of people and groups at risk of poverty and exclusion**
Planned main types of activities	– implementation of economic education programs; – building a counselling system for people in a difficult situation (e.g. legal, psychological systems); – initiatives enabling the use of the potential and experience of older people; – increasing the availability of services supporting the family in its tasks and functions, e.g. creating local clubs for families, assistance services for families with care and upbringing problems; – creating child support initiatives, including running day support centre in the form of backyard work; – counteracting loneliness and marginalization of seniors (e.g. implementing innovations developed within local incubators); – support for people and families at risk of energy poverty; – limiting the scale of digital exclusion, especially among seniors; – stimulating local activity of inhabitants in order to overcome individual and group problems.
Planned effects	– return to the labour market of people from high social risk groups; – full participation in the social life of people supported; – reducing poverty and exclusion;

	– strengthening the sense of influence and perpetration of people from socially marginalized/excluded groups, and thus building a positive self-esteem; – supporting people from risk groups in maintaining daily life activities; – further functioning of people in need of support in „normal life".
Potential applicants	– LGUs and their organizational units; – unions and associations of LGUs; – social economy entities; – universities; – entities operating in favour of social and professional activation, whose primary task is not economic activity.
Target groups	– people at risk of poverty and/or social exclusion; – environment of people at risk of poverty and/or social exclusion.

Objective	**3. Active society**
Priority	**3.2. Modern social services**
Direction of Intervention	**3.2.3. Development of services and social infrastructure in the local environment**
Planned main types of activities	– development of activation and integration services in the social and professional terms; – development and popularization of environmental forms of care services; – support for Supported Employment systems; – development of social work; – activities supporting the socio-professional activity of elderly carers; – development of services enabling the elderly to lead an independent life in the current environment, e.g. day nursing homes, care services in the place of residence; – development of 24-hour care, including social welfare homes; – increasing the availability of assisted and sheltered housing; – development of social innovations, e.g. multi-generation houses; – development of social employment entities, incl. social integration centre and clubs; – support for organizations working for the benefit of excluded people and seniors; – supporting activities involving social economy entities in the green transformation.
Planned effects	– social inclusion of marginalized groups and groups and at risk of marginalization; – economic and social independence of people covered by the activities.
Potential applicants	– LGUs; – unions and associations of LGUs; – social welfare centre;

	– district family support centre; – social economy entities; – housing cooperatives, social housing associations. – non-governmental organizations.
Target groups	– people at risk of poverty and/or social exclusion; – environment of people at risk of poverty and/or social exclusion.

Priority 3.3. Healthy inhabitants

The state of health has a significant impact on the quality of human capital and the quality of life of inhabitants, as well as determines their professional activity. In conjunction with the low level of health care, it poses a serious challenge for the development of the subregion, also in the face of progressing climate change, which increasingly affects health (e.g. extreme heat poses a particular threat to children and the elderly).

As part of the priority, it is necessary to undertake a number of measures in the field of prevention and early diagnosis, improvement of the quality and availability of health care services, development of long-term care, and - especially important due to the aging of the society - hospice and geriatric care. The challenge is to increase access to specialized healthcare as well as to health services and related social services in the local community. Due to the insufficient availability and quality of health services in the subregion, it will also be important to support the education of medical personnel and increase the number of medical and paramedical personnel (e.g. by introducing incentives for newly educated personnel to link their future professional activity with Eastern Wielkopolska). In the era of the digital revolution, innovative technologies in health care will be developed, including telemedicine or telecare. Actions will also be taken to increase the health awareness of the inhabitants of the subregion, as well as to promote an active and healthy lifestyle.

The planned activities in the field of health correspond to the Recommendation of the EU Council on improving the accessibility, resilience and effectiveness of the health care system, including by providing sufficient resources and accelerating the deployment of e-health services[132].

[132] *Council Recommendation of 20 July 2020 on Poland's 2020 National Reform Program, including a Council opinion on Poland's 2020 Convergence Program.* (NS. U. EU C 282/135 of 26/08/2020).

Types of planned directions of intervention:

3.3.1. Disseminating prophylaxis and health diagnostics as well as health promotion;

3.3.2. Improving the availability and quality of health services.

Objective	**3. Active society**
Priority	**3.3. Healthy inhabitants**
Direction of Intervention	**3.3.1. Disseminating prophylaxis and health diagnostics as well as health promotion**
Planned main types of activities	– implementation of prevention and diagnosis programs in the field of disease units important for the subregion; – prevention of crises and mental disorders, including the development of psychoprophylaxis in schools and environmental forms of assistance; – prevention of occupational diseases and early detection of health problems in labour resources; – promotion of an active and healthy lifestyle, including education to raise public health awareness; – shaping pro-health behaviour in care and educational institutions.
Planned effects	– early detection and treatment of diseases; – reducing the number of future deaths; – reducing unfavourable health behaviour patterns; – increasing the awareness of inhabitants about a healthy lifestyle.
Potential applicants	– LGUs; – unions and associations of LGUs; – healthcare providers; – non-governmental organizations with statutory activities concerns promotion and health protection; – social economy entities; – universities; – educational units; – entrepreneurs.
Target groups	– inhabitants; – employees.
Objective	**3. Active society**
Priority	**3.3. Healthy inhabitants**
Direction of Intervention	**3.3.2. Improving the availability and quality of health services**
Planned main types of activities	– development of outpatient specialist care; – improving access to primary care physicians; – supporting the education and professional development of medical personnel and preventing shortages of medical personnel;

	– improving the availability of high-quality long-term care, including community-based care; – improving access to long-term care and nursing care facilities for the elderly (including long-term home care, day care homes, care and treatment facilities or nursing and care facilities); – coordination of health and social care; – popularizing the use of modern technologies and digital solutions (e.g. telecare, telemedicine and telerehabilitation).
Planned effects	– increased availability and quality of health services; – deinstitutionalization of health services; – more effective and efficient treatment of inhabitants, including the elderly.
Potential applicants	– LGUs; – unions and associations of LGUs; – healthcare providers.
Target groups	– inhabitants.

5 TERRITORIAL DIMENSION OF TRANSITION OF EASTERN WIELKOPOLSKA

5.1 Areas of Strategic Intervention

The Act on the Principles of Development Policy[133] defines an area of strategic intervention as "*an area with identified or potential functional connections or with special social, economic or spatial conditions that determine the occurrence of barriers to development or permanent, reachable growth potentials, where public intervention connecting economic, infrastructure or HR investment projects, is directed, financed from various sources, or regulatory solutions*". In other words, it is a designated territory where dedicated development policy is intended to bring about specific changes. Along with the ASI designation, special pro-development instruments should be defined.

In the case of the Wielkopolska Region, the ASIs were defined in the *Development Strategy for the Wielkopolska Region 2030*[134] by integrating two approaches: regional and national. Nine regional and two national ASIs were listed in the Strategy[135] (the former one

[133] *The Act of December 6, 2006 on the Principles of Development Policy* (Journal of Laws of 2019, item 1295, as amended).

[134] *Development Strategy for the Wielkopolska Region 2030,* Resolution No. XVI/287/20 of the Parliament of the Wielkopolska Region of January 27, 2020.

[135] The Spatial Development Plan for Wielkopolska Region is the basis for outlining regional ASIs.

include six functional urban areas and three functional regional areas of a special phenomenon).

Eastern Wielkopolska is one of the regional ASIs outlined in the DSWR 2030, identified as the Eastern Functional Area. This is of the three functional areas of a special phenomenon on a regional scale. In accordance with the assumptions, the *Territorial Just Transition Plan for Eastern Wielkopolska,* implemented through funds under the 2021-2027 financial perspective, will be a pro-development instrument for this part of the Wielkopolska Region. In addition, other ASIs have been outlined within the borders of Eastern Wielkopolska, i.e.:

- the Konin Functional Area, the support of which should be focused on strengthening the competitiveness and the ability to diffuse development factors into the neighbouring urbanized and agricultural areas; in addition, certain interventions undertaken in the KFA should provide a development leverage for areas beyond its boundaries;
- national ASIs resulting from the regional policy of the Polish government formulated in the NSRD[136]:
  - Three towns losing their socio-economic functions: Konin, Koło, Turek;
  - Six communes at risk of permanent marginalization: Babiak, Chodów, Olszówka, Przedecz, Wierzbinek, Wilczyn.

Intervention in towns losing their functions, in accordance with the provisions of the NSRD, should lead to the reconstruction of the economic base and the strengthening of the role of these towns as centres of social and economic activity. On the other hand, actions undertaken in marginalized areas should especially lead to the development of local enterprises, an increase in the number of local jobs, an increase in the income of residents and the income base of local governments. The areas at risk of permanent marginalization cover the outskirts of the Wielkopolska Region, therefore the related development actions should be an important element of cooperation at the supra-regional level, aiming at reducing development disparities.

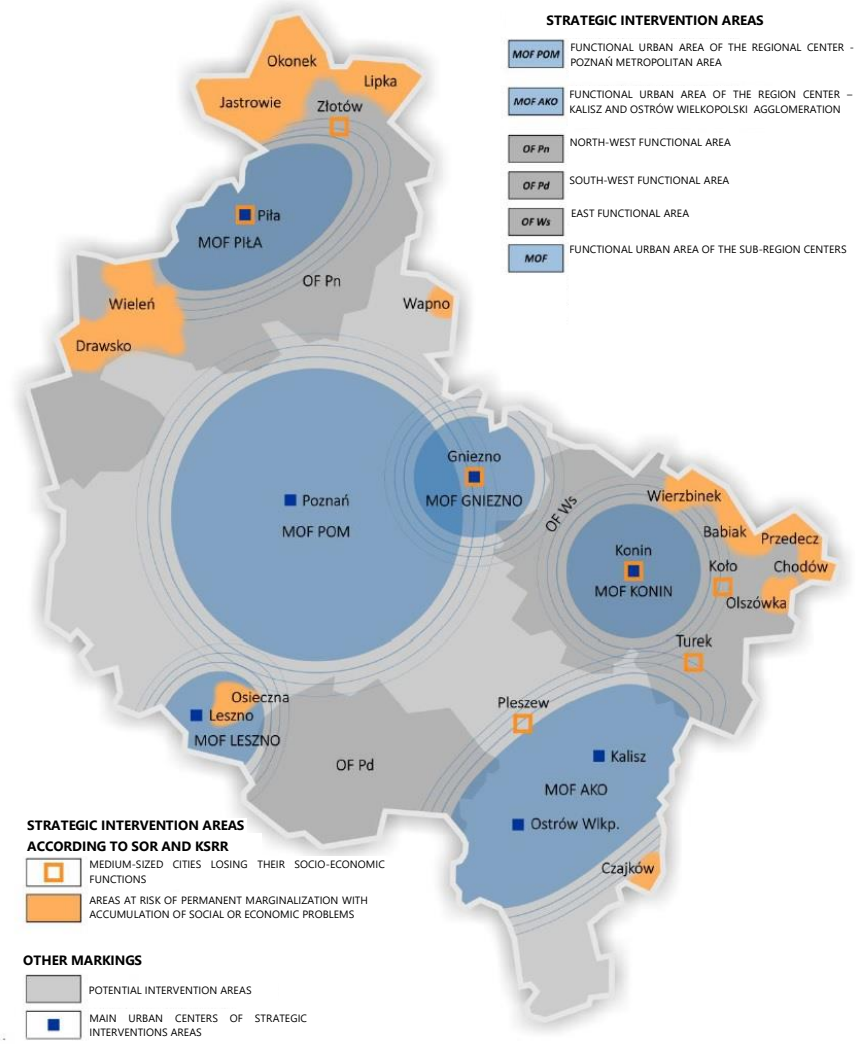
The subregion transition concerns the entire area of Eastern Region. The directions of intervention proposed in the Concept (and ultimately in the long-term strategic document) will aim to provide support to all territorial units in this area, with particular attention being paid to areas where the scale of development problems is the greatest, as well as to remote areas (located away from major urban centres), where an effective use of development stimuli is not possible. Communes most affected by the transition towards

[136] *National Strategy of Regional Development 2030*, Resolution No. 102 of the Council of Ministers of September 17, 2019.

climate neutrality, i.e. post-mining areas, communes where brown coal is currently extracted or communes with large number of employees of the ZE PAK Group and where people working in the ZE PAK Group account for a significant percentage of employees in total, will play a special role. It is also important to provide special support to those parts of the subregion which are negatively affected by mining plants, primarily through their negative impact on the natural environment.

Figure 47. Areas of strategic intervention in the Wielkopolska Region with an indicative range[137]

ACCORDING TO THE SOR AND KSSR



Source: *Development Strategy for the Wielkopolska Region 2030*, Resolution No. XVI/287/20 of the Parliament of the Wielkopolska Region of January 27, 2020.

[137] The figure does not include the Wilczyn Commune, which was put on the updated list of communes at risk of permanent marginalization, created for the 2021-2027 programming. *The National Strategy of Regional Development 2030*, Resolution No. 102 of the Council of Ministers of September 17, 2019. Attachment No. 1. *List of communes at risk of permanent marginalization: the 2021-2027 programming*.

5.2 Cities and rural areas

Urban and rural areas account for the basic functional structure of Eastern Wielkopolska. As mentioned in the DSWR, "*from the point of view of socio-economic development, a city and a village make a whole: they are autonomous elements of the socio-economic space and at the same time they constitute an inseparable and permanent system of interactions. This independence results from the specificity of phenomena and problems occurring in urban and rural areas, and thus requires various actions to be taken*"[138].

In Eastern Wielkopolska, the main sources of growth factors, apart from the town of Konin, are other district towns, i.e. Koło, Słupca and Turek, which play a supporting role in relation to the subregional centre. They offer basic and supra-local public services, especially in education, culture, public transport, ICT and administration. These towns are of particular importance for rural areas as they are a place of concentration and creation of non-agricultural functions, they activate these areas and constitute the main labour market[139]. The subregional towns, in particular those located outside the areas of influence of district centres, play an important role in creating socio-economic conditions in their immediate surroundings as they make local centres that perform economic and service functions. Actions to be taken in individual towns of Eastern Wielkopolska should therefore be aimed at strengthening their potential by increasing economic activity, developing entrepreneurship, increasing employment, as well as developing competence of town dwellers. Particular attention should be paid to towns that are outside the direct sphere of influence of the most important economic centres of the subregion.

Providing support to rural areas is also important from the point of view of actions aimed at increasing the cohesion of Eastern Wielkopolska and the competitiveness of its economy. In the subregion, where the location in relation to larger cities as a criterion of division, at least two types of rural areas can be identified, namely:

- rural areas located in the area of direct impact of development processes of larger urban centres, more specifically in the area affected by development potential of these cities, where they gain competitive advantage thanks to efficient transportation; on the other hand, areas have been noticeably losing their original rural functions (they are affected by the process of suburbanization, i.e. population shift from central urban areas into suburbs;

[138] *Development Strategy for the Wielkopolska Region 2030,* Resolution No. XVI/287/20 of the Parliament of the Wielkopolska Region of January 27, 2020.

[139] *Spatial development plan for the Wielkoplska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Parliament of the Wielkopolska Region of March 25, 2019.

- rural areas in need of support, located at a considerable distance from larger urban centres, and thus beyond the direct influence of the development potential of these cities.

Eastern Wielkopolska is very diversified. On the one hand, a lot of rural areas in the subregion are legally protected areas, and on the other hand, there are areas of intensive agriculture or transformed by mining. The existing diversification of rural areas entails the need to apply various development instruments. They should be adapted to the functions performed by these areas and their economic profile and consider the need to improve the residents' quality of life. Important actions in this case will include improvement of conditions for the development of entrepreneurship, increase in transport accessibility, development of water and sewage infrastructure and ICT infrastructure. The revival of towns, for instance by enhancing the renewal processes, will provide an opportunity to accelerate the development of rural areas. Due to the assumption that agriculture in Eastern Wielkopolska is (and will remain) one of the most important sectors of the economy, actions such as modernization and restructuring of farms, increase in the profitability of agricultural production, development of local agricultural and food markets, support for organic farms, and promotion of high-quality food seem crucial. With regard to agriculture, projects increasing water resources in the subregion (such as small water retention) are also of great importance.

The above general assumptions regarding support provided to urban and rural areas of Eastern Wielkopolska will be detailed in the course of further planning, when a more detailed intervention regarding this type of areas should be designed.

6 CONSISTENCY WITH OTHER NATIONAL, REGIONAL OR TERRITORIAL STRATEGIES & PLANS

As part of the just transition of Eastern Wielkopolska, measures will be taken to contribute to the implementation of strategic and urban planning documents at the national level, including the provisions of the ***Strategy for Responsible Development 2020 (including the perspective up to 2030)***[140]. As regards the first specific objective ("Sustainable economic growth based more and more on knowledge, data and organizational excellence"), these measures are in line with directions of modern industry development, technical infrastructure development, competence and vocational training for Industry 4.0 growth, development of innovative companies or competence helping SMEs develop. In terms of the second specific objective ("Socially sensitive and territorially balanced development"), the planned measures are consistent in particular with supporting groups at risk of poverty and exclusion, ensuring cohesion of actions for social inclusion, and developing the labour market that allows for the use of human resources potential for the development of Poland. In the area of territorially balanced development, they are consistent with the directions concerning economically active and resident-friendly cities and the development of rural areas.

Actions undertaken in the subregion will also serve the implementation of the ***National Energy and Climate Plan for 2021-2030***[141]. This is a plan that presents an integrated approach to the implementation of five dimensions of the energy union, namely: decarbonisation, energy efficiency, energy security, the internal energy market, and research, innovation and competitiveness. The subregion transition will help achieve the national climate and energy goals set out in this document for 2030, i.e.:

[140] *Strategy for Responsible Development 2020 (including the perspective up to 2030)*, Resolution No. 8 of the Council of Ministers of February 14, 2017.

[141] *National Energy and Climate Plan for 2021-2030,* version 4.1, Ministry of State Assets, Warsaw 2019.

- 23% share of renewable energy sources in the final energy consumption;
- 14% share of renewable energy sources in transport;
- the reduction of greenhouse gas emissions in non-ETS sectors by 7% compared to 2005;
- improvement of energy efficiency determined at the level of 23% in relation to primary energy consumption according to the PRIMES 2007 forecast, which corresponds to primary energy consumption of 91.3 Mtoe in 2030;
- the reduction of the share of coal in electricity generation down to 56-60%.

Actions to be taken as part of the transition of Eastern Wielkopolska should also consider the entire planning output developed at the level of the Wielkopolska Region. Due to the fact that regional documents in Wielkopolska are developed at different times and have a different time perspective (a significant part covers the 2020 perspective), the provisions of documents that have been created recently and include the current national and European planning ideas were primarily considered at the stage of preparing the Concept. Documents, the validity period of which ends in 2020, should be used in the work on the directions of transition only after their update. Further herein, the most important documents are presented, the inclusion of which is necessary when it comes to actions related to the subregion transition, and the provisions of which were used during the preparation of the Concept.

The transition of Eastern Wielkopolska will contribute to the implementation of the ***Development Strategy of the Wielkopolska Region 2030***[142], where it was outlined as an ASI. The Concept includes the provisions contained in the Strategy concerning the transition of this part of the region not only in terms of climate neutrality, but also in socio-economic terms. According to the assumptions of the DSWR, the goal of the transition is a safe and smooth shift from coal-based economy to a modern economy based on energy from alternative sources (including renewable energy and hydrogen), with sustainable development in mind and respect of the public opinion. The subregion transition will significantly contribute to the performance of actions in Eastern Wielkopolska, covering all strategic goals of the DSWR, i.e.:

Objective 1. Economic growth of Wielkopolska based on the knowledge of its residents;

Objective 2. Social development of Wielkopolska based on material and non-material resources of the Region;

Objective 3. Development of infrastructure respecting the natural environment of Wielkopolska;

[142]*Development Strategy for the Wielkopolska Region 2030,* Resolution No. XVI/287/20 of the Parliament of the Wielkopolska Region of January 27, 2020.

Objective 4. Increase in the effectiveness of Wielkopolska institutions and the efficiency of regional management.

Apart from the DSWR, the second basic document setting directions for the development of the region, including Eastern Wielkopolska, is the ***Spatial Development Plan for the Wielkopolska Region. Wielkopolska 2020+***[143]. This document defines the spatial policy, the target functional and spatial structure of the region and actions aimed at achieving of supra-local public goals. Eastern Wielkopolska, due to the occurrence of specific problems in spatial management, was indicated therein as one of the functional areas of regional importance (the so-called Eastern Functional Area). According to the SDPWR, the key goal of the spatial development of Eastern Wielkopolska is to create new foundations to support the existing energy industry and provide other energy carriers, both regional and external. It is also important to shift the domestic economy based on energy and mining to multifunctional business profiles, with particular emphasis on enhancing service functions. In order to achieve the key goal, the following spatial policy objectives were defined in the SDPWR:

Objective 1. Supporting and restructuring of the energy industry;

Objective 2. Shaping new functions that provide the basis for the development of the area;

Objective 3. Shaping the natural environment.

The Regional Innovation Strategy will also play an extremely important role in the transition, especially in terms of prioritizing regional smart specializations in the process of diversifying the economy, which should increase the overall level of innovation in the subregion. In line with the ***Regional Innovation Strategy for the Wielkopolska Region 2030***[144], smart specializations designated for the entire Wielkopolska Region include: (1) Bio-based raw materials and food for conscious consumers, (2) Interiors of the future, (3) Industry of tomorrow, (4) Specialized logistics processes, (5) ICT-based development and (6) Modern medical technologies. The subregional smart specializations for Eastern Wielkopolska, i.e. (1) Renewable Energy Sources and modern energy technologies, including hydrogen, (2) Tourism, (3) Logistics and (4) Healthy food production, should also be used in the transition process. The first of the above subregional specializations will be of key importance for the energy transition of Eastern Wielkopolska.

The policy of the Local Government of the Wielkopolska Region aimed at achieving EU climate goals in the region resulting directly from EU documents such as the *European*

[143] *Spatial development plan for the Wielkoplska Region. Wielkopolska 2020+*, Resolution No. V/70/19 of the Parliament of the Wielkopolska Region of March 25, 2019.

[144] *Regional Innovation Strategy for Wielkopolska 2030*, Resolution No. 3099/2020 of the Board of the Wielkopolska Region of December 29, 2020.

Green Deal[145], *Clean Planet for All*[146] and *the Hydrogen Strategy for a Climate-Neutral Europe*[147] will be specified in the ***Strategy for Climate Neutrality Eastern Wielkopolska 2040*** (currently a draft)[148]. Actions to be taken under the just transition match its objectives, bringing the subregion closer to realizing the vision, which is: *Eastern Wielkopolska 2040 as a leader in the development of an innovative, resource-efficient and zero-emission economy, providing new and attractive jobs, and a friendly living area*.

The Concept is also consistent with the ***Plan for the Sustainable Development of public Transport for the Wielkopolska Region***[149], i.e. an urban planning document defining the key goals and directions of the development of public collective transport in the region by 2025. In the process of the subregion transition, it will be necessary to follow the sustainable approach to shaping public collective transport mentioned in the Plan. This approach means shaping a transport solution so that on the one hand it guarantees access to public transport services to the largest possible number of residents, and on the other hand, it allows for shaping the supply, i.e. a transport offer that will most effectively cover both rail and bus transport.

The ***Environmental Protection Programme for the Wielkopolska Region 2030***[150] is the key document at the regional level in terms of environmental protection. It defines the goals and directions of interventions as well as actions aimed at improving the condition of the environment, which will have to be consistent with actions to be taken as part of the transition of Eastern Wielkopolska. They have been identified in the following areas of intervention: (1) climate and air quality protection, (2) noise pollution, (3) electromagnetic fields, (4) water management, (5) water and wastewater management, (6) geological resources, (7) soil, (8) waste management and waste prevention, (9) natural resources, (10) the risk of major accidents.

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[145]*European Green Deal*, Communication from the Commission to the European Parliament, the European Council, the Council, the Economic and Social Committee and the Committee of the Regions, COM (2019) 640 final, Brussels 2019.

[146] *Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM (2018) 773 final, Brussels 2018.

[147]*A hydrogen strategy for a climate-neutral Europe*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2020) 301 final, Brussels 2020.

[148]*Strategy for Climate Neutrality in Eastern Wielkopolska 2040* - a draft from February 2021, Wielkopolskie Biuro Planowania Przestrzennego in Poznań, Poznań 2021.

[149] *Plan for the Sustainable Development of Public Transport for the Wielkopolska Region*, Resolution No. XI/307/15 of the Parliament of the Wielkopolska Region of October 26, 2015.

[150]Environmental Protection Programme for the Wielkopolska Region 2030, Resolution No. XXV/472/20 of the Parliament of the Wielkopolska Region of of December 21, 2020.

The transition-related actions to be taken will also be in line with the ***Waste Management Plan for the Wielkopolska Region for 2019-2025 along with the Investment Plan***[151], the ***Air Protection Programme for the Wielkopolska Zone***[152] and the ***Ozone Air Protection Programme for the Wielkopolska Zone***[153]. The main goal of the first one is to develop a municipal waste management system in the years 2019-2025, including the necessity to meet the requirements of the circular economy package introduced by the European Commission in July 2018, as well as to adapt this system to legal changes resulting from the *Act of July 19, 2019 amending the Act on Maintaining Cleanliness and Order in Municipalities and Some Other Acts*[154]. On the other hand, air protection programmes are primarily aimed at protecting the health of residents through actions aimed at achieving the permissible levels and the exposure concentration threshold or reaching the target levels of substances in the air.

When working on the Concept, the urban planning and analytical achievements of local governments and other entities were used, included in Attachment No. 3 to the Concept ("Source materials").

[151]*Waste Management Plan for the Wielkopolska Region for 2019-2025 along with the Investment Plan*, Resolution No. XII/405/20 of the Parliament of the Wielkopolska Region of September 28, 2020.

[152]*Air Protection Programme for the Wielkopolska Zone*, Resolution No. XXI/391/20 of the Parliament of the Wielkopolska Region of July 13, 2020.

[153]*Ozone Air Protection Programme for the Wielkopolska Zone*, Resolution No. IX/168/19 of the Parliament of the Wielkopolska Region of of June 24, 2019.

[154]I.e. Journal of Laws of 2019, item 1579, as amended.

7 MANAGEMENT MECHANISMS

7.1 Coordinating and monitoring entities and partnership

Responsibility for the transition of Eastern Wielkopolska should be taken not by one entity (e.g. the Local Government of the Wielkopolska Region), but by a wide group of participants in the process, both from the subregion and beyond. The involvement of many stakeholders able to affect the achievement of the adopted goals will help create a clear flow system of information and conclusions from conducting individual operations or implementing individual projects. It will also facilitate making appropriate decisions by public institutions operating independently in different areas.

Defining the coordinating and monitoring entities and their competence will depend on whether it is a **long-term and comprehensive strategic document** regarding zero-emission, resource-efficient and diversified economy and improving living conditions, or the ***Territorial Plan for a Just Transition of Eastern Wielkopolska*** (for the years 2021-2027), compliant with the requirements of the *Regulation establishing the Just Transition Fund*[155], with a narrower scope, prepared in order to meet the requirements for obtaining EU funds in the financial perspective 2021-2027.

As for a long-term and comprehensive strategic document for the development of Eastern Wielkopolska, the institutional system involving key partners from the national, regional and local level should consist of:

- the Steering Committee for Eastern Wielkopolska at the Marshal of the Wielkopolska Region responsible for coordinating the implementation of the long-term document for Eastern Wielkopolska;
- the Regional Forum of Eastern Wielkopolska, a forum for strategic discussion about the subregion's transition policy and the flow of knowledge and information, and an advisory body of the Steering Committee for Eastern Wielkopolska;
- the Regional Development Agency in Konin responsible for coordinating the implementation of a long-term document in the subregion.

On the other hand, as for the *Territorial Plan of the Just Transition of Eastern Wielkopolska*, which is an element of a broader programming system of the new EU financial perspective, the institutional system should mainly consist of:

[155] *Regulation of the European Parliament and the Council establishing the Just Transition Fund*, Proposal, COM (2020) 22 final, Brussels 2020; *Regulation of the European Parliament and the Council establishing the Just Transition Fund*, Amended proposal, COM (2020) 460 final, Brussels 2020.

- the Management Board of the Wielkopolska Region as the Managing Authority for the WROP 2021+ that covers funds from the JTF, or as the Managing Authority of the *Regional Just Transition Programme for Eastern Wielkopolska*;
- the Regional Development Agency JSC in Konin, which, with the participation of the Regional Forum of Eastern Wielkopolska, will act as the Intermediate Body.

Despite the existence of two theoretically separate institutional systems, their operation will merge and complement each other. For example, the Regional Development Agency JSC in Konin will act as the Intermediate Body under the regional programme and at coordinate actions undertaken by other entities, financed from other sources. The same applies to the Regional Forum of Eastern Wielkopolska, which will support the Steering Committee for Eastern Wielkopolska on the one hand, and the Intermediate Body, i.e. the Regional Development Agency JSC in Konin, on the other.

Long-term, comprehensive strategic document for the transition of Eastern Wielkopolska

In the proposed institutional system, the Local Government of the Wielkopolska Region plays an important role as a primary entity shaping the regional policy. In accordance with the provisions of the *National Strategy for Regional Development 2030*[156], a local government, along with a minister responsible for regional development, plays a key role in regional policy, especially in the process of programming the development, managing it and taking the related actions at the regional level. At the stage of implementing the long-term strategic document, the Local Government of the Wielkopolska Region acts as an entity managing the subregion transition processes within its direct competence, and initiates actions to be taken by other entities involved in achieving specific goals, ventures or projects. In view of the above, it seems important to appoint a body coordinating the implementation of a long-term and comprehensive strategic document, i.e. **the Steering Committee for Eastern Wielkopolska** at the Marshal of the Wielkopolska Region, consisting of representatives of:

- the Marshal of the Wielkopolska Region – Chairman of the Committee;
- the Regional Development Agency JSC in Konin;
- a ministry responsible for funds and regional policy;
- the Governor of the Wielkopolska Region;
- other entities indicated by the Chairman of the Committee.

[156]*National Strategy of Regional Development 2030*, Resolution No. 102 of the Council of Ministers of September 17, 2019.

Tasks of the Steering Committee should primarily include:

- coordinating the implementation of a long-term strategic document, including taking measures to achieve strategic goals and perform actions financed from various sources;
- coordinating actions taken by entities involved in the implementation of a long-term strategic document;
- making recommendations on how to modify the available instruments to perform planned actions;
- ongoing monitoring and reporting the implementation of a long-term strategic document;
- recommending evaluations, analyses and reports on the socio-economic situation;
- analysing conclusions developed within the Regional Forum of Eastern Wielkopolska and taking actions on this basis.

The participation of the government, managing various instruments that should be coordinated as part of transition actions, will be important the subregion transition. Therefore, its representatives should participate in the work of the Steering Committee, especially persons authorized to agree on governmental tasks. In this respect, it is also possible to establish a subcommittee for Eastern Wielkopolska, operating at the governmental level, consisting of representatives of ministries or government institutions of key importance for the transition of the subregion. As for the subcommittee's scope of responsibilities, governmental tasks to be performed in Eastern Wielkopolska could be agreed.

Stakeholders participating in working groups see the need to establish a forum to be an advisory body to the Steering Committee on the one hand and a discussion forum shaping and stimulating strategic thinking about the transition of the subregion on the other. This forum should also perform tasks related to the monitoring of the document's implementation. When determining the composition of participants of the **Regional Forum of Eastern Wielkopolska,** one should follow the principle of partnership, which means that the Forum should be composed of representatives of local government units at all levels, social and economic partners, non-governmental organizations, universities and external experts, including in particular signatories of the *Agreement for Just Energy transition of Eastern Wielkopolska*. In the transition of Eastern Wielkopolska, the voice of young people, whom the future of this area depends on, is crucial; therefore, it is important to involve representatives of youth organizations as well. The task of the Forum will be to stimulate the discussion on the goals, directions, strategic projects and effects of the transition policy in the subregion and their evaluation. The Regional Forum of Eastern

Wielkopolska should be served by a secretariat of the Regional Development Agency in Konin.

From the level of the Local Government of the Region, the Board of the Wielkopolska Region should be responsible for the implementation of the long-term strategic document. To do so, the Board has at its disposal the staff of the Marshal Office of the Wielkopolska Region and its subordinate units as well as other organizational units related to the Region's budget. The Regional Development Agency JSC in Konin should also play the key role in the just transition; its actions for economic and social restructuring of the subregion are coordinated by the **Authorised Agent of the Board of the Wielkopolska Region for Eastern Wielkopolska Restructuring**. An authorized agent was appointed under *Resolution No. 391/2019 of the Management Board of the Wielkopolska Region of February 26, 2019*, and his/her tasks include coordination of actions aimed at socio-economic restructuring of the subregion. The scope of the authorization includes in particular:

- initiating, on behalf of the Wielkopolska Region, actions aimed at restructuring the areas of Eastern Wielkopolska where brown coal is mined;
- negotiating, on behalf of the Wielkopolska Region, agreements and letters of intent regarding the restructuring of the area of Eastern Wielkopolska;
- representing the Wielkopolska Region before central and local administration bodies, EU bodies, national and foreign international organizations, including associations and foundations in matters related to the restructuring of post-mining areas at risk of economic, social and cultural exclusion, including the area of Eastern Wielkopolska;
- representing the Wielkopolska Region at conferences, symposia, workshops and other types of meetings dedicated to transition of the coal-based economy into economy based on modern non-emission, energy technologies;
- coordinating, on behalf of the Wielkopolska Region, actions undertaken in order to obtain funds for the restructuring of Eastern Wielkopolska.

In addition to the management and implementation system, there are other forms of cooperation and arrangements in use in the Wielkopolska Region, including the **Wielkopolska Hydrogen Platform** established in May 2019. Its purpose is to initiate actions aimed at building economic potential that will help obtain the status of a leader in the area of economy related to the use of hydrogen technologies. The **Regional Social Dialogue Council in Poznań** may be another place for dialogue regarding Eastern Wielkopolska. The Council operates on the basis of the *Act of July 24, 2015 on the Social Dialogue Council and other social dialogue institutions*[157] and acts as a forum for reconciling

[157] I.e. Journal of Laws of 2018, item 2232, as amended.

the interests of employees and employers and the public at the level of the Wielkopolska Region. It is composed of representatives of the most important – from the point of view of development processes – public and non-public entities, i.e. the central and local government as well as organizations gathering employers and employees.

As for cooperation and partnership, a system including a stakeholder map, principles of public consultations or internal and external communication system, should become a part of a long-term strategic document.

Territorial Just Transition Plan for Eastern Wielkopolska **for the years 2021-2027**

The Plan, as required by the *Regulation establishing the Just Transition Fund,* should be part of the WROP 2021+ or the *Regional Just Transition Programme for Eastern Wielkopolska*. It will be an element of a wider system of performing the *Partnership Agreement for 2021-2027*, under which an appropriate range of institutions involved in its performance should be developed. As for transition of Eastern Wielkopolska, the system should consider in particular the Management Board of the Wielkopolska Region as the **Managing Authority of the WROP 2021+ (i.e. a programme involving funds from the JTF) or as the Managing Authority of the *Regional Operational Programme of Just Transition for Eastern Wielkopolska***. The Managing Authority will be responsible for all issues related to the management of the regional programme as defined by the provisions of Article 66 of the draft *General Regulation*[158] in line with the principles of sound financial management.

The **Regional Development Agency JSC in Konin**, acting as the Intermediate Body, should be an important element of the implementation of the WROP 2021+ or the *Regional Just Transition Programme for Eastern Wielkopolska*. This choice is dictated by the consistent development of the vision of the Local Government as regards the Agency coordinating actions taken in the subregion for just transition of Eastern Wielkopolska, as well as the experience of this institution in implementing EU funds and its qualified team of employees.

7.2 Financial framework and instruments for Eastern Wielkopolska transition

In order to ensure effective transition of the subregion, it will be crucial for entities participating in this process to identify all possible sources of its financing and use the

[158] *Regulation of the European Parliament and the Council establishing common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund and the European Maritime and Fisheries Fund, as well as financial rules for these funds and for the Asylum and Migration Fund, the Internal Security Fund and the Facility for Border Management and Visa*, Proposal, COM (2018) 375 final, Strasbourg 2018.

related available tools to fulfil the tasks. The system of financing a long-term strategic document, due to a wide scope of planned intervention, will be based on the principle of combining funds from various sources and diverse support tools. It will also contain information on financial resources and tools essential for the implementation of the *Territorial Just Transition Plan for Eastern Wielkopolska*, prepared for the purposes of the EU financial perspective 2021-2027, required by the *Regulation establishing the Just Transition Fund*.

Determining the planned financial outlays for the subregion transition after 2020 is difficult mainly due to the ongoing work on the shape of the national development policy. Therefore, the financial frameworks were established mainly by identifying potential sources of financing and key instruments to carry out the transition.

Public funds are essential for the transition of Eastern Wielkopolska, including in particular:

- the Region budget;
- the EU budget;
- state budget and special purpose funds;
- local government unit budget;
- funds withdrawn from financial engineering instruments in the years 2007-2013 and financial instruments as well as returnable aid in the years 2014-2020, subject to re-use in the form of returnable support.

The **Just Transition Fund** will be a key source of financing of transitional actions in the subregion in the next decade. Poland will be the greatest beneficiary of these funds as it will receive approximately EUR 3.8 billion. It should be noted, however, that in accordance with conclusions adopted by the European Council on July 21, 2020, access to the JTF will be limited to 50% of the national allocation in relation to those Member States that have failed to commit themselves to achieve the EU climate neutrality by 2050. The remaining 50% will be released once this commitment is taken on, according to the mechanism set out in *the Just Transition Fund Regulation*. Funds available under the JTF, in line with the draft *Partnership Agreement*[159], together with payments from the ERDF and ESF+ in the amount of EUR 560 million, will amount in total to EUR 4.4 billion. To implement the Territorial Just Transition Plan, it will also be possible to use the other two pillars of the Just Transition Mechanism, i.e. the **dedicated Just Transition Scheme under the *InvestEU Programme***, which is essentially a successor to the *Investment Plan for Europe* (the so-called Juncker Plan), and the **Loan Facility** for the public sector, aimed at mobilizing additional investment in regions affected by the effects of transition. The new **Recovery**

[159]*Draft Partnership Agreement for the implementation of the Cohesion Policy 2021-2021 in Poland* - draft from January 2021, Ministry of Funds and Regional Policy, Warsaw 2021.

and Resilience Facility, under which Poland can count on approx. EUR 23 billion in the form of subsidies and approx. EUR 34.2 billion in the form of loans, will also play an important role in supporting the just transition in the coming years. *These funds will be invested under the National Recovery and Resilience Plan.*

The programme that covers the **JTF funds, i.e. the WRPO 2021+**, will be the most important tool for the transition of Eastern Wielkopolska at the regional level. This Programme, developed, managed and implemented by the Board of the Wielkopolska Region in accordance with the *Act on Local Government*[160], will be based on the assumptions of the Territorial Just Transition Plan for Eastern Wielkopolska, supporting the goals and directions of activities defined in the Plan.

National operational programmes, the catalogue of which will be finally specified in the *Partnership Agreement for 2021-2027*, will be another possible sources of financing of just transition. Their scope will result from the objectives set out in EU regulations, as well as from the needs important from the point of view of the country's development, resulting from national strategic documents, such as the *Strategy for Responsible Development*[161]. The inclusion of **RDP 2021-2027** funds as an important source of financing transition in rural areas and the agricultural sector, including adaptation to climate change, is also essential to the transition of Eastern Wielkopolska. In view of the above, it is proposed to separate a component dedicated to post-mining regions in this Programme. It will also be essential to use the funds provided under the successor of the *Regional Operational Programme of the Kujawsko-Pomorskie Region for 2014-2020* in order to take measures to restore proper water relations in border communes of the Kujawsko-Pomorskie Region, complementary to actions taken in this field in the subregion.

In order for the subregion to transform, measures will also be taken to use instruments managed directly by the European Commission, including the ***LIFE Programme*** devoted entirely to the protection of nature and environment, the ***Horizon Europe*** programme, concerning research and innovation, as well as the funds of the **European Investment Bank**, other institutions or the **Norwegian Financial Mechanism**. In addition, it is possible to take steps to obtain financial support for the modernization of energy systems from the **Modernization Fund**, which was established along with the fourth reform of the European Emissions Trading System. The fund's priority areas include renewable energy, improvement of energy efficiency, grid modernization, energy storage, and supporting just transition in coal-dependent regions.

[160] *The Act of June 5, 1998 on Local Government* (Journal of Laws of 2020, item 1668).

[161] *Strategy for Responsible Development 2020 (including the perspective up to 2030)*, Resolution No. 8 of the Council of Ministers of February 14, 2017.

One should also not forget about the EU funds under the 2014-2020 financial perspective, which will continue to play an important role in the first years of implementing the Territorial Just Transition Plan for Eastern Wielkopolska. An example may by the proposals for projects submitted by the Regional Development Agency in Konin in April 2019 in Brussels regarding actions that are part of the process of just transition of mining regions. Some of these projects are currently being implemented from the WRPO 2014+ funds, i.e.:

- the project called *"Development services for the Konin subregion"* concerning financial support aimed at improving the competence and qualifications of employers and employees of the SME sector (the project will be implemented by the end of February 2023);
- the project called *"Good qualifications, better future",* aimed at providing financial support to adults of working age, living, working, studying or staying in the Konin subregion (the project will be implemented until the end of January 2022);
- the project *called "Building and promoting the Wielkopolska Energy Valley" brand,* aimed at supporting actions related to the economic and investment promotion of Eastern Wielkopolska, creation of the "Wielkopolska Energy Valley" brand, and the participation of companies from the subregion in trade fairs and missions around the world.

Funds from the state budget, intended for protective measures for employees from the mining and energy sector in the area of Eastern Wielkopolska (e.g. concerning the mining leaves and leaves for employees of the ZE PAK Group, who are not more than four years short of acquiring pension rights) should also be an important source of financing development actions in the subregion. In this regard, the government should take steps to develop a public aid programme, which should then be notified by the European Commission, like the *Act of September 7, 2007 on the Hard Coal Mining Industry*[162]. Ensuring the share of funds from the state budget as a national contribution to measures financed from the JTF, in particular in the field of activation measures, will also be the key to financing the just transition of Eastern Wielkopolska.

The subregion transition will also require the involvement of private funds, especially when it comes (i) providing co-financing to projects that received EU funds or (ii) implementing projects in the public-private partnership formula. Developmental actions in Eastern Wielkopolska may also be supported by participatory funds, which would consist of local government units from the subregion. The task of such funds would include the implementation of projects, the scope and impact of which would extend beyond the administrative boundaries of individual communes.

[162]I.e. Journal of Laws of 2019, item 1821.

This Concept is not limited to the elements and scope of interventions specified in the draft *Just Transition Fund Regulation*, but it also considers priorities and directions that go beyond the support framework defined therein. An indicative list of potential sources of financing for individual priorities identified in the Concept is presented below (it does not consider the funds of the EU perspective 2014-2020). Additionally, it contains proposals for new areas to be supported through the JTF on the EU Council request (marked in blue).

Table 4. Potential sources of financing just transition of Eastern Wielkopolska

The Concept Priority	Potential sources of financing
Priority 1.1. Energy (r)evolution towards climate neutrality	– JTF (investments in technologies and infrastructure ensuring affordable clean energy, reduction of greenhouse gas emissions, energy efficiency and renewable energy; investments in intelligent and sustainable mobility and environmentally friendly transport infrastructure; investments in projects reducing energy poverty, in particular in social housing; investment in promoting energy efficiency, climate-neutral approach and low-carbon heating in regions most affected by the transition); – WROP 2021+; – National Plan for Recovery and Resilience; – OP IE 2021-2027; – OP SG 2021-2027; – RDP 2021-2027; – funds of the Regional Fund for Environmental Protection and Water Management in Poznań and the National Fund for Environmental Protection and Water Management; – LIFE Programme; – InvestEU Programme.
Priority 1.2. Diversified and innovative economy with developed entrepreneurship;	– JTF (productive investment in SMEs, including start-ups, leading to economic diversification and economic restructuring; investment in new business creation, including through business incubators and consulting services; investment in research and innovation and supporting advanced technology transfer); – WROP 2021+; – OP SG 2021-2027; – RDP 2021-2027; – Horizon Europe Framework Programme; – InvestEU Programme.
Priority 1.3. E-Eastern Wielkopolska	– JTF (investments in digitalisation and digital communication); – WROP 2021+; – OP DP 2021-2027;
Priority 1.4. Circular economy	– JTF (investments in strengthening the circular economy, including through waste prevention and reduction, resource efficiency, re-use, repair and recycling ; – WROP 2021+;

The Concept Priority	Potential sources of financing
	– OP IE 2021-2027; – RDP 2021-2027; – LIFE Programme; – funds of the Regional Fund for Environmental Protection and Water Management in Poznań and the National Fund for Environmental Protection and Water Management.
Priority 1.5. Competent, qualified and professionally active residents	– JTF (improving and changing qualifications of employees; job search assistance for job seekers); – WROP 2021+; – OP WED 2021-2027; – Labour Fund; – National Training Fund; – European Globalization Adjustment Fund; – EU Programme for Employment and Social Innovation.
Priority 2.1. Regenerated natural environment	– JTF (investments in regeneration, decontamination and restoration of sites and projects changing their purpose); – WROP 2021+; – OP IE 2021-2027; – funds of the Regional Fund for Environmental Protection and Water Management in Poznań and the National Fund for Environmental Protection and Water Management; – LIFE Programme; – InvestEU Programme; – European Investment Bank loan facility for the public sector.
Priority 2.2. Adaptation to climate change	– WROP 2021+; – OP IE 2021-2027; – funds of the Regional Fund for Environmental Protection and Water Management in Poznań and the National Fund for Environmental Protection and Water Management.
Priority 2.3. Improving transport accessibility	– JTF (Investments in Smart and Sustainable Mobility and Environmentally Friendly Transport Infrastructure); – WROP 2021+; – OP IE 2021-2027; – Local Government Roads Fund; – Bridges for Regions Programme; – Railway Fund; – Programme to Supplement the Local and Regional Railway Infrastructure Rail+; – InvestEU Programme.
Priority 3.1. Strong social capital	– JTF (investments in culture, education and community building, including enhancing the value of tangible and intangible mining heritage and local centres); – WROP 2021+; – OP WED 2021-2027;

The Concept Priority	Potential sources of financing
Priority 3.2. Modern social services	– JTF (active inclusion of job seekers; creation and development of social and public services provided in the general interest); – WROP 2021+; – OP WED 2021-2027; – State Fund for the Rehabilitation of the Disabled
Priority 3.3. Healthy residents	– WROP 2021+; – OP IE 2021-2027; – OP WED 2021-2027; – National Health Fund; – EU for Health Programme.

Source: own study.

In line with the provisions of the NSRD[163], an integrated territorial approach, which is one of the key principles of the national regional policy, means striving to maximize the benefits associated with the implementation of the range of available instruments and development mechanisms with territorial impact.
In order to adjust the intervention to the specific needs of the subregion, it is necessary to involve partners at various levels of management in shaping the development policy in their regions, which should lead to achieving economies of scale. In order to strengthen an integrated approach to development and cooperation at various levels, the NSRD introduced three main mechanisms of arrangements, i.e. a programme contract, a sectoral contract and a territorial agreement.

MECHANISMS OF ARRANGEMENTS

PROGRAMME CONTRACT	SECTORAL CONTRACT	TERRITORIAL AGREEMENT

As part of the **programme contract,** the central government and the Local Government of the Wielkopolska Region will agree on the directions and conditions of co-financing the WROP 2021+, which should include funds from the JTF. What is more, an additional pool of funds from the ERDF and ESF+, transferred for management to the regional level in connection with the implementation of the Territorial Just Transition Plan for Wielkopolska Region, should be an element of the arrangements. Pursuant to the provisions of the draft *Regulation establishing the Just Transition Fund,* funds from the ERDF and/or ESF+ will be added to funds available under the JTF. These funds should be specified and allocated before the division of the general pool of EU funds for the regions to

[163] *National Strategy of Regional Development 2030*, Resolution No. 102 of the Council of Ministers of September 17, 2019.

implement regional operational programmes. The contract may also point out to the agreed strategic undertakings to be implemented under the national operational programmes in a non-competitive mode.

The **sectoral contract** can serve as a mechanism to coordinate the implementation of projects in the subregion, supported from the state budget. It defines how development programmes, prepared by competent ministers in the field of territorially targeted intervention for the Wielkopolska Region or Eastern Wielkopolska, will be implemented and financed. The contract, which will be concluded between a minister competent for matters related to the contract scope, the minister competent for regional development and the region board, will define in particular (i) the priority projects to be implemented both by central government and Local Government of the Wielkopolska Region, (ii) the criteria for selecting projects for co-financing under the development programme, (iii) the Local Government's own contribution and (iv) the manner and conditions for the implementation of priority projects.

The **territorial agreement**, i.e. an agreement specifying in particular priority projects for the development of the area, important especially for local communities, is another agreement mechanism proposed in the NSRD. The mechanism assumes the cooperation of local governments in areas where significant potentials or problems limiting the possibilities of their development have been identified. The parties to a territorial agreement may be the region board and representatives of local government units from the area covered by the agreement. It is also possible to conclude it with representatives of local government by the minister competent for regional development, or between local government units without the participation of the minister or the region board. In such a case, the essence of the agreement will be to focus on identifying common development goals, as well as on defining common problems and indicating ways of solving them.

7.3 Monitoring and evaluation system

The implementation of urban planning documents requires (i) monitoring (operational and participatory) of the achievement of goals, (ii) responding to emerging problems and threats, as well as (iii) monitoring changes taking place in space on a regular basis.

According to the NSRD[164], the region local government watches over the course of the regional policy implementation processes, and in particular diagnoses the situation and development potentials/trends of various types of area, which include Eastern

[164]*National Strategy of Regional Development 2030*, Resolution No. 102 of the Council of Ministers of September 17, 2019.

Wielkopolska. The Local Government monitors the situation in the field of socio-economic and spatial development and assesses the effectiveness of the development interventions applied so far to the region under the regional policy and sectoral policies.

Long-term, comprehensive strategic document for the transition of Eastern Wielkopolska

In the case of a long-term and comprehensive strategic document, the monitoring system should include:

- the **Board of the Wielkopolska Region**, responsible for monitoring the document; the monitoring-related tasks, based on mutual cooperation, will be performed by representatives of the relevant organizational units of the Marshal Office of the Wielkopolska Region and the relevant units subordinate to the Local Government;
- the **Steering Committee for Eastern Wielkopolska** at the Marshal of the Wielkopolska Region as an entity examining applications resulting from document monitoring;
- the **Regional Forum of Eastern Wielkopolska**; its task will include (i) the exchange of knowledge, experience and information between various public and non-public entities involved in actions for the transition of Eastern Wielkopolska, (ii) assessment of key processes and phenomena affecting the transition process, (iii) developing recommendations regarding necessary changes and (iv) advising the Steering Committee in the field of subregion transition;
- the **Network of the Wielkopolska Regional Territorial Observatory**; it acquires and provides data on socio-economic situation of the subregion, necessary to make decisions on the shape and directions of just transition;
- **other participants of the monitoring system**, namely the most important institutions in the Wielkopolska Region and outside it, participating in the subregion transition process.

Operational monitoring should take place on an ongoing basis and reported annually. A periodic *Report on the implementation of long-term strategic document* should be the main document in this process. The report should include a part dedicated to the achievement of goals/priorities in the analysed period and an assessment of socio-economic and spatial situation of the subregion, where contextual indicators from official statistics – as its publication is delayed – may only provide a statistical background. The report on the document implementation should be made available to the public.

Bearing in mind the effectiveness and durability of the intervention provided for in the long-term strategic document, it is possible to plan evaluation in the form of:

- an ongoing evaluation, carried out during the document implementation;
- an ex-post evaluation, carried out at the end of the document implementation period.

Territorial Just Transition Plan for Eastern Wielkopolska for the years 2021-2027

The Plan, as required by the *Regulation establishing the Just Transition Fund*, should be attached to the WROP 2021+ or the *Regional Just Transition Operational Programme for Eastern Wielkopolska*. It will be an element of a wider implementation system of the Programme, under which an appropriate monitoring and evaluation system will be designed, including the monitoring of the achievement of goals defined in the Territorial Just Transition Plan for the Wielkopolska Region. This system will draw on previous experience in the implementation of operational programmes in the EU perspective 2014-2020, including the mechanisms and tools for monitoring and assessing the achievement of indicators or conducting evaluation studies, in this case aimed at determining the usefulness and effectiveness of the Plan implementation. As for the Territorial Just Transition Plan for the Wielkopolska Region, the monitoring system of the Regional Operational Programme should include additional measures to support effective planning, periodic assessment, and adjusting these measures to ever changing socio-economic conditions, such as:

- holding an annual meeting on the review of the Plan, which will be an opportunity to correct its implementation or discuss about new identified challenges;
- a two-stage system for monitoring strategic projects included in the Plan, namely a periodic strategic monitoring (at the preparation stage) and ongoing operational monitoring (at the implementation stage);
- including the Plan in the ex-ante evaluation of a draft regional operational programme.

When assessing the progress and effectiveness of the transition of Eastern Wielkopolska, it is crucial to monitor indicators relating to the achievement of each goal/priority. These indicators should be chosen based on their adequacy to the scope of a given priority and data availability. In the case of the long-term strategic document for the transition of Eastern Wielkopolska, public statistics should be the main source of data for monitoring (for comparative purposes); as far as the Territorial Just Transition Plan for

the Wielkopolska Region is concerned, the monitoring should cover the product and result indicators required by the documents programming the financial perspective 2021-2027.

8 SOCIALIZATION OF THE PLAN PREPARATION PROCESS

The success of just transition of Eastern Wielkopolska assumes of responsibility for it by all parties involved in the process; therefore, as early as at the stage of developing the Plan, an emphasis was placed on involving a wide range of stakeholders in the implemented activities. This approach is in line with the provisions of Article 7 (3) of the *Regulation establishing the Just Transition Fund*[165].

In April 2019, the regional authorities concluded the *Agreement for Just Energy Transition of Eastern Wielkopolska*. It became the basis for the establishment of working groups in June 2020 in the area of Eastern Wielkopolska, for which nearly 200 people representing various environments applied. The groups focused on issues related to specific areas, i.e. the environment, energy, infrastructure and social problems. Their members included experts, practitioners and stakeholders in the given fields. The task of the groups was to analyse problems, work on solutions and exchange knowledge, ideas and opinions of representatives from various areas of the subregion. These actions were to enable an integrated approach to the problems and challenges of Eastern Wielkopolska as a whole, without divisions relating to particular interests of individual districts or communes. The scope of work in individual working groups was mainly focused on the following thematic areas:

- environment: rational shaping of the environment and managing its resources in accordance with the principle of sustainable development; counteracting pollution; maintaining and restoring natural elements to proper condition; recycling; circular economy; environmental education; eco-management; efficiency in managing environmental resources; environmental responsibility and eco-ethics; tourism and recreation etc.;
- energy: energy resources, distributed energy; logistic challenges, transport, including electromobility; environmental and ecological evaluation of products; trade and emission management; innovations; new projects and technologies in the energy sector; energy carriers, energy storage, energy efficiency and effectiveness, including energy security in regional and macroregional dimension;

[165] *Regulation of the European Parliament and the Council establishing the Just Transition Fund*, Proposal, COM (2020) 22 final, Brussels 2020; *Regulation of the European Parliament and the Council establishing the Just Transition Fund*, Amended proposal, COM (2020) 460 final, Brussels 2020.

renewable energy; energy cooperatives; bioenergy (biomass, biogas, biohydrogen, bioethanol); biofuels, energy supply for farms etc.;

- infrastructure: sustainable transport; spatial development plans; railway lines with engineering facilities (bridges, viaducts, tunnels, culverts, railway crossings); traffic and communication security devices; signalling, water and sewage networks, railway stations (passenger and freight ones with platforms, paved squares, etc.), railway sidings, intermodal terminals, tourist infrastructure etc.;
- social challenges: issues resulting from social conditions such as demography (including migration), education, culture, social activity, local identity, social communication, readiness to change, etc.

Representatives of the following entities joined the working groups:

- local government units: the Marshal Office of the Wielkopolska Region, district offices and municipal offices from Eastern Wielkopolska;
- central authorities: Ministry of Funds and Regional Policy, Ministry of Development;
- representatives of legislative authorities: Members of Parliament, including members of the Parliamentary Team for Just Energy Transition and the Parliamentary Team for Lakes/Lake Districts;
- municipal companies: Przedsiębiorstwo Wodociągów i Kanalizacji in Konin, Miejskie Przedsiębiorstwo Energetyki Cieplnej – Konin;
- business: the "Lewiatan" Wielkopolska Employers' Association, the Konin Chamber of Commerce, the Guild of Various Crafts in Konin, NUVARRO Sp. z o.o., Centralna Grupa Energetyczna SA, Neo Solar Farms Sp. z o.o., the "INTJO" Centre for Educational Technologies Sp. z o.o., ZE PAK;
- science and education: the Adam Mickiewicz University in Poznań, the University of Zielona Góra, the "NOT" Federation of Scientific and Technical Associations – the Council in Konin, the Centre for Craft Support, Dual and Vocational Education in Konin, State Higher Vocational School in Konin, Higher School of Personnel Management in Konin;
- non-governmental organizations: the "Instrat" Foundation, the "Development YES – Opencast Mines NO" Foundation, the Institute of Green Future Foundation, the "Konin Action" Association, the "Anmar" Association for Local Community Development, the "M-lab" Association, Association for Social Cooperatives, Association for Development, the Alliance of Polish Green Network Associations;
- employees: trade unions operating in the ZE PAK Group.

The main goal of the groups was to define the key problems in the subregion and the resulting challenges as well as to develop guidelines for the transition process of Eastern

Wielkopolska. At the same time, it was indicated that based on guidelines developed by the groups' members and analyses performed at the same time, two documents will be prepared, i.e. the *Territorial Just Transition Plan for Eastern Wielkopolska* and a long-term and comprehensive strategy for the development of Eastern Wielkopolska.

In 2020, nearly 20 meetings were held in the form of discussion, focused in particular on the following issues: (1) indicating areas affected by negative effects of the transition, (2) defining the problems and challenges that the subregion is facing in the context of the transition towards a climate-neutral economy, (3) determining the most important endo- and exogenous factors affecting the development of Eastern Wielkopolska, (4) making a preliminary list of actions to be taken as part of the transition. The working groups' members and other stakeholders were encouraged to submit project proposals relevant to the development of Eastern Wielkopolska. The call for proposals was very popular – a total of about 170 projects were submitted, many of which overlapped with the Concept objectives.

During the work of the environmental group, representatives of non-governmental organizations pointed out the lack of an exhaustive debate on environmental protection, mainly with regard to hydrological issues and the impact of mining areas on water resources in the region. At the end of September 2020, a hydrological group meeting was held, during which problems related to water management in the subregion were discussed. The group discussed hydrogeological issues in post-mining communes and in the neighbouring areas that are negatively affected by the activity of opencast mine (the Konin and Adamów Brown Coal Mines). As a result, representatives of the "Development YES – Opencast Mines NO" Foundation and the "Konin Action" Association regarding the development of a coherent and realistic plan for restoring proper water relations in the subregion, as well as extending the work of the parliamentary team for saving lakes (or creating a new parliamentary team covering the entire Eastern Wielkopolska and the related areas, e.g. border communes of the Kujawsko-Pomorskie Region or boards of catchment areas covering the entire above-mentioned area).

Members of the groups working on the labour market and education pointed to the under-represented voice of young people who will determine the future of the subregion. It was emphasized that on the one hand the involvement of young people in planning work will expand their own point of view of problems, while on the other hand, it will give them an opportunity to co-decide about the fate of Eastern Wielkopolska, which will increase their sense of co-responsibility for its development. For this reason, at the beginning of October 2020, a meeting of a group of young people was organized; it was attended by activists as well as high school and university students from Eastern Wielkopolska. It resulted in developing proposals for specific transition projects. These proposals respond to the problems that the subregion has been facing for years, and at the same time mark

out a new path for its development. Among the proposed solutions, a group of young people emphasized the following projects: (1) changing educational offer of secondary and higher schools to one better corresponding to the needs of local labour market, (2) establishing a branch faculty of the Poznań University of Technology, (3) providing additional classes in schools in the area of soft skills, civic education, lessons with representatives of local government administration, business or non-governmental organizations, (4) supporting entrepreneurship – Entrepreneurship Incubator, Youth Creativity Incubator, grant programme for starting a business, training programmes aimed at running one's own business, training for local leaders, (5) rehabilitation of post-mining areas, (6) development of tourism , (7) development of transport infrastructure, including construction of the north-south railway and the railway terminal in Konin, (8) development of ecological public transport, (9) improving the competence of the Youth Town Council of Konin and appointing the Youth Councils of the districts of Koło, Słupca and Turek, (10) appointing youth representatives by the Mayor of Konin and district governors.

Actions were also taken to involve, to a greater extent, representatives of the employees of the ZE PAK Group and entrepreneurs in preparation of the Plan. On January 19, 2021, on the initiative of the Institute of Green Future, a meeting of representatives of employees of the Konin Brown Coal Mine with the Plenipotentiary of the Management Board of the Wielkopolska Region for Restructuring of Eastern Wielkopolska was organized to discuss employee demands regarding the Territorial Just Transition Plan for Eastern Wielkopolska. At the end of January 2021, a meeting with representatives of trade unions of the ZE PAK Group was organized; during the meeting, the directions of intervention under the Plan and the trade unions' postulates regarding the use of European funds and the state budget in the transition process were discussed. The discussion was continued on February 8, 2021, during a meeting with representatives of the ZE PAK Trade Unions, the Mining Trade Unions and the Employee Council of the District Labour Office in Konin and the Regional Centre for Social Policy in Poznań. During the meeting, the issues of available and future assistance provided to people dismissed from work due to reasons not attributable to them or to job seekers, as well as possible solutions regarding supporting people, families and local communities negatively affected by the energy transition were brought up.

At another meeting, which took place on March 3, 2021, the following issues were discussed: (i) ongoing works on the Territorial Just Transition Plan for Eastern Wielkopolska was discussed with representatives of trade unions of the ZE PAK Group and Piotr Woźny, the President of the Management Board of ZE PAK, and (ii) special assistance to be provided to employees of the ZE PAK Group to help them gain new professional qualifications.

In addition, there were also discussions with representatives of the District Labour Offices from the subregion about future support provided to employees affected by the

energy transition, as well as with representatives of the Regional Centre for Social Policy in Poznań about social inclusion of the analysed group.

In order to learn about the needs of entrepreneurs with regard to the subregion transition, two meetings were organized in February 2021: the first with representatives of SMEs, and the second with representatives of large enterprises. During the meetings, the following issues were debated on the most important problems of Eastern Wielkopolska related to the labour market and entrepreneurship, directions of economic and energy transition of the subregion, the possibilities of financing companies in the context of priorities of just transition.

In addition to the above-mentioned works, various meetings were organized by partners from Eastern Wielkopolska (including non-governmental organizations), dedicated to challenges that the subregion is facing and the directions of its transition.

This Concept is the result of efforts of the working groups; its draft was consulted with various stakeholders. In total, nearly 40 entities reported over 300 comments. These comments varied in detail, and they referred to both individual chapters of the draft document (such as objectives, priorities and directions of intervention, development challenges the subregion will have to respond to) as well as the document as a whole (general issues). In-depth discussions on specific provisions of the document were conducted with four non-governmental organizations most involved in issuing opinions on the draft Concept, i.e. the "Development YES – Opencast Mines NO" Foundation, the "Institute of Green Future" Foundation, the "Konin Action" Association and the Alliance of Polish Green Network Associations. Many of their comments were included in the document either directly or in a modified form. The above mentioned organizations emphasized the need to stop treating forest biomass and hydropower on natural water courses as renewable energy sources and drew attention to outdated provisions of NECP and PEP 2040, which, in their opinion, do not consider the EU's target of reducing CO_2 emissions by 55% by 2030 compared to 1990.

The conclusions from the meetings of the working groups were included in this Concept. However, this is not a closed catalogue. The working groups will continue to meet during the entire process of planning a just transition of Eastern Wielkopolska. In the unanimous opinion of all participants of the working groups, developing a coherent vision of the subregion future is possible only in the process of dialogue and mutual understanding.

9 LIST OF STRATEGIC UNDERTAKINGS

The transition of Eastern Wielkopolska is not possible without the implementation of various types of projects, including those of strategic importance, which contribute to the greatest extent to the achievement of the goals. The first 21 project proposals of strategic importance for the subregion transition were developed in 2019 (the list of projects constitutes Attachment No. 1 to the Concept). They were presented to the European Commission, which considered 10 of them to be very promising and ready for implementation. The elected project proposals included: building the brand and strategy of Eastern Wielkopolska in the transition process, raising the competence and qualifications of employees from the fuel and energy sector at risk of losing their jobs, green financial support provided to companies and the public-private sector, the "Green Energy - Konin" Energy Cluster, constructing photovoltaic farms in reclaimed areas, converting a coal-fired boiler into a biomass-fired boiler, construction of a heat storage for heating the town of Konin, construction of infrastructure for the production, storage and distribution of hydrogen, as well as the production of photovoltaic panels and installation of photovoltaic installations. It should be mentioned that some of these projects are already in progress, and the implementation of some of them will begin soon.

In connection with the ongoing work on the transition directions of Eastern Wielkopolska, the Regional Development Agency JSC in Konin invited in 2020 representatives of working groups to submit proposals for further projects of strategic importance for the subregion development. Its purpose was to identify the expectations and needs in this area and to programme appropriate directions of public intervention. The call for strategic projects was very popular with representatives of working groups. In total, about 170 project proposals were submitted, many of which corresponded to goals, priorities or directions of intervention formulated herein (the list of projects submitted by working groups constitutes Attachment No. 2 to the Concept).

Based on the submitted project proposals and 21 project proposals from 2019, further works will be carried out to prepare a list of strategic projects (individual projects or their bundles), of key importance to the transition of Eastern Wielkopolska. During their identification, it will be necessary to consider the contribution to the achievement of goals, the scope of impact (local, supra-local, subregional) or the level of cooperation regarding the preparation and implementation of a given project with social and/or economic partners. The rules for selecting strategic projects will be established in the course of further works.

10 PARTICIPANTS OF WORKING GROUPS

1) "Konin Action" Association;
2) AS PAK Sp. z o.o.;
3) Guild of Various Crafts in Konin;
4) Centralna Grupa Energetyczna SA;
5) Centrum Technologii Edukacyjnych INTJO Sp. z o.o.;
6) Craft, Dual and Vocational Education Support Centre in Konin;
7) EIT InnoEnergy;
8) Energa Invest Sp. z o.o.;
9) Federation of Scientific and Technical Associations NOT – the Council in Konin;
10) "Development YES – Opencast Mines NO" Foundation;
11) Instrat Foundation;
12) "Institute for the Green Future" Foundation;
13) "Solidarność 80" National Independent Self-Governing Trade Union of ZE PAK SA and its subsidiaries;
14) Konin Chamber of Commerce;
15) National Association of Village Leaders;
16) Miejskie Przedsiębiorstwo Energetyki Cieplnej – Konin Sp. z o.o.;
17) Inter-company Commission of the Free Trade Union PAK KWB "Konin" SA in Kleczew;
18) Ministry of Funds and Regional Policy;
19) Ministry of Development, Labour and Technology;
20) School Strike for Climate;
21) Inter-company Independent Self-Governing Trade Union of employees of ZE PAK SA and its subsidiaries;
22) Inter-company Trade Union of Miners of KWB "Konin" SA;
23) Inter-company Trade Union of PAK Miners of the Adamów Mine;
24) "KADRA" Inter-company Trade Union of the Adamów Mine;
25) Inter-company Trade Union of Shift Employees at ZE PAK SA;
26) "KADRA" Inter-company Trade Union of Engineering and Technical Employees at PAK KWB "Konin" SA;
27) Inter-company Trade Union of Continuous Working System Employees at ZE PAK SA;
28) Inter-company Trade Union of Shift Employees at ZE PAK SA;
29) Neo Solar Farms Sp. z o.o.;
30) "RUCH" Independent Trade Union of Continuous Working System Employees of KWB "Konin" SA in Kleczew;
31) NUVARRO Sp. z o.o.;
32) "Solidarność" Independent Self-governing Trade Union Inter-company Organization of the Brown Coal Mining in the Konin-Turek Basin;

33) "Solidarność" Independent Self-governing Trade Union Inter-company Organization of the ZE PAK Group;
34) "Solidarność" Independent Self-governing Trade Union Company Organization of PAK;
35) The State University of Applied Sciences in Konin;
36) Parliamentary Group for Just Energy Transition;
37) Parliamentary Team for Lakes/Lake District;
38) Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. in Konin;
39) Council of PAK KWB "Konin" SA Employees;
40) Councillors of the Parliament of the Wielkopolska Region,
41) District Governor Office in Koło;
42) District Governor Office in Konin;
43) District Governor Office in Słupca;
44) District Governor Office in Turek;
45) "Human Resources for Konin" Association;
46) M-Lab Association;
47) "Anmar" Association for Local Community Development;
48) Association for Social Cooperatives;
49) "We Change Konin" Association;
50) The Adam Mickiewicz University in Poznań;
51) The University of Zielona Góra;
52) Babiak Commune Office;
53) Brudzew Commune Office;
54) Grodziec Commune Office;
55) Commune and Town Office in Kleczew;
56) Kazimierz Biskupi Commune Office;
57) Kościelec Commune Office;
58) Kramsk Commune Office;
59) Krzymów Commune Office;
60) Lądek Commune Office;
61) Olszówka Commune Office;
62) Osiek Mały Commune Office;
63) Ostrowite Commune Office;
64) Powidz Commune Office;
65) Przykona Commune Office;
66) Rychwał Commune Office;
67) Rzgów Commune Office;
68) Stare Miasto Commune Office;
69) Turek Commune Office;
70) Kawęczyn Commune Office;
71) Malanów Commune Office;
72) Władysławów Commune Office;
73) Marshal Office of the Wielkopolska Region;

74) Dąbie Town Office;
75) Dobra Commune and Town Office;
76) Golina Commune and Town Office;
77) Tuliszków Commune and Town Office;
78) Sompolno Town Office;
79) Turek Town Office;
80) Town Office in Słupca;
81) Town Office in Konin;
82) Town Office in Zagórów;
83) "Lewiatan" Wielkopolska Association of Employers;
84) Wielkopolska Spatial Planning Office in Poznań;
85) Regional Labour Office in Poznań. Branch Office in Konin;
86) Higher School of Personnel Management in Konin;
87) Company Trade Union of Shift of Shift and Continuous Working System Employees of ZE PAK SA;
88) Municipal Roads Authority in Konin;
89) ZE PAK;
90) Alliance of Polish Green Network Associations.

11 Attachment No. 1 List of projects of strategic importance for the transition of Eastern Wielkopolska presented in 2019 to the European Commission

Item No.	Project title	Coordinating unit
1.	Transition strategy for Eastern Wielkopolska	Regional Development Agency JSC in Konin
2.	Developing competence of employees from the energy sector	Regional Development Agency JSC in Konin
3.	Developing competence of employees from	Regional Development Agency JSC in Konin
4.	Green financial support	Regional Development Agency JSC in Konin
5.	Integrated green public transport	Regional Development Agency JSC in Konin
6.	H2LABO – hydrogen technologies research and innovation centre	Regional Development Agency JSC in Konin
7.	"Green Energy – Konin" Energy Cluster	Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. In Konin
8.	Heat and PV pumps in public utility buildings	Babiak Commune
9.	Green tourist route	-
10.	Post-industrial culture	Film Village Foundation
11.	Educational park Renewable energy	Kleczew Commune
12.	Adaptation of former mining areas to tourist purposes	Kleczew Commune
13.	Construction of solar farms on reclaimed land	ZE PAK
14.	Reconstruction of a coal-fired boiler into a biomass-fired one	ZE PAK
15.	Construction of a heat storage	ZE PAK
16.	Wind farms in former mining areas	ZE PAK
17.	Power storage	ZE PAK
18.	Logistics centre with BIPV	ZE PAK
19.	Infrastructure for hydrogen production, storage and distribution	ZE PAK
20.	PVC equipment production	ZE PAK
21.	Konin-Koło-Turek geothermal plants	Miejskie Przedsiębiorstwo Energetyki Cieplnej – Konin Sp. z o.o.

12 Attachment No. 2 List of projects submitted by working groups

Item No.	Project title	Entity submitting the proposal
1.	School Business Incubators (SBI)	Craft, Dual and Vocational Education Support Centre in Konin
2.	Supporting cooperation of schools providing vocational education with entrepreneurs of Eastern Wielkopolska in the field of dual education	Craft, Dual and Vocational Education Support Centre in Konin
3.	Technical University of Children and Young People	Craft, Dual and Vocational Education Support Centre in Konin
4.	Construction of the "Kazimierz Biskupi II" photovoltaic power plant with a capacity of 200 MW in the post-coal region – Eastern Wielkopolska	E&G Sp. z o.o.
5.	Construction of a photovoltaic farm with a capacity of approx. 1 MW in the post-mining areas in the Przykona commune	Energa Invest
6.	Construction of a photovoltaic farm with a capacity of approx. 20 MW in the post-mining areas in the Przykona commune	Energa Invest
7.	Construction of a photovoltaic farm with a capacity of approx. 100 MW in the post-mining areas in the Przykona commune	Energa Invest
8.	Construction of a wind farm with a capacity of approx. 7 MW in the post-mining area in the Przykona commune	Energa Invest
9.	Construction of the 110 kV line to the GPZ Żuki station together with the GPO 110 kV/MV station enabling the evacuation of power from renewable energy sources with a capacity of approx. 107 MW	Energa Invest
10.	Construction of the RS/GPZ Anielewo power station	Energa Operator
11.	Construction of the GPZ Sompolno substation	Energa Operator
12.	Construction of the RS/GPZ Ignacewo substation	Energa Operator
13.	Reconstruction of the 110 kV line Konin Południe - Rychwał - Stawiszyn - Kalisz North	Energa Operator
14.	Reconstruction of the 110 kV SE line Konin - Ślesin - Ignacewo (new) - Sompolno (new) (double-circuit line)	Energa Operator
15.	Reconstruction of the 110 kV SE Adamów - Poddębice line	Energa Operator
16.	Reconstruction of the 110 kV Adamów - Żuki - Ceków line (further towards Kalisz Piwonice)	Energa Operator
17.	Reconstruction of the 110 kV Janiszew - Kraski line	Energa Operator

Item No.	Project title	Entity submitting the proposal
18.	Reconstruction of the 110 kV Pątnów - Kleczew - Witkowo line	Energa Operator
19.	Reconstruction of the 110 kV Pątnów - Jóźwin - Kleczew line	Energa Operator
20.	Modernization of the GPZ Witkowo network	Energa Operator
21.	Construction of a new GPZ Powidz station with WN-110 kV connections	Energa Operator
22.	Construction of a new 110 kV Słupca - Powidz line (new GPZ)	Energa Operator
23.	Reconstruction of the 110 kV SE Konin - Cienin power line	Energa Operator
24.	Reconstruction of the 110 kV SE Konin - Konin Nowy Dwór power line	Energa Operator
25.	Reconstruction of the 110 kV SE Konin - SE Pątnów power line (conversion into a double-circuit line)	Energa Operator
26.	Reconstruction of the 110 kV SE Konin - Niesłusz / Konin Południe power line (double-circuit line) - Krągola	Energa Operator
27.	Reconstruction of the 110 kV SE Pątnów - Powidz (new GPZ) - Witkowo power line	Energa Operator
28.	Reconstruction of the 110 kV power line at Ruchenna - Koło Wschód - Barłogi - Kłodawa - Salt Mine - Kłodawa - Krośniewice	Energa Operator
29.	"Nowy Konin" Centre for Just Transition - a symbol of a new era	"Institute for the Green Future" Foundation
30.	Investment axes Investment areas for the new future of the region	"Institute for the Green Future" Foundation
31.	Opencast Mining Museum	"Institute for the Green Future" Foundation Association of Wielkopolska FRONTA Forum of Cultural Initiatives
32.	Recreating the subregion's water resources with the use of the existing retention capacity	"Development YES – Opencast Mines NO" Foundation
33.	Maintaining and increasing the declining biodiversity of the subregion by improving water relations in particularly sensitive areas, especially within the Natura 2000 sites and in areas adjacent to them and ecological corridors. Subproject: natural retention in peat bogs and wetland ecosystems (restoration / restitution / restoration of peat bogs in degraded bogs and / or post-mining lands)	"Development YES – Opencast Mines NO" Foundation
34.	Energy from nature – a heat pump with a photovoltaic system in public buildings in the Babiak Commune	Babiak Commune

Item No.	Project title	Entity submitting the proposal
35.	Organization of water and sewage management in the Babiak Commune – stage VII	Babiak Commune
36.	re/KULTYWATOR Science Centre ENERGIA BRUDZEW and the Discovery Park	Brudzew Commune
37.	OLIMPIAda MOŻLIWOŚCI – fitting put investment areas	Brudzew Commune
38.	RES for residents and entrepreneurs from the Brudzew Commune	Brudzew Commune
39.	Construction of photovoltaic installations on public utility buildings	Brudzew Commune
40.	BRUDZEW – business-friendly environment – promotional project	Brudzew Commune
41.	Modernization of the municipal sewage treatment plant in Brudzew	Brudzew Commune
42.	Expansion of the sanitary sewage system along with the transport of sewage from the Brudzew Commune to the sewage treatment plant in Turek	Brudzew Commune
43.	Comprehensive fitting of the KOLNICA residential areas	Brudzew Commune
44.	Energy transition of Eastern Wielkopolska - construction of the Brudzyń photovoltaic farm	Brudzew Commune
45.	Reclamation of post-mining areas	Brudzew Commune
46.	Preparation and implementation of comprehensive water management balance in the area transformed by business activity of ZE PAK	Brudzew Commune
47.	RES, thermo-modernization and ecological heating sources for individuals, entrepreneurs and local governments	Brudzew Commune
48.	Construction of a district composting plant / management installation (bio fraction + sewage sludge)	Brudzew Commune
49.	Extension of an incineration plant in Konin (Zakład Termiczny Przekształcania Odpadów)	Brudzew Commune
50.	Economic promotion – Business Club	Brudzew Commune
51.	Organization of sewage management	Brudzew Commune
52.	Improving the accessibility of post-mining communes: – the Konin - Turek - Łódź railway – bridge / ferry crossing on the Warta River – Cycle lanes – Exits from provincial roads to investment plots	Brudzew Commune
53.	Modernization and expansion of power grids	Brudzew Commune
54.	Construction of photovoltaic panels recycling installation	Brudzew Commune
55.	Development of housing construction	Brudzew Commune

Item No.	Project title	Entity submitting the proposal
56.	Planning order: – zoning (change, new) – changing the status of farmland from agricultural to residential (change of utilization class) – updating soil maps (organic soils)	Brudzew Commune
57.	Construction, expansion and reconstruction of installations for production of energy from renewable sources (with possible connection to the distribution/transmission grid) with the use of wind energy, solar energy, biomass, biogas, hydropower	Dobra Commune
58.	Reconstruction of the national road No. 83 – the bypass for the town of Dobra, including its potential impact on the planned land use of the area of the Dobra Commune for the purpose of economic activation	Dobra Commune
59.	Development of the Jeziorsko Reservoir space, including recreational, tourist and sports functions as well as economic activation in the Dobra Commune	Dobra Commune
60.	Replacement of heat sources powered by solid fuels with new heat sources with reduced emission of pollutants into the atmosphere as part of reducing low emissions in the Commune of Dobra	Dobra Commune
61.	Removal of architectural barriers in public utility buildings	Dobra Commune
62.	Let's protect nature and health – Rational waste management	Dobra Commune
63.	Support for schools in the Dobra Commune in shaping key competence	Dobra Commune
64.	Let's do it together – social and professional activation of people and families at risk of poverty and/or social exclusion from the area of Dobra Commune	Dobra Commune
65.	Activation of the elderly to counteract social exclusion	Dobra Commune
66.	Increasing the activity and integration of local community	Dobra Commune
67.	Support for small and medium-sized enterprises from the Dobra Commune	Dobra Commune
68.	Reconstruction of selected streets together and a concept of building a pedestrian and bicycle passage (Plac Wojska Polskiego with ul. Parkowa and ul. Dekerta with ul. Narutowicza – connecting two parks)	Dobra Commune
69.	Revitalization of selected areas of urban and rural space in neglected areas (e.g. buildings of an old mill, distillery, water bottling plant, the "Koszary" municipal buildings) Renovation of central spaces (Plac Wojska Polskiego, the market, Plac Mały Rynek)	Dobra Commune

Item No.	Project title	Entity submitting the proposal
70.	Giving new functions to disused municipal buildings (e.g. a boiler house at the Wiatraki Housing Estate) such as a community centre in the place of former kindergarten, acquiring premises for government housing)	Dobra Commune
71.	Construction of photovoltaic installations on public utility buildings	Golina Commune
72.	Regulation of water and sewage management	Golina Commune
73.	Removal of architectural barriers in public utility buildings	Golina Commune
74.	Construction and modernization of roads, pavements and bicycle paths in the Golina Commune	Golina Commune
75.	Construction of the Nursing Home in Tokary Pierwsze	Kawęczyn Commune
76.	Reduction of greenhouse gas emissions by replacing furnaces	Kawęczyn Commune
77.	Development of sustainable energy through photovoltaic installations on public buildings	Kawęczyn Commune
78.	Construction and modernization of roads and pavements/bicycle paths in the Kawęczyn Commune	Kawęczyn Commune
79.	Reduction of greenhouse gas emissions in the Kawęczyn Commune through comprehensive thermal modernization of public buildings	Kawęczyn Commune
80.	Preparation and development of investment areas in the Kawęczyn Commune	Kawęczyn Commune
81.	Construction and development of energy plantations in the Kawęczyn Commune	Kawęczyn Commune
82.	Investment incentives for potential investors in the Commune	Kawęczyn Commune
83.	Development of sustainable energy development by mounting photovoltaic installations	Kawęczyn Commune
84.	Building social awareness and awareness among entrepreneurs in the field of photovoltaic installations and digital technologies through training	Kawęczyn Commune
85.	Vocational activation of local society through training and flexible improvement of qualifications tailored to the business model of entrepreneurs encouraged to invest in the Commune	Kawęczyn Commune
86.	Revitalization of post-mining areas	Kleczew Commune
87.	Implementation of investment projects promoting a low-emission economy in the region of Eastern Wielkopolska	Kleczew Commune
88.	Building a Data Processing Centre	Kleczew Commune
89.	Energy cluster – energy self-sufficiency and preventing energy poverty in post-mining regions	Kleczew Commune

Item No.	Project title	Entity submitting the proposal
90.	Inventory and reconstruction of drainage ditches damaged as a result of opencast mining	Kramsk Commune
91.	Development of agricultural tourism in the Krzymów Commune	Krzymów Commune
92.	Construction and modernization of roads and bicycle lanes in the Krzymów Commune	Krzymów Commune
93.	Construction of a gas grid in the Krzymów Commune	Krzymów Commune
94.	Energy transition of Eastern Wielkopolska – construction of photovoltaic installations on public buildings in the Malanów commune	Malanów Commune
95.	Modernization of the District Road Powiercie Colony – Mniewo No. 3403Pn	Olszówka commune
96.	Energy transition of Eastern Wielkopolska -–renewable energy sources in the Przykona Commune – assembly of photovoltaic installations	Przykona Commune
97.	Construction and expansion of the water and sewage network in the Przykona Commune, including the post-mining areas of brown coal	Przykona Commune
98.	Development of brown coal post-mining areas in the Dąbrowa Commune: stage I: Sailing Harbour building, stage II: Mooring Platform	Przykona Commune
99.	Development of brown coal post-mining areas – communication infrastructure	Przykona Commune
100.	Construction of the communication system in former brown coal mining areas and reconstruction of the existing communication system in the commune	Przykona Commune
101.	Improving the water and sewage management in the Rychwał Commune by building a sewage treatment plant and expanding the sewage system in the town Rychwał	Rychwał Commune
102.	Installation of renewable energy systems in the Rychwał commune	Rychwał Commune
103.	Construction of a selective municipal waste collection point in the town of Rychwał	Rychwał Commune
104.	Thermal efficiency improvement of public buildings in the Rzgów Commune	Rzgów Commune
105.	Installation of renewable energy systems on private and public buildings in the Rzgów Commune	Rzgów Commune
106.	Organization of water and sewage management in the Rzgów commune	Rzgów Commune
107.	Construction and modernization of roads and pedestrian and bicycle lines in the Rzgów Commune	Rzgów Commune

Item No.	Project title	Entity submitting the proposal
108.	Development of an excavation after brown coal mining in Lubstów	Sompolno Commune Konin District
109.	Development of an degraded area of the narrow-gauge railway station in Sompolno	Sompolno Commune Konin District
110.	Instalment of photovoltaic installations in residential, service and public buildings in the Stare Miasto Commune	Stare Miasto Commune
111.	Increasing the mobility of residents by building a low-emission infrastructure for individual transport	Stare Miasto Commune
112.	Thermal efficiency improvement of public buildings in the Stare Miasto Commune	Stare Miasto Commune
113.	Fitting out areas to be economically activated in Barczygłów and Modła Królewska, the Stare Miasto Commune	Stare Miasto Commune
114.	Fitting out areas to be economically activated in the town of Janowice, Stare Miasto Commune	Stare Miasto Commune
115.	Fitting out areas to be economically activated in Żdżary, the Stare Miasto Commune	Stare Miasto Commune
116.	Construction of a gas distribution grid	Wilczyn Commune
117.	Lake reclamation in the area of the Wilczyn Commune	Wilczyn Commune
118.	Organization of water and sewage management	Wilczyn Commune
119.	Implementation of investment projects promoting a low-emission economy in the region of Eastern Wielkopolska	Wilczyn Commune
120.	Building project of wind farms in the Wielkopolska Region (as part of the Programme for the construction of wind farms with a total capacity of approx. 720 MW)	TAURON Group
121.	Building project of photovoltaic installations in the Wielkopolska Region (as part of the Programme for the construction of photovoltaic sources in the TAURON Group with a total capacity of approx. 570 MW)	TAURON Group
122.	Implementation of technology based on hydrothermal carbonization (HTC) that allows sewage treatment plants to recover phosphorus and nitrogen useful for agriculture and produce biochar from wet sewage sludge for later use in cogeneration systems	InnoEnergy
123.	Creation of support network (Innovation Hub) of the local ecosystem for just transition of the Eastern Wielkopolska subregion	InnoEnergy Central Europe Sp. z o.o.
124.	PSNC EnergyLab – R&D support for comprehensive socio-economic transition in Eastern Wielkopolska with	Institute of Bioorganic Chemistry of the Polish Academy of Sciences

Item No.	Project title	Entity submitting the proposal
	the use of new generation information and communication technologies	Poznań Supercomputing and Networking Centre
125.	A list of 114 strategic undertakings – NEW PATH TO DEVELOPMENT 2020-2030, including: – Construction of photovoltaic farm in the Lewy Brzeg Sewage Treatment Plant – New route of national road No. 25 within the limits of the town of Konin from ul. Poznańska to ul. Przemysłowa – Modernization of water supply and sewage infrastructure – Modernization of street lighting (replacing it with energy-efficient lighting) and remote control system in the town of Konin – Construction of the Konin Agglomeration Industrial and Technological Park	Town of Konin
126.	Development of geothermal sources (construction of an injection well, heating network, construction of a heating plant)	Town of Turek
127.	Improving the energy efficiency of facilities in the town of Turek through the use of renewable energy sources	Town of Turek
128.	Comprehensive revitalization of the centre of the town of Turek – Plac Wojska Polskiego, Plac Sienkiewicza	Town of Turek
129.	Modernization of a sports and recreation complex with the use of geothermal waters	Town of Turek
130.	Improving the transport accessibility of investment areas and housing purposes – construction of the Z3 collective road	Town of Turek
131.	Modernization and expansion of heat distribution networks in the town of Turek	Town of Turek
132.	Establishment of an economic entity providing rail transport services for the repair of rolling stock and infrastructure	The "KADRA" Inter-company Trade Union of Engineering and Technical Employees at ZE PAK "Konin" JSC Brown Coal Mine
133.	Construction of a long-term power storage with a capacity of 50 MW in the post-coal region – Eastern Wielkopolska	Neo Energy Group Sp. z o.o.
134.	Construction of photovoltaic power plants with a capacity of 500 MW in the post-coal region – Eastern Wielkopolska	Neo Energy Group Sp. z o.o.

Item No.	Project title	Entity submitting the proposal
135.	Construction of the "Kazimierz Biskupi II" photovoltaic power plant with a capacity of 200 MW in the post-coal region – Eastern Wielkopolska	Neo Energy Group Sp. z o.o.
136.	Establishment of heavy equipment repair service	PAK Górnictwo Sp. z o.o.
137.	Creation of a base for the provision of services in the field of technological equipment for road construction and specialist road works	PAK Górnictwo Sp. z o.o.
138.	Construction of a rubber waste recovery plant in the pyrolysis process	PAK Górnictwo Sp. z o.o.
139.	Construction of a plant producing wind farm structural elements (including welding of structures for photovoltaics)	PAK Górnictwo Sp. z o.o.
140.	Increasing the retention and reconstructing water resources in post-mining areas in the area of Eastern Wielkopolska	Państwowe Gospodarstwo Wodne Wody Polskie
141.	Construction of the northern ring road of Koło along the district road No. 3205P	Koło District
142.	Reconstruction of ul. Toruńska as a communication route of the industrial part of the town of Koło	Koło District
143.	Construction of a flyover with access roads along ul. Toruńska in Koło, via the E20 railway line	Koło District
144.	Renaturation of degraded areas along the Kiełbaska River and the Ruszkowski Canal along with the construction of irrigation infrastructure	Koło District
145.	"Let's promote work"	Konin District
146.	"Konin Intermodal Hub – 'East West - North South"	Konin District
147.	Balancing water retention in catchments affected by mining activity in Eastern Wielkopolska	Słupca District
148.	Shifting from fossil fuels to RES in a dispersed system in the areas affected by mining activity in Eastern Wielkopolska	Słupca District
149.	Modern mechanization shop as a good practice for the development of agriculture in rural areas -–construction of agricultural mechanization shops at the Complex of General and Vocational Schools in Zagórów	Słupca District
150.	Professional activation and support for lifelong learning of the Turek District residents	Turek District
151.	Construction of a motorway junction on the A2 (E30) motorway in the Turek District in the Władysławów Commune	Turek District

Item No.	Project title	Entity submitting the proposal
152.	Electronic document flow in the Office of the District Authorities in Turek	Turek District
153.	Digitization and digital communication of departments and organizational units of the Office of the District Authorities in Turek	Turek District
154.	Healthy soil, healthy environment	ProBiotics Polska Magdalena Górska
155.	Employee Support Centre – an innovative and participatory model of continuous support for employees of the fuel and energy sector in Eastern Wielkopolska	Representatives of the Konin Brown Coal Mine employees
156.	Construction of smart power system in the "Green Energy – Konin" Energy Cluster	Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. in Konin
157.	Energy transition of Eastern Wielkopolska – Circular economy	Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. in Konin
158.	Rail bus line	Association for Social Cooperatives; Social Economy Support Centre
159.	Social programme "FOTOWOLTAIKA + / 2020-2025"	Association for Social Cooperatives; Social Economy Support Centre
160.	Actions for the development of tourism and socio-economic recovery in Eastern Wielkopolska areas covered by the programme: Coal Platform	Association for Social Cooperatives
161.	"KAFELEK" Social Cooperative	Association for Social Cooperatives
162.	Modern Energy Efficient Construction – Educational Platform (Secondary school education programme in the field of ecological and energy-efficient construction as an alternative to traditional construction)	Association for Social Cooperatives
163.	Green Joint Social Cooperatives	Association for Social Cooperatives
164.	Construction of a post-consumer mattress processing plant as an element of the circular economy for products manufactured at Sun Garden Polska	Sun Garden Polska Sp. z o.o. Sp.k.
165.	Construction of an installation for the production of energy gases, electric energy and heat in the technology of gasification of biomass and wood-based waste	Syngaz
166.	Development of modern research infrastructure by implementing a LIMS (Labouratory Information Management System) system. Development of modern research infrastructure in a veterinary laboratory	VET-LAB Brudzew dr Piotr Kwieciński
167.	Gardens of the future – small farms established as part of social cooperatives in post-mining areas	Wielkopolska Centre of Social Economy in Poznań, the Poznań University of Life Sciences

Item No.	Project title	Entity submitting the proposal
168.	Regional centre for training and professional development as the labour market support	Higher School of Personnel Management in Konin
169.	Centre for the development and transfer of new technologies, Industry 4.0 in Eastern Wielkopolska	Higher School of Personnel Management in Konin
170.	Construction of a production line for mass production of a Polish hydrogen bus designed to provide zero-emission passenger transport services in cities	ZE PAK
171.	Construction of an intermodal logistics centre and warehouses using the railway infrastructure owned by ZE PAK SA	ZE PAK
172.	Construction of the first technologically advanced electrolyser production plant in Poland as an element of energy and technological transition	ZE PAK
173.	Improving qualification, retraining and professional activation of employees of the Capital Group of ZE PAK in the transition process	ZE PAK

13 Attachment No. 3 Resource materials

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