

Wielkopolska, Poland

GENERAL INFORMATION

Country: Poland

Region Name: Wielkopolska

Region NUTS2 code: PL41 Wielkopolskie

Region NUTS3 code: PL 414 Koniński subregion

Main urban centres in the region (by population, 2022):

Poznań (543,347)¹

Kalisz (94,489)

Konin (68,483)

Piła (70,861)

Ostrów Wielkopolski (70,062)

Gniezno (64,535)

Leszno (60,983)



**NUTS: Nomenclature of Territorial Units for Statistics*

1. Statistics Poland. Population, size and structure and vital statistics in Poland by territorial division as of 30 June 2022. <https://stat.gov.pl/en/topics/population/population/population-size-and-structure-and-vital-statistics-in-poland-by-territorial-division-in-2022-as-of-30-june-2022,3,32.html>

Regional socio-economic profile

General description of the socio-economic profile of the region

Wielkopolska, or the Greater Poland Voivodeship, is the second largest voivodeship in Poland in terms of area (29,826 km²) and third in terms of population (close to 3.5 million inhabitants in 2023)². Its capital city is Poznań.

Coal mining activities are concentrated Eastern Wielkopolska, one of Poland's three lignite mining regions. Eastern Wielkopolska has one remaining lignite mine (KWB Konin) and two coal-fired power plants (Pałnów I and Pałnów II) with a combined installed capacity of over 1GW (2021)³. Until recently major mining areas were concentrated around the towns of Konin, Koło, Słupca and Turek. Currently, the mining activities are carried out only in the Tomislawice deposit.

Eastern Wielkopolska is a relatively less developed area; GDP per capita in Eastern Wielkopolska in 2021 was only 55% of the EU average, 77.5% of the Polish national average, and 71% of the Wielkopolska Voivodeship average. Over the past decade, economic growth in Eastern Wielkopolska lagged behind as compared to the rest of the Voivodeship. With a high socio-economic dependence on fossil fuels, the highest levels of unemployment in Wielkopolska occur around power plants and coal mines. Konin's subregion unemployment was 6% of the working-age population (2022)⁴ as compared to 3.1% for Wielkopolska (2023)⁵. Moreover, the sub-region is characterised by increasing poverty, an ageing population and high net outward migration.

Although facing many challenges, Eastern Wielkopolska is the leading region in Poland with regard to the transition to a low carbon economy, having committed to coal phase-out by 2030 and to achieving climate neutrality by 2040.

Regional coal industry profile			
Coal mining			
Type of coal	Lignite		
Type of coal extraction	Open pit		
Number of operating coal mines	1		
Production of coal [Mt annual]	2,484 Mt ⁶	Year of prod. data:	2021
Main coal mines			
Name	Ownership	Number of employees	Year of employee data
Tomislawice PAK KWB Konin S.A. (on 28/02/2023 PAK KWB Adamów S.A. merged with PAK KWB Konin S.A.)	Private (ZE PAK S.A. - Zespół Elektrowni Pałnów - Adamów - Konin SA)	936 ⁷	2021
Total level of employment in coal mining (in the region)		936	2021

2. Statistical Office in Poznan. Population statistics as of January 2023. <https://poznan.stat.gov.pl/en/>

3. Territorial Just Transition Plan for Eastern Wielkopolska (2021)

4. Christiaensen L. et al. 2022. Towards A Just Coal Transition Labor Market Challenges And People's Perspectives From Wielkopolska. The World Bank. <https://openknowledge.worldbank.org/server/api/core/bitstreams/67498d8d-1fe9-5c6c-bb65-5e9a82c4afe7/content>

5. Statistical Office in Poznan. Registered unemployed persons as of January 2023. <https://poznan.stat.gov.pl/en/>

6. Energy Instrat database (2023) <https://instrat.pl/ranking-wydobycia-z-polskich-kopaln-baza-danych/>

7. Energy Instrat database (2023) <https://instrat.pl/ranking-wydobycia-z-polskich-kopaln-baza-danych/>

Regional coal power plant profile			
Coal power plants			Year of data
Number of coal power plants		2	2023
Installed capacity [MW]			
1. Coal Power Plant Konin		193.4 MW ⁸	2021
2. Coal Power Plant Pątnów		1108 MW	
TOTAL		1301.4 MW	
Share of coal in regional power generation mix [%]		93.5% (based on data for ZE PAK S.A.) ⁹	2021
Main (largest) coal power plant operators			
Name	Ownership (e.g. public or private)	Number of employees	Year of employee data
Coal Power Plant Konin	Private (ZE PAK S.A. - Zespół Elektrowni Pątnów - Adamów - Konin S.A.)	974 ¹⁰	2021
Coal Power Plant Pątnów			
Total level of employment in coal power plants (in the region)		974	2021

Regional and local transition strategies and plans

Status and timeline of coal transition / phase-out

Eastern Wielkopolska has laid out a bold plan to phase out coal in the power and heating sector by 2030, well ahead of the current Polish national target of 2049, and to reach climate neutrality by 2040.

PAK KWB Adamów SA ceased operating the last opencast mine on 17 February 2021¹¹, while PAK KWB Konin SA is currently operating only one opencast mine: Tomisławice, where exploitation is planned to stop by the end of 2024. Opencast coal mining at Drzewiec ceased in August 2022¹², similarly, exploitation of coal at the Józwin deposit ended at the end of 2022¹³. In addition, PAK KWB Konin SA has abandoned the exploitation of new deposits in Piaski, Dęby Szlacheckie and Ościstowo.

In terms of power generation, the subregion has two coal power plants. Konin Power Plant is equipped with 4 boilers with a rated thermal input of 622 MWt (193.4 MW electrical capacity), including 2 biomass boilers with a

nominal capacity of 169 MWt and 176 MWt and 2 back-up coal blocks each of 111 MWt. Its decommissioning was planned for 2022, but it did not happen yet. The second power plant - Pątnów Power Plant has 4 boilers, with a rated thermal input of 2893 MWt (1 108 MW). Boiler 5 (604 MWt) is planned to be decommissioned in 2023, boilers 1 and 2 (each with a capacity of 604 MWt) in 2024, and boiler 9 (1080 MWt) by the end of 2030.¹⁴

The **Territorial Just Transition Plan for Eastern Wielkopolska** (2021) earmarks €415 million for transition of the subregion. According to the plan, the sub-region aims to decontaminate and reconvert the degraded areas to focus on renewable energy production, including the production of green hydrogen. Just Transition Fund (JTF) will also support circular economy development and investments to increase energy efficiency through retrofitting and insulation of buildings. Moreover, the fund will support training and reskilling activities for 5,500 workers in the lignite industry.

8. Territorial Just Transition Plan for Eastern Wielkopolska (2021)

9. ZE PAK. 2023. Information on the structure of fuels, the impact of electricity generation on the environment and measures to improve energy efficiency in 2022 ZE PAK Spółka Akcyjna. <https://www.zepak.com.pl/o-firmie/struktura-paliw/ze-pak-sa.html>

10. Christiaensen L. et al. 2022. Towards A Just Coal Transition Labor Market Challenges And People's Perspectives From Wielkopolska. *The World Bank*. <https://openknowledge.worldbank.org/server/api/core/bitstreams/67498d8d-1fe9-5c6c-bb65-5e9a82c4afe7/content>

11. Derski, B. 2022. Koniec kopalni Adamów. Co w jej miejsce? - WysokieNapiecie.pl. <https://wysokienapiecie.pl/35843-koniec-kopalni-adamow-co-w-jej-miejsce/>

12. PAK Brown Coal Mine Konin SA. 2022. The Drzewce opencast mine has ended its exploitation. <http://www.kwbkonin.pl/index.php/2022/08/>

13. PAK Brown Coal Mine Konin SA. 2022. The Józwin opencast – farewell to the overburden. <http://www.kwbkonin.pl/index.php/2022/07/13/odkrywa-jozwin-pozegnanie-z-nadkladem/>

14. Territorial Just Transition Plan for Eastern Wielkopolska (2021)

Current regional strategies and plans for transition (including for economic development, diversification, and decarbonisation)

The **Strategy for Climate Neutrality of Eastern Wielkopolska by 2040** (2021) contains measures to increase energy efficiency, including deep energy renovation, the use of renewable energy sources and hydrogen (with a particular focus on green hydrogen) and clean mobility. Intermediate steps will be taken to reduce GHG emissions by more than 55% by 2030, to increase the share of renewables in total energy consumption by more than 32%, and to increase energy efficiency by 32.5%. Phase out of coal exploitation and ending its use in electricity generation and heating by 2030 will translate into a new energy system based on solar, wind, geothermal, biomass, biogas and hydrogen, which will also accommodate new forms of energy communities and will be complemented by individual sources of energy generation. The actions taken will aim to achieve more ambitious targets than those set out at national level under Poland's Energy Policy to 2040 (PEP).

The **Strategy for the Development of the Wielkopolska Region to 2030** (2019), which designates Eastern Wielkopolska as a strategic intervention area, aims at the transformation of the region not only from the climate but also from the socio-economic dimension. The measures taken under the plan will be in line with the **Land-use Plan of Wielkopolska – Wielkopolska 2020+ (PHP)** (2019), which sets out the spatial policy of the region. According to the PHP, the key objective of the spatial development of the region is to create a new basis for continued functioning of the energy industry but based on other energy sources.

These plans are also consistent with the **Regional Innovation Strategy for Wielkopolska to 2030** (2020), which aims to increase the region's innovation and competitiveness. The strategy targets diversification of the sub-regional economy by tapping into potential new markets, such as through the creation of a hydrogen valley.

Lastly, the **Social Policy Strategy for the Wielkopolska Voivodeship until 2030** (2020) aims to strengthen civil society, improve the quality and accessibility of social services, implement programmes to combat social exclusion and carry out socio-occupational reintegration of people from high social risk categories by using social economy tools, implementing programmes around crisis prevention and intervention.

There are two main pillars that underpin most of the above-mentioned strategies. First, the decarbonisation pillar, under the umbrella of the 'Wielkopolska Energy Valley', which will channel investments in renewables, hydrogen, energy efficiency and electrification of transport. Second, the economic diversification pillar, which is focused on building a start-up ecosystem, technology hubs, business incubators and support for investment in SMEs.

Principal actors in development and implementation of transition strategies and plans

At national level: the Ministry of Climate and Environment, the Ministry of Development Funds and Regional Policy, The Ministry of Family, Labour and Social Policy and the relevant state agencies

At local level:

- Regional and local governments: Wielkopolska Marshal's Office, powiat of Konin and surrounding municipalities;
- Coal utilities: Power Plant Complex ZE PAK (Zespół Elektrowni Pątnów-Adamów-Konin SA);
- Trade Unions and workers organisations: ZE PAK Workers' Council, NSZZ Solidarność Trade Union ZE PAK Capital Group, KADRA Trade Union in Konin Lignite Mine
- Regional Development Agencies: Regional Development Agency SA in Konin (ARR Transformacja);
- Local Chambers of Commerce: Turek and Konin;
- NGOs, think tanks and associations: CEE Bankwatch, the Polish Green Network, Institute of Green Future Foundation, the InStrat Foundation, Young Locals Association, 'Europe, a Patient' Association, Development YES – Opencast Mines NO' Foundation, Association "Action Konin", Wielkopolska Centre for Social Economy

Regional and local transition projects and initiatives

Notable ongoing and recent transition-related initiatives and projects

The Just Transition Lab 2020-2022¹⁵ is an EUKI project aimed at assisting coal regions in planning their transitions in a participatory manner. The project provided local communities in Eastern Wielkopolska in Poland and Lausitz in Germany with a forum for inclusive debate and invited citizens to address the region's specific problems, seek solutions, and formulate concrete project ideas. The project also offered access to policy updates, best practices, useful information, and opportunities for networking and exchange of ideas between the two regions.

Cooperative transition of Polish and Bulgarian coal regions¹⁶ is a project funded by ECF and EUKI being undertaken by "Europe, a Patient" Association in partnership with the German-Bulgarian Chamber of Industry and Commerce (AHK). The project aims at gaining the support of key stakeholders in Polish and Bulgarian coal regions for transition to net zero economy by engaging them in region-specific job creation strategies, based on establishing cooperatives co-managed by local stakeholders. Activities of this project will engage key stakeholders in the process of writing cooperative job-creation strategies, and advocacy activities to promote and mainstream the strategies for cooperative transition among key target groups on the regional, national and the EU level.

The ZE PAK Capital Group, the biggest employer in the sub-region and the largest private energy group in Poland, has developed an **Energy Transformation and Development of Hydrogen Economy Strategy (2020)**¹⁷ for the next 10 years. The document has two main strategic goals: 1) energy transformation from coal to renewable energy sources and 2) building a full value chain for a hydrogen economy. These goals are going to be achieved by construction of wind and photovoltaics farms for wind and solar energy production, production of energy from biomass, biogas and production of green hydrogen, including production of zero emissions hydrogen city buses and motorboats.

In addition, a declaration was signed to establish the **Wielkopolska Hydrogen Valley (2021)**¹⁸. The signatories included the Marshal's Office of the Wielkopolska in Poznań, Solaris Bus & Coach (one of the leaders in the production

of hydrogen buses), the mayors of the largest towns and cities in the region, ZE PAK, Wielkopolska Hydrogen Platform, and the Regional Development Agency in Konin. The synergy of activities undertaken by the stakeholders will allow them to set up a coordinated and integrated ecosystem of relations to bolster the development of technology, expertise, business, and education around the production of hydrogen in the area.

Notable planned transition-related initiatives and projects

A notable planned transition related initiative is the **Konin Smart City Plan** which was published in 2023.¹⁹ The plan will be included in the Development Strategy for the City of Konin, and in it will cover three areas: social participation and integrated city management (smart people & governance), 2) green and innovative economy and transport (smart economy & mobility) and 3) infrastructure and environment (smart life, environment and infrastructure).

Another notable transition-related project is the **Life After Coal – Implementation of the Strategy for Climate Neutrality Eastern Wielkopolska 2040 (2021)** under the LIFE programme. The co-beneficiaries of the programme are the Regional Development Agency S.A. in Konin, the Regional Development Agency S.A. in Łódź, as well as municipalities, counties, and numerous other organisations.²⁰ The project started at the beginning of 2023, and it will continue for the next nine years. The main goal is to achieve climate neutrality by 2040 in Eastern Wielkopolska in a just way that takes into account the needs of social groups at risk of exclusion and marginalisation. Some of the project specific activities will include: strengthening local government administration bodies (e.g. by appointing climate advisors or creating databases and IT systems for energy assessments), preparing thermo-modernisation projects, and providing knowledge to local governments on how to effectively apply for funds, including from the Just Transition Fund.

In addition, ZE PAK SA, the Poznań University of Life Sciences and Polish Waters signed a letter of intent in January 2023 on **cooperation in conducting research and analysis of technical solutions aimed at improving the condition of the environment in the Konin-Turek energy basin**, considering the new investments by ZE PAK S.A. in renewable and nuclear energy.²¹

15. European Climate Initiative (EUKI). 2021. Just Transition Lab – EUKI. <https://www.euki.de/en/euki-projects/just-transition-lab/>

16. German-Bulgarian Chamber of Industry and Commerce (AHK). n.d. Cooperative transition of Polish and Bulgarian coal regions. <https://bulgarien.ahk.de/bg/cooperative-transition-of-polish-and-bulgarian-coal-regions-1-2>

17. ZE PAK. 2020. Strategy Directions ZE PAK SA. https://ri.zepak.com.pl/upload/files/kierunki_strategii_fin_v4_ang1.pdf

18. Solaris Bus & Coach. 2021. Solaris signs a Letter of Intent for Wielkopolska Hydrogen Valley. <https://www.solarisbus.com/en/press/pdf/1585>

19. Municipal Office in Konin. 2022. Smart City Plan in Konin. <https://www.konin.pl/index.php/jeden-news-1432/plan-smart-city-konin.html>

20. Teraz-Środowisko. 2022. Marszałek wielkopolski: do 2040 roku chcemy być regionem zeroemisyjnym. <https://www.teraz-srodowisko.pl/aktualnosci/wielkopolska-neutralnosc-klimatyczna-Life-After-Coal-PL-12853.html>

21. ZE PAK. 2022. Cooperation in the area of investments related to the improvement of water retention and the development of renewable and nuclear energy. <https://ri.zepak.com.pl/aktualnosci/1808-wspolpraca-w-obszarze-inwestycji-zwiazanych-z-poprawa-retencji-wodnej-oraz-rozwojem-energetyki-odnawialnej-i-jadrowej.html>

An investment plan has also been announced for the **construction of four nuclear units in Pątnów** where the Pątnów lignite-fired power plant owned by ZE PAK is currently located.²² The nuclear energy plant is planned to start operating in 2036. In March 2023, ZE PAK and PGE (Polish Energy Group) signed an agreement concerning the preparation of the construction of the nuclear power plant in the Konin region. The enterprises formed a new company for this purpose. PGE and ZE PAK will each hold 50% of shares in the newly established company, making decisions based on consensus. The company will first prepare a project feasibility study, a site survey and an environmental impact assessment for the nuclear power plant. Piotr Woźny, president of ZE PAK, emphasised that the power plant will be built in Eastern Wielkopolska, showing that there is an alternative future for regions heavily dependent on mining.

Regional and local transition challenges and opportunities

Nature and scale of key transition challenges

Eastern Wielkopolska faces numerous challenges related to the transition, including structural unemployment, cuts of spendings on public services due to a shrinking tax base, and depopulation (especially due to migration of younger people to Poznań and Warsaw). Industrial restructuring, including the reduction of mining activities and decommissioning of power plants, as well as the COVID-19 pandemic have significantly increased unemployment levels in the region.

The ZE PAK Group mining and power plant complex has been the dominant employer in Eastern Wielkopolska for decades. As the company pursues its coal phase-out strategy, it is closing its coal-based utilities and channelling its investments into renewables, but not always in Eastern Wielkopolska. As a result of coal phase out, there will be negative impacts on supply chain providers of the Group, such as the industries processing and disposing of by-products from combustion in power plants or involved in the production of construction materials, which employ several hundreds of workers. Consequential employment losses at ZE PAK and in the Group's supply chain and lack of stable incomes can be expected to translate into a reduction in purchasing power, which will have a negative impact on the local economy. In turn, loss of revenue for local and regional authorities may reduce the implementation of development investments and further marginalise the sub-region.

A further challenge is the region's high energy dependency due to inefficient and outdated heating systems in the housing sector and high energy intensity of the

building stock (more than 33.000 buildings require thermo-modernisation). Furthermore, 18 to 20 thousand households are affected by energy poverty.²³

Tackling environmental degradation and adapting to climate change is another key challenge for Eastern Wielkopolska. It is crucial to address the negative environmental impacts created by the coal industry which poses an important burden for municipalities (e.g., with the management of brownfield sites which require appropriate planning documents and allocation of significant financial resources), the environmental risks (e.g., water management) and the economy (e.g., poor quality of agricultural land).

Moreover, the transition presents several social challenges. Notably, its effects on women, who are often economically dependent members of the families of workers in the coal sector and related industries. The transition can also contribute to increasing feelings of loneliness or mental crises hampering the smooth transition to the new reality. To counter these negative trends, it is necessary to take measures aimed at improving the quality of life of residents.

Meeting the ambitious transition timeline and objectives will require a transformation of the regional and sub-regional economy at the same time. Businesses will need to adapt to a zero-carbon, resource-efficient and digital economy, including the transition from 'dirty' to 'green' jobs. However, this requires overcoming low absorption capacity of new solutions to diversify the economy, insufficient share of resources allocated to innovation and R&D activities, and low levels of digitalisation and automation. Also, to acquire the skills required in a changing labour market, and to increase employability and counteract depopulation, will necessitate improvements to the quality of vocational education and provision of retraining opportunities. More generally, there is also a need to improve awareness of climate change and the transition situation of the region and economy.

Nature and scale of key transition opportunities

Multiple opportunities are expected to arise in the process of transformation of the region into a climate-neutral area, including in the development of a zero-emission economy, zero-emission transport, low carbon energies and energy-efficient construction. Moreover, green investments will activate the local economy, improving its competitiveness and providing new, attractive jobs.

It will also be important to exploit existing development potentials related to the geographical advantages of the sub-region, its experience in the industrial sector, tourism potential (e.g., creation of new water reservoirs in post-mining areas), agriculture, as well as favourable conditions for the development of alternative energy sources.

22. Wojaczyk, J. 2023. Nuclear power plant in Poland. A joint company ZE PAK and PGE was established. Zielona Interia. <https://zielona.interia.pl/eko-technologie/energetyka/news-elektrownia-jadrowa-w-polsce-powstala-wspolna-spolka-ze-pak-nld,6639995>

23. Territorial Just Transition Plan for Eastern Wielkopolska (2021)

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Initiative for coal regions in transition

The Initiative for coal regions in transition is led by the European Commission.

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