



EUROPE'S COAL REGIONS:

**Boosting employment,  
environment, economy  
through 'just transition'**

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The Regions Beyond Coal project is sponsored by  
the European Climate Initiative (BMU-EUKI).



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Layout: Anita Drbohlav, [www.paneemadesign.com](http://www.paneemadesign.com)

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## CONTENTS

<b>INTRODUCTION</b>	<b>4</b>
<b>SILESIA, POLAND</b>	<b>12</b>
<b>EASTERN WIELKOPOLSKA, POLAND</b>	<b>16</b>
<b>WESTERN MACEDONIA AND ARCADIA, GREECE</b>	<b>20</b>
<b>PERNIK AND BOBOV DOL, BULGARIA</b>	<b>24</b>



The WWF European Policy Office has received funding from the EU via the following grants:

- Horizon 2020 research and innovation programme under Grant Agreement number: 785087 – InVECAT
- Executive Agency for Small and Medium-sized Enterprises (EASME) LIFE19 NGO/SGA/BE/200016
- Raising public awareness of development issues and promoting development education in the European Union EuropeAid/151103/C/ACT/MULTI
- European Commission, Directorate-General Migration and Home Affairs Donor: 821579 – Forest Crime

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# INTRODUCTION

To fight the climate crisis, the European Union has committed to reducing its greenhouse gas emissions to net zero by 2050. A fundamental step on that road is phasing out coal – a highly polluting energy source.





WWF’s view is that coal as an energy source needs to be finished in Europe by 2030. Due to the dropping costs of wind and solar power, the inefficiency of the mining process, and EU and national climate policy, this process is already well under way. As of March 2021, half of Europe’s coal plants had already shut down or have a closure date.

However, closing a coal mine or a plant has consequences. On the people employed there, their families, the wider community and the economy of the region. It is essential that a coal phase-out is meticulously planned, consulted upon, with all its impacts thought through and high-income economic alternatives found, so the process is socially fair as well as good for the people and the climate. This is known as a ‘just transition’.

A ‘just transition’ away from coal inevitably requires a lot of up-front investment, in re-training for former coal workers and to create new economic opportunities.

In 2020, the EU launched a Just Transition Fund – €17.5 billion in the form of grants (rather than loans), which is meant to support high-carbon regions in the shift towards a climate neutral economy and ease the social and economic consequences, so that no one will be left behind. To access the fund, coal and other industrialised regions must draw up a plan, which is submitted by their government to the EU Commission.<sup>1</sup>

To better understand what is at stake, and the potential benefits for local employment and communities of getting this ‘just transition’ away from coal right, WWF commissioned studies in several coal regions. We looked at Silesia and Eastern Wielkopolska in Poland; Western Macedonia and Megalopolis in Greece, and the Pernik and Bobov Dol municipalities of south-western Bulgaria, with additional lessons learned and recommendations also for Stara Zagora, the biggest coal region in Bulgaria.

We found that a successful ‘just transition’ is a complex procedure. But if done right, it can have a net benefit on coal regions in terms of employment, the economy and the environment.

Overall, the studies found that while **many jobs are at risk in these regions, using the EU’s Just Transition Fund and other financial resources to make smart investment in people and sustainable sectors could more than replace the jobs lost, help the environment, and boost local economies.**

**The EU, national and local governments all have a role to play in ensuring this is the case.**

<sup>1</sup> WWF has set up an online assessment tool for these plans: <https://just-transitions-plan.wwf.eu/en>

## Key findings and examples:



- In Europe's coal heartlands, **job numbers in mining are falling**. In the Konin region of Poland, the number of people employed by the mining group ZE PAK decreased by 60% to 4,000 between 2011 and 2020.



- **Many thousands more coal jobs are at risk**. In Silesia, Poland, 15,000 to 18,000 workers in mining-related companies are at risk of losing their jobs by 2030.<sup>2</sup> In Greece, around 1,833 workers are estimated to be in imminent threat of going out of employment in the Western Macedonia region alone (November 2020).<sup>3</sup>



- **Fewer coal jobs means fewer other jobs**. Many jobs are indirectly linked to the coal industry and will be impacted by coal closures. For example in Bulgaria, adding up all impacts on employment of the coal phase-out gives a total of at least 43,000 jobs affected – approximately 85% of them in the Stara Zagora region.<sup>4</sup> In Western Macedonia in Greece, repercussions of coal phase-out could potentially impact 6,000 more jobs indirectly linked to the industry.



- The impacts go beyond employment numbers. **The redundancies of coal employees will also affect sub-suppliers, as well as the tax revenues in the respective regions, the social security and health insurance systems**. For example, local communities in Western Macedonia, Greece, will suffer income losses of some €3.1 for every €1 taken off lignite-fired activity.



- However in many regions, sustainable jobs **can more than replace those lost**. In Silesia, Poland, as many as 85,000 jobs in different economic branches could be created by 2030. Taking this together with the anticipated reductions in employment, we can expect an overall net increase of around 34,000 jobs in total (assuming proper investment levels in economic diversification). According to the reference scenario, 12,000 jobs will be created in Poland's Eastern Wielkopolska region in energy alone. Indeed, the region has stated that it wants to become Poland's 'energy valley'. These jobs would be more than enough to make up for those lost in the coal lignite sector and related sectors.<sup>5</sup>

<sup>2</sup> Mining-related companies are understood as direct suppliers of products and services to the coal industry, meaning companies providing machinery, services and power plants buying coal.

<sup>3</sup> Workers in imminent threat refer to PPC sub-contractors and seasonal workers.

<sup>4</sup> WWF-Bulgaria's study calculated Indirect jobs as those that are not directly part of the coal mining and electricity and heating production in the power plants, but are connected with all local economic activities, services, maintenance, transport, food etc., related to the coal and energy facilities and infrastructure.

<sup>5</sup> The data describing new job potential should be treated per region, as different methodologies were used in each case. For more details please refer to the reports available on the [www.regionsbeyondcoal.eu](http://www.regionsbeyondcoal.eu) website.



- It is important to consider which jobs would be suitable for former hard coal miners, given their skill sets and salary expectations. In Silesia, Poland, the sectors with the greatest potential for this are the **building, manufacturing, logistics, land remediation and renewable energy industries**. By 2030, these sectors alone can provide 24,000 to 41,000 jobs.



- It will cost money, but **investment comes with returns**. In the Konin region of Poland for example, additional investment expenditures of approximately €1.2 billion are required in order to implement the “optimistic scenario” of faster coal phase-out (by 2025) and implement adequate number of RES installations as well as measures to compensate job losses. However, these additional expenditures will “pay off”, by contributing to the generation of an equal amount of added value in the regional economy.



- **The returns are not immediate**. The studies demonstrate that the process of investing in a just transition would likely only show its benefits – such as job creation and environmental restoration – after some time. In Bulgaria, for example, the expected delay is **three years**.



**NEW JOBS IN  
EU COAL REGIONS  
MUST BE 'DECENT'  
AND GENERATE  
EQUAL OR  
HIGHER INCOMES  
THAN BEFORE.**

## Recommendations to EU policy-makers:

- **The Just Transition Mechanism should prioritise investments linked to the net-zero carbon economy.** This will help use the skills of former coal workers and take advantage of the growing demand for technologies and products in a low-carbon economy. It will also help ensure that new jobs are future proof and therefore contribute to social justice and public support for the transition. New jobs in the coal regions must be decent<sup>6</sup> and generate equal or even higher incomes for the people, local and national economy.
- **When approving Territorial Just Transition Plans, the Commission should:**
  - **Verify that the ‘Partnership Principle’ has been upheld.** All partners outlined in the European Code of Conduct on Partnership, including social partners, workers, communities and youth should be engaged in the development of the plans. The partners should be involved in planning the supporting measures and reskilling of existing and future workers directly and indirectly affected by move from coal to a clean economy.
  - **Verify that planned investments will not prolong fossil fuel extraction and use, and that a clear end date for coal has been set nationally or regionally.** Investments should accelerate the transition to a sustainable and diversified local economy, support future-proof and quality jobs and provide social support for coal communities and municipalities. A clear end date provides certainty and enables targeted educational programmes for re-skilling and upskilling to be developed, with a clear and defined timeline. The end date for coal should be at or before 2030 to remain consistent with the Paris Agreement commitments.
  - **Verify respect for the Polluter Pays principle and that planned investments place people over profits.** Public funding is limited and should align with the EU’s environmental objectives. The EU Just Transition Fund must uphold its aim to enable ‘regions and people to address the social, employment, economic and environmental impacts of the transition towards the Union’s 2030 target for climate and a climate-neutral economy by 2050, based on the Paris Agreement’.
- **Seek to promote transparency by sharing and publicising draft and final plans.** This will facilitate learning between regions, provide valuable information to investors as well as improve the potential for engagement of all partners in the development of plans.
- **Ensure that plans set out a detailed framework of support for all categories of workers affected directly and indirectly** by the transition to a green economy, particularly women and youth. Bespoke and targeted support will be needed for each category of worker and demographic group and this should be developed notably in consultation and partnership with social partners, the community and civil society.
- **Encourage the use of all pillars of the Just Transition Mechanism and emphasise the importance of making use of all available national and EU public funds such as the broader cohesion funds, to implement plans.** In particular, these should support the sustainable diversification of the economy through investments in the development of sustainable small, medium and micro-enterprises. All public funding should be coherent with the transition to a climate neutral, sustainable economy which leaves no person or region behind.
- **The EU Just Transition Platform should provide a forum, including via its online platform, to exchange on the development and implementation of the territorial just transition plans,** and to raise issues of partnership in the development of plans. The Commission should commit to follow-up and seek to resolve any issues raised relating to non-respect for the European Code of Conduct on Partnerships in developing plans. This forum should be open to all partners.
- **The foreseen Action Plan on Social Economy and the implementation of the European Pillar of Social Rights should take particular account of the needs of regions in transition and particularly coal regions.** The social economy offers considerable potential benefits for coal regions which often face both social and environmental challenges together. Building capacity and specifically promoting the cultivation of social enterprises in these regions can offer win-win social and environmental solutions for communities.
- **The Commission should ensure that the territorial just transition plans are consistent with other EU funds** – including the main recovery fund, the ‘Recovery and Resilience Facility’ (RRF) – and in line with the EU sustainable investment taxonomy and the Do No Harm Principle. Where possible, the RRF should be used to support the implementation of the plans, alongside the leveraging of other national and EU Cohesion funds in support of the just transition.

<sup>6</sup> For a definition of ‘decent’ work, see [www.etuc.org/en/decent-work](http://www.etuc.org/en/decent-work)



## Recommendations to national and local policy-makers

- **Ensuring the move away from coal is well-planned, transparent and coordinated is critical** to your future economic and social success. The transition process should be managed at regional level.
- **Public funding and advice must be provided** by the national government, and private funding leveraged, to support regions as they move away from coal.
- Public funding should be used in a consistent and constructive way. Member States should make a public point of ensuring that **recovery funding from the Covid-19 crisis is used in ways consistent with delivering a just transition to a green economy.**
- **Supporting and strengthening the competences of municipalities, civil society and trade unions** around regional development issues is in the interest of the regional authorities and can help in achieving a successful shift toward this goal.
- The EU Just Transition Mechanism can provide crucial public support, but to access it, it is important to have a **solid and robust Territorial Just Transition Plan.**
- **Territorial Just Transition Plans plans must be environmentally and socially sustainable,** aligned with the Paris Agreement and EU 2030 and 2050 climate objectives.
- **Ensure Territorial Just Transition Plans include an end date for coal by 2030,** and exclude other fossil fuels and unsustainable energy types like nuclear energy, new hydropower and most forest biomass<sup>7</sup>. Member states and regional authorities should be aware that in order to access the Just Transition Mechanism, regions must provide a timeline for ceasing or scaling down activities such as coal and lignite mining or coal fired electricity production. Without significant decarbonisation effort to be introduced by 2030, regions should not be eligible to access the Fund.
- Territorial Just Transition Plans must bring **sustainable** economic diversification and address social inequalities and injustices. New, high quality jobs are needed to address both demographic issues and regional development.
- **Investing in training and reskilling is essential** for outgoing coal and related employees to find local employment.
- The partnership principle must be applied throughout the transition away from coal. This means **social partners (NGOs, trades unions) and communities should be consistently and meaningfully involved** in the planning of the labour market transformation, as well as the implementation and monitoring of the changes
- **The environmental impacts of coal mining must be tackled,** for example by restoring groundwater resources, planting native trees, restoring soils, land rehabilitation and industrial waste decontamination.

<sup>7</sup> Unless this produces using sustainable sources.



**LOCAL-LEVEL  
JUST TRANSITION  
PLANS MUST  
INCLUDE A  
2030 END DATE  
FOR COAL.**

## Chapter 1

# SILESIA, POLAND

Industrial and largely urban region of Silesia has been in the transformation process for past 30 years. Now, with the opening of countrywide coal phase-out discussion and crisis in hard coal mining sector in Poland, we can expect the changes to accelerate.





Mining represents 7% of GDP in the Silesia region of south-western Poland, and is the region’s fourth biggest industry. 74,500 people worked in the hard coal mining industry (52,000 if excluding coking coal)<sup>8</sup> in the region as of end 2019. However, Silesia is now at a turning point. The decision to close down Poland’s hard coal mines and set a coal phase out date of 2049, as per the preliminary deal struck between the national government and the mining trade unions in 2020, marks a new chapter in the country’s journey towards climate neutrality.

The goal of this study was to assess the consequences of decarbonisation for the local labour market, identify alternative economic activities that could transform the economic structure of the region and define the tools and support needed to effectively plan and manage the process. We looked at two decarbonisation scenarios:

- 1) phase out-by 2030 – as supported by WWF and compatible with Paris Agreement goals,
- 2) phase out trajectory described in Polish Energy Policy, called the “high EU ETS prices” which results in 11% of coal still present in Polish energy mix in 2040 and implications of both on jobs in mining<sup>9</sup>.

While analysing the implication on employment in mining we have also looked how the group will get smaller due to the natural retirement process (assuming the hiring process is stopped). The study was written by the Institute for Structural Research.

## Main conclusions from the Silesia case study

**It is possible to create 75,000-85,000 new jobs in Silesia by 2030.** The construction, manufacturing and energy sectors have the highest potential to replace mining jobs. These industries provide relatively good wages, are similar in terms of the required skills and competences to mining and are also in line with regional specializations of the Silesian Voivodeship. Additional activities that can replace mining are logistics and land remediation, which additionally respond to the need to develop post-mining areas. By 2030, around 24.000 to 41.000 jobs could be created in the sectors mentioned above.

Today, coal mining is Silesia’s fourth biggest industry. But it is possible to create 75,000–85,000 new jobs in Silesia by 2030.



<sup>8</sup> The analysis excludes coking coal, which is considered by the EU to be a ‘strategic resource’ and so will be phased out more slowly.  
<sup>9</sup> This scenario assumptions are already negatively verified by the market – the EU ETS prices are rising faster than predicted.

**The main challenge of transition is the economic diversification of the region.** This could be achieved by developing services like business processes, IT, medical industry and tourism, to name but a few. By 2030, 43,000 to 55,000 jobs could be created in this way. The creation of new jobs should be supported by strong incentives for investors who are ready to locate their activities in mining municipalities. Support should be offered to existing and new entrepreneurs for the creation of high-quality jobs, for the development of science and new educational fields, and adequate spatial development policies. Assuming job numbers shrink in mining and mining-related industries calculated by IBS and using the lowest estimates of the potential for new jobs creation in the activities mentioned above, there could be a net increase in job numbers by 2030, of around 34,000.

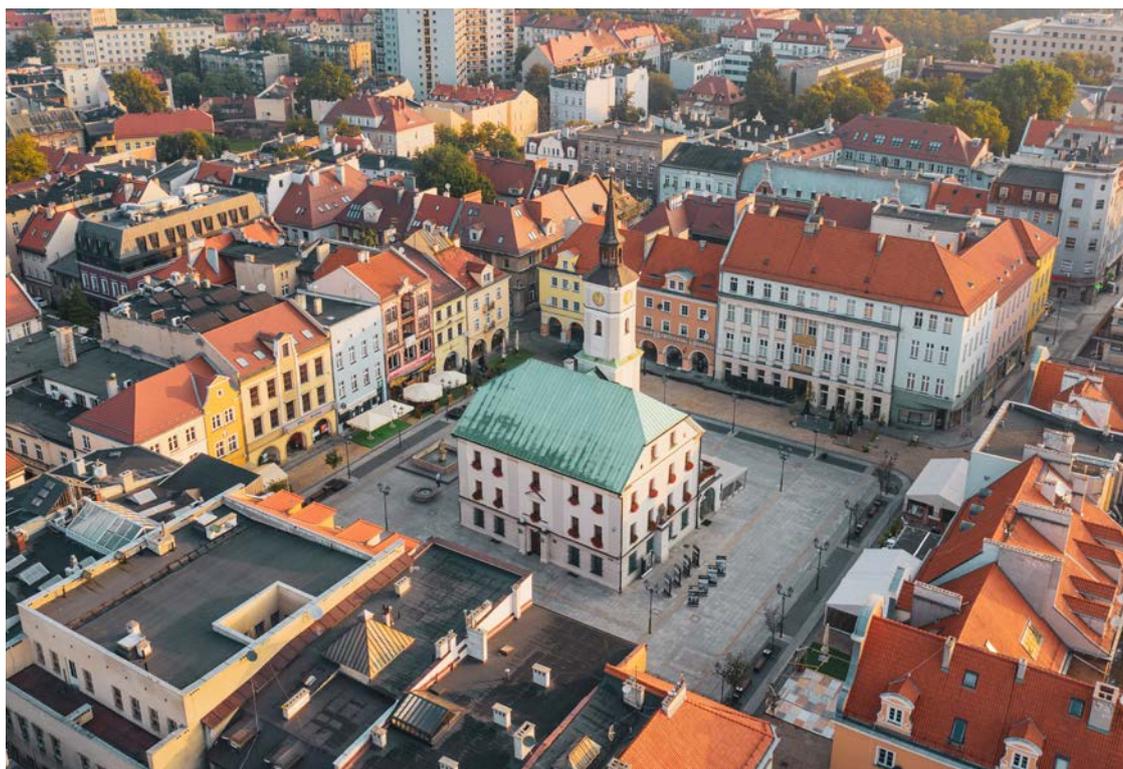
**A program for retraining mining workers is needed.** At the end of 2019, 74,500 people worked in the hard coal mining industry in the region of Silesia. This figure includes 52,000 people employed in companies producing mainly steam coal. Assuming the current miners retire at the natural pace, there would be no underground employees left in the industry by 2050. However, because of the difficult financial situation of the mining industry, a rapid increase in the price of EU ETS allowances, and the climate targets adopted by the EU the pressure on accelerating changes in the Polish energy mix have increased. Thus, by 2030, jobs in steam coal extraction may be down by as much as two-thirds

compared to the current employment level. Likewise, up to 13,000 current mining workers will be forced to leave the sector in Silesia in the next 10 years. It will be necessary to implement safety nets for, or retrain these workers.

**It is especially urgent to provide employment prospects outside the mining industry for young workers.** The average age of an employee in the hard coal mining industry in Silesia is currently 39, but there is a wide range. Surface workers are on average 12 years older than those working underground (48 compared to 36 years among miners working underground). In addition, the retirement system allows employees who work underground to retire early. This makes it possible to distinguish many subgroups with different access to safety nets in the group 'employed in the mining sector'. Older workers will either retire, take mining leave or go to work on the mine closure process. On the other hand, special support will be required by underground miners who are younger than 35, to help them switch to a sector which offers employment opportunities. Moreover, it is necessary to include access to safety nets for those miners working on the 'surface' (such as administration, supervision or blue-collar workers) as well as workers in privately-owned mines. Retraining will be effective only if it provides attractive support for workers, takes into account their individual preferences and predispositions, and leads to stable and high quality employment.



The  
**IT, medical  
and tourism  
industries  
could help  
provide jobs in  
new sectors in  
Silesia.**



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**Mining-related industries will also require financial and advisory support from the government and regional authorities.** We estimate the employment multiplier to be 1.2–1.4, mainly in the sectors of machinery industry, energy and transport.<sup>10</sup>

**The vast majority of jobs related to the Polish mining industry are located in the Silesian region.** In the first half of 2020 Silesian companies were responsible for 78% of responses to the procurement procedures in Polska Grupa Górnicza (Polish Mining Group). We estimate that 15,000 to 18,000 workers in mining-related companies are at risk of losing their jobs by 2030 due to the projected decline in steam coal production. During earlier stages of mining restructuring (1998-2002 and 2014-2016), when many of the mines were being closed and workforce was reduced significantly, mining-related companies and their employees were the first to feel the effects of this process. At the time of the publication of this report (January 2021), the largest contractors of mining companies were gradually expanding their products and services to other markets, also due to the difficult situation of the mining industry. The process of diversifying business activities should be accelerated by using grants or attractive industrial loans, including funds for investments, R&D, exports and training for employees. The unfavourable demographic trends of the region (cities depopulation, ageing) and the consequences of the economic crisis caused by the pandemic further increase the need to develop alternative economic activities for the region.

**Mining in Silesia is heavily concentrated in certain geographical areas.** There is therefore a risk that any negative impacts of the shift away from coal are exacerbated in those places. In order to increase their competitiveness, government support will be needed to help make strategic investments that create stable and well-paid local jobs. Regional authorities will need to coordinate the development of those new industries.

**The transformation process should be managed at regional level.** The central coordinating role in the transformation process should be played by the regional government, which would leave the municipal authorities free to choose how exactly they wish to diversify economically. The regional government should be able to participate in the discussion on the largest external investments, which are currently handled mainly at national government level. At the same time, the region should develop its own financial instruments using local government companies, such as the



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Silesian Development Fund, the Upper Silesian Fund and other related institutions. The principles of investment aid should be adjusted to regional needs, and regional and government policy should be complementary in this respect.

**Supporting and strengthening the competences of municipalities, civil society and trade unions in the regional development topics is in the interest of the regional authorities and can help in achieving a successful shift to a climate-neutral economy.** In January 2021, the local development strategies of over half of the mining municipalities came to an end. This creates an opportunity to work out local solutions with the active participation of residents. The regional government as a transformation coordinator should inform, educate and advise municipal employees and local organizations. On the one hand, these activities should build the social capital necessary for a successful transition, and on the other, increase the effectiveness of the solutions agreed upon. Institutions of social dialogue such as trade unions, which are positively perceived by mining workers, should play a special role in supporting the process.

**The transformation of the Polish energy sector is an opportunity for the Silesia region to revitalise its economy.** This industrial and largely urban region has the potential to engage with and benefit from innovative and profitable activities. The key challenge will be fairness, meaning an economic shift with workers' best interests at heart, and ensuring that costs and benefits of the change are evenly shared across the region. For Silesia, this should mean replacing jobs in shrinking, outdated and polluting industries with jobs in modern, sustainable ones, while ensuring the economy remains resilient and no one is left behind.

<sup>10</sup> In this analysis, we took into account only the so-called "procurement effects". So the related jobs are direct suppliers of products and services for hard coal mining companies as well as recipients (buyers) of coal.

## Chapter 2

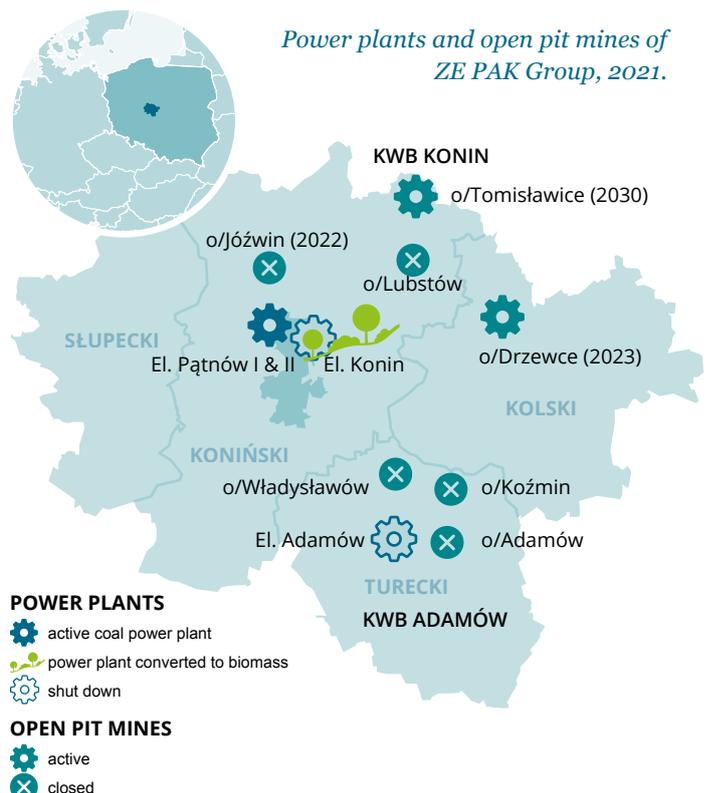
# EASTERN WIELKOPOLSKA, POLAND

High salaries and tax payments from the lignite utility ZE PAK have historically been the region's main drivers of growth. Now the group is changing direction from coal to clean.

ZE PAK has committed to ending all coal operations by 2030 and published a strategy to shift its current installed coal capacity into renewables – mostly photovoltaics, onshore wind and hydrogen.

1,800 out of 4000 ZE PAK's current employees will require support to re-enter the job market, but investments in the renewable energy sector could offer a massive employment opportunity.

The report commissioned by WWF Poland looks at the key social, economic and environmental challenges faced by Eastern Wielkopolska due to the transformation process. The report pays special attention to the role of the ZE PAK Group as the largest employer in the region and a major emitter of greenhouse gases. The report was written by researchers from Instrat, Warsaw-based think tank.





© GK ZE PAK

*Demolition of decommissioned Adamów power plant, December 2020*

## Main conclusions from the Wielkopolska case study

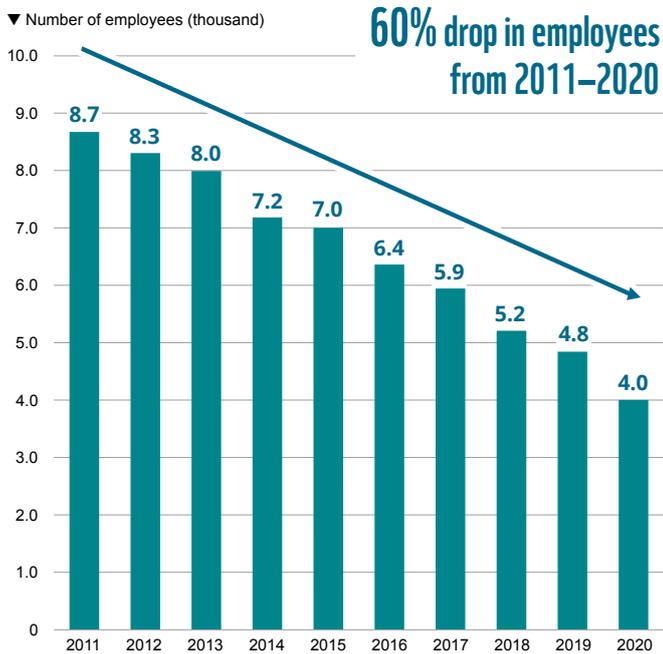
**The Eastern Wielkopolska region is in an unfavourable economic condition** compared to the rest of the Wielkopolska region (share in the region's GDP is below 10%), especially in terms of the unemployment rate and average salary. However, ZE PAK stands out positively, offering salaries comparable to those achieved on average in capital of Poland, Warsaw or in Poznań, capital of Wielkopolska region.

**In October 2020, ZE PAK published a new strategy with a radical change of direction.** The utility announced a plan assuming a gradual closure of all the existing lignite mines, abandoning the plans to open new ones and closure of existing lignite power plants by 2030. The clearly defined date of abandonment of coal is consistent with the obligations of the EU and Poland taken under the Paris Agreement.

**Further reduction in employment in ZE PAK will be faster than the rate of natural retirement of employees.** According to the report findings by the end of operations based on lignite mining, i.e. by 2030, only 55% of the

company's employees will acquire pension rights. Remaining 45% (1800 employees) will require support in re-entering job market in 2030 perspective. In shorter timeline, the shut down of the Józwin open pit mine in 2022 will create an urgent case for reskilling. Therefore, the company and the regional authorities are faced with the challenge of how to ensure the funding and implementation of the company's employee re- and up-skilling projects and land repurposing programs.

**The EU Just Transition Fund should support the transformation of the labour market and prioritize investments strategically linked to the realisation of the European Green Deal,** in order to use the competencies of the ZE PAK's employees and take advantage of the growing demand for technologies and products in a low-carbon economy. It is recommended to prepare comprehensive reskilling programs, using the potential of both public and private labour market institutions. Programs should be based on the contracted result – the new successful employment of a given employee and their retention in a given workplace.



Employment in ZE PAK Group in the years 2011–2020.



The modeling of the decarbonisation pace and its consequences for employment in the energy sector shows that **we can expect an increase in employment in the renewable energy value chain** in Eastern Wielkopolska. It will be sufficient to compensate for the decline in the number of employees in the lignite sector and related sectors.

**Analysis shows that 12.000 (baseline scenario) – 22.000 (optimistic scenario) new jobs can be created through investments in the energy sector in the region by 2030.** However, an important challenge is to adapt the skills of outgoing employees related to the lignite sector so that they can find employment in the RES industry. Otherwise, there is a risk, the vacancies will be filled by incoming/migrant workers which will result in a situation where despite an increase in the number of jobs offered by local companies, unemployment will increase at the same time.

**The implementation of the optimistic scenario could contribute to the creation of around 10,000 more new jobs in the region in the energy sector alone by 2030.** The implementation will require additional investment of approximately PLN 5.4 billion (EUR 1.2 billion), however, these additional expenditures will “pay off”, by contributing to the generation of an equal amount of added value in the regional economy.

**Both scenarios predict that the vast majority of new jobs will be created in the photovoltaic and biomass sectors.** In the baseline scenario biogas sector is leading, while in the optimistic scenario it is photovoltaics.

**The optimistic scenario carries an assumption that people employed in new work places will receive remuneration at the national average level. In such case we estimated that counties and municipalities of Eastern Wielkopolska may achieve over half a billion zlotys more tax revenues by the end of the decade (compared to today’s revenues).** Such financial strengthening will certainly be important for local governments that face the risk of losing a large part of their income due to the termination of mining activity of the ZE PAK Group.

**It is necessary to constantly monitor the application of the partnership principle, based on which social partners (NGOs, trade unions, civil society) should be permanently involved in the process of planning of the labour market transformation** as well as the implementation and monitoring of the changes.

**Lignite mines have a huge impact on groundwater, also in Eastern Wielkopolska. Speeding up the flooding existing open pits using the water from Warta river and restoring groundwater resources**



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**should be a priority.** It is necessary to take into account the simultaneous flooding and reclamation of the Belchatów lignite mine's open-pits, which are also located in the Warta catchment area and will use its water resources. Parallel restoration of the subsoil aquifer requires also measures to slow down the outflow and increase water retention in the region. Forests should be restored on the largest possible area of the post-mining land, using native tree species, and varied topography should be reconstructed. Efforts should be made to accelerate the restoration of soil organic matter.

**Further analyses concerning Eastern Wielkopolska and other Polish lignite regions should focus on economic aspects,** in particular the impact of the closure of mines and power plants on the local labour market and the possibilities of recultivating post-mining areas and restoring proper water relations.

**The central administration should prepare support for municipalities that will lose tax revenues resulting from from mine operation (land tax paid by mine and the income tax of mine employees).** Some communes will be hit harder in terms of limitation of municipal tax revenues, due to concentration of residents losing employment in ZE PAK, such as Kazimierz Biskupi, Kleczew, Ślesin, Sompolno. Providing support there will be one of the key challenges.

## Key figures



**2030**

by the end of this year, the ZE PAK Group plans to end the operation of coal mines and power plants in Eastern Wielkopolska in accordance with the company's new strategy



**73%**

ratio of the average GDP per capita in the Konin subregion to the national average



**by over 50%**

in 2017–2020 period, the total installed coal capacity of ZE PAK decreased by 50% to approx. 1.2 GW – the biggest contribution to this process was made by the shutdown of the Adamów coal power plant in 2017



**by 60%**

over the years 2011–2020, the number of employees in the ZE PAK Group decreased by 60%, to 4,000 people



**55%**

employees of the ZE PAK Group will acquire retirement rights by 2030 – this creates the need to support the remaining 45% of employees, i.e. approx. 1,800 people



**about 2/3**

employees of the ZE PAK Group live in five communes: M. Konin, M. Turek, Kazimierz Biskupi, Kleczew and Ślesin, which proves the significant spatial concentration of social challenges



**from 12,000 to 22,000**

jobs can be created through investments in the energy sector in the Wielkopolska region

## Chapter 3

# WESTERN MACEDONIA AND ARCADIA, GREECE

The Greek government intends to shut down all the country's brown coal (lignite) plants by 2028.



In the heart of Greek coal country, the Western Macedonia and Arcadia regions, some 2,200 workers in the lignite industry are estimated to be in imminent threat of losing their jobs – 1,833 in Western Macedonia alone. This would also risk as many as 6,000-8,000 more jobs indirectly. But sectors like land restoration, power plant decommissioning, energy efficiency, clean energy and waste management can be huge providers of new job opportunities for those impacts.

WWF Greece’s project study was carried out with LDK Consultants. The study is built along two main pillars: the short-term impacts of lignite phase-out on employment and how to smooth the process in terms of job retention; and the mid and long-term consequences from 2023 onwards, and proposals towards an efficient implementation of a smooth transition, leaving no-one behind.



## Main conclusions from the Western Macedonia and Arcadia case studies

**2020–2023 is a critical period, as 3.35 Gigawatts (GW) of lignite-fired power plants will be taken offline.** This requires a serious upfront effort towards preserving jobs as well as averting a potential loss of income, especially since from 2023–2028, there is likely to be a drastic shift towards renewables and a reorganisation of the local and regional economy as per the Greek government’s proposed Just Transition Development Plan.

**The role of the Greek power utility, the Public Power Corporation (PPC) in this particular process is of high importance.** This is because PPC owns vast amounts of land within lignite zones, whose future use will determine local and regional development, provided an appropriate cooperation scheme is put in place (for instance, by way of implementation of projects towards nature restoration, further development of energy-related activities, utilization of renewables through energy communities).

**Human resources and the upgrading of skills are paramount** to preserve and develop jobs and in order for the regional and local development models to be transformed.

**When it comes to human resources, the issue differs from one region to the next, hence the need for differentiated management strategies.** Data suggests that the Kozani area is most affected.

It is also critical to ensure the **jobs to be created** are compatible with the jobs (directly or indirectly) affected in terms of skills and requirements. Estimates have it that some 2,200 workers in the two regions are at risk of being cut – some 1,850 of which in Western Macedonia.

Furthermore, when it comes to indirect consequences, it is estimated that:

- Local communities within the region of Western Macedonia will suffer income losses of some €3.1 for every €1 taken off the lignite-fired activity. For the Regional Unit of Arcadia, income losses should be of €1.7.
- Some 30% of directly impacted workers should be expected to find employment under the projected investment scheme, once the relevant projects have become operational.

Expectations on the new direct or indirect jobs include:

- 80% of them will go to workers who have been recently unemployed
- 15% will come from people transferring to related sectors and labour mobility
- 5% of the jobs will go to qualified people who are already unemployed



**Communities could suffer income losses of €3.1 for every €1 taken off lignite activity.**

**Interventions to support and promote employment must take age and potential for retraining in related professions into account.** This is because:

- Requirements are not the same for all age groups.
- Coal mining employees often have a limited educational background and many would need retraining to move to a different sector.
- Young people will have less of a social safety net or future-proof job opportunities, while older employees could find it more difficult to begin a new career.

**For those directly impacted, certain combined interventions are required to help upgrade skills as well as boost employment and entrepreneurship:** a joint syllabus for skill development does not necessarily mean the content fits all groups. Training should be practical, swift and feature short scale programmes.

The best way to help both those directly and indirectly affected is through boosting entrepreneurship. This can be done by:

- Combining different measures to boost innovative entrepreneurship and the transformation of businesses that are indirectly affected.
- Incentivising business expansion by increasing their extroversion, especially in the Balkan countries, building on existing skills and know-how.

**Training in generic as well as specialised forms of entrepreneurship (such as energy communities and other collaborative schemes) must be complementary to the training to be provided towards the development of new skills,** as an objective of new or related activities.

**Projection and intervention guidance on all of the above aspects to be provided for the Region of Western Macedonia should be different from the guidance meant for the Region of the Peloponnese,** hence the need for qualification and further targeting of proposals on the just territorial transition plans.

To help boost new opportunities for lignite employees, we suggest a combination of actions:

- Employment at the various decommissioning projects to be carried out on the sites of the lignite-fired plants as well as in works towards land restoration.
- Association with the building sector (mostly for public works development).
- Supporting the transition to the domain of industrial activities as well as to specific energy-related activities.
- Employment – up to a given rate – in infrastructure development/ investment projects in the area.

The table below shows how relevant, in terms of job creation for former coal workers, investments in different sectors would be.

**Investments in construction and logistics may not yield employment before 2023.** Consequently, those activities directly linked to lignite – such as land restoration – must be supported over the transition period, to ensure the retention of a considerable proportion of jobs – as well as for environmental reasons.



Investments	Relevance to the impacted members of the workforce
Land restoration	+++
Power plant decommissioning	+++
Buildings energy efficiency upgrading under the “Energy efficiency program for households” (“Εξοικονομώ-Αυτονομώ”) project	++
Investments in clean energy	++
Investments in circular economy for waste management purposes*	+++

\* Greek municipalities have an EU target of recycling 55% of waste by 2025 and 65% by 2035.



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Qualified staff must be retrained, but in a tailored rather than a ‘one size fits all’ manner. There is currently no policy of this nature. More specifically, according to the national Just Transition Development Plan, the majority of development proposals as well as the calculation of the balance of flows to and from the labour market mostly concern new jobs within the entire range of the labour market (mobility and current unemployment). This particular aspect is critical for the coal regions, given the need for new economic development there. When it comes to the groups directly affected, however, the solution to adopt should be far more specific, as it is evident that – at least in terms of loss of income – securing jobs amongst the staff directly impacted, over the period from 2021 to 2023, should also safeguard jobs indirectly associated with the coal phase-out process.

Employees need to receive up-to-date, targeted support. This support must be part of the overall transition process and should link to the other initiatives. The support and resource needs must be analysed and identified, and appropriate support secured as well as the availability of sufficient resources. This must be captured in the territorial projects towards a just transition.

The governance of this support system should be flexible and efficient. All parties involved must contribute consistently and their contributions be duly documented with reference to a specific roadmap. For this, the choice, identification and inclusion of all agencies who will be involved in the projection, implementation and follow-up process should be carefully arranged. An active involvement of local communities in the process is paramount and needs to be reinforced.

**Retraining must be based on skill deficits and an anticipation of future needs.** Immediate needs and mid-term projections must be identified. Projection should be multi-levelled, take different parameters into account, and be equitable, taking on board any constraints implied by the characteristics of target groups and areas. Any non-tailored or non-targeted interventions risk delaying or even undermining the re-training process.

**‘Relief’ measures for employees must solely focus on the transition phase, along with measures aimed at boosting entrepreneurship.** Aiding businesses during transformation shall also result in the alteration of those jobs that are necessary towards retaining part of the impacted workforce.

Sustainable entrepreneurship should bring sustainable employment, and support mechanisms can help maximise this. The following proposals therefore aim to create jobs by fostering entrepreneurship and business expansion:

- Measures to foster entrepreneurship (in the form of collaborative schemes, such as energy communities, personal businesses, start-ups, businesses already active).
- Retargeting activity towards clean energy technologies and equipment, constructions/works of infrastructure, industrial technology, transports, energy efficiency upgrade for buildings as well as within the sector of agriculture.
- Planning should be expected to provide for incentives, swift procedures, access to funding and services capable of engendering transformation at the functioning, organizational and operational level, enabling a modernisation of equipment and retraining.

All of the above incentives shall have to be adjusted to and capable of conjugating with a comprehensive framework, observing whatever constraints eventually in place.

**Last but not least, a dedicated, short-term framework towards managing directly affected jobs could help save indirectly affected jobs as well.** The approach to be adopted towards an upgrading of skills should be compatible with the structure of the particular sectors. Whatever retraining of those directly or indirectly affected has to be projected by reference to the needs for development made evident in relative sectors.

## Chapter 4

# PERNIK AND BOBOV DOL, BULGARIA

Bulgaria's first economic transition, in the beginning of the 1990s, was not based on technical and economic necessity, but was rather a socio-political choice. This is the underlying reason that a public mechanism to guarantee a fairer development of the Bulgarian regions was never established. As a result, the country entered a state of serious regional disparities – demographic, social, sectoral, environmental.





Bulgaria's coal heartlands of Pernik and Bobov Dol, not far to the south-west of the capital, Sofia, have mainly depended on coal production and power over the last century. These sectors are now rapidly decreasing. The proximity of the Pernik region to Sofia will help cushion the transition from coal, and with intelligent planning, the turning point can lead to a brighter and more sustainable future for both areas.

The study was carried out by 'RegioPlan EOOD'. It looked at three scenarios: business as usual; a growth scenario based on the internal opportunities and advantages of the region, and an 'upgrade' scenario with the participation of foreign investors.

## Main conclusions from the Pernik and Bobov Dol case study

**Ensuring a just transition to a clean, circular economy in line with the European Green Deal** is key to countering any possible adverse effects of the phasing out of coal.

**Investing in education, qualification and requalification is part of the solution with alternative employment for those employed in the affected sectors.** This process will only show its benefits after at least three years.

**It is crucial to define which 'green' jobs and 'green' workplace skills will be necessary for the development of a sustainable economy, while preserving resources and the environment.** Money should then be invested in developing those sectors and financing relevant training courses for former mining employees.

**Public financing needs to stimulate private enterprise.** Developing a vibrant and sustainable economy is only possible in an appropriate investment environment, with proactive entrepreneurship and readiness to take acceptable risks. However, according to the government's current plans, most projects will be publicly funded, and not in a way which stimulates investment and business environments for small and medium private companies.

**Other EU Member States are planning a just transition (Czechia, Poland, Romania, Slovakia), but their approaches will be difficult to apply to the Pernik and Bobov Dol municipalities, for the next five years at least.** There are several reasons for that: higher levels of depopulation, compared to all other regions, seriously impaired age and educational structures, and thus, the quantity and quality of the workforce.





**What's more, there is no production or technological industry in these municipalities** – and while the infrastructure is slowly improving, logistics and business services are not yet sufficient for the development of innovative and dynamic businesses. In most of the initial business initiatives, we will rely on well-known, traditional activities, which may start with the available people and their respective qualifications.

**The closure of coal-fuelled electricity generation will result in significant redundancy numbers. This will also affect all the sub-suppliers, as well as the tax revenues in the respective regions, the social security and health insurance systems in Bulgaria.** This is the most serious social challenge and will further contribute to the additional supply on the labour market, of workers with secondary education, who are often unable to find jobs at similar remuneration rates in other sectors in the same region or start a business of their own. Therefore, they fall in the group at the highest risk of emigration and further impairment of the demographic situation.

**One job<sup>11</sup> in the energy sector supports at least 1.5 jobs in the other sectors of the economy.** The multiplier for the electricity generation sector is established at 2.2 jobs. This shows the structure defining significance for both key economic activities in these regions. In the three regions of Pernik, Bobov Dol and Stara Zagora, these two subsectors account for 15,600 jobs. This value, when recalculated with the multiplier effect, will increase by at least 273,000 more jobs. The direct and additional adverse impacts on employment, evaluated in the report, amount to at least 43,000 jobs affected – approximately 85% of them are in the Stara Zagora region.

**The delay in the development of the Bobov Dol and Pernik municipalities requires a new concept for the economic development of this region.** The study looked at what this could be in order to define the new skills and support needed for the general principles of digitalization, circular economy, decarbonisation, energy and resource efficiency, sustainable mobility.

**Based on this information and on the priorities for the economic development of the regions, territorial plans for just transition are being developed.** These will be based on activities to be incorporated in training for acquiring knowledge and skills, demanded on the labour market, applying tools for the evaluation and validation of competences in order to ensure alternative employment and entrepreneurship.

11 A tool for determining and forecasting jobs was used in the report, to make projections for the future jobs, based on the current situation.

The workforce should be retrained around two key pillars:

- 1) ensuring basic knowledge and skills for protecting natural resources, the environment and climate, which are the basis for lifelong employability and flexibility to changes; and
- 2) ensuring specific knowledge and skills, related to the successful practicing of professions, newly occurring green jobs or transformed jobs.

The expected number of new jobs in micro enterprises is estimated at 150 for the Bobov Dol municipality, 700 for Pernik and over 2000 for Stara Zagora, and these can also be created through individual start-ups. All other workers must be reallocated to existing companies or newly-established small and medium-sized enterprises, a process, which – on the territories of Pernik and Stara Zagora – will be much easier to implement, compared to Bobov Dol.

Small and micro-businesses may start immediately with available capital, based on personal skills, traditions, existing buildings, by adding a high level of digitalization and internet exposure in all its forms. The most important factors for people's development are emotional intelligence and entrepreneurship. This is particularly needed in small towns and villages, where there is a much lower level of entrepreneurship, and investments are scarce.

The report clearly differentiates between the towns and the villages, since the issues and solutions for towns face are incompatible with the solutions for villages, even within the same wider area. Stara Zagora is a large administrative region, with a clearly differentiated northern part, dominated by the Kazanlak municipality and specialised in machine engineering, while the regional centre, Stara Zagora, is the economic core of the region and the southern part, hosting the coal-producing and electricity generation facilities. The solutions for Stara Zagora must ensure continued growth of the centre and a serious transformation on the territory of the Radnevo and Galabovo municipalities, aimed at alternative development.

Attitudes towards existing resources – people, land, real estate, forests, waters, energy potential etc – must change completely. This must be combined with the development of completely new activities. For example, the way the country is currently broken down into small geographical areas is outdated. This needs to be rethought, based on internal division into one or several towns or villages of creative, green, socially-transforming and collectively learning communities. This would create new value for those regions. Another example is the development of skills and entrepreneurship in the following sectors: renewable energy, organic agriculture and organic foods, bioplastics, IT, resource efficiency (waters, biomass, treatment), circular economy, design.



Investing in  
education,  
qualification  
and requalification  
is part of the solution.



**WWF'S MISSION IS  
TO STOP THE DEGRADATION  
OF THE PLANET'S  
NATURAL ENVIRONMENT  
AND TO BUILD A FUTURE  
IN WHICH HUMANS LIVE  
IN HARMONY WITH  
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