

TEMAT LEKCJI

The energy transition and the labor market in poland



Students will learn how the energy transition is changing the Polish labor market and which new professions, skills, and economic sectors are becoming increasingly important.

The lesson presents both the opportunities associated with the development of renewable energy, nuclear power, electromobility, batteries, and recycling, as well as the challenges related to reskilling workers, the geography of new job locations, and the just transition of regions dependent on fossil fuels. The content is based on the attached lesson plan.

By the end of the lesson, students should be able to answer the following questions:

1. Why could the energy transition be one of the biggest changes in the Polish labor market since the 1990s?
2. What new jobs may emerge in sectors such as renewable energy, nuclear power, electromobility, batteries, and recycling?
3. Which industries related to the energy transition may be particularly important for Poland?
4. Why does the development of offshore wind farms, photovoltaics, biogas plants, and nuclear energy create demand for new skills and competencies?
5. Which technical, digital, and engineering professions may become increasingly important in the new energy system?
6. What challenges will the Polish labor market face during the energy transition?
7. Why may new jobs be created in different regions than those where traditional industries are being phased out?
8. Does moving away from coal necessarily mean mass unemployment in mining regions?
9. What is a just transition, and why is it a condition for social acceptance of these changes?
10. What skills should be developed to succeed in the future job market related to the energy transition?

SEGMENT 1

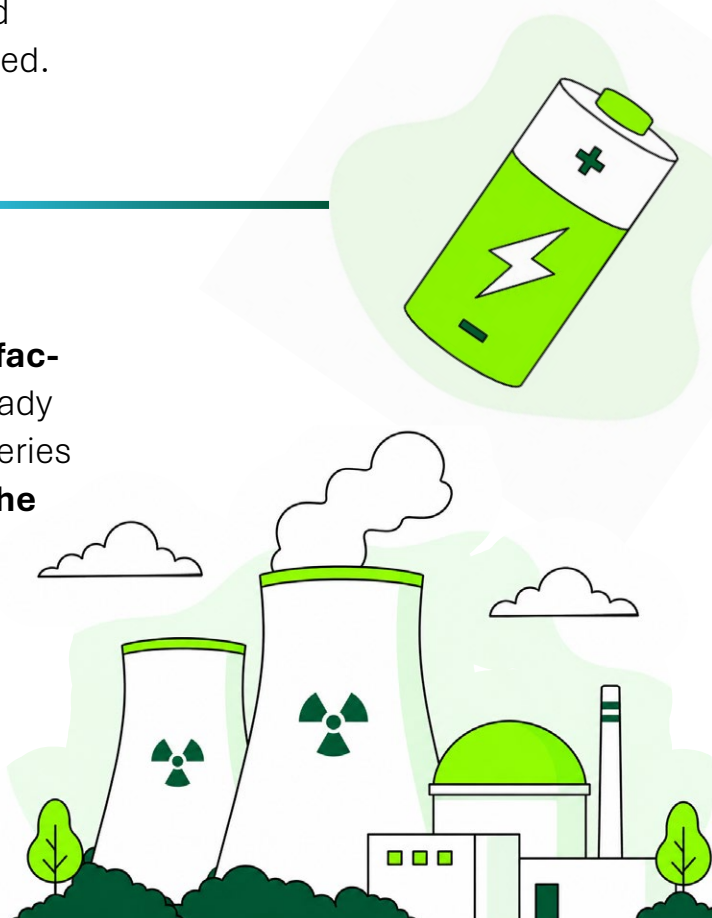
An introduction to the labor market situation in the era of transformation.



The energy transition is the biggest change in the Polish labor market since the 1990s. It is estimated that by 2050, the renewable energy sector alone could create between **300,000 and 500 new jobs**. To this, for example, the nuclear energy sector and the electromobility sector must be added.

*By comparison: currently, approximately **70,000 people** are employed in coal mining. These jobs will be phased out: in 2026 alone, approximately 8,000 miners will leave the workforce, retiring or taking mining leave.*

Poland is becoming a European **manufacturing hub for the transition**: it is already the largest producer of lithium-ion batteries in the EU (with a roughly **6% share of the global market**), a significant manufacturer of electric buses, is developing the offshore wind farm industry, and will soon be a major player in the nuclear sector



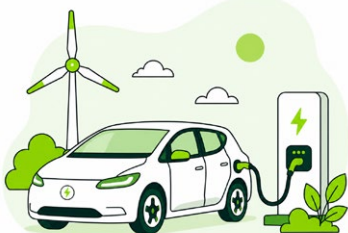
For the transition to succeed, it must be fair—this is a prerequisite for public acceptance, which allows the entire process to proceed relatively smoothly.

SEGMENT 2

Key segments of the new labor market in Poland



Renovation segment: the thermal modernization of Poland's housing stock and other buildings is expected to generate significant demand for construction, renovation, and installation services.



Electromobility segment: expanding the fleet of electric vehicles could create an additional 6 thousand jobs by 2030 alone.



Digitalization segment: modern energy technologies will create a demand for specialists such as data analysts, network cybersecurity specialists, IT professionals, and service technicians.



Battery segment: current employment in this industry in Poland reaches 20,000 people.



Photovoltaic segment: this already employs over 40,000 people in Poland; PV panels are 90–95% recyclable, which creates a new niche in the circular economy.



Recycling segment: this is a segment that will experience a boom over the next 10-15 years. By then, the first mass-produced photovoltaic, battery, and electric vehicle installations will reach the end of their service life. These devices contain scarce raw materials (lithium, cobalt, silicon), which is why an entire sector of “urban mining.” It will require specialists in raw material recovery and the circular economy which will close the transformation loop.



Nuclear segment: it is estimated that the construction of 1 GW of capacity in the nuclear power sector will create approximately 10,000 jobs. Poland plans to build 6 to 9 GW of nuclear capacity by the mid-2040's.



Wind energy sector: the construction of offshore wind farms in the Baltic Sea will create demand for turbine technicians, marine engineers, and logistics specialists. It is estimated that the offshore sector will provide jobs for approximately 60,000 people by 2040. Already, specialized companies are operating along the Polish coast, offering courses and training to prepare workers for jobs at offshore wind farms. To this must be added jobs at onshore wind turbines. Here, the calculation is more difficult due to legislative restrictions on the development of onshore wind farms.



Possible discussion questions:

Will Poland be merely an assembly plant for foreign companies?

Poland has already moved far beyond the level of being an assembly plant. Polish companies are building offshore power stations, batteries, and energy storage facilities, entire wind turbines, and components for many energy transition technologies. However, there is still room to anchor the transformation process more firmly in the Polish economy.

SEGMENT 3

Challenges in the Polish labor market



Skills gap: the education system does not always keep pace with the pace of change; there is a shortage of vocational schools and clearly defined career paths in higher education.



Generational gap: in many segments of the traditional energy sector, the average age of employees often exceeds 50. While this facilitates the process of natural retirements, it creates a major problem with the transfer of specialized knowledge (so-called know-how) to new industries.



Labor shortage: demographic challenges, emigration, and competition from other industries mean that the energy sector may face significant labor shortages, which poses a risk to maintaining the pace of the transition.

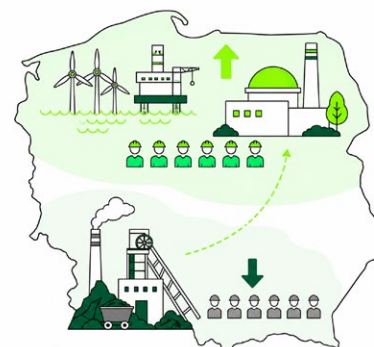


Significant employment in declining sectors: hard coal mining and coal-fired power generation are industries that will cease to exist in Poland over the next dozen or so years. Meanwhile, they still employ tens of thousands of people who require retraining or adequate social security protection.



Problematic local content:

Polska dąży do tego, by jak najwięcej inwestycji w energetykę odbywało się przy udziale polskich podmiotów. Jednakże w wielu sektorach transformacji energetycznej firmy z Polski dopiero zdobywają kompetencje. Ogranicza to możliwość silniejszego zakorzenienia projektów w polskiej gospodarce.



The geography of work: new jobs are sometimes created in regions other than those where old ones are being eliminated. For example: in the coming years, many jobs in the traditional energy sector will be phased out in southern Poland (e.g., in Silesian mining), while many will be created in the north of the country (e.g., in offshore or nuclear energy).



Possible discussion questions:

Does the phase-out of the coal sector in Poland necessarily mean mass unemployment in mining regions?

No, such a situation is not even likely. This is due to several factors: first of all, a significant portion (about one-third) of those working in the Polish mining industry are already eligible for or will soon be eligible for retirement, and there is also a system of voluntary early retirement supported by social security benefits. Second, the phase-out of Polish mining is scheduled to take place over the next dozen or so years, which will give subsequent mine workers the opportunity to take advantage of the above benefits. Third, miners are highly trained specialists (rebar workers, electricians, technicians) for whose services there is significant demand.

SEGMENT 4

Just transition

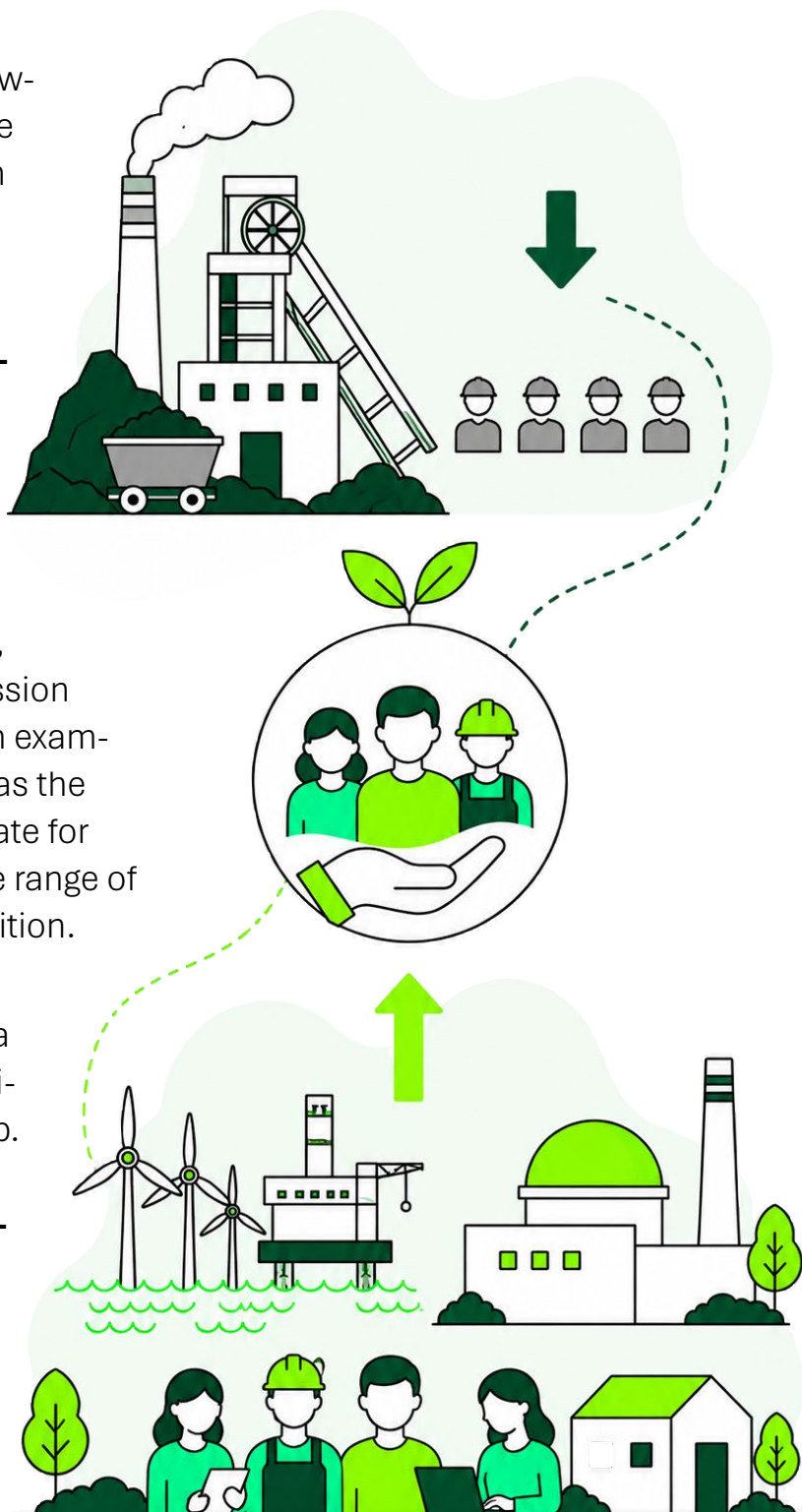
A **just transition** is a socio-economic doctrine that holds that the shift to a low-carbon economy must not come at the expense of social groups dependent on fossil fuels.

It primarily involves **occupational substitution**, i.e., offering alternative career paths for people currently working in sectors such as mining;

Its tools include, for example, funding technology parks, business incubators, and attracting investors from zero-emission technology sectors to mining towns. An example is Eastern Greater Poland, which was the first region in Poland to set a specific date for phasing out lignite, focusing on a whole range of investments related to the energy transition.

Prawdziwie sprawiedliwa transformacja
A truly just transition must be, to a significant extent, driven from the bottom up. This means involving **local communities, labor unions, and local governments** in planning transformation efforts;

A just transition also entails the need to preserve intangible heritage - such as mining culture.



SEGMENT 5

Wrap-up discussion

Based on all the information regarding labor market trends, prepare a list of occupations, careers, and skills that are likely to be most in demand in the job market.



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