

European Employment Observatory

EEO Review: The Employment Dimension of Economy Greening

Poland

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1. Introduction

The issue of climate change and climate and energy policies and their impact on the labour market in Poland is in many ways different to other EU countries. First of all, the Polish economy is one of the EU economies with the highest emission of CO₂. This is mainly due to the fact that the energy sector in Poland is dominated by coal-fuelled power plants (representing roughly 95 % of energy production).

According to the assumptions of the *Polish energy policy up to 2030*¹, the Polish energy production sector currently faces major challenges, including the high energy requirements of the economy, inadequate energy production and transmission infrastructure, high dependence on foreign gas supplies and almost complete dependence on foreign supplies of oil and environment protection obligations, including climate. Thus, the key directions of Polish energy policy are²:

- Improvement of energy efficiency,
- Increased security of fuel and energy supplies,
- Diversification of the structure of electric energy production through nuclear energy,
- Development of renewable energy sources (RES), including bio-fuels,
- Development of the competitive fuel and energy markets,
- Limitation of the influence of the energy sector on the environment.

The actions being undertaken are intended to be in line with the National Development Strategy 2007-2015, which states that: *'To a larger extent the possibilities of creating jobs within the pro-environment activities, such as organic agriculture, protection of nature and landscape, ecotourism, alternative energy sectors (the so called green jobs), will also be used'*. Issues connected to the necessity of taking into account the challenges of a low-emission economy have been additionally emphasised in proposals for updating the National Development Strategy³.

Unfortunately, despite the increase in the RES usage, the main pillar of the energy sector will be coal-based for the coming decades. According to the Polish energy policy, coal resources *'will play a significant role as a stabilizer for energy safety'*. Due to this fact, one of the elements of the public debate were the proposals for alternatives for the Polish energy sector policy up to 2030, based on the development scenarios with a much higher share of RES in total energy production

¹ *Polish energy Policy up to 2030*, Ministry of Economy, November 2009.

² *idem*.

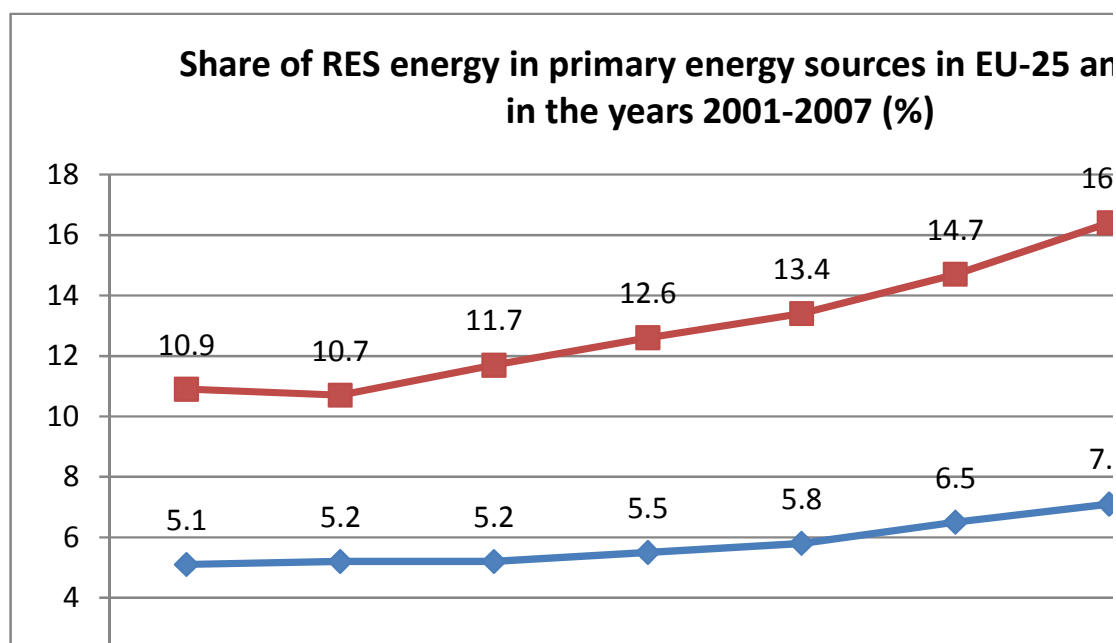
³ *Założenia aktualizacji Strategii Rozwoju Kraju 2007-2015*, Ministry of Regional Development, December 2008.

and consumption⁴. Nevertheless, the Polish government decided to follow a different development path in reaching the emission reduction targets.

2. Labour market outcomes

Evidence on the employment dimension of economy greening in Poland can hardly be found in aggregate data. Nevertheless, major shifts in the labour market in the coming years can be expected in relation to the development and use of RES. The 'Polish energy policy up to 2030' envisages an increase in the share of RES in final energy consumption up to the level of 15 % by 2020 and a further increase in the following years, as well as the attainment of a 10 % share of bio-fuels in the transport fuel market by 2020. Successful implementation of this scenario would implicate deeper changes in the demand for labour, both in terms of vocational structure and new skills requirements. As can be seen in the figure below, the existing share of RES energy production and consumption in relation to the EU-25 are highly unsatisfactory.

Figure 1 - Share of RES energy in primary energy sources in the EU-25 and Poland, 2001-2007 (%)



Source: Central Statistical Office.

Also, the structure of RES energy production in Poland is unfavourable and will have to face major changes, which will also influence the situation on the labour market. According to Central Statistical Office data, in 2007 91.7 % of all RES energy in Poland came from biomass (in relation to 48.2 % in EU 25) and only 3.9 % from water (in relation to 18.8 % in EU-25), 2.1 % from bio-fuels (6.6 % in EU-25), 1.3 % from biogas (4.3 % in EU-25), 0.2 % from geothermal sources (4.3 % in

⁴ See Greenpeace, 2008.

EU-25)⁵. Thus, the development of other energy sources (like wind energy and solar energy) would consequently lead to a significant shift in the labour market.

According to the recent foresight⁶ for the energy sector, there will be huge changes in the structure of energy production. These will lead to a great reduction of employment in the energy sector. There will be significant demand for specialists in the field of new energy technologies, logistics and energy farming. This refers to specialists in the field of design, research and development, as well as exploitation. Huge personnel demand will occur in the field of energy efficiency. This refers to specialists in the field of energy-saving technologies as well as saving energy by receivers. The important segment of demand on the market will also be demand for managers of distributed energy and specialists in the field of infrastructure safety.

Coal mining

One of the key sectors that would face major restructuring in relation to new energy sources in Poland is coal mining, especially hard coal, which is mainly located in the Upper Silesia region. Employment in the hard coal mining sector slowly decreases (from 119 300 people as of 31 December 2006 to 116 046 as of 31 December 2008 and to 115 688 as of 31 October 2009)⁷. It is estimated that from 2007 to 2015, about 64 900 people may leave coal mines due to attrition. The analysis conducted by the Ministry of the Economy⁸ shows that it may cause significant shortages in underground employment⁹, as high as 40 000 people by 2015. Existing mining regulations require specific qualifications from workers employed in mines, which takes a few years of underground experience to complete.

As can be seen in Table 1, a total of 180 400 people are employed in the mining and quarrying sector, with the majority working in public companies. One of the characteristic features of this sector is the relatively high average gross wages, almost double the average wages in the economy (especially in the private firms in this sector). To some extent, other sectors, such as 'Electricity, gas, steam and hot water production' (which is mostly coal-dependent) and 'Water supply, sewerage, waste management' can be affected by the changes in energy policies.

⁵ *Energia ze źródeł odnawialnych w 2008 r.*, Central Statistical Office, 2009.

⁶ The project entitled "Foresight of personnel in the modern economy" has been aimed at indicating the skills demand in the Polish economy from a long-term perspective. The experts were working in five panels: "Information and Telecommunication Technologies", "Power industry", "Machine Industry", "Chemical Industry" and "Personnel of the future" (*Foresight kadr nowoczesnej gospodarki*, Warsaw 2009.)

⁷ *Informacja o funkcjonowaniu górnictwa węgla kamiennego...*, Ministry of Economy, December 2009.

⁸ *Strategia działalności górnictwa węgla kamiennego w Polsce*, Ministry of Economy, 2007.

⁹ The underground employment in this context refers to those coal industry workers who work directly in the underground mines. In Poland, the coal industry employment data are divided into those employees who work at the surface, and underground – directly in the mines (covering miners, engineers, etc.).

Table 1 - Employed persons and average monthly gross wages in the national economy by sector (30 June 2009)

Specification	Employed persons (in thousands)	Average gross wages (in zł)
Total	8 225.2	3 134.65
Mining and quarrying	180.4	5 357.14
<i>public sector</i>	143.1	5 183.39
<i>private sector</i>	37.3	6 023.53
Electricity, gas, steam and hot water supply	149.3	4 783.39
<i>public sector</i>	104.7	4 601.48
<i>private sector</i>	44.6	5 219.75
Water supply, sewerage, waste management and remediation activities	122.7	3 075.17
<i>public sector</i>	91.3	3 089.51
<i>private sector</i>	31.4	3 033.67

Source: Central Statistical Office, 2009.

A major change in labour demand (and consequently also labour supply) might be occurring in coal-powered power plants due to the planned introduction of Carbon Capture and Storage (CCS) technologies. These technologies allow capturing CO₂ from the process of coal burning, and storing it underground in liquid form.

Thermo-modernisation

One of the areas of energy efficiency, whose influence is already visible on the labour market, is the modernisation of buildings to improve their energy efficiency. A high potential for energy savings in buildings and the fact that this sector accounts for 40 % of final energy consumption in the EU, makes such actions potentially interesting. The programme, allowing for a 25 % refund from public sources, for the thermo-modernisation investments in buildings have been in place in Poland from 1999. During the years 1999-2007 PLN 600 million (EUR 148.5 million) have been spent from the state budget.

Nuclear energy

In January 2009, the government took a resolution on the development of nuclear energy, in which it has been declared that in 2020, a first block of a nuclear power plant will be activated. Additionally, it is postulated that more nuclear plants should

be built in Poland after 2020¹⁰. It will have an impact on the labour market both on national level (through the need of educating the staff for the nuclear energy sector) and regional level (connected to the choice of the location of the first nuclear plants). It is worth mentioning though, that the ecological organisations protested against actions in nuclear energy, pointing to the ecological threats, as well as the necessity for high investments. In their opinion, such resources should be used for the development of RES instead of nuclear power plants¹¹.

Renewable energy sources

According to an IEO study¹², the turnover of the solar energy sector in Poland in 2008 amounted to EUR 100 million and employed over 1 700 people (in full time equivalents), half of which had jobs in retail sales, installation and post-installation services. According to the prognosis of the IEO, by 2020, the yearly turnover of this sector will increase to EUR 2 billion, with over 40 000 workers. However, this fast-paced development would require substantial public support instruments, for end-users, for producers and service companies, as indicated in the report.

The wind energy sector can also be of significance to the development of labour markets. Although there are no estimates for employment in this sector, according to the CBOS study¹³, the majority of investments (89.5 %) in RES, for the years 2009-2011, are planned in the wind energy sector. Especially regional labour markets of the northern region of Poland, by the seaside, can benefit most from the development of wind farms.

According to a McKinsey&Company report, in Poland, there is a large potential for emission reduction, but its realisation will be a major challenge. The pace of reduction will increase after 2020, when big electric energy projects enter their implementation phase (such as sea-based wind farms on a large scale, nuclear plants or carbon capture and storage installations - CCS)¹⁴. Thus, there is an increasing, but to a large extent – still untapped – potential for labour market greening in Poland.

3. Review of labour market policy developments

The evidence of labour market policies targeted directly towards economy greening or ‘green sectors’ in Poland is scarce. The most visible employment dimension of economy greening in Poland can be seen in the changes proposed in a **new classification of occupations**, prepared in line with the International Standard of Classification of Occupations ISCO-O8¹⁵. In Poland, the classification is the basic tool used by the PES in job matching, in identifying skills shortages, surplus and

¹⁰ *Polska 2030*, Team of Strategic Advisors to the Prime Minister, 2009.

¹¹ *Raport z wyników konsultacji społecznych...*, Ministry of the Economy, 2009.

¹² *Wizja rozwoju energetyki słonecznej termicznej w Polsce...*, Instytut Energetyki Odnawialnej, Warsaw 2009.

¹³ *Inwestycja w przyszłość...*, CBOS, 2009

¹⁴ *Ocena potencjału...*, McKinsey&Company, December 2009.

¹⁵ Work on a new classification are now being finalised in the Ministry of Labour and Social Policy and will enter into force at the beginning of 2010.

deficit occupations. It also serves as a tool for vocational guidance and preparation of training and retraining programmes for the unemployed. Table 2, below, summarises the new occupations (non-existent in a previous version of the classification) that relate to economy greening.

Table 2 - New entries of green occupations in the classification of occupations and specialisations¹⁶

Occupations requiring higher education	
Environmental auditor	Responsible for issuing opinions on the environmental influence of investments and proposing solutions minimising their negative consequences
Environmental bioengineer	The application of biotechnology in environmental solutions like sewage treatment plants.
Mechanical engineer – heat-mechanical equipment, installations and energy transfer grids	Engineer responsible for projecting energy equipment, including this within the framework of sustainable energy (e.g. geothermal energy)
Energy auditor	Issues energy efficiency certificates of buildings (currently, each property must have such a certificate)
Occupations requiring secondary education	
Energy technician	Existing vocation, however, new tasks related to sustainable energy have appeared in the classification.
Ecology educator	Conducts classes on ecology
Environmental analysis and monitoring technician	Laboratory employee analysing air, ground, water etc. for pollution.
Occupations requiring basic vocational education	
Organic food producer	A newly introduced specialization for farmers
Technician for the thermo-insulation of buildings	Use of polystyrene foam or mineral wool thermo-insulation of old and new buildings
Thermo-insulation technician	Full thermo-insulation protection of buildings, objects, plants, installations etc. (e.g. including fixing windows, fitting and thermo-insulation of pipes and heat transfer

¹⁶ Project of a new *Classification of occupations and specialisations* as of December 2010. Please note that the final version of the document has not yet been approved by the government.

	stations etc.)
RES equipment technician	Installs, starts and services sustainable energy appliances
Car gas fuel (LPG) installation technician	A specialisation of a car mechanic. The vocation has been functioning for a long time, however, only recently has been formally recognised.

Source: Based on the proposal of a new classification of occupations and specialisations.

The introduction of new occupations and specialisations into the new classification will allow for more targeted actions and labour market interventions by the PES on the labour supply side. Nevertheless, the intensity of these actions and their scope will be highly dependent on the creation of labour demand in ‘green sectors’.

Public support for ‘green investments’, especially in times of economic crisis, is perceived as a way of stimulating labour demand. According to the CBOS study¹⁷, in the opinion of entrepreneurs, the key stimulus for the development of RES investments would be tax incentives (85.0 % of respondents).

Also, during the social partner consultations the main concerns in the area of RES regarded the support mechanisms. The social partners presented a number of critical opinions on the current system. It has been underlined that it is necessary to intensify the mechanisms of RES promotion, focusing on the development of new sources of energy. Energy producers from RES postulated the change of the support system from ‘green certificates’ to ‘feed-in tariffs’.¹⁸

Table 3, below, summarises the actions (both having direct and indirect influence on ‘green’ investments) under the government’s “Stability and Development Plan – Strengthening the Polish Economy in the Global Financial Crisis”.

¹⁷ *Inwestycja w przyszłość...*, CBOS, 2009

¹⁸ *Raport z wyników konsultacji społecznych...*, Ministry of Economy, 2009.

Table 3 - Polish anti-crisis actions potentially stimulating labour demand in “green” investments

Aim	Action
Bring forward investments co-financed by the EU	<p>The plan defines the application of EU funds in the end of 2009 amounting to PLN 16.8 billion (EUR 4.2 billion).</p> <p>A chance to apply for advance payment for all the beneficiaries. Simplification of procedures within the framework of the application of EU resources.</p>
Increasing possibilities to make investments in the form of public-private partnerships	Simplification of the formula of public-private partnerships (lowering of administrative burdens)
Supporting economic activity through lowering the costs of research	Facilitating the inclusion of research expenditure in tax costs. Balancing at the moment of bearing the costs or through amortization /deduction during the time of investment. Previously, balancing was possible only after the end of the research work.
Stimulation of ecological investments	<p>Support of investments in sustainable energy sources. Expenditure within the framework of the National Fund for Environmental Protection and Water Management about PLN 1.5 billion (EUR 375 million) for the building or modernisation of big ecologic investments (PLN 1.8 billion, EUR 450 million in 2009-2012). Facilitating low-interest long term loans amounting totally to about PLN 0.6 billion (EUR 150 million) for communal environmental investments in risk.</p>

Source: *Polska wobec światowego kryzysu gospodarczego (Poland in the face of world economic crisis)*, Narodowy Bank Polski, Warsaw, September 2009.

Additionally, on 20 October 2009, the Polish government approved the regulation of the types of programmes and projects suitable for implementation under the “National programme of green investments”, prepared by the Ministry of the Environment. The resources from the sale of Polish CO₂ emissions will finance investments related to the improvement of energy efficiency, decreasing energy consumption and energy demand, pure carbon technologies, reclaim and application of methane, and sustainable sources of energy and their promotion. The money will be used for, among others, building and modernisation of heat and power stations and heat stations heated with biomass, rebuilding the energy network in order to include sustainable energy sources, building or modernising water and wind plants,

heat and power plants and heat plants using geothermal energy or popularisation of heat pumps. Moreover, the money will also be granted for building installations for extracting, transporting and collecting carbon dioxide underground.

In the context of public support, the two directions of the *Polish energy policy up to 2030* are of great significance: improvement of energy efficiency and development of the use of renewable energy sources.

The pursuit of zero-energy economic development (i.e. development of the economy without an increase of primary energy consumption) and the consequent diminishing of energy consumption of the Polish economy to the level of the EU-15 can be realised through:

- Implementation of the obligatory energy characteristic certificates for buildings and apartments,
- Support of investments aimed at energy saving by using preference credit lines and donations from national and European sources, including the Act on thermo-modernisation and refitting, the Infrastructure and Environment Operational Programme, the regional operational programmes, and funds from the National Fund for the Protection of the Environment and the Water Supply.

Key actions for the development of renewable energy sources include:

- Upkeep of support mechanisms for the producers of electric energy from RES, such as through a system of origin certificates,
- Implementation of additional support instruments encouraging an increased production of heat from RES,
- Creation of conditions facilitating investment decisions for wind farms at sea,
- Upkeep of the rule of excise tax exemption for RES energy,
- Direct support for building new RES plants and new energy transfer grids, from EU and environment protection funds,
- Stimulation of polish industry potential in RES equipment production, including usage of EU-funds.

Long-term strategy¹⁹ also envisages financial support for investments in bio-components and bio-fuels from EU and national funds, including the:

- Infrastructure and Environment Operational Programme,
- Programme for the Development of Rural Areas for the years 2007-2013,
- Innovative Economy Operational Programme.

¹⁹ *Wieloletni Program...*, Ministry of Economy, 2007.

All of these actions, if implemented in a timely and adequate manner, can directly stimulate the demand for labour in the greening economy, although the scale and depth of these changes is hard to predict. Financial support and tax stimuli may not suffice though, as the opinion of entrepreneurs is that the key barriers and risks limiting the development of investments in RES in Poland are administrative barriers and barriers connected to spatial planning and environmental decisions (70.8 % of the respondents)²⁰.

4. Conclusions

As stated in the *Polska 2030* report²¹, the lack of an integrated response to the climate and energy challenges will cause economic growth in Poland to hit a ceiling, also making it impossible to meet environmental protection targets. Thus, the key issue for Poland is how to meet the requirements for CO2 emissions, and at the same time maintain competitiveness and economic growth²².

As the climate change and energy challenges for Poland seem to attract more and more attention from decision makers, social partners and the wider society, the issues of its influence on the labour market are not widely discussed or researched. Current attention is mostly focused on factors facilitating RES usage, including public support policies for green investments. Hence, more emphasis has to be put on understanding the influence of economy greening on the labour market in Poland. The current and planned energy policies, although conservative, especially in relation to the share of power production from coal, will generate significant changes in the Polish labour market.

Unfortunately, recent employment supply side policies are insufficient. Future labour market policies will have to be better targeted towards emerging skills requirements for green jobs, as well as re-skilling for workers from traditional coal-based sectors, whose competencies may become obsolete. In order to meet these challenges, a complex, sustainably financed and longitudinal skill anticipation system for the labour market decision-taking processes, has to be finally prepared and implemented at national level.

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²⁰ *Inwestycja w przyszłość...*, CBOS, 2009.

²¹ *Polska 2030*, Team of Strategic Advisors to the Prime Minister, 2009.

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