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# THE CLIMATE POLICY OF THE EUROPEAN UNION AND ITS EFFECTS ON THE ECONOMY AND THE LABOUR MARKET IN POLAND

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**Summary**

The aim of the article is to show the possible effects of implementation of the European Union climate policy on the economy and the labour market in Poland. The specified research objective and introductory literature review were the basis of the following research hypothesis: the EU climate policy will cause great uncertainty in strategic sectors of the Polish labour market and economy. The hypothesis has been examined by a method based on critical analysis of Polish and foreign literature on the EU climate policy and its economic effects.

The critical analysis of literature and of available statistical data and economic forecasts confirmed the research hypothesis. It means that implementation of the EU climate policy will lead to considerable increase of uncertainty in the Polish labour market. The situation in traditional branches and sectors, such as mining, metallurgy, cement plants and traditional power plants industries is particularly worrying. On the other hand there is an expectation that in sectors based on green energy and in industries producing low emission technologies the demand for jobs will increase, but the scale of the increase is not clear and any predictions here may turn out to be incorrect.

**Keywords**

climate policy • labour market • employment • green energy

## 1. Introduction

Implementation of the EU climate policy inevitably leads to a discussion on changes in the use of labour resources in Poland. For structural reasons the situation of Polish economy in the EU is specific, because restrictions on conventional energy use and increase of renewable energy share mean considerable changes in the Polish labour market. Moreover, the EU policy can result in change of competitiveness, a rise in structural unemployment and the necessity to retrain some part of labour force.

Reduction in use of some energy sources, the necessity to increase inevitable capital expenditures, slowing down of GDP growth and undermining chances for development of the country, damaging the investment attractiveness of Poland and probable

increase in energy prices are quite a big threat to the Polish labour market. Many sectors of Polish economy that are directly affected by the EU climate policy are still technologically backward, which in combination with the requirements of the EU's climate package, places Poland in a very difficult economic position and consequently these sectors will see a decline in number of jobs. On the other hand, the implementation of the EU climate policy in Poland will probably create new jobs in low emission sectors.

The principal goal of the paper is to present the most important effects of the implementation of the EU climate policy on the Polish labour market and economy. From the point of view of the Polish labour market the following questions stay open:

- what changes are to be expected in the Polish labour market?
- how to minimize negative effects of implementing the EU climate policy on the Polish labour market?

## 2. Research objects and methods

The topic of the EU climate policy and its effects on the economies of particular member countries has become an important research problem. It has become the research object of articles supporting this trend in EU policy and of works strongly critical of measures aimed at fighting climate change. In fact, growing environmental protection awareness in the context of climate changes means that the issue should be considered in relation to the overall functioning of the economy. The activities of companies and consumers, besides their undeniable advantages, have various negative consequences for the well-being and standard of living. Two external effects can be distinguished here. First, the effects that worsen the material situation of people, especially by limiting the current and future production potential. For example, climate changes that have damaging impact on physical capital due to various random incidents, such as droughts, floods or sea level rise. Second, the consequences that influence the quality of human life, such as pollution that degrade not only peoples' health but also the environment.

In the light of the above reflections it is quite understandable that the issue of economic and especially labour market consequences of the UE climate policy is the principal object of this paper. The analysed specialist literature and the defined research objective allowed to formulate the following hypothesis: the EU climate policy will cause great uncertainty in strategic sectors of the Polish labour market and economy.

The hypothesis has been examined by a research method based on critical analysis of available Polish and foreign literature on the nature, goals and tools of the EU climate policy and its economic impact on the whole EU and on its member countries.

## 3. Literature review

The climate policy implemented by the European Union is strictly connected with the idea of sustainable development [Hackett 2011, Tietenberg and Lewis 2008, Jeżowski 2005, Fiedor and Jończy 2009, Czaja et al. 1993, Graczyk 2005, Piontek and Piontek

1993, Górka et al. 2001, Famielec 1999, Pawłowski 2011, Piontek 2011]. One of the main challenges of sustainable development is to reduce climate changes and their negative social, environmental and economic impact. The new climate policy, with its strategic climate goals, is implemented in order to meet this challenge. In the long run the new climate policy is going to influence not only economic systems of the UE countries, but also other regions [Włodarczyk 2011]. The objective of sustainable development is to support natural ecosystems and protect life in all its forms, and the implementation of the strategy should be based on democratic principles, gender quality, solidarity, the rule of law and respect for human rights [Stern Review... 2006]. The long-term goal of the EU is a complementary harmonious economic development, social cohesion and environment protection [COM(2009) 400 final].

The EU climate policy is to be fully implemented by 2050 and so it is a long-term strategy. The EU plans to reduce greenhouse gas emissions seem pretty ambitious, compared to parallel plans to reduce emissions by 12% in the world. The accepted EU project to reduce greenhouse gas emissions by 80–95% by 2050, compared to 1990 levels, is highly questionable. Carrying out this programme, so that it does not stay on paper, as it often happened with other EU projects (e.g. The Lisbon Strategy goals), would be a considerable challenge for the European Commission and the member states [Śmiech 2008].

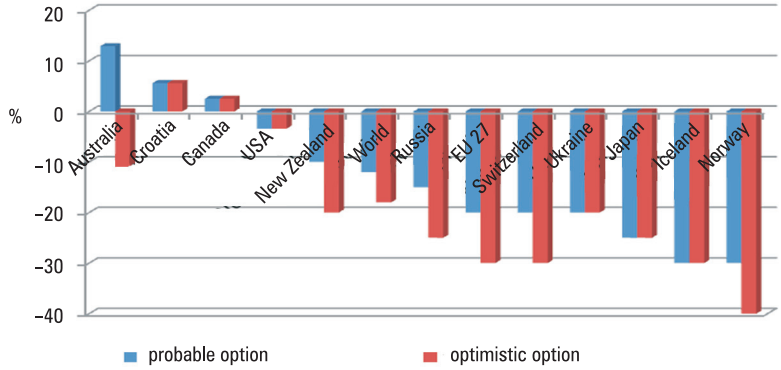
In the last year on EU level there have been a number of new regulations in this regard, and all the plans were carried out as part of strategic programmes. The most important actions regarding implementation of the EU climate policy were defined in the following laws and regulations [Włodarczyk 2011]:

- 2003 – Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emissions allowance trading within the Community, as a tool of meeting the Kyoto Protocol targets,
- 2007 – Communication "An energy policy for Europe",
- 2008 – The 2020 climate and energy package ("Energy and climate change – Elements of the final compromise") – regulations that impose reduction of $CO_2$ and development of renewable energy sources.
- 2011 – Energy Roadmap 2050, setting targets of greenhouse gas emissions reduction by 2050.

The EU climate policy is a tool aimed at meeting the fundamental goal of reducing greenhouse emissions targets. Protection of the environment influences not only the quality of life, but also largely enhances competitiveness, stimulates economic growth and helps to create new jobs. Balanced consumption and production means more efficient use of natural resources and energy as well as reduction of greenhouse gas emissions and of other negative environmental effects [Smarter... 2009]. However this definition of climate policy causes concerns about abrupt rise of energy prices, major structural changes, disturbances in the labour market and in general productivity, imbalances in energy market, suspending investments in energy, losses for energy

companies, and the threat of lowering competitiveness of companies operating in energy-intensive industries.

The resulting structural changes both on production and employment level become a real problem. And this kind of EU policy undoubtedly affects GDP [Blusz et al. 2011].




Source: Communication… 2010

**Fig. 1.** Predicted greenhouse emissions reduction in chosen countries [in %, 100% = 1990]

According to the European Commission, environmental pollution can cost the EU economy around 14 billion euro per year – for reasons of decreased productivity and increased expenditures in health care [COM(2007) 1]. From strictly macroeconomic point of view, ignoring environmental protection can cost the world economy from 5 to 20% of the world GDP annually, whereas the reduction of greenhouse gas emissions will cost only 1% of the world GDP [Stern Review... 2006]. The current negotiations over the next year climate agreement is the most important multilateral process. Their goal is to find a solution to meet one of the biggest long-term challenges, namely limiting global warming and adaptation to climate changes. The outcomes of the current talks will have a major impact on a direction of economic growth in the next decades [Gradziuk et al. 2011].

In 2010 the European Commission adopted the Europe 2020 strategy for smart, sustainable and inclusive growth. One of the priorities of this document is a sustainable development, especially "promoting a more resource efficient, greener and more competitive economy" [Europe 2020... 2010]. The efficient use of resources is, according to the European Commission, a prerequisite of progress in fighting the climate change, and particularly of reducing greenhouse gas emissions [COM(2011) 112 final]. K. Blusz et al. [2011] claim that in the face of the economic crisis, a strengthened climate policy of the EU becomes a development policy that can stimulate further economic development, providing new sources of economic growth, such as development of new technologies, creation of new markets and jobs. One of the ways to achieve these goals is a plan to implement by 2050 a competitive and low-carbon economy [COM(2011)

112 final]. Predicted changes of greenhouse gas emissions in chosen countries are presented in Figure 1. It shows that the EU plan of environmental protection is much more restrictive than that of Australia, Canada or USA, but there are countries, like Norway, Iceland, Switzerland, where the issues have even higher priority than in the EU.

## 4. Effects of the EU climate policy on the economies of the EU member countries

The new EU member countries have made certain progress in reducing greenhouse gas emissions, which resulted in fall of production in chemical, heavy and mining industry. Some experts say that the increase of energy efficiency in these countries has not been considerable. Moreover, the production slump in some sectors and the pollution decrease were compensated by a visible growth of demand for energy in transport [COM(2011) 112 final]. For example in 1998–2007 in Poland air pollution emissions in transport sector rose by 73.4% [Blusz et al. 2011]. Countries of Central and Eastern Europe have used structural funds, that could have financed transformations favouring environmental protection, for expansion of roads networks, which contributed to the further increase of $CO_2$ emission. Out of 65 billion Euro allocated to Poland as part of regional policy for 2007–2013 only slightly more that 2 billion Euro have been earmarked for improvement of energy efficiency and development of renewable energy resources [Buchan 2010].

Changes in the EU Emissions Trading System will strongly affect many European economies. The companies in new member states will have to buy more emissions allowances than similar companies from the "old" Europe. Surely, the former would have to challenge substantial cost, price and productivity disturbances, which would have a direct influence on households incomes and job creation opportunities. The additional costs would be incurred by a target of 10% biofuel share in total fuel consumption.

A serious shortcoming of the EU climate policy is an increase of costs related to higher capital expenditures on development of sustainable energy generation technologies. Some experts predict that the capital expenditures rise would amount to 1.5% of GDP. Besides, the decrease of capital expenditures in branches of economy not compatible with the new EU climate policy, e.g. in coal mining industry, should be mentioned too. Another important determinant of the EU climate policy would be suitably allocated expenditures on research and development aimed at innovation and highly efficient low-carbon technologies. Substantial investments in green technologies and limited expenditures on currently used fuels may lead to a negative effect of price rise of traditional energy sources. However, the share of expenditures on new hybrid energy sources (traditional and renewable) in the total incomes of households in 2050 probably will not be higher than its present level. Especially households with income below the average national wage would not be able to afford to buy relatively expensive and environmentally friendly technologies.

The change of attitude in policies of particular member states will also be a crucial element of climate protection strategy. The governments are expected to create favourable institutional conditions for implementing the EU climate policy recommendations in their countries. Moreover, en effective system to help private sector finance pro-environmental undertakings must be created. All these plans require allocation of financial resources from the current budgets of the EU member countries. However, the use the EU regional funds for 2014–2020 would certainly help them to meet these goals. An important part of an efficient implementation of the EU climate policy are comprehensive green energy trainings and retraining programmes for workers to avoid structural unemployment and to improve professional skills and qualifications of labour force that are necessary to use new technologies and innovations.

The EU climate policy implementation generates costs but also brings real economic benefits in the EU member countries, such as reduction of oil and gas imports, an increase in employment and reduction of greenhouse gas emissions [Package... 2008]. The development of innovative clean technologies should be regarded as another opportunity of the climate policy. Its benefits may be twofold, since on one hand it increases economic efficiency and productivity, and on the other – there is a positive ecological effect of reduced gas emissions. Since oil prices remain high in global financial markets, an improved energy security, as a result of the implementation measures of the EU climate policy, may also bring considerable benefits [Package... 2008]. In this case, the benefits are related to lower risk of supply disruptions of energy resources, diminished vulnerability of countries to price shocks of these resources in foreign markets and better trade balance. Overall effect of these changes should lead to global increase of demand and around 0.3% increase of GDP compared to its present level. Notable benefit of the costs incurred in the low-carbon sectors is that most of these costs could be recouped by much lower expenditures on fuels on a national level.

## 5. Labour market and the EU climate policy

The effects of the EU climate policy are very problematic. They raise reasonable doubts about the situation of the Polish labour market. Among the new EU members Poland is one of the countries that has the most serious difficulties in meeting the requirements of the EU climate policy. In the Polish economy 46% of greenhouse gas emissions come from the energy sector, and more than 90% of electric energy is produced out of hard and brown coal. Furthermore, Poland has no nuclear power plant, and gas and renewable energy share in the energy balance is much lower than in the EU average. Other key sectors, responsible for almost 35% greenhouse gas emissions, are mainly industry (17%), transport (9.7%) and households (8.2%). Therefore the energy sector in Poland is facing serious changes in the nearest futures [Blusz et al. 2011].

Poland has considerable potential to reduce its greenhouse emissions, but seizing this potential would be a major challenge [Ocena... 2009]. Over two third of the whole potential to reduce emissions is related to improvements of energy efficiency and low-carbon energy supply opportunities. The estimated required additional capi-

tal expenditures to reduce greenhouse emissions by 2030 are 0.9% of GDP per year, with the average cost of the emission reduction of around 10 Euro per ton of $CO_2$. Among planned actions are: a better regulatory enforcement, building incineration plants, support for green mortgages, raising standards for new buildings, promoting wind farms and biogas plants, producing tools for renewable energy resources, incentive system to use public transport, stimulating sustainable transport, insulation of civil service buildings, standardization of organic farming, social campaigns and educational programmes, promoting of Polish technologies abroad, a nuclear power plant construction and propagation of programmes optimizing energy consumption [Założenia... 2010]. Efficient implementation of these measures will compensate for the closure of factories and plants related to traditional energy.

The climate policy can also have negative consequences for the Polish economy and its labour market. The negative scenario may unfold especially if the implementation of the climate policy on the EU level would be slowed down or abandoned, or if there would be no agreement on climate policy on the global level. Then Poland's energy security can be threatened and its competitiveness undermined. Another threat to the Polish labour market and economy is a systematic rise of greenhouse emission prices in the most developed countries. If Polish companies would have to purchase extra emission permits, their price in the Western markets would be too high, which would inevitably lead to cuts in production and jobs. In Poland the costs of these permits – despite the reduction of emissions – could rise to 20–40 billion złoty per year in 2011–2030 and to 40–65 billion złoty per year in 2030–2050. Decarbonization policy related costs, such as using more expensive modern technologies and the cost of emission permits, would be charged on electricity buyers. The estimated amount of these costs is about 30 billion złoty per year in 2020–2030, around 55 billion złoty per year in 2030–2040 and around 75 billion złoty per year in 2040–2050 [Janowski 2011].

After implementation of the decarbonization policy in Poland one can expect many structural changes. They can result mainly from a decrease of carbon consumption, increase of nuclear energy consumption and bigger share of renewable energy. One can anticipate changes in structure of fuel production from the current state (2014): around 88% – hard and brown coal, around 5% – natural gas, around 5% – renewable fuels, to a state in 2050 with: around 50% – hard and brown coal, around 5% – natural gas, around 28% – nuclear energy, around 15% – renewable energy and around 2% – other fuels. According to experts' estimates, the decarbonization policy in Poland in 2011–2050 can lead to an increase of capital expenditures on production of electricity and heat by 250–300 billion złoty, if $CO_2$ emissions are not reduced, and by 60–80 billion złoty if the current climate policy in Poland is continued [Jankowski 2011].

Negative conclusion from the analysis of the decarbonization policy effects in Poland will be an increase of power generation costs by 5–15 billion złoty per year in 2040–2050. But if Poland chooses not to comply with the EU climate policy, it can increase power production costs by 15–30 billion złoty per year in 2040–2050. Therefore if the decarbonization policy is implemented, in 2040–2050 it would bring profits related to lower power generation costs of some 10–15 billion złoty per year

[Jankowski 2011]. Another benefit would be a greater diversification of technological and fuel structure, that can enhance competitiveness and efficiency growth in many sectors of economy. Moreover, considerable benefits may be obtained in branches of new low-carbon and energy efficient technologies, which would increase Poland's GDP and employment level. Promotion of renewable energy sources and reduction of fossil fuels consumption will not only allow to better control climate changes but also to limit air pollution and improve quality of life of Polish citizens. Improved air quality would certainly bring substantial economic profits – related mostly to better health of Poles. Indirectly the policy can contribute to an increase of value of human capital and growth of work efficiency.

**Table 1.** Predicted quantitative changes in the Polish labour market in 2012–2050, resulting from the EU climate policy implementation

| Category | Years | | |
|---|---|---|---|
| | 2012–2030 | 2031–2050 | 2012–2050 |
| Change in number of employees | Decrease by 150 thousand pers. | Decrease by 200 thousand pers. | Decrease by 300 thousand pers. |
| Change in unemployment rate | Increase by 0.5–1 percentage points | Increase by 1.5–2 percentage points | Increase by 2–3 percentage points |
| Change in number of working population | Decrease by 100–150 thousand pers. | Decrease by 50–100 thousand pers. | Decrease by 150–250 thousand pers. |
| Change in economic activity rate | Decrease by 0.5–1 percentage points | Decrease by 0.25–0.5 percentage points | Decrease by 0.75–1.5 percentage points |

Source: authors' study based on data provided by the Polish Chamber of Commerce (KIG), Polish Ministry of Economy and Central Statistical Office (GUS)

Specialists say that sustainable development, in the light of the Constitution, is about taking care of not only environment but also of development and society. Migration of industry means that if we stop producing cement in Poland, we would have to import it and energy prices would be higher. One should also bear in mind what sociological aspects of the intended policy are. Branches of industry that are the most exposed to migration of industry have the highest employment rate in Poland. It means that even with the most optimistic forecasts of job creation in green sectors, the continuation of the policy of reducing $CO_2$ emission would lead to destruction of as much as 350 thousand jobs, which would mean the unemployment rate increase by 2–3 percentage points. In the first twenty years (2010–2030) the change would be relatively smaller – there would be around 150 thousand jobs less. But bigger job cuts are predicted in 2031–2050, when around 200 thousand jobs can be eliminated. It will have its effects on the unemployment rate, which for that reason can rise in the 40 years period by around 2–3 percentage points. In the first subperiod of the implementation of the EU climate policy the estimated growth of the unemployment rate is about 0.5–1 percentage points

and in 2030–2050 it will be about 1.5–2 percentage points (Table 1). The visible changes should effect the number of working population. Employment insecurity in energy-intensive sectors and in sectors using more traditional energy sources will result in early retirement of many workers, especially those who would be in the pre-retirement age. The process would be similar to the one that can be observed in many sectors today, e.g. in power industry in Poland, as a result of privatization of these companies and of their restructuring. The effects of these changes will lead to a decrease of economic activity rate by 0.75–1.5 percentage points in 2012–2050. Intensification of these processes will probably take place in 2012–2030, when the estimated decrease of activity rate would be around 0.5–1 percentage points, whereas predicted decrease of activity rate in 2031–2050 would be around 0.25–0.5 percentage points.

The European Commission also predicts other positive effects of the implemented climate policy on the labour market. One expects an increase in employment as a result of higher capital expenditures in the economies of the EU member states, and an increase of production and development of related services. On the one hand an efficiency increase and innovations should lower unit labour costs, and consequently in the long run lead to increase in employment. On the other hand there would be a short-term decrease of employment (around 0.3% compared to 2005) related to effects of restrictions on emission trading [SEC(2010) 650]. In some traditional sectors of economy there would be a decrease of jobs number, however new jobs will be created in sectors related to renewable energy. The changes in the level of employment in particular sectors and regions, and temporary increase of unemployment, are also inevitable.

## 6. Conclusions

In recent years the significance of the EU climate policy has clearly grown. It is reflected in the economies and in their sectors, which are labour markets. The consequences of this policy will become apparent probably not only in the EU member states but also in many other regions of the world. The economic impact of climate policy implemented both on global level and in the EU is growing. Transition to a low-carbon economy, though it must have its cost, seems reasonable and necessary for Poland. The long-term benefits are the slower growth of power prices, change of lifestyle and priority given to energy saving and renewable resources. As a result, from the economic point of view, implementation of low-carbon technologies and innovations in the economies of the EU countries would not only be a big challenge but also an opportunity for economic growth and in the long run – increase in employment. Some sectors and branches would be worried by this long-term perspective, fearing the possible scenario in which many jobs in traditional industries would be eliminated, while employment in industries related to low-carbon technologies might not increase. Nevertheless, the implementation of all measures provided for in the EU climate policy should have positive effects on the economies of the EU member countries, especially because of reducing energy and material consumption.

The critical analysis of literature confirmed the research hypothesis. The adoption of the EU climate policy will lead to increase of uncertainty in the Polish labour market, caused by jobs cuts in traditional energy sectors or in sectors using traditional energy resources. Many authors estimate that about 250 thousand jobs would be lost because of these changes. This negative effect can be attenuated by development of low-carbon technologies in Poland, retraining for workers, who lost their jobs in sectors based on traditional energy, to help them find a new job in green energy sector. In the face of such considerable uncertainty caused by changes in the Polish labour market, the government attempts to direct the EU low-carbon economy by 2050 towards more rational development path, and thus to avoid excessive structural changes and potential social disturbances, are worthy of support. The principal problem of the Polish economy, with its specificity, lies in financing necessary investments projects related to low-carbon economy.

To summarize the conclusions, the level of employment in Poland in the next years would depend on how the strongest world economies shape the climate policy, and especially on the solutions eventually accepted by the European Commission. In the broader context, the climate policy would be decisive which countries would experience an increase and which a decrease in employment.

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