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# **THE EU TARGETS FOR REDUCING GREENHOUSE GAS EMISSIONS FROM POLISH ECONOMIC PERSPECTIVE**

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**ABSTRACT:** Member States of the European Union, in order to become more competitive and advanced in the research and development process, launched in 2010 a strategy for sustainable growth, called the Europe 2020. Out of the five ambitious objectives — on employment, innovation, education, social inclusion and climate challenges, the last one seems to be the most controversial. In the countries where energy production is mostly based on fossil fuels, the use of renewable energy sources has just started and the way to developed economy still lies ahead of them, strategy 2020 seems to stop economic progress. The perfect example of such a country is Poland. This publication provides an overview of the consequences of the EU climate and energy policy upon the economic situation in Poland.

## **1. INTRODUCTION**

During the Lisbon Council in 2000, the European Community set itself a new strategic goal — to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. The major part of this strategy was focused on creating conditions for full employment and strengthened cohesion by the end of the year 2010 [European Commission 2005]. But even before the year 2010, it became clear that the EU would not be able to achieve the desired objectives. In the new economic environment formed by global financial crisis, the European Union had to rethink its strategy. Much like most other countries across the world, Western European economies are going through a period of recession. The global financial crisis has reduced decades of economic progress and emphasized important structural weaknesses in the European economy. Even in times of crisis long-standing challenges connected with the globalization process, a lack of natural resources and pressure on the effective use of the remaining ones and an ageing population have become even more urgent problems. The new situation forced the European Commission to change its attitude and try to adapt to this new social and economic environment. The structural disadvantages in the Euro zone and other EU member countries underline by the crisis can be solved through introducing a wide range of structural reforms adapted to a completely new economic climate. All the changes the European Community suggested are based on EU common policies. To survive, the European Union needs to become far more competitive and advanced in the research and development

process. In order to undertake these issues, in 2010 all Member States of the European Union launched a strategy for sustainable growth, called the Europe 2020 strategy. This strategy should deal both with the current gigantic economic and social problems closely linked to the financial crisis and the need for structural reforms guaranteeing a dynamic economic growth in the long term perspective. Out of the five ambitious objectives — on employment, innovation, education, social inclusion and climate challenges - to be reached by 2020, the last one seems to be the most controversial. As it is set in Europe 2020, by the end of the strategy greenhouse gas emissions should be limited by 20 % or even 30 % compared to the 1990 levels, renewable energy sources should create 20 % of energy needs and the European energy efficiency should be higher by 20 % [European Union 2013]. Additionally, in July 2009, the countries of the European Union and the G8 announced an objective to reduce greenhouse gas emissions by at least 80% below the 1990 levels by 2050. In October 2009 the European Council set the goal for its developed economies at 80-95% below the 1990 levels by 2050 [Faber 2012]. These goals are controversial especially in the countries where energy production is mostly based on fossil fuels, the use of renewable energy sources has just started and the way to developed economy still lies ahead of them. The perfect example of such a country is Poland.

This publication provides an overview of the consequences of the EU climate and energy policy upon the economic situation in Poland. European structural funds have been among the most important instruments of determining positive changes in Polish economy since the integration with the EC but only a small part of them was used to reduce dependence on energy production from fossil fuels. Currently, with much stronger tendency to reduce CO<sub>2</sub> emission to the atmosphere, industrial manufacturing costs are becoming much higher with all the consequences of this fact: lower production levels, unemployment and a growing development gap between Polish and West-European economies. From this perspective of Central European countries, the changes which took place in the climate policy are important, because the necessity of welfare increase in less developed economies is understandable but the current tendency in political attitude puts more restrictions on this process. This paper focuses on the national level. The research is based on the analysis of reports prepared by the European Commission as well as national studies. Data collected or estimated by the Central statistical Office in Poland (GUS), EUROSTAT, OECD and AMECO have also been used.

The first part of the paper demonstrates economic changes in Poland since the accession to the European Union. The second part is focused on the consequences of the EU climate and energy policy upon the economic situation of Poland. The chronological range covers the period from the early 21<sup>st</sup> century to the current programming period ending in 2013.

## 1. A DECADE AFTER THE ACCESSION - CURRENT SITUATION IN POLAND

Poland covers just about 312.5 thousand km<sup>2</sup>. The population resident in January 2012 was slightly higher than 38.5 million inhabitants [OECD 2012], Poland is divided into 16 regions called Voivodships (województwa) - dolnośląskie, kujawsko-pomorskie, lubelskie, lubuskie, łódzkie, małopolskie, mazowieckie, opolskie, podkarpackie, podlaskie, pomorskie, śląskie, świętokrzyskie, warmińsko-mazurskie, wielkopolskie, zachodniopomorskie - 314 districts (poviats), 65 cities with the rights of poviats, and 2479 communes (gminy). Polish local government reforms adopted in 1998, which went into effect on 1 January 1999, created sixteen new voivodships. These replaced the 49 voivodships that had existed from 1 July 1975.

After the Second World War Poland became a Soviet satellite state. Economic and political problems in the early 1980s led to the formation of the independent trade union “Solidarity” that over time became a political force with over ten million members. The free elections in 1989 ended the era of Communism and an economic program, called shock therapy, transformed Poland into a free market economy. Poland joined the *North Atlantic Treaty Organisation* (NATO) in 1999 and the European Union in 2004.

Currently, after 25 years of transformation to a democratic and market-oriented country, Poland has become a modern economy but the difference between the level of its economic performance and the European average is still gigantic. In the year 2011, together with Latvia, Romania and Bulgaria, Poland came bottom of the ranking of well developed economies in the EC [Eurostat 2012]. The Polish GDP per capita is around one third below the European average and reached 64% of it.

On the other hand, since the year 2004 - the year of accession to the European Union - Polish economy has managed significant achievements in terms of growth and employment. A combination of an expansionary monetary policy, fiscal carefulness, beneficial structural reforms and the positive effects of the European funds has contributed to this performance. Real GDP grew in the years 2004 - 2008 by approximately 5.4% per year (Table 1). The accession started a rapid process of Polish production sector adjustments to the European common market competition. Poland's entry to the European Union has also brought many economic advantages, especially those connected with a broad range of structural funds inflow to Polish economy. Other aspects of integration are also important, such as the expansion of Polish trade and the inflow of Foreign Direct Investments (FDI), especially greenfield ones, into this part of Eastern Europe [National Bank of Poland 2011]. Real GDP growth, due to a positive social and economic performance, has reached average value far above the European Union results. Poland has also experienced a stronger private consumption and investment growth. Employment rates and gross national income per capita have increased considerably since the integration with the European Union.

**Table 1.** Polish economy main indicators (2000 — 2011)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total population (1000)	38256	38254	38242	38219	38191	38174	38157	38125	38116	38136	38167	38530
Employment rates 1)	55.0	53.5	51.7	51.4	51.9	53.0	54.5	57.0	59.2	59.3	59.3	59.7
Unemployment rates	16.1	18.3	20.0	19.7	19.1	17.9	13.9	9.6	7.0	8.1	9.6	9.6
Gross domestic expenditure on R&D2)	0.64	0.62	0.56	0.54	0.56	0.57	0.56	0.57	0.60	0.68	0.74	0.77
Inflows of foreign direct investment3)	10.3	6.4	4.4	4.1	10.2	8.3	15.7	17.2	10.1	9.9	6.7	10.9
HICP-Inflation rate4)	10.1	5.3	1.9	0.7	3.6	2.2	1.3	2.6	4.2	4.0	2.7	3.9
Government deficit5)	-3	-5.3	-5	-6.2	-5.4	-4.1	-3.6	-1.9	-3.7	-7.4	-7.9	-5
Gross national income per capita6)	10529	10924	11524	11869	12655	13523	14685	16161	17699	18256	19240	20480
Real GDP growth	4.3	1.2	1.4	3.9	5.3	3.6	6.2	6.8	5.1	1.6	3.9	4.3
Real labour productivity per person employed7)	5.9	3.5	4.6	5.1	4.2	1.4	3.0	2.2	1.2	1.2	3.4	3.3
General government gross debt8)	36.8	37.6	42.2	47.1	45.7	47.1	47.7	45	47.1	50.9	54.8	56.4

Share of persons of working age (15 to 64 years) in employment.<sup>2)</sup> As a percentage of GDP. <sup>3)</sup> Billions of euros <sup>4)</sup> Annual average rate of change (%). <sup>5)</sup> As a percentage of GDP. <sup>6)</sup> US dollars. Current prices and PPPs. <sup>7)</sup> Percentage change on previous period. <sup>8)</sup> As a percentage of GDP

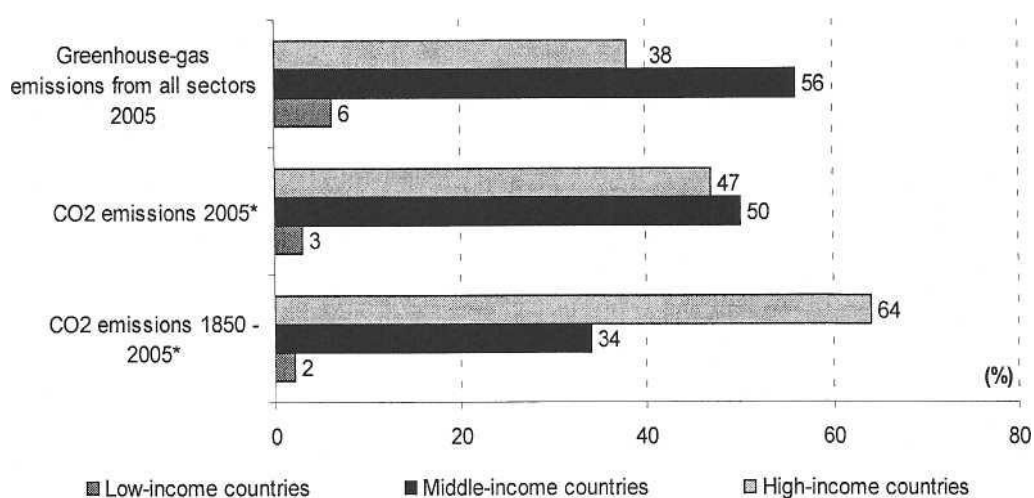
Source: OECD, Factbook 2011-2012: Economic, Environmental and Social Statistics, OECD Publications, Paris 2012. Teichgraber M., European Union Labour Force Survey - Annual results 2011, Eurostat, Statistics in focus 40/2012.

Despite these positive changes, Poland is one of the least developed economies among all the 27 Members States. Its location outside the main European economic centers causes considerable problems with reducing the development gap between Poland and the group of well developed European Union members. Economic growth is limited by weaknesses in certain areas: in the year 2011 the inflation rate was high - close to 4% as compared to the year 2010; recession is possible in 2013; unemployment exceeds 14% of the labour force and labour productivity is lower than the average level in the EU area.

## 2. ECONOMIC AND SOCIAL PERSPECTIVE OF EUROPEAN CLIMATE POLICY IN POLAND

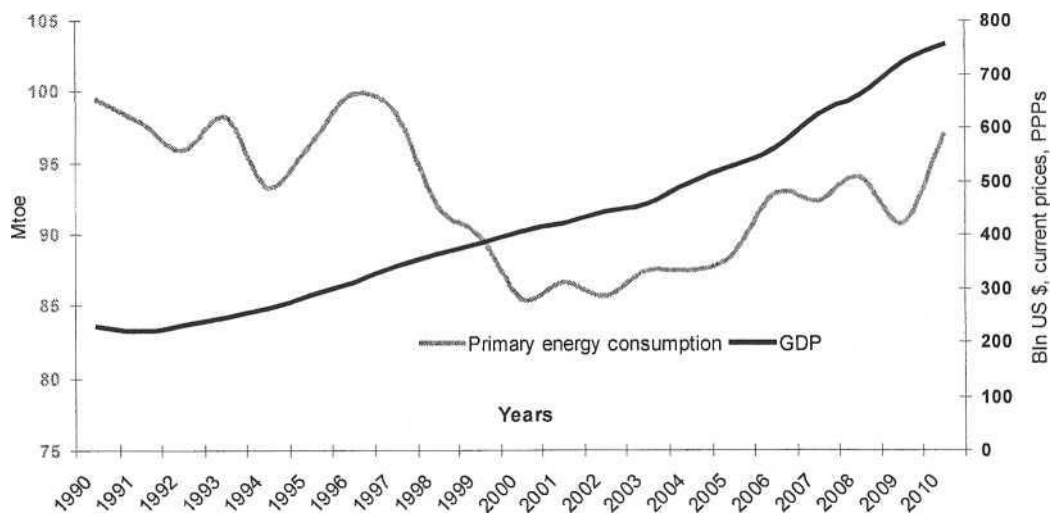
After centuries of fast economic development, it become more and more clear that important changes in the global climate which can be seen in the surrounding environment are the results of human activity. Global temperature has increased as an effect of greenhouse gas emission and causes more than a few major problems: a decrease of water availability in many regions, a reduction of crop yields

in most of tropical areas, an increase in human exposure to different types of diseases, an increase in the probability of flooding (sea-level rise), a lower labour productivity (heat stress) or higher energy consumption (summer cooling) [Common and Stagl 2005], Even though one can find counterarguments, it became evident that global warming has very serious and universal consequences. The question is who should bear the costs of the reduction of CO2 emission to the atmosphere. Is it an obligation of rich and well developed economies or undeveloped ones with out-of-date technologies and a huge appetite for energy - just like Poland? Nowadays, undeveloped and middle- income countries account for more than half of the total carbon emissions and developed economies for only 47% (Figure 1).



**Figure 1.** Global carbon-dioxide and greenhouse-gas emissions by group of countries, 1850 - 2005 (%). Source: The World Bank, World Development Report 2010. Development and Climate Change, Washington 2010.

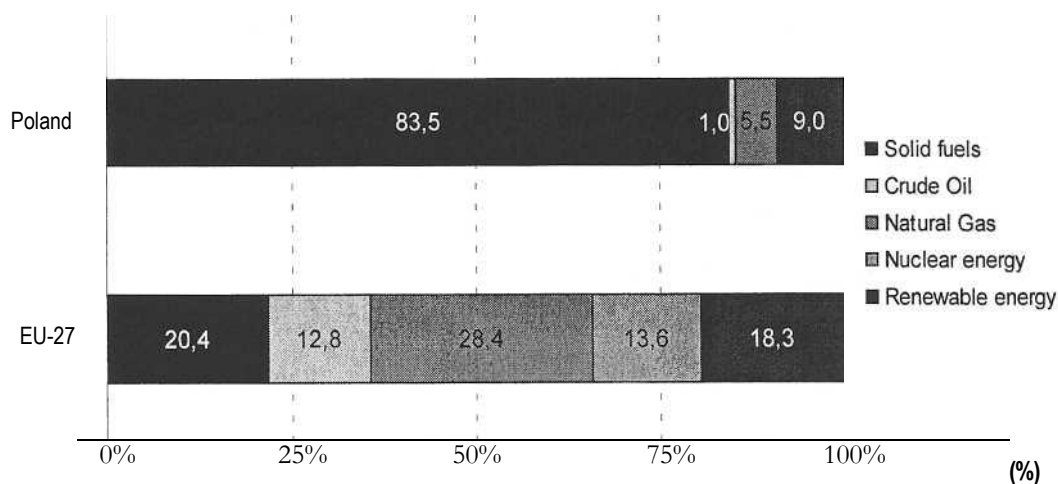
High-income and low and middle-income countries perceive climate-change problems in a completely different light. For well-developed countries the basic problem is an unpolluted environment. For developing countries like Poland, the problem is economy and justice. Today's wealth of Western countries cost the devastation of the environment in the past. Currently rich countries were responsible for two-thirds of the carbon put into the atmosphere since 1850, and their current requests to reduce emissions appear to be simply unfair.



**Figure 2.** Primary energy demand and changes in GDP level in Poland, 1990-2010. Source: Eurostat, Primary energy consumption, Code: t2020\_33, OECD. Factbook 2011-2012: Economic, Environmental and Social Statistics, OECD Publications. Paris 2012.

Poland's energy intensity has fallen by more than a half since the period of transformation in the early 1990s, along with economic structure changes and the modernization of capital stock in the industry, constructing and power generation sectors, but still the energy intensity of the Polish economy is around double that of the European Union average. What is even more important, the average rate of energy demand growth in Poland has nearly doubled that observed in OECD countries and the European Union since the beginning of the century (figure 2).

The impact of the European climate policy on the Polish social and economic situation can be discussed in different contexts: the whole economy, consumers' interests, the industry and construction sector and the energy production system. The climate policy influences on the GDP performance is particularly important. At national level, along with an adaptation to low CO<sub>2</sub> emission standards and high costs of production system transformation, a drop in the GDP is expected. Poland is the fourth largest producer of primary energy in the European Union after the United Kingdom, France and Germany. 83.5% of primary energy production in Poland comes from solid fuels (figure 3).



Total production of primary energy (million tonnes of oil equivalent)					
	1999	2009		1999	2009
UE-27	949,4	812,2	Poland	83,4	67,2

**Figure 3.** Shares of various energy sources in total gross energy production by fuel in 2009 (million tonnes of oil equivalent). Source: European Union, Europe in figures. Eurostat Yearbook 2012, Luxembourg: Publications Office of the European Union, 2012.

Poland also experienced the second largest reduction in its output of primary energy, with production falling by 16.2 million tonnes over the period from 1999 to 2009. Poland is one of the eight EU countries heavily reliant on fossil fuel that have applied for exemptions from buying carbon permits after 2013. The EU has decided that allowances will be allocated for free to power plants in Bulgaria, Cyprus, the Czech Republic, Estonia, Lithuania, Poland and Romania until the end of 2019. The number of allowances is set to be reduced each year and reach zero in 2020. The source of Polish dependence on energy produced from coal also has a strategic aspect. A large part of Polish and the EU-27 countries' energy comes from countries outside the EU. Much of this energy comes from Russia, whose disputes with transit countries have threatened to disrupt supplies in recent years and coal gives the Polish society the feeling of partial energy independence.

Additionally, from consumers' interests point of view, the European policy in this area can strongly increase the energy costs share in Polish households' budgets. The climate policy can also lead to a loss of competitiveness of the production sector as a result of higher energy costs (on the one hand higher direct costs of CO<sub>2</sub> emission, on the other indirect costs through increased electricity prices).



### 3. COCLUSIONS

The impact of the climate policy on Poland is much higher than the average for the EU countries, especially those well-developed. The resulting costs seem to be much higher than potential benefits. Poland is even today affected by increasing energy prices and other negative factors. The main danger for economic development will come during the next decades. The climate policy proposed by European institutions generates threats to energy security for the Polish society and stimulates an increase of gas import dependence on the monopolistic position of the largest extractor of natural gas and one of the largest companies in the world - Gazprom. Currently it is still too early to say if Poland can afford to implement the climate package. A further discussion on compensation mechanisms is necessary, especially at this time of global financial crisis. Recession and dynamic unemployment rate increase, along with public debt and budget deficit, stress the necessity of economic growth and workplaces preservation. European Union strategies in the field of climate changes create hard-to-pay costs and from Poland's point of view do not take into consideration the real conditions of its economy.

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