

IMPACT OF EU ENVIRONMENTAL POLICY ON POLISH IRON AND STEEL INDUSTRY

Received – Prispjelo: 2009-12-20
Accepted – Prihvaćeno: 2010-04-25
Review Paper – Pregledni rad

This paper presents the implications of EU policies for Polish iron and steel industry in consideration of reduction in carbon dioxide emissions, the first and the second *National Allocation Plan (KPRU - Krajowy Plan Rozdziału Uprawnien)* for emissions of CO₂ in Poland as well as methodology for allocating emissions allowances and implementation of the plan. A substantial portion of this paper focuses on the review of measures being taken in Polish steel industry to help reduce carbon dioxide emissions.

Key words: Iron and Steel Industry, EU environmental policy, carbon dioxide, reduction in emissions

Utjecaj EU naputka za okoliš na Poljsku industriju čelika. Članak daje doseze EU naputka za Poljsku čeličnu industriju glede redukcije emisije ugljičnog dioksida, prvi i drugi Nacionalni namjenski plan (misli se na Poljsku) za emisiju CO₂ u Poljskoj, jednako metodologiji predmnijevane dozvoljene emisije, te primjena plana. Veći dio ovog članka usmjeren je na prikaze mjerenja izravno u Poljskoj čeličnoj industriji kao pripomoć za reduciranje emisije ugljičnog dioksida.

Ključne riječi: čelična industrija, EU naputak za okoliš, ugljični dioksid, redukcija emisije

INTRODUCTION

Dynamic changes in world climate are an increasingly worrying trend today since their consequences might be very serious to the societies worldwide. Proper analysis of this problem and taking preventive political measures are currently one of the biggest developmental challenges to the world, particularly in terms of reduction in carbon dioxide emissions.

Poland's international obligations concerning climate change result from resolutions imposed by the United Nations Framework Convention on Climate Changes established in 1994 in Rio de Janeiro and the Kyoto Protocol signed in 1997. Poland has been a party to the Convention since 1994 and ratified the Kyoto Protocol in December 2002. Therefore the country is obliged, among other things, to [1]:

1. develop and implement national strategies to limit the emissions of greenhouse gases in consideration of economic and administrative mechanisms and also to periodical control of implementation of the strategies;
2. provide emissions inventory, capture greenhouse gases each year and to monitor changes in emissions;
3. prepare long-term scenarios for reduction in emissions for all economic sectors;
4. carry out scientific research on climate change problems;

5. prepare periodical governmental reports for the Conference of the Parties containing detailed information about fulfilment of the abovementioned obligations.

In recent years, European Union leaders have frequently emphasized that the policy of climate protection is of highest priority for strategies and programs of environmental protection until 2010. Some recommendations of the European Parliament were prepared for EU and national programs and strategies of development to select those policies and sector-oriented activities which are consistent with the actions defined by climate policies and which support these actions. In March 2007, leaders in EU member states emphasized the necessity of taking concrete measures in order to tackle climate change. The '3x20' program was then proposed, which, firstly – assumes the necessity for limitation of carbon dioxide emissions by 20 % until 2020 compared with the emissions from 1990; secondly, it assumes the improvement in energy efficiency by 20 % during the same period and, thirdly, it assumes rise in renewable energy share in total energy production up to 20 % [2-3].

Since 1990, total emissions of carbon dioxide had declined from 5,572 to 5,142 million tonnes in 2006, which meant the decrease by 8 %. The world steel industry accounts for between 4 % and 5 % of total man-made greenhouse gases [4]. Furthermore, emissions in iron and steel industry decreased by 19 %, from 152,8 to 123,9 million tonnes (Figure 1).

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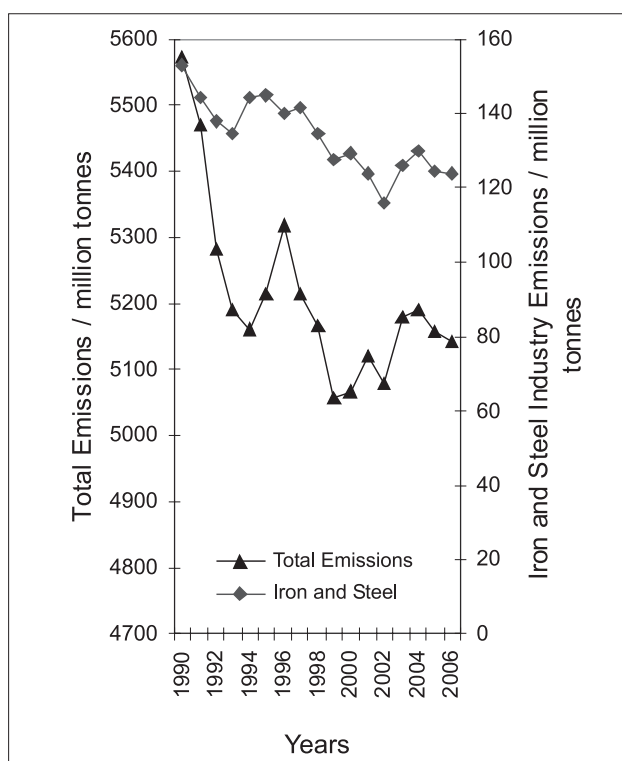


Figure 1 Total carbon dioxide emissions as compared to the emissions in iron and steel industry, EU-27 [5]

IMPLICATIONS OF EU CLIMATE PROTECTION POLICY FOR POLISH IRON AND STEEL INDUSTRY

Poland, which complies with international recommendations regarding climate protection and the EU directives, has developed its own legal regulations and a number of strategies for reduction in greenhouse gas emissions.

A part of these regulations are imposed by the *Krajowy Plan Rozdziału Uprawnień (KPRU)* (Polish National Allocation Plan) for emissions of CO₂. First KPRU was in force in 2005-2007, now replaced by KPRU II developed for 2008-2012. Both KPRU I and KPRU II were prepared using strategies of development prepared by economic self-governments for individual sectors in consideration of the demand for emission allowances.

Allocation of emission allowances for steel foundry sector was developed on the basis of branch study prepared by *Hutnicza Izba Przemysłowo-Handlowa (the Polish Steel Association)*. Number of emission allowances cited by HIPH in the document was determined on the basis of [6]:

- forecasts for the rise in GDP until 2012 – *GUS* (the Polish Central Statistical Office) (*Narodowe Strategiczne Ramy Odniesienia* – the National Strategic Reference Framework),
- result-based forecasts for apparent steel consumption (sector-related growth indexes),

- CO₂ emissions ratio per ton of raw steel, which will be declining within the period of KPRU II from 0,54 ton of CO₂ per ton of steel produced to 0,53 ton of CO₂ per ton of steel produced,
- data on production levels and the type of steel products for each foundry plant.

The suggested number of allowances for emissions in foundry sector in the second period amounted to 86,391,500 emission allowances, including allowances for new installations for uniform national reserve with the number of 2,546,000. The number of emission allowances for years of 2008-2012 in foundry sector amounted to 16,769,100 allowances on average annually.

On 1 July 2008, Polish Council of Ministers adopted the ordinance on the National Allocation Plan for carbon dioxide emissions for years of 2008-2012 (KPRU II) [7]. According to this document, total number of allowances for CO₂ emissions for the period of 2008-2012 amounts to 1,042,576,975 (208,515,395 allowances annually). Number of allowances for CO₂ emissions during the period of 2008-2012 for steel foundry installations included in the system was defined as following:

- installations for roasting or sintering, including sulphide ores: 7,045,045 allowances;
- installations for primary or secondary pig raw steel casting, including continuous steel casting – 26,029,115 allowances.

Allocation of allowances for the previous period of 2005-2007 [8] concerned the total number of allowances of 717,300,000 (239,100,000 allowances annually, i.e. 12.8 % more than in the following period). Allocation level for steel foundry was predicted within installation of primary or secondary pig raw steel casting, including continuous steel casting, which gave in total 40,642,200 allowances.

While making decisions on allocation of allowances for CO₂ emissions in 2008-2012, the European Commission used more demanding criteria in order to protect the integrity of the EU emissions trading system. By assumption, the companies whose limits were reached are obliged to either buy additional quotas in the market or to adopt technologies to become more environment-friendly and thus to limit carbon dioxide emissions. This system has not worked very well so far since there were too many allowances allocated to individual countries for the period of 2005-2007. Therefore, in new period, the European Commission allocated, in almost all cases, limits lower than declared by the member states. These actions were aimed at stimulation of the demand for CO₂ emissions rights and forcing companies to trade the allowances [9].

Reduction in the number of CO₂ emission allowances in Poland by the European Commission from 284,6 million tonnes to 208,5 million tonnes for the period of 2008-2012 caused appealing against the decision by Polish government in the Court of Justice of the European

Union because it was estimated that too low allocation could pose threat to development of national economy.

Limitation of the allowance allocation in Poland might have very negative consequences as development prognoses in the country are directly translated into demand for investment goods, electricity and heat energy. Therefore, it requires increased production in all economy sectors and, in consequence, the increase in carbon dioxide emissions. The arguments presented during the debate over the insufficient allocation of allowances for Poland are indisputable. The limitations might result in slowdown in the economic growth and, in consequence, make Poland unable to bridge the developmental gap generated after Poland's accession to the EU. Predictably enhanced competitiveness of producers outside the EU at the expense of Polish and EU producers might result in moving production facilities outside the country borders and, in consequence, cause rise in unemployment rate, decline in budgetary revenues, deterioration of Poland's attractiveness for foreign investors and, last but not least, slowdown in innovativeness.

The cancellation, by the Court of First Instance, of the decision by the EC from 2007 on limitation of Polish emissions to 208,5 million tonnes annually, resulted in rejection of Polish CO₂ emissions plan for 2008-2012 by the European Commission and the request that Poland presents a new proposal for allocation of emission allowances among Polish enterprises. The new plan might assume, in prospect, even lower emissions than 208,5 million tonnes annually allocated by the European Commission. The decision of the European Commission is based on the information that Polish plants in 2008 emitted 204,1 million tonnes, i.e. below limit protested against in the Court in Luxembourg whereas the Court of First Instance obliged the European Union to consider the most recent data [10]. In consideration of the results of recent recession, the European Commission puts Poland into even worse position than the countries which did not appeal against the decisions on emissions plans. Despite recession, these countries will not be subject to revision of the approved and implemented plans.

Allocation of limits for CO₂ allowances in iron and steel foundry sector lower than declared, similarly to the whole economy, entails negative effects through deterioration of competitiveness as compared to foreign manufacturers. Current imports cover domestic steel consumption at almost 60%, whereas another restrictions will deepen the process. According to various experts, decision of environmental bodies discriminates domestic steel producers and strengthens imports. On the other hand, foreign global players operating in Poland, also those from Western Europe, obtained higher allowances for similar installations in Poland [11]. It should be emphasized that emissions in Polish iron and steel industry are not higher than in other European countries which manufacture similar amount of steel products (Figure 2).

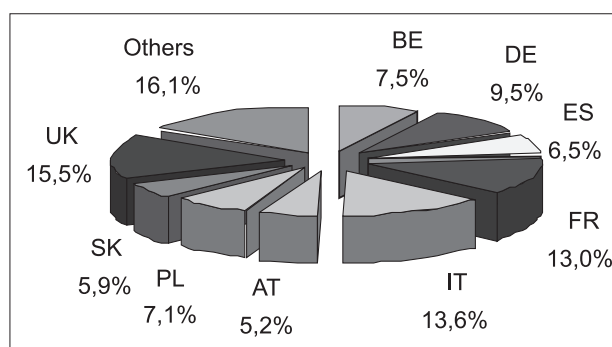


Figure 2 Carbon dioxide emissions in iron and steel industry, EU-27 countries [5]

Therefore, the stimuli to develop production in Poland will not be sufficient, despite constantly growing demand for steel in the market. Investments in steel sector are very expensive, thus reduction in CO₂ allowance limits in Poland will make production move outside EU borders, mainly to the East. Investments in Russian and Ukrainian markets are discussed by the president of the board in CMC Zawiercie. Allocated limits to carbon dioxide emissions will determine installation of the third blast furnace in the foundry in Dabrowa Gornicza which belongs to ArcelorMittal.

Allocation of allowances within sectors has aroused a lot of controversy among the experts on foundry since, according to them, it was based neither on indexes of unit emissions of CO₂ nor on uniform method of allocation for the entities. Unit emissions of CO₂ in Polish foundry are lower than the indexes in Western Europe, thus foundries should not be punished for positive achievements of restructuring. The fact of allocation of a considerable portion of CO₂ emission allowances to the energy sector (at the expense of other sectors), which has not been restructured yet, is particularly difficult to accept.

The biggest share in pollution emissions among the monitored enterprises can be observed in production lines in ArcelorMittal Poland S.A. They are responsible for emissions of 90 % of dust pollution, around 88 % of gas pollution in the whole steel sector. Carbon dioxide is the main gaseous pollutant while its share amounts to 97 % of the total gas emissions to the atmosphere. The method of balancing CO₂ emissions in foundries changed in 2006 in order to adapt measurement methodology to the requirements of the European Commission for the purposes of allocation of CO₂ emission allowances. Emissions are calculated using a precise method of balancing of carbon mass contained in heat materials, stock, products and carbon exhausted from the installation replacing the estimation-based index method. Therefore, the emissions of greenhouse gas in 2006, especially of CO₂, were nearly twice higher than in the previous period and these data are incomparable. Since 2006 the missions of CO₂ have declined insignificantly (Figure 3).

The negative impact on the environment in 2007 was successively limited. A reduction in unit amount of dust

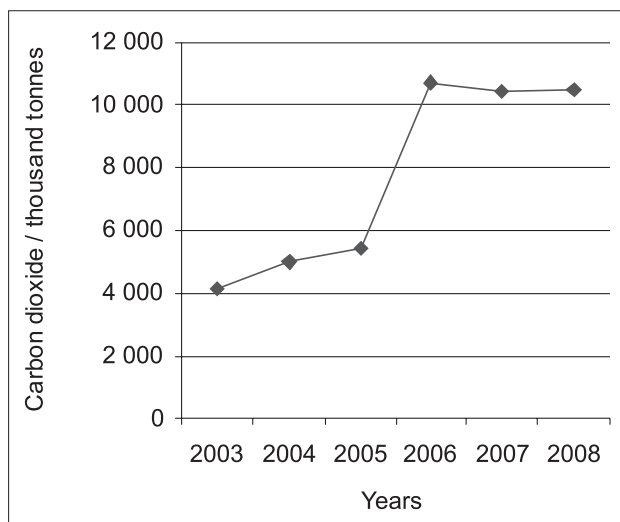


Figure 3 Emissions of carbon dioxide from iron and steel industry in Poland [12]

and gaseous pollutants was also observed. Year 2008 was characterized by further successive limitation of the negative impact on the environment. Insignificantly reduced emissions of gases concerned ArcelorMittal Poland S.A. in particular, and resulted from the change in carbon contents in raw materials and fuels and changes in methodology of CO₂ monitoring [13]. No exceeding of permissible emissions levels was observed in the foundries throughout the analysed period of time, thus no penalties were inflicted for above-standard emissions of CO₂ to the environment.

CONCLUSIONS

Problem of climate change is a global issue. Only the combined efforts of all the countries might produce measurable effects in the form of stabilization followed by the reduction in greenhouse gas emissions to the atmosphere. For this reason, the efforts made by each country should be coordinated. This will allow for considerable improvement in effect of the policies through synergy effect. Similarly to other industries, Polish steel foundry sector enforced the laws on reduction in carbon dioxide emissions, which had a considerable effect on the competitive position in the market, considering the

costs of infrastructure required for reduction of carbon dioxide emissions and implementation of changes in the manufacturing processes. Global strategies for environmental protection and competitive position of iron and steel industry should be developed.

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