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**UNDERSTANDING THE INCREASE OF
ENERGY EFFICIENCY IN THE POLISH
AND GERMAN INDUSTRY –
FOR AN EFFECTIVE EU ETS AND A
COMMON INDUSTRIAL POLICY**

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Summary

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Abstract

UNDERSTANDING THE INCREASE OF ENERGY EFFICIENCY IN THE POLISH AND GERMAN INDUSTRY – FOR AN EFFECTIVE EU ETS AND A COMMON INDUSTRIAL POLICY

The European Emissions Trading System (ETS) has been the hallmark of the European climate policy aimed at reducing the EU's CO₂ emissions. However, its results are mixed and it is, for example, surprising that energy and carbon efficiency has improved faster in Poland than in Germany. The differences between these two countries and even different sectors within a country can be explained by a closer look at the various policies impacting industry in Poland and Germany.

Energy efficiency is one of the most cost-effective ways to reduce CO₂ emissions and has one of the largest potentials, compared to other mitigation tools. What is more, in addition to its environmental benefits, reduction of energy intensity and consumption of resources increases the competitiveness of the industry and brings about significant savings in the longer term. Less consumption of resources, mainly in the form of fossil fuels, also reduced energy dependency of countries and regions and has a positive impact on the balance of trade of a particular country. For all these reasons energy efficiency is supported, at least in official discourse, by the representatives of all EU member countries, not least from Poland and Germany.

Indeed, over the last two decades the economies of Germany and Poland have become much more effective. Due to the modernisation of the energy intensive industries (EII), the energy efficiency of the Polish economy increased by 67% over the last two decades.² Today the Polish steel sectors one of the most energy efficient steel sectors in the EU, and its manufacturing sector, which in the mid-1990s consumed twice as much energy per unit of value added as the European average, is now significantly more effective than the EU average.³ However, the increase of energy ef-

iciency did not affect the Polish power sector. Although CO₂ emissions from energy generation in Poland decreased by around 11% over the last two decades, it was largely caused by an increased share of renewable energy sources, not due to the increase of the efficiency of old and often inefficient coal-fired power plants.⁴

The situation in Germany looked very different: although the carbon intensity and energy efficiency of its power sector increased significantly over the last two decades, the efficiency of its steel and manufacturing sectors improved only slightly since 1995, with the energy intensity of its cement industry fluctuating depending on the load factor of the plants.

What factors contributed to this differentiated increase of energy efficiency, not only between countries, but also between different sectors within a country? On the one hand the fall of Communism in Poland and East Germany contributed to a significant increase of energy efficiency resulting from the collapse of least efficient factories and the utilisation of state-of-the-art technologies in the modernised and newly-built plants throughout the 1990s. And yet, whereas the increase in energy efficiency continued in the Polish steel, chemical and manufacturing industries, especially after the introduction of the European ETS in 2005, in the case of Germany the energy intensity of all three sectors remained unchanged or even slightly increased since 2005.

At least three factors might contribute to the dif-

1 This summary draws on the early findings of research conducted by the members of the Working Group "Governance and Policy Aspects of Climate Change" between July and October 2013. It included desktop research on publicly available data and energy databases, media and document analysis, as well as stakeholder interviews with representatives of the industry.

2 "Energy Intensity - Total Primary Energy Consumption per Dollar of GDP", U.S. Energy Information Administration <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=92&pid=46&aid=2>, last accessed 10.11.2013.

3 "Energy Efficiency Indicators in Europe indicators", Odyssee

<http://www.odyssee-indicators.org/online-indicators>, last accessed 15.10.2013.

4 "Electricity prices for industrial consumers", Eurostat 2013, <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>, last accessed 15.10.2013.

ferences between the energy intensive industry in Poland and Germany. Firstly, due to an increase in the role of renewable energy, the price of electricity for the German EII increased at a much slower pace than in many other EU countries: by only 10% between 2005 and 2013. In the same period, the electricity prices for Polish industrial consumers increased by almost 75%. As a result the electricity prices paid by Germany and the Polish industry have leveled out.⁵ This increase in energy prices could have been the major mobilising factor that encouraged companies to invest in energy effectiveness in Poland.

Secondly, the German intensive industry not only benefited from lower power prices than those in many other EU countries, but also from numerous exemptions from paying additional fees, i.e. the renewable energy sources surcharge. At the same time the Polish government has constantly refused to take advantage of the possibilities offered by directive 2009/29/EC to compensate industries identified at risk of carbon leakage for power price increases linked to EU ETS to avoid the negative impact on the state's budget.

Thirdly, the modernisation of the energy intensive industry in Poland which took place in the 1990s and early 2000s in many cases led to a complete overhaul of the old and inefficient plants. This allowed investors to take advantage of the *best available technologies* (BAT) – in a visible *leapfrogging* of the entire sector. Furthermore, the construction of new plants resulting from the significant growth of the Polish economy over the last two decades allowed investments in new technologies. In the case of the German energy intensive industry, the energy savings resulting from a major modernisation alone would not justify the significant costs of upgrading to best available technologies.

The picture differs in the power sector. The ownership structure in Poland, with primarily state-owned companies, could have contributed to the favourable treatment by the Polish government. In the Allocations Plans presented for the first

and the second allocation periods of the EU ETS, the power sector was given preferential treatment and, as opposed to most other EU member countries, Polish power stations can continue to obtain free allowances in the third trading period, beginning in 2013. Without the pressure to lower its carbon emissions, the Polish power sector remained inefficient and unprepared to deal with the higher price of the CO₂ allowances. As a result, the largely coal-based and state-owned power sector is one of the major reasons behind Poland's opposition to European energy policy that aims to reduce fossil fuel import dependency and reduce CO₂ emissions.

The comparison of the energy efficiency developments in Poland and Germany leads to the conclusion that an increase, or *expected* increase of energy prices had a positive impact on the energy efficiency in the EII. At the same time, low energy prices for the German energy intensive industry and the protectionist policy of the Polish government for Poland's power sector discourage investments in energy efficiency in the respective sectors. Overall, it can be assumed that the strong focus on the role of the EU ETS in contributing to energy efficiency ignores the impact of national policies, governance structures and sectorial political economy on different industry sectors. The differences across EU member states – illustrated at the example of Poland and Germany – might explain some of the challenges for the European cooperation in the area of climate policy at the European level.

⁵ "Electricity prices for industrial consumers", Eurostat 2013, <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>, last accessed 15.10.2013.