

LARGE ENERGY COMPANIES – STRATEGIC DECISIONS UNDER REGULATORY PRESSURE

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Abstract

Large energy companies are under continuous pressure through various regulatory mechanisms, whose primary purpose is to fluently reduce carbon dioxide emissions to reach general climate neutrality. The European Union Emissions Trading System (EU ETS) is the most intense mechanism. This paper is based on the following hypothesis: emission allowances' prices are rising in the long-term and along with this, companies' costs are rising significantly as well. This factor determines the strategic decisions more than the political consideration about the date of the coal phase-out.

This paper deals with the analysis of the impacts of emission allowances rising prices and other regulatory pressures like the coal-phase out of the Czech Government and the EU Green Deal package on the largest companies under the EU ETS in the coal regions in the Czech Republic. There are 86 installations under the EU ETS scheme together in the Northwest region and Moravian-Silesian region out of 269 from the total number in the Czech Republic. Revealing future strategies' from individual EU ETS companies can help lead to a better transition of the coal using and producing companies to a low-carbon economy and help us understand the future structure of these companies and the whole economy.

Keywords: large companies' strategies, low-carbon economy, energy transition, decarbonization

JEL Code: Q49, Q59

Introduction

Large energy companies are under permanent pressure from various regulatory mechanisms, whose primary purpose is to fluently reduce carbon dioxide emissions to reach the defined goal of international conventions on global warming. The European Union Emissions Trading System (EU ETS) is considered to be the most intense mechanism since 2005 which

constitutes the core instrument of the EU climate protection policy (European Commission, 2020). The EU ETS sets an aggregate CO₂ emission cap for the most energy-intensive installations within the member countries of the EU plus Iceland, Liechtenstein, and Norway. The EU ETS covers roughly more than 10 000 heavy energy-using installations (industrial plants and power plants) together with airlines operating between these countries. The system thus covers more than 40 % of the EU's greenhouse gas emissions.

The EU ETS is based on setting the cap of emission allowances which are distributed among companies' installations. Allowances are distributed to the installations whereas each company may have more than one installation that is under the EU ETS. Businesses, which have an excessive number of allowances, may reserve them for the future, transfer them to other installations within the company or sell them through a trading system to those companies who need them (pay the price). One emission allowance allows the polluter (installation) to release one ton of CO₂. The total amount of freely distributed allowances is steadily decreasing over the years and therefore the desired effect may be achieved. The meaning of the system is that the highest polluters pay the most for the released pollution. This shall press the highest polluters to implement cleaner sources of energy. Since the beginning of 2021, the fourth phase of the EU ETS has begun. The fourth phase has increased the pace of annual allowances reduction from 1,74 to 2,2 %. The system shall provide assurance to the industrial sectors at risk of carbon leakage to provide international competitiveness to the most threatened sectors. Rules for free allocation determination shall reflect technological progress in each industrial sector. Along with that, there are investment and innovation challenges prepared to support the low-carbon transition.

Due to the gradually tightening measures of the EU ETS throughout the particular phases, the price of emission allowances has dramatically grown recently. In August 2018, the price reached 20 EUR for one ton of CO₂. In September 2020 it was 30 EUR, while in March of 2021 it was 40 EUR and in April 2021, the price is not far from 45 EUR for one emission allowance. The significant rising of emission allowances prices causes the significant rising of businesses costs along with that as well. This paper thus deals with the analysis of the impacts of emission allowances rising prices on the largest companies under the EU ETS along with the other regulatory pressures like the coal-phase out of the Czech Government and the EU Green Deal package in the main coal regions of Czech Republic – Northwest and Moravian-Silesian.

1 Theoretical background

Even though the EU ETS shall be set equal to each EU member country, there are differences in the effectiveness of the EU ETS in various countries. The study of Anke (2020) examines the effect of national policies on the effectiveness of the EU ETS and its impacts when it comes to emission allowances prices. The study found that national policies play a critical role in affecting emission allowances prices. Nevertheless, there are other influences on the emission allowances prices like e.g., the price of gas and coal but not electricity (Meier, 2020).

There are some critical voices to the current system setting as well. The study of Cucchiella et. al (2018) reflects that the current system of emission distribution shall be revised because of occurring inefficiencies in the initial allocations throughout the various member states. One of the most inefficient countries according to this study is the Czech Republic together with Finland and Estonia which are characterized by strong negative changes in the efficiency of allocations while these countries have considerable unfilled limits compared to the other countries. The more significant the shortcomings in the past, the more significant the effort and the impact on the businesses in the future. Earlier studies like the study of Chiu (2015) evaluate the efficiency of emission allowances allocation as well. Industrialized countries need more allowances than others which should be reflected by the trading system.

Installation analyses are quite actual. These analyses consider the price increase of emission allowances and other fuels while modelling various scenarios when it comes to future development. At the same time, such analysis can reveal weaknesses in the functioning of a particular device and the possibilities for further improvement. Such analysis is the subject of the study of Król (2019), which analyses a cogeneration power plant located in Poland consisting of a hard coal co-generation unit, water boilers, and gas engines. The analyse, for example, reveals the weaknesses of the technology using hard coal as far as the emission allowance process is concerned. In this paper, our study is more widespread and covers the most actual topics concerning the different kinds of installations. Even so, it is an approach that could be individually implemented and where it would be possible to gain detailed insight. The price of emission allowances' has impacts on the economics of installations operation and businesses strategies. Moreover, the EU ETS trading market has a verifiable effect like that of the stock market. During phases I and III there is a significant

negative impact when it comes to emission allowances of the European carbon-intensive industries while during phase II the impacts are positive just as in the study of Zhu (2018).

The EU ETS is the first greenhouse gas emissions trading scheme in the world and was considered to be the largest. On the 27th of December, China launched its trading market which may be considered to be the largest platform of ETS in the world at this moment as Lin said in his study (2019). This study declares that the ETS generally has the potential to reduce energy consumption, quality of the environment, and economy. The study brings useful recommendations to assist policymakers to design a healthy ETS market that would be effective with predictable prices of emission allowances. Pilot versions of ETS were assessed before implementing the sharp ETS system in China like in the study of Chang (2017), who assesses them and recommended the obtained conclusions to policymakers.

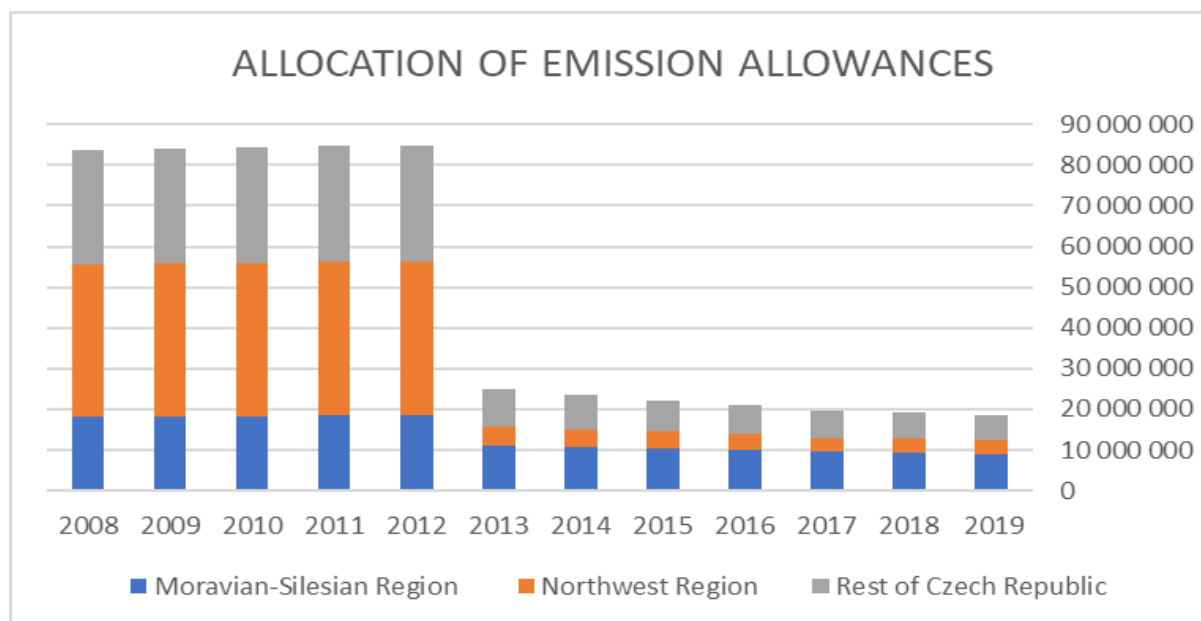
The study of Pan (2015) provides a comprehensive view of the issue of emission allowances. The study performed a consistent study of 41 effort-sharing schemes of the main countries under the ETS. The study provides comprehensive comparisons and thorough implications because of its complex perspective. It is obvious that there are extensive differences between the continents, countries, and even between the individual installations when different installations receive a different number of free allowances. Thus, the impacts will be specific for each installation, region, country, and continent. It is mainly because of different conditions like device preferences in the allocation of emission allowances, socio-economic background of the region, national policy, and other aspects.

As shown in the previous paper (Jílek et al, 2020) there are about to be significant impacts of decarbonization to the Northwest region. This paper builds on the previous study which evaluated the Northwest region as a region that could be potentially highly affected by the transition to a low carbon economy. It is why we focus on the Northwest region together with the Moravian-Silesian region as the two main coal regions.

2 Main characteristic of the observed regions

In the Czech Republic, there were altogether 269 installations under the EU ETS by 2020 which were in all 8 regions on the NUTS 2 level. Nearly one-third of these installations were in the two monitored regions – the Northwest region and Moravian-Silesian region. There were 44 installations in the Northwest region and 42 installations in the Moravian-Silesian region. However, these two coal regions are responsible for producing two-thirds of all emissions of the installations under the EU ETS.

Fig. 1: Northwest Region, Moravian-Silesian Region and the rest of the Czech Republic - comparison of emission allowances allocation to the particular regions



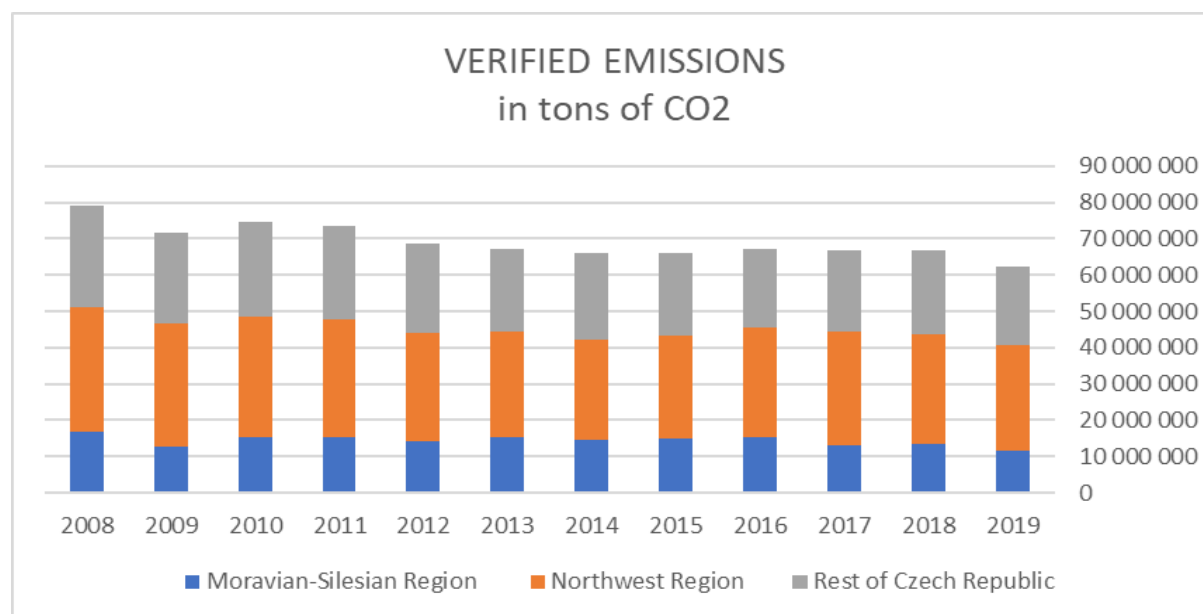
Source: Authors' compilation based on data from the European Commission

The figure above shows that about half of all emission allowances are allocated to the installations in the Moravian-Silesian region in 2019. Nearly one-fifth of all emission allowances are allocated to the installations in the Northwest region in 2019. Nevertheless, the ratio in these two regions was opposite until 2012 when half of all emission allowances were allocated to the installations in the Northwest region and one quarter to the installations in the Moravian-Silesian region. Emission allowances started to be allocated in smaller amounts from the year 2013 because of the beginning of the third phase of emissions trading with a dominant representation of the Moravian-Silesian installations. The allocation of emission allowances decreased throughout the observed years to 22 % in 2019 (18 468 772) in comparison to 100 % of the allocation (83 670 317) in the initial year of 2008. There is an obvious disproportion in the two emission phases when in the first and second phase there was the dominant region of the Northwest and in the third phase (2013-2020) the dominant region being the Moravian-Silesian region.

The following figure displays that the total amount of verified emissions has decreased. The number of verified emissions decreased throughout the observed years to 79 % in 2019 (62 474 755) in comparison to 100 % of emissions (79 069 707) in the initial year of 2008. The proportion of verified emissions between the regions remains similar with no substantial changes. Even though the installations in the Moravian-Silesian region produced

18 % of all EU ETS verified emissions in the Czech Republic in 2019, the number of allocated emission allowances was 49 % of all allowances. On the other hand, the Northwest installations produced 47 % emissions of all EU ETS verified emissions in the Czech Republic in 2019, while the number of allocated emission allowances was 18 %.

Fig. 2: Northwest region, Moravian-Silesian region, and the rest of the Czech Republic - comparison of verified emissions



Source: Authors' compilation based on data from the European Commission

Economic transition and decarbonization are presumably about to have essential impacts especially in the Northwest and in the Moravian-Silesian region because the majority of installations in these two regions and due to a reduction in the number of allocations when it comes to free allowances, while the number of verified emissions has not changed so substantially. There is even a disproportion between the regions in allocated allowances compared to verified emissions when the Northwest region has allocated nearly one-fifth of emission allowances while producing one-half of the total emissions. The Moravian-Silesian region has quite the opposite ratio which is far more amiable. The two observed regions have different structures when it comes to the main activity types of the installations with favoured sectors like the steel industry, the manufacture of glass and ceramics, the chemical sector, and other sectors. The Moravian-Silesian region is far more supported with allowances than the Northwest region as you may see from table 1 and table 2.

Tab. 1: Installations' structure according to the main activity type in the Northwest and Morava-Silesian regions

Main activity type	Allocations in 2019		Verified emissions in 2019	
	Northwest/Morava-Silesian	Ratio Northwest/Morava-Silesian	Northwest/Morava-Silesian	Ratio Northwest/Morava-Silesian
Combustion inst. with a rated thermal input exceeding 20 MW	383 541	11,3 %	852 982	2,9 %
	229 770	2,5 %	213 477	1,8 %
Combustion of fuels	1 702 235	50,3 %	27 054 259	92,1 %
	4 865 292	54 %	8 029 585	70,3 %
Steel industry	0	0 %	0	0 %
	3 584 638	39,8 %	2 815 913	24,7 %
Manufacture of glass and ceramics	448 625	13,3 %	522 431	1,8 %
	33 218	0,4 %	41 125	0,4 %
Chemicals' production	429 656	12,7 %	420 734	1,4 %
	192 110	2,1 %	157 622	1,4 %
Other sectors	417 779	12,4 %	530 708	1,8 %
	111 005	1,2 %	161 031	1,4 %
Sum	3 381 836	100 %	29 381 114	100 %
	9 016 033	100 %	11 418 753	100 %

Source: Authors' compilation based on data from the European Commission

3 Methodology

The research is based on the following hypothesis: emission allowances prices are rising in the long-term and along with this, companies' costs are significantly rising as well. Therefore, it is expected that the energy transformation to a low carbon economy will significantly affect companies under the EU ETS and especially the larger ones. This research is based upon semi-structured interviews with the representatives of the largest companies. There are 86 installations together in both regions. For this research, installations that were chosen for interviewing had more than 100 000 tons of CO₂ as verified emissions in 2019. Altogether, there are 33 such devices – 21 in the Northwest and 12 in the Moravian-Silesian region. These devices produced more than 95 % of all verified emissions in the regions.

In this initial part of the research, there were 5 companies chosen and addressed which run together 11 installations. These 5 companies together obtained 45 % of the total amount of

allowances and 38 % verified emissions of the total sum of the two regions. It is considered to be a representative sample of the regions. Companies were interviewed in the following main areas: the awareness of just transition fund, economic context with the position of the company in the value chain, impacts of the current regulatory framework, impacts of the climate neutrality mechanisms, company strategy, investments, and financial tools, technical support and more.

4 Results and discussion

Although data collection is still in progress, it is possible to submit relevant results which reflect the basic features of large companies' strategies. The research revealed the following results. All companies are somehow involved in the decarbonization processes with the systematic preparation for the transition. Even though companies have rather sufficient information about the just transition fund, there were many shortcomings mentioned like the need to define clear rules, it is an unnecessarily complicated process, there is not much time for covering the process, there is a need for proper support and realization parameters.

Some companies expect major changes as to the structure of their suppliers. This depends on the main activity of the company. In some sectors (e.g., power plants and steel industry) no major changes are expected in comparison to other sectors like the chemical industry where the companies are pushing the ecological limits. While addressing the question dealing with the evaluation of their supplier, according to the sustainability criteria, companies unanimously answered that they do not evaluate their suppliers. Some companies feel pressure, for example, even from the financial European institutions which do not want to finance any other activities including and relating to the coal business.

Companies unanimously answered that they consider the EU ETS system as a regulatory intervention with very strong impacts. The main hypothesis of our research was thus confirmed. Companies perceive the changes in the EU ETS prices as having a very strong effect on their businesses. Therefore, companies see the future quite negatively, especially if they do not see any relevant alternatives to coal. Industrial and energy independence, as well as self-sufficiency, should be considered while deciding regulatory mechanisms and restrictions. Other regulatory interventions and effects besides the EU ETS were mentioned: other emission restrictions, environmental charges, strict environmental regulation, decarbonization, water consumption. Regarding decarbonization, the companies expect changes in functioning when it comes to things such as the increase of costs as well as

the preparation to becoming a non-coal business. They do not expect essential changes, rather some modifications, transforming to gas usage. No respondent answered that the relocation of its business or part of it to third countries is likely. Each respondent answered that they reflect the pressure of rising prices of emission allowances and other pressures in their strategies. They do so by decreasing emissions, energy savings, projecting rising prices on inputs into product prices, fuel changes, equipment reconstruction, and modernization, moving away from coal (where possible), orientation on new branches.

Interviews further dealt with the social aspect regarding employment, social programs, retraining, and education. Three respondents answered that they expect changes in the structure of employees because of the decarbonization process. Respondents consider the social and economic impacts of such changes on employees by having prepared or planned social programs with external programs for retraining. All respondents answered that they need further education and training of the people to be prepared for future challenges. According to the respondents, there are not enough qualified workers.

The results of the research show that the main reasons for strategic decisions of the companies are - fuel supply, a necessity to survive, pressure on the implementation of alternative sources, economical aspects, and environmental aspects. Companies mainly have carried out in the past or will carry out in the future investments in the businesses' diversification, upskilling and retraining of employees, research, and innovative activities. Companies want to use public sources to finance transformation activities to the maximum possible extent.

Conclusion

The research has currently reached its first phase. This paper is the evaluation of the results from the interviews of five different companies. Together, these include nearly half of all allocated emission allowances with nearly two-fifths of the verified emissions together in both regions. The main findings of this first research part and the consequences of emission allowances rising prices (and other pressures) are apparent and tangible. Through further investigation and by interviewing other large energy companies, more detailed information will be obtained to determine the strategies of individual key companies in the regions, the strategies of the individual sectors as well as the possible development of the economy.

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