

*Marynka SZWEYKOWSKA-MURADIN,
Zenon FOLTYNOWICZ*

GREENHOUSE GAS EMISSION ALLOWANCES AS A COMMODITY TO TRADE

Introduction. European Unions is facing problems of growing dependence on imported energy carriers, growing energy costs for end users and climate change. In 2009 European Parliament adopted a so called ‘Energy and Climate Change Package’, a legislation package containing

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several directives which should ensure that EU reaches its energy and climate goals before 2020, proposed by the European Commission in 2007 [1] and accepted by the European Council in March 2007 [2]. At least 20 % greenhouse gasses (further indicated as GHG) emission reduction compared to the emissions level of 1990 and 30 % in case a global target on GHG reduction can be reached:

- 20 % share of renewable energy in the final EU energy consumption;
- 20 % improvement in energy efficiency compared to the BAU ('business as usual') scenario.

European Union Greenhouse Gas Emission Trading System (further indicated as EU ETS) is one of the mechanisms which aims at supporting the EU member States to achieve their goals of the Kyoto protocol and the abovementioned goals. One of the directives included in the abovementioned 'Energy and Climate Change package' is a directive which introduces a revision and strengthening of the present European Union Emissions Trading System [3].

The GHG emissions allowances are traded between companies participating in the system [4]. In such a way EU ETS creates a market for GHG emission allowances.

Background. The EU ETS is a 'cap and trade' system which aims at cutting GHG emissions cost-effectively and which contributes to the international efforts to reduce world's greenhouse gas emissions. It is the largest multi-country, multi-sector Greenhouse Gas Emission Trading System in the world [4]. Installations from predefined sectors of economy obtain till 2012 GHG emissions allowances (further indicated as EUA). They have to cover their real GHG emissions with those allowances. One allowance allows participating installations to emit 1 tonne of CO₂ or equivalent amount of another GHG. Installations which are short of allowances have to reduce their GHG emissions or buy allowances from installations which are long of allowances. The system started in January 2005 and is divided into several phases:

- Phase I (2005–2007). This first EU ETS phase, being a 'learning period', started on January 1st 2005 and lasted for 3 years. In this period only CO₂ emissions allowances were traded between participating installations from predefined sectors. Member countries were preparing national allocation plans (further called as NAP's), which were presented to the European Commission for approval. The NAP's were determining the total number of EUA to be issued in particular countries and showing how those allowances could be allocated to the particular installations in those countries. Only a small part of allowances could be auctioned, at least of 95 % of allowances should have been allocated for free.

The market was characterised by excess of EUA, caused by excessive allocation of EUA to installations in some EU member countries. Most countries allocated the EUA to participating companies for free, only four countries, namely Denmark, Hungary, Ireland and Lithuania, auctioned a part of allowances [5].

The excess of allowances caused a very low price for EUA at the end of this phase. The price was ca. 8 €/EUA on January 1, 2005. It increased to the level of 20–30 /EUA, but decreased after the verified emissions of 2005 were published in April 2006. Since that time the prices continuously decreased reaching nearly zero from October 2006 until the end of Phase I [6; 7]. This phase was also characterised by windfall profits by some energy companies, which incorporated EUA prices in electricity prices, despite the fact that they obtained the allowances for free.

- Phase II (2008–2012). The second phase started on January 1st 2008. In this period countries were allowed to include also other GHG emissions. For instance The Netherlands and Austria included emissions of N₂O in the system. Also in this period the NAP's were prepared by member countries and presented to Brussels for approval. The rules for preparation of NAP's became stricter, leading to smaller amount of EUA on the market, however the economic recession had an influence on companies' emissions, connected to diminished production volumes. The countries were obliged to allocate at least of 90 % of allowances for free. The prices of EUA are higher than at the end of phase I of EU ETS.

- Phase III: 2013–2020. The next period of EU ETS will start in January 2013 and will last for 8 years. Considerable modifications have been introduced to the system, i.a.:

- There will be no national allocation plans determining national caps – a single EU-wide cap on emission allowances will apply from 2013. This cap will be diminished annually in a linear manner, reducing the number of allowances available to participating installations to 21 % below the 2005 level in 2020.

- The free allocation of EUA will be progressively replaced by auctioning of allowances. Allowances, which will be allocated, will be allocated according to unified rules for all the countries (benchmarks). In principle the electricity generators will have to buy allowances for 100 % starting 2013. However there is a possibility for derogation from this rule for some countries under strict conditions. Also installations from sectors under risk of 'carbon leakage' and district heating will be allocated EUA for free. The share of allowances allocated for free will be steadily diminished.

- Also the sectors and gases covered by the system will be expanded.

Conditions for the market. The EU ETS creates a market for GHG emissions. Summarising, this market was facing different problems in the past, e. g.:

- At the end of phase I of EU ETS (2005–2007) the prices of EUA felled down sharply after publication of verified emission of 2005. It appeared that some member countries over-allocated EUA to their installations, which caused an excess of allowances on the market. EUA could also not be banked for the second phase of EUA (2008–2012). In consequence the price of EUA fell down to nearly zero at the end of period I.

- Some electricity generators acquired windfall profits, passing the costs of allowances to the electricity prices. This despite the fact that allowances were allocated for free. This caused a rise in electricity prices.

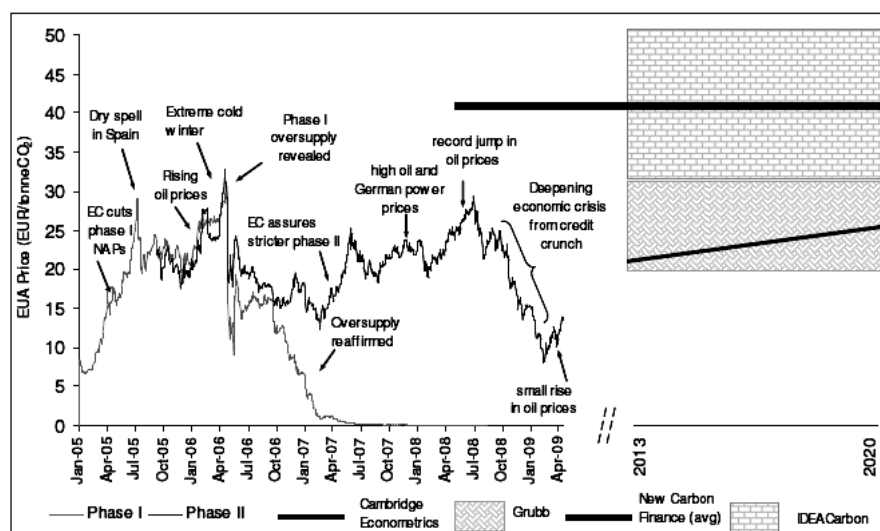
Prices of EUA in first and second phase of EU ETS as well as some predictions for the third EU ETS phase are depicted in *figure* [7].

There seem to be two basic conditions for the proper working of the EUS market:

- The market should be short of allowances. This will create an appropriate price for allowances and will motivate business to reduce GHG emissions.

- The operational conditions should prevent market distortions as e.g. windfall profits. Besides this the system should not be too complicated and expensive in administrative sense.

The European Commission introduced several modifications for the 3rd phase of EU ETS. Let us try to answer the question whether those modifications contribute to the proper working of the carbon emissions market, fulfilling the abovementioned conditions.



EUE prices in the first and second phase of EU ETS as well as some predictions for the third EU ETS phase (source: [7]).

Starting the year 2013 there will be one EU cap and the total number of allowances in EU ETS will diminish linearly each year by factor 1.74 % in comparison to the average total quantity of allowances issued in the second phase of EU ETS for the years 2008–2012. This number will be adjusted to the system in 2013, taking into account exclusion of small installations and additional sectors in phase II of EU ETS. According to EC estimations the cap in the 3rd phase of EU ETS will be lower than the cap in the 2nd phase of EU ETS [8]. For next phases of EU ETS beyond 2020 also a linear reduction factor will be applied to determine the cap [8]. This should create a shortage of EUA on the market and assure an appropriate price for EUA. Also some measures from the side of EC are foreseen to prevent excessive price fluctuations [4].

Auctioning of EUA should prevent windfall profits connected to free allocation of EUA. From the year 2013 in principle electricity generators should buy all allowances which they need to cover their GHG emissions. Installations from other sectors will have to buy a part of EUA. Auctions of EUA will be organised for this purpose, the EUA will be sold by member countries. However there are some exceptions possible:

- Installations from sectors under a risk of ‘carbon leakage’ (shifting production to countries with no strict climate policy) and district heating will obtain allowances for free, according to the benchmarks, established by European Commission.

- Some countries will be temporarily able to allocate, under strict rules, a part of EUA to electricity generators, which are operational or under construction not later than end of 2008 – provided that one of the following conditions are met [3]:

- in 2007, the national electricity network was not directly or indirectly connected to the network interconnected system operated by the Union for the Coordination of Transmission of Electricity (UCTE);

- in 2007, the national electricity network was only directly or indirectly connected to the network operated by UCTE through a single line with a capacity of less than 400 MW; or

- in 2006, more than 30 % of electricity was produced from a single fossil fuel, and the GDP per capita at market price did not exceed 50 % of the average GDP per capita at market price of the Community.

It is expected that especially some of the new EU member countries will have a possibility to use this derogation possibility. The decision whether or not to use this possibility should be taken after careful consideration of advantages and disadvantages of such derogation. Using the possibility of derogation has a risk that electricity generators will include the prices of allocated for free EUA into the electricity prices, causing market and competition distortions. However the directive foresees a possibility for member countries to preventing the sale of allowances allocated for free. Beside the strict conditions under which EUA may be allocated to electricity generators complicate the system and makes it more expensive for relevant countries.

For proper working of the EUA market it is very important that the system is not too complicated and expensive. It is difficult to decide whether the modifications of the system will cause the increase of the costs and level of complication of the EU ETS system.

Conclusions. Caps for EUS became stricter, contributing the EU goal of 20 % GHG reduction in 2020 in comparison to 1990. Introduction of auctioning will prevent market distortions. But derogation from this rules are still possible. System should not be too complicated and expensive.

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