

Terry Pavlopoulos, CemBR



In the first of CemBR's series of articles on the EU Emissions Trading Scheme (ETS), Terry Pavlopoulos looks at the developments in its Phase IV, with a focus on how free allowance changes are affecting cement producers.

Initiatives to reduce CO₂ emissions have been in the forefront of most of the major cement manufacturers for several years. This is natural, as our industry is responsible for 7-8% of global CO₂ emissions. Indeed, it is one of the most CO₂-intensive industries in the world and has rightly attracted a lot of attention.

Currently, the only meaningful CO₂ reduction framework is the EU ETS (and recently the UK ETS). In January 2021 the EU ETS entered its Phase IV. The combination of the onset of Phase IV and the increased level of CO₂ pricing is now beginning to influence a large part of cement manufacturers' strategies.

CemBR published its first report on CO₂ and cement in October 2019. It has now published a follow up: *'The EU ETS & Cement – Enter the Phase IV.'* This article is the first of three that CemBR

will publish to provide data, insights and analysis based on the report. It concerns the changes to free allowances and the resultant implications for the entire European cement industry. The second and third articles will look at implications for individual markets within the EU ETS and at the forthcoming Carbon Border Adjustment Mechanism (CBAM).

What happened in Phase III?

The increasingly-stringent requirements of the EU ETS system already began to show their effects during Phase III. In two instances, 2018 and 2019, the activities covered by the EU ETS produced more CO₂ than they received in free allowances - See Figure 1. The Covid-19 pandemic caused clinker production to fall in 2020, allowing the system to return to a surplus during that year.



However, in 2021 all clinker plants within the EU ETS (and UK ETS) received allowances that were 13% lower overall than in 2020. These allowances will only change between 2022 and 2025 if there is an adjustment in accordance with the Phase IV rules. There is no benchmark reduction until 2025.

For the period between 2021 and 2025 the total free allowances for the operational clinker plants in Europe (and the UK) are in the order of 101.1Mt (See Figure 2, Overleaf). At the same time, CO₂ prices were Euro53.70/t on average in 2021 and Euro80/t at the beginning of 2022. UK ETS prices are slightly different.

What does this mean for the industry?

If European cement manufacturers choose to curtail production to a level that no further CO₂ purchases are required, it would mean that, in 2021, the industry would have produced around 125.7Mt of clinker. The same volumes would have to be produced in 2022. This production would have led to a clinker capacity utilisation rate of 63.2%.

However, clinker production in 2020 was 140.7Mt. This resulted in a clinker capacity utilisation rate of around 70%. So, to avoid purchasing any further carbon credits, the industry would have to decrease utilisation rates from 70% to 63%.

Left: The kiln at Grupa Ożarów's plant in Ożarów, Poland, by Robert Nadratowski, entrant to the *Global Cement Photography Competition*.



Left - Figure 1: EU ETS Emissions (Mt of CO₂), 2013-2020.

Source: CemBR research and analysis.

Surplus ■
 Verified emissions ■
 Deficit ■

Right - Table 1: CO₂ costs under Phase IV in 2021 and 2022. **Source:** CemBR research and analysis.

Indicator	2021	2022
Production at 70% utilisation rate	145.3	145.3
CO ₂ permit price (Euro/t)	53.70	80.00
CO ₂ cost for production at 70% utilisation rate (Million Euro)	870	1290

This would not be distributed uniformly across all countries and all plants in Europe. CemBR's report gives plant-by-plant analysis that examines the differences between all operational plants in Europe.

Costs and impacts of Phase IV

Realistically, one cannot expect the industry to reduce clinker utilisation rates by such a large margin between 2020 and 2021/2022. To do so, the industry would have to accelerate the closures of several plants. So another, perhaps more realistic, scenario would be that the industry continues to produce at 2020 levels. In this case, there is a significant cost associated with purchasing further carbon credits, as shown in Table 1.

It is important to note that this assumes that there will be no adjustments when the 2020/2021 re-evaluations take place. This is not an unrealistic assumption, as the industry has already adjusted its 2021 allowances using the 2019/2020 production figures. The CemBR report details all the 2021 adjustments within the EU ETS.



Below - Figure 2: Free allowances (Mt of CO₂), 2013-2025. **Source:** CemBR research and analysis.





Under this scenario, and in order to recover these costs, the industry as a whole would have to increase cement prices on the total volumes of sales. Some of the countries would have to implement price increases in some cases above Euro10/t of cement in 2022 compared to 2020.

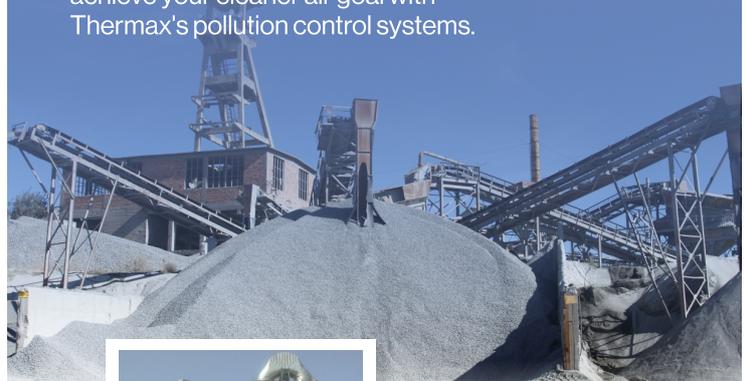
There are two fundamental observations here. The first is that these price increases only recover the CO₂ costs, but do not maintain the industry margins. In other words, the industry would need a higher price increase to be able to maintain margins, everything else being equal. Secondly, the carbon costs and the potential price increases will be different both between countries and between plants. Every plant in Europe will have to define its own strategy regarding carbon costs, but some plants are better positioned than others in terms of free carbon allowances and their ability to produce clinker at higher levels. The sum of the plants' strategies will then define the country picture as we move further into Phase IV.

In the next article CemBR will address the different positions of all country members of the EU ETS and their relative position vis-à-vis Phase IV. 



Cementing Sustainable Partnerships for a Cleaner Tomorrow

From material handling to packing plant, achieve your cleaner air goal with Thermax's pollution control systems.



1. Clinker Cooler ESP



2. Raw Mill Kiln Pulse Jet Fabric Filter



3. Cement Mill Fabric Filter



4. Coal Mill Fabric Filter



5. De-dusting Filters

40+ Years of Delivering Quality Equipment and Services Globally!

-  Fabric Filters
-  Spares and Services
-  Electrostatic Precipitator (ESP)
-  Upgrade and Modernization

Conserving Resources,
Preserving the Future



Scan to know more about Thermax