

JAN AHRENS & PHILIPP RUF

## WHAT THE GLOBAL CAP-AND-TRADE COMMUNITY CAN LEARN FROM THE EU ETS

The EU Emissions Trading Scheme (EU ETS) is the world’s largest cap-and-trade system, and despite some design issues, it has successfully met its primary environmental objectives. Additionally, its participants have gathered a wealth of experience over the last years that can be applied to the EU ETS and other, evolving carbon trading systems.

We have learned that not everything that works in theory proves to be practical, but we have also learned that emission reductions can come even at low prices. And, the EU ETS has offered lessons about both the benefits and shortcomings of emissions trading.

From a theoretical standpoint, it is remarkable that politicians and commentators recently claimed that the EU ETS is a failure because allowance prices are so low. This contradicts the very purpose of a cap-and-trade scheme: to reduce emissions below a fixed target at lowest costs. From this perspective, the EU ETS is a great success: the emission reduction targets set by the regulator are being met, and the cost burden for compliance companies is low – even considered as too low.

When simply considering this core target of an emissions trading scheme we can stop our reflections here, pat ourselves on the back and tell the world: just do as the Europeans!

Unfortunately it’s not that easy. To sing the EU ETS’ praises would be true if the target had been set in line with the long-term ambition of the EU to reduce emissions by 80-95% below 1990 levels by 2050. However, that is not the case. The EU decided to aim for 20% reduction in the first 30 years (1990-2020), and 60-75% in the next 30 years (2021-2050) – on the basis that the economy could not afford to reduce more in the short-term.

In retrospect, as the EU went through an economic downturn, companies could have afforded a more ambitious target – but the cap was fixed. This resulted in only very limited emissions abatement triggered by the EU ETS over the last years. Thus, the EU will need to reduce emissions much more in the years to come. Although the EU ETS worked as it was envisaged—and met the emissions cap—a change in its design to have more flexibility in supply could have triggered more carbon abatement.

### THE CHALLENGE OF THE EU ETS

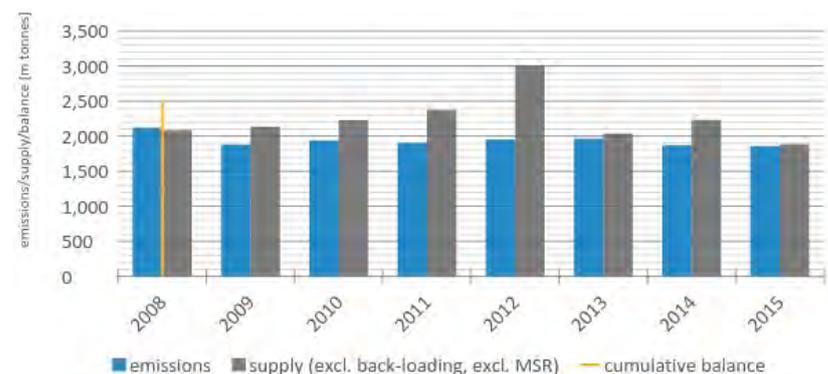
The idea of an emissions trading scheme is to set a cap, which determines the supply of that market, in order to achieve emission reductions according to a predefined target. In the EU ETS the legislators decided to fix this cap or the supply for five years for the second trading period (2008-2012), eight years for the third (2013-2020) and ten years for the fourth (2021-2030).

### THE EU ETS HAS OFFERED LESSONS ABOUT BOTH THE BENEFITS AND SHORTCOMINGS OF EMISSIONS TRADING.

This makes the EU ETS a rather special commodity market as supply is not able to react to market developments, such as energy market shocks or other external factors. In the wake of the economic turmoil Europe has faced since 2008, an inflexible system was doomed to face challenges – if not solid problems.

In the case of the EU ETS the challenge came in the form of over-supply. As the economic and sovereign debt crisis hit European economies, emissions dropped as less cement was produced, less ore smelted, less oil refined and less power

**FIGURE 1: FUNDAMENTAL BALANCE AND CUMULATIVE OVER-SUPPLY OF THE EU ETS (EXCL. BACK-LOADING, EXCL. MSR)**



Source: ICIS Tschach Solutions

produced throughout Europe. This amounted to a drastic reduction in demand for emission allowances, which was magnified by the faster-than-anticipated rollout of renewable power generation in some member states, which displaced carbon-emitting energy sources such as gas and coal and dragged emissions further down. On the other hand, supply of allowances remained unchanged as auctioned volumes were set in advance and companies received their predetermined free allocations in spite of lower production. – Figure 1 summarises the numbers.

This resulted in an over-supply higher than one year's emission covered in the scheme in 2013 and price trading down to below €3.00/tCO<sub>2</sub>e in 2013.

## HOW TO MAKE A SYSTEM FLEXIBLE IN THREE STEPS

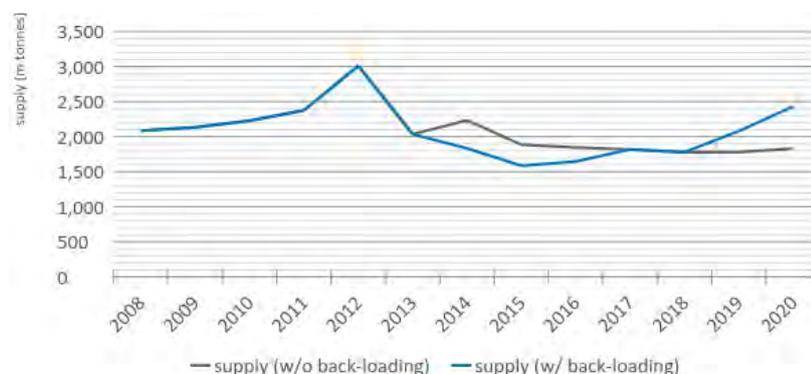
Already in the second trading period the falling EU Allowance (EUA) price and analyst forecasts made it clear that the EU ETS cap could have been more ambitious. However, cap changes are very difficult to implement in the European Union – as 28 member states who normally have at least 10 opinions on any change, would have to agree – making the simplest and most direct method to tackle the oversupply of allowances politically impractical. Consequently, the European Commission and the legislators started to think outside the box to reform the system's mechanism without touching the predetermined cap.

### STEP 1 – BACK-LOADING

The first reform was called back-loading. In 2014, after over two years of intensive and sometimes very heated discussions, back-loading was enacted by the EU. The idea was to make supply more flexible by not auctioning any allowances between 2014 and 2016, and reinstating them towards the end of the third trading period (2019-2020).

Eventually, the European Parliament agreed to delay the auctioning of 900 million allowances: 400 million in 2014, 300

**FIGURE 2:**  
**SUPPLY OF THE EU ETS (EXCL. MSR) WITH AND WITHOUT BACK-LOADING**



Source: ICIS Tschach Solutions

million in 2015 and 200 million in 2016. These volumes were set to be reintroduced to the market in 2019 (300 million) and 2020 (600 million), and the impact is visualised in Figure 2.

The idea of back-loading was deemed to be a quick fix, as supply was reduced in the short-term, but the market would be flooded with allowances in 2019-2020. Politicians hoped that the reduced supply would lift up prices and thus trigger emission reductions early – but the looming additional supply towards the end of the decade was a challenge. So, already during the back-loading discussions it was clear that another, more substantial reform was needed to make the EU ETS more flexible and prepare it for the future.

### STEP 2 – THE MARKET STABILITY RESERVE

When the European Commission proposed this substantial reform, another acronym was born into the carbon world: MSR – Market Stability Reserve.

The MSR is a tool that adjusts the supply in the EU ETS based on the cumulative oversupply in the system. The MSR works in a non-discretionary way, meaning it is based on a set of predefined thresholds and rules without any interference from policy makers or officials. The MSR aims to keep the surplus of allowances within a certain range to allow for hedging and stock

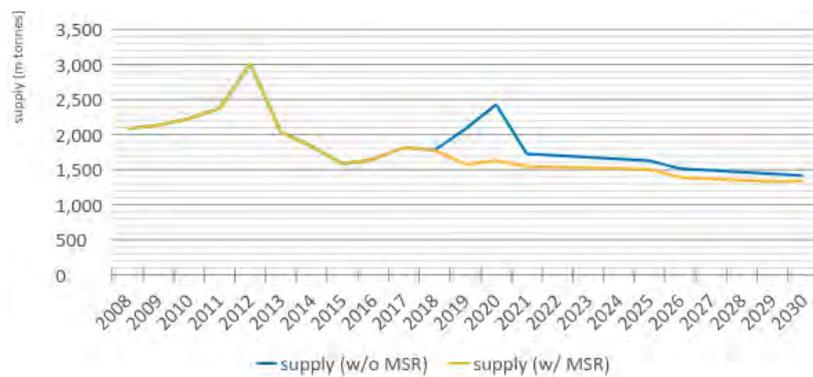
building, but at the same time keeping supply tight enough to incentivise emission reductions.

After being proposed and introduced to the legislative process by the European Commission in early 2014, it took the co-legislators roughly 1½ years to conclude the negotiations and adopt the MSR in legislation. The start date and the destiny of the back-loaded auction volumes, left-over allocation volumes and left-over NER (New Entrants Reserve) were the most controversially discussed features. Finally, it was concluded that the MSR should start in 2019 and all volumes (backloading, left-over allocation, leftover NER) should enter the reserve.

The legislators fixed two problems with the implementation of the MSR: the flooding of the market in 2019-2020 and the fixed supply of the EU ETS. As of 2019, the supply is subject to the available oversupply in the market – meaning if a

**THE MSR AIMS TO KEEP THE SURPLUS OF ALLOWANCES WITHIN A CERTAIN RANGE TO ALLOW FOR HEDGING AND STOCK BUILDING,**

**FIGURE 3:  
SUPPLY OF THE EU ETS (INCL. BACK-LOADING) WITH AND WITHOUT MSR**



Source: ICIS Tschach Solutions

lot of length from the past is available, the MSR cuts the auctions of the next year and transfers allowances to the reserve – the impact can be seen in Figure 3.

This mechanism makes one part of the supply equation permanently flexible: the auction volumes. The MSR consequently enables the EU ETS to react to external changes like a tumbling economy or overlapping policies.

However, the other part of the supply equation – the free allocation – is still left almost completely inflexible. In the past, especially in the second trading period, this had resulted in significant over-allocation for energy intensive industry. Ironically, some of the EU largest emitters of CO<sub>2</sub> earned significant profits through the EU ETS. This becomes apparent when looking in detail into the financial reports (2008-2012) of big emitters. By aggregating results from just eight large cement companies<sup>1</sup> and five big metals producers<sup>2</sup>, we were able to track €2,800 million income derived from sales related to carbon allowances. While we can attribute €2,200 million to the cement companies, the five metals companies are associated with the significant smaller share.

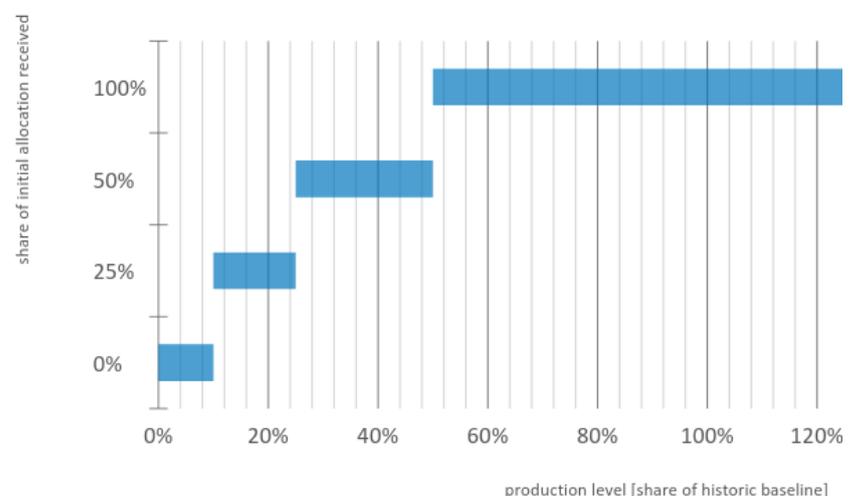
**STEP 3 – THE POST-2020 REFORM**

In the third trading period, the free allowances given to industrials were generally fixed for the entire trading

period before the period started. The only exception was that the free allocation for installations who produce less than 50% of their historic production baseline is cut by 50% and below this threshold, two more thresholds apply – see Figure 4.

This rule leaves an installation with 100% of their free allocation even when producing only 51% of their historic baseline emissions. The second challenge is that companies who produce above their historic production baseline have no chance to top-up their free allocation, so the system is tilted to the downside with very limited flexibility.

**FIGURE 4:  
FREE ALLOCATION ADJUSTMENT (THIRD TRADING PERIOD RULES)**



Source: ICIS Tschach Solutions

Therefore, the allocation rules are central to the current discussion in Brussels and the European capitals as politicians, officials and other stakeholders are scratching their heads about the future of the EU ETS. The overall question at hand is how to organise the EU ETS post-2020 to achieve the emission reduction target of -40% the EU pledged in Paris, with a fair contribution of each sector.

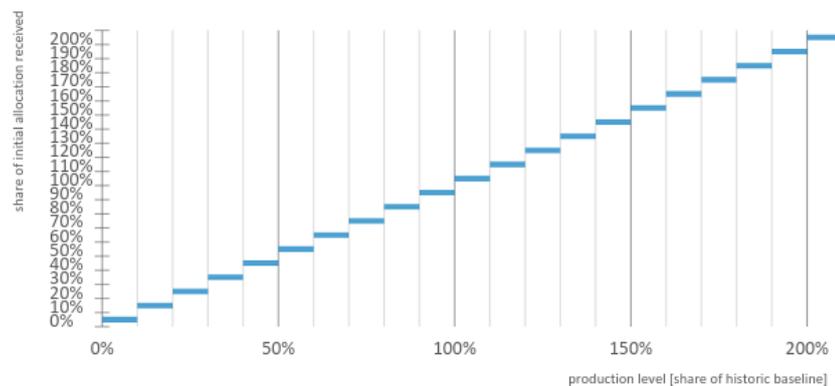
While there are many aspects to the current discussion, we decided to put flexibility in the centre of our reflections, so we will focus on flexibility in the post-2020 reform.

One key lesson learned over the second and the third trading periods – and probably in the centuries before – is that economic conditions can change and consequently free allocation volumes based on historic production levels can be greatly disconnected from the reality when they are actually issued.

The European Commission in its post-2020 legislative proposal set out two approaches to tackle this problem:

1. Reduce the allocation calculation intervals and move the actual allocation years closer to the production baseline years – the

**FIGURE 5:  
FREE ALLOCATION ADJUSTMENT (BASED ON 10% INTERVALS)**



Source: ICIS Tschach Solutions

Commission proposes to use 2013-2017 numbers for the period 2021-2025 and 2018-2022 number for the period 2026-2030

2. A yearly adjustment of allocation numbers in both directions based on production levels of the previous years

A cynic would argue that the first part still means that in the extreme case the production levels used to determine the free allocation are 12 years old and that the second part was already implemented in the third trading period, but in our view the proposed second approach would result in an actual flexibilisation of free allocation.

It is true that the European Commission has not proposed any new thresholds regarding at which reduction of production the allocation volumes would be adjusted, but that is something which was always regulated in secondary legislation. The novelty in the Commission proposal is that the adjustment of free allocation volumes would go to the up- and downside and that the intention is to reality-check the allocation on a yearly basis.

## THE PROPOSED SECOND APPROACH WOULD RESULT IN AN ACTUAL FLEXIBILISATION OF FREE ALLOCATION.

Now that the legislation is in the court of the European Parliament, some Parliamentarians (MEPs), proposed intervals for the adjustment – namely 10% (proposed by some Liberals, Socialists, and Conservatives) and 15% (proposed by the Greens). As can be seen in Figure 5 this would change the free allocation system severely by allowing for more frequent adjustments. This would also cope with the ageing production baseline challenge, as most recent numbers would be incorporated on a yearly basis.

### LESSONS LEARNED

The EU ETS has come a long way and it is approaching its teenage years quite quickly. While it has always achieved its environmental objectives, all stakeholders have also learned valuable lessons during the 11 years of its existence. Additionally, the system has been constantly improved by parliamentarians, officials, ministers

and other stakeholders, balancing the necessary long-term certainty with policy flexibility.

In our view the system has indeed improved significantly over the years and other existing or upcoming global emission trading schemes can draw conclusions in order to avoid making the same mistakes.

We think the key lesson learned is that a commodity market with fixed supply coupled with flexible demand is basically a time bomb. Simply put, neither analysts, officials, parliamentarians nor lobbyists will ever be able to predict future demand accurately. An emissions trading system needs to be able to react to external factors in an ever-changing market environment, while maintaining long-term certainty of policies and price signals.

We've also learned that finding compromises in the European Union can be difficult, controversial, and sometime emotional – the best example being the discussion around back-loading. Legislators consequently need to disempower themselves sometimes in order to allow for a functioning market and quick decisions which don't allow for the ever present Brussels horse-trading.

Third, we've learned that such an ETS needs constant scrutiny and rules have to be adopted to align the system to reality.

The EU ETS has undergone significant changes over the years regarding its supply function. First, back-loading saved the system from a complete collapse and second, the MSR introduced a non-discretionary measure to render auction supply flexible. The third part - creating a more flexible free allocation system - has yet to be implemented.

**Jan Ahrens** is co-founder, and **Philipp Ruf** is lead EU analyst at ICIS Tschach Solutions.

(1) Buzzi Unicem, CEMEX, Cimpor, CRH, HeidelbergCement, Holcim, Italcementi, and Lafarge (2) ArcelorMittal, Outokumpu, Ruukki, SSAB, US Steel