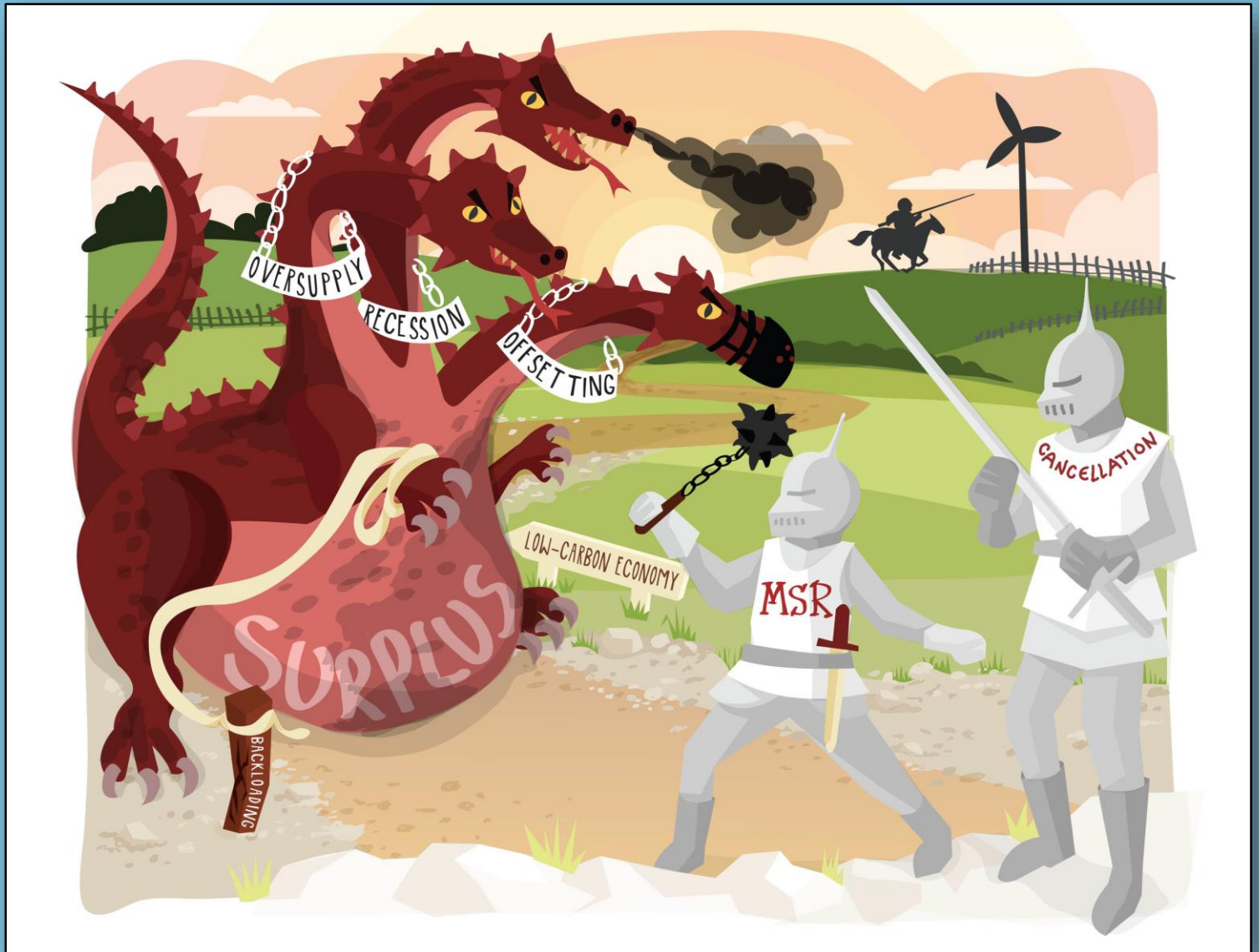


## *Slaying the dragon*

*Vanquish the surplus and rescue the ETS*



*The Environmental Outlook for the EU Emissions Trading Scheme*

*October 2014*

## About Sandbag

Sandbag is a UK based not-for-profit research and campaigning organisation focused on effective European climate policy. We recognise that if emissions trading can be implemented correctly it has the potential to help affordably deliver the deep cuts in carbon emissions the world requires to prevent the worst impacts of climate change.

Through rigorous but accessible analysis we make emissions trading more transparent and understandable to a wider audience. In particular, we hope to shed light on the challenges the EU Emissions Trading System (ETS) faces in becoming a truly effective global system for cutting emissions, and to advocate for the solutions that can help it to work better.

[The International Centre for Climate Governance](#) ranks Sandbag in the top twenty climate think tanks in the world.

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## About this Report

### Lead Author:

Damien Morris

### Chapter Authors and Supporting Research:

Bryony Worthington, Alex Luta, David Jones, Laurence Watson, Patricia Buckley, Phil MacDonald

The findings from this report are based primarily around information publically available from the European Commission supplemented with our own research.

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## Director's Foreword

2013 was an interesting year in the history of the European Emissions Trading Scheme. This, our 6<sup>th</sup> report into the state of the ETS, looks at some of the major changes that began last year, their impact and what they might mean for the future of the scheme.

It may come as no surprise that our overriding concern remains the monstrous surplus of allowances continuing to build up in the scheme, blocking the cost-effective path to reduced emissions. Even with the welcome recent policy changes, the allocation of allowances under the current cap continues to be higher than demand, and the surplus is growing day by day. By 2020 structural changes we are already witnessing in the power sector, coupled with continued reductions in industrial emissions, could see the surplus double from today's level to over 4 billion tonnes. Clearly something needs to be done, or we might as well ditch any pretence that the ETS is capable of driving positive change in Europe's journey to decarbonise its economy.

To restore the relevance of this potentially powerful instrument we must permanently vanquish the surplus menacing the scheme, and our recommendations in Chapter 8 put forward a clear plan of action to do this. We believe, however, that further policy changes will also be needed to reduce the potential risk of the ETS exacerbating existing negative trends, such as reduced industrial capacity in Europe. Unfortunately, the ETS currently rewards offshoring of industrial production, and there are few supplementary policies that reward investment in abatement in the way renewables are incentivised in the power sector.

If we look at the changes we see in our 2013 list of Carbon Fatcats, "King Fatcat" ArcelorMittal, despite remaining at the top of the table this year, looks unlikely to continue to accrue surpluses from now. However, a new rising Mega-Fatcat in the cement sector appears to be gaining weight and is likely to soon dethrone the steel giant. New allocation rules mean that many companies are now facing declining allocations in the future, even if they continue to secure their place on the 'carbon leakage list'. In order to help address the problem of competitive distortions we recommend simple changes ensuring that allocation rules work hand in hand with a progressive low-carbon industrial strategy in Europe.

Overall, we continue to believe the ETS is worth saving, particularly as carbon pricing policy is expanding into other parts of the world, including a soon to be launched national scheme in China. Improvements to date have shown that, where there is sufficient political will, fixes can be put in place. However, there is still much more to do and we must not wait. The opportunity for reform is here now. We hope that later this month our political leaders will agree on a deal which sees the EU taking advantage of our falling emissions and brings our climate change ambitions in line with the new reality. Increasing ambition, whilst at the same time putting in place policies that incentivise and reward investment in our industrial sectors, will deliver growth – green growth – that puts us in a leading position internationally.

*Baroness Bryony Worthington*

*Founder and Director, Sandbag*

## Executive Summary

EU policymakers are now discussing fundamental reform of the Emissions Trading Scheme, both in ambition and design. The 2030 Climate & Energy package will change the trajectory of the cap and the way allowances within the cap are distributed, whilst the Market Stability Reserve attempts to tackle the vast surplus of emission rights that currently undermine the functioning of the scheme. This year also offers the first chance to take stock of the Phase 3 reforms that entered into force in 2013. While there have been significant improvements, these have not been enough to tackle the scheme's main problems. Moreover, 2014 is the first year of the 'backloading' decision and it is already clear that it will fail to protect the scheme from the effects of a structural oversupply.

Across Europe, emissions in the traded sector continued to fall last year (by ~3-4%) even as GDP crept back up (by 0.1%), but the low carbon price of just €4.56 on average is unlikely to be the cause. With the continued build-up of surplus allowances, reaching 2.1 billion at end of 2013, the price is expected to remain low. Despite it being the first year of a new phase, more spare allowances were released to the market in 2013 than the average oversupply in Phase 2. We believe official projections significantly underestimate the scale of the future surplus, which we estimate may reach as high as 4.5 billion by 2020<sup>1</sup>.

### The New Rules

The ETS changed dramatically in 2013. Caps are now set centrally, rather than bottom up by Member States. The overall level of the cap now falls year on year by 1.74% per annum. Allocation of allowances has moved to a system based on auctions and industrial benchmarks. Certain classes of offsets have been banned and the overall limit on offset use will soon be exhausted. Finally, a new change to the auction profile was agreed in 2013, which sees 900m allowances that would have been auctioned shifted back or 'backloaded' from the beginning to the end of the phase in 2020.

Looking at the data released for emissions and allocations in 2013 to assess how the scheme is now performing, these are our key findings:

### Net balance of supply and demand

- The new trajectory of the cap, falling 1.74% each year relative to the Phase 2 cap, will not create any scarcity in the near term.
- The balance of supply and demand in 2013 saw 153Mt added to the surplus, taking the cumulative total to 2.1bn<sup>2</sup>.

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<sup>1</sup> 2020 Surplus Projections (October 2014) *Sandbag* [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Briefing-2020surplusprojection.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Briefing-2020surplusprojection.pdf)

<sup>2</sup> Cumulative balance over the period 2008-13 inclusive of surrendered offsets but excluding aviation.

- The Commission estimates that the surplus will reach 2.6 billion by 2020, but Sandbag estimates emissions will fall faster, as a result of lower than expected electricity consumption and industrial production, and also the impact of new policies and technologies. Consequently the surplus could reach as high as 4.5 billion by 2020, and potentially continue to rise thereafter<sup>3</sup>.

## Member States

- Net balances of supply and demand are widely divergent across the different Member States highlighting one of the difficulties in agreeing a way forward for this harmonised policy.
- There is a high degree of divergence between Member States in terms of the 2013 balance of supply and demand for allowances.
- Large cumulative surpluses can be seen in Spain, Romania and France while Germany is alone in showing a massive cumulative deficit.
- Significant auction revenues are now being generated but countries with economies in transition are forgoing revenue to give allowances to the power sector for free.
- A significant negative balance in Germany did not prevent an increase in emissions in 2013.
- Poland showed a significant net negative balance for the first time in 2013 since 2008 and could see its net surplus overall eroded quickly if emissions remain high.
- Spain and Romania have seen big decreases in power sector emissions, contributing to steep declines in emissions overall and leading to significant net surpluses
- France continues to accrue a surplus despite the new allocation rules indicating that France's manufacturing sectors could be well placed in terms of the EU-wide benchmarks applied.

## Sectors

- Emissions in the power sector are falling rapidly as a result of increased energy efficiency and renewables.
- The weak carbon price, however, is failing to disincentivise coal over gas, meaning emissions reductions in the sector are masking a growth in coal. Europe is therefore missing out on a quick and easy form of possible decarbonisation and risking high carbon lock in that will be expensive to reverse.
- Phase 3 saw a shift away from free allocation towards auctioning. Free allocations to the power sector dropped from 92% of emissions in Phase 2 to 24% in 2013. Free allocations to manufacturers fell from 123% of emissions in Phase 2 to 96% in 2013.
- Benchmarks are in place that benefit the most efficient operators but the ETS rules still reward industry for lowering production as well as increased efficiency.
- Ex post adjustments to free allocations are in place for installations reducing their production by more than half, however, this could be leading to perverse effects, particularly in the cement sector where huge surpluses are still accruing.

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<sup>3</sup> 2020 Surplus Projections (October 2014) Sandbag [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Briefing-2020surplusprojection.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Briefing-2020surplusprojection.pdf)

- Free allowances are set to decline progressively for all sectors which are not considered “at significant risk” of carbon leakage, however, we find that 99.55% of the benchmark baseline was reserved for leakage-exposed facilities.
- If emissions were to carry forward at 2013 levels, and we treat all Phase 2 surpluses as banked, most industrial sectors remain oversupplied until 2020. If Phase 3 allocation rules are extended forward, the Cement and Lime sector and the Ceramics sector could still be oversupplied after 2040.

### Carbon Fatcats

- 10 companies have in 6 years managed to accrue nearly 22% of the whole surplus under the ETS (over 483 Mt from a total of 2.2 billion tonnes) – despite being responsible for barely 10% of emissions (1.1 billion tonnes from a total of 11.6 billion tonnes).
- Changes affecting the rules on free allocation have had a noticeable braking effect on the expansion of the Fatcats’ surpluses that had been characteristic of phase 2.
- Under the present policy, surpluses start being exhausted pre-2020 for electricity generators and the late 2020s for steel makers.
- However, this effect differs sharply from sector to sector. Changes in production volumes and production methods mean the cement Fatcats’ surplus will continue rising further well into the late 2020s.
- The rules on offset use have ensured that the use of international credits continue to provide a subsidy to already over-allocated companies.

### Offsets

- Changes in the Commission’s reporting of offset use, taking effect in 2013, have made it impossible for civil society to scrutinise installation level use of offsets, reducing transparency in an area of the policy that has seen controversy in the past.
- Data on aggregate values that remains available shows that, after the great rush in 2012 to surrender offsets that were going to be banned from Phase 3 onward, use contracted by 74% in the 2013 compliance year.
- Cumulative offset use rose to nearly 1.2 billion tonnes since 2008, and therefore ETS companies’ remaining aggregate offset entitlement is now reduced to 292 Mt. However, as CER prices are expected to be at least eleven times lower than EUAs to 2020, we expect this volume to be brought to market in full.
- Rather than acting as a price containment tool offsetting continues to provide an opportunity for companies to make money by swapping CERs for EUAs.
- The bans on the use of certain offset categories in the ETS have had a diversifying effect on the origin of offsets. However, 48% of all offsets handed over in 2013 still came from just 4% of projects originating in only 4 countries (China, India, Russia and Ukraine), with little benefits for Least Development Countries.



## Changes under discussion

- The proposal to increase the trajectory of the EU ETS to a 2.2% Linear Reduction Factor under a 40% greenhouse gas target in 2030 will bring limited additional scarcity to the market.
- Most market participants do not take the long-term supply of ETS allowances into account when setting the carbon price. A temporary glut of allowances can therefore make the ETS cap unnecessarily expensive to meet over the longer term.
- A Market Stability Reserve is a more sustainable solution to oversupply than the backloading decision. It permanently removes much of the volatility from the market by predictably removing allowances from auction when the surplus is high and returning them to auction if the surplus ever becomes low.
- The Commission's proposed Market Stability Reserve does not start until 2021, allowing the market to be flooded with backloaded and other unused allowances before it takes effect. This will prevent supply from reaching the desired range (400-833 million) until at least 2027.
- Taken together the current proposals to change the trajectory of the cap and introduce a MSR do not restore scarcity to the ETS rapidly enough to avoid stranded assets or to bring forward the investment needed to maintain a cost-effective trajectory.

## Sandbag's Recommendations

Given the findings above we make the following recommendations for further improvements to the ETS that need to be introduced as soon as possible.

- **Improve the orderly functioning of the carbon market**
  - Introduce a robust Market Stability Reserve by 2017 and avoid flooding the market with backloaded and unused allowances before it can start to take effect.
  - Make the supply adjustments applied by the MSR more aggressive when supply is very high or very low; instead of removing 12% of the surplus, 33% of the difference between the surplus and the nearest threshold should be removed (or returned).
- **Protect the competitiveness of European industry**
  - Improve the free allocation rules to make them more responsive to changes in output to ensure the most carbon efficient performers in each sector face a comparative advantage over their dirtier rivals;
  - Do this by introducing a production-based ex-post system for assigning free allowances from 2021.
  - If that is considered too politically or technically difficult, improve the existing activity-based ex-post adjustments, by increasing the number of partial cessation thresholds, and by creating similar provisions for facilities which significantly increase their output.

- Changes to the ambition of the ETS must be accompanied by new policies to incentivise and reward investment in decarbonisation technologies in manufacturing sectors.
- **Increase EU climate ambition**
  - Keep the ETS within the cost-effective pathway described in the 2050 Low Carbon Roadmap by cancelling 1.4 billion allowances from the Phase 3 cap (backloaded and unused allowances) in line with a -25% domestic greenhouse gas target in 2020.
  - Recalculating the ETS trajectory under a 2030 greenhouse gas target of -40% from this lower starting point, saving a further 1.2 billion allowances.

### Concluding remarks

In this report we highlight the effect of recent changes to the ETS rules. There have been big improvements from an environmental perspective – including harmonised cap setting, the introduction of carbon-efficiency benchmarks and the banning of certain classes of offsets. From the perspective of industry, 2013 was the first year for many that the scheme started to show its teeth. Reduced free allocations overall, and in particular, to least efficient installations, means that the incentives to abate are growing. Of course these incentives are still very weak because the overriding, inescapably dominant feature of the ETS is its surplus.

The good news is reform is already on the table and the MSR is a potentially powerful new feature. However the current proposals will not address all the issues that still dog the scheme.

**With a new team in Brussels there is great potential to get the ETS back on track. Vanquishing the surplus should be the first item on the to-do-list but positively addressing competitiveness fears, by ensuring ETS rules stimulate green growth in Europe, must also be a part of that process.**

## 1: Introduction - The policy context in 2014

**In previous annual reports we have highlighted the changing context beyond Europe's borders. The trend towards extended application of carbon pricing policy, despite recent setbacks in Australia, continues, especially with China now committed to introducing a nationwide emissions trading policy in 2016. This year's report, however, squarely focuses on the situation in Europe today. We have a newly elected parliament, a new Commission and a chance for a fresh start. Fixing the Emissions Trading Scheme (ETS) should be high on the agenda.**

This report goes to print amidst a live debate over major potential reforms to the ETS. The European Council is currently deciding on the shape and nature of a package of policy measures for energy and climate stretching to 2030, which will also have an impact on key design features of the ETS after 2020. Meanwhile, the Parliament and the Council of Ministers have already commenced preparing their responses to a new legislative proposal from the Commission to introduce a new feature known as a 'Market Stability Reserve' (MSR).

The debate about climate and energy policies for 2030 focuses on future levels of ambition, the distribution of effort between countries, and potentially other features, including the type of measures required to protect against the risk of exacerbating deindustrialisation in Europe.

The main aim of the proposed legislation to introduce a Market Stability Reserve is to temporarily address the over-supply that currently exists in the market in order to ensure the cost-effective delivery of the ETS cap over the longer term. This would be done by introducing automatic triggers that control the supply of allowances to enter the market via future auctions.

As policymakers prepare to position themselves on the future design of the EU ETS, we publish this report with a view to helping them evaluate the success of the last design overhaul of the scheme, carried out in 2009 under the 2020 Energy and Climate Package and first implemented in 2013. The publication of 2013 compliance data this year means this is the first opportunity for those legislative changes to be properly evaluated.

## 2013: A new phase begins

2013 saw the start of a new trading phase in the ETS, which represented a radical evolution in the design of the policy.

The most obvious change was to the design and aggressiveness of the cap. Before 2013, the level of the cap had been set bottom up by Member States. From the start of Phase 3, the ETS cap was set in the primary legislation: a declining trajectory starting from a baseline 5.22% below the Phase 2 cap in 2013 and declining by a further 1.74% off that baseline each year thereafter. This trajectory was set with a view to driving emissions in the traded sector 21% below 2005 levels by 2020, in order to deliver roughly 2/3rds of the effort towards Europe's greenhouse gas target: a 20% cut in emissions relative to 1990 levels.

A second important change was a radical evolution in the way free allowances were allocated. Instead of being awarded on a discretionary basis by Member States as had happened previously, free allowances were issued to each sector based on their carbon efficiency as benchmarked against the 10% best performers in their product category. This was intended to confer a comparative advantage to the best performers in each sector.

Furthermore, Phase 3 introduced a steep reduction in the share of allowances awarded for free rather than sold at auction. Whereas Phase 2 had prohibited Member States from auctioning more than 10% of their allowances, Phase 3 imposed a ceiling on the maximum volume of free allowances that could be awarded each year, amounting to 43% of the annual cap in 2013.<sup>4</sup> The power sector was obliged to purchase all of its allowances at auction, and any manufacturers that were not deemed to be at "significant risk" of carbon leakage were to be granted a declining share of their benchmarked free allowances each year, starting at 80% in 2013 and dropping to 30% in 2020. An additional important new feature introduced last year was the application of a correction factor that put a limit on the total level of free allowances that could be allocated to industrial sectors, protecting a certain volume of allowances for auction to the power sector.

A third change was in the introduction of a range of restrictions on the type of carbon offsets from the Kyoto Protocol that could be used in the scheme. A ban on the use of credits from industrial gas destruction projects (HFC-23, and adipic acid N<sub>2</sub>O), and on certain types of Joint Implementation credits from countries that had not ratified the second commitment period of the Kyoto Protocol, was supposed to stem the flow of environmentally dubious credits into the scheme. They were also hoped to diversify the types of credits surrendered and drive more project finance towards the Least Developed Countries.

In recognition that these changes, agreed in 2008, were inadequate to respond to the impact of the recession and the spike in offsets at the end of Phase 2, in 2013 a supplementary decision was reached, to 'backload' or postpone the auction of 900 million allowances scheduled for release over 2014-2016 until 2019-2020, the last two years of Phase 3. This was designed to create a temporary scarcity of allowances, which would sustain incentives in the oversupplied scheme until market participants had a clearer view of the lower volume of allowances they would face in the next trading phase (once a decision was reached on the cap in Phase 4).

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<sup>4</sup> Questions and Answers on the Commission's decision on national implementation measures (NIMs) *European Commission* (October 2013) [http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/fag\\_nim\\_cscf\\_en.pdf](http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/fag_nim_cscf_en.pdf)

**These changes all represented significant advances in the design and ambition of the scheme, but in this, our 6<sup>th</sup> Annual State of the ETS report, we illustrate that they have nevertheless proved deeply inadequate:**

- 1) The new trajectory of the cap from 2013 does not create any scarcity in the near term, and Phase 3 will substantially increase the vast surpluses amassed during Phase 2.**
- 2) The new system of assigning free allowances to industry is not properly targeted and continues to reward drops in production rather than investment in increased carbon efficiency.**
- 3) The new ETS offsetting restrictions arrived too late to prevent the massive inflow of unwanted credits, and the origin of credits used remains concentrated in a narrow range of large projects and more developed countries.**
- 4) The backloading decision is inadequate for addressing the structural over-supply which is continuing to accrue.**

## 2: Overall balance of supply and demand

### Key findings

- Emissions continue to fall and decouple from GDP, but the build-up of surplus of ETS allowances continues to grow and has reached 2.1 billion at end of 2013.<sup>5</sup>
- Under current policies, Commission forecasts expect this surplus to grow to 2.6 billion by 2020 and slowly fall back to 2 billion by 2030.
- Already, new data since the Commission Reference Scenario was published indicate that it is likely to significantly underestimate the scale of the surplus.
- Sandbag estimates that emissions will continue to fall faster than the Commission expects, as a result of lower than expected electricity consumption and industrial production, and also as a result of new policies and technologies. Consequently the surplus could reach as high as 4.5 billion by 2020, and potentially continue to rise thereafter.<sup>6</sup>
- Under these circumstances the “quick” fix of the backloading decision will prove, at best, a weak brake on the surplus, will struggle to maintain meaningful incentives within the scheme even in the short-term, and will cause the carbon price to crash again when allowances return to flood a highly oversupplied market.
- Effective structural reforms to the EU ETS are urgently needed to ensure the ETS cap is delivered cost-effectively.

### Oversupply of allowances in 2013

The good news for the environment was that emissions in the traded sector in 2013 continued to fall even as the economy slowly recovered from the recession. While an increase in the scope of activities covered by the scheme makes it difficult to assess precisely how much emissions fell between 2012 and 2013, analysts widely agree that ETS emissions fell 3-4% year-on-year<sup>7</sup> while GDP for the EU28 rose slightly by 0.1%.<sup>8</sup>

The bad news for policy makers is that with the vast surpluses carried over from Phase 2 and a weak carbon price trading at an average of just €4.52 Euros in 2013<sup>9</sup>, the ETS is unlikely to have been a significant driver of these emissions reductions. Worse, this fall in emissions has led to a further increase in the surplus allowances on the market. Emissions in 2013 were 1,904Mt, while the total volume of allowance issued were 2,057Mt, creating a surplus of 153 million. **In fact, more spare allowances were released to the market in 2013 than the average oversupply in Phase 2.**

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<sup>5</sup> Excluding aviation. See Appendix 1.

<sup>6</sup> 2020 Surplus Projections (October 2014) Sandbag [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Briefing-2020surplusprojection.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Briefing-2020surplusprojection.pdf)

<sup>7</sup> Point Carbon calculated emissions were down 3.1% in April. The European Environment Agency ETS Data Viewer shows scope adjusted emissions down 4% (<https://www.pointcarbon.com/news/reutersnews/1.4683148>).

<sup>8</sup> Eurostat.

<sup>9</sup> Average annual settlement price for December 2013 Futures, obtained from the ICE.

**Table 1: ETS allowances, emissions and offsets surrendered (stationary installations, 2008-2013)**

	Total allowances issued	Verified emissions	Spare EUAs	Offsets surrendered	Surplus
<b>2008</b>	2,011	2,120	-109	84	-25
<b>2009</b>	2,049	1,880	170	81	250
<b>2010</b>	2,081	1,939	142	137	279
<b>2011</b>	2,101	1,905	197	254	450
<b>2012</b>	2,260	1,867	393	504	896
<b>2013</b>	2,057	1,904	153	133	286
<b>Total</b>	<b>12,559</b>	<b>11,614</b>	<b>945</b>	<b>1,192</b>	<b>2,137</b>

*Source: EU Transaction Log, EEA ETS Data Viewer, Sandbag Calculations*

*2012 allowances includes 120Mt early Phase 3 auctions, 2013 includes 30 million late Phase 2 auctions*

In **Table 1**, we show total emissions reported, allowances used and offsets surrendered each year since 2008. We start from 2008, because this is the first year in the ETS from which spare allowances could be banked forward for future use, and therefore contribute to the surplus.

Note that the surplus in 2013 was further extended by the use of 133 million offsets, bringing the total to 286 million. Instead of starting to tackle the vast surpluses accrued in the system, 2013 has added to them. **The total surplus in the market at the end of 2013 stands at 2,137 million.** This figure would be even larger if Member States had not forfeited 118 million Phase 2 allowances which were left unsold by a cut-off date set for 30<sup>th</sup> April 2013.<sup>10</sup>

### Oversupply of allowances out to 2020 and beyond

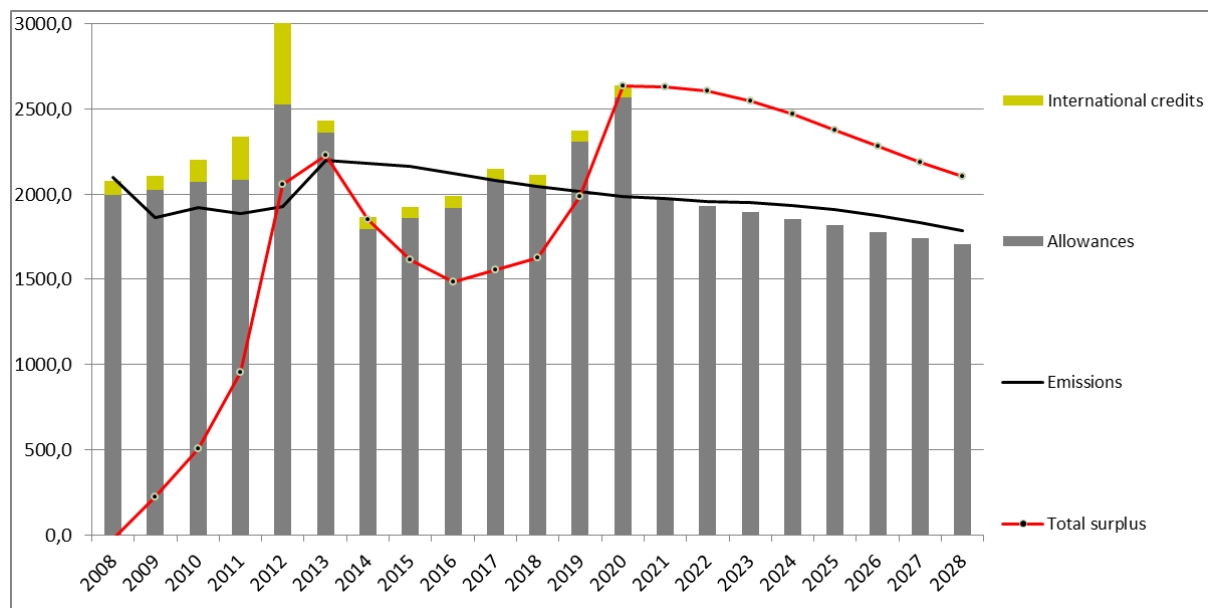
These new surpluses in 2013 are not an isolated phenomenon, but a structural problem with the level of the Phase 3 cap. In the Impact Assessment accompanying its proposal for a Market Stability Reserve, the Commission estimates that this surplus will reach 2.6 billion by 2020 and will still be over 2 billion in 2028.

The backloading decision taken in 2013 will temporarily prevent allowances from entering the market in 2014, 2015 and 2016. However, they are then scheduled to return in years 2019 and 2020, creating a huge influx of allowances at the end of the phase.

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<sup>10</sup> See Appendix 2 for details.

**Figure 1: Commission forecasts for emissions and surplus (2008-2028 with backloading decision)**



Source: European Commission Staff Working Document (2014) p18 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014SC0018>

**We believe the Commission’s projected surplus to be extremely conservative and expect the structural oversupply under the current trajectory of the cap to be far higher and to last much longer.**

The Commission published a Reference Scenario used to inform the Commission’s 2030 White Paper.<sup>11</sup> There are significant issues with the assumptions in the Reference Scenarios, which we believe lead them to underestimate the surplus. Firstly, it assumes that 2.7% more electricity will be generated in 2015 compared with 2010, but we note electricity demand has *fallen* 2.8% below 2010 levels by 2013, , and early indications show that it will fall sharply in 2014. We also note that the Reference Scenario assumes that aviation emissions will be included at full international scope, whereas the scope has been restricted to intra-EU flights until at least 2017.

Even if we crudely assume emissions stay constant at 2013 levels, we can expect the surpluses to reach 2.7 billion by 2020 if we exclude aviation<sup>12</sup>. But this is a high emissions scenario, given that existing legislation is expected to drive significant growth in renewable generation, the closure of coal plants, and increases in energy efficiency for appliances industrial processes.<sup>13</sup> **In fact, Sandbag estimates that surpluses might reach as high as 4.5 billion by 2020, and may continue to rise rapidly unless fundamental reforms to the ETS are implemented.**<sup>14</sup>

<sup>11</sup> Update on trends to 2050 (2013) *European Commission*

[http://ec.europa.eu/energy/observatory/trends\\_2030/doc/trends\\_to\\_2050\\_update\\_2013.pdf](http://ec.europa.eu/energy/observatory/trends_2030/doc/trends_to_2050_update_2013.pdf)

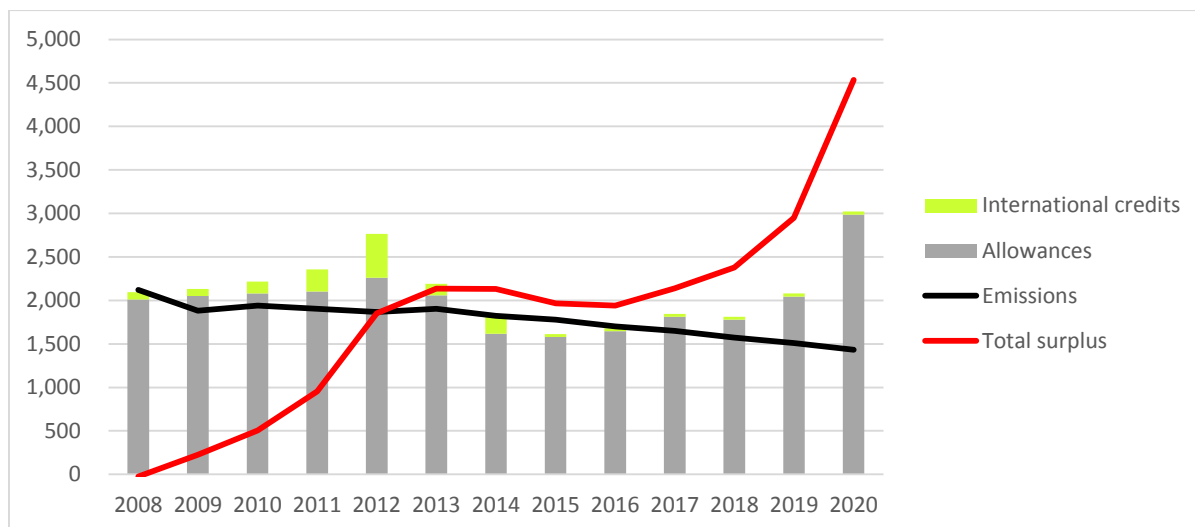
<sup>12</sup> There is still considerable uncertainty about the 2013 aviation data, and the scope of the aviation cap out to 2020. See Appendix 1 for more information about the aviation sector.

<sup>13</sup> e.g. The Renewable Energy Directive, The Industrial Emissions Directive, the Energy Efficiency Directive, the Ecodesign Directive. This calculation excludes aviation.

<sup>14</sup> 2020 Surplus Projections (October 2014) *Sandbag* [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Briefing-2020surplusprojection.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Briefing-2020surplusprojection.pdf)



**Figure 2: The Sandbag “Current Policies” Scenario.**



Source: DG Clima, EU Transaction Log, Sandbag calculations.  
Stationary sectors only. Historical data used for 2008-2013. Projections from 2014-2020.

Our alternative future scenario is based on a bottom up model built with the following assumptions:

- The trajectory of the cap continues forward at 1.74% reduction per annum. All allowances under the legal cap come to market and the maximum volume of offsets are used by 2020.
- Electricity consumption falls by 1% per annum on average over 2013-2020.
- Renewable generation increases to meet the 2020 target.
- Industrial emissions falling by 0.9% in 2014, 2.0% to 2018, as a result of continuing fall in demand for basic materials and increasing industrial energy efficiency.
- Aviation is excluded from the analysis (we cover stationary sectors only).

We call this the Sandbag “Current Policies” Scenario. We explore and defend these assumptions in more detail in a dedicated publication.<sup>15</sup> **For now, we highlight that if these assumptions prove correct the structural surplus in the ETS is growing at a rate of nearly 1 million tonnes each day over 2013-2020, with the surplus climbing to 4.5 billion in 2020. Surpluses on this scale would make the EU ETS more or less irrelevant for the foreseeable future.**

### The impact of the over-supply

The huge surpluses in the system have significantly weakened the incentive for participants to invest in abatement. This is particularly problematic in the current trading phase (2013-2020) in the power sector where, as outlined in our recent report ‘Europe’s Failure to Tackle Coal’<sup>16</sup>, investors are deciding whether it is economic to re-invest in existing coal plants to make them compliant with the Industrial Emissions Directive, and where underutilised gas facilities are at risk of closing

<sup>15</sup> Ibid.

<sup>16</sup> Published July 2014: [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Europes\\_failure\\_to\\_tackle\\_coal.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Europes_failure_to_tackle_coal.pdf)

permanently. The surplus also weakens investment in RD&D for low-carbon solutions in manufacturing, where step-change in technology will eventually be required.

Unfortunately, the impact of the backloading decision in 2013 is not likely to be the effective intervention that the Commission expects under its Reference Scenario. This anticipates that the temporary reduction in auction volumes will leave the market significantly undersupplied in 2014-2016, allowing the surplus to contract to around 1.5 billion allowances by 2016 before climbing up to 2.6 billion in 2020. We foresee that the backloading decision will provide a much feebler brake on the surplus and that it will barely drop below 2 billion by 2016, before rising very rapidly. Moreover, we do not expect Phase 4 to deliver the scarcity expected by the Commission, unless the cap is made much tighter than the current trajectory in the ETS directive implies.

While lower than expected demand for allowances means the backloading decision is unlikely to prove as effective as hoped, it has nonetheless bought policymakers time to come up with a more considered decision on structural reform on the EU ETS. However, policymakers have little time to lose in reaching a more sustainable solution to the oversupply of allowances in the scheme, as the return of the backloaded allowances in the last two years of the phase will likely cause another price crash due to the already high surplus doubling if no action is taken before then.

## 3: Country-level analysis

### Key Findings

- There is a high degree of divergence between Member States in terms of the 2013 balance of supply and demand for allowances.
- Large cumulative surpluses can be seen in Spain, Romania and France, while Germany is alone in showing a massive cumulative deficit.
- Significant auction revenues are now being generated, but countries with economies in transition are forgoing them so they can give allowances to the power sector for free instead.
- A significant negative balance in Germany did not prevent an increase in emissions in 2013.
- Poland showed a significant net negative annual balance for the first time in 2013 since 2008 and could see its cumulative surplus eroded quickly if emissions remain high.
- Spain and Romania have seen big decreases in power sector emissions, contributing to steep declines in emissions overall and leading to significant net surpluses.

The overall picture of the ETS balance of supply and demand, now and in the future, tells a story that helps to explain why today the scheme is currently delivering such low prices. However, looking at data as it relates to Member States shows that the picture is not uniform across all countries, which helps illustrate some of the challenges in arriving at a consensus about the future of such an extensive, harmonised policy.

2013 was the first year in which allocation of allowances under the cap was adjusted to redistribute auctioned allowances between countries with high and low GDP per capita and to account for early action. The figures in **Table 2** include these adjustments and illustrates how permit balances varied significantly from country to country. Year-on-year economic growth figures for the last two years are also provided for comparison together with revenues from auctions.

As previously discussed, 2013 is a very different year in terms of how the ETS is now structured. The previous phase saw more generous rules being applied, and of course the impact of the recession was felt more strongly in some countries than in others. The cumulative balance of allowances compared to demand, per country, over the period 2008 to 2013 is illustrated in **Figure 3**.

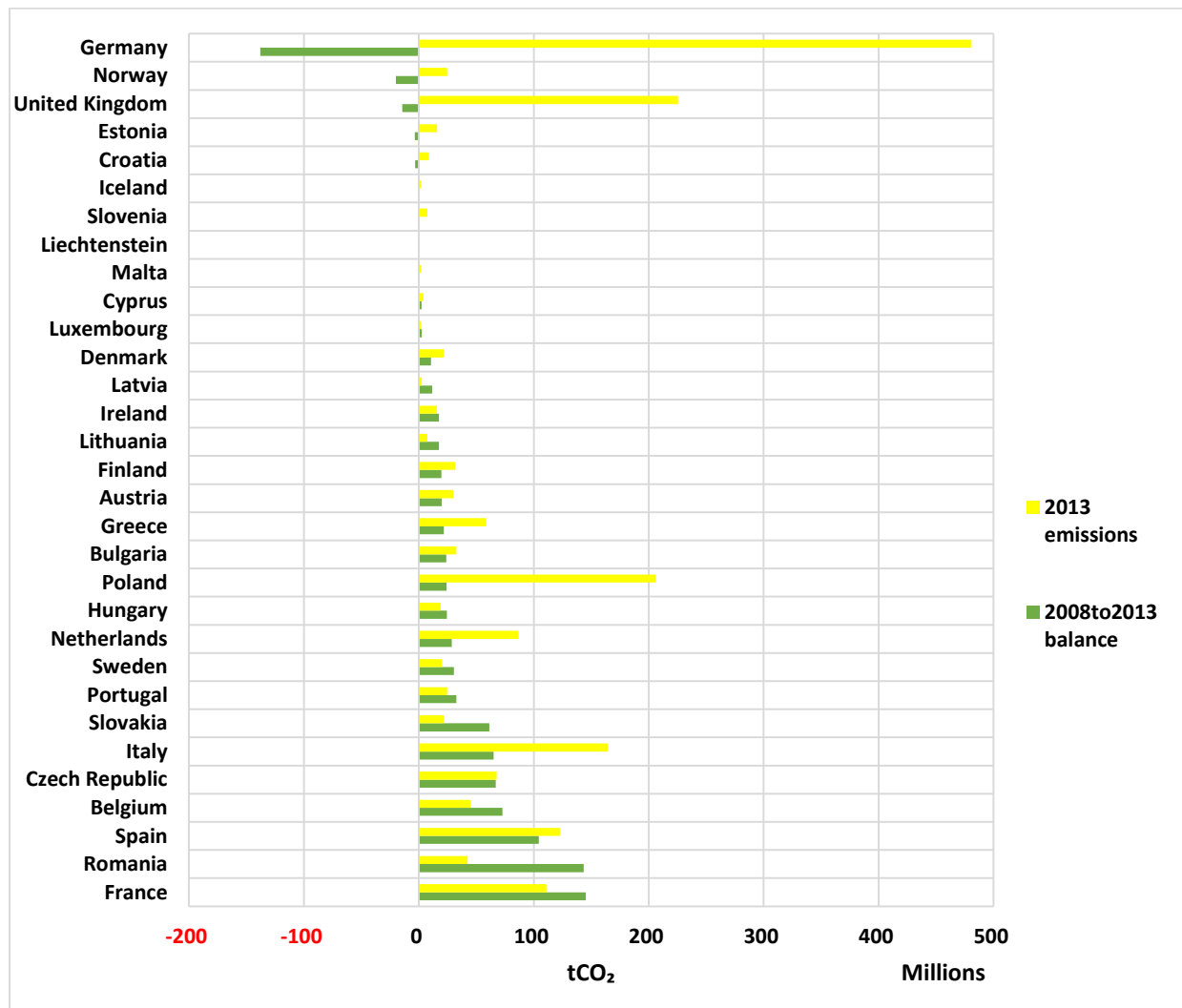
**Table 2: 2013 balance per country (Auctioned plus Freely Allocated minus Emissions).**

	2013 Balance (Auctioned plus freely allocated minus emissions) (tCO <sub>2</sub> e)	Balance change 2012 to 2013	2013 balance as % of 2013 emissions	2013 GDP (millions)	GDP change 2012 to 2013	Estimated 2013 auction revenue <sup>17</sup> (/) (millions)
Spain	33,482,854	↑	27%	€ 1,022,988	-1%	€ 402
Romania	31,429,775	↑	74%	€ 142,245	8%	€ 153
France	28,983,381	↓	26%	€ 2,059,852	1%	€ 255
Italy	21,780,251	↑	13%	€ 1,560,024	0%	€ 448
Belgium	20,918,211	↓	46%	€ 382,692	2%	€ 131
Sweden	17,983,720	↑	89%	€ 420,849	3%	€ 41
Slovakia	10,487,898	↓	48%	€ 72,134	1%	€ 72
Hungary	8,633,068	↓	45%	€ 97,948	1%	€ 43
Finland	8,277,438	↓	26%	€ 193,443	1%	€ 78
Czech Republic	7,128,043	↓	11%	€ 149,491	-2%	€ 109
Austria	6,974,692	↑	23%	€ 313,067	2%	€ 65
Portugal	5,782,960	↓	23%	€ 165,690	0%	€ 84
Denmark	4,793,996	↓	22%	€ 248,975	2%	€ 64
Lithuania	4,239,583	↓	57%	€ 34,631	5%	€ 23
Bulgaria	4,172,040	↓	13%	€ 39,940	0%	€ 69
Latvia	2,783,755	↑	105%	€ 23,372	5%	€ 13
Luxembourg	792,047	↑	43%	€ 45,478	6%	€ 6
Norway	318,174	↑	1%	€ 385,747	-1%	€ 34
Ireland	312,075	↓	2%	€ 164,050	0%	€ 49
Cyprus	14,413	↓	0%	€ 16,504	-7%	€ 1
Liechtenstein	1,142	↓	121%			€ 0
Iceland	-316,659		-18%	€ 11,000	4%	€ 0
Slovenia	-547,681	↓	-7%	€ 35,275	0%	€ 21
Malta	-567,804	↓	-33%	€ 7,263	5%	€ 5
Estonia	-2,373,182	↓	-15%	€ 18,613	7%	€ 23
Netherlands	-2,898,743	↓	-3%	€ 602,658	1%	€ 156
Croatia	-3,218,275		-38%	€ 43,128	-1%	€ 0
Greece	-6,076,165	↓	-10%	€ 182,054	-6%	€ 170
Poland	-10,231,826	↓	-5%	€ 389,695	2%	€ 298
United Kingdom	-51,739,118	↓	-23%	€ 1,899,098	-1%	€ 485
Germany	-105,404,067	↓	-22%	€ 2,737,600	3%	€ 931
Not defined (NER300)	200,000,000					€ 904
<b>Grand Total</b>	<b>235,915,996</b>	↓	<b>12%</b>	<b>€ 13,465,505</b>	<b>1%</b>	<b>€ 5,133</b>

Source: EUTL, auctions EEA. Figures exclude the Aviation sector.

<sup>17</sup> At €4.52 average annual front December carbon price for 2013.

**Figure 3: Cumulative balance of allowances (auctioned plus freely allocated minus emissions) per country 2008 to 2013.**



Source: Free allocations and emissions EUTL, auctions EEA

As the chart above indicates, there are large differences between Member States in terms of how they have fared in relation to the balance of supply and demand over time under the ETS. Showing annual emissions in 2013 alongside highlights the fact that relatively small increases in emissions in Poland, as witnessed this year, will quickly eat through the cumulative net surplus to date.

Some of the individual Members State positions are shown in more detail in the section below.

## Auction revenues in 2013

Another significant change, of relevance at the country level, is the shift to auctioning that began in 2013.

**Table 3** provided estimates of the level of income ETS auctions generated last year per country. Considered as a proportion of GDP, income is low but nevertheless represents an important opportunity to fund public spending on programmes that can assist with the transition to a low carbon economy.

Some countries decided to forgo income to the public purse in favour of continuing to allocate allowances for free to the power sector, as the rules currently allow for countries with economies in transition. The use of Article 10c by countries is summarised in below. By 2020 this provision, unless changed, will end, with all countries having to reduce the share of allowances given away each year in this way between now and then.

**Table 3: Auctioned allowance re-assigned to electricity facilities in 2013 under Article 10c**

Country	tCO <sub>2</sub>	Value if auctioned
Poland	65,992,703	€ 298,287,018
Czech Republic	25,285,353	€ 114,289,796
Romania	15,748,011	€ 71,181,010
Bulgaria	11,009,416	€ 49,762,560
Hungary	7,047,255	€ 31,853,593
Estonia	5,135,166	€ 23,210,950
Cyprus	2,519,077	€ 11,386,228
Lithuania	582,373	€ 2,632,326
<b>Grand Total</b>	<b>133,319,354</b>	<b>€ 602,603,480</b>

Source: European Commission website, ICE. Forfeited revenues auction revenues indicated in the right hand column, Calculated using average forward Dec value in 2013 which was €4.52

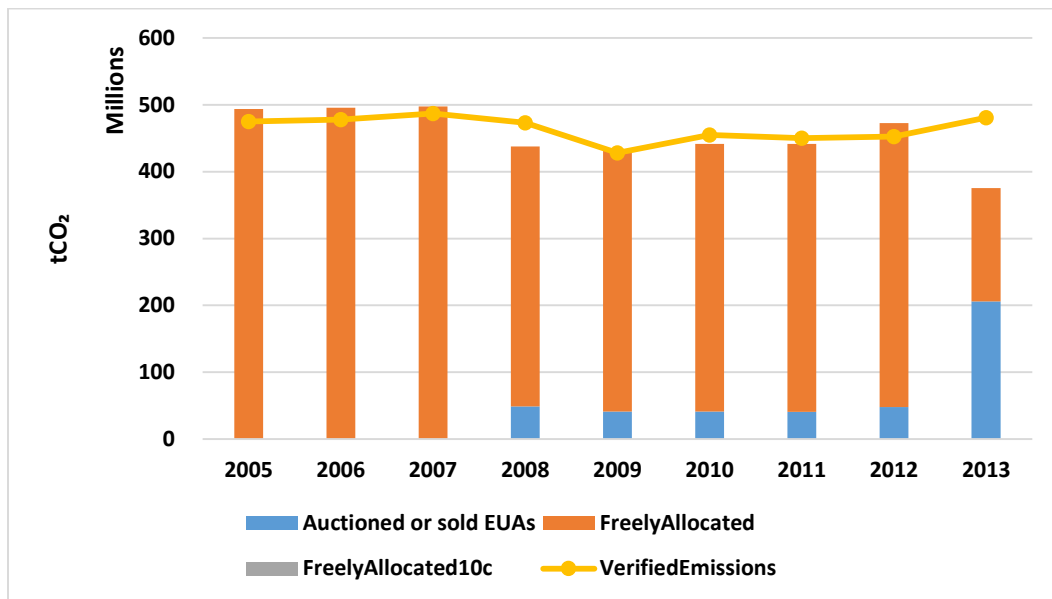
## Individual Member States

Below we provide a brief overview of seven different Member States' emissions and allocations under the ETS from 2005-13. Countries selected are the top 5 emitters (on basis of 2013 emissions) together with the countries with the two largest surpluses: France and Romania. Please note the trend lines depicted here are not corrected for scope change between the phases and are intended merely to illustrate in a little more detail the different situations that exist between the Member States.

### Germany

Germany is by far the biggest player in the EU carbon market, with emissions in 2013 almost twice that of the UK, the next biggest. As a country with a high GDP/capita, Germany has seen a significant reduction in its allocation of allowances in 2013 compared to previous years. Benchmarks and the cross-sectoral correction factor will have reduced national allocations further. At the same time emissions have ticked up in the chemicals, combustion, iron and steel and cement sectors, though some of this will have been due to scope change particularly in the chemicals sector.

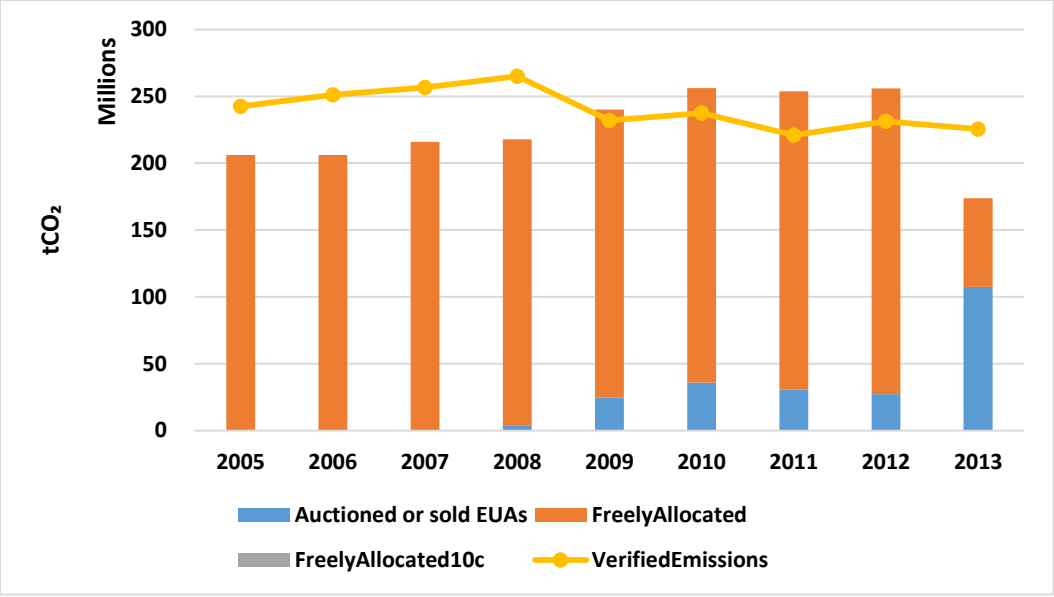
Figure 4: Germany's performance in the ETS (2005-2013)



## UK

Like Germany the UK has seen a big drop in allocations in 2013. After an increase in emissions in 2012, as coal stations used up limits on their operating hours before then closing, emissions in 2013 fell back. Increases in iron and steel sectors were more than offset by the fall in power. The UK's cumulative position in 2013 is nowhere near as short as Germany, thanks to a build-up of surplus allowances stemming from more sharply decreased economic activity during the recession.

Figure 5: United Kingdom performance in the ETS (2005-2013)



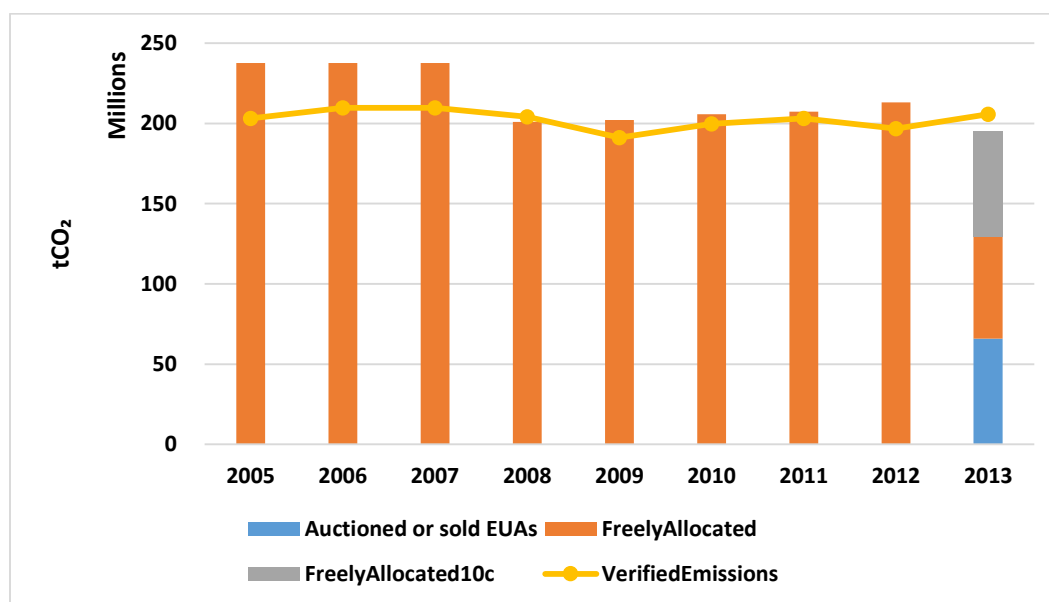


## Poland

In March of this year we published a report<sup>18</sup> looking in detail at Poland's position in relation to EU climate policy and targets. Poland's economy wide targets under Kyoto are generous and there is also evidence that the Polish economy is capable of decoupling carbon emissions from economic growth, making it possible for targets to be exceeded. However, as pointed out in the report, Poland's targets under the ETS are tighter. In 2009-2012 Polish emissions nevertheless were below the level of the cap and a substantial surplus accrued. In 2013, we see Poland's emissions exceeding the level of allowances made available, even after the redistribution of allowances from other countries took place.

Between 2012 and 13 emissions under the ETS grew by 5%. This was primarily due to scope change increasing the number of installations covered. The power sector also saw an increase in emissions. In addition, changes in the rules governing free allocation to industrial sectors meant that overall Poland's carbon allowance budget fell. It is clear that, if investment in abatement fails to keep pace with declining allocations in Poland, any accumulated surplus will quickly be eroded.

**Figure 6: Poland's performance in the ETS**

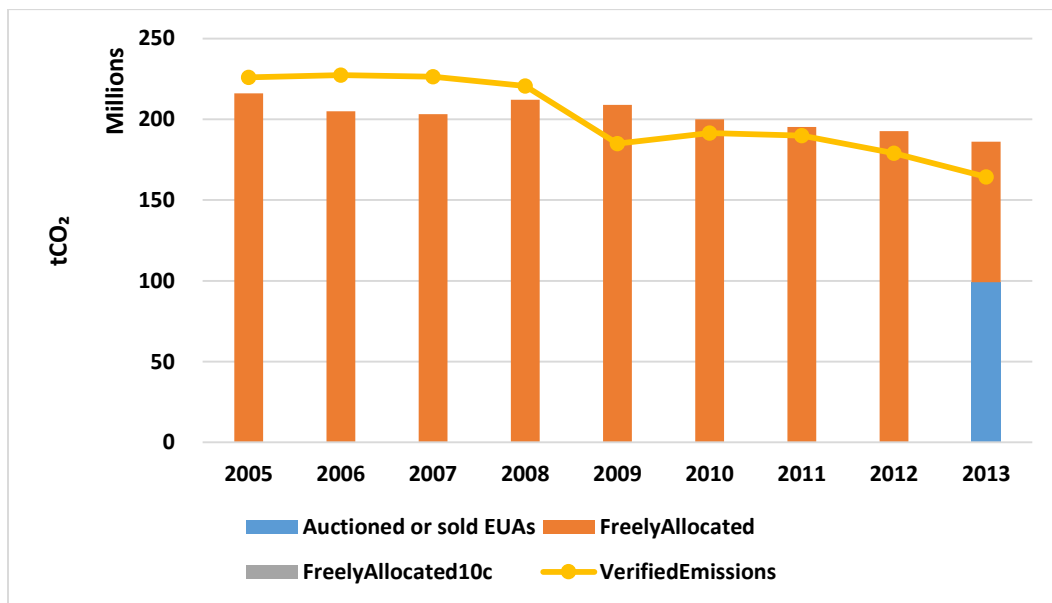


<sup>18</sup> Sharing the Load (2014) Sandbag [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Sharing\\_The\\_Load.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Sharing_The_Load.pdf)

## Italy

Allowance allocations in 2013 remain high compared to previous years due to scope change, and there was also less of an impact on Italy from the redistribution of allowances to other Member States. Emissions also fell relatively sharply, creating a substantial surplus both in 2013 and cumulatively. This was primarily due to a big reduction in emissions in the power sector (-11%), but emissions also fell in the industrial sectors not affected by scope change.

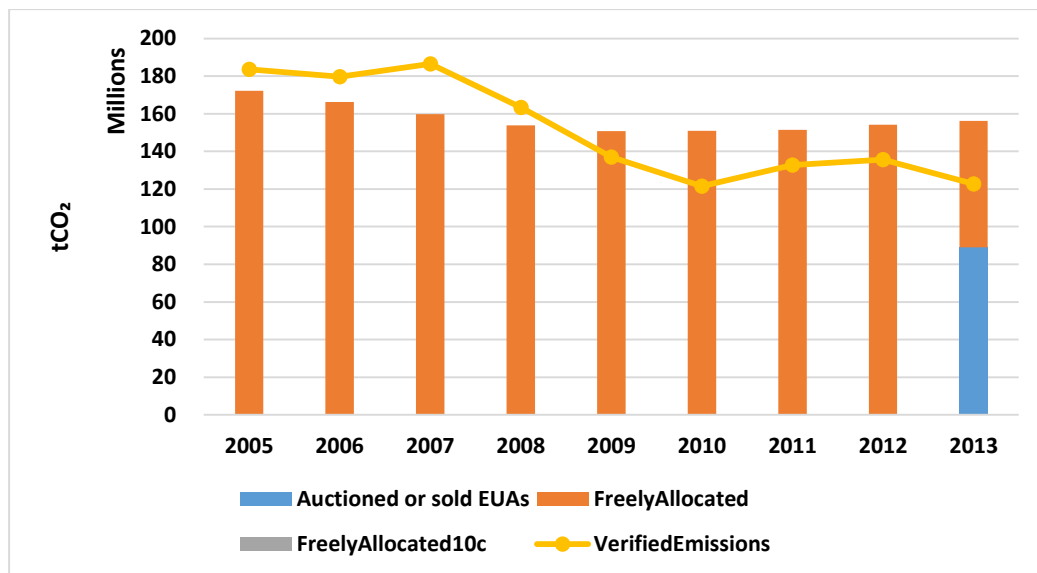
**Figure 7: Italy's performance in the ETS (2005-2013)**



## Spain

Similarly in Spain a substantial surplus accrued in 2013, giving Spain the highest cumulative surplus of allowances over the period. This was primarily due to a huge drop (18%) in emissions from the power sector and due to what appears to be a substantial collapse of emissions in the ceramics sector. This offset an increase in iron and steel emissions. Allocations have risen compared to 2012 as a result of scope change and a relatively high allocation of auctioned allowances.

**Figure 8: Spain's performance in the ETS**

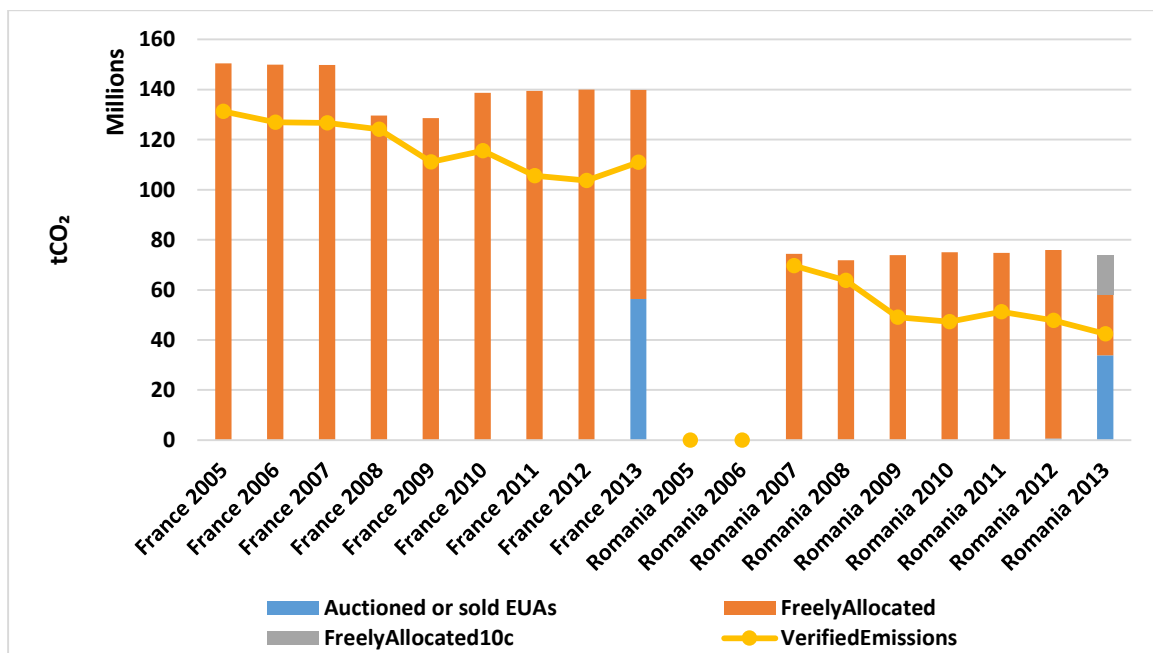


## France and Romania

Alongside Spain these countries have the greatest absolute surplus in 2013 and cumulatively. Emissions increased in 2013 in France overall due to scope change and emissions increases in iron and steel (20%) and combustion (2%). However a large surplus was built up, possibly providing an early indication that overall French companies are faring well under the new benchmarks and allocation rules.

Romania saw falls across many sectors, including a big (11%) drop in power sector emissions, contributing to an 11% drop overall. This continues a trend of sharply reducing emissions that began in 2008. Allocations have continued at a relatively high level leading to the highest cumulative surplus, proportionate to size, of the economy of any country.

**Figure 9: French and Romanian performance in the ETS compared (2005-2013)**



## 4: Sectoral analysis

### Key findings

- Emissions in the power sector are falling rapidly as a result of increased energy efficiency and renewables.
- The weak carbon price, however, is failing to disincentivise coal over gas, meaning emissions reductions in the sector are masking a growth in coal. Europe is therefore missing out on a quick and easy form of possible decarbonisation and risking high carbon lock in that will be expensive to reverse.
- Phase 3 saw a shift away from free allocation towards auctioning. Free allocations to the power sector dropped from 92% of emissions in Phase 2 to 24% in 2013. Free allocations to manufacturers fell from 123% of emissions in Phase 2 to 96% in 2013.
- New benchmarks benefit the most efficient operators, but the ETS rules still reward industry for lowering production rather than increased efficiency.
- Ex post adjustments to free allocations are in place for installations reducing their production by more than half, however, this could be leading to perverse effects, particularly in the cement sector where huge surpluses are still accruing.
- Free allowances are set to decline progressively for all sectors which are not considered “at significant risk” of carbon leakage, however, we find that 99.55% of the benchmark baseline was reserved for leakage-exposed facilities.
- If emissions were to carry forward at 2013 levels and if we treat all Phase 2 surpluses as banked, most industrial sectors remain oversupplied until 2020. If Phase 3 allocation rules are extended forward, the Cement and Lime sector and the Ceramics sector could still be oversupplied after 2040.

### Introduction:

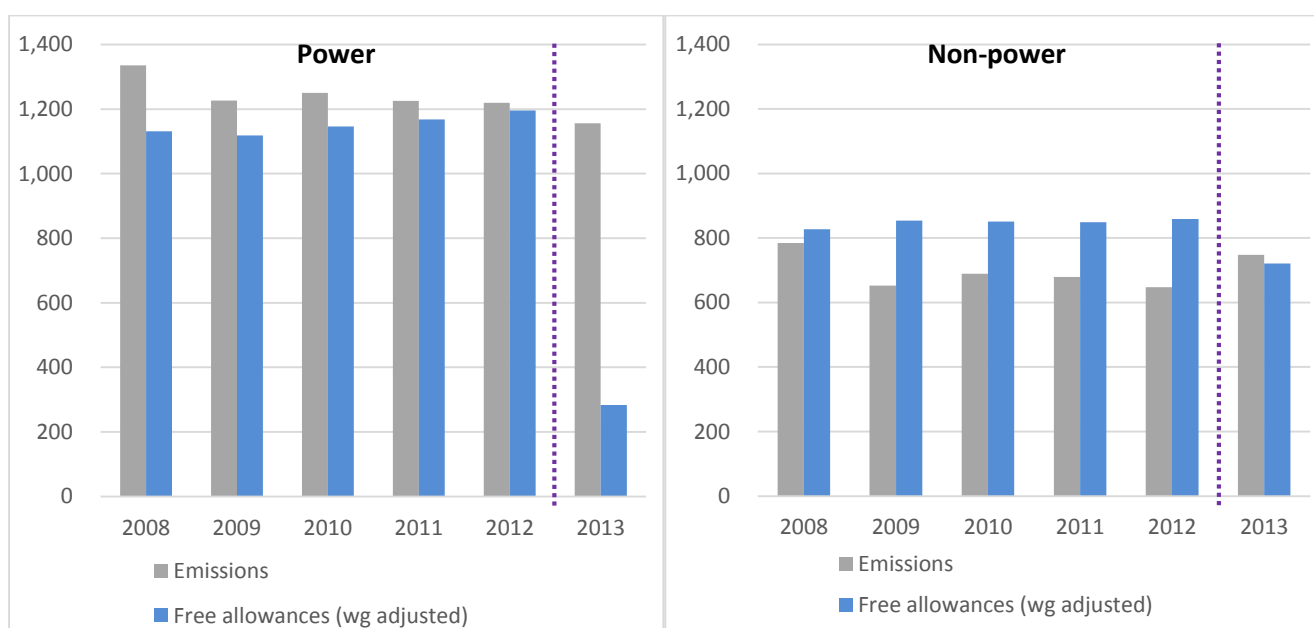
Phase 3 saw a radical departure in the way allowances were allocated to different sectors. From 2013 auctioning became the default method of assigning allowances, while free allocation became “transitional”.

This change was most marked for the power sector, which went from receiving around 92% of the allowance needed to cover its emissions across 2008-12, to receiving just 24% for free in 2013. In fact, most electricity generators were obliged to purchase all of their allowances at auction in 2013, while a few electricity generators in key Eastern European member states were awarded “transitional free allowances” which, under current legislation, will diminish to zero by 2020.

While far less marked, a similar effect is observable for manufacturing sectors who, taken together, received 123% of the allowances they needed to cover their emission in Phase 2, but received just 96% in 2013, making this the first year that manufacturers have not been net oversupplied allowances.

Note that these figures have been adjusted for allowances transferred between some manufacturing installations and the power sector, e.g. numerous iron and steel facilities across Europe redirect some of the greenhouse gases produced in their facilities to nearby power plants where they can be burnt as fuel, instead of being flared on site. Such facilities are obliged to transfer free allowances to the power company as part of the transaction. Similarly, other sectors like Pulp and Paper receive allowances for the heat they receive from the combustion of fuels at neighbouring facilities.

**Figure 10: Comparison between power and non-power installations in the EU ETS (2008-2013)**



*Power is here defined as all ETS installations ascribed NACE Rev 2.2 codes 35.00, 35.10, 35.11, 35.12, 35.13, 35.14 and 35.30, as well as any EUTL "Combustion" installations that reported emissions in 2013 but were assigned no free allowances over 2014-2020. Figures have been adjusted for waste gas transfers from Iron and Steel and heat transfers from Pulp and Paper.*

### Scope Change

In 2013 new activities qualified for entry into the ETS. These were CO<sub>2</sub> emissions from bulk organic chemicals, additional non-ferrous metals, gypsum and a wider definition of combustion, together with other greenhouse gases in aluminium and acid production. The fact that installations affected due to scope change are not flagged in the public database means that analysis of underlying changes in sectors between 2012 and 2013 is not possible. The absence of key features such as this in the data makes accurate analysis and forecasting difficult, hampering market participants from making judgements about the changing balance of supply and demand in the ETS.

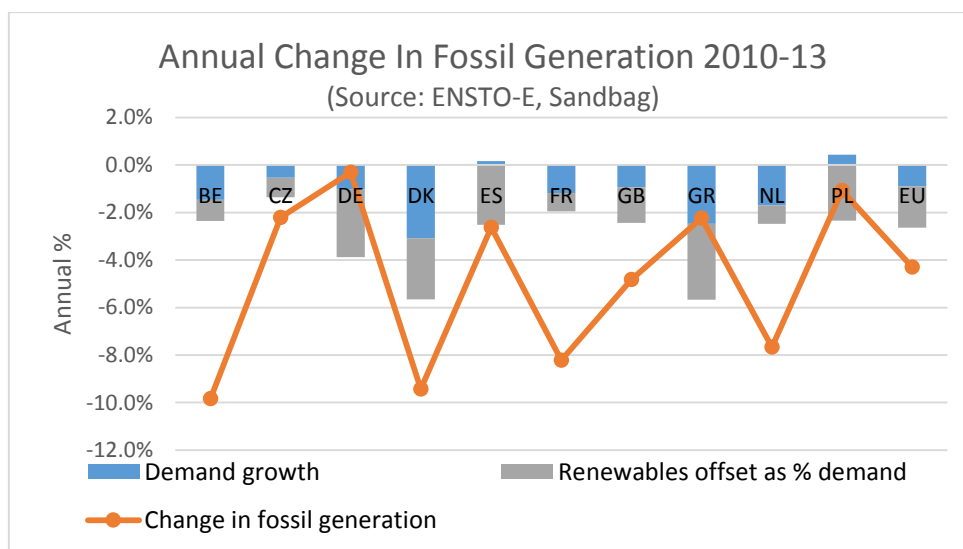
### Power Sector

Power sector emissions in Europe are falling along with diminishing electricity consumption and increasing renewables generation. Although this is a great environmental story, rather than being

driven by the ETS, these changes arise from supplementary policies, which the ETS is not designed to deal with. As a result a substantial surplus in allowances accrues under the cap. It also masks the fact that the resulting low carbon price has allowed coal generation to increase, missing an opportunity to reduce power emissions by a further 11% in 2013, and also risking that investment decisions would lock in carbon-heavy assets for a decade or more.

In July 2014, Sandbag published a report<sup>19</sup> that shows across EU ETS countries from 2010 to 2013 electricity demand fell by 0.9%/year, and renewables generation increased equivalent to 1.5%/year. This has led to a 4.5%/year fall in fossil generation, as hydro and nuclear maintained market share (see **Figure 11**).

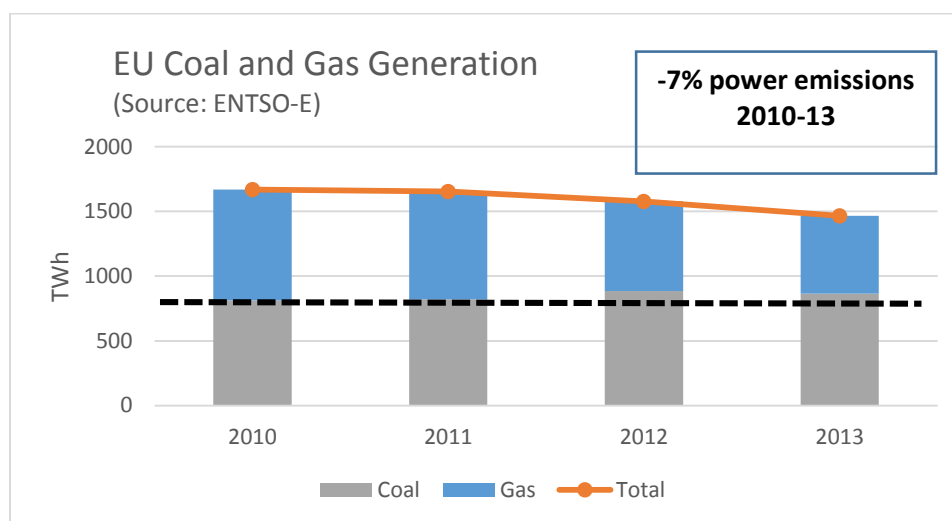
**Figure 11: Annual change in fossil fuel power generation, with demand and renewables growth**



However, because in 2012 and especially 2013 coal was a lot cheaper than gas, the fall in fossil generation happened exclusively on gas, and coal generation actually increased by 6% across from 2010 to 2013 (see **Figure 12**).

<sup>19</sup>Based on a proprietary database that for the first time allows us to attribute fuel sources to ETS combustion installations. See Sandbag's 2014 report "Europe's failure to tackle coal" [http://www.sandbag.org.uk/site\\_media/pdfs/reports/Europes\\_failure\\_to\\_tackle\\_coal.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/Europes_failure_to_tackle_coal.pdf)

**Figure 12: Coal and gas generation, against EU emissions**



The falling fossil generation in the EU power system means there is now large spare capacity in most European countries to switch between coal and gas generation. Even with lower gas prices in 2014, coal is still running before gas on mainland Europe. In the UK – with its carbon tax – a higher total carbon price of €17/tonne encouraged significant switching from coal to gas through summer 2014. This shows that had EUA price been €17/tonne this summer, European power sector emissions would have been substantially lower.

Indeed, if gas generation had stayed at the same levels in 2013 as 2010, and coal generation had fallen instead, then 2013 power sector emission would have been 11% lower than they were.

**The huge opportunity that exists to reduce the carbon intensity of the power sector through coal to gas switching could deliver cumulative reductions of 660mt from 2015 to 2020. This is, however, likely to require supplementary policies unless surpluses are substantially reduced and carbon prices rise.**

In addition to the short term issue of increased coal use the price advantage of coal over gas is leading to closures of gas power stations and influencing owners of coal power stations to invest to meet new European air quality limits, where they were not previously planning to.

**The means low carbon price is not only leading to higher-than-expected emissions here and now, and also contributing to a potential lock-in of coal generation for the next two decades.**

### Manufacturing sectors

Unlike in the power sector, there are few dedicated policies driving abatement investment in the manufacturing sectors. Increased efficiency, where there are short paybacks, continues to be incentivised by energy costs and – to a lesser extent – the carbon price. However, there is an absence of policy instruments to incentivise investment in step change technologies in the way that renewables targets have worked in the power sector. In this context, the response from many manufacturing sectors has been to seek compensation for, and protection from, the carbon price. In Phase 2 this resulted in overly generous free allocations being awarded, triggering the build-up of large surpluses in allowances. In Phase 3 this is manifesting itself in almost all manufacturers seeking



to qualify for the carbon leakage list and, in some cases, exploiting the rules governing partial cessation.

Such 'work arounds' are unlikely to be eradicated until there are effective policies to incentivise investment in breakthrough technologies and the cost of those technologies comes down. Until this is resolved many manufacturing sectors will continue to strongly resist increased ambition within the ETS, even as many appear to benefit from it in the short term. Sadly, this opposition contributes to the sustained low prices we see today undermining the investment case for RD&D in new technologies. Changes to the ETS and the next European energy and climate package must address this negative spiral.

## The new rules

Free allowances to manufacturers were reduced this year as a result of new harmonised rules already agreed in the 2009 Revision to the ETS Directive, but only first implemented in 2013. These new allocation rules showed five key advances upon what had gone before:

### **1) Benchmarked free allocations:**

Instead of Member States awarding allowances to ETS installations according to projected need, ETS installations now receive their free allowances according to a benchmark, set according to the types of products they produce. Each product has been given a carbon efficiency benchmark derived from the 10% most-efficient performers in the sector, expressed as tonnes of CO<sub>2</sub> emitted per unit of product made (e.g. tonne, cubic metre, square metre, etc.). Every installation then receives free allowances on the basis of the quantity of each product they had manufactured over a historic baseline period.

These changes created a much more level playing field for manufacturers covered by the EU ETS. In the discretionary system which preceded it, some companies and industries were able to secure favourable treatment from national governments that gave them an unfair advantage over their European competitors. In principle, the new system confers a comparative advantage to more carbon-efficient installations, who receive more free allowances for each unit of product.

### **2) Declining/transitional free allocation:**

Not only were free allowances benchmarked against best performers, but manufacturers were only eligible for 80% these benchmarked allowances in 2013 declining to 30% in 2020 (i.e. by roughly 7% a year). This made clear that a transition to full auctioning was underway and that installations would have to increasingly shoulder the full market price for their emissions.

### **3) Differentiated treatment for sectors at "significant risk of carbon leakage":**

A special derogation from the declining annual entitlement to free allowances was conferred to sectors deemed at significant risk of carbon leakage. Sectors who qualify are allowed instead to get 100% of their benchmarked free allowances across 2013-2020. Leakage exposure for each product was primarily evaluated as a function of its trade intensity of each product, or what the full market cost of carbon would represent as a share of its Gross Value Added, or both.

#### 4) A ceiling on the total free allowances available to manufacturers:

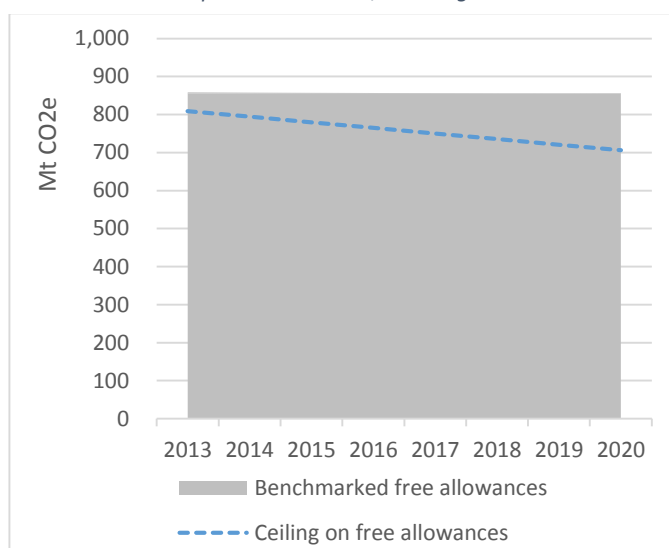
An additional control was applied to ensure this bottom-up process of assigning free allowances did not confer a disproportionate share of total allowances to manufacturers at the expense of auctions to the power sector. From Phase 3, a ceiling on free allowances was introduced, corresponding to the share of manufacturing emissions in the scheme in Phase 1 adjusted for new installations. If the total volume of free allowances eligible under the benchmarking process exceeded this threshold in any year over

2013-2020, a “uniform cross-sectoral correction factor” cuts back the free allocations to all manufacturing installations by the same amount in equal proportions across all manufacturing installations. This resulted in all operators’ allowances being cut by roughly 6% in 2013, with increasing volumes to be cut across the phase reaching around 18% in 2020.

The reason the cross-sectoral correction factor grows more aggressive as the Phase progresses is because the ceiling on free allowances declines each year in line with the trajectory of the cap while benchmarked free allocations have been fairly flat. This element of the new design is highly questionable, especially given the rate at which the power sector is able to decarbonise (particularly as a result of supplementary policies such as renewables targets).

**Figure 13: Benchmarked free allowances and the effect of the correction factor.**

Source: European Commission, Sandbag calculations



#### 5) Dynamic/responsive allocation:

A final crucial advance was to make the level of free allocation responsive to reductions in production. Before 2013, if an installation underwent a substantial reduction in output, it would still be entitled to receive its full allocation of allowances so long as it was still kept open. This has allowed manufacturing sectors to amass vast surpluses of carbon allowances – especially in Phase 2, when the recession and other factors caused industrial output to fall well below projected levels.

From 2013, installations are required to report any “partial cessation” of activity in the various products they manufacture to national regulators. If the output for any product in an installation falls more than 50% below its historical baseline levels, the entitlement to free allowances for that product is halved from the subsequent year. If production falls 75% below baseline levels, three quarters of the allowance entitlement for that product are removed the following year, and if production falls 90% below baseline levels, all allowances for that product are removed from the subsequent year. Access to free allowances resumes the year after activity levels rise above one of these activity thresholds. Similar rules apply if an installation undergoes a significant capacity reduction (i.e. 10% or more).

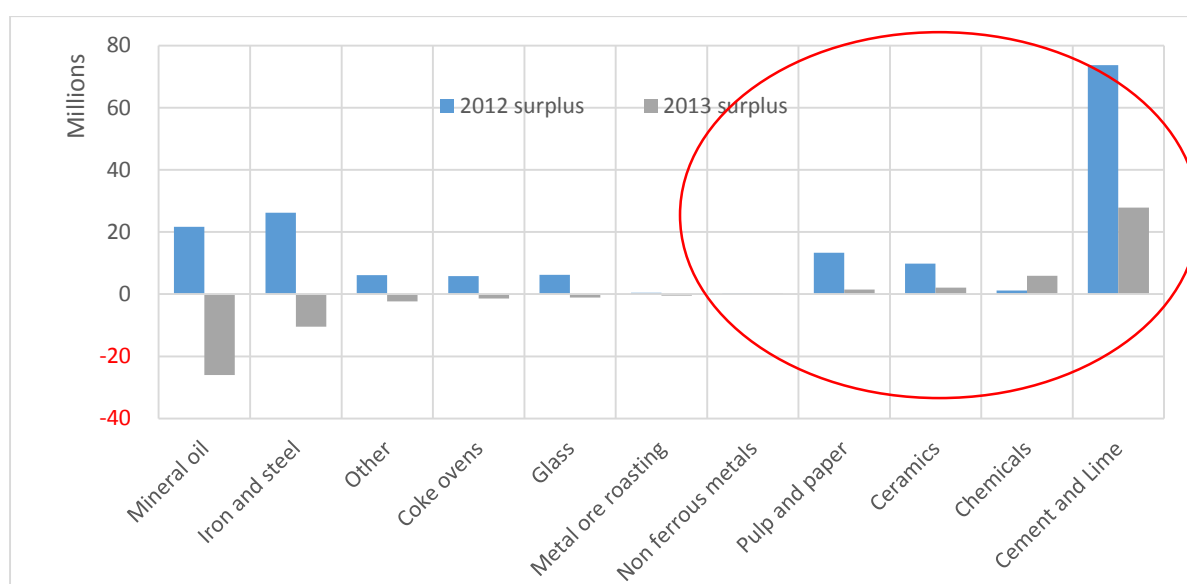
In 2012, 989 installations reported either a partial cessation of activities or a significant capacity reduction, leading to the return of 35 million allowances in 2013.<sup>20</sup>

Note that additional allowances are not conferred when existing installations *increase* their production against their historical baseline levels. Only new entrants are allowed to access additional allowances, and are provided a dedicated reserve of allowances for this purpose. Investment in significant capacity extensions (again of 10% or more) are treated as new entrants.

### What have these changes achieved?

One of the aims of the new approach to free allocation was to prevent manufacturers from continuing to receive more free allowances than they needed, a huge problem over Phase 2. We can get a crude sense of the effectiveness of these new harmonised allocations by comparing how each manufacturing sector was oversupplied or undersupplied with free allowances in 2012 compared with 2013. We show this in **Figure 14**:

**Figure 14: Balance of free carbon allowances in 2012 and 2013**



Source: EU Transaction Log. Sandbag calculations. Figures are adjusted for allowances transfers in the Iron and Steel and Pulp and Paper sectors.

**While the volume of surpluses is down in nearly all manufacturing sectors, around half of these continue to be over-allocated in 2013, despite the new rules we have just outlined.** How, we might ask, is this possible? At first glance, the Phase 3 free allocation rules seem to imply only the most efficient performers in those products that were acutely threatened by carbon leakage should enjoy the prospect of being oversupplied with free allowances. In practice, though, the methodology determining the list of sectors at risk of carbon leakage captures nearly all manufacturing activities. Moreover, the partial cessation rules described above remain highly unresponsive to steep drops in industrial output, with production required to fall more than 50% below historical baseline levels before any adjustment is made to the free allowances received. **While benchmarks also play a significant role, changes in production continue to be a powerful predictor of whether a sector will**

<sup>20</sup> Allocation of allowances from the New Entrants' Reserve 2013 – 2020 (July 2014) *European Commission*  
[http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/status\\_table\\_ner\\_cessation\\_2013\\_en.pdf](http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/status_table_ner_cessation_2013_en.pdf)

face a shortfall or a surplus of free allowances. Below we discuss in detail three specific problems which prevent the Phase 3 allocation rules from working as effectively as promised.

### Problem 1: Carbon leakage protections are almost universal

On paper, only 60% of the NACE sectors attributed to ETS installations are classified as “at risk” of carbon leakage and awarded additional free allowances, but this statistic is deeply misleading about the scale of activities actually captured under this heading. **Our analysis finds that 99.55% of ETS activities, i.e. virtually all of them, have been defined as “at risk” of carbon leakage.**

Activities on the carbon leakage list can expect to receive a constant volume of allowances across the course of the phase, while sectors that aren’t on the list can expect their allowances to fall by 62.5% over that period.<sup>21</sup>

Our analysis finds that the allocations according to benchmarks are conspicuously flat, falling just 0.23% across the period (see **Table 4**). **This implies that just 0.45% of the original benchmark baseline was reserved for industries that were not “leakage exposed”.**<sup>22</sup>

**Table 4: Calculating the share of non-leakage exposed industries in baseline allowances**

Year	Ceiling on manufacturing allowances	Cross-sectoral correction factor	Benchmarked Allowances implied	Baseline non-exposed allowances
Formula	A	B	C = A/B	D = C x -2
2013	809,315,756	94.27%	858,488,692	
2014	794,574,749	92.63%	857,750,371	
2015	779,833,742	90.98%	857,166,893	
2016	765,092,735	89.30%	856,727,398	
2017	750,351,728	87.61%	856,447,365	
2018	735,610,721	85.90%	856,320,332	
2019	720,869,714	84.17%	856,404,759	
2020	706,128,707	82.44%	856,555,180	
Fall in benchmarks over period (t):			-1,933,512	3,867,024
Fall in benchmarks over period (%):			-0.23%	0.45%

This leaves most sectors receiving 100% of their benchmarked free allowances across Phase 3. The only significant ratchet-down on the volume of free allowances distributed is the cross sector correction factor protecting power sector auctions.

When reviewing the carbon leakage list for the 2015-19 period, the Commission proposed to essentially maintain the current criteria, capturing most of the same activities, despite an Impact Assessment advising that a lower 2020 carbon price should be used to determine leakage exposure (€16.50/tCO<sub>2</sub>e instead of the €30 used currently). The impact assessment calculated that this would

<sup>21</sup> Article 10a(11) of the ETS Directive specifies that non-leakage exposed manufacturers receive 80% of their benchmarked free allowances in 2013 falling to 30% in 2020. (30%/80% - 100% = -62.5%). Article 10b of directive allows leakage exposed facilities to access 100% of their free allowances across the phase.

<sup>22</sup> Allowances in non-exposed sectors are set to fall by 50% relative to the baseline benchmark over 2013-2020 (i.e. 80% - 50% = 30%) See previous footnote

free up 500 million allowances for auction, potentially worth €5 billion to Member States. A motion from the Greens/EFA group to block the Commission proposal in the Environment Committee was only very narrowly defeated suggesting that a growing number of MEPs are becoming disaffected with the excessive and blunt compensations provided by the current carbon leakage list.<sup>23</sup> The grossly exaggerated coverage of the carbon leakage list remains a politically expedient means of ensuring EU industries are not made uncompetitive by the EU ETS. We maintain, however, that it does so due to the lack of more targeted carbon leakage solutions to encourage clean investment and green growth.

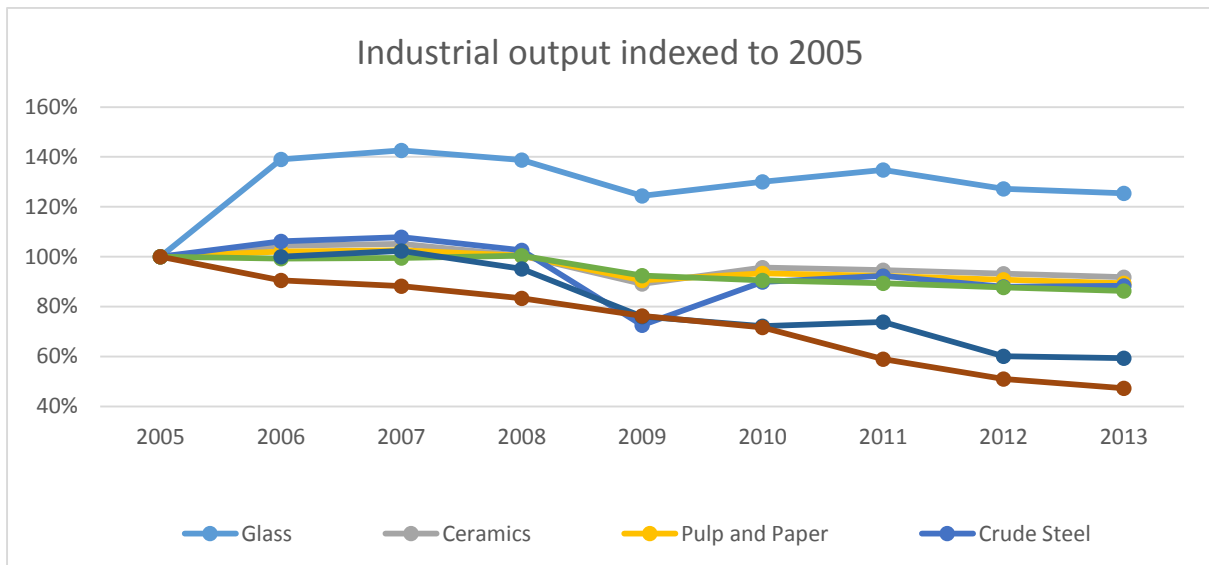
### Problem 2: Insufficient responsiveness to changes in output

As noted above, unless the output of a facility drops drastically from baseline levels (i.e. 50%, 75% or 90% below baseline levels), free allowances remain unchanged. This allows surpluses to readily accumulate in ETS facilities when output is reduced. This risk is exacerbated by the design of the historical baselines used for industrial sectors. The historical baseline for activity levels for each facility was determined on the basis of its median production over either 2005-8 or 2009-10, depending on which median value was highest. In principle, this choice of baselines was supposed to recognise the cyclical nature of some industries and ensure that they weren't permanently benchmarked against unusually bad years. In practice, 2005-7 representing unusually good years for most industries compared with today.

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<sup>23</sup> 30 MEPs voted in support of the motion, 34 against, and there were 3 abstentions.

**Figure 15: Industrial output indexed to 2005**



Source: CEPI, Ceramunie, Cembureau, Eurostat, World Steel Association

In **Figure 16**, we can see a clear relationship between 2013 surpluses and drops in production relative to the baselines in key industries.

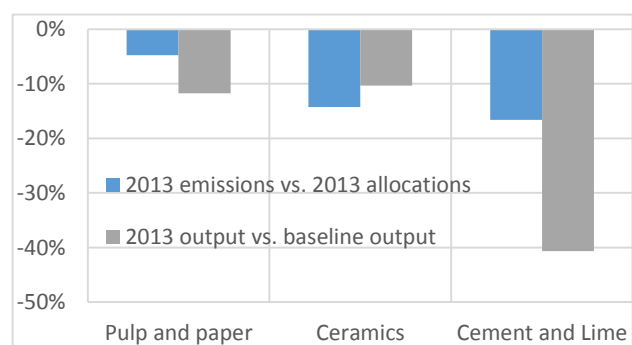
**The correlation between changes in production and the balance of free allowances should raise serious concerns, as it suggests that the new rules for awarding free allowances primarily serve to reward failure and punish success rather than encouraging cleaner industries to thrive.**

With most facilities considered “at risk” of carbon leakage, and able to access 100% of their allowances across the phase, many who are not best performers will continue to accrue excess allowances facilities when production is down against baselines levels.

Partial cessation rules are further compromised by some sectors’ ability to sidestep them. If a drop in activity level at one facility puts it at risk of triggering a threshold, a firm that is able to change its output levels at low cost can choose to optimise its production levels across different facilities, or simply artificially boost its activity levels. This makes sense so long as the value of the free allowances retained exceeds the costs of any uneconomic activity involved.

There is suggestive evidence that this has been taking place in parts of the cement and lime sector. Cement production facilities can split clinker production from final end product which offers flexibilities that lend themselves to maximising continued free allocation. While production data at sub-installation level is not publically available, if we use emissions as a proxy for industrial production and look across a wide sample of cement installations in countries experiencing unusually low demand, we can detect a tendency for

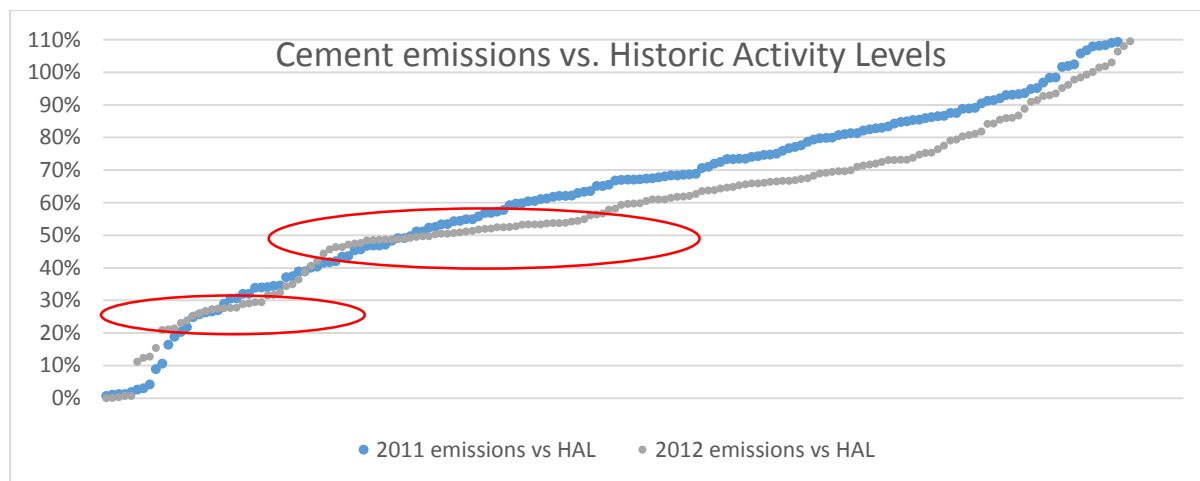
**Figure 16: Correlation between declines in industrial output and 2013 surpluses in some EU sectors**



Source: CEPI, Ceramunie, Cembureau, EU Transaction Log, Sandbag calculations

emissions to “cluster” around where the 25% and 50% thresholds would be, starting in 2012, the first year that output affected allocations for the following year (See **Figure 17**).

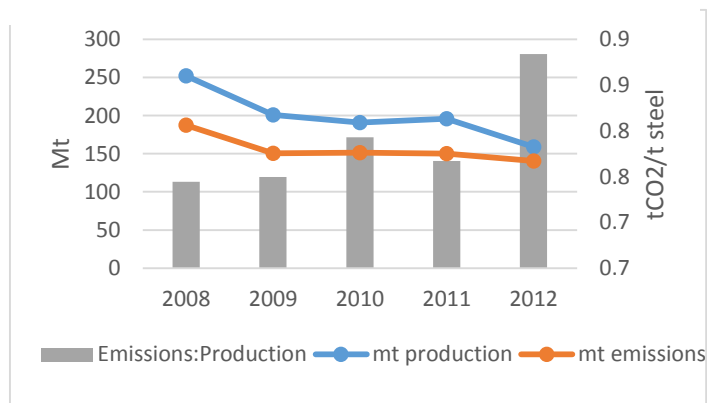
**Figure 17: Increased clustering of activity levels at partial cessation thresholds in 2012 in Cement installations in Spain, Italy Greece Portugal and Ireland**



Source EU Transaction Log, concept from Climate Strategies

Efforts to sidestep partial cessation rules, might also explain the abrupt decoupling of cement emissions and cement production in 2012. A crash in European cement demand, saw European production plummet by 17% that year, while emissions fell by only 7% despite

**Figure 18: EU27 Cement production vs ETS emissions (2005-2012)**



Source: Cembureau, EU Transaction Log, Sandbag calculations

tracking production fairly closely before then (See **Figure 18**).

This sudden increase in the emissions intensity of European cement, seems to be explained by a sudden and unprecedented uptick in clinker exports from Spain and Greece. Spanish clinker exports more than doubled, while Greek exports nearly quadrupled that year.<sup>24</sup> This suggests that under-utilised clinker facilities in these countries may have artificially boosted their production in order to retain access to free carbon allowances. **This implies the current design of the partial cessation thresholds may have been responsible for generating considerable surpluses for the companies involved.**

### Problem 3: Surplus allowances banked forward from Phase 2

ETS installations did not begin 2013 with “blank slates”. Most manufacturing installations, and all European manufacturing sectors, were oversupplied free allowances in Phase 2 and these allowances could be banked forward for use in Phase 3 or beyond.

<sup>24</sup> See Climate Strategies Cement report <http://www.climatestrategies.org/research/our-reports/category/61/384.html>

Trade groups and industry lobbyists often choose to omit Phase 2 surpluses when describing their cumulative net position going forward, arguing that all spare allowances were sold to provide cash-flow during the financial crisis, and have not been banked forward. Unfortunately this argument does not advance their case that the ETS poses an imminent threat of carbon leakage, because the revenues gained by selling allowances have assisted their competitiveness rather than harmed it. With carbon trading at much higher prices in Phase 2 than today, the receipts for any allowances sold then are likely to significantly exceed the costs of buying the same volume of allowances back at current values. **Industries who sold their surplus allowances during Phase 2 have probably fared better than if they banked them forward.**

In **Table 5** below we provide an indicative calculation of the receipts that each sector would have received if it monetized all of its spare allowances on an annual basis at the average annual carbon price. We include in this calculation any spare free allowances that have been acquired through offsetting. To calculate the revenues from these we have first subtracted the average annual CER price. Below we summarise the same findings, calculated for each of the main manufacturing sectors listed in the EU Transaction Log:

**Table 5: Indicative ETS cash flows in Phase 2 and volume of EUAs this could buy today**

Sector	Spare Phase 2 EUAs issued (Mt)	Cash flow from EUAs (€m)	Phase 2 offsets surrendered (Mt)	Cash flow from EUA-CER spread (€m)	Total Phase 2 cash flow (€m)	EUAs at today's price (€5.62)
Cement and Lime	276	€3,503	110	€437	€3,940	701
Iron and steel	108	€1,239	111	€446	€1,686	300
Mineral oil	53	€571	64	€257	€828	147
Pulp and paper	53	€705	20	€79	€784	140
Ceramics	43	€575	7	€27	€602	107
Glass	25	€326	13	€54	€380	68
Coke ovens	20	€253	10	€46	€298	53
Other	11	€116	14	€50	€166	30
Chemicals	7	€91	3	€13	€104	18
Metal ore roasting	3	€44	2	€8	€53	9
Non ferrous metals	1	€19	0	€1	€20	4

*Source: The EU Transaction Log, The ICE, and Sandbag Calculations*

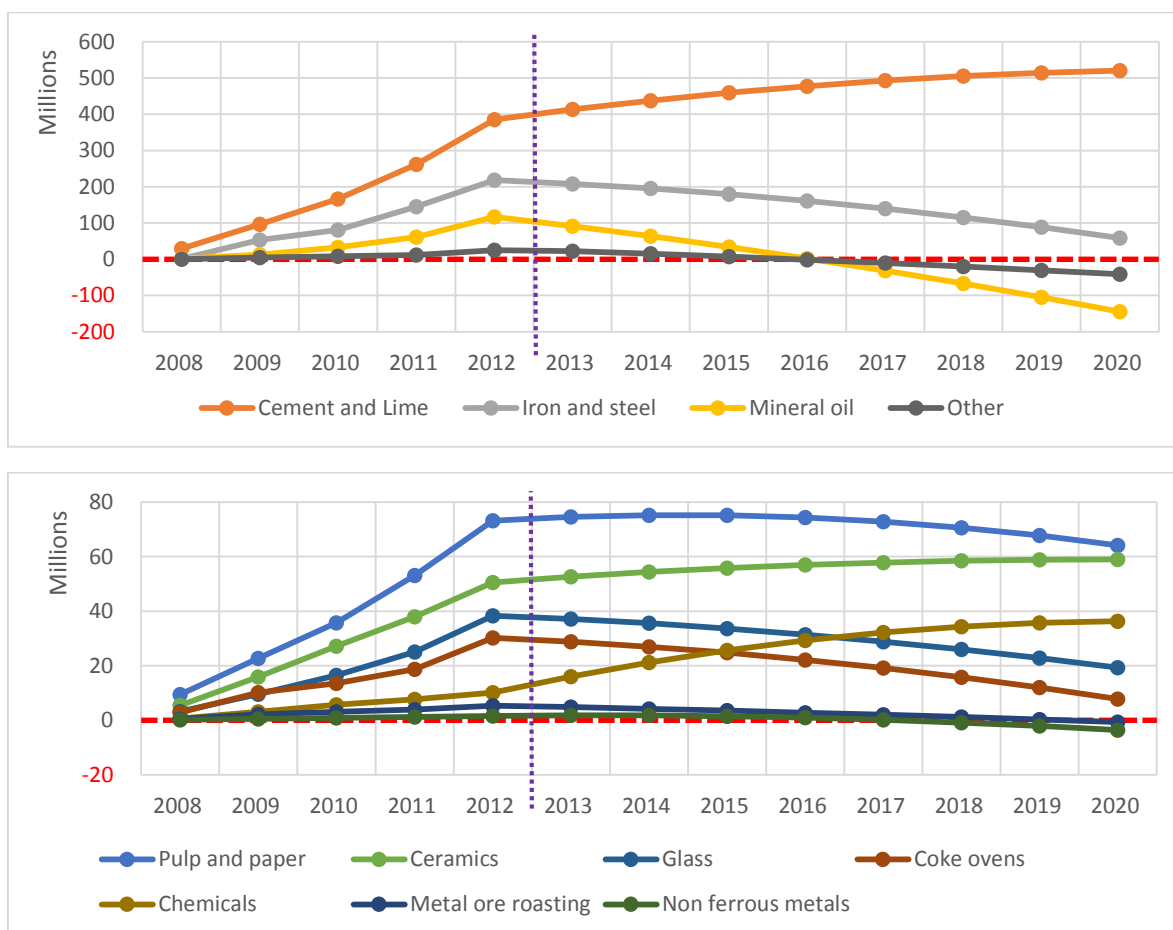
It is difficult to ascertain the extent to which companies in each industrial sector actually chose to sell their spare allowances, or what price they commanded for those allowances if they did, but they clearly help to protect a company's competitiveness if sold. We illustrate this point to show why we include surplus Phase 2 allowances when looking at the future outlook for sectors and companies. It is because treating Phase 2 allowances as banked is both a simple and conservative shorthand for assessing how protected sectors and companies are against the market price of carbon going forward.



## The outlook for industrial sectors going forward

Between the huge surpluses accrued over Phase 2, the wide capture of the carbon leakage list and the unresponsiveness of the partial cessation rules, many manufacturing sectors look in aggregate to be oversupplied free allowances for the remainder of this decade.

**Figure 19: Cumulative balance of spare carbon allowances with emissions projected at 2013 levels (2008-2020)**



Source: EU Transaction Log, Sandbag calculations. Includes offsets already surrendered for 2008-12. Iron and Steel allocations have been adjusted for waste gas transfers using a methodology provided by Eurofer, and Pulp and paper allocations have been adjusted for heat transfers using a methodology provided by CEPI.

In **Figure 19** we show how sector surpluses will evolve out to 2020 for each of the main manufacturing sectors if emissions continue at 2013 levels. Given the flat or downward trends in industrial production, we believe this to be a conservative assumption for most sectors. We also assume all spare Phase 2 allowances are banked forward, including those obtained through surrendering offsets<sup>25</sup>.

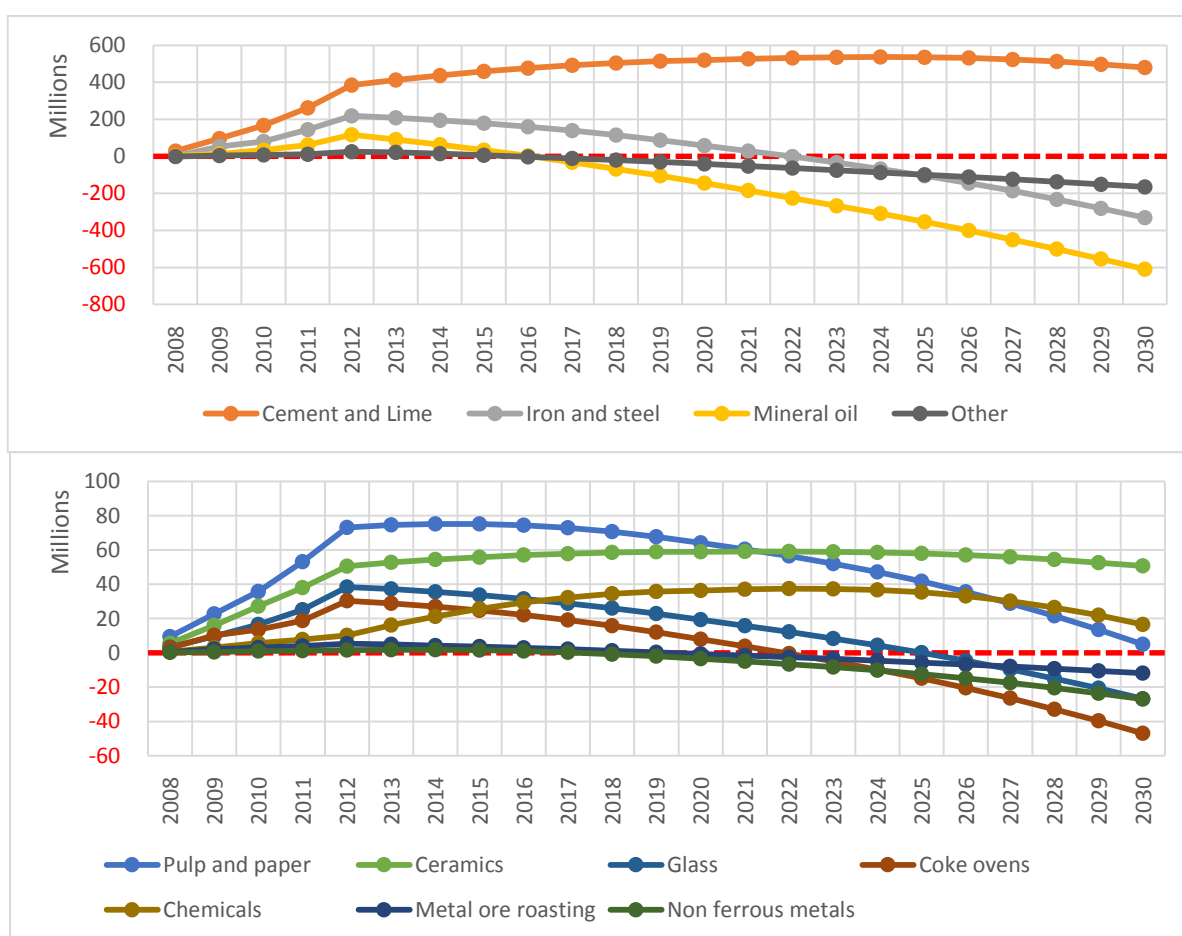
Under these assumptions, most sectors remain oversupplied out to 2020 under the current allocation rules. The only sectors that face any carbon exposure between now and then are the

<sup>25</sup> Note that this analysis takes no account of any offsets surrendered after 2012.

Mineral Oil Refineries sector, Non-Ferrous Metals, and the “Other” sector. The Metal Ore Roasting sector first falls short of allowances in the year 2020. All other sectors are oversupplied across Phase 3, with conspicuously large surpluses in the Cement and Lime sector. In fact, surpluses in the Cement sector, the Ceramics sector, and the Chemicals sector continue to grow across this trading period, while surpluses in the Pulp and Paper decline very slowly. The allocation rules for these four sectors remain sufficiently favourable that they would remain oversupplied beyond 2030 if current allocation rules and emissions levels were extended forward shown below in **Figure 20**.

We have extrapolated forward the benchmarked free allowances for each installation and the declining ceiling on free allowances. This provides a reasonable proxy for how free allowance would look if the current rules were continued and the 1.74% trajectory of the cap was unchanged.

**Figure 20: Cumulative balance of spare carbon allowances with emissions projected at 2013 levels (2008-2030)**



Source: EUTL, Sandbag calculations. Includes offsets already surrendered for 2008-12. See Figure 19 for adjustments.

Using the same methodology,

**Table 6** shows when each sector would ultimately fall short of surplus allowances if current emissions and allocation trends are extrapolated forward indefinitely. The table shows the estimated year in which cumulated surpluses would be used up – this does not mean allocation would fall to zero. Negative balances in the last two columns indicate total potential shortfall over the entire period, not in a single year. Finally, these are highly conservative estimates given the negative trends seen in many sectors over recent years.

**Table 6: Manufacturing sector cumulative surpluses projected forward**

Sector	Year cumulated surplus runs out	2013 emissions (Mt)	2013 cumulative balance of free allowances (Mt)	2020 cumulative balance of free allowances (Mt)	2030 cumulative balance of free allowances (Mt)
Cement and Lime	2043	140	414	521	480
Ceramics	2043	13	53	59	51
Chemicals	2033	36	16	36	16
Pulp and paper	2031	29	75	64	5
Glass	2026	19	37	19	-27
Coke ovens	2022	23	29	8	-47
Iron and steel	2022	111	208	59	-331
Metal ore roasting	2020	3	5	-1	-12
Non ferrous metals	2018	13	2	-4	-27
Mineral oil	2017	134	91	-145	-609
Other	2016	27	22	-41	-165

Source EU Transaction Log, Sandbag Calculations.

**At current emissions levels both the Cement sector and the Ceramics sector would not be obliged to buy a single tonne of carbon until 2043. It is clear that the current system of awarding free allowances to industry is ill-equipped to drive decarbonisation in these sectors and requires major overhaul.**

But this situation is not uniform across all sectors. Sectors like Mineral Oil Refineries and the miscellaneous activities falling under the “Other” sector may have to cumulatively buy more than a year’s worth of allowance from the market by the end of 2020. Beyond 2020, a growing number of sectors will become exposed to the market price of carbon unless the rules are changed.

As these costs grow more significant, products which are genuinely exposed to carbon leakage might start to experience significant competitiveness threats. Over the longer term, the current system of awarding free allowances risks failing in two directions, providing excess protections to some industries and insufficient protections to others.

**It seems clear to us, then, that we need a benchmarked allocation system which is significantly more responsive to changes in output, and which is able to rise as well as contract. This could be achieved either through a fully-fledged ex post allocation system, more sophisticated application of the ‘cross sector correction factor’, or by improving the current rules for partial cessations, capacity changes and New Entrants to better accommodate increases and decreases in activity levels. We will explore this prospect in detail in our recommendations.**

## 5. Company analysis - Carbon Fatcats Revisited

### Key findings

- 10 companies have in 6 years managed to hog nearly 22% of the whole surplus under the ETS (over 483 Mt from a total of 2.2 billion tonnes) – despite being responsible for barely 10% of emissions (1.1 billion tonnes from a total of 11.6 billion tonnes).
- Changes affecting the rules on free allocation have had a noticeable braking effect on the expansion of the Fatcats' surpluses that had been characteristic of phase 2.
- Under the present policy, surpluses start being exhausted pre-2020 for the electricity generators on our list and the late 2020s for steel makers.
- However, this effect differs sharply from sector to sector. Changes in production volumes and production methods mean the cement Fatcats' surplus will continue rising further well into the late 2020s.
- The rules on offset use have ensured that the use of international credits continue to provide a subsidy to already over-allocated companies.

### This year's crop of Carbon Fatcats

In this section we highlight the ten companies who are holding the most surplus EUAs,<sup>26</sup> i.e. the largest difference between spare carbon allowances<sup>27</sup> received free of charge over 2008-2013 compared with their verified emissions over the same period. In a convention Sandbag established in our 2010 report<sup>28</sup>, we call these ten companies, Europe's "Carbon Fatcats".

The last review of the Carbon Fatcats was in our 2012 report 'Losing the Lead? Europe's flagging carbon market', referring to the 2011 compliance year.<sup>29</sup> As surplus values have evolved between then and now, our list of Fatcats has changed accordingly.<sup>30</sup>

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<sup>26</sup> For the purposes of this chapter "surplus" refers only to the cumulative EUA balance of a company over the 2008-2013 period. It should not be interpreted to refer to an entity's EUA balance for a particular year, which can be either positive or negative, and is therefore referred to as the "yearly EUA balance".

<sup>27</sup> As a matter of standard operating procedure, Sandbag offers companies with the highest surpluses the opportunity to adjust downwards their free allocation figures published in the EUTL by disclosing their waste gas transfers to us. All companies mentioned in this chapter have been contacted, and free allocation numbers have been adjusted accordingly wherever guidance was provided.

<sup>28</sup> 'The Carbon Rich List: The companies profiting from the EU Emissions Trading Scheme' (2010), available at: [http://www.sandbag.org.uk/site\\_media/pdfs/reports/carbon\\_fat\\_cats\\_march2010.pdf](http://www.sandbag.org.uk/site_media/pdfs/reports/carbon_fat_cats_march2010.pdf)

<sup>29</sup> Due to sales, closures, new openings, etc. the entities identified in this report by a given company name may not be an exact match against those identified in the 2012 report.

<sup>30</sup> In the course of compiling this analysis we contacted each of the companies asking them to verify ownership of installations and any waste gas transfers. We also inquired about explanations for the surpluses they have accrued, but the majority did not provide detailed explanations. At the end of this chapter provides a brief overview of our best estimates regarding what the main drivers behind of each of Fatcats surpluses have been.

**Table 7: Top 10 companies in terms of cumulative EUA surpluses, as of 2013 (excluding offsets).**

No.	Company	Sector	2013 surplus <sup>31</sup>	2012 surplus	Surplus change	2013 FA <sup>32</sup>	2012 FA	FA change
A	B	C	D	E	F	G	H	I
1	ArcelorMittal	Steel	93.0	101.5	-8%	59.8	86.7	-31%
2	Lafarge	Cement	45.6	41.1	11%	18.0	24.6	-27%
3	Tata Group	Steel	42.6	43.8	-3%	25.3	35.6	-29%
4	Holcim	Cement	27.1	24.8	10%	13.2	17.5	-24%
5	HeidelbergCement	Cement	25.4	23.6	8%	18.8	23.5	-20%
6	Cemex	Cement	23.6	20.2	17%	10.6	12.4	-15%
7	Italcementi	Cement	23.2	20.2	15%	13.0	17.2	-24%
8	CEZ	Electricity	19.6	29.5	-34%	19.1	42.6	-55%
9	Termoelectrica	Electricity	19.5	19.4	1%	6.1	11.8	-48%
10	Duferco	Steel	16.1	15.9	1%	0.4	3.9	-91%

Source: EUTL, Sandbag database of company installations.

The Carbon Fatcat surpluses are disproportionate to their volume of emissions. Companies responsible for only 10% of emissions are holding nearly 22% of the surplus presently under the scheme. Nevertheless, as we show next, Phase 3 introduced novel features of the ETS that help ameliorate the situation.

**Table 8: Emissions and surpluses recorded during 2008-2013 to Fatcats (and manufacturing Fatcats, respectively), as a percentage of emissions and surpluses of all manufacturing sectors and the entire ETS, respectively.**

	Operators	All 10 Fatcats	Manufacturer Fatcats
	<b>Emissions<sup>33</sup></b>	<b>1.11 Gt<sup>34</sup></b>	<b>0.85 Gt</b>
Manufacturers <sup>35</sup>	<b>3.10 Gt</b>	35.9%	27.6%
ETS total	<b>11.61 Gt</b>	9.6%	7.4%
	<b>Surpluses<sup>36</sup></b>	<b>0.48 Gt</b>	<b>0.41 Gt</b>
Manufacturers	<b>1.19 Gt</b>	40.3%	34.9%
ETS total (inc. auctions)	<b>2.24 Gt<sup>37</sup></b>	21.6%	18.5%

Source: EUTL

### New rules changing the list of Fatcats

The move away from the discretionary National Allocation Plans of Phase 2 to centralised benchmarks in Phase 3 has reduced the level of free allocation received by the Fatcats. Similarly, the cross-sectoral correction factor acts to limit the amount of free allowances that can be allocated to

<sup>31</sup> Values adjusted for flue gas transfers after consulting with companies.

<sup>32</sup> FA = free allocation. Because this table serves to evaluate the impact of benchmarking and the cross-sectoral correction factor, waste gas transfers are **not** applied to the values in columns G and H.

<sup>33</sup> These are cumulative emissions (2008-2013), to make comparison with cumulative surpluses possible.

<sup>34</sup> Gigatonne = 1 billion tonnes.

<sup>35</sup> Not aviation and not combustion EUTL sectors.

<sup>36</sup> Likewise, the surplus figures include total attributable offset use (2008-2012).

<sup>37</sup> This figure is the only one where the influence of auctioned allowances can be made visible, since auctioned allowances are by definition not allocated to anybody, but can be bought by anyone. Furthermore, no information is available on who has purchased any particular allowance.

manufacturing installations. These developments signal the beginning of the end for some of the EU's carbon Fatcats who gorged themselves on excessive free allocation in the previous phase.

However, the effect of these changes is not being felt uniformly across the sectors. Fatcat companies from the steel sector appear this year to have fared quite poorly relative to those in the cement sector. The year-on-year evolution of steel Fatcats' cumulative surpluses (column F of **Table 7**) shows that their yearly EUA balance in 2013 was negative or has barely grown – a major milestone for a scheme that had been chronically over-allocating them for five years. In contrast, it appears Fatcats from the cement sector remain champions at securing excess free allowances, even under the new benchmarks: all five companies with the fastest growing surplus are from the cement sector. This raises the question of whether further changes are needed to the rules governing free allocation in this sector, for example updating the benchmarks or refining the rules governing partial cessation (see below).

### Responsive allocation

The substantial revision of the method of allocating free allowances to installations is very clearly illustrated by the massive drop-off in surplus registered by Duferco: down 91% on the previous year. Due to massive changes to its activity levels visible already in 2009, Duferco amassed surpluses completely out of proportion to its needs, yet in phase 2 the Scheme was not equipped to address this problem. The new rules make a vigorous contribution to solving this aspect of chronic over-allocation.

### Elimination of free allocation to electricity generation

The precipitous drop in the surplus of CEZ is due to the explicit phase 3 rule that electricity generation is no longer eligible for free allocation. The same rule has led to a slow-down in the substantial growth of Termoelectrica's surplus. Neither of these companies have been completely cut off from free allocation, however, due to the option for transitional free allocation for the modernisation of electricity generation under Article 10c of the ETS directive. Under a scenario of emissions staying at 2013 levels, their surplus should nevertheless be exhausted before the end of phase 3.

### Offsetting turns Fatcats obese

Offsets are completely fungible with EUAs from the point of view of their compliance needs, but, as shown in **Table 9**, the price between these two financial vehicles can be significantly different. All companies, not just Fatcats, are incentivised to acquire CERs, use them for their yearly compliance needs, and keep the freely allocated EUAs for whatever future purposes (i.e. to bank them for future use, or to sell them off to companies facing shortfalls under the ETS). If the EUAs are banked, companies' net surpluses actually **increase**, while in the latter case companies reap the spread between the sold EUA and the bought CER.

Access to offsets has been a boon to the already massively over-allocated Fatcats. Liberal access to offsets has insulated them even further from the need to cut their emissions by further raising their surpluses. Due to changes in the way ETS data is made publicly available we are, since 2013, no longer able to attribute offset use to individual installations or companies and the table below therefore only details offset use for the period 2008-12.

**Table 9: The effect of offsets on Fatcat surpluses.**

Company	2013 raw surplus	Total offset use <sup>38</sup>	2013 net surplus	Surplus increase due to offset use
A	B	C	D	E
ArcelorMittal	93.0	46.2	139.2	50%
Lafarge	45.6	12.6	58.1	28%
Tata Group	42.6	13.3	55.9	31%
Holcim	27.1	8.7	35.8	32%
HeidelbergCement	25.4	13.4	38.8	53%
Cemex	23.6	6.5	30.0	27%
Italcementi	23.2	7.7	30.9	33%
CEZ	19.6	18.0	37.6	92%
Termoelectrica	19.5	5.5	25.0	28%
Duferco	16.1	0.2	16.3	1%

Source: EUTL, Sandbag

### How long can the Fatcats last?

The surpluses confer significant benefits to the carbon Fatcats. They can be banked forward, to protect against future carbon or mitigation costs, or alternatively, can be sold off immediately, yielding windfall profits for these companies. Sandbag has conducted analysis of both scenarios below to disprove claims about the costliness of the ETS and reveal just how much these ten companies stand to benefit from the scheme in either of these two scenarios.

#### Scenario 1: Spare allowances are banked forward

As shown in column B of **Table 10**, most of the Carbon Fatcats continue to receive very large amounts of allowances through free allocation throughout Phase 3. However, in order to estimate the extent to which they are likely to continue to grow their surpluses going forward, Sandbag used constant 2013 emissions as an indicative projection of their 2014-2020 emissions pathway and then calculated the balance between the freely allocated allowances that have been promised to these companies' installations and their expected emissions. This balance is given in column D of the same table.

<sup>38</sup> Due to changes in the reporting regime for offset use that took effect starting the 2013 compliance year, no offset data is available any longer below the ETS level as a whole. Therefore, no publicly accessible data exists on offset use by any company after the 2012 compliance year. Since none of the companies reviewed in this chapter had exhausted their offset use entitlement at that point, it is to be expected that the actual figures for total offset use should be higher. Readers are advised to bear in mind that in reality any conclusions based on offset use in this chapter should therefore be correspondingly magnified.

**Table 10: Expected phase 3 balance between freely allocated allowances and projected emissions.**

Company	Future free allocation <sup>39</sup>	Projected emissions (7 years at 2013 levels)	Cumulative Balance for 2014-2020
A	B	C	D
ArcelorMittal	259.2	350.1	-91.0
Lafarge	117.6	95.0	22.6
Tata Group	124.6	144.2	-19.6
Holcim	86.0	75.9	10.0
HeidelbergCement	122.0	118.9	3.1
Cemex	68.7	50.2	18.5
Italcementi	83.4	70.7	12.7
CEZ	6.4	203.1	-196.6
Termoelectrica	7.5	41.8	-34.4
Duferco	1.8	1.2	0.6

Source: EUTL

The derogations under Article 10c that allow for continued free allocation to power sectors in countries undergoing economic transition are not enough to prevent the balance from turning negative for the two power companies (CEZ and Termoelectrica). 2013 has also brought a massive change for the iron and steel companies, whose cumulative balance for phase 3 turns negative. In spite of the rule changes in phase 3, cement sector Fatcats' surplus continues to grow, as they continue to see positive yearly balances going forward to 2020.

These changes have not, however, taken place in a vacuum and the legacy from the previous 2008-2013 period is still substantial. In order to correctly evaluate these companies' situation one needs to look into the combined effect of not only the estimated position going forward, but also of the surpluses accumulated to date, as shown in **Table 11**.

<sup>39</sup> Adjusted where appropriate for waste gas transfers as indicated by companies.



**Table 11: Overall position to 2020 taking into account accrued surpluses to date.**

Company	Surplus until today	Future balance until 2020	Surplus by 2020	2013 emissions	Possible change in emissions by 2020 <sup>40</sup>
A	B	C	D	E	G
ArcelorMittal	139.2	-91.0	48.3	50.0	+24%
Lafarge	58.1	22.6	80.7	13.6	+149%
Tata Group	55.9	-19.6	36.4	20.6	+44%
Holcim	35.8	10.0	45.8	10.8	+106%
HeidelbergCement	38.8	3.1	41.9	17.0	+62%
Cemex	30.0	18.5	48.5	7.2	+169%
Italcementi	30.9	12.7	43.6	10.1	+108%
CEZ	37.6	-196.6	-159.1	29.0	-137%
Termoelectrica	25.0	-34.4	-9.3	6.0	-39%
Duferco	16.3	0.6	16.9	0.2	+2398%

*Source: Sandbag calculations based on EUTL.*

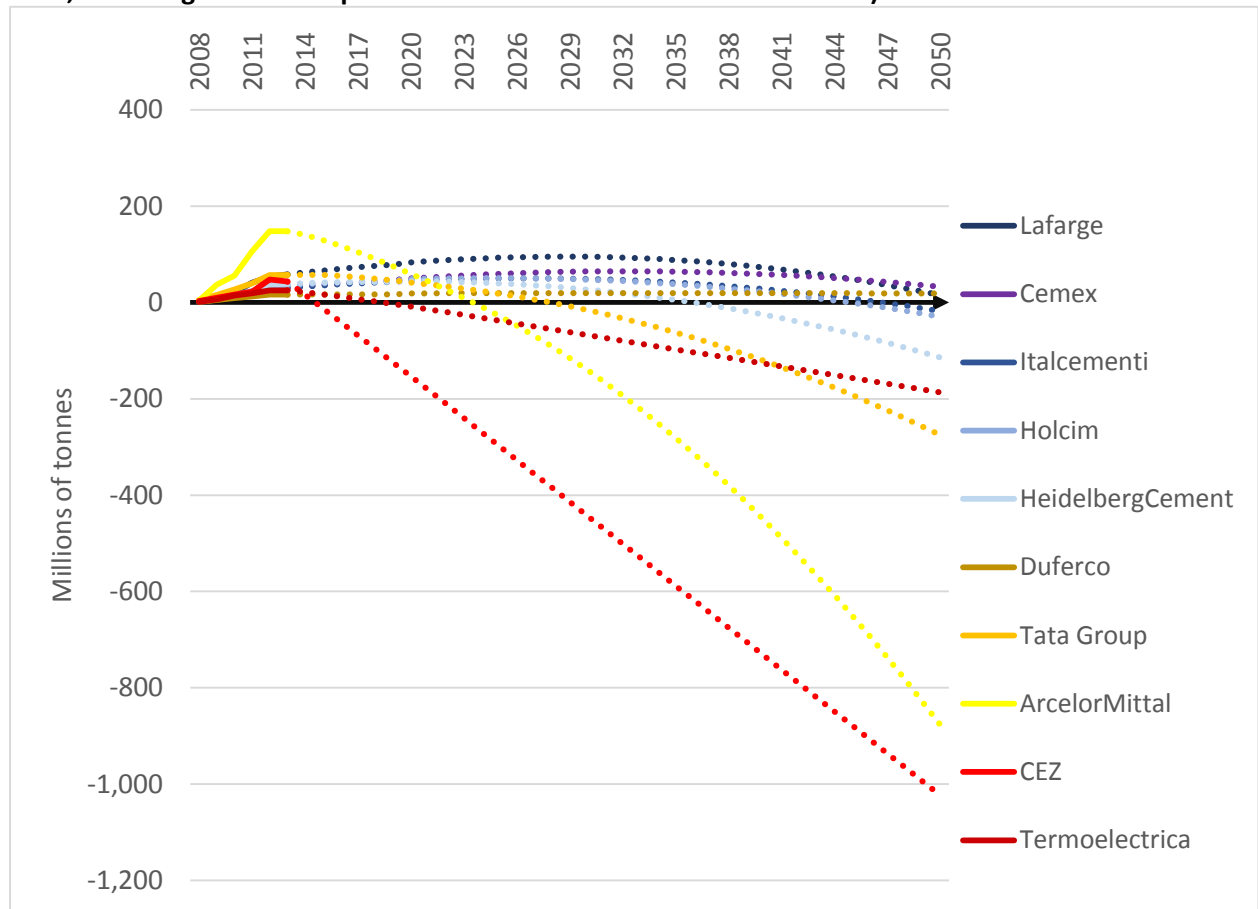
As these numbers show, all non-power Fatcats continue to enjoy substantial surpluses for the remainder of this decade. Since allowances are in essence pollution permits, this means that theoretically these companies' emissions can rise above present levels without facing any new carbon costs – sometimes spectacularly so.

**Therefore, far from being constrained by an ambitious EU agenda threatening to devastate their international competitiveness, prior to 2020 the manufacturing Fatcats need not worry about paying a single cent for all the extra carbon pollution they would release into the atmosphere even if their emissions were to grow significantly.** Despite the institutional changes brought on by Phase 3, the Fatcats still have a long way to go to lean down and start feeling the carbon price like other companies less blessed with free allocations.

In order to gauge just how long the Fatcats have got to go before they will be facing the same playing field as ordinary ETS companies, we provide in **Figure 21** a snapshot of what these over-allocated companies might face if policy continued along the same lines as today, without further changes. The projections are based on historical data on emissions, offsets and emissions, on a forward projection of emissions and waste gas transfers (at flat 2013 levels), and on estimates of free allocation based on a cap continuously decreasing past 2020 at a 1.74% linear reduction factor. Finally, we bring together this forward-looking story with a backward-looking account of the Fatcats' history in a brief narrative form, provided at the end of this chapter.

<sup>40</sup> This column indicates the percentage by which the expected surplus by 2020 might allow emissions to rise above 2013 levels if it were progressively used up during the remainder of phase 3.

**Figure 21: Illustrative trends for Fatcats' cumulative balances until 2050. (Projections as dotted lines, assuming -1.74% LRF post-2020 and emissions flat at 2013 levels.)**



Source: EUTL

### Scenario 2: Spare allowances are sold off

It is often argued that over-allocated companies such as the Fatcats cannot in fact raise or continue their emissions at no cost, as described in the previous scenario, because they have actually sold their spare allowances off already. Using yearly averages for EUA and CER prices,<sup>41</sup> we have estimated the cash flows from the two sources of income that companies can enjoy: the immediate sale of excess allowances and the substitution of offsets for allowances.<sup>42</sup> The gains from the former were obtained by multiplying the yearly volumes of excess freely allocated allowances (adjusted for waste gases) with the average value of front-December future contracts for EUAs in the same year;

<sup>41</sup> Average front-December prices from the same year were used for both allowances and offsets. The daily prices based on which the yearly averages were calculated are available from Sandbag.

<sup>42</sup> It needs to be emphasised that these are average prices. Especially in the case of CERs long-term contracts with CDM project developers can lock in prices at which CERs are delivered to consumers, yielding a cost curve that is at odds with market averages. However, the scale of the carbon Fatcats' consumption is large enough to be able to influence this market average, suggesting that these estimates should not be too far off the market average. Moreover, as can be seen in **Figure 22**, CER prices have been consistently below EUA prices (if not, there would not have been such a flowering of CER consumption under the ETS), meaning that the impact of CER usage would be on average beneficial to companies, even if the exact magnitude of that benefit remains open to debate.

in the case of the latter the yearly volumes of offsets<sup>43</sup> surrendered were multiplied with the spread between EUA and CER front-December future contracts for the year in question.<sup>44</sup>

The results, illustrated in **Table 12**, show that, even if the Fatcats had sold off the free EUAs that were granted to them as a lifeline to prevent the ETS from harming their competitiveness, with the money they probably made selling allowances, they should be able buy back larger volumes of new ones, which ought to last them longer than if they in fact had kept the original ones.

**Table 12: The beneficial effect of having sold off one's surpluses when prices were high**

Company	Estim. cash flows (2005-2013)	Could buy extra EUAs now	Estim. cash flows (2014-2020)	Estim. cash flows (2005-2020)	Could buy extra EUAs in 2020	Optim. extra volume of EUAs bought	Cumul. balance in 2020 w/o extra EUAs	Cumul. balance in 2020 with extra EUAs	Year new EUAs alone might last until
	Mill. €	Mt	Mill. €	Mill. €	Mt	Mt	Mt	Mt	
ArcMit.	1,473.4	<b>262.2</b>	-582.2	891.2	121.3	<b>262.2</b>	-80.0	182.2	2023
Lafarge	643.3	<b>114.5</b>	159.7	803.0	109.3	<b>114.5</b>	25.1	139.5	2030
Tata Gr.	646.3	<b>115.0</b>	-107.5	538.7	73.3	<b>115.0</b>	-14.3	100.7	2024
Holcim	385.6	<b>68.6</b>	79.5	465.1	63.3	<b>68.6</b>	12.5	81.1	2027
HeidelbergCem.	495.2	<b>88.1</b>	32.7	527.9	71.8	<b>88.1</b>	5.4	93.5	2025
Cemex	352.1	62.6	128.4	480.4	<b>65.4</b>	<b>65.4</b>	20.1	85.4	2031
Italcem.	270.3	48.1	95.1	365.4	<b>49.7</b>	<b>49.7</b>	14.9	64.6	2026
CEZ	547.8	<b>97.5</b>	-1,270.1	-722.3	-98.3	<b>97.5</b>	-190.9	-93.4	2018
Termoel.	255.6	<b>45.5</b>	-220.1	35.5	4.8	<b>45.5</b>	-33.8	11.7	2021
Duferco Gr.	283.3	<b>50.4</b>	17.8	301.1	41	<b>50.4</b>	2.7	53.1	Beyond 2050 <sup>45</sup>

Source: EUTL and ICE.

<sup>43</sup> We expect companies to act as rational economic actors and therefore we assumed that offset use would continue past 2012 (the last compliance year for which offset use data is available on the installation level), topping up negative EUA balances whenever they would arise until the offset entitlement is exhausted, or, if no years with negative EUA balances occur before 2020, then the entire offset entitlement would be used in the year when the EUA-CER spread is maximal.

<sup>44</sup> This is because the profit to be gained from substituting an offset for an allowance is the difference between the sum gained by not selling an allowance and the sum lost by purchasing an offset.

<sup>45</sup> A back of the envelope calculation suggests that, if Duferco had sold and then decided to rebuy EUAs, its surplus might last until the year 2308 [sic!].

## Why the Cats are Fat

### **Arcelor-Mittal (Steel)**

85 installations in BE, CZ, FR, DE, IT, LU, PL, RO, ES.

This steel maker has been the largest single source of waste gas transfers under the ETS, and therefore deserves special mention for contributing to GHG cuts all over Europe. However, even accounting for these waste gas transfers, thanks to the volumes of allowances that ArcelorMittal was able to secure through National Allocation Plans, it was over-supplied by roughly 34-94% relative to its emissions for every year during 2009-2012.<sup>46</sup> The effects of this over-allocation were magnified by the company's sheer scale, allowing it to amass the greatest surplus of any single entity so far, estimated at approximately 148 Mt. The move to free allocation through best available technology (BAT) benchmarking and the introduction of the cross-sectoral correction factor have aggressively cut into ArcelorMittal's surplus already in 2013, ensuring that from now on the company would face negative yearly EUA balances. Nevertheless, due to its gargantuan surplus, the first year when ArcelorMittal would need to acquire EUAs from auctions would still only be 2024. Because other fatcats, specifically from the cement sector, will continue to enjoy positive yearly EUA balances for a long time, ArcelorMittal will probably lose its position as the fattest one of them all before the end of phase 3.

### **Lafarge (Cement)**

30 installations in AT, CZ, FR, DE, GR, HU, PL, RO, SI, ES, UK.

Although Lafarge was already in 2008 in the top three of surplus holders, its surplus started growing by leaps and bounds during the financial crisis, when its diminished production caused its emissions to collapse to around 14-15 Mt per year against free allocation volumes that had been inflexibly set to around 24 Mt. Offsets also contributed significantly to its surplus, with the already strongly over-allocated Lafarge surrendering around 12.5 Mt of credits in 2011 and 2012 it had no demonstrable need for. Phase 3 has acted as a break on the expansion of Lafarge's surplus (the yearly balance is estimate to be less than 5 Mt in 2013 against nearly 13 Mt the year before), but the new BAT benchmark still yields more than 30% over-allocation as of 2013, meaning that its surplus may continue rising until 2029. This makes it the company most likely to take the fatcat throne in the future, keeping it until well into 2040s – with only fellow cement maker Cemex able to rival its supremacy.

Its possible merger with Holcim would make the supremacy of the new company among Fatcats a given unless there is drastic rationalisation of spare capacity as a result.

### **Tata Group (Steel)**

21 installations in BE, FR, NL, UK.

Tata Steel's degree of over-allocation grew every year when its emissions started dropping off significantly from its fixed historical allocations from 2009. This was in spite of fairly significant waste gas transfers and investment into more efficient technologies at certain facilities. The new BAT benchmarks introduced in 2013 means that, without offsetting, the Tata group faces negative yearly EUA balances from now onwards, which would lead to an eventual exhaustion of its surplus.

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<sup>46</sup> These numbers are likely to be much higher. A peculiar rule on accounting for waste gas transfers implemented until 2012 in France alone used to automatically deduct waste gas transfers from free allocation before reporting the end result to the old CITL. As a result, over-allocation in France is under-estimated. If France were ignored, over-allocation for ArcelorMittal is 41-62% during 2005-2008 and 79-124% during 2009-2012.

**Holcim (Cement)**

25 installations in BE, BG, HR, CZ, FR, DE, HU, IT, RO, SK, ES.

Holcim was already in 2008 one of the Top 3 most over-allocated Fatcats, partly due to its early use of offsetting. Its fixed allocations in Phase 2 ensured that its surplus rose steadily when the company's emissions dropped in 2009 and never recovered. The new benchmarked allocation rules still yield more than 20% over-allocation as of 2013, although this should noticeably diminish as free allocation falls towards 2020.

Holcim has applied to the European Commission for a permission to merge with fellow cement-maker Lafarge. If successful, the merger would result in a new king of Fatcats whose surplus would in 2018 be of the same size as ArcelorMittal's, but, unlike ArcelorMittal's, would continue rising until the late 2020s. This new Mega-Fatcat would presumably not be short of allowances before the late 2040s.

**HeidelbergCement (Cement)**

41 installations in BE, CZ, EE, DE, HU, NO, PL, RO, SE.

HeidelbergCement has been the least over-allocated cement Fatcat of them all. Due to its activity lying in markets where there has been a smaller contraction of construction activities, the gap between emissions and free allocation does not yawn as wide as in the case of its peers from the cement sector, and the greatest uptick in its surplus was due to a massive surrender of offsets in 2012 – not persistent over-allocation. The relatively small scale of its surplus means that it is likely to be the first cement fatcat to have its surplus peak and be exhausted. A low degree of over-allocation in 2013 (circa 10%) suggests that relatively little gaming of partial cessation rules is taking place.

**Cemex (Cement)**

14 installations in HR, DE, PL, ES, UK.

Cemex was, other than Duferco, the most over-allocated Fatcat already in 2008 (circa 35%). As with all other cement makers, its fixed free allocations in Phase 2 steadily raised the company's surplus when emissions dropped in 2009, and copious offset use in 2012 made it again second only to Duferco in degree of over-allocation. Despite BAT benchmarking, its 2013 free allowances ensured that over-allocation still lay at more than 45%.

**Italcementi (Cement)**

30 installations in BE, BG, FR, GR, IT, ES.

Italcementi was in 2008 the least over-allocated among this year's crop of Fatcats. However, its production suffered greatly due to the collapse of the construction bubble in the Mediterranean countries during the economic crisis. Fixed free allocations meant its surplus increased steeply during Phase 2. Despite the introduction of BAT benchmarking, it was still nearly 30% over-allocated in 2013. This situation should however change from the 2014 compliance year onward, when adjustments to allocation volumes due to partial cessation and closure of installations will come to be reflected in the EUTL. This would mean that this company may lose its Fatcat status from the next year onward.

**The CEZ Group (Power)**

26 installations in BG, CZ, PL.

The Czech power producer has received generous allocations in phase 2, registering every year positive balances. Article 10a of the ETS Directive denies electricity producers free allocations, rendering a spurt of offset surrenders in 2012 understandable. The company now relies on its dwindling offset use entitlement and on allowances granted to it through Article 10c, as a transitional measure for the modernisation of electricity generation, to postpone for as long as possible the complete exhaustion of its surplus. It may be able to defer this situation if it had sold off its surplus in previous years and would buy now back new EUAs at lower prices, but still, with only a thin sliver of offset entitlement left and with 10c allocations set to progressively diminish until 2020, we expect the CEZ Group to be permanently short well before 2020.

**Termoelectrica (Power)**

12 installations in RO.

The situation of the Romanian electric utility mirrors that of CEZ closely, since it is likewise denied access to more than a thin trickle of free allowances under article 10c. The company grew fat during phase 2, when emissions were significantly below its allocation levels. As 10c allowances run out, the company will exhaust its surplus around the year 2020 – unless it is first liquidated by the Romanian government.

**Duferco Group (Steel)**

5 installations in BE, DK

Duferco is the most extreme example of how serious the shortcomings of fixed free allocation in Phase 2 were. In terms of the size of its surplus relative to its emissions, as of 2008 it was already the most over-allocated of our current Fatcats, having received around 48% more allowances than it needed. However, the Group's emissions fell by more than 90% and have stayed at that roughly the same level to this day. Because its allocation were practically frozen during 2008-2012, the persistent difference between the free allocation and the minuscule emissions fed this Fatcat's a surplus of around 3.7 Mt of EUAs per year. This went uncorrected until the new closure and partial cessation rules started being implemented in 2013. By capturing the ceased activities at Duferco's subsidiary Carsid, these new measures have led to the first ever downward adjustment of the Group's free allocation by an astonishing 91%.

The laxness of phase 2 rules has enabled the Group to amass one of the largest, if not the single largest, surplus relative to activity levels for any ETS company – one that makes it theoretically possible for Duferco to keep its emissions at 2013 levels until the 24<sup>th</sup> century before it would have to buy a single allowance.

## 6. The use of offsets

### Key findings

- Changes in the Commission's reporting of offset use, taking effect in 2013, have made it impossible for civil society to scrutinise installation level use of offsets, reducing transparency in an area of the policy that has seen controversy in the past.
- Data on aggregate values that remains available shows that, after the great rush in 2012 to surrender offsets that were going to be banned from Phase 3 onward, use contracted by 74% in the 2013 compliance year.
- Cumulative offset use rose to nearly 1.2 Gt<sup>47</sup> since 2008, and therefore ETS companies' remaining aggregate offset entitlement for existing installations is now reduced to 292 Mt. However, as CER prices are expected to be at least eleven times lower than EUAs to 2020, we expect this volume to be brought to market in full.
- Rather than acting as a price containment tool offsetting continues to provide an opportunity for companies to make money by swapping CERs for EUAs.
- The bans on the use of certain offset categories in the ETS have had a diversifying effect on the origin of offsets. However, 48% of all offsets handed over in 2013 still came from just 4% of projects originating in only 4 countries (China, India, Russia and Ukraine), with little benefits for Least Development Countries.

### Offset use is in decline

Regulatory changes that took effect at the beginning of phase 3 have acted strongly on limiting the access of certain kinds of offsets to the ETS. These regulations are:

- A ban on credits issued from CDM and JI projects on HFC-23 and nitrous oxide from adipic acid production.<sup>48</sup>
- A ban on ERUs from countries without pledges<sup>49</sup> for the second commitment period of the Kyoto Protocol generated after 31 December 2012 if they were not registered under Track 2 of the JI flexibility mechanism.<sup>50</sup>
- A ban on CERs from new CDM projects registered from 2013 onwards in non-LDCs.<sup>51</sup>

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<sup>47</sup> Gigatonne = 1 billion tonnes.

<sup>48</sup> Regulation 550/2011, Art. 1.

<sup>49</sup> Pledges are only proposed legally binding targets ("Quantified Emission Limitation and Reduction Objective" in UNFCCC jargon) and have therefore not been adopted by treaty. However, countries that refuse to join the second commitment period have not proposed any pledges.

<sup>50</sup> Regulation 389/2013, Art. 58 (2).

<sup>51</sup> Banned by omission in the revision of the ETS Directive through Directive 2009/29/EC.

Offsetting has been permitted under the ETS as a price containment mechanism allowing companies to find cheaper options to cut emissions outside the traded sector. A so-called “offset use entitlement” sets the maximum limit of external credits that any installation can be used between 2008 and 2020 that has now been substantially exhausted. As of phase 3, installations no longer surrender offsets, but instead swap them for EUAs in a central registry. This has reduced the transparency of the ETS data considerably.

2012 was the last year when a number of different offset categories could be surrendered for compliance ahead of a ban entering into force on their use. Companies’ desire to liquidate their stocks of credits that would soon be useless resulted in offset use higher than nearly the sum of all previous years put together, as shown in **Table 13**. After this unprecedented clearing out of offsets, 2013 displays an activity level that had diminished by nearly three quarters.

**Table 13: Historical offset use in the ETS**

Year		2008	2009	2010	2011	2012	2013	Total by credit type
<b>CER</b>		82.9	78.3	117.0	177.8	219.8	66.5	<b>742.3</b>
<b>ERU</b>	Track 1	0.0	2.3	15.9	70.9	279.4	66.2	<b>434.6</b>
	Track 2	0.0	0.9	4.2	4.9	3.0	0.2	<b>13.3</b>
<b>Total offset use</b>		<b>82.9</b>	<b>81.5</b>	<b>137.2</b>	<b>253.6</b>	<b>502.1</b>	<b>132.9<sup>52</sup></b>	<b>1,190.2</b>

*Source: EUTL and European Commission*

<sup>52</sup> The EUTL reports 14,636 credits of unknown type and origin in 2013. These have been ignored for the purpose of the discussion in this chapter.



## What are offsets and how are they used?

Offset credits that can be surrendered for compliance under the EU ETS are generated through two flexibility mechanisms set up by the Kyoto Protocol: the Clean Development Mechanism (CDM) and Joint Implementation (JI). The offsets they generate are called Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs), respectively, but they are both equivalent to one tonne of CO<sub>2</sub> equivalent (1 tCO<sub>2</sub>e) of emission cuts.

JI projects can be implemented in countries that have legally binding target to cut emissions under the Kyoto Protocol (so called Annex I countries, covering developed countries and transition countries). Similar to the EU ETS, under the Protocol countries receive allowances, called Assigned Amount Units (AAUs), that permit the release of GHGs into the atmosphere. Countries' emissions cannot exceed the volume of AAUs in their national accounts, but if their emissions are lower than this volume, then the freed up AAUs can be sold off. If a JI project achieves such emissions cuts, then the AAUs are converted in a 1:1 ratio to so-called Emission Reduction Units (ERUs). ERUs could be surrendered for compliance in phase 2 of the ETS, while in phase 3 they can be further converted, also in a 1:1 ration, to EUAs.

CDM projects can be implemented in countries that do not face legally binding target to cut emissions under the Kyoto Protocol (so-called Non-Annex I countries, covering emerging economies, developing countries and LDCs). Because these countries have no targets, they have no AAUs in their national accounts to track their emission cuts, so no conversion of credits can take place. This is why carbon credits from CDM projects, called Certified Emission Reductions (CERs) instead have to be created from scratch under consistent methodologies supervised by the CDM executive board.

Because it was judged that Annex I countries would be able to keep track on their own of the conversion of AAUs to ERUs, no CDM-like supervision is mandatory in the case of JI projects. ERUs issued in this manner are called Track 1 ERUs. However, the Joint Implementation Supervisory Committee (JISC) can be called upon to certify projects, yielding so-called Track 2 projects, which, due to the heightened monitoring, are deemed to have higher environmental integrity. Both kinds of ERUs have in the past been available in the past for compliance purposes in the ETS.

From an environmental point of view the most relevant feature of carbon credits is the "additionality" of the project that generated them. A project is deemed to be "additional" if the emissions cuts it lays claim to would not have occurred without being financed by the "additional" income stream resulting from selling off the credits the project yields. This counterfactual test is necessary in order to ensure that companies that buy credits are not buying a right to emit over their cap without any real abatement taking place elsewhere.

**Figure 22: Historical unit prices in the EU ETS (front-December futures contracts).**



Source: ICE

According to the EUTL, the total offset use entitlement for all current installations under the ETS is 1.48 Gt, and total offset use so far is 1.19 Gt, so we can expect 292 Mt worth of credits to be surrendered before 2020.

We are currently experiencing low prices for carbon credits (see **Figure 22**), and data from the Risø Pipeline of CDM/JI projects also suggests that 9.5 Gt of CERs<sup>53</sup> still remain to be generated before 2020. This makes the contraction of offset use to only around 133 Mt in 2013 a somewhat surprising finding, for which the following main explanations present themselves, which may be acting separately or together:

- **Companies are tactically restricting their offset use:** Given the introduction of new rules on free allocation, many installations are going to face shortages of EUAs in the future. Saving up their offset entitlement for a later occasion makes sense for installations that are only going to be short at some future point before 2020. It also makes sense for installations that do not face any shortage before 2020 to wait until a later point before they hand over CERs, because the longer they wait the more value they can capture from the spread between the CER and EUA price.
- **Companies reaching their offset limit early:** Since the EUTL no longer offers any company-level data, it is impossible to verify, but it is entirely possible that, in a rush to make up for upcoming shortfalls in yearly EUA balances that have been ushered in by the new allocation

<sup>53</sup> AAUs are only issued to national accounts for a given commitment period. Since the state of the international climate change negotiations is such that the second commitment period of the Kyoto Protocol has not been launched yet, no AAUs have been distributed to any country for any years from 2013 onward. Without underlying AAUs, no conversion into ERUs can take place, so the estimate for ERU generation until 2020 is zero.

rules of phase 3, ETS companies have used all the offsets they could before their entitlement ran out. The remaining entitlement may therefore lie with companies that continue to face non-negative yearly EUA balances all the way to 2020 and therefore may choose to use offsets tactically.

- **Low prices are deterring projects from selling:** The EU ETS was previously the main market for offsets and has already absorbed more than 50% of all the offsets ever generated (1.2 Gt from a worldwide total of 2.3 Gt). However, the available supply of CERs to ETS participants may be quite low currently, especially as spot prices in the EU ETS are now barely high enough to cover the commissioning fees for the verification of new credits. Credits therefore may be siphoned off by other buyers active in the global carbon credit market (EU governments acting on behalf of the non-traded sector, and non-EU Annex I countries facing difficulties in meeting Kyoto targets, e.g. Japan, etc.).

### Clean Development Mechanism (CDM)

As can be seen for the values for the year 2013 for the “Other” categories in **Table 14** and **Table 15**, the revision of the regulations on the kinds of offset that could be used in the ETS have had a diversifying effect on the CERs in terms of project types, while it also had a complex effect in terms of geographic distribution.

**Table 14: Impact of new regulations on the diversity by project types for CERs used by ETS companies (Mt)**

Year	2008	2009	2010	2011	2012	2013	Total	Share until 2012	Share in 2013
HFC	51.0	46.4	53.9	109.2	132.8	0.0	393.3	58%	0%
N <sub>2</sub> O from adipic acid	18.6	18.6	37.0	39.7	45.5	0.0	159.4	24%	0%
Hydro	0.9	2.3	5.1	10.8	16.4	25.6	61.0	5%	38%
Coal bed/mine methane	0.3	1.1	0.7	1.4	1.6	5.3	10.3	1%	8%
Wind	1.3	1.8	2.4	3.5	5.0	10.4	24.4	2%	16%
Energy efficiency (auto-producers)	5.4	2.9	3.1	3.0	6.5	6.5	27.4	3%	10%
Other	5.4	5.2	15.0	10.3	12.0	18.7	66.5	7%	28%
<b>Total by year</b>	<b>82.9</b>	<b>78.3</b>	<b>117.0</b>	<b>177.8</b>	<b>219.8</b>	<b>66.5</b>	<b>742.3</b>	-	-

Source: EUTL.

**Table 15: Impact of new regulations on geographical distribution of countries originating CERs (Mt)**

Country	2008	2009	2010	2011	2012	2013	Total	Share until 2012	Share in 2013
China	34.2	41.3	67.4	124.1	155.9	53.6	476.6	63%	81%
India	25.5	16.8	13.6	23.3	29.2	3.2	111.5	16%	5%
South Korea	12.8	11.0	20.7	15.9	19.7	1.4	81.5	12%	2%
Brazil	6.4	6.4	7.3	6.6	5.4	0.4	32.6	5%	1%
Mexico	2.1	0.6	1.1	3.0	3.6	0.6	11.1	2%	1%
Other	1.9	2.1	6.9	4.8	5.9	7.3	29.0	3%	11%
<b>Total</b>	<b>82.9</b>	<b>78.3</b>	<b>117.0</b>	<b>177.8</b>	<b>219.8</b>	<b>66.5</b>	<b>742.3</b>	-	-

Source: EUTL

Project types such as hydro power, coal bed/mine methane, wind power, and energy efficiency for auto-producers of electricity are fast stepping in to fill the void left over by the two project types that have been banned from the ETS.

The strong geographical slant towards China became even more pronounced in 2013, delivering 81% of all CERs handed over in 2013. Thus, as can be seen from **Table 16**, most of the growth the volumes of CERs surrendered stem from a very narrow range of projects based in China.

**Table 16: CER volumes issued by the most high-yield project types in China**

Project sub-type	New projects (Mt) <sup>54</sup>	Ramped up projects (Mt) <sup>55</sup>	Total	Number of projects
Coal mine methane	0.5	4.8	5.2	19
Landfill power	0.0	0.6	0.7	7
Nitric acid	0.2	1.1	1.3	10
New dam hydro plant	4.4	7.4	11.8	73
New natural gas plant	-	2.6	2.6	5
Run of river hydro plant	4.6	5.4	10.0	147
Wind	4.6	2.9	7.5	114
<b>Total</b>	<b>14.2</b>	<b>24.9</b>	<b>39.1</b>	<b>375</b>

Source: EUTL.

However, despite the increasing concentration of Chinese CERs, the elimination of industrial gas credits has meant that companies had to look further afield to find CERs. Of the 36 originating countries for 2013, 24 delivered more CERs than in 2012, 16 of which delivered more than the entire 2008-2012 period, and 4 of which had never actually yielded CERs for use in the EU. The respective volumes are of course still dwarfed by the top 5 countries from **Table 15**, but it is clear that the geographic range increased.

<sup>54</sup> Projects that may have been in existence and issuing CERs to entities other than ETS companies before (e.g. governments, etc.), but delivered CERs for the first time for compliance purposes in 2013.

<sup>55</sup> Projects that delivered in 2013 more than 50% more CERs to the EU ETS than in 2012.

Unfortunately, despite explicit mention of this in the text of the ETS directive, the scheme cannot yet demonstrate it has acted as a promoter of sustainable development in Least Developed Countries. So-far less than 57,000 tonnes of CERs from two LDCs (Cambodia and Nepal) were surrendered in the ETS since 2008. This figure representing 0.005% of all offsets surrendered so far.

### Joint Implementation (JI)

The impact of the changing rules was dramatic also in the case of credits originating in developed countries, in particular Track 1 JI,<sup>56</sup> but in much more confusing manner. The ban on ERUs from countries without pledges for the second commitment period of the Kyoto Protocol has slashed volumes from Russia and Ukraine in terms of absolute volumes. However, the ban is imperfect: credits from these countries, as long as they were issued before the end of 2012, can still be surrendered until the 2014 compliance year. Therefore, as can be seen in **Table 17**, the concentration of the origin of ERUs in Ukraine has actually increased in 2013.

**Table 17: Geographical origin of ERUs surrendered in the ETS**

Country	2008	2009	2010	2011	2012	2013	Total	Share until 2012	Share in 2013
Ukraine	0.0	1.5	7.9	29.9	166.8	46.7	252.8	56%	71%
Russia	0.0	0.0	3.1	29.2	97.1	17.0	146.4	35%	26%
Poland	0.0	0.0	1.7	5.1	4.0	1.3	12.1	3%	2%
Germany	0.0	0.5	1.2	2.7	6.7	0.3	11.4	3%	0%
France	0.0	0.2	1.2	1.9	2.5	0.3	6.1	2%	0%
Others	0.0	0.1	0.7	2.0	2.3	0.6	5.8	1%	1%
<b>Total</b>	<b>0.0</b>	<b>2.3</b>	<b>15.9</b>	<b>70.9</b>	<b>279.4</b>	<b>66.2</b>	<b>434.6</b>	-	-

Source: EUTL

The ban on the two kinds of industrial gases already mentioned above has had an impact on the volumes of ERUs that can enter the ETS but not as obviously as in the case of CERs.

**Table 18: Origin of ERUs surrendered in ETS by project type**

Project type	'08	'09	'10	'11	'12	'13	Total	Share until '12	Share in '13
Spontaneous ignition of coal piles	0.0	0.0	0.0	0.2	82.3	28.3	110.8	22%	43%
Gas network	0.0	0.0	1.1	4.2	37.1	6.9	49.2	11%	10%
Iron & steel	0.0	0.3	1.8	10.0	28.3	8.4	48.8	11%	13%
HFC23	0.0	0.0	2.8	17.2	20.0	0.0	40.0	11%	0%
Oil field flaring	0.0	0.0	0.3	1.1	34.2	1.8	37.4	10%	3%
Nitric acid	0.0	0.0	1.7	6.8	6.1	1.6	16.2	4%	2%
Adipic acid	0.0	0.7	2.4	3.3	7.9	0.0	14.2	4%	0%
PFCs	0.0	0.0	0.0	0.6	11.0	1.0	12.6	3%	1%
Efficient electricity distribution	0.0	0.0	0.0	4.9	4.8	2.4	12.1	3%	4%
SF6	0.0	0.0	0.0	7.4	3.4	0.6	11.4	3%	1%
Other	0.0	1.3	5.8	15.3	44.4	15.3	82.2	18%	23%
<b>Total</b>	<b>0.0</b>	<b>2.3</b>	<b>15.9</b>	<b>70.9</b>	<b>279.4</b>	<b>66.2</b>	<b>434.6</b>	-	-

<sup>56</sup> Track 2 JI projects' contribution to offsetting has been minute, and therefore this type of offsets will be ignored in the analysis below.

The seal that the new restrictions on offset use have put on ERUs is much tighter than in the case of CERs. This is because now, in order for ERUs to still be delivered to the ETS, the JI projects generating them now need to be reviewed by the JI Supervisory Committee under Track 2 of the flexibility mechanism. This is a much more laborious process, which would also serve to prevent the kind of greenwashing that the JI mechanism had been accused of in the past under Track 1.<sup>57</sup>

Whatever new ERUs could be generated would have to come from a limited pool of JI projects that had been implemented before 2012. Furthermore, there would be an immense burden of proof on the projects in question to show that the ERUs they might wish to have issued are backed by emission cuts that took place before the end of 2012. Finally, because no AAUs have been distributed to Annex I countries for the post-2012 period, old projects can no longer generate new ERUs, and there is also no further incentive to set up new projects.

There seems to be little scope for the issuance of new ERUs. Contrasting EUTL data on total ERU consumption in the ETS with the volume of worldwide ERU generation so far from the Risø Pipeline (circa 849 Mt), we obtain a difference of about 400 Mt – a figure that will necessarily diminish significantly once ERU use by other actors (EU MS under the ESD and other Annex I Parties) has been accounted for after the true-up period of the Kyoto Protocol. This means that, compared to the large volumes of CERs still available, ERUs are likely to play a diminishing role in the ETS between now and 2020.

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<sup>57</sup> Because under Track 1 governments who would derive financial gains from converting AAUs from their own national accounts into ERUs, criticisms were levied by civil society against a number of governments of economies in transition. These governments, due to the collapse of their planned economies in the 1990s experienced a similar collapse of emissions, yielding high volumes of spare AAUs. With verification entirely in the hands of cash-strapped governments, concerns were raised that they were incentivized to convert their AAU surpluses, dubbed “hot air”, into ERUs of questionable additionally, which would therefore breach the cap of the EU ETS.

## 7. Changes to the EU ETS currently under discussion

### Key findings

- The proposal to increase the trajectory of the EU ETS to a 2.2% Linear Reduction Factor under a 40% greenhouse gas target in 2030 will only bring limited additional scarcity to the market. It will only reduce supply by 556 million allowances across 2021-2030 compared with the current trajectory.
- Most market participants do not take the long-term supply of ETS allowances into account when setting the carbon price. A temporary glut of allowances can therefore make the ETS cap unnecessarily expensive to meet over the longer term.
- A Market Stability Reserve is a more sustainable solution to oversupply than the backloading decision. It permanently removes much of the volatility from the market by predictably removing allowances from auction when the surplus is high and returning them to auction if the supply ever becomes low.
- The Commission's proposed Market Stability Reserve does not start until 2021, allowing the market to be flooded with backloaded and other unused allowances before it takes effect. This will prevent supply from reaching the desired range (400-833 million) until at least 2027.
- Taken together the current Commission proposals to change the trajectory of the cap and introduce a Market Stability Reserve do not restore scarcity to the ETS rapidly enough to avoid stranded assets or to bring forward the investment needed to maintain a cost-effective decarbonisation trajectory.

### Introduction

In January 2014, the Commission published its Communiqué on the 2030 Energy and Climate Framework, which proposed that the trajectory of the ETS cap should be steepened to deliver its share of a 40% greenhouse gas target in 2030. At the same time it initiated a concrete legislative proposal for a new feature: a Market Stability Reserve (MSR) that would permanently regulate the supply of the allowances in the EU ETS. Below we explore whether these two proposals are sufficient to address the oversupply issues we identified in Chapter 2 of this report (page 14).

### Changing the trajectory of the cap after 2020

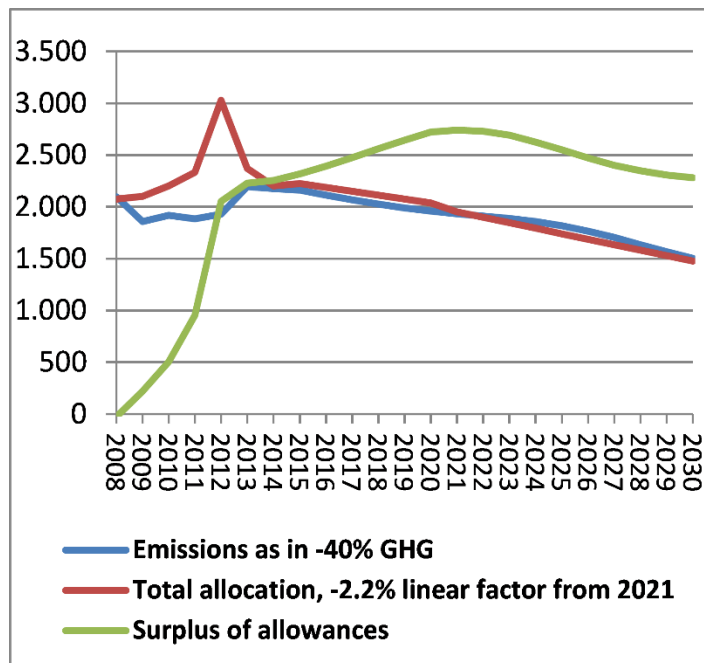
In the 2030 White Paper the Commission has proposed increasing the Linear Reduction Factor from 1.74% each year to 2.2% a year relative to the Phase 2 cap. This trajectory is designed to reduce emissions in the traded sector by 43% relative to 2005 levels as its contribution to a 40% cut in economy-wide emissions relative to 1990 levels. As we demonstrate in **Table 19**, this, by itself will do little to address the surpluses in the scheme, as it will only reduce the supply of allowances by 556Mt.

**Table 19: Changes in supply created by a 2.2% linear reduction factor (2021-2020) assumes that the scope of the ETS for stationary sectors remains the same after 2020.**

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Sum
1.74% trajectory	1,778	1,740	1,702	1,663	1,625	1,587	1,549	1,510	1,472	1,434	16,060
2.2% trajectory	1,768	1,720	1,671	1,623	1,575	1,526	1,478	1,429	1,381	1,333	15,504
Difference	10	20	30	40	51	61	71	81	91	101	556

Under a 2.2% trajectory, the European Commission sees ETS surpluses of around 2.3 billion in 2030. Against Sandbag’s “Current Policies” forecast, this reduction in supply could still see the surplus reach 7 billion by 2030. In other words, a new trajectory under a 40% target will not, by itself, deliver sufficient scarcity to restore the ETS as a key policy driver.

**Figure 23: The Commission’s Scenario assuming 40% GHG.<sup>58</sup>**



### Implementing a market stability reserve from 2021

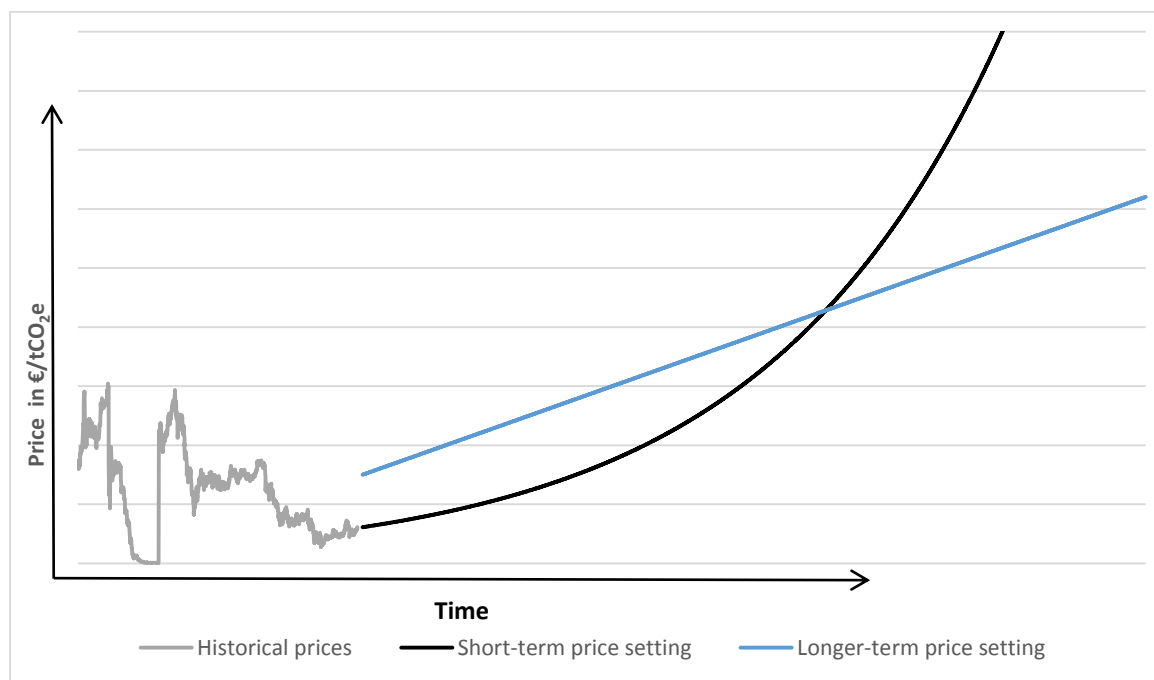
The backloading decision in 2013 was an emergency measure to tackle the problem of a short-term surplus that is causing massive discounting of the carbon price even though over time caps will tighten. The Market Stability Reserve is supposed to represent a permanent and sustainable solution to the same problem. In an oversupplied market, short-term price setting by market participants undervalues EUAs, leading to an increase in the use of coal, underinvestment in efficiency and low-carbon technology. This creates a “carbon lock-in” that will make the costs of carbon unnecessarily high later on when the supply becomes tight and fewer affordable mitigation options remain available. As we illustrate in

<sup>58</sup> Staff Working Document Impact Assessment on the 2030 climate and energy package. (January 2014) *European Commission*. Figure 4, p.104 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0015&from=EN>



**Figure 24**, this could see the carbon price spiralling upwards as the market scrambles to find abatement at short notice later on. This imposes unnecessary costs on companies covered by the scheme and will also place unnecessary political stress on the ETS cap if these costs become socially unpalatable. By contrast, if the market was taking better account of the longer term scarcity in the cap, we should see higher prices now which rise incrementally over time.

**Figure 24: Illustration of carbon price development under a short-term vs. long-term view of supply<sup>59</sup>**



To correct for this endemic short-termism and make the market less sensitive to short term gluts and bottlenecks in supply, the Commission has proposed legislation for a Market Stability Reserve (MSR) that will automatically regulate the supply of allowances available to the market. In the context of the current oversupply, it can be interpreted as borrowing scarcity from the future to bring it within the short investment horizons of real-world market participants.

The MSR represents a different and superior intervention to the backloading decision in several important respects. First, backloading was a one-off measure which did not provide a sustainable solution to the discounting problem. Second, it altered auction volumes by a fixed volume to a fixed schedule, effectively prejudging what the balance of supply and demand would be: by underestimating the fall in emissions in Phase 3, the backload has only provided a weak lift in the carbon price, and by underestimating the fall in emissions in Phase 4, it will allow the price to crash in 2020. Third, by returning allowances to the market more abruptly than it removes them it exacerbates this price crash. By contrast, the Market Stability Reserve represents a permanent feature of the market, which adjusts auction volumes by a variable rate and a variable schedule to steer supply towards a pre-determined range, and which returns allowances at a more gradual rate than it removes them.

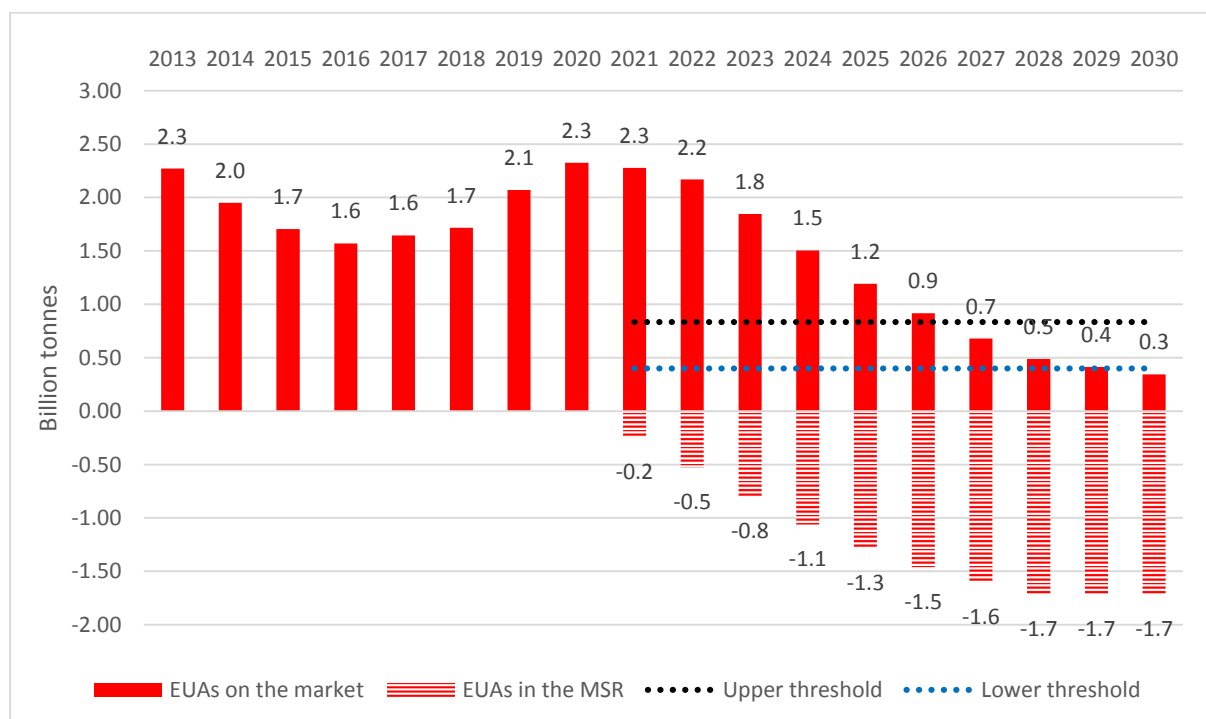
<sup>59</sup> Chart concept from Pedro Piris-Cabezas and Ruben Lubowski, at the Environmental Defense Fund

In specific terms, the MSR works by removing allowances from auction when the surplus is unusually high and returning them to auction if the surplus ever gets dangerously low. If the surplus rises above 833 million at the end of a particular year, allowances equivalent to 12% of the surplus will be withdrawn from auction and placed into the reserve two years later. Inversely, if the surplus drops below 400 million, 100 million allowances will be returned to the market via auction two years later. The Commission bases these triggers on the estimated level of spare allowances required by the power sector to cover the future sale of electricity to its customers, known as forward hedging.

The Market Stability Reserve will also return 100 million allowances to the market in the event of an abrupt spike in the carbon price.<sup>60</sup> Finally, the legislative proposal contains an additional provision to ensure the orderly functioning of the market. If the volume of allowances to be auctioned in 2020 is particularly high, the legislative proposal also includes a provision to push back some of those allowances into auctions in 2021 and 2022.

Here in **Figure 25**, we chart how the Commission’s legislative proposal will affect the supply of allowances over 2013-2020 when compared against the Commission’s assumptions for emissions, allowances and offsets in a Reference Scenario with no policy change. Note in particular, the **“rollercoaster effect”** produced by delaying the start of the Market Stability reserve until 2021. The surplus drops down as a result of the backloading proposal, but is allowed to climb back up to 2.3 billion in 2020 before the MSR can begin to tame it, and then only slowly. **It would take until at least 2027 to bring surpluses within the target 400m-833m range.**

**Figure 25: The Commission’s MSR proposal compared against the Reference Scenario**



Note that we have said “at least”. In practice we can expect that surpluses would stay larger for longer than we have depicted here. This is because the emissions scenario from the Commission remains static in this model. In practice, there would be dynamic feedback loops. We would expect

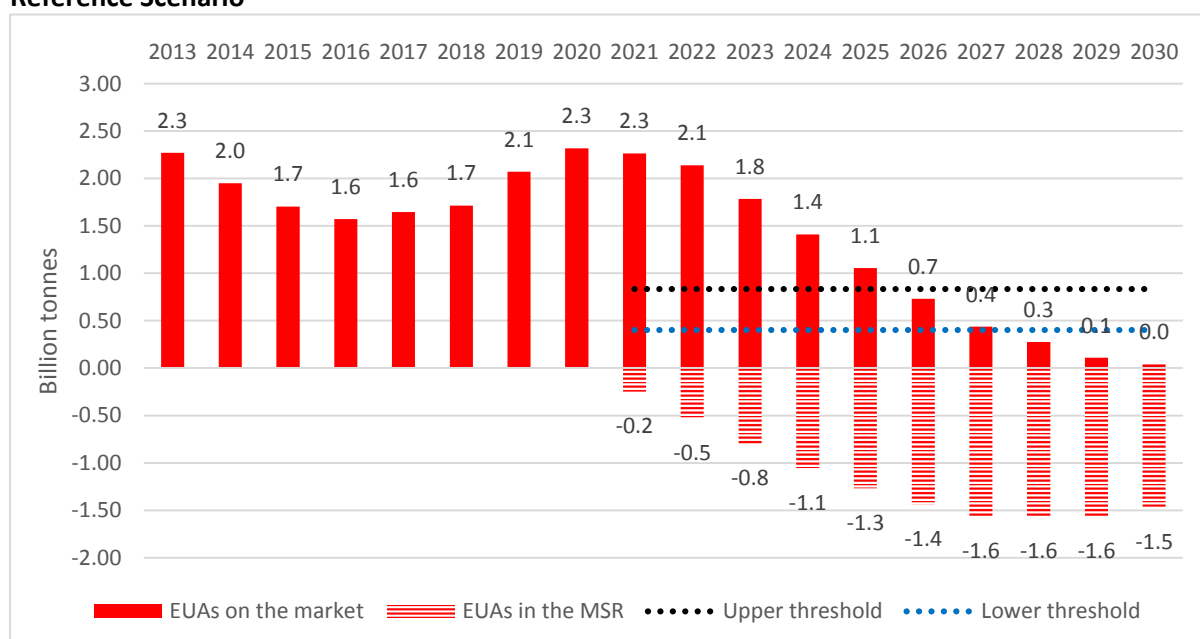
<sup>60</sup> As defined in Article 29a of the ETS Directive, i.e. if the average price in the last six months is three times higher than the average price in the last two years.

emissions to be affected by the implementation of a Market Stability Reserve because the reductions in supply would increase the carbon price. This in turn would increase the surpluses that the Market Stability Reserve would then tackle.

### A stronger trajectory and an MSR together

Even if we combine the Market Stability Reserve with the new trajectory the Commission has proposed for the ETS after 2020 (2.2% LRF), we find these measures taken together are still insufficiently robust to bring scarcity to the market in a meaningful time-frame. Surpluses would only fall into the 400-833million range by 2026 at the earliest. Again, we note that emissions are expected to fall as supply tightens, delaying when supply reaches the target range. This will also prevent supply dropping below the thresholds in 2028 as we see depicted here.

**Figure 26: The Commission’s MSR proposal with a 2.2% LRF compared against emissions in the Reference Scenario**



**In summary, the Commission’s current proposals to increase the ambition of the cap after 2020 and to introduce a Market Stability Reserve will fail to restore scarcity to the ETS to make it relevant in a meaningful timeframe. This will lead to stranded assets and impose unnecessary costs on the way to Europe’s 2050 climate objective. In our recommendations, we will explore how the Market Stability Reserve might be improved and the level of the cap changed to better protect the “orderly functioning” of the carbon market and to ensure that Europe affordably delivers its long-term emissions reductions goals whilst protecting competitiveness.**

## 8. Sandbag's recommendations for further reform

### Summary

In light of our research, we present three recommendations to ensure the EU ETS helps deliver cost-effective emissions reductions within a fair and ambitious climate framework. These three recommendations fall under three headings:

- **Improve the orderly functioning of the market**

Recommendation 1: Introduce a robust market stability reserve as soon as possible and avoid flooding the market before it can start to take effect.

- **Protect the competitiveness of European industry**

Recommendation 2: Improve the free allocation rules to make them more responsive to changes in output to ensure the most carbon efficient performers in each sector face a comparative advantage over their dirtier rivals.

- **Increase EU climate ambition**

Recommendation 3: Keep the ETS within the cost-effective pathway described in the 2050 Low Carbon Roadmap by cancelling 1.4 billion allowances from the Phase 3 cap (backloaded and unused allowances) and by re-calculating the post-2020 trajectory to save a further 1.2 billion allowances over the following decade.

### Improving the orderly functioning of the market

#### Recommendation 1: introduce a strong and effective market stability reserve

The Commission's Market Stability Reserve as proposed does too little too late to achieve a price signal consistent with cost-effectively reaching Europe's long term commitments, even if these are conservatively defined as reaching the 1.74% trajectory of the cap over the longer term.

While it is imperative that a Market Stability Reserve should be adopted, it is equally important that it should be improved. We have three main recommendations for improving the design of the MSR:

- Redirect unused and backloaded allowances to the Market Stability Reserve
- Activate the MSR as early as possible
- Introduce graduated supply adjustments which are bigger when supply is very large or very small

#### Recommendation 1A: Redirect unused and backloaded allowances to the Market Stability Reserve

An avalanche of auctioned allowances are due to enter the market at the end of Phase 3. This does not only consist of the backloaded allowances returning to market (300 million in 2019 and 600

million in 2020), but is also likely to include large volumes of other unused allowances that will be released at auction in 2020.

These include any unused allowances from the New Entrant's Reserve, which still contains 424 million allowances as of July 2014<sup>61</sup>. There are also a further 391 million allowances under the Phase 3 cap that remain unaccounted for in the published free allocations and scheduled auctions<sup>62</sup>, which we assume to mostly consist of free allowances suspended from installations that have partially ceased their activities, undergone significant capacity reductions, or have closed. **Indicatively, then we could see as many as 1.7 billion allowances flooding an oversupplied market in 2019 and 2020, immediately before the Market Stability Reserve is supposed to commence.**

Currently, the Commission's proposal does little to stop these allowances from returning to market: it only attempts to smooth out the manner in which they re-enter the EU ETS by spreading any surge in auctions in 2020 across three years: 2020, 2021 and 2022<sup>63</sup>. Instead, we recommend that these returning allowances should be redirected straight into to the Market Stability Reserve or even cancelled altogether (as we shall argue in Recommendation 3). Conservatively we assume this measure will remove 1.4 billion allowances from circulation, assuming some new entrants and some resumption of activities in installations that reported a partial cessation of activities this year.

#### **Recommendation 1B: Activate the MSR as early as possible**

As observed above, an unnecessary delay in introducing the Market Stability Reserve will allow the surpluses in the scheme to grow by 2020, aggravating the low prices we are already experiencing and storing up higher abatement costs for the future.

The 2021 start date proposed by the Commission was a political choice rather than a technical one, made in consideration of the European Parliament's insistence during the negotiations on the backloading decision that no further alteration to the auction calendar be made during Phase 3. We note, however, that backloading decision was agreed on the understanding that deeper structural reforms to the EU ETS would follow.

**If the Parliament and the Council are persuaded that the orderly functioning of the market is better served by earlier implementation of the Market Stability Reserve, there is no technical or legislative barrier to launching the reserve by 2017.**

Note that, to preserve a reasonable review period for the Market Stability Reserve, an early start should also bring forward the proposed review date. We recommend bringing this forward to 2021.

#### **Recommendation 1C: Make the supply adjustments more aggressive when supply is high or very low**

Given the scale of surpluses we expect under our Reference Scenario, the Commission's proposal to remove 12% of the surplus when the market is oversupplied risks taking unnecessarily long to get the supply down within the proposed 400-833 Mt range.

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<sup>61</sup> [http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/status\\_table\\_ner\\_cessation\\_2013\\_en.pdf](http://ec.europa.eu/clima/policies/ets/cap/allocation/docs/status_table_ner_cessation_2013_en.pdf)

<sup>62</sup> EU Transaction Log, European Environment Agency ETS Data Viewer

<sup>63</sup> Around 421 million allowances will be withdrawn from the auctioning schedule in 2020 and released back in equal halves in 2021 and 2022.

In the longer term, there is also a danger that returning 100 million allowances when the surplus is below 400Mt might not be sufficiently rapid to maintain sufficient liquidity on the market for the purposes of forward hedging (an issue we will revisit shortly).

More sensitive adjustments are required which can make larger adjustments when supply is extremely high or extremely low but gentler changes as the supply of allowances nears the target 400Mt-800Mt range. We can achieve this by changing the supply adjustments in the following way:

**When the supply exceeds the upper 833 million threshold, instead of removing a volume equivalent to 12% of the surplus, the Market Stability Reserve should remove a third of the difference between the surplus and the 833 million threshold. Inversely, when supply is below 400 million, rather than adding 100 million allowances to the market, the Market Stability Reserve should add a third of the difference between the surplus and the 400 million threshold.**

In **Table 20** we compare our proposed adjustments against those in the Commission proposal under a range of different supply conditions. We see that our proposal makes larger adjustments than the Commission proposal when surplus is above 1.3 billion or below 100 million but makes smaller interventions when supply is between those levels.

**Table 20: Comparison of Sandbag vs. Commission Market Stability Reserve removal rate**

Surplus (total allowances in circulation)	Adjustment proposed by Commission (12% or 100Mt)	Adjustment proposed by Sandbag (33% of difference)
4,000,000,000	-480,000,000	-1,045,110,000
3,500,000,000	420,000,000	-880,110,000
3,000,000,000	-360,000,000	-715,110,000
2,500,000,000	-300,000,000	-550,110,000
2,000,000,000	-240,000,000	-385,110,000
1,750,000,000	-210,000,000	-302,610,000
1,500,000,000	-180,000,000	-220,110,000
1,300,000,000	-156,000,000	-154,110,000
1,200,000,000	-144,000,000	-121,110,000
1,100,000,000	-132,000,000	-88,110,000
1,000,000,000	-120,000,000	-55,110,000
900,000,000	-108,000,000	-22,110,000
833,000,003	-99,960,000	-1
833 million to 400 million	0	0
399,999,997	+100,000,000	+1
300,000,000	+100,000,000	+33,000,000
200,000,000	+100,000,000	+66,000,000
100,000,000	+100,000,000	+99,000,000
0	+100,000,000	+132,000,000

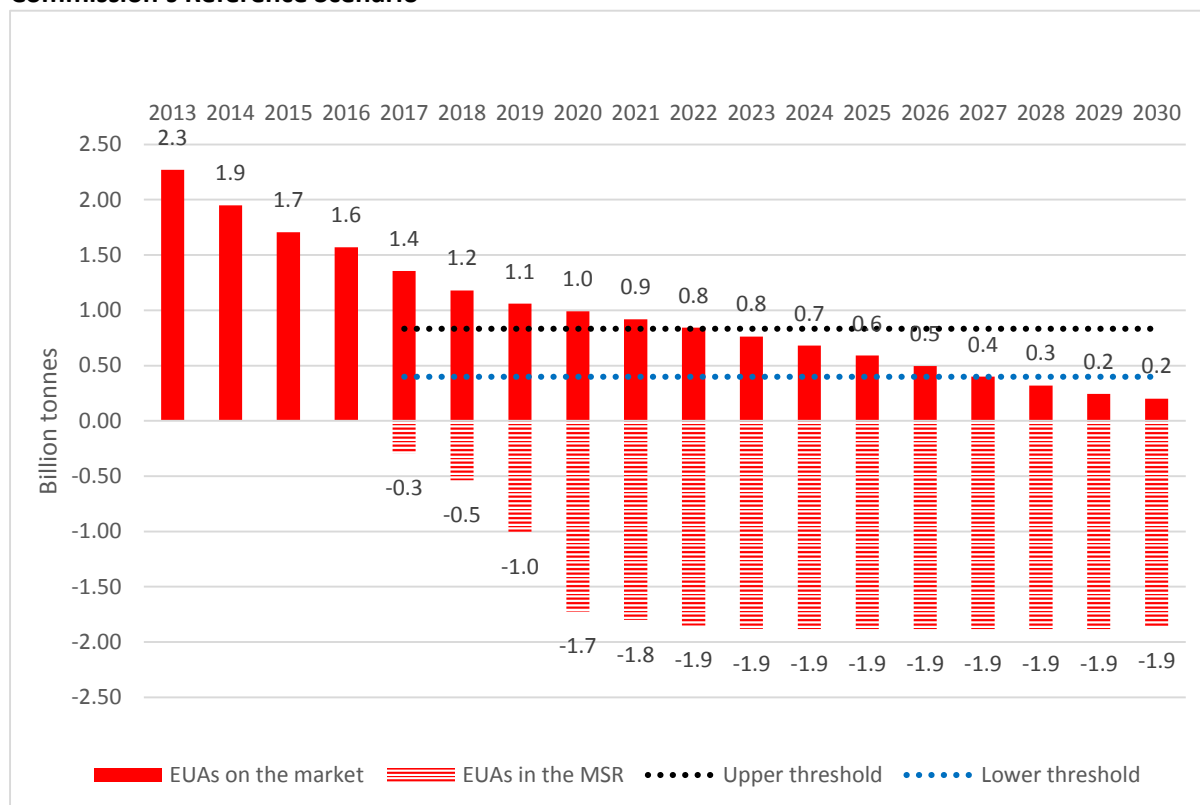
*We have highlighted (in blue) where the attenuating Sandbag adjustment would be smaller than under the Commission proposal*

**By attenuating our adjustments down to zero as the surplus approaches the supply triggers, we substantially decrease the risk of setting the supply triggers at the wrong level. If the supply**

triggers proposed by the Commission (400-833Mt) prove to be wrong, their less graduated supply adjustments pose a greater risk of adding allowances to the market when they are not required, or taking them from the market when they are needed.

In the chart below, we compare how these proposals taken together, would affect the supply of allowances in circulation.

**Figure 27: Surplus EUAs under the combined Sandbag MSR proposals, compared against the Commission’s Reference Scenario**



The Sandbag MSR package creates a smoother supply curve compared with the Commission’s proposal rather than a “rollercoaster effect” of surpluses growing substantially before they are tackled. This in turn is likely to achieve a more stable and predictable price, which more rapidly delivers an investment signal in keeping with the cost-effective achievement of the ETS cap.

## Protecting the competitiveness of EU industry

### Recommendation 2: Provide more targeted protections against carbon leakage

#### Making free allocation more responsive to changes in output

Allocation to sectors and installations has changed significantly since 2013, substantially removing the over-allocation that dogged the scheme in Phase 2. However, these changes are still not sufficiently responsive to changes in production in the manufacturing sectors. The result is that some sectors continue to amass considerable surpluses (e.g. cement), while others face steep drops in allocations with no incentive to invest in increased production, even in the most efficient companies.

One of the most crucial reforms needed for the rules governing free allocation in the future is therefore to make them more dynamic and more responsive to changes in production. At present the scheme allows output to drop by half before access to free allowances is diminished, leading to sustained over-allocation for sectors that have experienced a significant declines in output compared with historical baselines, and also providing perverse incentives to artificially maintain production above partial cessation thresholds. The current scheme also makes no provision for free allocation to increase if production grows significantly from the levels experienced during the baseline period. Only new entrants and significant capacity expansions are allowed to access additional allowances. This is potentially very disadvantageous for facilities which were underutilised during the baseline period, but have since seen growth in output.

**To this end Sandbag supports the introduction of a fully ex post system for assigning free allowances from 2021, or, if that is considered too politically or technically difficult, an expansion of the activity-based ex post adjustments in the current rules.**

Some have expressed concern that a system of assigning allowances based on exact production levels would place excessive technical and administrative burdens on operators, Member States and the Commission. If technical or political barriers to a fully ex post system are considered insurmountable, very significant advances could be made by adapting and extending current provisions for adjusting free allocation ex post based on activity levels, for example by:

- Refining the thresholds defining a partial cessation of activities;
- Awarding additional free allowances to installations which increase their output;
- Removing the artificial ceiling on free allowances to manufacturing sectors.

#### [Refining the thresholds defining a partial cessation of activities](#)

As noted above, partial cessation rules currently oblige operators to report if their production falls by 50%, 75% or 90% from historic activity levels. Simply narrowing the thresholds to 10% intervals would make free allocation significantly more responsive to changes in production.

If access to free allowance to each sub-installation dropped by 10% for each 10% decline in output reported against historical baselines, this would significantly reduce the risk of over-allocation. Similarly, this would diminish the incentives for artificially boosting production in under-utilised facilities: while there would be more output thresholds for manufacturers to attempt to nudge production over, there would also be significantly less incentive for them to do so, as far fewer allowances would be gained by passing the threshold.

#### [Award additional free allowances to installations which increase their output](#)

The most significant departure from existing rules we propose is that existing installations can access additional free allowances if their output *increases* above historic activity levels. In the same we that we recommend free allocation should diminish by 10% every time output declines by 10% against historic activity levels, we also propose that free allocation should increase by 10% whenever output *climbs* 10% above baseline levels. Note that this accounts for production changes within existing installations at current capacity levels. Significant capacity extensions and new entrants could still be handled separately under the New Entrants Reserve.

#### [No artificial ceiling on free allowances](#)



We see no reason that a ceiling should be placed on the volume of free allowances available to manufacturing sectors apart from the ETS cap itself. The current ceiling risks imposing a fairly arbitrary limit on the carbon leakage protections European manufacturers should expect, particularly, as we have seen in recent years, the great speed with which the power sector is capable of decarbonising. This has been mainly thanks to supplementary policies such as renewables targets, which offer strong incentives to power companies but do little or nothing to decarbonise industrial sectors. The current ‘cross-sectoral correction factor’, which reduces allocation to benchmarked sectors receiving free allowances, is a poorly targeted way of addressing industrial surpluses that are accruing for other reasons.

If our other recommendations were implemented, we advise that the correction factor should be changed to enforce the *total annual supply* of allowances rather than imposing an artificial limit on free allowances to manufacturers. Only when benchmarked free allowances exceed the annual supply, as dictated by the cap and adjusted by the Market Stability Reserve, would a uniform cross sectoral correction factor be applied.<sup>64</sup>

This would ensure that in years of low industrial output fewer allowances will be awarded for free and more allowances auctioned, and also that the opposite happen in years of high industrial output. Any loss of auction revenue to Member States during years of high industrial output/reduced auction volumes would presumably be compensated for by higher GDP and growth in standard tax receipts.

#### Key benefits of making free allocation more responsive to production

##### Putting carbon-efficiency benchmarks front and centre

An allocation system that is more responsive to changes in production puts the carbon efficiency benchmarks centre-stage, determining winners and losers in each sector under the ETS on the basis of efficiency rather than drops in production, and rewards clean manufacturers for increasing their output. This would foster an environment which attracted green industry to Europe instead of incentivising the offshoring of production.

##### Reducing the role of the carbon leakage list

We also suspect policymakers will be less fearful of weaning sectors off the carbon leakage list if they can see a way for them to grow their output without being penalised, e.g. through adopting best available technologies.

At present, many sectors are being awarded 100% of their benchmarked free allowances despite facing negligible or limited exposure to carbon leakage under the current carbon price. On the other hand, where a genuine risk *does* exist, even this high allocation is unlikely to provide proper protection even for the most carbon efficient firms, if the cross-sectoral correction factor started to bite and/or production grew relative to baseline levels. The leakage list is a poor substitute for protecting against any competitive distortions arising from the cap, but currently it is the only thing beyond the unduly accumulated surpluses that companies can rely upon.

##### Improving MRV on production

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<sup>64</sup> In terms of the auction calendar, this would only be determined after the adjustment from the Market Stability Reserve had been applied, and the

Finally, the system proposed above would require that the Commission gain a better handle on production data through a more harmonised monitoring and reporting thereof in ETS installations across Europe. This is required in any case to properly enforce the *existing* partial cessation rules. At present there is little incentive for operators to report partial cessation, and little incentive for Member States to monitor and enforce it. Many operators could therefore be retaining allowances that should have, by rights, been returned.

## Increasing EU climate ambition

### Recommendation 3: Tighten the ETS cap to make it fit for purpose

In the debate over the Market Stability Reserve, it should not be forgotten that the oversupply currently seen in the market is essentially a product of Europe overachieving emissions reductions against a weak Greenhouse Gas Target and a weak ETS cap.

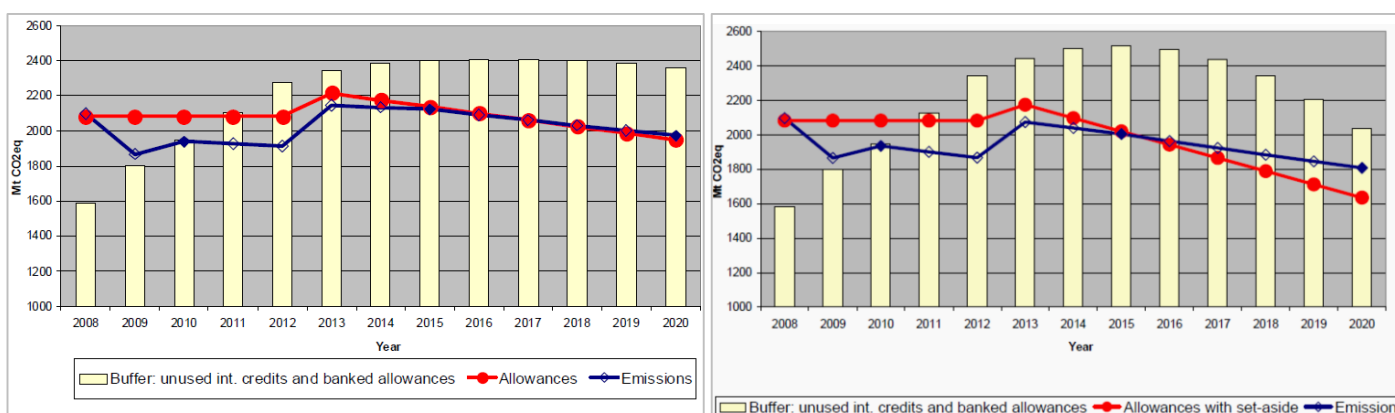
**While we recognise that a robust Market Stability Reserve is an important innovation to ensure the cost-effective delivery of the ETS cap, this will not ensure that the cap itself is set at the appropriate level to deliver Europe’s climate goals in a cost-effective manner.**

In 2009, the European Commission agreed a long-term climate objective to cut its emissions 80-95% below 1990 levels by 2050. On the basis of that objective, the Commission prepared a Low Carbon Roadmap to cost-effectively achieve that goal. The calculations revealed that *domestic* emissions would need to be 25% below 1990 levels by 2020 in order to achieve this.

**If we take the Low Carbon Roadmap on its own terms, both the current trajectory of the ETS cap and the new trajectory proposed in the 2030 White Paper are incompatible with the cost-effective delivery of the 2050 “climate objective”.**

In its Communication on “Options for Moving Beyond 20%”, the Commission indicated that a -25% domestic target for Europe could be achieved by cutting Phase 3 auction volumes by 1.4 billion. It is clear from the charts in the Staff Working Document accompanying the paper that to achieve this target it envisaged auctioned allowances being removed in a neat “wedge” over the course of Phase 3, as illustrated below:

**Figure 28: Commission’s proposal for a “set aside” of 1.4 billion allowances.**

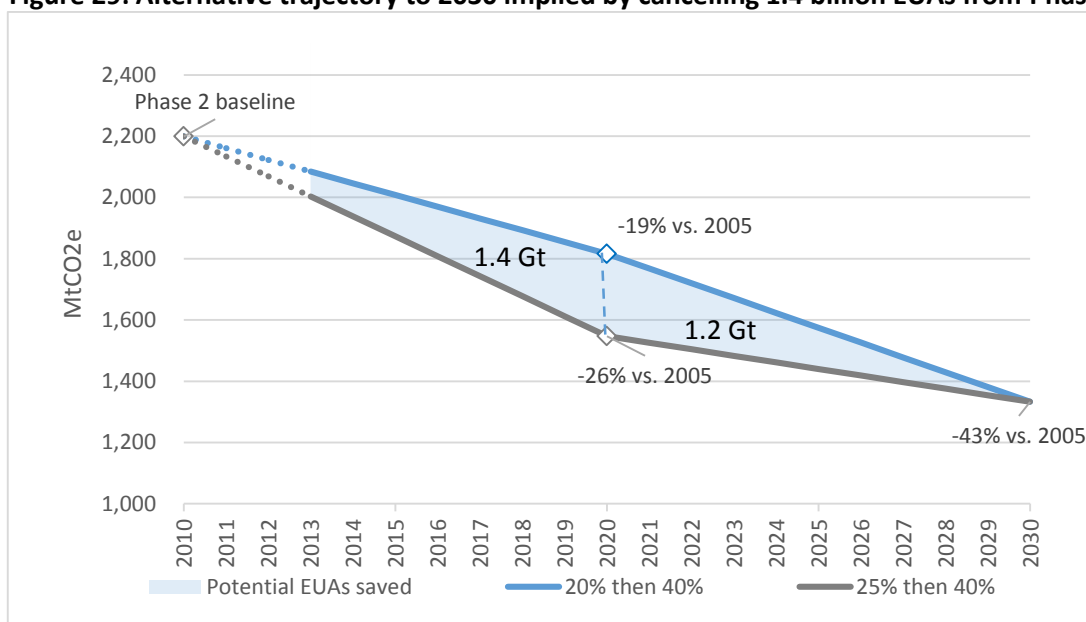


Source: European Commission

Moving to a -25% target for the ETS in 2020 would also have the beneficial effect of creating a lower starting point from which to determine the trajectory of the cap in the subsequent phases. In other words, increasing the ambition of the Phase 3 cap has knock on effects, which affect the ambition of the next trading period.

In **Figure 29** we illustrate how this would affect the carbon budgets set to meet the ETS target of cutting emissions by 43% relative to 2005 levels by 2030, as proposed in the Commission’s Communiqué on the 2030 Climate and Energy Framework. We have interpreted the cancellation of 1.4 billion allowances into a “shadow” Linear Reduction Factor of roughly 3% over Phase 3, reaching 26% below 2005 levels by 2020. This would create a steeper reduction this decade, where there is so much low cost abatement potential still available, and allow a gentler Linear Reduction Factor of roughly 1% to apply from 2021 but reaching the same destination in 2030. This alternative trajectory would nevertheless prevent a further 1.2 billion allowances being released over 2021-2030, increasing ambition, but doing so in a steady, measured way.

**Figure 29: Alternative trajectory to 2030 implied by cancelling 1.4 billion EUAs from Phase 3**



Source: European Commission, Sandbag calculations

**In summary, for a 40% domestic target in 2030 to represent the cost-effective trajectory to 2050, 2.6 billion tonnes must be removed from the EU ETS over 2013-2030 compared with the current cap and the 2.2% trajectory proposed from 2021.**

Our preferred means for adjusting the cap to preserve the cost-effective trajectory in the Low Carbon Roadmap is to cancel approximately 1.4 billion allowances from auction in the last two years of Phase 3. As noted in the previous section on suggested improvements to the Market Stability Reserve, the market faces a much more significant rebound in the surplus in 2019 and 2020 than is accounted for by the backload alone, and unused free allowances could easily amount to the 1.4 billion cited by the Commission in the “Options to Move Beyond 20%” communiqué. Cancelling these allowances presents the perfect opportunity to improve the environmental ambition of the ETS while also improving the orderly functioning of the market.

## Concluding comments

We hoped in this report to highlight the effect recent changes to the ETS rules are already having. There have been big improvements from an environmental perspective – including harmonised cap setting, the introduction of benchmarks and a ban on certain classes of offsets. From the perspective of industry, 2013 was the first year for many that the scheme started to show its teeth. Reduced free allocations overall and in particular to least efficient installations means that the incentives to abate are growing. Of course these incentives are still very weak because, as we have discussed, the one over-riding, inescapably dominant feature of the ETS is its surplus.

Country level and sector level analysis helps to show that the distribution of effort under the scheme is far from even. Returning this year to look at how our Carbon Fatcats are faring, we see a shift beginning to take place where surpluses in iron and steel companies are beginning to be eroded but growing ever stronger in the cement sector. A review of the method of free allocation is urgently needed to ensure it is not creating perverse incentives.

The good news is reform is already on the table and the MSR is a potentially powerful new feature. However the current proposals will not address all the issues that still dog the scheme.

With a new team in Brussels there is great potential to get the ETS back on track. Vanquishing the surplus should be first item on the to-do-list, but ensuring that the rules stimulate green growth in Europe and directly address competitiveness fears must also be a part of that process.

## Appendix 1: Aviation – a sector in limbo

Throughout this report we have tended to exclude data for the aviation sector in our analysis. This is because the official data for aviation emissions and free allowances remains in considerable disarray following intense disputes about the scope of aviation emissions that should be policed by the policy.

From 2012 the ETS was supposed to incorporate emissions for all flights leaving a European airport, regardless of their final destination. This ambitious scope covered around a third of global aviation emissions, but met with intense hostility from many international airlines, as well as from non-EU governments who felt that the policy infringed on their national sovereignty. Political tensions ran high with foreign airlines threatening not to comply, and Member States facing the awkward prospect of having to impose hefty fines or even impound planes if these threats were carried out.

To diffuse these growing diplomatic tensions, Climate Commissioner Connie Hedegaard announced she would “stop the clock”, suspending international flights from the scheme in 2012. The reduced scope would only cover emissions from flights between EU airports, but would default back to full scope in 2013 unless the International Civil Aviation Authority made significant progress towards a global agreement on international aviation emissions in its 2013 General Assembly.

In the absence of progress at the ICAO GA, with the compliance date for 2013 looming the political debate resumed at full heat. The European Parliament entertained a compromise scope of covering all aviation emissions in EU airspace, but eventually bowed to international pressure. In April 2013 an agreement by co-decision was reached that ICAO would be given significantly longer to make progress and only intra-EU flights would be covered until the start of 2017.

The changing and uncertain scope of the scheme in 2012 and 2013 has led to inconsistent reporting in the EU Transaction Log of verified emissions, free allowances issued, or units surrendered for compliance. Furthermore auctions of aviation allowances have for the most part been deferred until 2014. For this reason it is difficult to draw detailed conclusions about the sector, and for this reason even the European Environment Agency has excluded aviation from its ETS Data Viewer for the time being.

In terms of what this means for the EU ETS overall, it is important to note that aviation emissions are covered by a dedicated cap, with dedicated European Union *Aviation* Allowances (EUAs) that cannot be used by stationary operators in the main part of the scheme. This means the aviation cannot flood the rest of the market with allowances if they are oversupplied. While the aviation sector can make use of standard allowances provided for stationary sectors (EUAs), aviation emissions are likely to have stayed below the aviation cap in 2012 and 2013, and are therefore unlikely to be a net source of demand in the scheme to date. Moreover, our calculations suggest they are unlikely to be source of net demand in the near future.

## Appendix 2: Cancelled Phase 2 allowances

In our analysis of the net balance of supply and demand for allowances in the ETS we mentioned the fact that allowances had been cancelled in the transition between Phases 2 and 3.

118 million Phase 2 allowances were cancelled from the EU ETS because Member States did not sell them in auctions before the cut-off date set by the Commission (30<sup>th</sup> April 2013).<sup>65</sup>

For most countries these allowances represent unused Phase 2 New Entrant's Reserve.

The volume of allowances forfeited was split unevenly between Member States. We provide a breakdown of the allowances forfeited by each Member State in **Table 21**.

This creates a small but important precedent. Cancellation of allowances is an effective way of taking advantage of early action and over-delivery when circumstances turn out to be very different from original projections.

In the last year of Phase 2, fears were stoked that the power sector would be short of allowances and so a decision was taken to borrow forward a portion of Phase 3 allowances to accommodate power sector hedging needs (120Mt). Creating such a precedent for 'frontloading' helped to win the case for 'backloading' later on. This almost exactly matches the volume of unused allowances cancelled at the end of 2012, indicating the frontloading would appear to have been unnecessary.

**Table 21: Forfeited Phase 2 allowances by EU Member State<sup>65</sup>**

Country	Unused NAP (Mt)
<b>All countries</b>	<b>118</b>
<b>Germany</b>	40
<b>France</b>	28
<b>Portugal</b>	15
<b>Latvia</b>	8
<b>Austria</b>	8
<b>United Kingdom</b>	7
<b>Ireland</b>	7
<b>Hungary</b>	3
<b>Sweden</b>	1
<b>Czech Republic</b>	1

*Source: EU Transaction Log, EEA ETS Data Viewer, Sandbag calculations*

<sup>65</sup> We have cut off the table for countries with figures that do not round to at least 1 million

<sup>66</sup> Phase 2 auctions. *European Commission* [http://ec.europa.eu/clima/policies/ets/pre2013/second/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/pre2013/second/index_en.htm)



# sandbag

*Sandbag is a UK based not-for-profit research and campaigning organisation focused on effective European climate policy. We recognise that if emissions trading can be implemented correctly it has the potential to help affordably deliver the deep cuts in carbon emissions the world requires to prevent the worst impacts of climate change.*

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