

Losing the lead?

Europe's flagging carbon market



The 2012 Environmental Outlook for the EU ETS

About Sandbag

Sandbag is a UK based not-for-profit campaigning organisation dedicated to achieving real action to tackle climate change and focused on the issue of emissions trading. Our view is that if emissions trading can be implemented correctly, it has the potential to help deliver the deep cuts in carbon emissions the world so badly needs to prevent the worst impacts of climate change

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

About this report

Losing the lead is Sandbag's 4th annual report on the Environmental Outlook for the EU ETS – following on from *ETS S.O.S.* (2009), *Cap or Trap?* (2010) and *Buckle Up!* (2011). This report again looks in detail at how the ETS is performing on the ground and makes recommendations for urgent reforms. The report uses 2011 emissions and compliance data released in May 2012. This is the last round of compliance data that will be released before the next phase of the scheme commences.

We have made a number of changes to the methodologies used in this report: this year we emphasise the we have reviewed independent analysis in order to emphasise the radical shift in demand forecasts between when the caps were set and today ; we also use these past forecasts to help differentiate “hot air” allowances created by recession and overallocation to industry. Both of these changes have significantly altered the scale of intervention we recommend.

We are always interested to receive feedback on our work and would welcome any reactions, comments or corrections. Please email us at info@sandbag.org.uk.

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*Some minor corrections to our section on company information has been made to pages 7 and pages 23-26 relating to Romanian installations. All data was shared with companies prior to publication.

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The numbers

0.9Gt

Industrial overallocation in the original caps.

2.2Gt

Additional scarcity envisaged in 2008 compared with today

3.1Gt

Allowances Sandbag argues should be withdrawn from Phase 3 auctions

Abstract

There remains a serious disconnect between the crisis facing the ETS and the solutions tabled to rescue it. The scheme was intended to deliver a significant shortage of allowances against business-as-usual emissions and thereby oblige ETS installations to pollute less. But the debate has focussed on the *surplus* allowances sitting above the revised emissions projections rather than restoring the levels of *scarcity* originally envisaged.

Even those stakeholders who have argued for a return to the intended levels of scarcity have been handicapped by a dearth of analysis and consistently invoked inadequate quantities to achieve their stated aim.

The business-as-usual emissions baseline against which both the EU climate target and the ETS caps were set are totally obsolete. Expectations of Europe's GDP growth out to 2020 are down by a third since the climate package was agreed. **This has left the ETS caps with 2.2 billion tonnes less demand than was anticipated.**

We recommend this 2.2Gt in European Union Allowances be removed to restore the original scarcity envisaged for the ETS cap. This will also help restore domestic effort proportional with the level of expected offshore abatement in the offsetting provisions.

We identify a further 900 million excess allowances in the scheme against the *original* emissions forecasts, resulting from industrial overallocation. **A full correction to the cap would require withdrawing 3.1Gt of allowances from the scheme.**

We note that 78% of the surplus EUAs in the ETS to date can be attributed to just ten steel and cement companies, who have confirmed revenues of at least **€1.8 billion** from the sale of allowances.

Finally, we note that emissions trading schemes carry a structural risk of cancelling out emissions reductions caused by other policies and events, and it is necessary to install ongoing provisions to account for these to prevent emissions trading schemes from becoming an environmental hindrance

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Executive Summary

Introduction

The EU was the first off the starting blocks in establishing a cap-and-trade scheme, but seven years into this experiment, it is in danger of losing the lead in the policy it ambitiously pioneered. A number of new, regional emissions trading schemes are now entering the race and, learning from Europe's mistakes, have made careful provisions to protect the incentives for low-carbon investment against exogenous economic shocks and emissions reductions. Europe needs to follow their example and also shed the "hot air" allowances it's carrying after the recession. Such action is essential if Europe's flagship cap-and-trade scheme is to remain a front-runner and deliver the cost-effective low-carbon investment it promised.

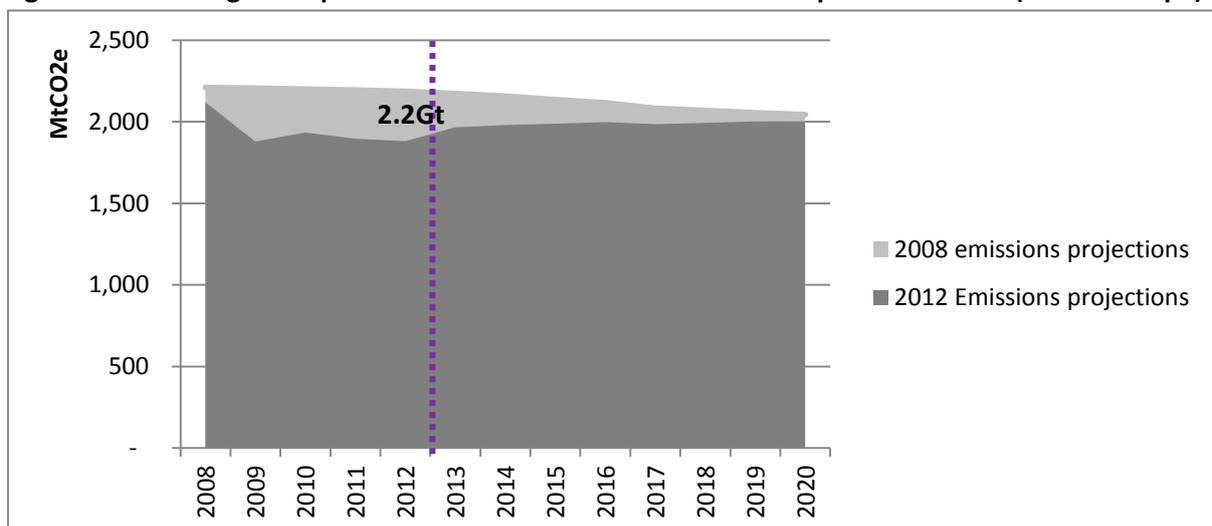
As the EU considers its longer term low-carbon strategy and seeks to avoid getting stranded with long-lived carbon intensive assets, it faces a paradoxical imperative *to raise the short-term carbon price in order to achieve cost-effective abatement in the longer term.*

The low-carbon price is a symptom of a larger problem: namely, that the supply of allowances in the EU ETS was set with a vastly different emissions outlook in mind and with no provisions to adjust for exogenous drops in demand. It is not true to say that we are simply meeting our targets more effectively since these targets were based on a political assessment of effort rather than a scientifically determined carbon budget. It is now incumbent upon policymakers to intervene, both to restore the scarcity of allowances originally envisaged when the cap was set and to repair the policy so that it is protected against similar threats in the future.

Back to the future: obsolete ETS caps

Today, Europe finds itself in an utterly different landscape than the one envisaged when the Phase 3 caps were set. Back in 2008, analysts anticipated that there would be some **2.2 billion tonnes** more emissions in the traded sector across 2008-2020 than they currently foresee¹. Now, in the wake of the recession and in the shadow of new climate policies, the ETS cap finds itself carrying over a year's more allowances than was originally bargained for.

Figure 1: The change in expected 2008-2020 emissions since the caps were last set (Phase 2 scope)



¹ Figures derived by comparing Deutsche Bank's 2008 report "It takes CO₂ to Contango" (2008) against verified 2008-2011 emissions in CITL, 2012 emissions forecasts in "ETS Reform Should Not Be Set Aside (2012)" and 2013-2020 Phase 2 scope emissions forecasts in "Scoping the Phase 3 cap" (2012).

Given the changed outlook for carbon scarcity over the this timeframe, even the most ambitious supply-side interventions proposed in the current debate appear inadequate.

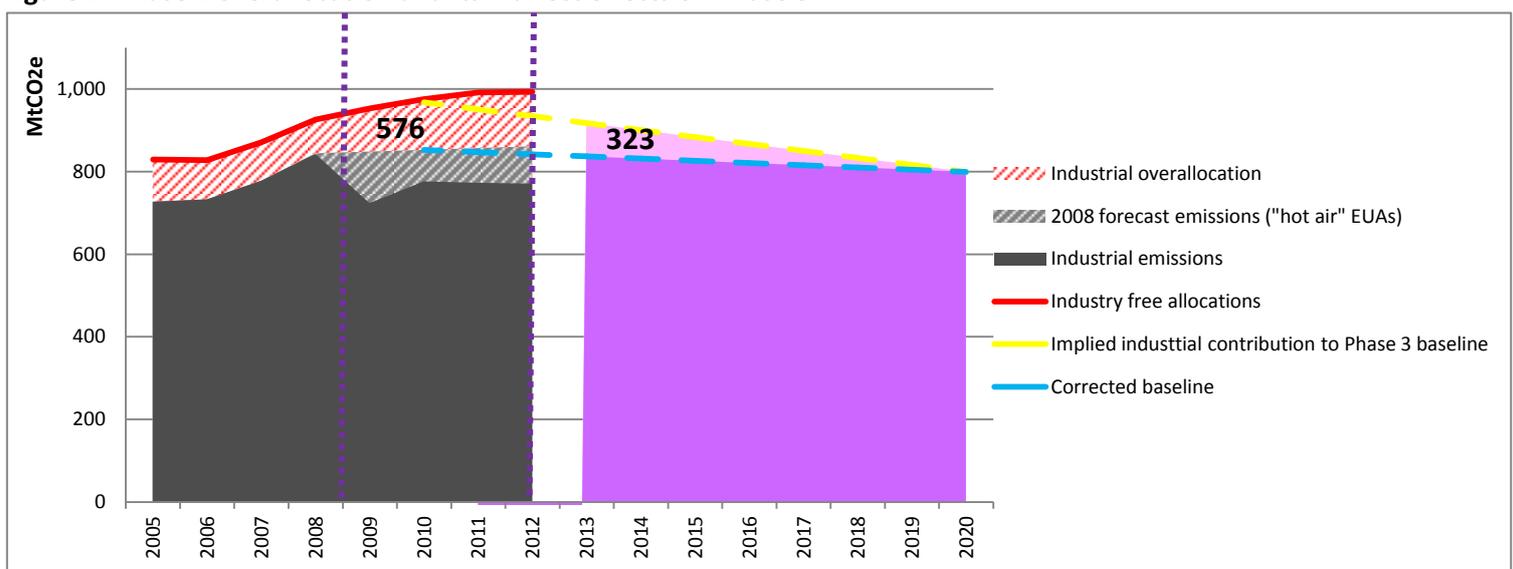
In the discussions leading up to both the Parliament’s motion on the 2050 Low Carbon Roadmap and its report on the draft Energy Efficiency Directive (EED), the question of restoring the incentives in the ETS to correct for the recession and/or restore the levels of ambition envisaged were repeatedly raised and the 2008 impact assessment² for amending the directive specifically cited, but despite this, the largest figure tabled has been a withdrawal of 1.4 billion allowances³. While final recommendations on specific quantity have been left out of the final language in both the Parliament’s Motion on the Roadmap and the ITRE committee’s draft report on the EED, modest earlier proposals continue to frame and limit the debate. This limitation is reflected in the Commission’s imminent review of the auction regulations, which rumoured to involve withholding between 400Mt and 1,200Mt allowances⁴. In short, the politics of carbon market reform in Europe have not caught up with the scale of the crisis confronting the scheme.

With a supply of carbon allowances frozen from an era when the economic future looked much rosier, this massive change in the demand outlook has brought the carbon price so low that it even fails to drive fuel switching from coal to gas. A recent report from Deutsche Bank argued that as many as 1.2 billion allowances would need to be set aside from Phase 3 even to achieve a sufficient price for even this modest goal.⁵

Overallocation in the original caps

In addition, even before this massive exogenous change in the emissions outlook, we contend that even the *original* levels of scarcity were inadequate, insofar as Phase 2 caps were set too favourably to industry before the recession took place. We see some **900Mt** of superfluous allocations awarded in the original cap as a consequence of industrial overallocation in Phase 2 and the effect this had on the baseline from which Phase 3 caps were then set.

Figure 2: Phase 2 overallocation and its indirect effects on Phase 3



² http://ec.europa.eu/clima/policies/ets/docs/sec_2008_52_en.pdf

³ See ENVI amendments 107 and 108 to the *Motion on a 2050 Low Carbon Roadmap*; see ENVI amendments 324 and 342 to the Draft Opinion on the Energy Efficiency Directive; and also see ITRE amendments 1490 and 1553 to the Draft report on the Energy Efficiency.

⁴ www.bloomberg.com/news/2012-06-15/eu-said-to-favor-1-2-billion-co2-permit-sale-delay-in-report-1-.html

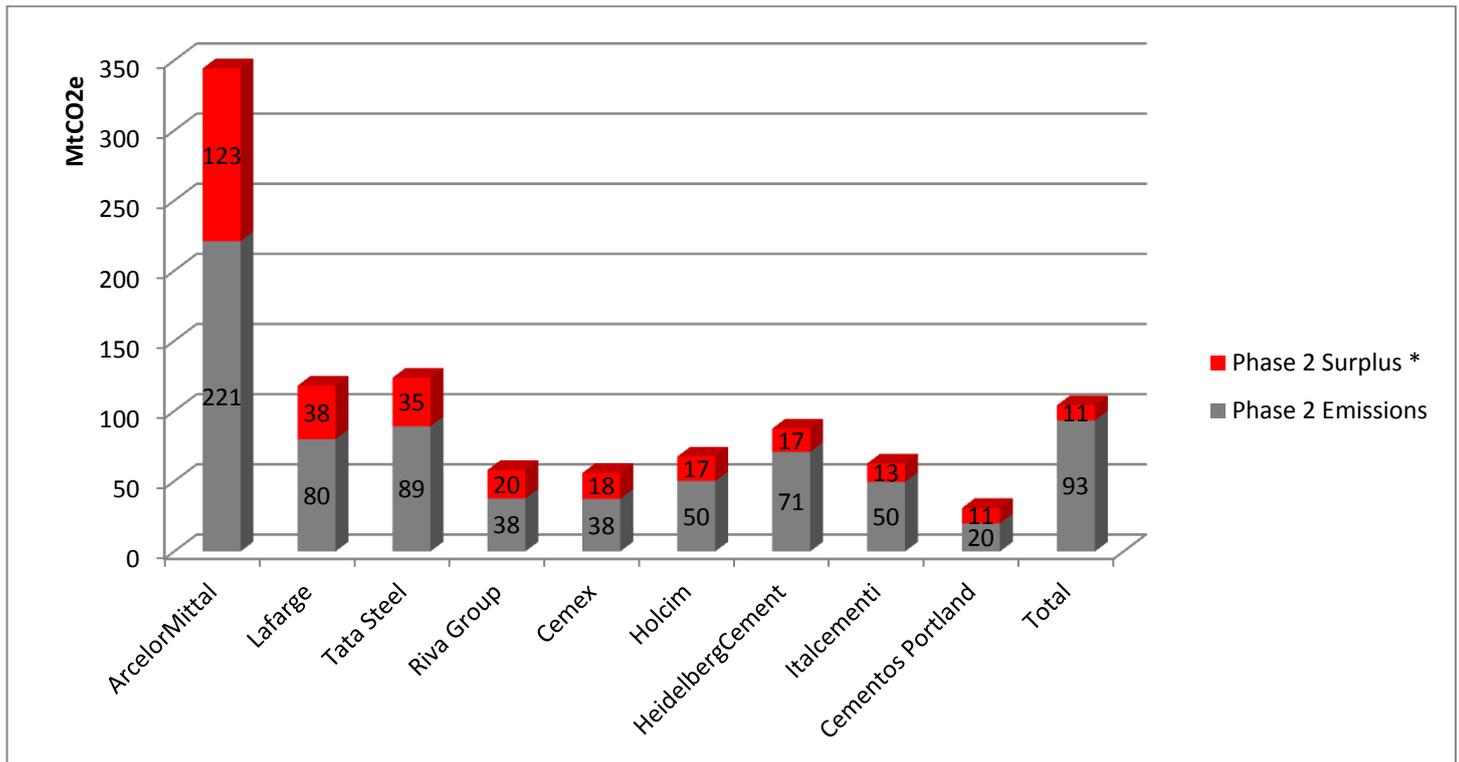
⁵ p.23 ETS Reform Should Not Be Set Aside, Deutsche Bank (2012)

In summary, Sandbag finds the 2008-2020 ETS cap now contains roughly 3.1Gt more allowances than it should.

Carbon fatcat companies

This combination of overallocation and recession has left the ETS carrying **392Mt** excess EUA permits as of 2011. Incredibly, some **304Mt** or 78% of this is made up of surplus free allocations awarded to just ten steel and cement companies. These companies are depicted in Figure 3 below:

Figure 3: Companies with the largest surplus of free allocations (2008-2011)



*Allocations are adjusted for known process-gas transfers and checked with companies
Source: CITL, Sandbag and consultation with the companies profiled*

Any Phase 3 compliance costs that these companies once expected to face have been slashed as they look to carry large surpluses forward from Phase 2 to surrender against their reduced Phase 3 emissions; and this all within a market where the carbon price is now a fraction of that anticipated. For at least two of these companies, Tata and Cementos Portland Valderrivas, we find negligible new compliance costs out to 2020.

Where no shortfalls are anticipated (or immediate cash-flow is prioritised), surplus allowances and substituted offsets can be sold into the market to gain revenue. We estimate the combined potential revenues of these EUA assets and EUA/CER swaps at **€4.5 billion**⁶ and have confirmed there have been at least **€1.8 billion** sales from the companies' own annual reports.

To coincide with this report, we have prepared an interactive online map of these carbon fatcat companies at www.carbonfatcats.eu

⁶ € value is determined by the average price in the year in which the surpluses were accrued as taken from the Blue Next exchange www.bluenext.eu

The real problem with the ETS caps: scarcity not surpluses

In assessing the issues facing the EU ETS, stakeholders in the debate can sometimes get confused between two figures: firstly there is the *surplus* of allowances accruing in the ETS against anticipated 2008-2020 emissions, and secondly there is the *scarcity* the system was originally designed to deliver. The longer view helps clarify that surpluses are not the real problem, as the scheme is still on track to deliver some **613Mt** of accumulated EUA shortfalls by 2020.⁷ ***The problem remains that it was expected to deliver something more like 2.8Gt of shortfalls by that time.***

The real problem with offsets: complementarity and redundant price containment

The role of offsets has also complicated the debate by contributing to the surpluses in the system. But it needs to be remembered that offsets do not affect the *environmental* integrity of the ETS cap so long as additionality questions are properly addressed. The main problem the offset budget poses to the ETS is one of *supplementarity*.

Offsets are meant to account for only 50% of effort towards meeting Europe's climate targets, but again, most of the "effort" towards the cap has been a passive reduction in economic output – there is little or no domestic investment in emissions abatement taking place in the EU as a result of the ETS. While, as noted above, **613Mt** of cumulative EUA shortfalls are expected by 2020 they will be overwhelmed by **1.7Gt** of surrendered into the scheme.

Offsets were made available to ETS installations for the same reasons they are available to sovereign states: to help contain the price for obligatory emissions reductions; however, as with the EUA cap, the Phase 2 offset budget was set with a different economic situation in mind with a much higher projected demand for carbon allowances. In the new context, the supply of offsets is serving to further depress the ailing carbon price and remove the few remaining incentives for internal abatement over 2008-2020.

Short-term recommendation

- 1) Remove 3.1 billion allowances from the Phase 3 auctions with a view to permanently cancelling them.**

Our overwhelming concern is that policymakers keep in mind the change in the expected demand for allowances since the cap was set when assessing the appropriate scale of intervention.

The Commission is proposing to review the auction regulations to backload the auction profile and create more scarcity at the start of the Phase 3 to resuscitate the carbon price. We recommend withdrawing **3.1Gt** of allowances from auctions across the Phase, leading to a cumulative shortfall of **3.7Gt by 2020**.

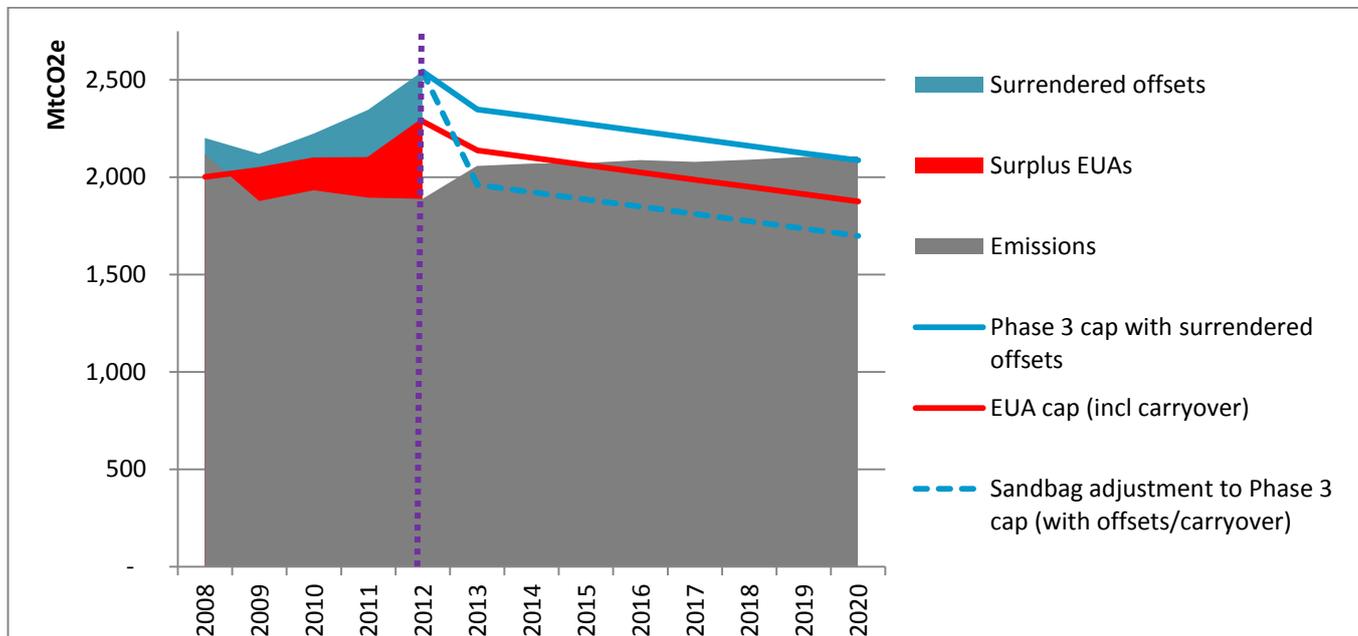
By introducing this level of scarcity into the scheme, the complementarity of offsets is also largely restored, inasmuch as the **1.7Gt** of expected offshore abatement becomes more proportionate with **2Gt** of domestic abatement driven by the cap.

Owing to the scale of this intervention, we recommend this quantity be removed evenly across Phase 3 auctions in **387.5Mt** annual increments, as the price rallying effects of such a substantial intervention would not need to be intensified through additional bottlenecks.

⁷ Derived from CITL data, Commission figures for Phase 3 allocations and Emissions forecasts from Deutsche Bank's ETS Reform Should Not Be Set Aside (2012)

We recommend deferring any prospect of the return of these allowances to the latest stage possible with a view to cancelling them before they re-enter the market. This could be done via a review of the ETS Directive following the publication of the 5th IPCC report, or alternatively, these allowances could be removed from Phase 4 when the Directive is reopened to establish the next carbon budget.

Figure 4: Sandbag’s recommended Phase 3 cap after auction reprofiling/set-aside



Long-term recommendations

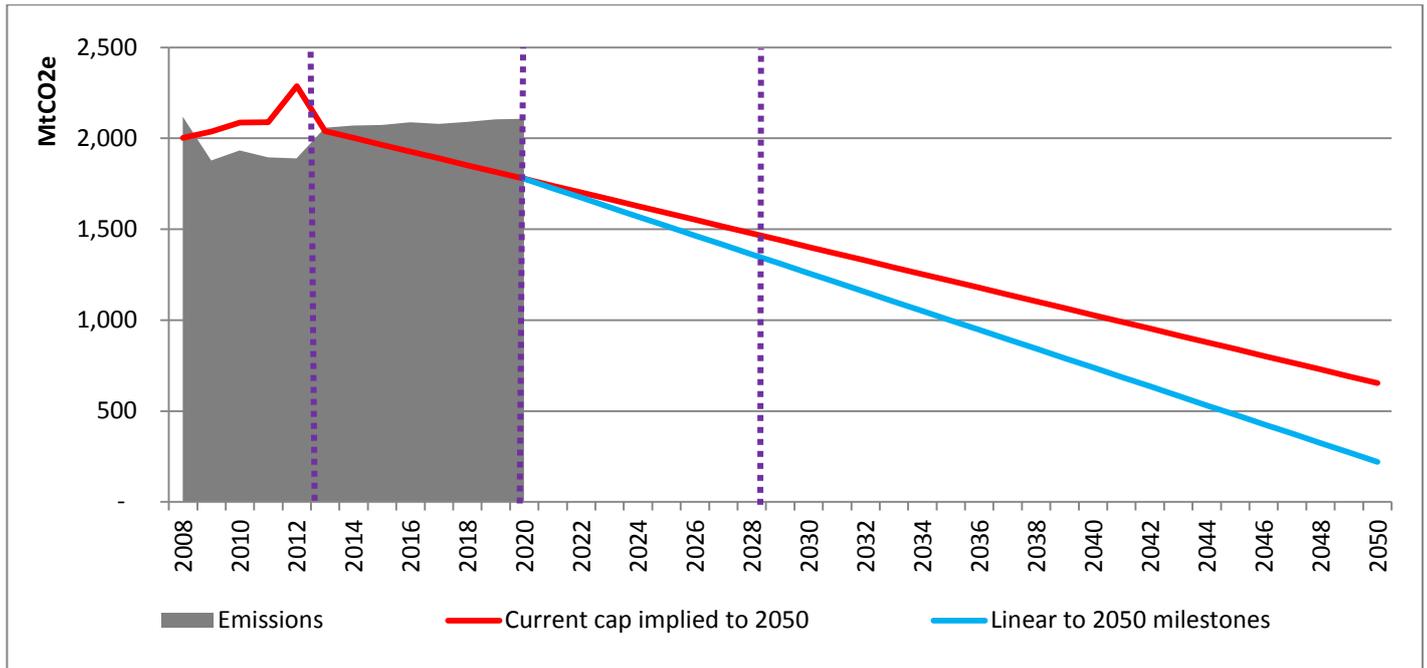
1) Establish an ambitious Phase 4 carbon budget under a revised linear reduction factor

We recommend reviewing the long-term trajectory of the cap from 2020 to align it with Europe’s 2050 goals, and to establish a Phase 4 cap on this basis as soon as possible. A suitably ambitious Phase 4 budget will help give the market foresight that a genuine scarcity of allowances is imminent, helping to support prices in Phase 3.

The annual linear reduction factor of **1.74% (37.4Mt)** by which the Phase 3 cap was defined extends indefinitely beyond 2020. This trajectory is currently out of keeping with Europe’s long term mitigation goals of reducing emissions 80-95% against 1990 levels by 2050. This is manifestly clear from the documents accompanying the Roadmap for a Competitive Low Carbon Economy in 2050, which translate the economy-wide milestone into reductions of 93% against 2005 levels (controlled for aviation).¹

If we plot this as a straight trajectory from 2020, we find this implies a linear reduction factor of about **2.52% (54.1Mt p.a.)**. This trajectory would save **600Mt** over Phase 4 (2021-2028) and save **7.8Gt** over 2020-2050 compared with the current trajectory.

Figure 5: ETS trajectories implied in the 2050 Low Carbon Roadmap



2) Establish permanent mechanisms to correct supply against exogenous drops in demand

Independent of any interventions to remedy the current oversupply or the future ambition of the ETS caps, no provisions yet exist to protect the ETS from a recurrence of the present predicament.

We propose two additional quantity-based mechanisms which might help protect the caps on an ongoing basis should any exogenous shocks or policies again threaten to reduce the incentives in the EU ETS.

i) A “heat exchanger” mechanism which corrects future ETS caps for banked EUAs

This mechanism would prevent EUAs from spilling from one trading phase into the next by cancelling allowances equivalent to the net surpluses in the previous period⁸. This would help preserve the quantity of allowances expected for each period, while fully respecting the rights of market participants to bank their unused allowances between Phases. This proposal is an extension of a suggestion the Commission made in a draft version of the 2050 Low Carbon Roadmap but subsequently deleted.⁹

ii) A strategic demand-correction reserve

An additional way of preserving scarcity *within* future phases would be to introduce a strategic demand-correction reserve. This could operate roughly along the lines of California’s Voluntary Renewable Energy Reserve¹⁰, but on a larger scale.

A predetermined percentage of allowances could be withheld from auction each year, and placed in reserve for a set period (e.g. 2-3 years). If no unusual drops in emissions take place over that period the allowances are returned to the market; however if exogenous demand-side reductions are

⁸ By net surpluses we refer to the full EUA cap for that period minus all verified emissions for the same period. No offsets surrendered into the scheme would affect this calculation.

⁹ p.8-9 http://www.sandbag.org.uk/site_media/uploads/Leaked_2050_roadmap_draft.pdf

¹⁰ See Sandbag’s briefing on Californian set-aside policies for further details: http://www.sandbag.org.uk/site_media/pdfs/reports/California_set_aside_briefing.pdf

identified (be they economic or policy based) this reserve will allow time for their effects to be calculated and a corresponding quantity of allowances to be permanently cancelled.

3) Introduce price controls on offsets to ensure their ongoing complementarity

Sandbag does not recommend price interventions for EUAs as this risks replacing environmental ambition and preventing price discovery. We do, however, recommend price interventions for offsets: offset provisions exist chiefly to contain price and, as we have previously discussed, the chief problem with offsets is not environmental but instead concerns complementarity and redundant price-containment.

To remedy this problem, the Commission could consider introducing a price trigger that only makes offsets available when the EUA price exceeds a pre-determined level.

Alternatively the Commission could levy a top-up tax on compliance buyers at the point of offset purchase, which would establish an offset price-floor. Such a mechanism would:

- a) preserve additionality: by removing the market advantage of the cheapest and most questionable offset projects against their better quality rivals¹¹;
- b) preserve complementarity: by increasing the cost-attractiveness of abatement within Europe relative to abatement elsewhere;
- c) discourage carbon lock-in: by supporting rather than lowering the carbon price, and
- d) generate additional EU revenues

Conclusion

The flexibilities afforded by emissions trading are undoubtedly a powerful tool, a tool that will help us afford the dramatic emissions reductions we need if we are to avoid dangerous climate change. ***But emissions caps that are set too high are not only redundant, but can actively cancel out the savings achieved by other policies and events by storing up allowances for later use.***

Emissions trading systems would not be vulnerable to this failing if they were determined on fair and scientific principles, but for the moment they are political compromises set against historical baseline emissions and business-as-usual forecasts. This makes caps redundant as soon as these emissions forecast prove exaggerated, as observed in the first Kyoto commitment period, in Phase 1 of the ETS and now again in Phase 2.

But what is true of caps is also true of targets, and the economy-wide emissions forecasts against which Europe's 20% climate target were first agreed are now similarly obsolete. A 3.1Gt adjustment to restore appropriate scarcity to the EU ETS is more than double the 1.4-1.5Gt required to put the EU ETS on a 30% compatible trajectory¹². An intervention of this scale would enable Europe to step-up up to or even exceed that 30% target purely through additional domestic effort in its traded sector.

Effecting these changes would powerfully revive the incentives for low-carbon investment in Europe and restore Europe's position as a front-runner in emissions trading and climate policy.

¹¹ Note that this does not interfere with the process of price-discovery as we discuss in Box 3. The mark-up on offsets is already enormous, based on the appetite for offset credits within capped markets.

¹² European Commission Communication *Options for Moving Beyond 20%* (2010) and Deutsche Bank ETS Reform Should Not Be Set Aside (2012).

Introduction

International developments in cap-and-trade

Emissions trading policy was first enlisted in the fight against climate change under the Kyoto Protocol to the UNFCCC, where countries adopting binding emissions caps were entitled to meet these flexibly by exchanging emissions reductions between each other or purchasing them from developing countries. In 2005, the EU went one step further by devolving emissions trading responsibilities down from state-level and out to polluting installations and inaugurating the first so-called “cap-and-trade scheme”. The EU ETS covers Europe’s major industrial sources of emissions, making around 11,000 installations directly responsible for meeting legally binding caps that together account for roughly half of the bloc’s CO₂ emissions. Since then a range of other countries and regions have indicated their interest in also using the policy to address their emissions.

By being the first out of the gates, the EU showed its commitment to leading on climate change but also had the dubious honour of road testing the policy at a sectoral and corporate level. Seven years into this experiment it is now clear that while the EU has many achievements it can be proud of, it is in danger of losing the lead in this policy area, weighed down by an oversupply of emissions allowances that is dragging the price of carbon ever lower.

The EU ETS was designed around a number of economic assumptions that turned out to be false. The sharp economic recession has had a dramatic effect and led to the EU ETS being left bloated with too many allowances with limited recourse to amend the system. Moreover it has left the carbon price languishing around €6.50 per allowance and deprived business of a clear market signal needed to prompt investment decisions.

The EU never intended to be the sole runner in the carbon market race and fortunately other countries are now joining: The USA’s failure to introduce a federal emissions trading scheme was regrettable but a number of regional American schemes have successfully emerged. In 2009 the Regional Green House Gas Initiative (RGGI) covering 10 States in the Northeast of the USA was launched covering power generation emissions. Other developed countries also moved forward: in 2010 Japan’s largest city, Tokyo, launched a metropolitan trading scheme covering 14,000 emitters and New Zealand was the second country to introduce a mandatory emissions trading scheme. While these schemes were a welcome addition to international mitigation efforts as well as advocating emissions trading as a mechanism, their relatively small size and limited scope meant their impact was limited.

But now a new wave of ETSs are coming online which look set to inject new energy into the race. Australia’s Clean Energy Act has introduced an A\$23 carbon tax as of July 2012 which will transform into a trading scheme in 2015. California’s Global Warming Solutions Act – or AB23 – is to be launched in January 2013 and will cover approximately 36% of the state’s emissions, rising to 85% in 2015. The Californian scheme will also include a floor price for allowance auctions, and when there are no bids over \$10, the allowances are withdrawn and added to an ‘Allowance Price Containment Reserve’. January 2013 will also see the launch of Quebec and British Columbia’s (as part of the Western Climate Initiative) emissions trading scheme that will seek to be linked to the Californian scheme.

Further regional schemes are set to come online with the passing of Climate Legislation in both South Korea and Mexico. South Korea in particular has made its intentions to implement an

emissions trading scheme clear.

Finally, and perhaps most significantly, China has announced plans to pilot seven regional emissions trading schemes from 2013 as a means of building the basis and capacity for a national scheme from 2016.¹³ The size of China's carbon emissions has significant implications for the global carbon market. Along with New Zealand, Australia and South Korea, it looks increasingly likely that Asia is set to take the lead on carbon pricing. Australian Climate Change Minister Combet has already started to speak about an Asia-Pacific carbon market, which would help smooth concerns about regional industrial competitiveness.

As the EU ETS continues to be dragged down by excess allowances, the carbon price remains low and the business community is denied the investor certainty it craves. The politics of the European Union adds to this uncertainty and makes the process of intervening difficult, although not impossible. Countries such as the UK, France and Germany have at various points indicated their desire to shed some weight but sadly one country, Poland, still stands in the way, putting a brake on Europe's climate ambitions. In the meantime, the European Commission has clearly stated that it intends to use its limited powers to act to ensure the continued relevance of the EU ETS, but it is not yet clear whether this will provide the shot in the arm necessary to revive the flagging scheme.

While Europe dithers, already Australia and New Zealand has a higher carbon price than Europe. Californian legislators have demonstrated greater foresight by establishing a set aside from the outside and laying out the exact price conditions under which this reserve will re-enter the market. South Korean and Chinese are also looking at different design options that can enable them to negotiate the hurdles the EU has encountered. By not following the European blueprint, these countries are sending a strong signal that there is something wrong with our ETS design.

If Europe is serious in its ambitions to transition to a low carbon economy then it must act quickly to strengthen its flagship climate policy.

The environmental context for the EU ETS

Both the European and international language around climate mitigation has become saddled with a dangerous euphemism: "effort".

"Effort" in the context of international climate change now covers a multitude of sins, being expediently used to cover emissions reductions caused by everything from economic contraction, changes in national fuel supply, or the off-shoring of manufacturing sectors to countries with lower labour costs.

Again and again we see emissions reductions from developed countries failing the criteria of environmental additionality that we rightly insist on from abatement projects purchased from developing countries.

At the international level, a failure to differentiate active from incidental emissions reductions in the Kyoto Protocol has left Russia, Ukraine and other Eastern Bloc countries from carrying forward billions of tonnes of emissions rights that totally dwarf any of the active abatement which has taken

¹³ For more information on China's move to adopt emissions trading see our recent report 'Turning the Tanker' http://www.sandbag.org.uk/site_media/pdfs/reports/Sandbag_Turning_the_Tanker_Final.pdf

place under the policy.¹⁴ These Kyoto allowances, have even acquired their own special derogatory nickname of “hot air”.

But Europe, too, is carrying its own hot-air allowances after the global financial crisis left a two billion tonne hole in the emissions of its traded sector. This now leaves over a year’s worth of emissions rights slushing around indefinitely in the EU emissions trading scheme and wreaking havoc on the incentives to abate within it.

The flexibilities afforded by emissions trading are undoubtedly a powerful tool, a tool that will help us afford the dramatic emissions reductions we need if we are to avoid dangerous climate change. But the first commitment period of Kyoto (2008-2012) and both the first *and* second carbon budgets of the EU ETS have taught a harsh lesson which we continue to ignore at our peril:

While carbon budgets provide reassurance that certain environmental limits won’t be exceeded, caps that are set too high are not only redundant, but can actively cancel out the savings achieved by exogenous policies and events.

This is especially true of the EU emissions trading cap, which allow unused emissions rights to be stored for use indefinitely into the future – a problem we emphasised in the title of our 2010 report *Cap or Trap?*

Emissions trading budgets would not pose this danger if they were determined by climate science and strict equitable principles, but they were not. Both the Kyoto cap, and the existing EU ETS budgets were political compromises set in reference both to recent historical emissions baselines (i.e. 1990, 2005) and to business-as-usual emissions projections. These “politically realistic” caps are doomed to become obsolete whenever underlying economic assumptions on which emissions projections were based prove optimistic.

Until such a time as emissions trading budgets are based on a fair and scientific basis, it will be necessary to install provisions to reduce the supply of allowances within a cap in the event of sudden drops in demand.

Note that we only invoke a *downward* adjustment to supply. Any increase in supply to reflect a spike in demand for allowances would represent an even further departure from the 2°C degree compatible carbon budget towards which we should all collectively be striving.

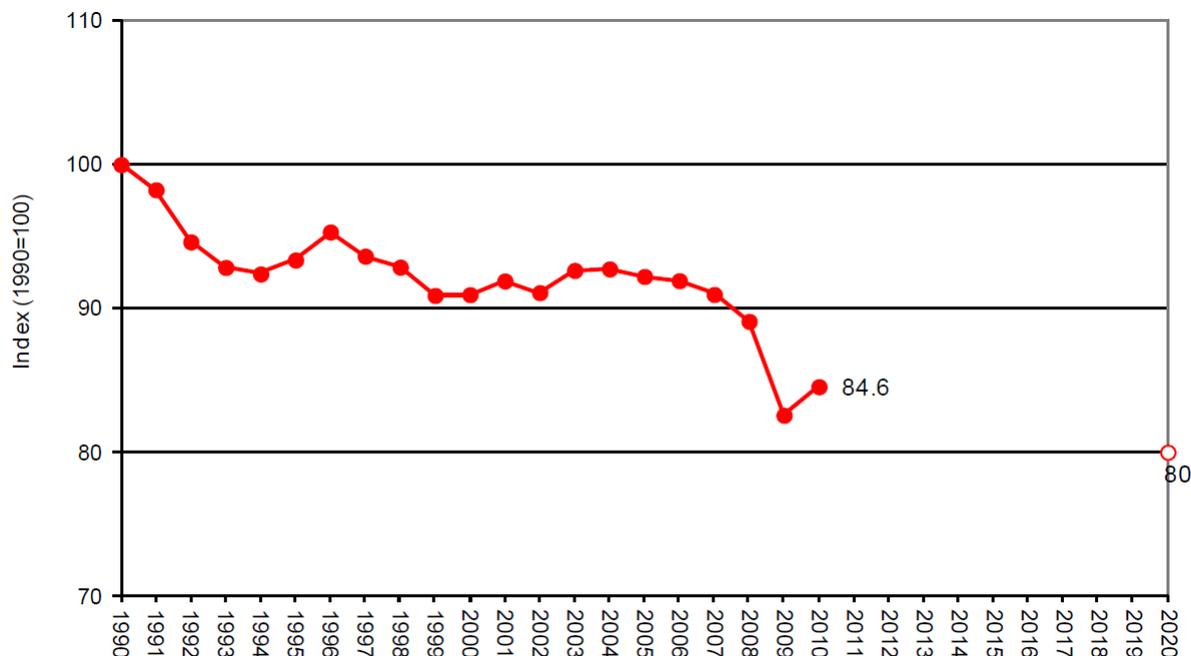
In the European context, the ETS Phase 3 cap (2013-2020) and the corresponding caps on the non-traded sector (under the Effort Sharing Decision) were both established in accordance with a 20% reduction against 1990 emissions by 2020. Europe has grappled with increasing that target since almost before the ink was dry on the original 2008 climate package, placing conditional offers of 30% in the UN negotiations since 2009 and flirting repeatedly with the prospect of making this target unconditional and unilateral.

But more recently, Europe’s struggles under the global financial crisis and the sovereign debt crisis have made mention of increasing Europe’s 20% target something of a political *faux pas*. We find this ironic given that these new economic conditions are precisely what has made the current targets and caps obsolete.

¹⁴ CCAP identifies approximately 11Gt of surplus AAUs over KP1, against which we note only 2.5Gt of reductions were required against 1990 levels across the 5 year Kyoto cap (i.e. 0.5Gt below 1990 levels each year). See www.cdm-watch.org/wordpress/wp-content/uploads/2012/05/CAN-E_workshop_AAUs_April2012.pdf

As the following graph from the latest European Greenhouse Gas Inventory report shows, Europe could reach its current 2020 target by reducing its emissions just 0.5% a year this decade, reductions that the Renewable Energy Supply Directive can almost certainly deliver unassisted.

Figure 6: EU27 GHG emissions from 1990 to 2010 excluding LULUCF¹⁵



A report recently published by the Oko Institut finds that the GDP growth projected out to 2020 in the 2008 climate package was off by a third more against recent projections, and that this inflated the baseline emissions forecast for 2020 by 425Mt, or 8% relative of 1990 emissions.¹⁶

Had policymakers in 2008 been granted perfect foresight as to business-as-usual emissions out to 2020 or even to today, it is likely that a 30% or higher climate target would have been set in the original climate package.

To underline this point, just restoring the original levels of scarcity anticipated within the EU ETS when the caps were last set would involve removing 2.2Gt¹⁷, a quantity more than sufficient to achieve a 30% target, which in 2010 the Commission calculated would require 1.4Gt¹⁸ fewer allowances and Deutsche Bank have recently calculated at around 1.5Gt¹⁹. A 3.1Gt adjustment to restore appropriate scarcity to the EU ETS is *more than double* the amount required to put the EU ETS on a 30% compatible trajectory, and would enable Europe to step-up up to, or even exceed, that 30% target purely through additional domestic effort in its traded sector.

Many stakeholders will balk at the prospect of increasing Europe’s ambition by more than 30%, but even the 30% target needs to be placed in the context of a Europe’s fair share of a 2°C compatible carbon budget. This is precisely what the European Parliament tried to do in its response to the Commission’s 2050 Low Carbon Roadmap, noting in Paragraph 18 that “*even with a pathway of 30% reductions in 2020, 55% in 2030, 75% in 2040 and 90% in 2050 the EU would still be responsible for*

¹⁵ p.iii <http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2012>

¹⁶ p.27-31 http://awsassets.panda.org/downloads/greenpeace_wwf_2012_studie_emissionshandel_en.pdf

¹⁷ Derived from Deutsche Bank reports and explained in below.

¹⁸ European Commission Communication *Options for Moving Beyond 20%* (2010)

¹⁹ Derived from p.13 of *ETS Reform Should Not Be Set Aside*, Deutsche Bank (2012)

*approximately double its per capita share of the global 2°C compatible carbon budget, and that delaying emissions reductions increases the cumulative share significantly”.*²⁰

We note that the calculations underpinning this paragraph divide the global carbon budget by *national population projections in 2050* rather than *confirmed national populations in 1990* when the dangers of climate change were first established beyond reasonable scientific doubt²¹. We also note that it ignores historic emissions between 1990 and 2005²². By changing these parameters, we find that Europe would only exceed its share of the budget by **24%** if it followed this ambitious climate pathway.²³

Europe’s claims of climate leadership ring hollow in this context where, no matter how ambitious Europe’s mitigation pathway is out to 2050, it is likely to depend on carbon space borrowed from developing countries. Fears of European climate policy damaging Europe’s competitiveness need to be placed into this broader perspective of an imminent carbon debt Europe will owe the world and which will deepen enormously out to 2050.

The political context for EU ETS reform

This year has seen a new political appetite for intervention to “fix” the EU ETS. This appetite stems from several factors: the closing window to intervene before Phase 3 begins next January, the burgeoning oversupply of Phase 2 allowances, the risk of incoming policies exacerbating that oversupply and above all, the near disappearance of the EU ETS carbon price.

As the EU considers its long-term low-carbon strategy and seeks to avoid getting stranded with long-lived carbon intensive assets, it faces a paradoxical imperative *to raise the short-term carbon price in order to achieve cost-effective abatement in the longer term.*

This offers Europe a clear economic justification for increasing environmental ambition in the EU ETS, but there is a danger that in the rush to restore price tension in the scheme this opportunity will be passed-over in favour of merely temporary interventions in the supply of allowances. There is also a danger that pre-selected price outcomes might determine the scale of any supply-side intervention rather than more carefully reasoned considerations of appropriate quantity. In a mechanism whose whole purpose is to uncover lowest cost-abatement within a specific carbon budget, the tail may be wagging the dog.

The low-carbon price is a symptom of a larger problem: namely, that the supply of allowances in the EU ETS was set with a vastly different emissions outlook in mind and with no provisions to adjust for exogenous drops in demand. It is now incumbent upon policymakers to intervene, both to restore the scarcity of allowances originally envisaged when the cap was set, and to repair the policy so that it is protected from similar threats in the future.

²⁰ <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2012-0086&language=EN&ring=A7-2012-0033> Calculations from Oko Institut *Climate Impact Assessment for LCER 2050 scenario*

²¹ Using projected population strongly advantages developing countries in apportion shares of the global budget.

²² Ignoring 1990-2005 emissions underestimates the extent to which Europe (and the world) has already depleted its budget.

²³ This compares with 87% in Oko’s calculations. We award Europe a global budget of 164Gt over 1990-2050, of which 73Gt was used by 2004. Oko’s Vision Scenario anticipates a further 130Gt emissions over 2005-2050 reaching 203Gt total or 24% over budget. Data sources are from Meinshausen 2009, Global Development Rights data and the CIA World Factbook. Sandbag’s carbon budgets will be published in full in a later paper.

As this report goes to press, the European Commission has begun to explore a review of the auction regulations to backload allowances until later in the phase. Anonymous sources from within the Commission have identified three options for the scale of allowances withheld: 400Mt, 900Mt and 1,200Mt.²⁴

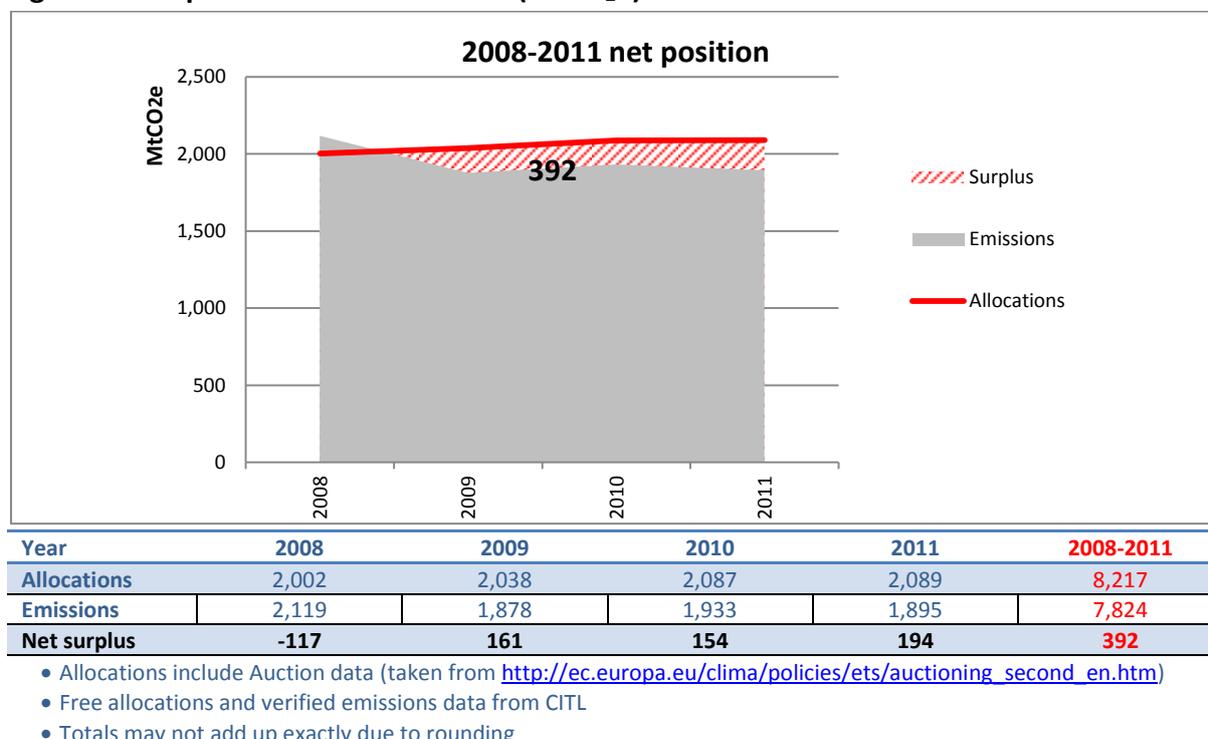
Neither the scale, nor the temporary nature of this withdrawal, will be sufficient to redress the problems facing the scheme; however the Commission has indicated it will examine a permanent withdrawal of allowances in its first official report on the ETS²⁵.

²⁴ <http://www.bloomberg.com/news/2012-06-15/eu-said-to-favor-1-2-billion-co2-permit-sale-delay-in-report-1-.html>

²⁵ Council note 1190/12 on Trilogue conclusions

The balance of supply and demand in the EU ETS

Figure 7: Net position over 2008-2011 (MtCO₂e)



2011 saw emissions in the traded sector drop 2% against 2010 emissions. Announcing the new data, Climate Commissioner Hedegaard was keen to emphasise that this decline had taken place against a backdrop of economic growth, and could therefore be attributed to the EU ETS: “It also shows that the ETS is actually delivering results.”²⁶

Regrettably, while 2011 saw European GDP up 1.5% from 2010²⁷, the emissions reductions observed are unlikely to stem from the EU ETS. Indeed, it is difficult to see how the carbon price could have driven any abatement over 2011, with an average price of €12.10 insufficient to bridge the price differential between coal and gas²⁸. As analysts at Jefferies note, what is more likely is that emission reductions resulted from unusually warm weather over the period, from uptake in renewables under the RES directive and from unrelated closure of carbon intensive plant.²⁹

As Sandbag stated in *The Guardian* at that time, the emissions reductions observed in 2011 “happened in spite of, not because of, the EU ETS, and will serve to exacerbate the massive oversupply of carbon allowances that threaten to haunt the system until 2020.”³⁰ Indeed, we see surplus free allocations up by 40Mt against 2010 levels. **The net surpluses accrued across 2008-2011 now amount to 392Mt, roughly equivalent to the total annual greenhouse emissions of Poland³¹.**

²⁶ <http://www.guardian.co.uk/environment/2012/may/15/eu-airline-emissions-tax-success>

²⁷ JEF2012 May Update *Jefferies Bache*

²⁸ Average EUA spot price as taken from the Blue Next exchange www.bluenext.eu

²⁹ JEF2012 May Update *Jefferies Bache*

³⁰ <http://www.guardian.co.uk/environment/2012/may/15/eu-airline-emissions-tax-success>

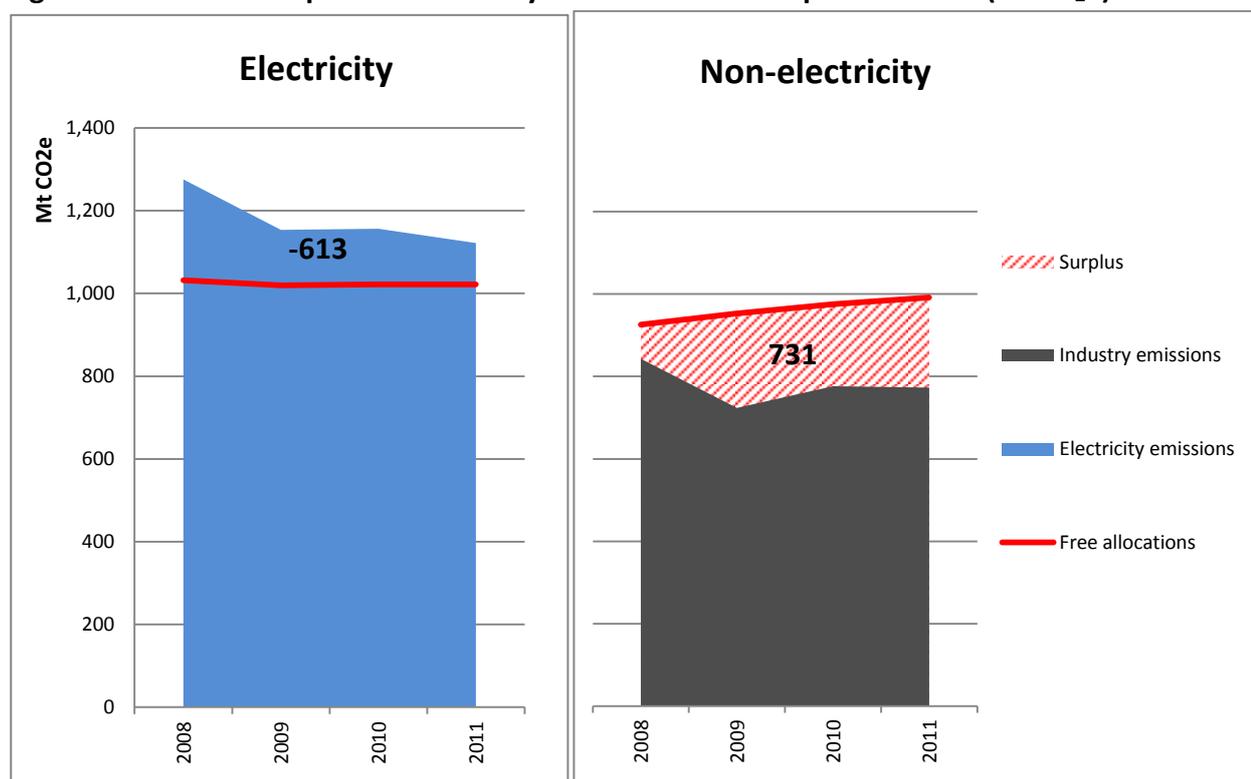
³¹ Poland emitted 383Mt (excluding LULUCF) in 2009 according to UNFCCC data

Concealed industrial free allocations

As we have sought to show in our previous reports, the 392Mt surplus in the net position conceals the true extent of excess free allowances awarded in the scheme. A substantial shortfall of allowances in the electricity sector (-679Mt) disguises the surplus free allowances for non-electricity installations (797Mt). The remaining 274Mt consists of allowances which were auctioned rather than given away for free to participants.

This 797Mt of surplus free allowances accrued in these industrial installations over just four years amounts to more than their current annual emissions.³²

Figure 8: Industrial surpluses masked by the shortfall in the power sector (MtCO₂e)



Year	2008	2009	2010	2011E	2008-2011
Electricity shortfall	-244	-134	-134	-100	-613
Non-electricity surplus	83	229	199	299	731
Auctions	44	67	89	75	274
Total/Net surplus	-117	161	154	194	392

Source: CITL and DG Enterprise and Sandbag

Allocations are adjusted for known process gas transfers.

Totals may not add up exactly due to rounding

³² 2011 emissions for non-electricity installations were 773Mt

Box 1: Methodology for defining the Electricity sector

As with last year's report 'Buckle Up!' we have defined the electricity sector using NACE economic activity codes rather than the CITL activity code used by most analysts. Many CITL "combustion" installations are involved directly in industrial processes that do not generate electricity for third parties. Such installations have also often benefitted from generous free allocations. By defining electricity generators more narrowly, we get a more accurate picture of the scarcity of free allowances faced by the power sector.

Using data provided by DG Enterprise, we have defined electricity generators as any installation with a NACE 40 descriptor, i.e. "The production electricity, gas, steam or hot water supply". These allocations have been adjusted to take into account any waste gas information we have received.

As Sandbag's analysis focuses on surpluses and shortfalls within the scheme, our yearly aggregate figures ignore any installations which did not submit data for both allocations and emissions each year. Our figures can therefore sit 0.1-0.2% lower than unfiltered CITL totals

Industrial windfalls from the EU ETS

Several academics have drawn attention to the problem of the electricity sector achieving windfall profits by passing through the opportunity-costs of their free carbon allowances³³, but energy consumers are also unwittingly generating windfalls to the industrial sectors, through the permits the power sector purchases to cover its shortfalls.

The power sector can resort to both offsets and to publically auctioned permits before purchasing permits off the market, but this still suggests that, *at a minimum*, the sector has purchased **167Mt** in the first years of Phase 2 when allowances were more expensive and worth approximately **€3.6 billion**.

Table 1: Minimum EUAs purchased from industry by the power sector (Mt/million)

Year	2008	2009	2010	2011	To date
Electricity shortfall	-244	-134	-134	-100	-613
Electricity Offsets surrendered	45	55	86	110	297
Auction permits available	44	67	89	75	274
Minimum EUAs purchased from industry	155	12	0	0	197
Value at average EUA price for that year ³⁴	€3461	€158	-	-	€3619

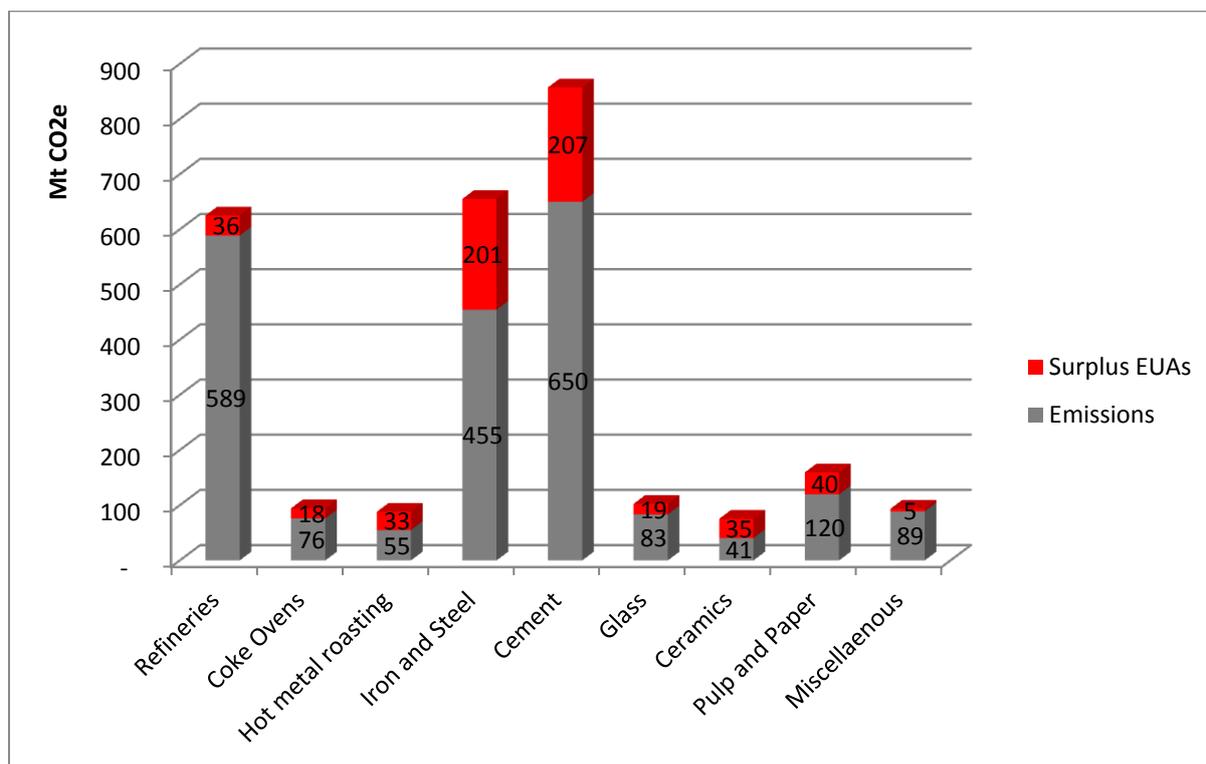
³³ Jos Sijm, Karsten Neuhoff and Yihsu Chen, *CO2 cost pass through and windfall profits in the power sector*. (<http://www.eprg.group.cam.ac.uk/wp-content/uploads/2008/11/eprg0617.pdf>). Electricity Policy Research Group, University of Cambridge, 19 June 2006.

³⁴ Using the average spot price of EUAs in 2008 and 2009 in the Blue Next exchange www.bluenext.eu

Carbon fat cat sectors: Cement and Steel

If we take a closer look at the individual industrial sectors we get a better sense of where surplus Phase 2 surplus allowances are concentrated and where this cross-subsidisation from electricity consumers was most likely to have happened. An overview is provided in Figure 9 below:

Figure 9: 2008-11 industrial surpluses by CITL activity code



- Source: CITL and author's calculations.
- Allocations are adjusted for known process-gas transfers.
- Note that "industry" as defined by CITL sectors 2-99 is different to "industry" defined as non-electricity sectors discussed above, which relies on NACE data.

We see the lion's share of surpluses are associated with installations in the steel sector and the cement sector, which together account for **408Mt** or **69%** of all industry surplus (as defined by CITL 2-99³⁵). In addition, despite being net oversupplied, these two sectors have surrendered **138Mt** of offsets into the scheme, further compounding their existing surpluses.

Given the scale of the surpluses these two sectors have already accrued as a result of their generous treatment in National Allocation Plans across Europe, it is remarkable to find that their European trade groups, Eurofer and Cembureau, have persistently resisted proposals to increase the ambition of the EU ETS or Europe's 20% target on the basis of threatened competitiveness.

Cembureau now conveniently frames this resistance as an appeal for "regulatory certainty"³⁶, seemingly heedless of the investor uncertainty created by demand changes against the fixed cap.

Eurofer recently spearheaded a letter to the Danish Presidency, undersigned by Cembureau, insisting that "**current 2020 targets on emissions should not be revised.**" (their emphasis).

³⁵ Note that elsewhere in the report we sometimes refer to non-electricity installations as "industry", defined as non-NACE 40 installations

³⁶ March 2012 <http://www.cembureau.eu/newsroom/article/cembureau-discusses-eu-ets-korea>

And in 2011 Eurofer went so far as to argue that a move to a 30% emissions reduction target would “lead to the de-industrialisation of Europe”³⁷

Despite being policed by the scheme for 7 years across two trading phases, these sectors have incurred no direct compliance costs to date, and have been able to sell on surplus allowances and arbitrage offsets for a handsome profit, even as their main operations have lost money owing to the recession. The additional costs that have been incurred from the ETS to date have principally been incurred from increased electricity costs, though, for the most part, these have been opportunity costs the electricity sector has passed-through for the allocations it received for free.

In terms of future costs faced, the Commission has been extraordinarily generous in its definition of carbon-leakage exposed sectors. Placing 150 industrial activities (out of 258) under this rubric, and affording them 100% of their allocations against their industry benchmarks out to 2020.

While these sectors may eventually face shortfalls against their benchmarked Phase 3 allocations, this point will now be substantially deferred, both because of their buffer of banked Phase 2 allowances and because of lower emissions expectations following the recession. But these shortfalls will not only be much lower and later than expected, they will also be massively cheaper than expected owing to the lack of scarcity across the whole market. Meantime, new state aid rules will entitle energy intensive industries generous protections against their indirect carbon cost.

In short, the steel and cement sector faced no direct compliance costs over Phase 2, and in Phase 3 will face only a tiny fraction of the compliance costs envisaged in the revised ETS Directive.

Finally, there is suggestive research by both CE Delft and Climate Strategies that both the steel and cement sectors may be passing on the “opportunity costs” of their freely allocated permits to their customers. If this is the case, we must question the sincerity of their fears that a carbon price would cause them to lose market share. CE Delft estimates that nearly 100% of EUA opportunity costs were passed through to steel customers across 2005-8, and that €14billion in windfalls accrued to the iron, steel and refineries sectors³⁸. Similarly, Climate Strategies has estimated that 33-90% of the value of free cement allocations will be passed through to cement consumers in Phase 3.³⁹

³⁷ Callanta, M. *EUROFER: "EU Low Carbon Roadmap 2050 unacceptable"*. Eurofer, 25 February 2011 www.eurofer.org/index.php/eng/News-Publications/Press-Releases

³⁸ www.ce.nl/publicatie/does-the-energy-intensive-industry-obtain-windfall-profits-through-the-eu-ets/1038

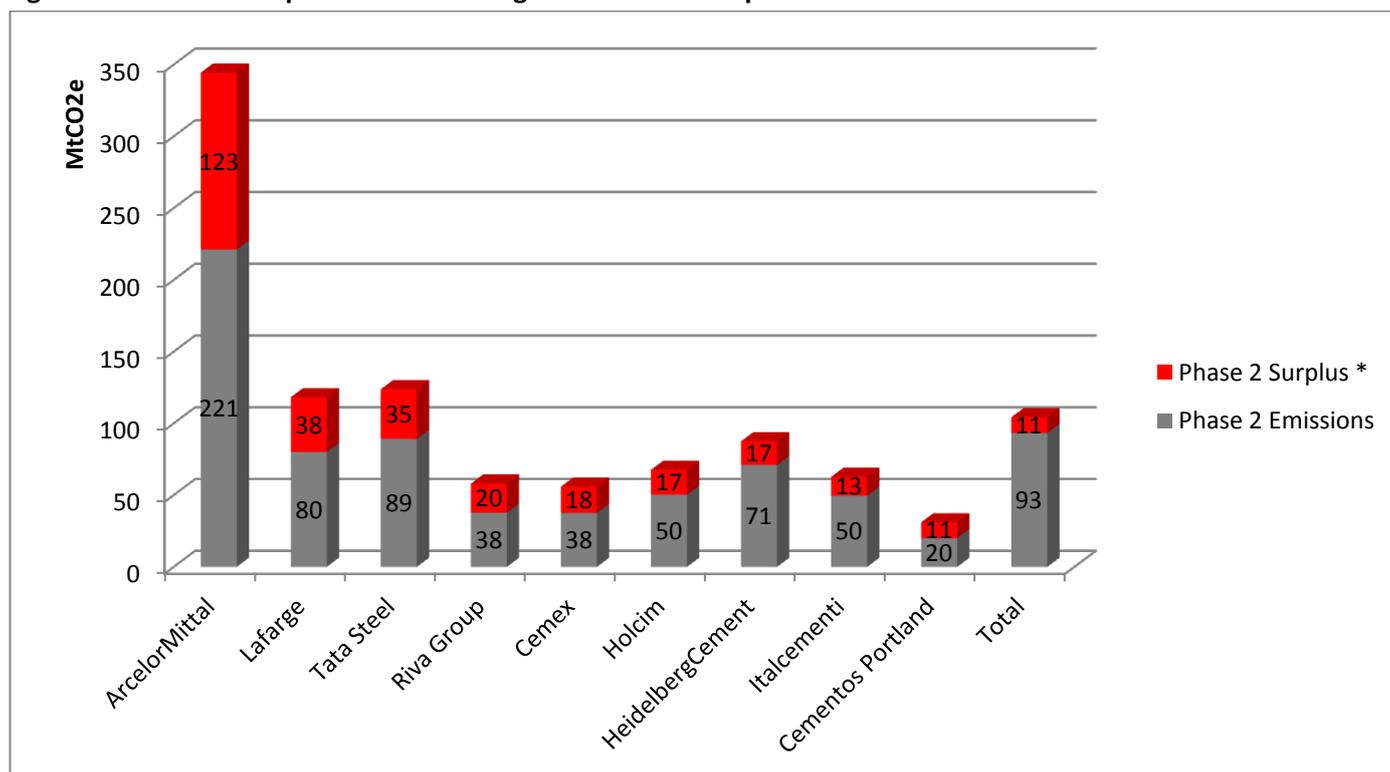
³⁹ “Climate change and the cement sector” by G.Cook, Climate Strategies, 2009, p.15 <http://www.climatestrategies.org/our-reports/category/32/222.html>

Carbon fat cat companies

Incredibly, some **304Mt** of surplus allowances are concentrated in the hands of just ten steel and cement companies.⁴⁰ This represents **78%** of the net surplus in the EU ETS and is nearly equivalent to the annual emissions of Spain.⁴¹

A breakdown of their emissions and surpluses is provided in descending order in the graph below:

Figure 10: The ten companies with the largest 2008-2011 surpluses



**Allocations are adjusted for known process-gas transfers and checked with companies
Source: CITL, Sandbag, and consultation with the companies profiled*

Sandbag manages a database which has extensively matched companies to ETS installations using CITL and manual research. We also attribute surpluses to any parent company that owns a controlling stake (exceeding 50%) in a subsidiary owning an ETS installation.

We find Arcelor Mittal retains the dubious privilege of being the company with the largest absolute surplus in the EU ETS for the 4th year running. Lafarge remains a distant second, and Tata third. ThyssenKrupp has fallen from 4th place last year down to 14th place (with surpluses of 9.4Mt) after correcting for an installation we had previously misattributed to it. This moves our other Fatcat stalwarts Riva Group, Cemex, Holcim, Heidelberg Cement and Italcementi up by one place compared to last year's report. Note that as we move down the list the difference between companies grows less pronounced: this has allowed Salzgitter (9.3Mt of surplus) to drop from 10th place last year to 15th place down behind ThyssenKrupp. Cementos Portland and Total Steel have now crept into the bottom of our top ten. **To coincide with this report, we have prepared an interactive online map of these carbon fatcat companies at www.carbonfatcats.eu**

⁴⁰ As we note below, these companies control operations across as many as 8 CITL activity codes, and not just CITL 5 and CITL 6.

⁴¹ Spain's emissions were 341Mt in 2009 including LULUCF. See Data viewer at www.unfccc.int

It is important to highlight that not all of this surplus has arrived through recession or overallocation, and some of this has been achieved through active abatement. Holcim, for example specifically claims 3.5Mt of its surplus can be attributed to efficiency improvements.

Indicative value of surplus EUAs and EUA/CER swaps

As discussed in our sector overview above, these surplus allowances can be used either to hedge against anticipated future shortfalls or sold to gain revenues.

In the table below we explore the indicative value of these surplus free allocations to each company, including the margins made on additional EUAs freed through surrendering unnecessary offsets.

We conservatively estimate the combined potential revenues of these EUA assets at € 4.5 billion⁴². By scrutinising company reports, we were able to confirm revenues of at least €1.8 billion.

Table 2: Revenues from EUA sales and arbitrated offsets over 2008-2011

Company	Surplus (Mt)*	Offsets (Mt)	Estimated value (€ mln)	Reported revenues (€ mln)
ArcelorMittal	123.2	31.9	€1,887	€ 250 ⁴³
Lafarge	38.2	11.3	€574	€ 562 ⁴⁴
Tata Steel	34.6	5.7	€502	-
Riva Group	20.2	4.6	€307	-
Cemex	18.4	2.0	€276	€ 245 ⁴⁵
Holcim	17.4	5.2	€259	€ 180 ⁴⁶
HeidelbergCement	16.6	3.1	€247	€ 340 ⁴⁷
Italcementi	13.2	4.2	€190	€ 135 ⁴⁸
Cementos Portland	11.0	1.0	€159	€ 108 ⁴⁹
Total Steel	10.9	3.0	€149	-
Totals	303.6	72.1	€4,549	€ 1,820

*Surpluses adjusted for waste gas transfers

We found that in some cases (Heidelberg Cement) companies managed to exceed the estimates revenues as we have calculated them here, suggesting they have fully leveraged these assets for revenue, and also sold them into the market at a time when prices were relatively high.

We lack records of any 2008 sales for Arcelor Mittal, Heidelberg Cement and Italcementi, but expect fewer sales that year in any case. We were unable to locate the 2011 Annual Report for Cementos Portland Valderrivas, and we found no sales records at all for Tata, Riva Group and Total.

A note in the Italcementi annual reports on the motive for EUA/CER swaps is telling. In 2007 the company engaged in forward swapping of offsets for Phase 2 EUAs, “on the basis of production

⁴² Value is taken from the year in which the surplus allowances were released. Document sales of allowances sold each year are given in further detail in specific company profiles below.

⁴³ See www.pointcarbon.com/news/1.1747400 and <http://www.pointcarbon.com/news/1.1504239> No 2008 figures identified

⁴⁴ Annual Reports at www.lafarge.com (see Page F29 2011, Page 114 2010, Page F29 2009, Page 186 2008)

⁴⁵ 2011 Annual Report: http://www.cemex.com/InvestorCenter/files/2011/CX_AR2011.pdf Page 44

⁴⁶ Annual reports (Page 55 2011, Page 123 2010, Page 106 2009) www.holcim.com

⁴⁷ Annual reports (Page 172 2010, Page 179 2011): <http://www.heidelbergcement.com/NR/rdonlyres> No value for 2008 found

⁴⁸ Annual reports (Page 124 2011, Page 120 2010, Page 120 2009) www.italcementigroup.com No value for 2008 found

⁴⁹ Annual reports (Page 162 2010, Page 84 2008) http://www.valderrivas.es/recursos/doc/Accionistas_Inversores/

forecasts indicating a deficit in emission rights”; thereafter, the justification of its swaps and sales is to “diversify and optimise its CO₂ emission rights portfolio”, i.e. to maximize financial gains.⁵⁰

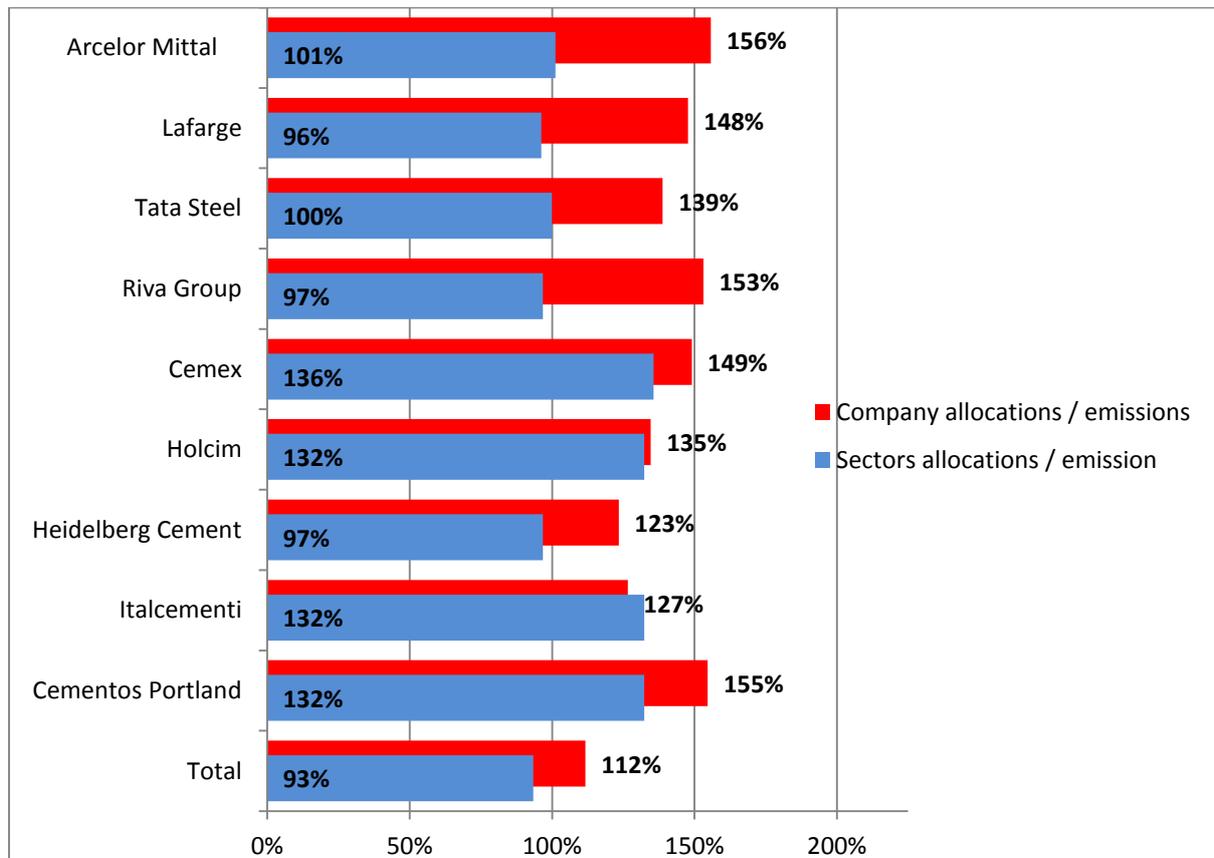
Phase 2 allocations as distortions of the internal European market

Not only does this level of surplus push up the caps across the whole scheme it raises the question of competitive distortions within the EU market. There were remarkable differences in the way different EU Member States treated sectors in their National Allocation Plans, with some putting significantly more pressure on their electricity sectors in order to buffer preferred industries.

While harmonised benchmarks will ameliorate this problem in Phase 3, the legacy of uneven Phase 2 allocations will continue to effect the pressures different sectors and companies face in Phase 3 and beyond. It might also be possible that larger companies with more lobbying capacity were able to leverage better treatment during the allocation process than smaller ones – especially those companies operating across a large number of European countries.

In the graph below, we investigate the extent to which our carbon fatcat companies have received favourable allocations compared with the European sectors they participate in. We do this by showing each company’s allocations as a proportion of their emissions (in red) and see how this compares with the proportional allocations of the sector (in blue).

Figure 11: Company vs. sector allocations (as a proportion of their emissions)



This overview graph summarises the aggregate position of each company against all the sectors it participates in (as many as 8 different sectors in some cases).

⁵⁰ p.120 <http://www.italcementigroup.com/ENG/Investor+Relations/Report/>

Riva Group, Arcelor Mittal and Lafarge each received 54-58% more allocations as a proportion of their emissions than their cross-sectoral rivals in Europe.⁵¹ Meanwhile, despite its large absolute surplus, Italcementi's allocations are disproportionately low for the cement sector as a whole (the only sector in which it has ETS operations).

Fatcats forever?

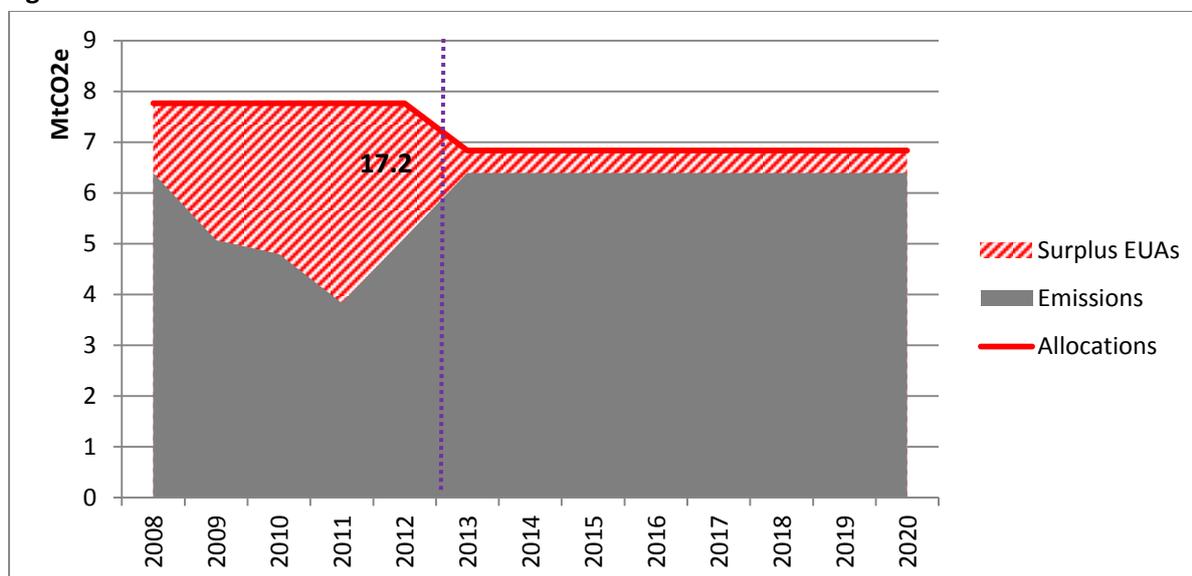
In the face of these Phase 2 surpluses, companies tend to invoke *future* costs and shortfalls under Phase 3 of the scheme to explain their continued resistance to tightening the ETS cap.

The publication of draft Phase 3 allocations by some member states allows us to evaluate to what extent these shortfalls will, in fact, arise. We do this by making some generous basic assumptions about their emissions going forward.

The ETS installations of Cementos Portland Valderrivas are exclusively in Spain, which has published its Phase 3 allocations. Even if emissions across all of their installations recovered to their highest levels over 2008-2011 (i.e. 67% higher than their current levels) and stayed there across Phase 3, Cementos Portland would still continue to accrue surpluses right out to 2020 totalling 17.2Mt. This volume would be sufficient to cover its emissions for almost three additional years.

These ongoing surpluses help explain why Cementos Portland Valderrivas has been so ready to sell all of its 2008-2010 surplus allowance into the market⁵². With greater confidence that their emissions would be covered by benchmarks well into the future, Cementos Portland Valderrivas, could sell allowances without fear of having to purchase them back anytime in the near future.

Figure 12: Cementos Portland indicative overview for 2008-2020



Similarly, all of Tata's installations (save one very small Belgian installation) fall within the UK and The Netherlands. Draft Phase 3 allocations for both countries have been published. If we again assume these installations return to their highest emissions across 2008-2011 (i.e. 41% higher than current levels) and plot these against their 2008-2020 allocations (adjusting for ongoing waste gas transfers⁵³), we find the company will not need to purchase additional allowances until 2020 when it

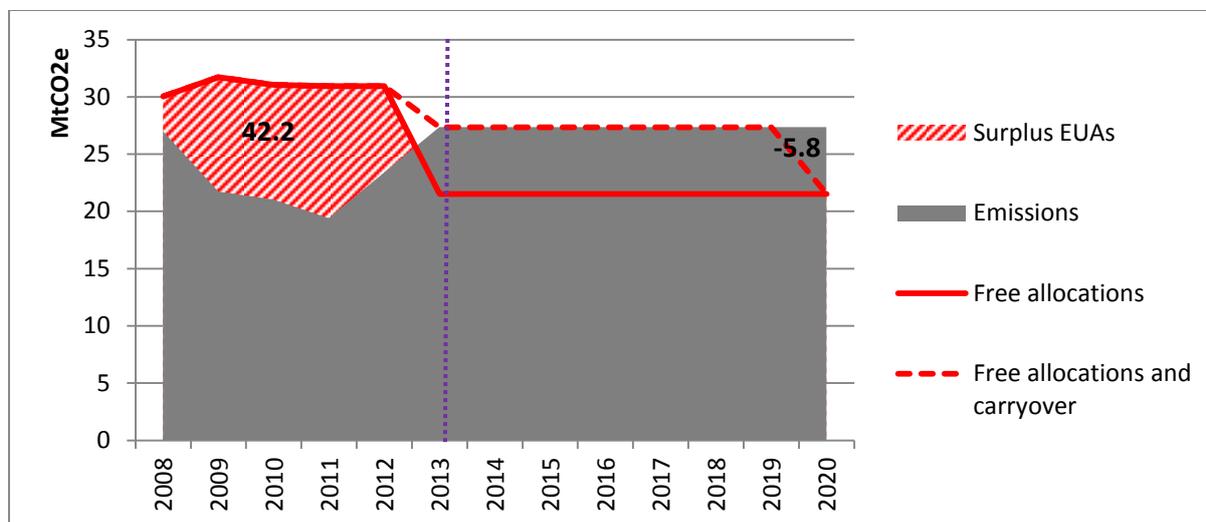
⁵¹ A caveat of this methodology is that insofar as it compares Phase 2 allocations with Phase 2 emissions it could potentially represent those companies who were most affected by the recession within their sectors

⁵² We could not find record of 2011 sales.

⁵³ Again using highest figures from 2008-2011. Historical waste gas figures were approved by Tata.

will face only 5.8 Mt of shortfalls. We note that Tata has already surrendered 5.7Mt of offsets which is essentially sufficient to cover this shortfall of free allowances.

Figure 13: Tata indicative overview for 2008-2020



In summary, a snapshot of the two “carbon fatcats” for which we have the best Phase 3 data finds them facing negligible compliance costs between now and 2020.

Box 2: Company data and waste gas transfers

After initially identifying a shortlist of the most oversupplied companies using CITL and Sandbag’s company database (which matches companies to ETS installations), we double check our information on installation ownership with the companies and ask them to identify any waste gas transfers we have not accounted for that would mitigate their surpluses.

Steel facilities produce combustible greenhouse gases as a by-product of industrial processes. Instead of being flared, or released directly into the atmosphere, these gases can be redirected to nearby combustion facilities where they can be burnt to generate energy, avoiding significant greenhouse gas emissions. Under the EU ETS Directive, it is the waste gas producer, rather than the combustion installation that receives the allowances for these gases, but they are obliged to pass them forward to the combustion installation at no cost.

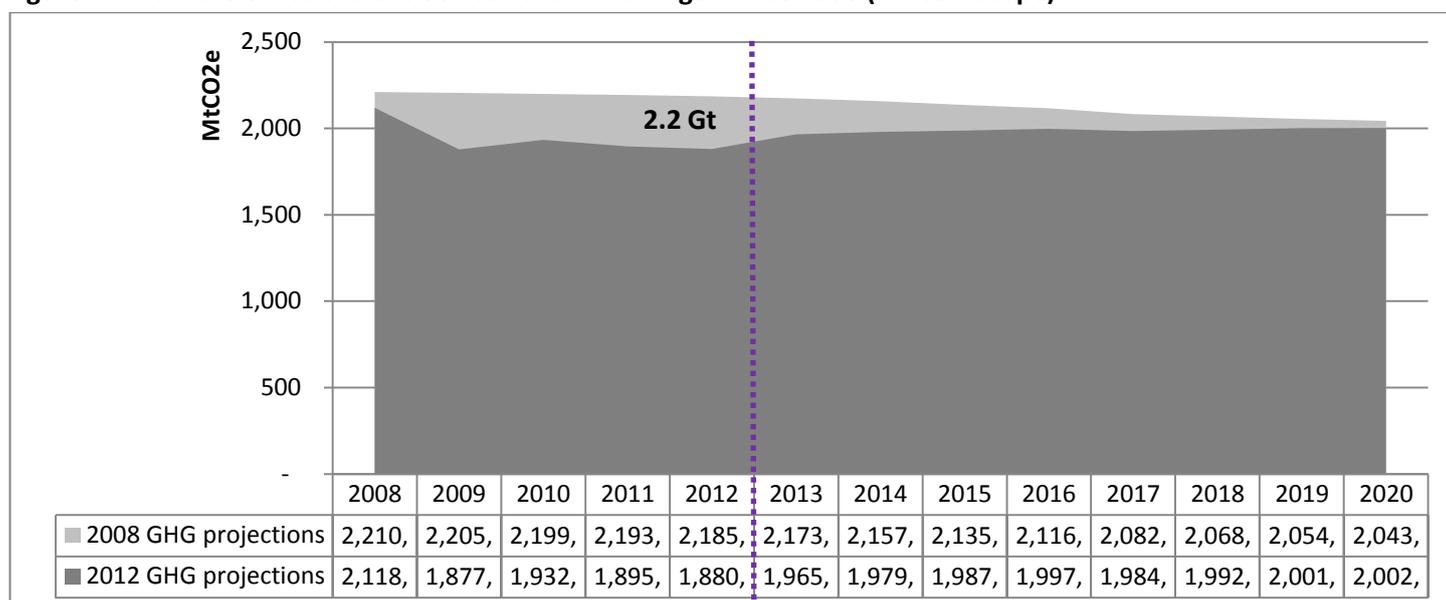
In most cases, commercial sensitivity has prevented companies from giving us precise information about the scale of allowances transferred. Instead they have identified the combustion installations that receive their waste gases and suggested we derive the transfers from their shortfalls. We note, however, that this methodology is likely to produce a systematic bias which exaggerates the scale of allowances transferred because it is distorted by pre-existing shortfalls in the combustion sector. This has been confirmed in the rare cases where companies have been able to share precise figures with us.

The changed demand outlook

Radically changed emissions projections

Today, Europe finds itself in an utterly different landscape than the one it had envisaged when the Phase 3 caps were set. Back in 2008, analysts anticipated that there would be some **2.2 billion tonnes** more emissions in the traded sector across 2008-2020 than they now foresee. Now, in the wake of the recession and in the shadow of new climate policies⁵⁴, the ETS cap finds itself with over a year's more allowances than was bargained for. The following graph is compiled from data taken from two Deutsche Bank reports taken four years apart.

Figure 14: How the emissions outlook to 2020 has changed since 2008 (Phase 2 scope)



Source: Deutsche Bank "It Takes CO₂ to Contango" (2008) and "Scoping the Phase 3 cap" (2012), Phase 2 NAPs on CITL and Author's calculations

If we plot the 2008 emissions projections against the current cap (controlled for Phase 2 scope), we find the traded sector was originally expected to face shortfalls of 2.4 billion tonnes compared with 240 million today. The cap is working ten times less effectively than planned.

This principle cause of this 2.2Gt change has been recession. As with the Kyoto Protocol emissions cap, we find that emissions reductions that are a passive by-product of economic contraction are creating a legacy of "hot air" carbon allowances. These in turn defer the investment in low-carbon technology that the EU ETS was supposed to deliver.

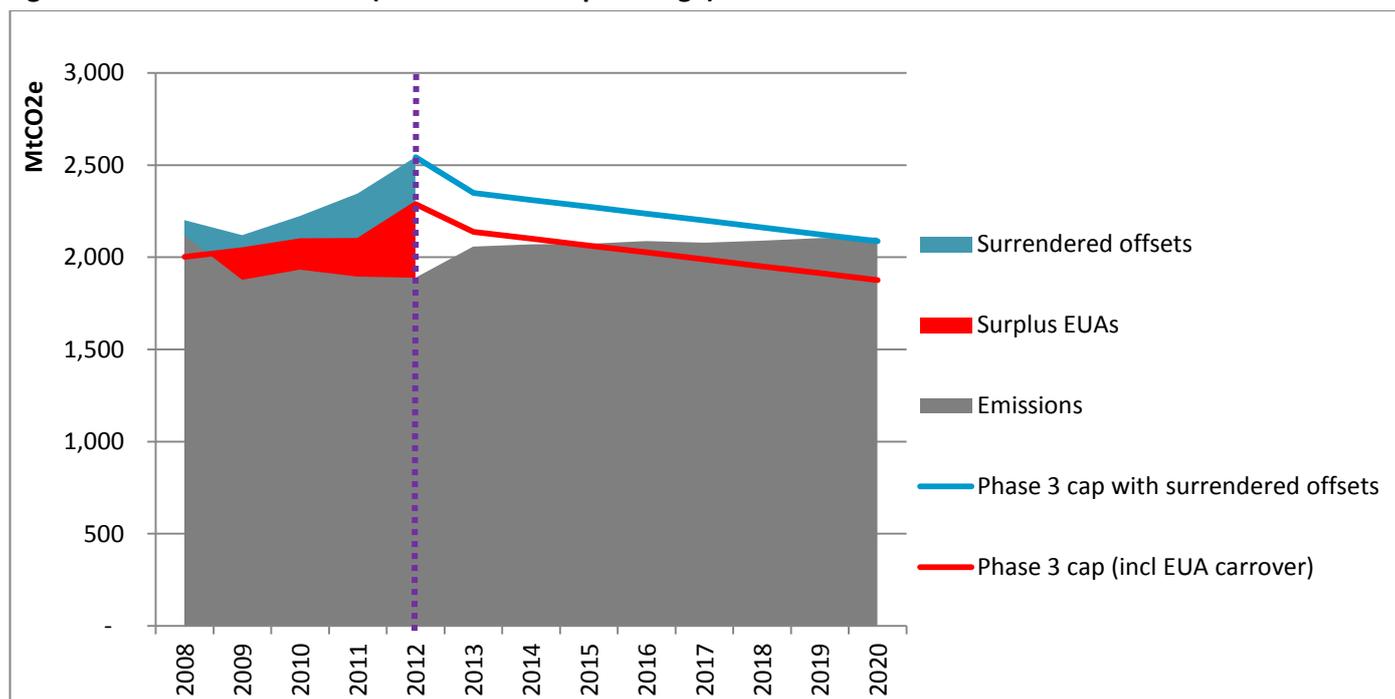
⁵⁴ Both the 2008 and 2012 Deutsche Bank forecasts cited included an adjustment for the RES.

The role of offsets in the new demand outlook

As with the cap on domestic allowances, the offsetting rules were established with an entirely different demand outlook in mind, with some 2.2Gt of additional scarcity expected over the period.

Looking closer at the new demand outlook, now factoring in Phase 3 scope emissions and additional EUA demand from the aviation sector, analysts expect to see the EUA cap delivering around 613Mt of cumulative shortfalls by 2020⁵⁵, but these shortfalls will be vastly eclipsed by some 1,686Mt of offsets surrendered into the scheme – far more than is necessary to meet the cap.

Figure 15: 2008-2020 outlook (with Phase 3 scope change)



In the new context, with emissions depressed by the financial crisis, the sovereign debt crisis and by other national and European policies, massive quantities of offsets are being surrendered into a market at a time when it is oversupplied with domestic allowances and is set to face only modest shortfalls out to 2020.

Offsets were intended to be *supplemental* to domestic abatement, acting as a price-containment mechanism in the event that the scarcity of domestic allowances made EUAs forbiddingly expensive; but now they are the *principal* form of abatement being driven by the scheme, and are depressing the ailing carbon price further by reducing the demand for EUAs.

The Phase 3 scope, modified to reflect original demand expectations would deliver some 2.8Gt of cumulative shortfalls by 2020. Against this backdrop, a 1.7Gt offset budget might have been defensible and proportionate, but it has no place in the new demand context where only 0.6Gt of shortfalls are expected.

Still one must ask, with no abatement currently required under the scheme, what is motivating this unnecessary use of the offset budget?

⁵⁵ Derived from CITL figures, the ETS Phase 3 cap announced from the Commission and forecast emissions from Deutsche Bank's *ETS Reform Should Not Be Set Aside* (2012)

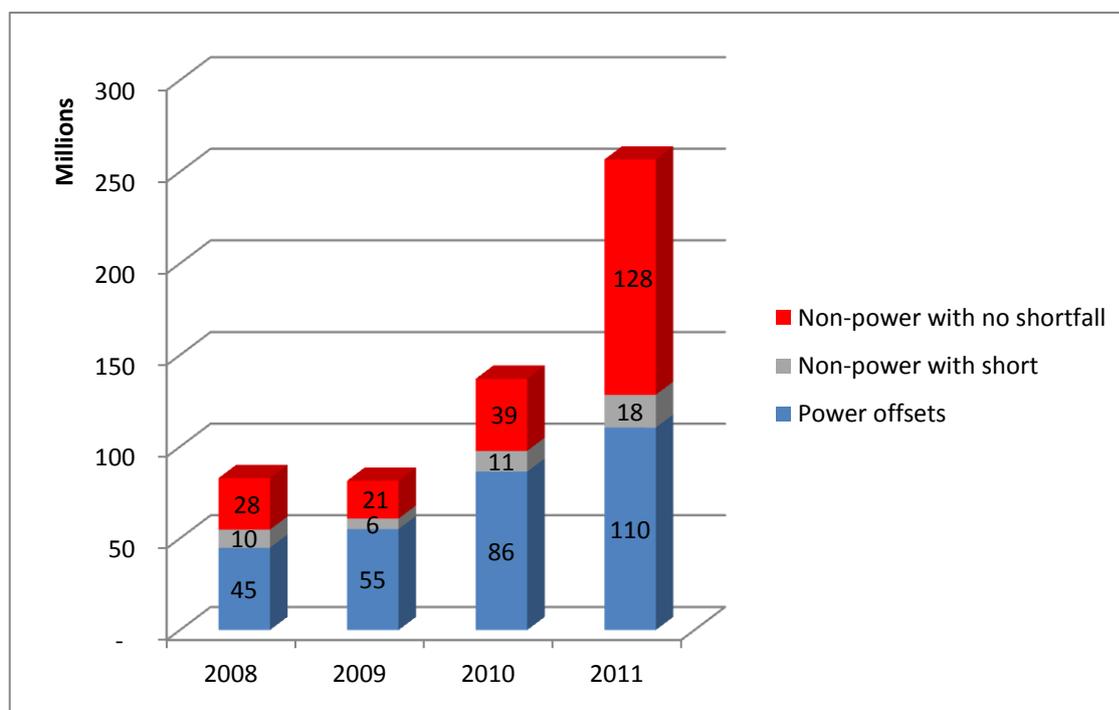
a) Genuine hedging

Power installations face a shortfall of free allocations in Phase 2, and in most cases face full-auctioning of their allowances from 2013. It is therefore economically rational for them to seek the cheapest form of compliance to hedge against their future emissions. A small minority of industrial installations find themselves facing shortfalls against their current or future free allocations.

b) Offset arbitrage

But as offsets are consistently cheaper than domestic allowances by their very design, there will be many cases where companies facing no past or imminent shortfalls will have surrendered offsets simply to free up EUAs that would have been used for compliance and sell them on at a profit – this kind of “offset arbitrage” is, again, economically rational and perfectly legal within the current directive, but completely violates the idea of complementarity and cost-containment that offsets were designed for. We see suggestive evidence that **216Mt**, accounting for **39%** of the offsets surrendered into Phase 2 to date, have been superfluously surrendered into the scheme by industrial installations which have not faced shortfalls at any point.

Figure 16: Unnecessary offsets used by industry installations facing no shortfalls



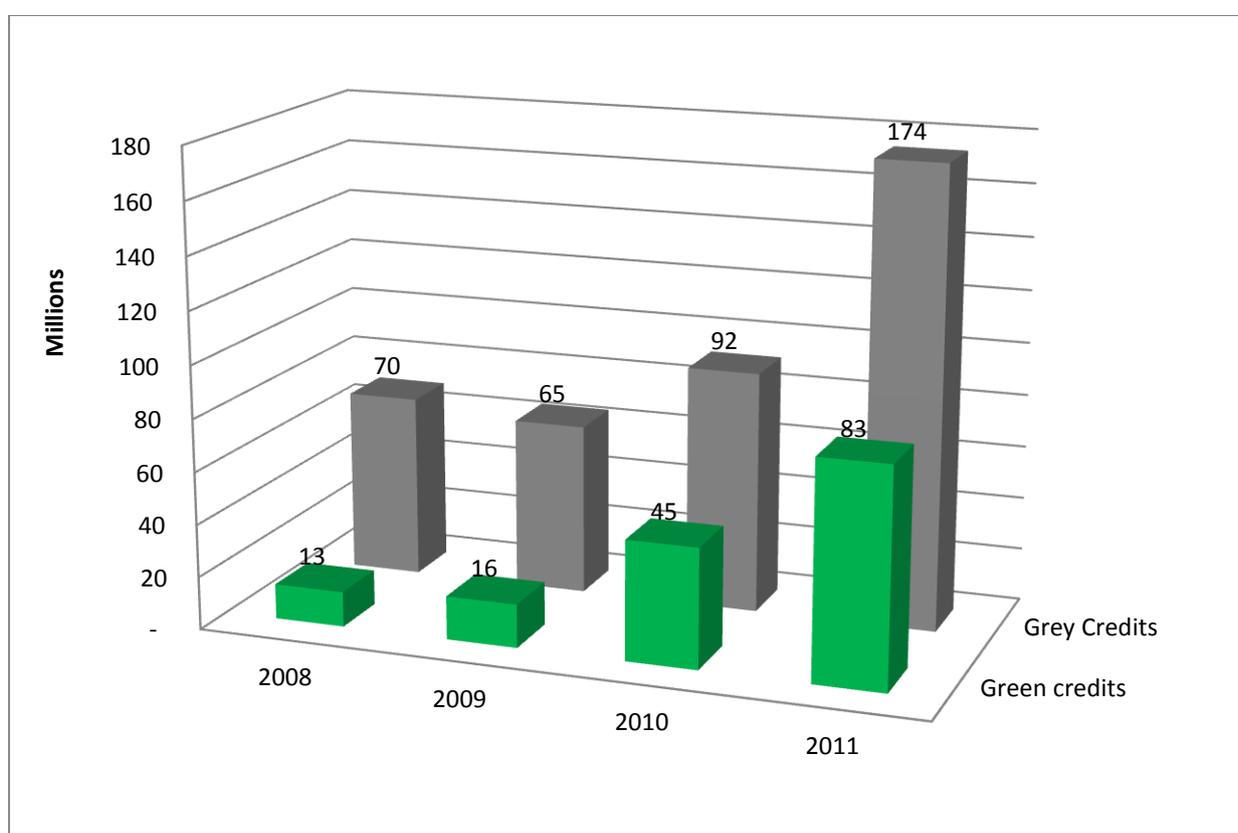
Box 3: EUA pricing vs. offset pricing

In principle, the price of EUAs tracks the lowest cost of domestic abatement within Europe’s traded sector. By contrast, the minimum price to generate offsets is the cost of abatement projects anywhere in the developing world, but the price they are sold for is based purely on global demand. The ETS is the biggest market for offsets in the world and offsets are likely to be attractive at any price which is cheaper than domestic reductions or allowances. This can give project developers very large margins, as we observe in the industrial gas destruction projects.

c) A rush on industrial gas credits

Insofar as offsets represent real abatement, the supply of UN offsets does not affect the environmental integrity of the cap. Unfortunately, though, the banning of those industrial gas credits which were considered most environmentally questionable has created a rush to surrender them before they are barred. Since the announcement of the ban in January 2011, a steady surge in HFC-23 and adipic acid N₂O offset credits have been surrendered into the scheme as compliance installations seek to hedge against future EUA shortfalls at least expense, or maximize their arbitrage profits as described above. Furthermore, companies with contracts which include delivery of HFC-23 and N₂O adipic acid credits will be eager to minimise their exposure and avoid the risk of stranded assets. As the 2010 compliance period did not end until April 2011, this surge can be observed even for that year.

Figure 17: Grey vs. green offsets surrendered 2008-2011



d) Uncertainty about the future availability

There are a number of uncertainties that hang over the future of offsets in the EUETS. There is still the possibility of further quality restriction of credit types, with the additionality of large hydro projects being repeatedly questioned. Offset projects registered after 2012 will be unable to sell credits into the EU ETS unless they hail from Least Developed Countries (LDCs).

Ambiguity about the supply and validity of UN offsets after the first Kyoto commitment period expires adds to the general uncertainty. While the Kyoto protocol is set to be extended into a second commitment period from 2013 – 2017, it is yet to be seen if this will constitute an international agreement as referred to in Article 11a(7) of the EU ETS. Such uncertainties motivate compliance installations to surrender offsets into the scheme and substitute them for European allowances (whose future is more certain) while their validity is still guaranteed.

Recommendations

Short-term recommendations

When considering different interventions, we encourage policymakers to keep in mind the massive change in the demand outlook since the Phase 3 caps were set. In this connection, we strongly recommend the Commission publish its *own* calculations on how the 2008-2020 demand outlook has changed since the Phase 3 cap was set, informed by a thorough literature review. The Commission's forthcoming report on the EU ETS would be an ideal opportunity for this.

In the discussions leading up to both the Parliament's motion on the 2050 Low Carbon Roadmap and its report on the draft Energy Efficiency Directive (EED), the question of restoring the incentives in the ETS to correct for the recession and/or restore the levels of ambition envisaged were repeatedly raised and the 2008 impact assessment⁵⁶ for amending the directive specifically cited, but despite this, the largest figure tabled has been a withdrawal of 1.4 billion allowances⁵⁷. While final recommendations on specific quantity have been left out of the final language in both the Parliament's motion on the Roadmap and the ITRE committee's draft report on the EED, modest earlier proposals continue to frame and limit the debate. This limitation is reflected in the Commission's imminent review of the auction regulations, which rumoured to involve withholding between 400Mt and 1,200Mt allowances⁵⁸. In short, the politics of carbon market reform in Europe have not caught up with the scale of the crisis confronting the scheme.

With a supply of carbon allowances frozen from an era when the economic future looked much rosier, this massive change in the demand outlook has brought the carbon price so low that it even fails to drive fuel switching from coal to gas. A recent report from Deutsche Bank argued that as many as 1.2 billion allowances would need to be set aside from Phase 3 even to achieve a sufficient price for even this modest goal.⁵⁹

Sandbag recognises that the ETS is failing to deliver cost-effective long term abatement because the carbon budgets are being met too easily in the short term, delivering a weak investment signal. This has led some commentators to propose price-interventions that do not change the absolute supply of allowances within the scheme. As an environmental NGO we feel this would be a wasted opportunity, and argue that, ***wherever possible, price tension in the ETS should be maintained through increasing environmental ambition rather than through merely temporary (or regional) supply bottlenecks.***

1) Withdraw 2.2Gt from Phase 3 auctions to reflect demand change since 2008

As we have outlined in the previous section, we find the demand for allowances within the ETS has been reduced some 2.2Gt since the Phase 3 caps were set, and recommend adjusting the Phase 3 caps accordingly.

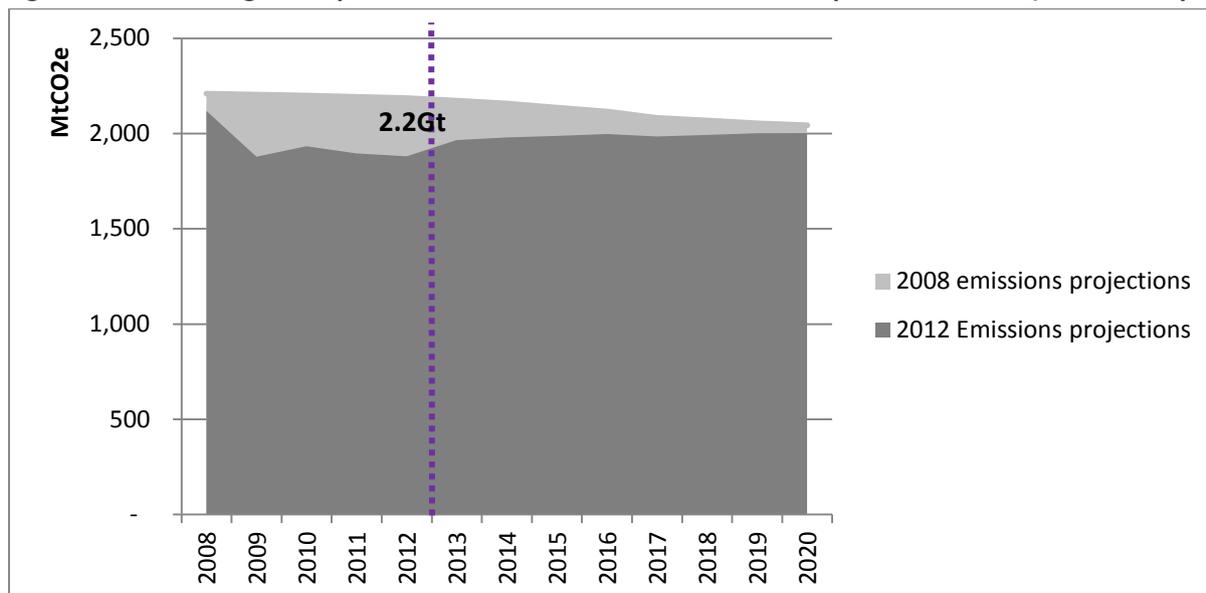
⁵⁶ http://ec.europa.eu/clima/policies/ets/docs/sec_2008_52_en.pdf

⁵⁷ See ENVI amendments 107 and 108 to the *Motion on a 2050 Low Carbon Roadmap* tabled by Bas Eickhout (Greens/EFA), Satu Hassi (Greens/EFA), Jo Leinen (S&D) to the ENVI, see ENVI amendments 324 and 342 to the Draft Opinion on the Energy Efficiency Directive tabled by Bas Eickhout, Linda McAvan, Pavel Poc, Dan Jorgensen, Sirpa Pietikainen, Corinne Lepage, Sabine Wils, Chris Davies, Vladko Todorov Panayotov, Gerben-Jan Gerbrandy and also see ITRE amendments 1490 and 1553 to the draft report on the Energy Efficiency Directive by Fiona Hall, Corinne Lepage, Vladko Todorov Panayotov and Britta Thomsen.

⁵⁸ www.bloomberg.com/news/2012-06-15/eu-said-to-favor-1-2-billion-co2-permit-sale-delay-in-report-1-.html

⁵⁹ p.23 ETS Reform Should Not Be Set Aside Deutsche Bank 2012

Figure 18: The change in expected 2008-2020 emissions since the caps were last set (Phase 2 scope)



Only an intervention on this scale would achieve the widely stated goal of restoring the levels of scarcity originally envisaged out to 2020 when the caps were last set.

2) Withdraw a further 0.9Gt from the Phase 3 auctions to correct for industrial overallocation

Independent of any corrections for the new demand outlook, we also find industrial sectors were oversupplied even in the original demand outlook.

By using the 2008 emissions projections for the whole traded sector, we can derive approximate forecasts for both the power and non-power sectors, and gain a suggestive indication of the scale of recessionary “hot air” accruing within each category and identify any surpluses this does not account for.

Box 4: 2008 BAU industry forecasts

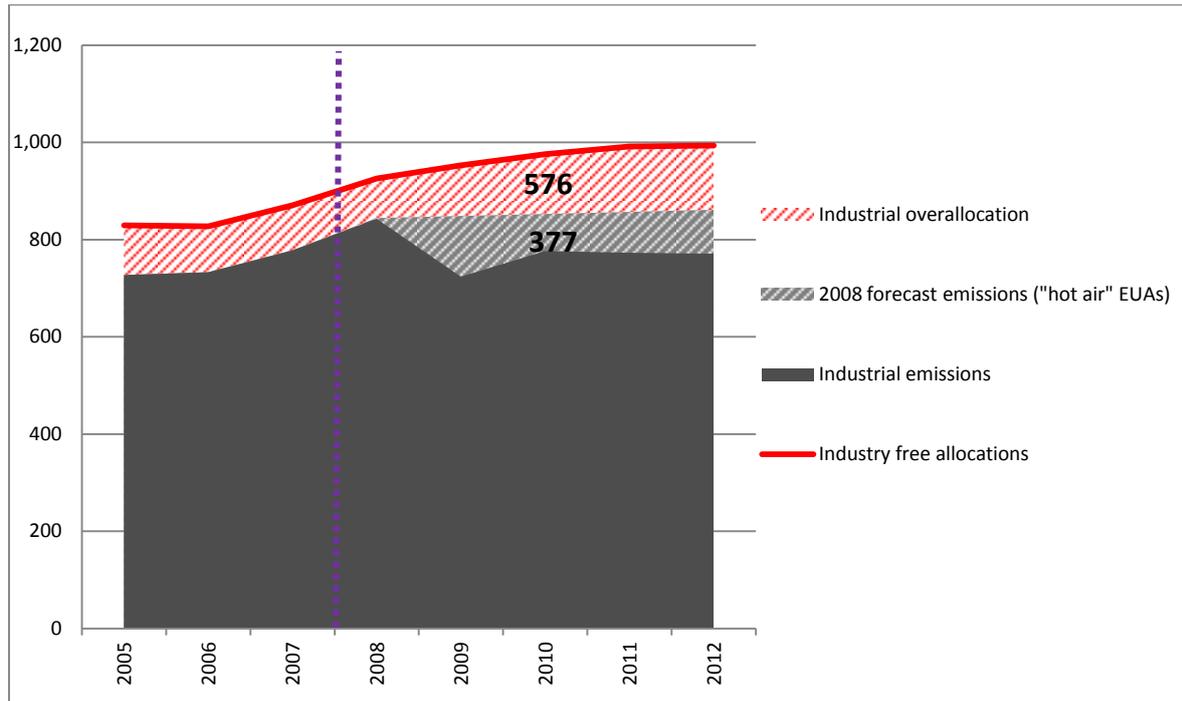
Owing to the nuanced NACE code definition of “electricity” installations in our methodology, we do not have external projections for emissions since 2008 (which principally use CITL 1 combustion as a proxy).

We derive an indicative 2008 outlook for industry emissions by taking their 37.91% average share of Phase 1 emissions and applying it to Deutsche Bank’s business-as-usual forecast (which is not adjusted for the RES directive).

Earlier in the report we discussed the 797Mt of surpluses that had accrued to industrial sectors over the last 4 years, a surplus we expect to grow to **1,037Mt** by the end of Phase 2. But when we run our derived 2008 business-as-usual emissions against this we find that only **377Mt** of this can be attributed to emissions reductions caused by the recession.

This indicative calculation still leaves 576Mt of surpluses unaccounted for, which suggests considerable buffer of allowances was awarded to industry by Member States.

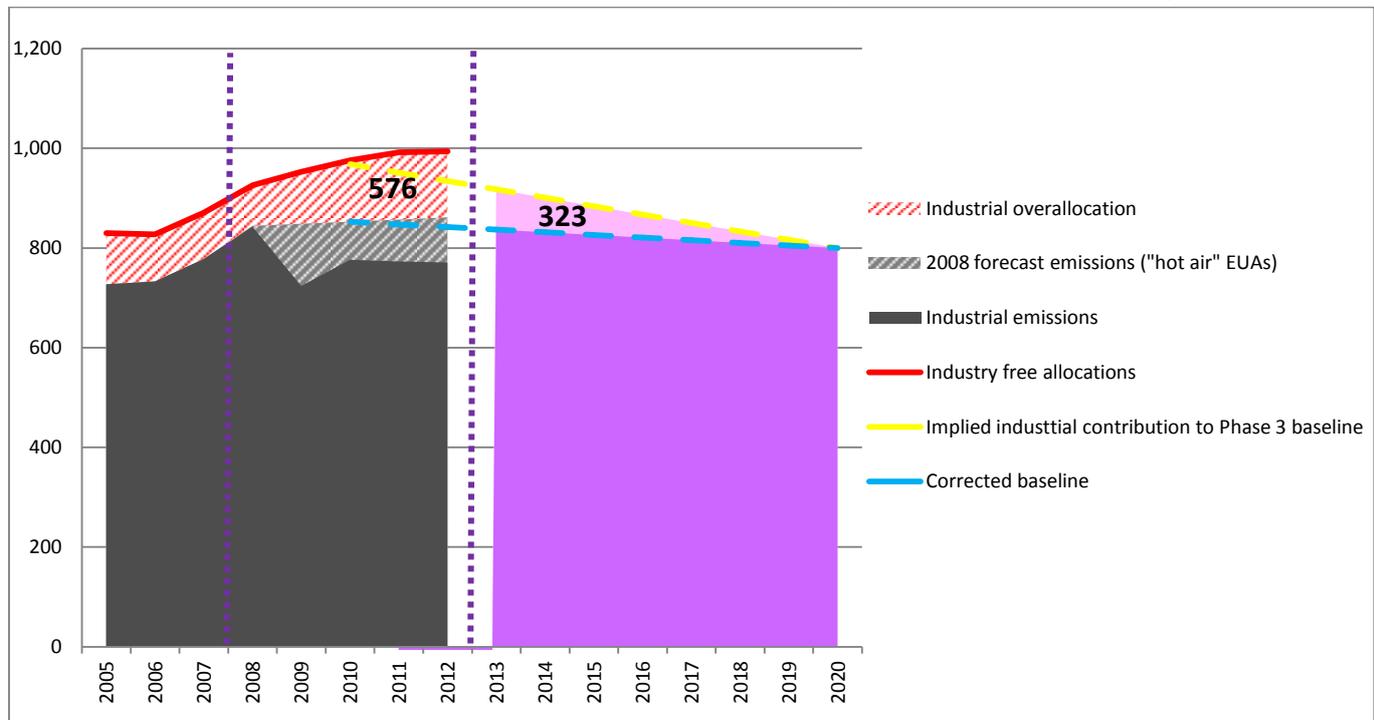
Figure 19: hot air and overallocation in industrial sectors (Phase 1 shown for context)



Source Deutsche Bank, CITL and Author's calculations

As Sandbag's reports since 2010 have sought to highlight, any overallocation in Phase 2 is multiplied in Phase 3, because the average quantity of Phase 2 allowances sets the baseline from which the Phase 3 cap is calculated.⁶⁰ By our calculations, a 576Mt of overallocation in Phase 2, involves a further 323Mt in Phase 3.

Figure 20: Phase 2 overallocation and its indirect effects on Phase 3 (Phase 1 shown for context)



⁶⁰ The Phase 3 cap follows an annual budget which declines by 1.74% each year against average Phase 2 allocations (backdated to 2010) and adjusted for scope change. This particular trajectory is set to achieve a -21% target against 2005 traded sector emissions by 2020.

Together, the two issues highlighted mandate a withdrawal of some 3.1Gt worth of emissions rights. By requiring substantially more domestic abatement, it would return a robust investment signal to the carbon market. It would also restore the intended complementarity to the 2008-2020 offset budget, ensuring that a more appropriate proportion of European low-carbon investment was taking place domestically compared with overseas.

Three ways to remove 3.1Gt

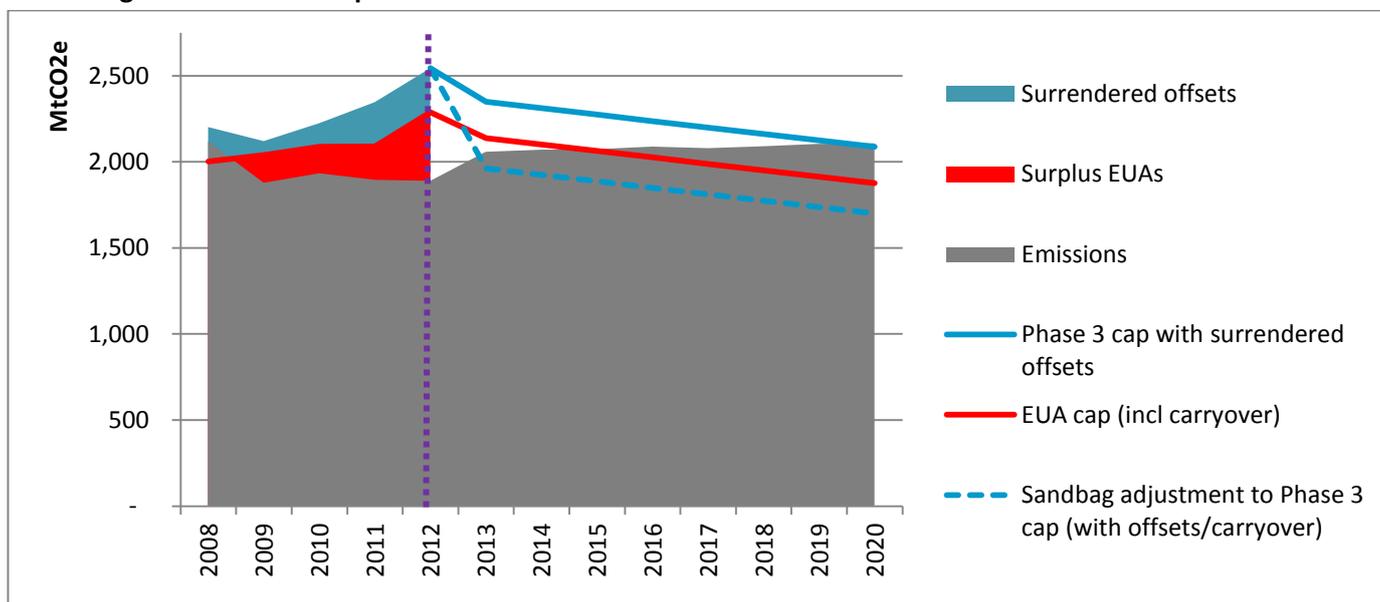
There are various options by which this 3.1Gt of excess allowances could be removed from the scheme.

a) 3.1Gt set aside cancelled from Phase 3 auctions

Sandbag’s preferred option would see these allowances completely withdrawn from Phase 3 auctions and cancelled through a dedicated revision of the Directive by 2015. At the time of writing, trilogue negotiations are still determining whether such a set aside could be implemented via the Energy Efficiency Directive.

Owing to the scale of the correction Sandbag advocates, we would propose an even 387.5Mt of allowances be removed from each year of Phase 3 auctions. We expect an intervention of this size would have a sufficient impact on the carbon price to drive real abatement and deliver a long term investment signal, and that any additional bottlenecks at the start of the Phase would unnecessarily inflate the price.

Figure 21: Phase 3 caps with 3.1Gt withheld from auction



b) Auctions reprofiled in line with 3.1Gt intervention and then cancelled from Phase 3

Independently of the negotiations on the Energy Efficiency Directive, the Commission has proposed backloading Phase 3 auctions, to create a bottleneck in supply which will boost the flagging carbon price. In keeping with the above recommendations, we advocate that any reprofiling follow the magnitude and trajectory outlined above, and defer the re-entry of allowances into the scheme until the latest date possible. We would advocate that these allowances are later cancelled before re-entry through a mid-Phase review of the Directive (e.g. following the publication of the IPCC 5th Assessment Report in 2015).

c) Withheld allowances are cancelled from Phase 4 budget

A third option is to cancel any allowances withheld as part of the review of the ETS directive conducted when deciding upon the Phase 4 carbon budget. Whatever budget is decided as appropriate for that period could be adjusted down to account for any permits re-entering the scheme (see next section for notes on setting the Phase 4 budget).

Longer-term recommendations

Climate Commissioner Hedegaard has signalled that the forthcoming ETS report from the Commission will also look at longer term structural reforms to the EU ETS to protect it from future shocks and minimize the need for ongoing political intervention. We outline some proposals to consider as part of that discussion below:

1) Establish an ambitious Phase 4 cap compatible with the sectoral milestones in the 2050 Low-Carbon Roadmap

We recommend reviewing the long term trajectory of the cap from 2020 to align it with Europe's 2050 goals, and to establish a Phase 4 cap on this basis as soon as possible. A suitably ambitious Phase 4 budget will help give the market foresight that a genuine scarcity of allowances is imminent, helping to support prices in Phase 3.

The annual linear reduction factor of 1.74% (37.4Mt) by which the Phase 3 cap was defined extends indefinitely beyond 2020. This trajectory is currently out of keeping with Europe's long term mitigation goals of reducing emissions 80-95% against 1990 levels by 2050. This is manifestly clear from the documents accompanying the Roadmap for a Competitive Low Carbon Economy in 2050, which translate the economy-wide milestone into reductions of roughly 90% in the traded sector (relative to 2005 levels)⁶¹. As this figure includes emissions from aviation, which are not controlled by a linear reduction factor, we have used targets separately supplied for the power and industry sectors:

Table 3: Milestones for ETS relevant sectors in the 2050 Low-Carbon Roadmap⁶²

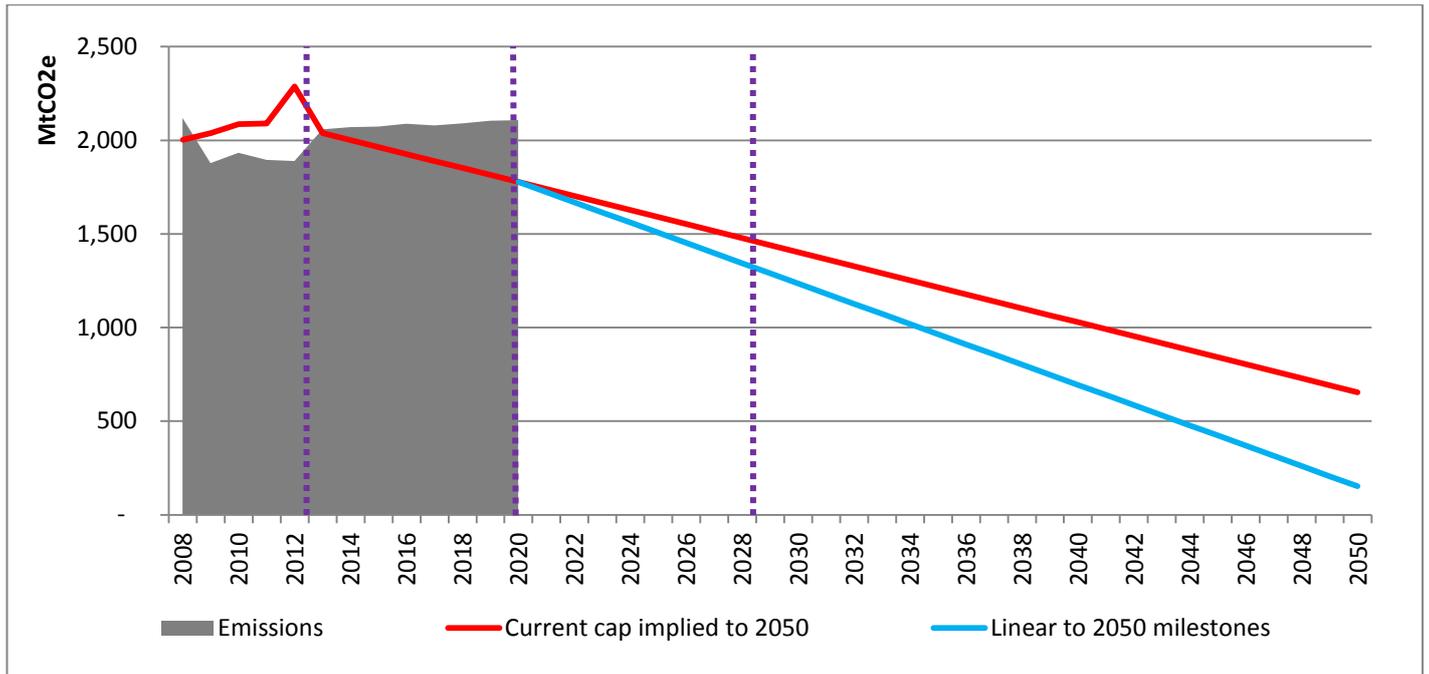
Sector (compared to 2005 levels)	2050 range (and midpoint)
Power emissions	-93 to -99% (-96%)
Industry emissions	-86% to -90% (-88%)

These imply an aviation controlled Phase 3 scope cap 93% below 2005 levels. Reaching this target would require a linear reduction factor of 2.52% or (54.1Mtp.a.). This trajectory would save 600Mt of emissions over Phase 4 (2021-2028) and save 7.8Gt over 2020-2050 compared with the current trajectory.

⁶¹ Table 9 of Impact Assessment accompanying the 2050 Low Carbon Roadmap

⁶² Table 1 of the Low Carbon Roadmap provides sectoral milestones against 1990 levels which we have converted to refer to the 2005 ETS baseline <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF>

Figure 22: ETS trajectories implied in the 2050 Low Carbon Roadmap



2) Establish permanent mechanisms to correct for drops in demand.

Regardless of the actions taken to remedy the current oversupply of EUAs or to improve the ambition of future ETS caps, there is currently no provision in the ETS directive to prevent the current situation from recurring, i.e. of exogenous shocks or policies reducing incentives within the EU ETS.

Without a formalised process to respond to these circumstances, the ETS will be at risk from ongoing political interference if these ever recur. We propose two solutions which can alter the supply of domestic allowances to ensure that the levels of scarcity envisaged when caps are set are better preserved.

i) A “heat exchanger” mechanism which corrects future ETS caps for banked EUAs

A significant problem posed by sudden drops in demand is the contamination of future phases with the legacy of allowances banked forward.

One way to mitigate the problem of banking hot air EUAs forward would be to introduce an ongoing mechanism between phases, which adjusts the supply of auctioned allowances in the subsequent phase to correct for net surplus EUAs in the preceding one.

By net surpluses we refer to the EUA cap minus all verified emissions for the same trading period. No offsets surrendered into the scheme would affect this calculation.

We refer to this as a “heat exchanger” mechanism, because it allows market participants to bank their EUAs between trading phases unimpeded, but prevents the passage of “hot air” from increasing the total supply of allowances in the next cap.

A similar proposal to this was tabled by the Commission as a one-off intervention in an early draft of the 2050 Low Carbon Roadmap:

“[T]he Commission has already indicated that excess allowances from phase 2, which are estimated to amount to 500 to 800 million allowances, would increase the total amount of allowances available to phase 3, compared to what was envisaged during the review of the ETS. Setting aside an

equivalent number of allowances during the period 2013-2020 in phase 3 would restore the originally foreseen overall allowances budget for the next decade.”⁶³

Note that this recommendation from the Commission, which was removed from the published version of the Low Carbon Roadmap, does not restore the original *scarcity* envisaged when the Phase 3 caps were set (which requires a 2.2Gt intervention described above) but only the original *supply*. Indicatively though, the latest projections find the Phase 2 cap oversupplied by roughly 600 million EUAs. Note that this ignores roughly 800 million substituted offsets that will also be banked forwards.

While this mechanism is insufficient to redress the current demand crisis, it might help mitigate future ones and prevent the need for ongoing political intervention. We offer separate proposals to maintain offset supplementarity when demand drops (see Recommendation 3 below).

ii) A strategic demand-correction reserve

As noted above, the “heat exchange” mechanism proposed does not restore scarcity but keeps spill-over allowances from one phase from contaminating another. An additional way of controlling supply *within* future phases would be to introduce a strategic demand-correction reserve. This could operate roughly along the lines of California’s Voluntary Renewable Energy Reserve⁶⁴, but on a larger scale:

A predetermined percentage of allowances are withheld from auction each year, and placed in reserve for a set period (e.g. 2-3 years). If no unusual drops in emissions take place over that period the allowances are returned to the market; however if exogenous demand-side reductions are identified (be they economic or policy based) this reserve will allow time for their effects to be calculated and a corresponding quantity of allowances to be permanently cancelled.

This reserve could also begin to account for voluntary emissions reductions affecting the ETS that are not yet captured by the scheme.

3) Introduce price controls on offsets to ensure their ongoing supplementarity

Sandbag does not recommend price interventions for EUAs as this risks replacing environmental ambition and preventing price discovery. We do, however, recommend price interventions for offsets: offset provisions exist chiefly to contain price and, as we have previously discussed, the chief problem with offsets is not environmental but instead concerns supplementarity and redundant price-containment.

To remedy this problem, the Commission could consider introducing a price trigger that only makes offsets available when the EUA price exceeds a pre-determined level. This could ensure a minimum demand for EUAs was achieved before offsets could be surrendered. While this would encourage domestic abatement up to a point, this price threshold might also become a “glass ceiling” for the EUA price as compliance installations rushed to surrender offsets every time the threshold was passed.

⁶³ p.8-9 http://www.sandbag.org.uk/site_media/uploads/Leaked_2050_roadmap_draft.pdf

⁶⁴ See Sandbag’s briefing on Californian set-aside policies for further details: http://www.sandbag.org.uk/site_media/pdfs/reports/California_set_aside_briefing.pdf

Another option would be to levy a top-up tax on compliance buyers at the point of offset purchase, which would effectively establish an offset price-floor. Such a mechanism would:

- a) preserve additionality: by removing the market advantage of the cheapest and most questionable offset projects against their better quality rivals⁶⁵;
- b) preserve supplementarity: by increasing the cost-attractiveness of abatement within Europe relative to abatement elsewhere;
- c) discourage carbon lock-in: by supporting rather than lowering the carbon price, and
- d) generate additional EU revenues

⁶⁵ Note that this does not interfere with the process of price-discovery as discussed in Box 3. The mark up on offsets is already enormous, based on the appetite for offset credits within capped markets.

Conclusion

The flexibilities afforded by emissions trading are undoubtedly a powerful tool, a tool that will help us collectively afford the dramatic emissions reductions we need if we are to avoid dangerous climate change. But emissions caps that are set too high are not only redundant but can actively cancel out the savings achieved by other policies and events by storing up allowances for later use.

Carbon budgets would not be vulnerable to this failing if they were determined on fair and scientific principles, but instead they are political compromises set against historical baseline emissions and business-as-usual forecasts. This makes caps redundant as soon as these emissions forecast prove exaggerated, as observed in the first Kyoto commitment period, in Phase 1 of the ETS and now again in Phase 2.

We find the EU ETS caps now carry over a year's worth of allowances more than originally envisaged (i.e. 2.2Gt), and also identify 0.9Gt in the cap resulting from industrial overallocation in Phase 2. Europe needs to shed these excess allowances and protect the ETS against unforeseen drops in future demand if the policy is to work effectively. Increasing environmental ambition within the cap is also the most appropriate way of putting Europe back on a cost-effective pathway to its long-term climate goals.

But what is true of caps is also true of targets, and the economy-wide emissions forecasts against which Europe's 20% climate target were first agreed are now similarly obsolete. A 3.1Gt adjustment to restore appropriate scarcity to the EU ETS is *more than double* the 1.4-1.5Gt required to put the EU ETS on a 30% compatible trajectory. An intervention of this scale would enable Europe to step up to, or even exceed, that 30% target purely through additional domestic effort in its traded sector.

Effecting these changes would powerfully revive the incentives for low-carbon investment in Europe, and restore Europe's position as a front-runner in emissions trading and climate policy. It would also put it a step closer to staying within its fair share of a 2°C compatible carbon budget.

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Other things we do



Sandbag is the NGO leading in research-led campaigning for effective emissions trading. Our informed reports, briefing papers, consultation responses and workshops have reached and influenced European policymakers at the highest levels and been widely reported in the European and international press.

Sandbag can provide your organisation with:

- **Commissioned reports:** our reports combine rigorous research with clear and targeted messaging.
- **Research and data analysis:** Sandbag has extensive experience analysing the key EU ETS data, and has developed some unique tools (such as our offset and emissions trading maps) to make these more transparent. Sandbag has also developed extensive profiles of specific sectors, companies and countries within the scheme.
- **Workshops:** We have provided workshops to MEPs and UNFCCC delegates on such topics as offset reform, carbon leakage, ETS reform, and sectoral trading.

For more information on our research consultancy services please contact info@sandbag.org.uk

