Options for reforming the EU ETS

A review of the case for different types and scales of intervention

Introduction

On February 28th, the European Parliament's Industry Committee agreed amendments to the Energy Efficiency Directive, including one key amendment concerning the EU Emissions Trading System (ETS). The new paragraph provides a strong legal mandate for the Commission to withdraw allowances from auctions in the next trading period, which commences in 2013. Trilogue negotiations between the Commission, the Council and the Parliament have since commenced and will determine whether this paragraph makes its way into law.

Outside of this legislative process, EU ETS reform is also being discussed extensively in the context of Europe's longer term climate goals, both in Council and in Parliament.

About Sandbag

Sandbag is a UK based not-for-profit organisation campaigning for environmentally effective carbon markets and focusing on the EU Emissions Trading System.

Our campaigns are supported by in-house research monitoring the environmental robustness of the caps, the distribution of allowances, and how key sectors, installations and companies in the scheme are affected by it.

For more information visit our website at www.sandbag.org.uk or email us at info@sandbag.org.uk

The big unanswered question remains how many allowances should be withheld and what should be done with them? A broad cross section of ETS stakeholders now agree that the price signal is too low to spur significant abatement or low-carbon investment and that the scheme is in need of repair, but while the appetite for political intervention to reduce the supply of allowances has grown, policymakers are eager to reassure investors that this will be a one-off change and not the start of an ongoing series of *ad hoc* changes to the ETS.

With only one real chance to get this right, it is important that the type and scale of intervention is selected carefully: that it is sufficient to redress the ongoing supply-side difficulties the scheme has faced, but does not exacerbate Europe's economic difficulties or have adverse unintended consequences.

In this briefing, we review some of the main interventions that have been proposed and revisit the underlying *case* for each approach.

We take as our starting point that the dual goal of introducing emissions trading in Europe was:

A. To create a well functioning market in emissions reductions providing regulated industries with flexibility and uncovering least cost solutions to meet a predetermined short term carbon budget, and

B. To introduce a price signal that secures investment in the deployment of low carbon technologies in Europe to prepare the way for much deeper emissions cuts in the longer term.

The first cluster of interventions address the first point, and take the view that the new and unforeseen circumstances have made the carbon budgets set for Phase 2 and/or Phase 3 obsolete:

A.1 Correcting for industrial over-allocation (circa 1.1.Gt)
A.2 Protecting Phase 3 from spill-over Phase 2 allowances (circa 500-800Mt)
A.3 Correcting the EU ETS for the impacts of new policies in the Energy Efficiency Directive (>515Mt)
A.4 Combination options (varies)

The second cluster of interventions seeks to recalibrate the ETS to ensure it drives sufficient investment now to cost-effectively reach our 2050 targets and appropriate milestones along the way. These arguments have gained more currency in recent debates.

B.1 An increase of the linear adjustment factor to align it with milestones in the 2050 Roadmap (circa 0-458Mt)
B.2 Moving to a 25% economy wide 2020 target (circa 1.4Gt)
B.3 Introduce reserve prices which control the supply of permits in the market:
B.3.1 Apply a minimum reserve price to permits sold at auction
B.3.2 Introduce a price containment reserve price for any permits temporarily withheld from auction

A. SHORTER TERM MEASURES: CORRECTING PHASE 3 ETS BUDGETS WITHIN THE 2020 TIME HORIZON

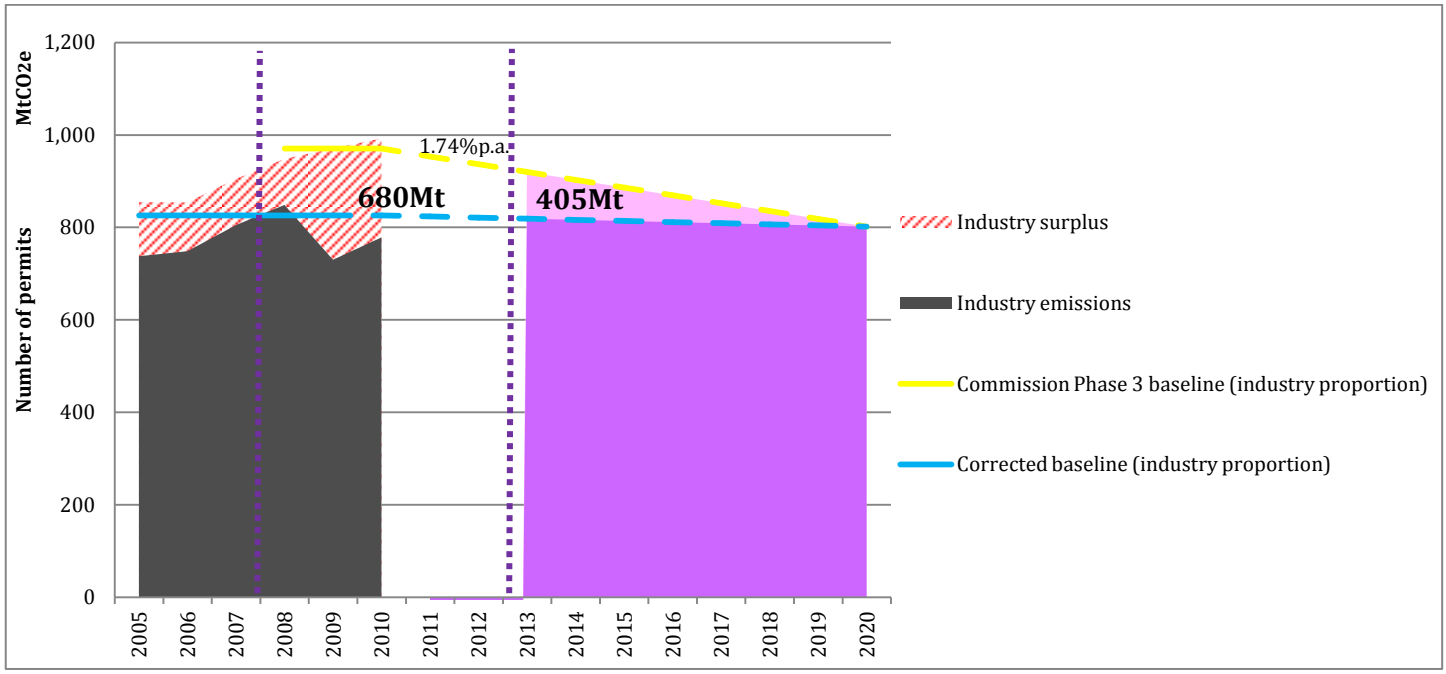
A.1 Correcting for industrial over-allocation (circa 1.1Gt)

Sandbag has been one of several commentators who have highlighted the scale of surplus free industrial allowances in Phase 2 and their role in diluting the ETS cap.

We have argued that, *independent* of the recession, too many allowances were awarded industrial emitters in Phase 2, which has unnecessarily inflated the total Phase 2 budget and also raised the baseline from which the overall Phase 3 budget was determined. We calculate that this justifies roughly 1.1.Gt be set aside (and ultimately cancelled) from the Phase 3 auctions. Note that this does not affect free allocations to specific installations or companies.

We have used the average emissions of industrial installations over the history of the scheme as a crude approximation of the allowances that *should* have been awarded them in Phase 2 rather than the exaggerated growth margins Member States conferred them in the Phase 2 NAPs. This correction would lower the Phase 2 cap by **680Mt.** As Phase 2 average allocations established the baseline from which the Phase 3 cap was drawn, this adjustment would also reduce the overall Phase 3 cap by **405Mt** without affecting the 2020 ETS cap or Europe's 2020 climate targets. [1] Together this accounts for **1,085 million** allowances.

Figure 1: Sandbag correction for industrial overallocation in Phase 2 and Phase 3



[1] Note that "industry" is here defined as all installations which are not electricity, heat or steam generators and includes industrial combustion plant. Allocations and emissions for these plants are derived from 2008-2010 data published in CITL

Some critics will argue that this intervention presents an ex-post intervention, but it is important to highlight that this seeks to redress the excessive generosity by the Commission and Member States in setting the original caps rather than correcting these for unforeseen economic circumstances. Such a correction for inaccurate allocation is no more *ex-post* than the reassessment of the appropriateness of Eastern European NAPs that is currently taking place in the European Courts.

A.2 Protecting Phase 3 from spill-over Phase 2 allowances (circa 500-800Mt)

Several commentators have proposed that any net surpluses accrued in Phase 2 should be removed from Phase 3 auctions. For example, in the leaked draft of its 2050 Low-Carbon Roadmap, the Commission foresaw "excess allowances from Phase 2" amounting to "**500 to 800 million allowances"** and proposed that "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" (our emphasis)[2]. Supporters of this proposal should note that the precise figure of Phase 2 net surpluses will not be clear until verified emissions data for 2012 is submitted in April 2013.

This proposal would *partially* restore the scarcity of allowances envisaged for Phase 3, though it still neglects to account for the changed economic forecasts out to 2020, which have lowered emissions projections significantly since the cap was set.

Critics of this intervention describe it as an *ex-post* adjustment to an *ex-ante* scheme, a changing of the goalposts mid-play. However it should be emphasised that no holders of allowances lose the right to carry these forward into future phases, and that the total number of allowances in the third ETS budget will remain precisely the same as originally intended. This intervention preserves the key principles of banking, insofar as installations that reduce their emissions now still gain allowances to hold indefinitely as a hedge against future emissions, it also strengthens the ability of banking to buoy the carbon price during periods of low demand, because the guarantee of future scarcity is stronger.

Instead of being merely a one-off intervention, this could, subject to a change in the ETS Directive, become a permanent feature of the scheme, which cancels an equivalent number of allowances to those banked from prior trading phases. This would essentially serving as a "heat exchange mechanism" allowing allowances to flow between Phases at the level of the installation, while preventing "hot air" from contaminating future caps. This would create a more stable long-term investment framework insofar as EUA supply would be less volatile.

A.3 Correcting the EU ETS for the impacts of new policies in the Energy Efficiency Directive (More than 515Mt)

One of the most popular arguments for adjusting the ETS cap has been to correct for any redundancies created by new environmental policies introduced since the caps were drawn. When new environmental regulations reduce the emissions of ETS installations, it also reduces their demand for allowances, lowers the market price for carbon, and reduces the abatement incentive for other ETS installations. In essence this neutralises the environmental benefit of any new climate regulation affecting the traded sector.

One way to recover this environmental benefit and maintain the incentives within the ETS is to remove allowances from the cap equivalent to the emissions reductions driven by the policy in question. Just such a proposal has won broad political support within the Parliament's ITRE Committee when voting on its amendments to the new Energy Efficiency Directive and remains to be negotiated in Trilogue.

While the specific impacts of the Energy Efficiency Directive on the EU ETS will not be clear until the policies within it are finalised, a draft copy of the Impact Assessment[3] released by the Commission provided two estimates for the potential surpluses it might generate just for the year 2020. The document supplies an estimate from the PRIMES model predicting the new Directive would reduce emissions from the traded sector 515Mt in 2020 against policies already in place (under the so-called Reference Scenario). It is not indicated what emissions trajectory is expected over the previous years of Phase 3 or how it departs from the Reference Scenario so a more comprehensive figure is hard to deduce from here.

[2] P.8 Leaked draft of 2050 Roadmap http://www.sandbag.org.uk/site_media/uploads/Leaked_2050_roadmap_draft.pdf
[3] p.29-30 Draft copy of the EED Impact Assessment http://www.sandbag.org.uk/site_media/uploads/EED_IA_20110505.pdf

The document also parenthetically refers to an estimate from the E3ME model which has a more conservative impact on 2020 emissions (95Mt), partly because it assesses the impacts on the traded and non-traded sectors differently. Despite predicting less overlap between the EED and the ETS, the E3ME model expects much higher impact on the 2020 carbon price (dropping to €0 instead of €14), because it does not grant the market as much foresight. PRIMES is more realistic here, insofar as the market value of allowances will be supported by their diminishing future availability, as the cap inexorably tightens under the 1.74% linear reduction factor.

Again, subject to a change in the EU ETS directive, provisos to tighten the cap to reflect any new environmental policies could become a permanent fixture of the scheme and preserve its complimentarity. There are several ways this could be implemented, but one option would be to follow the model of California's Voluntary Renewable Energy Reserve[4], i.e. a percentage of allowances could be withheld from auction each year that are released back into the market if no new policies are implemented. At the end of each trading phase, any permits retained in the reserve to account for new policy could be cancelled.

A.4 Combination options (varies)

It is important to highlight that any surpluses generated by overlap between the Energy Efficiency Directive and the EU ETS cap are new surpluses above and beyond those created either by overallocation to industry, or by spill-over allowances from Phase 2 constitute a separate and potentially additional basis for intervention.

In fact *all three* of the interventions outlined above can be seen as independent and more or less cumulative:

A1 seeks to correct the cap to where it *should* have originally been without excess allocations to industry
A2 seeks to protect future caps from the effects of uncertain demand in prior phases
A3 seeks to protect the cap from against redundancies created by other policies

In terms of the *scale* of intervention justified, A1 and A2 overlap insofar as retroactive adjustment to the Phase 2 cap would increase demand for allowances and reduce any spill-over (i.e. up to 680Mt of overlap). The adjustment from recalculating the Phase 3 baseline (405Mt), however, is additional to any spill-over allowances, thus together these present a set-aside range of roughly **1.1-1.2Gt.**

Adjustments to the ETS to correct for reduced demand caused by the EED or other new policies (A3) will be additional to either A1, A2 or both together. Intervening on the combined basis of all three proposals would justify removing in excess of **1.6Gt**, possibly much more.

Additional notes on "pre-2020 horizon" interventions

i. Effect of these interventions on the carbon price

While the focus of these interventions is on the supply of allowances in Phase 3, this will also have an impact on driving up the carbon prices, thereby discouraging investment in long-lived carbon infrastructure.

Point Carbon recently performed a poll of different analysts asking what the price effect of two sample set aside quantities might be[5]. While the quantities do not match all of the options outlaid above, it gives some indication of the relative insensitivity of the market to supply-side reform, and shows that quite substantial interventions are necessary to have a significant effect on price.

[4] 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
[5] See http://www.pointcarbon.com/news/1.1759876

Table 1: 2012 year-end price estimates under different set aside scenarios

	1.4 bn	500-800 mn	0 (zero)
Tschach	€17.0	€13.0	€8.0
Nomisma	€15.4	N/A	€13.7
SocGen	€14.0	N/A	€12.0
UniCredit	€18.0	€15.0-17.5	€13.7
Schwarzthal	€18.0	€11.5-13.0	€10.0
Consus	€23.0	€14.0-16.0	€11.0
AVERAGE	**€17.6**	**€13.5-14.9**	**€11.4**

ii. Permanent cancellation of allowances set-aside

Most of the measures proposed above imply cancelling allowances in order to be fully effective. From an environmental perspective, returning allowances to the market cancels out any additional emissions reductions that would have taken place, and from a price perspective, any rallying in the carbon price caused by the set aside would be lost at the point where allowances return to the market, depressing the price all over again.

In the next section we discuss set-aside options which establish price conditions for the return of permits to the market (Option B.3), but questions have been raised as to whether these would be any easier to legally implement than a direct cancellation of allowances.[6]

iii. Effect on 2020 climate targets

It is also important to note that technically none of the changes to the Phase 3 ETS budget outlined above oblige Europe to change its 2020 targets. While these measures will reduce greenhouse gas emission over the period, only changes that affect the combined ETS and Effort Sharing carbon budgets for the actual year 2020 amount to a change in the 20% climate target. Changes to these budget over 2013-2019 do not.

A lowering of the Phase 3 budget which does not alter the 2020 budget simply represents a steeper descent towards the 2020 target, and reduces the opportunities for Europe to count emissions reductions in previous years towards its 2020 commitments.

B. LONGER TERM MEASURES: ENSURING EUROPE'S ABATEMENT GOALS ARE ACHIEVED COST-EFFECTIVELY

While the options above focus on whether the ETS caps have been appropriately calibrated for Europe's current 2020 goals, the options discussed below focus on whether the Phase 3 caps are appropriately aligned with Europe's long term climate objectives.

Emissions trading systems are designed to deliver cost-effective emissions reductions within the carbon budget set for them, and the EU ETS is no exception. With demand for allowances reduced by oversupply, recession and other policies, the Phase 2 and Phase 3 carbon budgets are likely to be met at a very low price. Independent of the question of whether new circumstances make these carbon budgets obsolete, this low price is not encouraging investment in the low-carbon technologies which will be cost-effective in the longer term.

Over the next decade, Europe is expected to replace a great deal of aging energy infrastructure, and at current levels, the ETS is not delivering an appropriate price signal to ensure this will be low-carbon infrastructure. In addition, high gas prices and relatively low coal prices, are making it harder for the dwindling ETS carbon price to even drive fuel switching within existing power plants.

Any new power stations and factories will have asset lives extending far beyond the third trading phase. If these are carbon-intensive installations they risk becoming stranded assets that will need to be prematurely replaced in order to meet our future climate targets, or might force us to seek more expensive abatement options in other parts of the

[6] See for example: http://www.pointcarbon.com/news/1.1813015

economy. This dilemma is particularly acute for electricity infrastructure where the most affordable abatement technologies currently exist.

B.1 Change the trajectory of the EU ETS to align with Europe's 2050 milestones for the traded sector (removing 0-458Mt from Phase 3)

One proposal is to better align the EU ETS trajectory with the milestones for the traded sector in the 2050 Roadmap. The Roadmap suggests that power sector emissions should be 93-99% below 1990 levels by 2050 and that industry emissions should be down by 83-87%.[7]

The current trajectory of the EU ETS will not deliver reductions of this magnitude.[8] The 2050 Roadmap explicitly suggests "revisiting the agreed linear reduction of the ETS cap" in order to reach these targets. The ETS Directive currently sets the linear reduction factor at 1.74% of average Phase 2 allocations, which the Commission has translated into a figure of 36.4Mt annually.[9]

A clearer indication of the scarcity of allowances in future carbon budgets after 2020 will help drive up the price of carbon at the moment. Thus even a recalibration of the linear reduction commencing *after* 2020 will have a rallying effect on the price. This effect will be more robust, though, if this new trajectory is enshrined in a 4th carbon budget, or begins to effect changes on the third budget.

WWF has done calculations on the emissions avoided by increasing the linear reduction factor as of **2013**, both over Phase 3 and out to 2050. Their findings are summarised in the table below:

Table 2: Additional scarcity created by sample trajectory change proposals:

Trajectory from 2013	Effect on Phase 3 budget (Mt)	Effect on 2013-2050 budget (Mt)	Implicit EU 2020 target*
2.25%	- 307	- 7,714	-21.7%
2.43%	- 416	- 10,436	-22.3%
2.5%	- 458	- 11,495	-22.6%
WWF calculations and author's own calculations			
***Using a -20% target of 4,431Mt as specified by the Commission[10]**			

It is important to highlight that a change in the ETS trajectory which reduces the 2020 carbon budget will affect Europe's 2020 climate targets. Taking emissions below the target for the traded sector will mean we overachieve our targets unless equivalent pressure is removed from the non-traded sector.

B.2 Change Europe's 2020 climate target to align it with the 2050 Roadmap (removing circa 1.4Gt)

Analysis performed by the Commission recommends a much stronger intervention in Phase 3 in order to prevent cost-inefficiencies from carbon lock-in. Independent of its suggestion to revisit the linear reduction factor, analysis underpinning the 2050 Low-Carbon Roadmap finds that economy-wide emissions 25% below 1990 levels in 2020 are needed to cost-effectively reach our longer term targets:

[7] 2050 Low Carbon Roadmap p.6
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF
[8] As an indication, Climate Strategies calculates that this will deliver reductions of 71% below 2005 levels.
http://www.climatestrategies.org/research/our-reports/category/57/326.html
[9] Commission Decision 2010/634/EU
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010D0634:EN:HTML
[10] See p.16 of Member State Options for Moving Beyond 20%. Reference Scenario is 7% below Baseline of 4,764Mt
http://ec.europa.eu/energy/efficiency/eed/doc/2011_directive/sec_2011_0779_impact_assessment.pdf

"The analysis also shows that a less ambitious pathway could lock in carbon intensive investments, resulting in higher carbon prices later on and significantly higher overall costs over the entire period"[11]

The Commission has calculated that a 25% domestic target implies lowering the ETS budget for 2020 by 341Mt.[12] It has also elsewhere stated that a withdrawal of **approximately 1.4 billion allowances** from the Phase 3 budget would be required to prepare the traded sector to reach this target[13], however it is unclear precisely how the Commission envisages removing a billion further permits over years 2013-2019 or whether a withdrawal of this scale is strictly necessary.

B.3 Introduce a price controls to the market which ensure adequate investment

Some observers are more reluctant to change the absolute supply of permits within the legislation but are nonetheless concerned that the ETS is failing to drive the investment required to meet our long term climate goals cost-effectively. For many of these price controls represent an attractive alternative to permanent adjustments to the cap.

There has been justified resistance to the idea of introducing price controls to a market mechanism. The whole purpose of establishing an ETS is to assist price discovery for low-cost abatement within a fixed budget, and price interventions which are not carefully designed can break the link between price and supply. Below we describe two price interventions which maintain this link, either by temporarily reducing the supply of allowances when the price is low or by returning allowances to market when the price is high:

B.3.1. Apply a minimum reserve price to permits sold at auction

This intervention sets a price below which the harmonised auction platforms refuse to release allowances into the market in their scheduled auctions, reducing the active supply of permits until the demand is adequate for allowances to sell at a reasonable pre-determined price.

This approach begs two questions, firstly, what is the appropriate price signal the scheme needs to drive cost-efficient abatement in the longer term? This will depend on an assessment of which long-lived carbon-intensive assets are most likely to edge out low-carbon alternatives over the next decade and adjusting the price sufficiently to discourage them.

Secondly, what prevents allowances withheld from the market via a reserve price from returning to depress the price further down the line. One option is outlined below.

B.3.2. Introduce a price containment reserve for any permits temporarily withheld from auction

As highlighted above, any intervention which seeks to raise the carbon price by temporarily withdrawing allowances from the market faces the question of what to do with these allowances to prevent them from returning to depress prices later.

This applies equally to price-based interventions, such as the reserve price discussed immediately above in **Option B.3.1**, or shorter term quantity interventions, such as a temporary set-aside of a specific number of allowances.

One option, which again maintains the relationship between price and supply without permanently cancelling these permits is to place these in a "price containment reserve". Under this model, the permits set aside can only re-enter the market at a pre-determined price, which will only be attractive to market participants if the demand for permits grows unusually high.

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[11] See p.5 of Roadmap to a Competitive Low Carbon Economy in 2050 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF

[12] See p.46 of Member State Options for Moving Beyond 20% http://ec.europa.eu/energy/efficiency/eed/doc/2011_directive/sec_2011_0779_impact_assessment.pdf

[13] See p.6 of COM(2010)265 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0265:FIN:EN:PDF

In the Californian emissions trading scheme, the cost of permits in the price containment reserve starts at $40 in 2013 and escalates from there. The Californian ETS is also noteworthy for combining a price containment reserve with reserve price auctions: their price containment reserve consists of a fixed percentage of allowances in the cap, but is also topped up by any auctioned allowances which fail to sell into the market above £10.

CONCLUSIONS

As the above review of options shows, there is a wide array of potential fixes to the ETS on the table, though the degree to which they can be rapidly implemented varies. It is important to highlight though that in almost every case further information is necessary to determine the specific quantity of allowances or the price thresholds required in each instance. While it may be valuable to keep the price or quantity impacts of different interventions in minds, it should be the underlying arguments which drive the debate.

Sandbag supports a combination of the above options:

- In the immediate term we would like to see a substantial quantity of allowances set aside from Phase 3 auctions which can account for industrial overallocation and the spill-over effects this had on the phase 3 budget; and which adjusts for the effects of the new Energy Efficiency Directive on the traded sector.

- Before 2020 we would like to see The ETS Directive reopened to make the above changes permanent and ongoing: cancelling any allowances set aside, establishing a “heat exchange mechanism” between trading periods to proving ongoing protection against significant departures from expected emissions, establishing a complimentarity mechanism which cancels allowances made redundant by new regulation.

- Finally, we would like to see a new linear reduction factor for the ETS agreed that is aligned with the 2050 goals for the traded sector, and for this steeper trajectory to be used to define a Phase 4 budget as soon as possible.

While we recognize that price containment reserves and reserve price auctions can support the carbon price signal, they do not guarantee additional emission reductions. Allowances temporarily kept aside in such reserves could preserve a cost-efficient pathway for Europe to achieve its climate objectives, but they also present an ongoing and unnecessary environmental liability.