

The EU ETS carbon price: To intervene, or not to intervene?

Extraordinary economic circumstances and interactions between climate and energy policies have meant that the EU's industrial CO₂ emissions are now much lower than expectations when the EU ETS' emissions reduction objectives were set. Since this has reduced the demand for EU ETS emissions allowances relative to a fixed supply, the price of allowances has fallen significantly. Although this is a normal market reaction, it has led to demands for intervention in the market to support the price. This brief discusses this issue. It concludes that, above all, a robust and effective CO₂ price signal requires a more credible commitment on the part of policy-makers to an ambitious post-2020 emissions budget. Barring that, if any intervention is to occur, the way it is "framed" will be extremely important for the precedent it sets.

Background

The EU ETS: A quantity-based instrument

In 2005 the European Union began an Emissions Trading Scheme for greenhouse gas emissions (EU ETS). The scheme's goal is to help the EU meet both its immediate as well as longer-term emissions reduction objectives by "promot[ing] reductions of greenhouse gas emissions in a cost-effective and economically efficient manner" (Art. 1, Directive EC/87/2003). The Directive implies meeting the EU's Kyoto Protocol goals through cost-effective short-term abatement measures and effort sharing (Recital 5), as well as providing longer-term incentives for low-carbon investment and innovation to "deliver gradual and predictable reductions of emissions over time" (Recital 13, Directive EC/29/2009).

To achieve these goals, the EU ETS applies what economists call a "quantity-based" instrument: policy makers issue a pre-determined quantity of emissions allowances to be to the carbon market and require that covered installations surrender an allowance for each tonne of CO₂ they emit during the year. The scarcity of allowances, combined with their tradability, creates a market price for allowances. This carbon price motivates emitters who have abatement options which are less costly than the carbon price to undertake those measures. The EU ETS carbon market thus ensures with certainty *ex-ante* that aggregate emissions are reduced to a fixed *pre-determined* level.

However, since economics tells us that policy makers must choose between certainty over price and certainty of quantity, the trade off is that the carbon market determines the carbon price. In particular, it will find the minimum price emitters must pay to achieve the pre-determined reduction of emissions set by the cap on emissions. It may appear somewhat contradictory then, that one of the main criticisms now being levelled at the EU ETS is that the carbon price is "too low". After all, the objective is determined in terms of quantity and price is simply the mechanism by which that objective is achieved. So what is this criticism about?

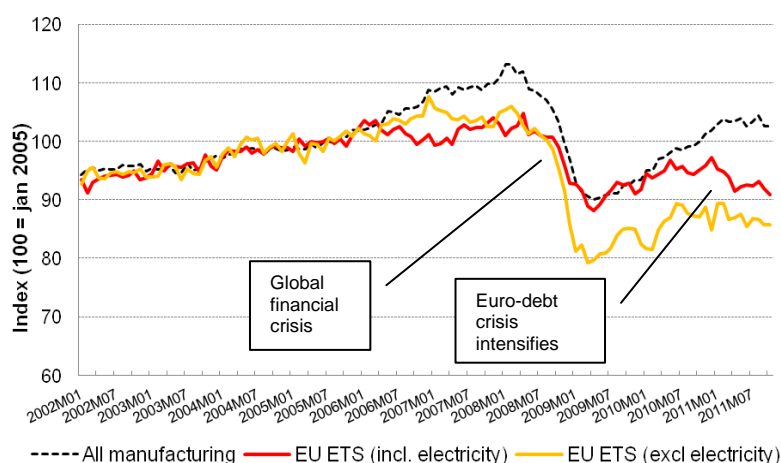
Why is the carbon price lower than expected?

Since the beginning of Phase 2 of the EU ETS (2008-2012), the spot price of an EU allowance (“EUA”) has gradually fallen from between 20 and 30 €/tCO₂ to a low of around 6.50€/tCO₂ as of January 2012. The broad fall in carbon prices since 2008 has simple explanations, based on the supply and demand for allowances:

1. A deeply depressed economy

The severe economic recession of 2009 and the ongoing euro-debt crisis have led to an unusually deep and long-lasting reduction in industrial production and energy use. EU ETS sectors production has now been below pre-crisis trend levels by more than 10% for over 3 years (see Figure 1) and a rapid recovery seems unlikely. These events have substantially reduced emissions, and thus the demand for allowances, in the EU ETS. Meanwhile, the supply of allowances for 2008-2020, which was set on the assumption of much better economic circumstances, is fixed. Hence, the carbon market has reacted like a normal market: it has adjusted the price to reflect lower demand for allowances for the same supply.

Figure 1 - EU industrial & energy production experiencing a deep recession



Note: EU ETS indices weight individual sectors by their respective share of emissions.
Source: Tendances Carbone, CDC Climat Research.

2. Significant uncertainties about the allowance scarcity post-2020

The demand for allowances in the present should be closely related to the expected price of EUAs in the future. This is because EUAs bought today are bankable for use in future phases of the EU ETS. If market participants believe that the allowance supply will continue to be reduced over the next 10-20 years, and that this will eventually mean significantly higher carbon prices, then if prices are cheap this should create more demand for EUAs today and lead to higher carbon prices in the present.

However, under the current design of the EU ETS, it is very difficult for market participants to form longer term price expectations because of large uncertainties over the long run allowance supply. While the ETS Directive states that the quantity of allowances in the market will continue to decline by 1.74% per year post-Phase 3 (2013-2020), in practice the Directive also requires, and market actors expect, that the post-2020 caps will be revised (by 2025 at the latest) via the political process. That process is subject to large and unquantifiable uncertainties, including the willingness of Member States to commit to ambitious climate goals at that time, the future state of international climate negotiations, and the future political colours making up the EU Parliament.

These uncertainties are reinforced by speculation that the EU Parliament will conclude that the currently low price “proves that the carbon market does not work” and that it may be abandoned (Société Générale, 2012). Under such circumstances, it seems unreasonable to expect that a robust long-term allowance scarcity signal should have been able to emerge and act as a support to short-term prices.

3. Overlapping policies

The EU's Climate and Energy Package of 2009 set a target not only to reduce emissions by 20% relative to 1990 levels, but also to improve energy efficiency by 20% and have 20% of energy consumption sourced from renewable, all by 2020. Energy efficiency and renewables policies can be justified on several grounds (IEA, 2011). However, for the EU ETS they can also lead to lower carbon prices by weakening demand for emissions allowances and potentially, damage the credibility of the market itself. There is some evidence that this has occurred: in the 2 days following the approval of the draft Energy Efficiency Directive by the European Commission on June 22, 2011, the EUA price fell 20%.

Figure 2 - The EUA price (Feb 2008-Jan 2012)



Data source: BlueNext.

The response of policy makers

In response to the observed fall in prices, a number of market commentators and stakeholders began openly questioning whether the carbon price is not “too low”, is sufficient to incentivise low carbon investment for the future, and maybe needs to be supported via some form of direct intervention in the market. Then, on December 20th, the EU Parliament's ENVI Committee formally proposed that amendments be made to the Energy Efficiency Directive to withdraw a significant amount of allowances from the market during Phase 3. The stated justification was “to compensate for the implementation of [the Energy Efficiency] Directive” and “to restore the price mechanism to levels envisaged in the impact assessment” (EU Parliament, 2011). In response, the market initially surged – with EUA prices rising 30% the day of the announcement, only to fall again after the political difficulty of passing such ambitious objectives became better understood.

Debate: Whether to intervene, or not. And, if so, then how...

The debate over whether to intervene in the carbon market to strengthen the carbon price essentially boils down to a few key questions:

1. Would a managed carbon price provide timelier price signals for long-lived investment?

One of the most common arguments for intervening to targeting a higher carbon price is that it would allow for a timelier rolling out of investments in low carbon capital stock and innovation. For instance, in justifying its unilateral carbon price support mechanism, UK Treasury (2011) argued that in the face of low carbon prices in the short-to-medium term, companies may continue investing in carbon-intensive capital stock. Moreover, if the sunk costs in these investments are made, it is feared that it will become extremely costly to replace them with low-carbon technologies by mid-century, because of losses to stranded

assets, and long lead times for some low-carbon investments. This is often referred to as the “lock in” issue.

A similar argument is also made in respect of low carbon innovation, where it is feared that if low carbon prices fail to spur innovation in the immediate term, then the learning curve with new low carbon technologies may become too steep to keep ambitious emissions reductions by mid-century within (cost-effective) reach. It is thus argued that systematically adjusting the carbon price to the desired trajectory for investment and innovation is desirable.

While this argument appears a good one, it is not necessarily a “slam dunk” for market intervention to support carbon prices. Firstly, the risk of asset lock is sometimes exaggerated, depending on which sector is concerned. In truth, capital costs and investment lead times can vary widely between technologies. Combined-cycle gas turbine investments are not nearly as capital intensive as coal-fired power plants and, in terms of lead times, solar or small scale wind power can be deployed much more quickly than nuclear power (UK Treasury, 2011).

Secondly, the lock in argument is not necessarily an argument for managing carbon prices. Essentially, it assumes that investors in long term assets will fail to anticipate higher future carbon prices under the EU ETS. However, assuming that this is currently true – a big assumption – the question is why? Is it simply because carbon prices are low today? Or is it rather because future carbon prices are too uncertain over the life of their investment? And if future carbon prices are too uncertain, then it could be for several reasons. It could be because investors need a managed carbon price to invest. But it could also be because the future allowance supply – which is key to determining the price in the future – is still too uncertain to use as a strong basis for a long term investment decision.

Since many low carbon investments involve long-lived capital stock, the issue ultimately becomes about how policy makers can best provide a credible commitment to a long term policy, in which investors can have a reasonable degree of confidence (Ismer, 2007, Brunner, 2011). If investors can be convinced that a tight carbon constraint is here to stay and will only tighten in future, they should invest in low carbon technology, no matter the short-term level of EUA prices.

2. Can a regulator know the “right” carbon price?

An argument made by some supporters of price management in the EU ETS is that the carbon market cannot be trusted to deliver the “right” carbon price for the desired levels of investment. Since a price of 6-8€/tCO₂ seems not to be consistent with a trajectory for decarbonising the economy by mid-century or thereabouts, it is argued that policy makers or an independent central administrator must ensure that such a price is generated.

But this raises the question of how any central administrator could possibly know what the most cost-effective price trajectory is over the long term. After all, it will depend on a range of technological and economic developments which have not yet occurred. Would policy makers necessarily have significantly greater wisdom than the carbon market in determining the most cost-effective long-term carbon price trajectory? And while the market may not be 100% “efficient”, active discretion by policy-makers also involves risks (capture by lobbying and rent-seeking behaviour; capture by the interests of the most influential Member States.)

To function efficiently, markets generally need have to have relevant information concerning price fundamentals. If the carbon price presently appears too low to be in sync with reasonable assumptions about long-term abatement costs, this is likely to be related to the current lack of key information concerning the long-term scarcity of allowances post-2020. Assuming that this is correct, fixing this part of the design of the EU ETS would go a long way to providing the levels of prices and long-term incentives that people originally expected from the EU ETS. However, without it, the question of short-term intervention is posed...

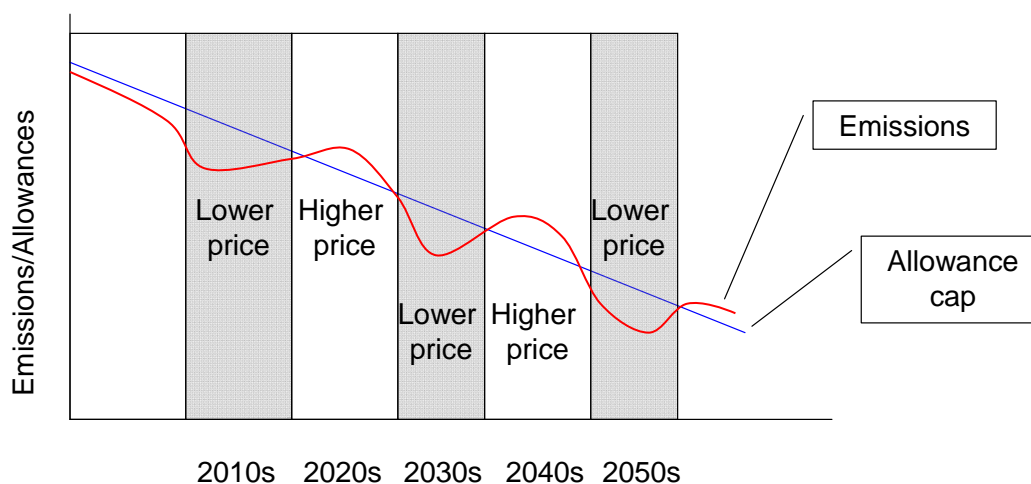
3. Should the allowance supply be adjusted over the economic cycle?

Several market analysts have estimated that, given the current excess of allowance supply over demand, the supply of allowances will not begin to force new emissions reductions until

after 2020. Since these excess allowances are now so numerous as to represent a missed opportunity to reduce emissions further over the coming decade, the argument has arisen that the cap for Phase 3 should be tightened.

However, this raises the question of whether it is desirable to manage the carbon price over the economic cycle, thus ensuring that the market is continually reducing emissions in the short run, or whether it is preferable to ignore the temporary effects of economic cycles and simply worry about the long run trajectory of emissions that is still ensured by an ETS?

Figure 3 - Stylised example of the evolution of emissions and CO₂ prices over several hypothetical business cycles



Allowing prices to be pro-cyclical is generally thought to be desirable for economic efficiency reasons: it eases costs for business when economic times are hard and the demand for carbon low, but requires that business pay more for carbon when times are good and demand for carbon is high. Moreover, since the future is unpredictable, what appears to be a large surplus or deficit of allowances can change unexpectedly – as the recent global financial crisis has demonstrated.

On the other hand, there is a more realpolitik argument says that the EU ETS is young and not yet fully established as a credible and enduring climate policy instrument. Neither the EU nor other countries have a long history of this policy mechanism to draw on, meaning that its credibility must be earned over time. The EU ETS is also internationally important as an example to other nations contemplating similar policies, and as a source of commitment credibility in the international climate negotiations. In this context, the low carbon price and large supply of unused allowances to be banked into phases 3 and 4 are arguably a threat to its political credibility. A one-off, extraordinary action to support short-run carbon prices might therefore be justified on the grounds that it would signal a firm commitment by the EU to strengthen and maintain the relevance of its main climate policy instrument.

The risk of doing so is that any such intervention would set a precedent for intervention – leading, perhaps, to arguments for a loosening of the cap on emissions during future economic booms or price spikes. This could create additional uncertainty for investors in low carbon technologies and weaken the environmental effectiveness of the market. The way that any intervention is framed will therefore be important for the way the market perceives the future “rules of the game”.

4. What are the specific alternatives for reforming the market?

Committing more credibly to the post-2020 allowance supply now

Perhaps the most obvious reform proposition is to resolve the issue of the future uncertainty over the long run (2020-2050) supply of allowances straight away, rather than waiting until a few years before 2020. Since the market is expected to finish phase 3 in surplus due to the recession, the post-2020 target could in theory be set more ambitiously to compensate for the excess supply of allowances that will be banked into the future. While this would involve

the arduous process of re-opening the ETS Directive sooner than expected, it would remove a large degree of problematic long-term uncertainty. It would have the desired short-run effect of boosting carbon prices today, while also having a meaningful impact on long-term investment incentives. It would also avoid some of the problems posed by *direct* intervention, such as setting the “right” price or trying to justify a “one-off” ex-post intervention to change the balance of supply and demand. The main down-side is that it would involve Europe taking a unilateral step to further reducing its emissions independently of international action, which comes with internal political challenges.

A “one-off” withdrawal of allowances from the ETS

At present the proposition before the EU Parliament is to use the ongoing revision of the Energy Efficiency Directive to mandate a withdrawal of a significant number of EUAs over Phase 3. This approach has two main practical advantages: first, it does not require the changing of the ETS Directive itself and is therefore faster and easier to implement in the short term; second, by framing the move in terms of re-aligning complementary policies, and increasing the stringency of the ETS despite, it signals policy-makers’ desire to reinforce the credibility and effectiveness of the EU ETS as a policy. The obvious risk of this approach is that it will set a precedent for future market intervention, especially if it is interpreted as trying to use the “excuse” of the Energy Efficiency Directive to respond to the much larger effect of the recession.

It is therefore critical that any such intervention, if it occurs, is framed in a way that does not create an unacceptable level of uncertainty over the future of the EU ETS carbon price. There are several aspects to this. Firstly, it would be important that if allowances are removed they are cancelled permanently, not simply “set aside”. This could be done either by cancelling the allowances immediately, or by agreeing to reduce the future Phase 4 emissions cap by the amount of the set-aside. The former solution would probably provide greater certainty. Secondly, accompanying an intervention with locking in a long-term emissions trajectory and a clearer definition of the respective roles of overlapping policies in the future would probably help reinforce the perception that some of the underlying problems giving rise to the need for a one-off set-aside were being solved. Thirdly, the justification for any intervention must be clear and transparent and based on widely accepted principles, since it may later be used as a precedent.

Automatic quantity-adjustment measures

One suggested way of limiting the risk of potentially ad hoc and unjustified future interventions, is to define criteria, which if met would lead to an automatic intervention. For example, Carbon market Investor Association has proposed a rule whereby every year, if a certain number of surplus permits have not been used after a period of three years, an equal number of permits should be removed from later supply (CMIA, 2012). This would work as a kind of “ratchet effect”. It would mean that the market could reduce emissions faster than the decline in the original ex-ante emissions cap, but the market as a *whole* could not bank those “extra” reductions beyond a period of three years. Under current circumstances, this would remove the excess of allowances and return scarcity to the market rather quickly.

However, the degree to which this proposal would be successful in present circumstances would depend on the degree to which market actors anticipated the ratchet effect. For example, if market supply were reduced after 3-years by the amount of unused allowances due to the recession, the market would find itself suddenly very short of allowances when the economy finally begins to recover and return to full capacity. If the market did not anticipate this, it could lead to a price surge and make price volatility even more strongly pro-cyclical. However, if the market did anticipate this effect, they would want to hedge the risk of a sudden carbon price spike in response to a recovery. Emitters would try to reduce emissions further during current, hard economic times, in order to bank allowances and prepare to reduce emissions less during and after the economic recovery. This would then mean that incentives to reduce emissions would remain when the market was long. However, it would therefore change one of the main advantages of carbon markets for business: the pro-cyclicality of carbon prices.

A “central bank” of carbon

As an alternative to automatic rules, it has been suggested that a central carbon authority could control the allowance supply similarly to the way the Fed controls the money supply in the US money market (de Perthuis, 2011). Similarly to automatic adjustment measures, this approach seeks to respond to the fact the EU ETS does not have a short term supply-side adjustment mechanism as most other markets do – a fact which creates a greater degree of price volatility in response to demand shocks. While this approach has merits in theory, and while there appears to be merit in centralising various information-gathering authorities which will be monitoring the EU ETS from Phase 3, it also has its drawbacks. If it is to be a price-managing authority, this effectively requires centralising a large amount of control over the carbon market’s emissions trajectory and prices in the hands of an independent bureaucracy. The current demand shock, for example, would require a significant ex-post change in the EU ETS emissions cap trajectory to restore the market to an allowance deficit. The history of cap-setting politics in the EU ETS suggests that it is unlikely that EU Member States would ever support giving this level of control to a non-political body.

A rolling emissions cap

Reacting to the EU’s experience, Australia has opted for a more flexible approach to setting medium-term emissions caps. Their ETS will work on a fixed 5-year emissions cap that is consistent with a longer term reduction target fixed by the Parliament. However, at the end of each year, the year $n+5$ ’s emissions cap will be set by the Parliament based on the advice of an independent Climate Change Authority (CCA) – although the Parliament can choose to ignore it. In making its recommendation, the CCA must take into account a range of factors, including progress in reducing emissions domestically, international action, emissions credit supply, and “*such other matters (if any) as the Climate Change Authority considers relevant.*” This approach seeks to combine flexibility to respond to unforeseen events with supply-side adjustment together with some kind of predictability and credibility about the emissions pathway. However, it remains to be seen how well this approach will balance the competing demands of long-term visibility and medium-term flexibility in Australia.

An auction reserve price

A reserve price might be one way of supporting the carbon price until demand for EUAs recovered. It would signal a desire on the part of policy makers to limit the downside risk of low carbon investments and protect auction revenues. This would work by gradually reducing the supply of allowances, as auctions at which the reserve price is not bid for all allowances would see the corresponding EUAs set aside over time for resale at a later date.

However, an auction reserve price raises several difficult to answer questions: Firstly, where should the reserve price be set and how should it evolve over time? Assuming that the “right” reserve price could be fixed over time, how would its evolution be more credible to investors than the current uncertainty over a long term cap (without changing the Directive)? Secondly, given that the EU ETS is a quantity-based mechanism, what would be the consequences of implementing a mechanism which appeared to target prices? For example, what is the “fair” reserve price on which stakeholders and member states could agree upon? Also, any move to implement a kind of “soft” price floor – would presumably come with competing demands and lobbying for a price cap. However, a price cap, if it were reached, would mean departing from the EU ETS’s emissions reduction trajectory in the future. Finally, an auction reserve price comes with the same question as a “set-aside”: if allowances are not sold at auction because of the reserve price, will these allowances be set-aside or be cancelled and removed from supply permanently? As in the set-aside scenario, the former approach would put downward pressure on future price expectations and it would keep prices at or close to the level of the reserve price for longer.

Conclusion

Climate change mitigation policy poses a peculiar challenge because, for it to be effective, private investors must perceive policy commitments to be credible over long periods of time.

For the EU ETS this means providing credible commitments to a scarcity of allowance supply not only for 10 years hence, but for up to 20+ years as well. In light of this and the arguments raised earlier, there is ultimately no substitute for moving to cement the long run EU ETS allowance supply post-2020 in legislation today. A legal commitment out to 2030 with an early deadline to set the post-2030 cap (e.g. by 2020), would provide much greater visibility and reassurance to investors than a short-term solution. It would also provide an opportunity to support carbon prices indirectly by encouraging greater banking of allowances in anticipation of future scarcity. This would however involve Europe taking a unilateral step to further reducing its emissions independently of international action, which comes with internal political challenges.

In the absence of clarity over the long-term allowance supply, the question of whether EU policy makers should undertake a one-off intervention in the carbon market is posed. On the one hand, there is a strong argument that the current circumstances are extraordinary and it seems plausible that this would be understood clearly by market participants. Supporting the carbon price via a one-off intervention could also help to signal European policy-makers' commitment to the EU ETS as a central pillar of EU climate policy – which is maybe not yet fully established because of its youth. On the other hand, if the intervention is widely seen to be unjustified, it could set a precedent that severely damages the credibility of the EU ETS for low carbon investors and other stakeholders.

It is therefore important that, if it occurs, any move to intervene in the carbon market on a “one-off” basis is framed in a way that does not create an unreasonable degree of uncertainty surrounding future interventions. This is perhaps most easily achieved by an open and transparent process, whereby the extraordinary reasons for the intervention are clearly spelt out. Assuming these reasons and the underlying principles justifying an intervention were widely understood and accepted, and that the amount of allowances to be removed was consistent with that reasoning, a one-off intervention would arguably increase stakeholders' confidence in the EU ETS' long-term credibility, rather than destroy it.

To find out more...

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