



Options for structural measures to improve the European Union Emissions Trading System: response to a European Commission consultation

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Main points

- The impact of ‘back-loading’, a short-term measure, will be limited.
- ‘Back-loading’ is unlikely to have a significant impact on the price of emissions allowances, unless the ‘back-loaded’ allowances are permanently removed from the system at some point before 2020.
- It is important that long-term structural reforms incorporate the required flexibility.
- Because a price management mechanism is difficult to reconcile with the fundamental principles of an Emissions Trading System, a rule-based reserve management mechanism may be the appropriate option.

Introduction

On 14 November 2012, the European Commission published a report to the European Parliament and the European Council on ‘The state of the European carbon market in 2012’ (European Commission, 2012). The report concluded that the economic crisis, compounded by a number of regulatory provisions related to the transition to Phase 3 of the European union Emissions Trading System (EU ETS) have caused serious imbalances to emerge between the supply and demand of allowances and international credits in the short term, with potentially negative long-term repercussions. The Commission, therefore, sought views on six options for structural measures that could be applied to the EU ETS to tackle the growing imbalance between supply and demand. This is a response to the consultation from Dr Luca Taschini of the Carbon Markets Group at the Grantham Research Institute on Climate Change and the Environment at London School of Economics and Political Science.

The issue

The price of carbon in the EU ETS has fallen to a level that could damage not just Europe’s low-carbon ambitions, but also the credibility of the ETS itself. The problem is structural and inherent in the way the ETS has been designed. The solution requires both short-term measures to re-establish the credibility of the market and long-term reforms to make the ETS more responsive to external economic factors.

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Under 'cap and trade', the supply of allowances is highly inelastic in the short term, changing only as a result of government policy decisions. Therefore, unexpected shifts in demand – such as the fall in demand that followed the current economic crisis – can produce significant price trend variation in the short term. In the long run, however, the ups and downs of allowance prices can play a beneficial countercyclical role. During economic downturns, the demand for allowances will fall, putting downward pressure on allowance prices. Lower allowance prices soften the impact of the pollution regulation on firms during the difficult economic times. Yet, a significant supply-demand imbalance (excess over- or excess under-supply) can seriously undermine the orderly functioning of the allowance market.

Immediate action is required to restore the relevance of the EU ETS. A case is presented in the following sections for supporting the removal of excess allowances, along with an argument for withdrawing them permanently, rather than simply 'back-loading' their issuance. In the longer term, structural reform of the EU ETS is needed.

Short-term intervention - permanent removal of allowances

As a result of the economic downturn, the EU ETS is currently over-supplied. Oversupply could be a permanent feature of the EU ETS in Phase 3 and this could create vicious downward demand. The European Commission has been discussing, as an immediate measure, postponing allowance auctions planned for 2013, 2014 and 2015. However, as highlighted by the Commission in its report (European Commission, 2012), such a 'back-loading' would not affect the structural surplus of allowances in 2013-2020.

Gruell and Taschini (2009) and Hitzemann and Uhrig-Homburg (2011), among others, have shown that EU allowance prices are to a large extent formed by a simple cost-of-carry calculation. Should the inter-year differential grow far beyond the implied interest rate, then there is an incentive to buy the spread. Similarly, any drop in price at the back end of the curve due to a re-injection of 'back-loaded' volumes is likely to transmit itself back to the near-term through the trading of spreads. A trader seeing a narrowing in the 2018-2019 spread might sell the front and buy the back at a less-than-interest differential, and hedge with interest rate swaps to generate a trading profit. This would lead to successive trades right back to the front end of the curve. This is why analysts have argued that 'back-loading' will merely delay, rather than resolve, the oversupply problem afflicting the market.

The European Parliament's Environment Committee voted in favour of the 'back-loading' proposals on 19 February 2013. The 'back-loading' plan will now be considered by the European Parliament in April. The 'back-loading' would mean the sale of 900 million allowances delayed until a later date. If the 'back-loaded' allowances are automatically brought back to the market after a pre-specified period of time, no sustained price increase can be guaranteed. 'Back-loading' cannot change the overall allowance supply. Such a measure must be supported by a permanent removal of allowances from the market. This reflects option b in the options for structural measures presented by the European Commission (2012) and is the only market intervention in the short term that would be credible. However, the permanent removal of allowances alone is insufficient to

address the structural supply-demand imbalance and additional measures will be needed in the long term (beyond 2020).

Structural reform

To improve the orderly functioning of the EU ETS, longer term structural reforms need to be introduced. The European Commission (2012) proposed six non-exhaustive alternative structural measures:

- a. Increasing the EU reduction target to 30% in 2020;
- b. Retiring a number of allowances in phase 3;
- c. Early revision of the annual linear reduction factor;
- d. Extension of the scope of the EU ETS to other sectors;
- e. Limit access to international credits;
- f. Discretionary price management mechanism.

The first five options, from a. to e., could partially restore the ambition level, and as such are consistent with the EU's long-term decarbonisation plans.

However, structurally they still leave the EU ETS vulnerable to economic developments and new regulations. For example, new energy efficiency or renewable obligations, as currently contemplated, are liable to affect future allowance demand. Economic factors determine the allowance demand by influencing abatement costs and, ultimately, altering the relationship between allowance supply and allowance demand. In addition, overlapping regulations can cause structural demand changes and generate permanent shocks.

A key lesson we have learnt from the past is that the absence of institutional rules permitting adjustments of the cap in the face of new information contributed to the need to invoke overlapping, potentially less-efficient, regulations (e.g. renewable obligations, energy efficiency, etc).

Option f. builds the needed flexibility into the 'cap and trade' system. It should be recognised that a one-time adjustment or repeated cap adjustments would be difficult to reconcile with the fundamental principles of an emissions trading system. Greater flexibility could adversely affect the credibility of European Commission's commitment to a given time profile for the emissions cap. Nonetheless, a mechanism that mitigates the impact of pathological supply-demand imbalance can be devised.

There are two possible institutions that could control such a price management mechanism. Either the European Commission could mandate an independent authority to manage allowance supply, as central banks do in interest markets, by buying and selling volume into the allowance market. Alternatively, the European Commission could design a rule-based mechanism that adjusts the supply of allowances by depleting or replenishing an allowances reserve. Both institutions require governance arrangements, including the rules that would activate the reserve. Yet, the latter institution could function without setting specific target prices, ultimately conserving the fundamental principles of a quantity-based instrument.

Rule-based reserve management system

The price management mechanism described under option f. corresponds to the so-called 'hard collar', a price-control system that has been proposed in the literature to keep the allowance price from rising or falling to an inordinate degree (see Fankhauser and Hepburn, 2010a; Fankhauser and Hepburn, 2010b; Fankhauser et al., 2010; Gruell and Taschini, 2011). A strict price ceiling and a strict price floor form a 'hard collar'. When price bounds are not strictly enforced, we have a so-called 'soft collar'. It should be recognised that price limits interfere with the interactions of market supply and demand, ultimately contrasting with the fundamental principles of an emission trading system too.

Therefore, a rule-based mechanism is proposed that explicitly manages the allowance supply by means of a reserve management system. Information about the allowance restriction or expansion will be public and the mechanics that regulate injection or withdraw of allowances will be designed to contain the allowance price within a target zone that is sufficient to help meet the 2030 CO₂ target.

Flexibility and credibility under the reserve management system

Both management systems can generate 'hard' and 'soft collars'. Explicitly setting the upper and lower bands of the target zone and fully committing to defend it, corresponds to the 'hard collar'. Explicitly setting the target zone, without fully committing to defending it, corresponds to the 'soft collar'. Under a reserve management system, the size of the allowance reserve determines the type of collar. In principle, an unlimited allowance reserve corresponds to the 'hard collar', whereas a limited allowance reserve corresponds to the 'soft collar'.

Under both management systems there is a need to consider the trade-off that exists between a policy-maker's basic desire for flexibility (i.e. divergence from a given target zone) and credibility in terms of the degree of price control offered by a given target zone. There is an inherent tension over how a policy-maker's emissions control objective can be best met. The more the supply of allowances adjusts to accommodate changes in allowance demand, the more seamlessly compliance insurance is provided. But this makes it more likely, other things being equal, that the regulated industries will forego abatement investments to the detriment of future economic stability. In other words, fully accommodating changes in the allowance demand is the best way to guarantee the short-term orderly functioning of the allowance market, while not necessarily being the best way, in the long run, to promote economic stability.

The author (Luca Taschini), a Research Fellow at the Grantham Research Institute on Climate Change and the Environment at London School of Economics and Political Science, and Sascha Kollenberg, Research Associate at the University of Duisburg-Essen, are incorporating these elements into their analysis of the two management systems (price management and reserve management). The aim is to provide a clearer understanding of the trade-offs that operate within rigid and soft target zone systems. In particular, the analysis will endogenise the credibility of the policy-maker within the target zone and relate its credibility to the observable allowance reserves. The objective is to show that it

is the evolution of credibility and the dynamic implications of partial credibility on policy within a target zone that largely determines the sustainability of both management systems. Flexibility is obtained through a greater divergence in the controlled process than would be consistent with the selected target zone.

References

European Commission, 2012. The state of the European carbon market in 2012. *Report from the Commission to the European Parliament and the Council*. COM(2012) 652 final, 14 November. http://ec.europa.eu/clima/policies/ets/reform/docs/com_2012_652_en.pdf

Fankhauser, S., Hepburn, C., and Park, J., (in press). Combining Multiple Climate Policy Instruments. How Not to Do It. *Climate Change Economics*. (forthcoming).

Fankhauser, S., Hepburn, C., 2010a. The Design of Carbon Markets Part I: Carbon Markets in Time. *Energy Policy*, 38(8), pp.4363-4370.

Fankhauser, S., Hepburn, C., 2010b. The Design of Carbon Markets Part II: Carbon Markets in Space. *Energy Policy*, 38(8), pp.4381-4387.

Gruell, G., Taschini, L., 2011. Cap-and-Trade Properties Under Different Hybrid Scheme Designs. *Journal of Environmental Economics and Management*, 61 (1) pp.107-118, 2011.

Gruell, G., Taschini, L., 2012. A Comparison of Reduced-Form Permit Price Models and Their Empirical Performances. *Proceedings of the 58th World Statistics Congress*. Dublin, Ireland.

Hitzemann, S., Uhrig-Homburg, S., 2012. Understanding the Price Dynamics of Emission Permits: A Model for Multiple Trading Periods. Working papers Universität Karlsruhe (TH).