A Clean Fit:

THE ROLE OF THE EU ETS IN THE ENERGY POLICY LANDSCAPE

Policy Briefing, June 2017

Executive Summary

Around the world, governments are establishing carbon pricing systems to put a price-tag on greenhouse gas emissions and incentivize more climate friendly practices. The EU launched its own Emissions Trading System (EU ETS) in 2005. While the ETS is a necessary instrument to decarbonise the power and industry sectors in Europe, experience shows that alone it is not sufficient. For a realistic chance to transition to a net-zero economy, a package of policies beyond and in addition to the ETS is required for the following main reasons:

1. Carbon pricing alone cannot overcome market barriers and imperfections such as split incentives between tenants and house owners, imperfect information and dynamic inefficiencies.
2. The purpose of the EU ETS to cut carbon emissions does not address other policy objectives such as energy security, affordability and air quality.
3. The current ETS prices are simply too low to meet the Paris climate goals and could lock-in high-carbon infrastructure in the absence of a swift response with additional policies and measures.

Carbon pricing is just one instrument in the toolbox to limit greenhouse gas emissions. It needs to be complemented by energy efficiency measures to overcome market imperfections, by renewable policies to bring forward new mitigation options, and by direct regulation to avoid the lock-in of high emissions infrastructure.

Since the interaction between the EU ETS and energy policies is unavoidable, a key question is how to guarantee that the elements of a complementary policy package mutually reinforce each other.

Poor policy integration can have a number of drawbacks: It can undermine energy security and affordability, result in investment uncertainty, increase the risk of stranded assets and affect the performance of renewable and energy policies. Climate objectives can also be undermined if the uptake of energy policies that save greenhouse gas emissions result in a weaker carbon price and thereby reduce the incentive to shift to cleaner production and consumption.

To implement the Paris Agreement, the EU is currently finalising its 2030 climate and energy framework, which includes a reform of the EU ETS as well as the Clean Energy Package to stimulate the uptake of energy efficiency and renewable energy. Improving synergies between these elements is required to ensure they work hand-in-hand for more climate ambition in line with the Paris climate goals.

Key Recommendations

- **Set a lower EU ETS cap that reflects energy policy developments** to ensure alignment between climate and energy objectives
- **Increase the rate by which EU ETS surplus is moved into the Market Stability Reserve (MSR)** to allow for quicker adjustment of auction volumes to lower emissions
- **Cancel ETS surplus both EU-wide and at national levels** to avoid that surpluses from plant retirements are used to increase emissions elsewhere or in the future
- **Introduce a carbon floor price that better reflects the social cost of climate change**
- **Establish stringent investment criteria for the use of ETS revenues** to ensure the EU ETS does not negatively affect an EU-wide coal phase-out

Introduction

The EU is currently deciding on its 2030 climate and energy framework to implement its contribution to the Paris Agreement. This framework includes a reform of the EU's Emissions Trading System (EU ETS) that puts a price on greenhouse gas emissions, as well as the Clean Energy Package to stimulate the uptake of energy efficiency and renewable energy. If these different policies are poorly integrated, this could undermine objectives such as energy security and make climate targets more difficult to meet. On the other hand, a well-integrated policy package can increase the synergies between climate and energy objectives and subsequently make it easier and cheaper to meet respective targets.

This policy briefing examines the role of carbon pricing in the energy policy landscape and provides recommendations to ensure that the EU ETS and energy policies work hand in hand for more climate ambition in line with the Paris climate goals[1].

The role of the EU ETS in the energy policy mix

A carbon price is a necessary instrument to enable least-cost emission reductions, but by itself it is not sufficient to shift to a net-zero society. The EU ETS sets a price on greenhouse gas emissions with the aim of levelling the playing field for low-carbon investments. The interaction between the EU ETS and energy policies can either reinforce or undermine the effectiveness of carbon pricing, and similarly the EU ETS can affect the performance of energy policies.

There are at least three reasons why the EU ETS cannot act as the single instrument to curb emissions and why it needs to be complemented with additional policies. These will be explained in the sections below:

1. The existence of market barriers and imperfections.
2. The desire to address multiple policy objectives.
3. Carbon prices that are set below the cost to society.

Market barriers and imperfections

Carbon pricing instruments are generally considered efficient as they provide an incentive for climate mitigation where it is most cost-effective. However, due to the market failures that prevent markets from functioning efficiently, carbon pricing needs to be flanked by supplementary policies to realise the least-cost potential.

The International Energy Agency (IEA)[2] has identified two supplementary measures that should form the core climate policy set together with carbon pricing:

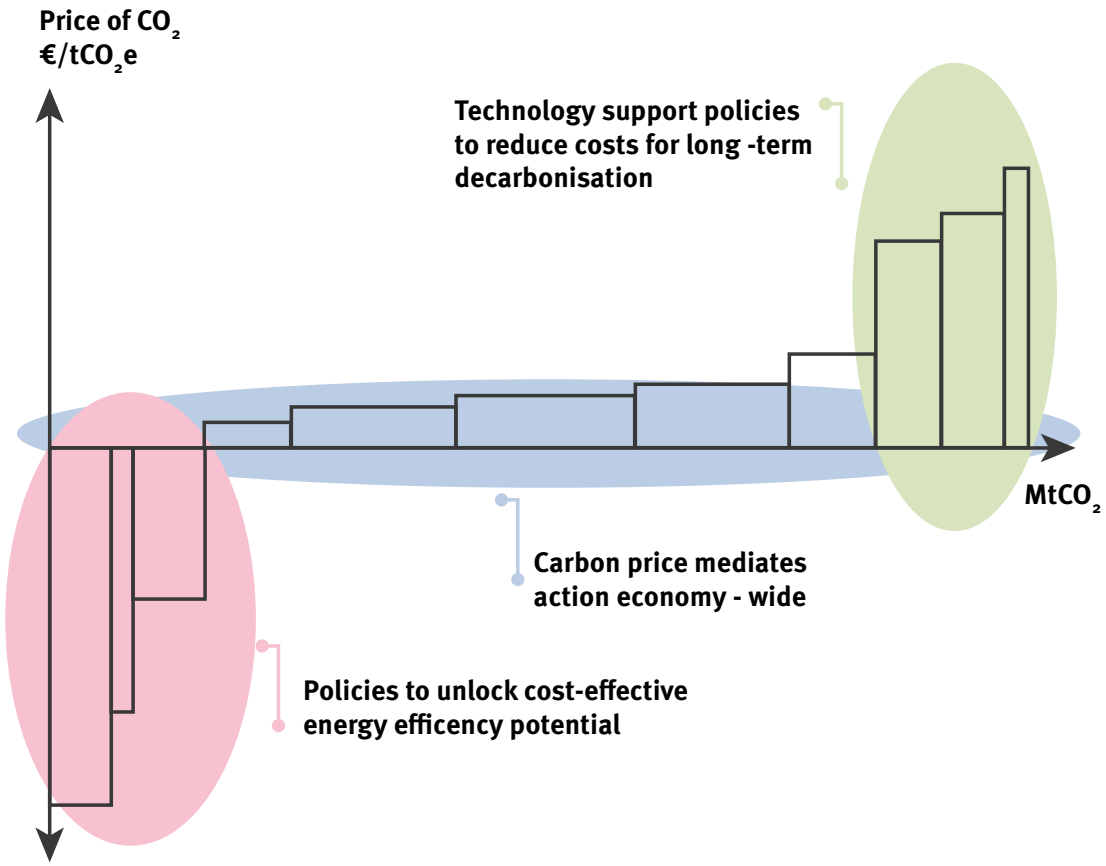
1. **Energy efficiency policies to unlock abatement potential otherwise untapped by the carbon price signal.** Much of the energy efficiency potential is available at a negative carbon price, which means these efficiency measures already pay for themselves, even in the absence of any carbon price. The reasons why these measures are not taken up are hence not always economic in nature, but rather the result of market barriers and imperfections, such as: split incentives between those making investments (e.g. house owners) and those paying energy bills

(e.g. tenants), lack of information on the efficiency potential or human behavior (consumers do not always act in their best economic interest what economists would call 'rational'). A carbon price alone will not address these market barriers and hence needs to be complemented with specific policies to help overcome the barriers.

2. **Research development and renewable deployment policies to bring forward new mitigation options and lower the cost of the transition over the long term, even if it might raise costs in the short term.** Complementary renewable policies are required to address the following market imperfections: (i) the disincentive created by benefits spilling over to other developments, (ii) the uncertainty around climate policies to guide appropriate levels of technology investment and (iii) dynamic inefficiencies (e.g. renewable support allows learning that lower long-term costs and thereby unlocks long-term abatement potential). Renewable policies should inter alia address the removal of non-economic barriers such as obstacles to grid access, and implement appropriate incentives guaranteeing a specific level of support to different technologies based on their degree of technological maturity.

Further supplementary policies beyond this core set might still be needed so as to prevent lock-in of high emissions infrastructure and overcome barriers to financing.

Figure 1 The core policy mix. a carbon price, energy efficency and technology policies

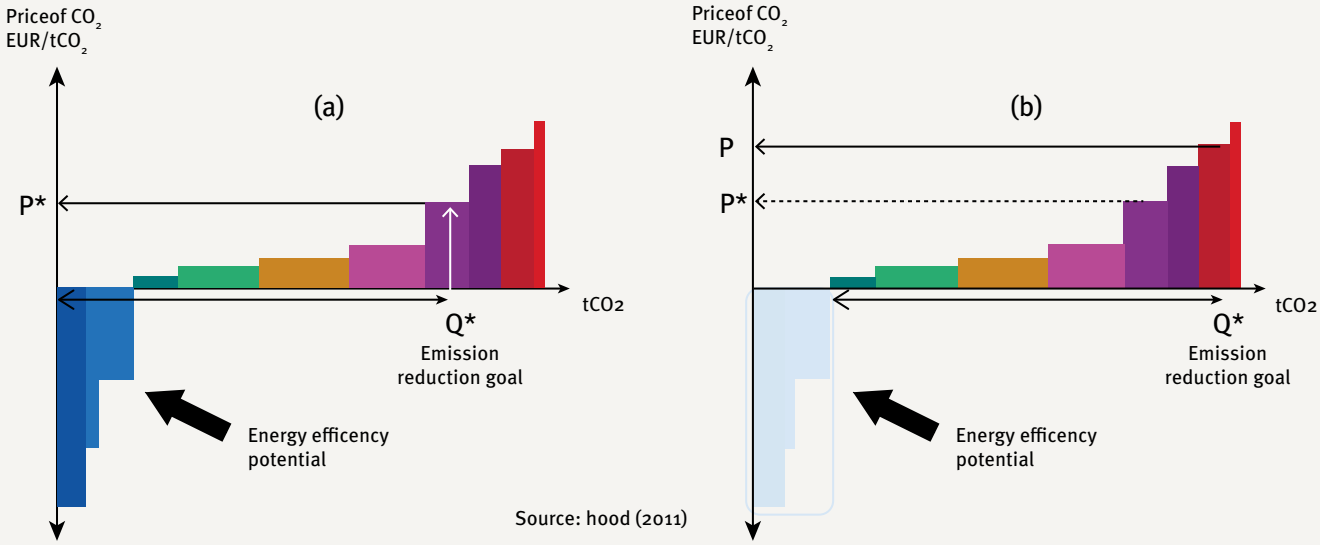


The interaction between energy efficiency and the EU ETS

Ignoring energy efficiency opportunities can be costly, according to the IEA[3]. The emission cuts that are associated with improved energy efficiency often come at a low or even negative cost – they will save money. However, these emission cuts will not be fully unlocked by a carbon price alone.

Disregarding energy efficiency can lead to higher carbon prices: by failing to tap into the energy efficiency potential, more expensive measures are required to meet a certain climate goal (see figure). This efficiency potential is unlikely to be unlocked through higher carbon prices alone, as a result of market failures such as split incentives and a lack of information. Targeted policies such as energy labelling, building standards, and minimum energy performance standards are hence necessary to overcome these market failures and unlock this cost-effective energy-efficiency potential.

Figure 2 · Ignoring energy efficency potential can lead to higher carbon prices



On the other hand, improved energy efficiency policies will weaken the carbon price in a cap-and-trade system. Energy efficiency policies reduce greenhouse gas emissions and thus will lower the demand for emission allowances, resulting in a downward pressure on the carbon price.

EU leaders decided in October 2014 on an energy efficiency target of at least 27% by 2030, but the Commission proposal for the revised Energy Efficiency Directive sets the 2030 target at a higher 30% level. The European Parliament has in the past even called for a 40% energy efficiency target. Moving from a 27% to a 30% or 40% efficiency target would lower the 2030 carbon price by 36% or 67%, according to the Commission's impact assessment[4].

This means that stronger energy efficiency measures currently undermine the EU ETS by reducing the incentive the ETS provides for low-carbon investments. Increasing the percentage of the surplus of emission allowances that is moved into the Market Stability Reserve each year can help ensure that energy savings do not depress the carbon price signal.

Multiple policy objectives

A key question in the design of climate and energy policies is what each policy is intended to achieve. Multiple policy objectives often justify multiple policies to avoid complexity and inefficiencies.

The objective of the EU ETS is to reduce greenhouse gas emissions by sending a carbon price signal to the economy. In the case of energy policies, reducing greenhouse gas emissions is usually a positive byproduct rather than the primary motivation. The objectives of energy savings and renewable energy policies usually range from cost savings to consumers, reduced energy poverty, improved energy security and job creation. National coal-phase outs aim to avoid stranded assets and improve air quality. Energy policies are hence implemented primarily for other reasons than climate, so justifications for them cannot usually be made on the basis of emission reductions alone.

Carbon prices that are below the costs to society

Carbon pricing influences production and consumption decisions by putting a price on greenhouse gas emissions to reflect the societal costs of climate change caused by these emissions. The price gives producers an incentive to shift towards cleaner investments and operations. It also affects consumers as the carbon cost increases product prices, influencing the choices of consumers towards lower-carbon alternatives. It often takes time to phase in efficient pricing levels, so additional policies are needed in the interim to keep investments on track and avoid a lock-in of high-carbon infrastructure.

Once the carbon price reaches a level that fully reflects climate change damages, this price should stimulate the correct level of emissions in the short term. However, if the carbon price starts at a lower level, other policies are justified to prevent an inefficient lock-in of high emissions infrastructure in the meanwhile.

A factor to consider when balancing carbon pricing with other policies is hence whether the carbon price is set at a level that fully reflects the damage caused by greenhouse gas emissions. CE Delft has calculated that an initial carbon price of €40 per tonne CO_2 is required for the low-carbon transition, rising to around €100 in 2030[5]. These optimal carbon prices are much higher than the current EU ETS price which is hovering around €5.

Enhancing synergies between the EU ETS and energy policies

The previous sections show that there is a case for an integrated policy package to respond to climate change and that the EU ETS interacts with energy policies, particularly energy efficiency and renewable deployment policies. The interaction between these climate and energy policies can either reinforce or undermine one another.

Misaligned policies that undermine each other are problematic in the short term, but even worse in the long term, because the banking of surplus ETS allowances can mean that this misalignment affects the scheme for years into the future. In this case, energy policies that reduce emissions lower the carbon price and thereby undermine the incentive to shift towards cleaner operations and products.

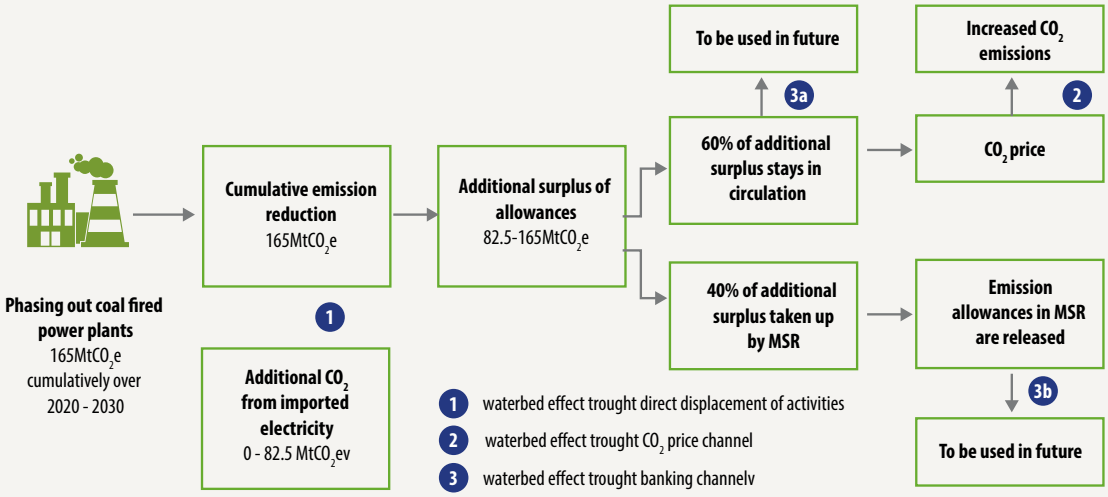
The interaction between coal phase-outs and the EU ETS

In the absence of an efficient and stable carbon price, regulation has an important role to play in driving the retirement of existing high-emissions infrastructure. This is the reason why several European countries are currently considering national coal phase-outs.

In the debates around coal phase-outs, it is often argued that such supplementary policy measures do not reduce CO2 emissions as the savings from coal closures simply allow other parts of the economy to emit more. After all, the cap on the total amount of emission allowances has not changed. This is also called the 'waterbed effect'.

Ecofys[6] recently analysed the impact of a phase-out of Dutch coal-fired power plants on the EU ETS and found that the associated emission reductions do not directly lead to the same amount of increased emissions elsewhere. Ecofys distinguishes three potential waterbed effects to show that these effects would be marginal:

1. The direct waterbed effect: the closures of coal plants lead to a relocation of activities and an increase in net imported electricity from sources that are not CO2-free.
2. The indirect waterbed effect: the closures of coal plants lower the demand for emission allowances and thereby reduce the CO2 price. In the case of a Dutch coal phase-out, this impact is negligible.
3. The indirect waterbed effect: the closures of coal plants increase the amount of surplus emission allowances in the market that are banked for potential future use. This effect is muted by the Market Stability Reserve that will store part of the surplus.



Analysis by Sandbag[7] confirms the Ecofys findings and shows that only 2-8% of the total avoided emissions lead to additional emissions elsewhere. Moreover, improvements to the EU ETS and Member State actions can help avoid the negative interactions between national coal phase-outs and the EU ETS:

1. Environment ministers recently decided to automatically cancel surplus in the Market Stability Reserve from 2024 onwards which addresses the indirect waterbed effect (3b) as this surplus cannot be used in the future.
2. Analysis by ThomsonReuters[8] shows that the share of the surplus of emission allowances that is moved into the Market Stability Reserve each year needs to increase from 12% to 30% to avoid that an EU-wide coal phase-out depresses the carbon price signal from the EU ETS (2).
3. The European Parliament agreed to allow countries to voluntarily cancel allowances if power plants are retired which could tackle the indirect waterbed effect (2).

The EU ETS could however have a negative impact on the transition away from coal through a provision allowing lower-income states to give allowances for free to power producers on the condition that they invest the equivalent value in the modernization of their energy system. This provision (Article 10c) has been misused in the past to provide support to new and existing coal power plants[9].

Recommendations

The following recommendations to improve the EU ETS can help ensure that carbon pricing and energy policies mutually reinforce, rather than undermine, each other:

Set a lower EU ETS cap that reflects energy policy developments

Reviewing and adjusting the ETS frequently enough can avoid significant build-up of surplus allowances and ensure alignment between climate and energy objectives. The total scale of abatement from energy policies should be considered at the time the ETS cap is set. If energy policies other than the ETS deliver most of the emission cuts to meet the ETS cap, this can leave the carbon market more vulnerable to changing economic circumstances as could be observed with the EU ETS in the last few years. The ETS cap instead has to incentivize a certain share of additional emission cuts on top of adopted energy policies. This means the ambition of the EU ETS needs to be increased to align it to the recent energy policy developments.

Increase the rate by which ETS surplus is moved into the Market Stability Reserve

The Market Stability Reserve (MSR) reduces auction volumes if emissions are significantly lower than forecasted when the cap was set, based on the size of the oversupply in the market. However, analysis by Thomson Reuters shows that the current design of the MSR does not fully resolve the negative impact of an EU-wide coal phase-out or a higher energy efficiency target on the ETS price. The rate by which ETS surplus is moved into the MSR hence needs to be increased to allow for quicker adjustment of auction volumes to the lower emissions and negate a downward pressure on the carbon price. While the MSR can help adjust auction volumes if emissions are lower than predicted, it acts only as a second-best solution to setting an appropriate ETS cap on the basis of real-world emissions and developments.

Cancel ETS surplus both EU-wide and at national levels

The Market Stability Reserve temporarily stores surplus allowances but eventually this surplus will be returned to the market and allow additional emissions at this future date. The EU environment ministers decided to change this by automatically cancelling surplus allowances in the MSR, if the reserve stores more allowances than the auction volumes in the previous year. This limits the banking of surplus and avoids that significant surpluses are carried forward and used at a later date. The European Parliament moreover agreed to allow Member States to lower their auction volumes if power plants are retired, which would also reduce the amount of ETS surplus that can be used in the future.

Introduce a carbon floor price that better reflects the social cost of climate change

Floor price mechanisms in the ETS can be helpful to ensure that the carbon price better reflects the societal cost of climate change caused by carbon emissions. A carbon floor price creates greater investor certainty and confidence and ensures that the carbon price reaches a level that better reflects climate change damages during the phase-in of pricing instruments. The UK introduced a carbon floor price in 2013 that helped drive UK's coal emissions to fall by almost 60% in 2016[10].

Establish stringent investment criteria for the use of ETS revenues

Stringent investment criteria are required in the EU ETS to ensure that ETS auctioning revenues are not misused to support high-carbon infrastructure. Only investments that support the transition away from fossil fuel generation should be supported under the Modernisation Fund and Article 10c of the ETS directive.

1. *This policy briefing relies heavily on research performed by the International Energy Agency.*
2. *IEA (2011), Summing up the parts*
3. *IEA (2013), Managing interactions between carbon pricing and existing energy policies*
4. *SWD (2016) 405. The assessment has tried to reflect some features of the recently adopted Market Stability Reserve in a stylized way. The assessment predicts a 2030 carbon price of €42/tCO2 (27% efficiency), €27/tCO2 (30% efficiency) and €14/tCO2 (40% efficiency), if the 2030 climate target is kept the same.*
5. *CE Delft (2016), Investment challenges of a transition to a low-carbon economy in Europe* see here
6. *Ecofys (2016), The waterbed effect and the EU ETS* see here
7. *Sandbag (2016), Puncturing the waterbed myth*
8. *Thomson Reuters (2017), Sidelined or in the driver's seat? ETS interaction with other policies,* see here
9. *Carbon Market Watch (2016), Fossil fuel subsidies from Europe's carbon market* see here
10. *Sandbag (2017),* see here

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Carbon Market Watch

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