Elkerbout, Milan; Zetterberg, Lars
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Book

EU ETS : reform needs in the light of national policies

MILAN ELKERBOUT
LARS ZETTERBERG

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Editor: Ruben Henriksson

European Liberal Forum asbl,
Rue d'Idalie 11-13, boite 6, 1050 Brussels, Belgium
info@liberalforum.eu
www.liberalforum.eu

Fores,
Grev Turegatan 46
114 38, Stockholm
info@fores.se
www.fores.se

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About the author

Milan Elkerbout is a Research Fellow at CEPS, a Brussels-based EU policy think tank. His research focuses on EU climate policy, in particular emissions trading and industrial decarbonisation. During 2019 and the first half of 2020, he was a visiting Mistra Fellow at IVL in Stockholm, as part of the Mistra Carbon Exit research programme working on the EU ETS and other EU climate policy issues. He has been closely involved in the EU ETS Phase 4 revision discussions. His academic background is in European political economy.

Lars Zetterberg, PhD, is a senior researcher at IVL Swedish Environmental Research Institute. His recent research focuses on industrial decarbonization, emissions trading and policies for negative emissions. Zetterberg has performed several missions for the Swedish government analysing the EU ETS and international carbon markets in order to improve its function and efficiency. Zetterberg co-chaired a COP 21 (Paris) Side Event on market mechanisms in the 2015 agreement and was keynote speaker at a seminar on the EU Green Deal in January 2020.

Foreword

The European Union Emissions Trading Scheme (EU ETS) is not only a cornerstone in European climate policy, but also the world's largest emissions-trading scheme, covering sectors that emit over 2 billion tonnes of CO_2. Estimates have shown that the EU ETS has led to between an 8.1 and 11.5 per cent reduction of emissions from the sectors covered.[1] As such, the EU ETS shows the benefits of countries working together to cost-efficiently reduce emissions in a liberal and market-driven manner.

But the EU ETS hasn't worked perfectly from the outset. The large number of allowances available on the market ensured the price for an allowance was very low, which had a negative impact on companies' incentives to reduce their emissions, since they could just buy the allowances needed to cover them instead. The reduction in emissions that has none-

1 Bayer & Aklin (2020) "The European Union Emissions Trading System reduced CO_2 emissions despite low prices", Proceedings of the National Academy of Sciences Apr 2020, 117 (16) 8804-8812; DOI: 10.1073/pnas.1918128117

theless been secured can largely be attributed to the belief that the price would eventually increase.

The EU ETS has gone through several changes over the years, such as the introduction of the market-stability reserve, which has led to an increase in the price of allowances. Combined with the planned decrease in the amount of allowances within the system, starting in 2021, it seems the EU ETS is on the way to becoming an even more efficient instrument. This development is sending a clear signal to the sectors covered by it that investments in clean technologies are worthwhile.

However, there are still some unresolved issues and the EU ETS will need further reform. Specifically, there are questions regarding national policies and how they interact with the trading scheme. There are also issues of competitive disadvantages for the sectors covered, which can lead to carbon leakage. The problems need to be addressed with both complementary policies and reforms of the current EU ETS. The EU has already announced that changes to the ETS will be proposed in 2021, therefore this publication aims to deepen the understanding of the EU ETS and give an overview of the reforms discussed. Hopefully we can contribute to the important work of improving one of the world's

most important climate tools.

We would like to extend a special thank you to the reviewers for their valuable comments and to Malin Wolters who has been essential in the preparation of this book.

Ruben Henriksson
Climate Programme
Fores

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Chapter 1

Introduction to the EU ETS

The EU signed the Paris Agreement in 2016, which aims to ensure that global warming is kept well below 2 degrees Celsius. But even before the Paris Agreement was signed, the EU had several policies in place to combat climate change. The EU Emissions Trading System (EU ETS) is often described as the cornerstone of EU's climate policy.[2] An emissions-trading system is a market-based instrument that can be used to reduce greenhouse gas (GHG) emissions, and currently there are around 20 ETSs operating across five continents. Regions using emissions trading make up almost 40 per cent of global wealth (GDP).[3] The EU ETS puts a limit on the amount of emissions that can be emitted within the scheme, often referred to as a cap. The cap is

2 EU Official website (n.d.) "EU Emissons Trading system (EU ETS)"
3 International Carbon Action Partnership (2019).

reduced every year, until it eventually reaches zero emissions. With the current rules, the EU ETS cap will reach zero in 2058. Within this cap of emissions allowed, companies can buy and sell emissions allowances as needed. This is called a 'cap-and-trade' system. The EU ETS system covers the whole of the EU plus the UK, Iceland, Liechtenstein and Norway.[4]

In 2019 the European Council decided that EU's GHG emissions should reach net zero by 2050 and be negative thereafter.[5] The EU Commission has proposed to cut GHG emissions by at least 55 per cent by 2030 and will present detailed legislative proposals to achieve this target by June 2021.[6] This necessitates a strengthening of the EU ETS ambition and a re-examining of the relative reduction efforts of the ETS and non-ETS sectors. For the 2030 target and the EU ETS this could lead to an increase in the linear reduction factor, set at 2.2 per cent from 2021.

4 Brexit has created uncertainty about the future of the UK in the EU ETS. Until the 31st December 2020 the UK remains a full participant of the EU ETS, what will happen after this date is still under discussion. See e.g. https://www.gov.uk/government/publications/meeting-climate-change-requirements-if-theres-no-brexit-deal/meeting-climate-change-requirements-if-theres-no-brexit-deal

5 EU official website (n.d). "Climate Strategies & Targets".

6 EU official website (n.d) "2030 climate target plan"

What does the EU ETS cover?

The EU Emissions Trading System is perhaps the most wide-ranging of the climate policies in place to meet the EU's climate target, where the sectors covered by the EU ETS will have to cut emissions by 43 per cent below 2005 levels by 2030. In comparison, the non-ETS sectors will need to cut emissions by 30 per cent.[7] The EU ETS covers around 45 per cent of the emissions from the EU28 and includes three sectors: power installations, energy-intensive industry and aviation. As such, there are currently more than 11 000 European heavy energy-using installations included in the system.[8] Four major sectors are currently not included in the EU ETS; transport, heating, agriculture and waste. These non-EU ETS sectors and most of the other remaining emissions are covered by the Effort Sharing Regulation (ESR) with binding emission reduction targets for each member state.

The rapid phase-out of coal-based power in the EU is predicted to lead to an excess of permits on the market causing prices to crash, this is sometimes referred to as the coal bubble.[9] As a consequence, industry can account for an increasing share of the total emissions in the EU ETS. Over time, this can

7 EU official website (n.d). "2030 climate & energy framework".
8 EU Official website (n.d.) "EU Emissons Trading system (EU ETS)"
9 Carbon market watch (2019). "Avoiding A Carbon Crash: how to phase out coal and strengthen the EU ETS"

have implications for the perception of the EU ETS as a centrepiece of EU climate policy. In response to this European Commission president Ursula von der Leyen suggests expanding the coverage of the EU emissions-trading system to road transport and energy use (i.e. heating and cooling of buildings).[10] The basic argument for inclusion of any sector into EU ETS is that it would increase the effectiveness of reducing emissions across all of the ETS sectors in the EU. Nevertheless, extending the ETS remains a contentious issue due to concerns that the transport sector would buy allowances instead of reducing their own emissions. The transport sector is already regulated by member states using a variety of policies to address, for example, climate change, air pollution, congestion and other issues. Reducing GHG emissions from transportation has proven to be challenging, showing that complementary policies to carbon pricing are needed. Moreover, circumstances vary over member states, implying the need for nationally tailored solutions. It's therefore unlikely that member states would want to yield control of climate policies targeting the transport sector.

10 Zetterberg & Elkerbout (2019). "The Future of EU Emissions Trading System - Responding to the Green New deal Proposals".

Cap and trade

As previously mentioned, the EU imposes a limit (cap) on the total emissions in the sectors covered by the EU ETS and distributes a corresponding number of emissions permits. The number of permits are gradually reduced until it eventually reaches zero. The tradable permits are distributed among the participating companies using free allocation or auctioning. The idea behind free allocation is to increase the competitiveness of industries to stop firms from relocating outside the EU ETS, which would also ensure that carbon leakage does not occur as firms relocate. Carbon leakage[11] is the risk that, due to increased costs as an effect of ambitious climate policies in the EU, companies will move their production to places that do not have as strict climate policies or measures instead of cutting their GHG emissions.

When allowances are sold at auction, bidders can place any number of bids, each specifying the number of allowances they would like to buy at a given price. The auction platform then determines and publishes the clearing price at which demand for allowances equals the number of allowances offered for sale in the auction. Successful bidders are those who have placed bids for allowances at or above the

11 EU official website (n.d). "Carbon Leakage"

clearing price. All successful bidders pay the same price, regardless of the price they specified in their bids.[12] If a company reduces its emissions below the allowances it has acquired or received, it can keep the spare allowances to cover future needs or sell them to another company. A company that is likely to emit more than its allocated limit can buy allowances, either from a company with spare allowances or in state-run auctions. The idea is that if any participant can reduce emissions at a lower cost than the allowance price, they will do so. The creation of an economic cost of emitting delivers a clear price signal for the EU ETS participants. A low cap will drive prices up, thus acting as a price signal for companies that they need to invest in new technology to avoid this EU ETS cost. The price signal creates incentives for companies to try to innovate new ways of emissions reduction to avoid paying for ETS allowances. Participants who fail to comply with their obligation to surrender allowances under the EU ETS are fined heavily for each tonne for which they fail to submit an allowance, in addition to the price of the allowance in the first place.[13]

The cap is lowered by 1.74 percentage points each year, enabling the target of a 20 per cent emissions

12 EU official website (n.d). "Auctioning".
13 European commission (n.d.) "Emissions cap and allowances"

reduction by 2020 compared to the levels of 1990 to be reached.[14] The lowering of the cap in this way is often referred to as the "linear reduction factor". In the period 2013-2020, the cap on emissions from power stations and other fixed installations was, and still is, reduced by 1.74 per cent every year. A new more ambitious cap has been agreed and will be put in place from 2021 where the linear reduction factor of the ETS cap will be raised from 1.74 per cent to 2.2 per cent per year from 2021.[15] Together with emission reductions of 30 per cent in the non-ETS sector, this should enable the EU to achieve its current target of reducing emissions by 40 per cent by 2030, compared to the levels of 1990. A separate cap applies to the aviation sector: for the 2013-2020 period, this is 5 per cent below the average annual level of emissions in the years 2004-2006.[16]

Market stability reserve

As explained, it's important to avoid a situation with excess emission permits, since this will not drive emission reductions and companies are not incentivised to invest in new technology. To avoid

14 Directive 2009/29/EC.
15 European commission (n.d.) "Emissions cap and allowances"
16 European Union, factsheet (2016).

an abundance of emissions permits, a market stability reserve (MSR) has been put in place as a design feature in the EU ETS, the purpose of which is to stabilise and raise the allowance price by regulating the number of permits on the market.[17] The MSR has two triggering thresholds based on the quantity of allowances in circulation (referred to as Total Number of Allowances in Circulation (TNAC)). When the quantity of allowances is higher than 833 million tonnes, a certain percentage of all of the allowances in circulation (12 per cent, but temporarily 24 per cent until 2023) are removed from auctions and placed in the MSR over the subsequent calendar year, thus reducing the number of allowances available. When the quantity of allowances in circulation is less than 400 million tons, 100 million tons are taken from the MSR and added to the auction volumes in the subsequent calendar year in order to increase the number of allowances available. From 2023, the total amount of allowances in the MSR exceeding the amount sold at auctions in the previous year will be cancelled.[18] The planned review of the Market Stability Reserve in 2022 provides an opportunity for the EU Commission to safeguard and reinforce the effectiveness of the ETS and its price signal.

17 European Commission, 2012; Decision (EU) 2015/1814
18 Acworth, W., Schambil, K., and Bernstein, T. (2020). "Market Stability Mechanisms in Emissions Trading Systems"

Free allocation

Allowances are allocated to some industries for free to reduce the competitive disadvantage that occurs when firms within the EU ETS compete with firms in other jurisdictions that do not face similar climate policies. If these businesses have to pay for emission allowances they may decide to relocate their production outside of the EU, creating carbon leakage. This causes both fewer jobs and fewer businesses in the EU, and creates more global emissions when firms move to laxer regions and thus undermine the environmental integrity and benefit of reducing emissions in the EU.

To handle this problem, the EU ETS provides free allocation for sectors that are considered to be exposed to significant competitive disadvantage. The sectors and installations receiving free allocations are defined by a formula based on aspects such as historical and current emissions. The free allocation proportion in the system is however decreased gradually. It is also based on a benchmarking system, whereby industries receive free allowances based on a product-specific emissions rate benchmark equal to the top 10 per cent of emission-efficient installations. To simplify, the benchmark is based on the best performing installations that emit the least. As a result, there is still an incentive to cut emissions

for those who receive free allocations as they can then sell their surplus allowances.[19] Installations that are highly efficient should receive all or almost all of the allowances they need to comply with EU ETS obligations. Since the benchmarks are based on the performance of the most efficient installations, only the most efficient installations in each sector receive enough free allowances to cover all their needs.[20] Highly exposed sectors that are subject to a significant competitive disadvantage are eligible to receive 100 per cent of the quantity of allowances defined by the product-specific benchmark for free, whilst sectors that are not as exposed are eligible for less free allowances and get their free allocation reduced gradually during Phase 3. The sectors that meet the criteria are put on a list, which is renewed every five years.[21]

The expected phase-out of free allocation in combination with an increasing carbon price may increase the risk of carbon leakage. If we expect European industries to invest in transformational climate-neutral products and production processes that compete on a global market, the EU will need to contain carbon leakage by other means than free allocation. A carbon border tax as proposed by Pres-

19 EU Official Website, n.d. "Free allocation".
20 EU Official website n.d. "Carbon leakage".
21 Ibid.

ident von der Leyen is one option. While the idea of border carbon tax seems simple in theory, the devil is in the detail. Alternatives such as consumption charges or product standards may also play a role in the discussion.

Overlapping policies

Overlapping policies are common both at EU and member-state level. They are for instance used to speed up implementation of renewable energy, improve energy efficiency, support technologies that require a certain infrastructure or to achieve other objectives such as energy security. The EU ETS co-exists with other policies, and for that reason it is important that the EU ETS can manage the imbalances in supply and demand that may occur.

Climate change mitigation policies being pursued at different speeds is a mainstay of global climate policy. In the EU, it's inevitable that some of the 27 member states may want to move at different speeds (albeit never below the minimum agreed at EU level). Indeed, EU climate policy recognises this, especially in the Effort-Sharing framework. A number of member states have pursued domestic policies to reflect their higher domestic climate ambi-

tion. Some of these policies target sectors included in the EU ETS, which therefore leads to interactions. Examples include the coal phase-out in Germany and the Netherlands; a legal process of managed decline for the countries' coal-fired power plants, which may have a significant impact on the German and Dutch demand for ETS allowances.[22] The Netherlands also plans to levy charges to Dutch industry to incentivise additional emissions reductions in these sectors. This poses additional challenges as industrial sectors are often trade-exposed, which may lead to leakage effects. The UK meanwhile, even if no longer a member state, pioneered the use of a domestic carbon price floor to deliver additional emissions reductions in the power sector.[23] Such a carbon price floor is suggested by several member states to be a worthwhile design feature for the EU ETS in general.

The examples from different European countries show that interactions between EU and domestic climate policies are unavoidable and thus need to be managed. The principal interaction is that domestic policies may lead to additional surpluses in the EU ETS, which could theoretically lead to a waterbed effect, i.e. the gains in one member state being lost

22 Energy post (2019). "Why coordinated Dutch-German climate action is critical for Europe".
23 House of Commons Library, Briefing paper (2018)

as surplus allowances can lead to greater emissions elsewhere in the EU. However, such interactions can, and indeed have been, managed both at the EU and domestic level. At the EU level, provisions for the automatic invalidation of allowances, or the possibility for member states to cancel allowances when they retire electricity generation ensure that the ETS supply is better able to track the demand changes incited by member states policies. At the domestic level, policy design should allow for automatic changes in line with the performance of the EU ETS. Failing to consider interactions between EU and domestic policy leads to fragmentation of EU climate policy and reduces the efficiency of the EU ETS.[24]

What the revenue is used for

The EU ETS Directive states that the member states are to determine how they use the revenues generated from the auctioning of allowances and that they are obliged to inform the Commission on how they use the revenues. The directive also states that member states should use at least half of the auction

24 Perino, Ritz,& Benthem (2019). "Understanding overlapping policies: Internal carbon leakage and the punctured waterbed"

revenues for climate- and energy-related purposes.[25] In 2018, member states spent or planned to spend 70 per cent of these revenues on specified climate and energy related purposes.[26]

The EU ETS also includes low-carbon funding mechanisms to help participants to meet the innovation and investment challenges of the transition to a low-carbon economy. In Phase 3, this funding mechanism is NER300. Around 5 per cent of all allowances are set aside in the 'new entrants reserve', from which the revenues of 300 million allowances were used to fund NER300. NER300 helps co-financing large-scale demonstration projects in two areas of low-carbon technologies: carbon capture and storage, and innovative renewable energy technologies.[27] In Phase 4, the funding mechanisms are The Innovation fund, widely considered to be a successor of NER300, and The Modernisation fund. The Innovation Fund supports the demonstration of innovative technologies and breakthrough innovation in industry and the amount of funding available will correspond to the market value of at least 450 million emission allowances.[28] The Modernisation

25 EU Official website (n.d.) "Auctioning"
26 Report from the Commision to the European Parliament and the Council (2020). "Report on the functioning of the European carbon market". Available via https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019DC0557R(01)&from=EN
27 EU Official website, n.d. "NER 300 programme".
28 EU Official website, n.d. "Innovation Fund".

Fund, funded by 2 per cent of Phase 4 allowances and any additional allowances transferred by beneficiary states, supports investments in modernising the power sector and wider energy systems, boosting energy efficiency, and facilitating a just transition in the 10 member states with the lowest per capita income.[29]

29 EU Official website. n.d. "Modernisation Fund".

Chapter 2

Reforming the EU ETS

Some of the key features of the EU ETS – capped emissions, tradable allowances, a price on carbon, cost effectiveness and free allocation – made the system popular among authorities and industry when it was introduced. The EU ETS is described by the EU Commission as "a cornerstone of the EU's policy to combat climate change and a key tool for reducing greenhouse gas emissions cost-effectively".[30]

Given the EU's long term strategy and decision to be carbon neutral by 2050 as well as other national complementary policies of reaching net zero emission by 2050 or prior, it's clear that the EU ETS needs to be reformed.[31] Several issues on how the EU ETS can develop up to 2030 and beyond merit discussion:

One issue is the proposals[32] by President von der

30 European Commission (2019), "EU Emissions Trading System". https://ec.europa.eu/clima/policies/ets_en

31 With the decided linear reduction factor of 2.2 per cent, the cap will reach zero in 2058, 8 years after EU emissions reach net zero.

32 European Commission (2020) "State of the Union: Commission raises climate ambition and proposes 55 % cut in emissions to 2030"

Leyen to strengthen the 2030 and 2050 climate targets for the EU and its implications on the long-term ambition of the EU ETS and the linear reduction factor. This raises questions about the 'end-state' of the EU emissions trading system.

Secondly, the ability of the EU ETS to continue to handle shocks affecting the supply and demand balance for allowances after the Market Stability Reserve reverts to only withdrawing 12% of the total number of allowances in circulation after 2023. This issue has become increasingly important after the Covid-19 crisis with significantly lower production levels. The MSR review of 2022 gives the von der Leyen Commission an opportunity to revisit this issue.

A third issue is that the EU Commission's use of free allocation as a safeguard against carbon leakage is uncertain, as there is only a limited, and declining supply of allowances and free allocation, which comes at the cost of auctioning for other sectors.

A fourth issue is the rapid decarbonisation in the power sector that may turn the EU ETS into a policy instrument covering mostly greenhouse gas emissions from industry, and only approximately a third of EU's total greenhouse gas emissions. This relates to President von der Leyen's proposal to extend the EU ETS to the road transport and buildings sectors.

Long-term ambition of the EU ETS

European Commission President Ursula von der Leyen supports a climate-neutrality target for 2050 and an increase of the 2030 greenhouse gas emissions reduction target to at least 55%[33]. The motivation for this is that EU emissions should be reduced at a pace which is in line with the Paris Agreement. In order to achieve the revised emissions reduction target, the relative reduction efforts of the ETS and non-ETS sectors will need to be re-examined. For the 2030 target and the EU ETS, this could lead to an increase in the linear reduction factor; currently set at 2.2 per cent.[34]

One can wonder what will happen in the long term when the cap of the EU ETS is close to zero. With the current rules, the EU ETS cap will reach zero in 2058. The Paris Agreement review may change that and bring the moment of zero emissions forward, for instance to the year 2050. As we get closer to the zero emissions year, it's likely that there will be residual emissions that are very costly to abate. The use of carbon capture and storage may not fully eliminate emissions due to capture rates that are below 100%. Aviation – which is partially

33 The EU Parliament proposes a 60 per cent reduction target. See https://www.europarl.europa.eu/news/en/press-room/20200907IPR86512/eu-climate-law-meps-want-to-increase-emission-reductions-target-to-60-by-2030

34 Corresponding to 48 million tons per year

included in the EU ETS – may likewise still continue to emit greenhouse gases well into the future. But if so - is it possible to have an emissions trading system with a zero cap? Yes, a zero cap is possible if there are credits representing negative emissions or credits representing international offsets that can be used to compensate for the residual emissions in the ETS. This is a politically sensitive issue due to concerns about additionality and environmental integrity but may at the same time be a discussion that is inevitable.

Ability to handle imbalances in supply and demand

Between 2013 and 2018 the EU ETS was plagued by a consistently low price for allowances (see figure 1). This was due to an imbalance of allowance supply and demand, resulting mainly from the economic crisis, the influx of credits under the Clean Development Mechanism, and free allocation based on historical output levels. Moreover, renewable targets and energy efficiency policies further reduced emissions, without necessarily adjusting the supply of allowances commensurately, thereby contributing

to a growing surplus. The low price was clearly not providing incentives for emissions reductions and adoption of low carbon technologies.

Figure 1: EUA prices 2013-2019.

Source: EEX

In response to the low allowance price, some member states introduced or wanted to introduce additional policies in order to comply with national climate objectives. However, additional emission reductions under an emissions cap are problematic. If the total volume of emissions allowances is fixed, extra emissions reductions in one country can lead to emissions increasing elsewhere in the EU, undermining the effectiveness and integrity of the national policies. This is sometimes referred to

as the 'waterbed effect', akin to sitting down on one side of a waterbed and seeing it rise on the other side.[35]

In 2017, the EU ETS was reformed. From 2019 allowances corresponding to 24 per cent of the allowance surplus are transferred into a market stability reserve (MSR). From 2023 onwards, the MSR is only allowed to hold as many allowances as were auctioned the previous year – the rest are invalidated. Estimates show that about 3 Gt of allowances[36] will be invalidated between 2023 and 2030.[37] The reform drove up the price of allowances from around 5 euros to between 25 and 30 euros, which has accelerated the phase-out of coal in the EU.

Overlapping policies are common both at EU and member state levels and it's likely that the EU ETS will continue to co-exist with other policies. For that reason, it's important that the EU ETS can manage imbalances in supply and demand that may occur due to overlapping policies. This can, for instance, be achieved by introducing a price floor in the EU ETS. A price floor can also provide buoyancy in the event of unexpected shocks, thereby providing investment certainty and maintaining market confi-

35 Burtraw et al (2018). "Companion Policies under Capped Systems and Implications for Efficiency – The North American Experience and Lessons in the EU Context"
36 Which corresponds to almost two year's allowance demand
37 Burtraw et al (2018). "Companion Policies under Capped Systems and Implications for Efficiency – The North American Experience and Lessons in the EU Context"

dence and support. Price floors have been successfully implemented in the emissions-trading system in North America[38] and a recent paper argues that no legal barriers stand in the way of the introduction of an auction reserve price into the EU ETS.[39] .

The Covid-19 crisis has caused an economic downturn that may reverberate throughout the European carbon market. In the previous economic crisis, the carbon price in the EU ETS dropped to very low levels as demand decreased. Today, the Market Stability Reserve (MSR) operates to prevent significant allowances surpluses from accumulating. However, it's unlikely that the MSR's withdrawal rate of 12 per cent can prevent an increase of surplus allowances.[40]

The planned review of the Market Stability Reserve in 2022 provides an opportunity for the EU Commission to safeguard and reinforce the effectiveness of the ETS and its price signal. This could be done either by updating the parameters of the MSR, by considering alternatives such as a price floor, or a hybrid, such as making the MSR intervene based on a price trigger rather than a quantity trigger.

38 Flachsland et al (2019). "Avoid history repeating: The case for an EU ETS price floor revisited, Climate Policy"

39 See Fischer et al (2020). ""The Legal and economic case for an auction reserve price in the EU Emissions Trading System"

40 Elkerbout and Zetterberg (2020). "Can the EU ETS weather the impact of covid-19?"

Carbon leakage risk and competitiveness

With the proposal for a Carbon Border Tax[41], President von der Leyen (re)introduces an alternative approach to mitigating carbon leakage risk. As previously mentioned, free allocation is the established method to safeguard industrial competitiveness. The revised ETS Directive for Phase 4 extends free allocation up to 2030, subject to revised rules on how to calculate the amount of allowances each sector is entitled to.

For Phase 3, this split between auctioning and free allocation was set at 57%. For Phase 4, at least 54%[42] of the allowances will be auctioned, the rest will be allocated freely to carbon intensive industries exposed to international competition. The motivation for this is to protect them against the risk of carbon leakage. In the medium to long term, this is not sustainable. Due to the declining cap, the quantities of free allocation to industrial sectors has been declining over time. In Phase 4 (2021-2030) an increasing share of industrial emissions will not be covered by free allocation not only because of the cap, but also because of updates to the benchmark

41 European Commission (n.d). "Commission launches public consultations on energy taxation and a carbon border adjustment mechanism"
42 In principle the Directive fixes the auction share at 57% per Art 10(1). Art 10(5a) allows for a reduction of up to 3% however, if this is necessary to help avoid a correction factor described in Art 10a(5)

values. After 2030, free allocation could shrink further due to the shrinking cap and assuming at least 54% of allowances are auctioned. In the short term, this could be mitigated by increasing the share of free allocation at the expense of auctioned allowances. But doing this would decrease the share of auctioned allowances thus going against the principle that auctioning should be the main allocation method. By 2040, even in a scenario where the Phase 4 rules on this split are kept the same, as would the annual reduction of the cap, the volume of free allowances available would be slightly below 400 million, about 3/5th of the volume of free allowances handed out in 2018 (just over 650 million).

In the long run, safeguards to international competitiveness are nevertheless required if we expect European industries to invest in transformational climate-neutral products and production processes that compete on a global market with conventional and potentially carbon-intensive alternatives. Alternatives or complements to free allocation exist.

The European Parliament's environment committee took some tentative steps in this direction when during the last ETS revision, it considered a 'carbon inclusion mechanism' for imports from the cement sector. As the proposal did not make it past the European Parliament plenary, the idea was

never examined in detail. The basic design involved requiring cement imports to be treated as if they were produced in the EU, and therefore liable for ETS compliance.

The carbon border-adjustment mechanism as proposed by President von der Leyen is another option. This is a specific implementation of what can be seen as a broader set of measures called 'border carbon adjustments'. While the idea of a border carbon tax is a simple one (i.e. to tax imports based on their embedded emissions), the devil is in the detail. Compatibility with World Trade Organization (WTO) rules is desired politically. A carbon border mechanism can be compatible with WTO law if it is implemented without any discriminatory components. For instance, as with other tariffs, it needs to be independent of country of origin and production processes[43].

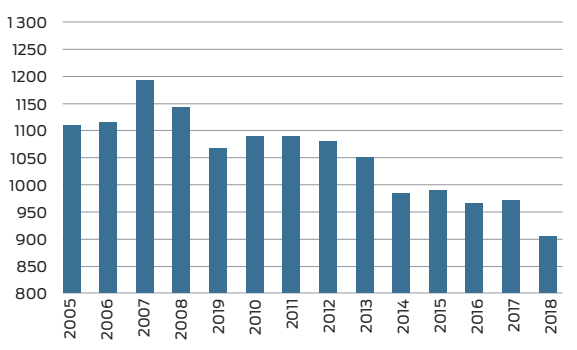
The issue of border measures may be less controversial today than 10 years ago due to the numerous trade disputes between the US and the EU, while China is also central to many global trade disputes today[44]. The US withdrawal from the Paris Agreement – formally notified to the UNFCCC on 4 November, 2019 – further affirms the fraught state of multilateralism.

43 Neuhoff et al (2016). "An option for carbon pricing post-2020. Climate Strategies Policy Paper". Available via climatestrategies.org.
44 See e.g. Gonzáles & Véron (2019).

The coverage of the EU ETS: should it be expanded?

In 2019, President von der Leyen suggested expanding the coverage of the EU emissions trading system to road transport and energy use (i.e. heating and cooling of) buildings.[45] These sectors are currently covered by the Effort Sharing Regulation, which mandates country-specific greenhouse gas emissions reduction targets for sectors outside the EU ETS. While this idea can be discussed on its own terms, one way to look at it is by reviewing the sectoral components of the current EU ETS and the trends in emissions in each of them.

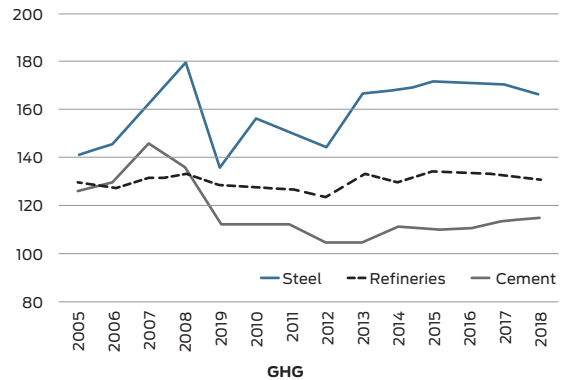
Figure 2: EU ETS GHG emissions from power sector, 2005 - 2018



Source: EU Transaction Log

45 The topic of ETS extension was not mentioned in the Mission Letters to the Commissioners-designate

Figure 3: EU ETS GHG emission from three major industries



Source: EU Transaction Log

Since 2013 emissions in the power sector have been dropping faster than those in industrial sectors (See figure 2 and 3 above). Emissions from industrial sectors declined steeply along with industrial output levels during the economic crisis but have since stabilised, and in some cases inched upwards again as output picked up once more. In the electricity sector, with the higher carbon prices observed since 2018, the operational costs for coal-based power generation has increased. At the same time the costs of renewables continue to fall. Furthermore, EU member states that have adopted GHG emissions reduction targets exceeding the EU's -40 per

cent target[46] have mostly targeted the power sector to achieve additional reductions. In, for instance, Germany, 60 per cent of coal-based power will be phased out to the year 2030 and 100% to the year 2038. It's unlikely that emissions in industry are reduced at the same pace as in the power sector given the higher abatement costs and longer lead times of breakthrough technologies in industry. As a consequence, industry will account for an increasing share of the total emissions in the EU ETS. Some observers say that we may be heading towards an 'industry-dominated ETS'.

With continued fast emission reductions in the power sector the impact on price formation in the EU ETS is unclear, both regarding the magnitude and sign. There may be an increasing surplus of allowances which could lead to a price fall, but there would also be interactions with the Market Stability Reserve that may suck up the surplus and keep the price aloft. Depending on how these interactions play out there may be a desire to further reform the ETS. One should also bear in mind that different regions in the EU may be impacted differently. For example, the carbon intensity of electricity generation in northern Europe or France already tends to be low and overlap with the group of member states

46 More correctly: "at least 40%" as agreed in the European Council of October 2014

setting coal phase-out dates, which also tend to be comparatively wealthy. Conversely, member states in central and south-east Europe tend to have more aging energy systems. The distribution of emissions between power and industry sectors may likewise differ between regions, which will impact any negotiations for reform.

President von der Leyen has proposed to expand the system to include new sectors. The basic argument for the inclusion of any sector into EU ETS is that it would increase the effectiveness of reducing emissions in the whole EU. The priority for economy-wide emissions reductions over those in individual sectors underpins the qualification of the EU's cap and trade system as a cornerstone, and a cost-effective instrument of EU climate policy.

But this does not mean that carbon pricing, through the EU ETS, should replace other policies in the transport sector. In fact, the experience with other sectors already included shows that multiple policies affecting greenhouse gas emissions are common. Just as in the electricity sector, carbon pricing and renewables support policies go together, so too should carbon pricing complement, and not replace, existing vehicle standards or national measures targeting electrification of heating and energy efficiency in buildings.

An effective climate policy mix requires both push and pull policies, reflecting disincentives and incentives respectively. Therefore, the expansion of the EU ETS (or alternatively, the introduction of non-carbon pricing policies in other sectors) should not lead to the repeal of other policies or regulations targeting a sector. This may yet lead to interactions that need to be managed. Including new sectors in the EU ETS inevitably changes the supply and demand balance. The strengthened Market Stability Reserve, however, ensures that the EU ETS is more capable of doing so.

Another argument to include transportation in the EU ETS is that the increasing share of electric vehicles is indirectly linked to the EU ETS through the power sector. The same goes for electrified rail transport.

The idea of including transports in the EU ETS has been up for discussion previously[47] and always leads to controversy. There is a fear that the transport sector would buy allowances instead of reducing their own emissions, thereby constraining the available supply for industry. The abatement costs in transport and buildings are either much higher than the ETS price, or non-economic barriers hin-

47 See for instance Afriat et. Al. (2015), Achtnicht, Martin et al. (2015) and Naturvårdsverket (2006). In addition, the EU ETS Directive always kept open the possibility of member states extending the ETS to other activities (Art 24).

der emissions being reduced. For example, if road transport would be included by covering fuel distributors[48], even a carbon price of 100 euros would only add a few cents to the price of petrol. Hardly an impact that, in and of itself, would make people drive less or choose electric vehicles. For this reason, some argue that the transport sector should be dealt with separately.

The transport sector is already regulated by member states using a variety of policies to address climate, air pollution, congestion and others. Reducing greenhouse gas emissions from transportation has proven to be challenging showing that complementary policies to carbon pricing are needed. Moreover, transport circumstances vary over member states implying the need for nationally tailored solutions. It's therefore unlikely that member states would want to yield control of climate policies targeting transportation.

When a sector is added to the ETS, all included sectors will be in competition for the same shared supply of allowances. In a cap-and-trade system the abatement efforts of one sector thus depend on those of other sectors included in the same (ETS)

48 In theory, there are other ways: the point of compliance could also be for vehicle owners, or vehicle producers. This would likely be very complex in implementation, however, as it breaks with the norm that operators of facilities (i.e. often large companies), not consumers are liable for compliance.

system: This can have an impact on the carbon price signal in either direction. Indirectly this is also the case with the Effort Sharing framework since the total emissions are limited by Allocated Emissions Allowance set in legislation. However, in the ETS this competition is more direct as there is a constant trade in allowances. Additionally, in the long run, having as many sectors as possible under the same cap helps ensure that long-term climate targets are met. If emissions are included under the cap of the ETS, and no allowances are available anymore to cover these emissions, the activity should (legally speaking) cease, hence ensuring compliance with climate targets.

An argument against extending the EU ETS to other sectors is that it may potentially lead to higher carbon prices due to the additional demand from the newly added sectors. This would subsequently lead to problems for industrial sectors exposed to risk of carbon leakage. However, the question of how to mitigate carbon leakage risk, or to what extent is not specific to the expansion question or to the carbon price; it needs to be settled anyway. If sectors are considered at risk of carbon leakage then the response should be to implement adequate and sustainable safeguards against this risk, not to hamper the intentions of emissions trading.

Chapter 3

Companion Policies in Member States

United Kingdom: The carbon-price floor

While the UK was still was a member of the EU,[49] the country often had more ambitious domestic climate-policy targets than the EU as a whole. It was not the only member state to have higher targets, although it was among the most ambitious countries and one of the largest. Having higher domestic greenhouse gas reduction targets also means developing extra policies to help deliver these additional emissions reductions. Given the size of the UK economy, additional policies had a potentially significant impact on EU-wide climate policies relative

49 The UK has left the EU on 31 January 2020 but for as long as the Brexit transition period continues, it also continues to be part of EU climate policy, including the EU ETS. The transition period will continue at least until the end of 2020 although further extensions are possible.

to domestic policies in smaller member states such as Sweden.

The first iteration of the UK Climate Change Act was passed in 2008 and committed the UK to reduce GHG emissions by 80% by 2050 compared to 1990. While the EU also adopted a roadmap in 2011 to reach at least 80% emissions reduction by 2050, this was not legally binding yet. In the shorter term, the UK translated its long-term policy into 5-year carbon budgets.[50] For 2013-2017 the target was to reduce emissions by 31%, while for 2018-2022 this target was 37%, thereby exceeding the EU target of a 20% reduction by 2020.

Once a higher domestic climate target is adopted, the next step for UK policymakers is to decide which sectors need to achieve the additional emissions reductions. The choice is generally between ETS or non-ETS sectors. In non-ETS sectors, member states are already required to develop their own strategies to reduce emissions. By contrast, the EU ETS as an EU-wide policy already caps the emissions from the included sectors. As such, it may seem reasonable to target non-ETS sectors such as transport or energy use in buildings to ensure that the additional domestic effort is not undone at the European

50 Committee on Climate Change (2020). "Sixth Carbon Budget and Welsh emissions targets – Call for Evidence Summary". Available via https://www.theccc.org.uk/publication/sixth-carbon-budget-and-welsh-emissions-targets-call-for-evidence-summary/

level due to the common cap (the so-called waterbed effect). On the other hand, it may be attractive for countries to target the electricity sector for a number of reasons. Emissions tend to be concentrated in a small number of very large power plants, hence the impact on emissions can be significant even if only a small number of sites is affected.

The UK did indeed opt to target the electricity sector by introducing a carbon price floor. The carbon price floor was introduced in 2013 and was therefore designed and implemented against the background of both the EU and UK economy still suffering from the economic turmoil that followed the 2008 financial and 2010 eurozone crisis. Carbon prices in the EU ETS had declined significantly since the onset of the crisis from nearly 30 EUR in 2008 to less than 4 euros in 2013. The lower price was the result of considerable supply-demand imbalances that had accumulated as the supply for allowances under the ETS remained stable while demand declined precipitously.

This lower ETS price had two consequences. The incentive to reduce emissions is weaker as it may be more attractive for companies to pay the (low) carbon price rather than to reduce emissions, for example by running gas-fired plants instead of coal.

The other consequence was that auction rev-

enues were diminished for the member states. In 2013, for example, around 800 million allowances were auctioned in the EU ETS representing over 4 billion euros in revenues, even at the lower carbon prices observed at the time.[51]

Introducing a carbon price floor strengthens the incentive to reduce emissions and increases auction revenues. In the case of the UK, the second argument proved enticing to the Chancellor of the Exchequer, as the British government was passing austerity measures in the wake of the financial crisis and was therefore seeking revenue sources.

A price floor can also be seen as attractive in order to increase predictability of the carbon price signal, which in turn can make low-carbon investments easier to plan for. This is reflected in the design of the UK price floor. It is designed as a top-up to the EU ETS price, with the level of the top-up (called the carbon price support level – CPS) readjusted every two years. Hence, if the EU ETS price changes significantly, the top-up value can be increased or decreased to target a certain carbon price.

Initially the goal of the UK carbon price floor was to target an overall carbon price of £30 per tonne over time, while initially starting at a lower level.[52]

51 European Commission (n.d), "Auctioning". https://ec.europa.eu/clima/policies/ets/auctioning_en#tab-0-2

52 Hirst, D. (2018). Carbon Price Floor (CPF) and the price support mechanism. House of Commons Library Briefing Paper Number 05927, 8 January 2018

In 2013, the carbon price support level was £4.94, in 2014 £9.55, and from 2015 onwards £18.08. From that point onwards, the carbon price support level was frozen as concerns had been raised over the competitiveness of industry.

While the UK carbon price only targets electricity generators (over half of total EU ETS emissions in 2013) higher carbon prices for this sector can have an indirect impact for industries with high electricity consumption due to the higher electricity prices that result from increased carbon prices, which can result in competitiveness problems.

When the UK introduced[53] its carbon price floor in 2013, the EU ETS price was depressed at around 5 euros per tonne.[54] The price remained relatively low between 4-7 euros throughout 2016 as the price floor level increased in the UK. Depending on the exchange rate this meant that the effective carbon price in the UK from 2015 onwards was between 21-25 euros. In the rest of the EU, these price levels were only reached again by late 2018, which is visible in figure 1. Once EU carbon prices reached these higher levels, the effective carbon price in the UK was closer to 40-45 euros per tonne.

The impact of the higher carbon price on the UK's

53 It was introduced by HM Treasury in the 2011 Budget – HC836, March 2011, para. 1.111

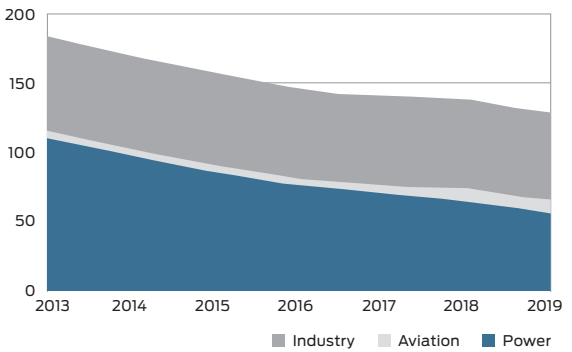
54 See also Figure 1 above

emissions under the ETS was significant. The UK's EU ETS emissions peaked in 2006 at just over 251 million tonnes of CO_2e (Carbon dioxide equivalent) but by 2018 had declined by nearly 50 per cent to 128 million tonnes.[55] Coal-fired power generation was the primary victim of the UK's carbon price. Coal is the most carbon-intensive fossil fuel (hard coal – which is the most common coal type in the UK – has over two-thirds more CO_2 emissions than natural gas) and as such is the most sensitive to a price on carbon. At the same time, the widespread availability of natural gas, and policy-driven pursuit of energy efficiency and renewables made it easier to reduce the operation of inefficient electricity generation.

The UK's experience with a domestic carbon price floor shows that it is possible to achieve rapid additional reductions in greenhouse gas emissions. However, some would argue that the additional domestic emissions reduction is offset by an increase in emissions at the EU level through the waterbed effect. When the UK reduces emissions faster, it will also lower demand for ETS allowances within its borders. This lower demand can translate into a lower carbon price in the ETS, thereby reducing the incentive for companies in other member

55 Data from the European Union Transaction Log

Figure 4: UK EU ETS emissions 2013-2019



Source: European Union Transaction Log

states to reduce emissions. However, the MSR will transfer part of the surplus allowances into the reserve in order to sustain a balance in supply and demand. Hence, in spite of the emissions reductions being realised under the cap of the ETS there still is an overall net reduction in emissions.

The price floor example also shows that it allows for a carbon pricing mechanism to directly interact with the ETS where desirable (the top-up price) but that it can also be limited just to single sectors, unlike the ETS in general. The UK's carbon price floor does not apply to energy-intensive industries, which are considered at risk of carbon leakage. Even if higher electricity prices may still affect these com-

panies, member states are allowed to compensate for such 'indirect carbon costs' through state aid. The extra revenue raised by a higher carbon price also makes this easier. A downside of the carbon price floor is that it requires careful calibration as well as difficult political decisions about what the appropriate level of the price floor should be. Furthermore, the increased carbon costs may be passed on to consumers and companies, leading to energy price divergences with other countries.

Germany: The Coal Exit and Coal Commission

Germany has higher emissions reduction targets than the EU, aiming for an at least 40 per cent reduction compared to 1990 by 2020 (10 years before the EU), and -55 per cent by 2030 (a target that is currently under consideration at the EU level, but for now the goal is at least -40 per cent). These targets started as political commitments, but the adoption of a Climate Action Law[56] in 2019 embedded the 2030 target into law.

The German strategy also follows the roadmap

56 Bundesgesetzblatt, No. 48 (2019). "Gesetz zur Einführung eines Bundes-Klimaschutzgesetz und zur Änderung weiterer Vorschriften".

of the Climate Action Plan for 2050 of having sectoral targets. Under this strategy, the energy sector is expected to reduce emissions by 61-62 per cent compared to 1990. In absolute terms, this means that another 180 million tonnes of CO_2 need to be cut from the German energy sector compared to the emissions levels of 2014.[57]

The energy sector comprises both power (electricity) generation as well as centralised heat production (for buildings). A large share of electricity emissions in Germany are still the result of coal-fired electricity generation, both hard coal and lignite (brown coal). For this sub-sector a dedicated strategy is being devised, reflecting the particular political economy of coal in Germany. For historical reasons, coal is intertwined with the politics and economics of certain regions both in west Germany (North-Rhine Westphalia) and east Germany (Lusatia). These regions historically have significant coal mining activity. In addition to these mining jobs, local authorities often have direct financial stakes in utilities that operate the power stations, such as RWE or Uniper. This creates a link between the financial performance of utilities that are going through the energy transition and the local governments of the jurisdictions in which they are based.

57 UNFCCC, "Climate Action Plan 2050" (2016). https://unfccc.int/files/focus/application/pdf/161114_climate_action_plan_2050.pdf

Germany's Coal Exit law therefore puts in place a special strategy for phasing out coal, even if coal emissions are already wholly covered by the EU ETS. A special coal exit commission put together a set of recommendations after more than a year of deliberations. The coal-exit law – which adopts many, if not all, of the coal commission's recommendations – sets out a detailed timetable for when different power stations across Germany need to close down, but also by how much operators can be compensated for closing down these assets. The notion of compensation for closing down electricity generation assets is not at all strictly necessary for a climate policy, even if distributional considerations strongly affect the political feasibility of policies.

The coal phase-out timetable generally forces hard coal power stations to close before lignite power stations, and western German power stations before eastern German. This disparity between west and east, and especially the early focus on hard coal, which is less carbon-intensive than lignite, shows that the coal phase-out is primarily driven by equity considerations and not by environmental considerations. While lignite due to its carbon-intensity is the energy source most affected by a carbon price, it is also the cheapest source of fossil fuel-based electricity generation.

The timeline for the lignite closures is divided into four clusters of about two years each.[58] The first of these foresees a number of Rhineland power stations closed between December 2020 and the end of 2022. The final cluster involves closing seven power stations in both east and west Germany by 2038. This means that a significant amount of lignite would continue to operate until well after 2030, when Germany wants to reduce its emissions by 55 per cent. However, due to scarcity in the EU ETS, higher carbon prices may nevertheless curtail operation of these plants. For the lignite capacity closures, the coal exit law stipulates specific compensatory payments.

For hard coal, a different approach is taken using auctions to take a given amount (in Gigawatts) offline, thereby introducing a measure of price discovery. The maximum amount of remuneration is capped at a rate of 165,000 euros per MW for the first auction but lower for subsequent ones, with the remuneration rate dropping as low as 49,000 euros per MW by 2023. This regressive design is intended to act as an incentive for early shutdowns of assets[59], thus adding a modicum of environmental concern into the process. The German law makes a link to the EU ETS by referring to the possibility for member

58 Bundesministerium für Wirtschaft und Energie (n.d) "Kabinettvorlage 1909085"
59 See also https://www.cleanenergywire.org/factsheets/spelling-out-coal-phase-out-germanys-exit-law-draft

states to cancel allowances ETS allowances when they retire electricity generation. This possibility has been introduced with the Phase 4 revision of the EU ETS and applies from 2021 onwards. This provision was introduced for exactly the type of policies that Germany is pursuing with the coal exit law, another example for when the provision could be used is the Netherlands which plans to close two power plants early. By cancelling the extra allowances that will no longer be in demand because of the shutdown power plants, the waterbed effect can be prevented. Without such cancellation, the allowances no longer demanded by German power stations could instead be bought by emitters in other countries. However, the Market Stability Reserve will also lead to automatic invalidation[60] of allowances[61]. The German coal exit law acknowledges this and suggests only to cancel additional allowances insofar as the MSR has not removed them from the market.

The German approach with the coal exit strategy shows that it is possible to combine market inter-

60 The Commission's terminology refers to 'invalidation' of allowances whenever they are held in the MSR and later removed from the market, and to 'cancellation' in case of unilateral decision by member states or individuals to remove (i.e. delete) allowances. While there may be a legal difference, the two terms are functionally equivalent.

61 A similar proposal during the Phase 4 revision was to calculate the impact of (national) 'overlapping policies' on the ETS supply and remove this volume from auctions. This idea would have been similar to the provision to allow member states to unilaterally cancel allowances upon the retirement of generation capacity. It would also require an annual calculation, with uncertainty about its volume. The automatic invalidation from the MSR has the benefit of not being subject to member state discretion.

vention and hard command-and-control policies such as forced closures with market mechanisms such as the EU ETS, without undermining the functioning of the latter. However, it does raise the question what the added value of the national closures are, especially if they take place well into the future. After all, coal-fired power generation has been declining steadily the last few years, especially the second half of the 2010s. This decline has accelerated as carbon prices reached levels of 20-25 euros, at which many inefficient coal plants become uneconomical to operate. Hence, it may well be that even in the absence of national closure plans, many of the coal-fired power plants would have to close down anyway. Even if some closures in the 2020s may help Germany to reach higher domestic emissions reduction targets for 2030 it is difficult to imagine lignite-based power plants being profitable to run well into the 2030s, especially if carbon prices start reaching beyond 30 euros. Therefore, the German policy may be best understood from a political economy perspective, where the compensatory payments to operators make it easier to generate support for an ambitious cross-country climate policy even if this comes at the expense of de facto subsidies.

The German Renewable Energy Law (EEG)

Before Germany started discussing its coal phase-out, it was already supporting renewable energy through an extensive subsidy system implemented by the *Erneubare Energiegesetz* (EEG)[62]. Renewable energy operators are guaranteed a given rate of euro per kWh when selling renewable electricity (above the market price), so-called feed-in tariffs. Electricity consumers then pay a surcharge on their electricity bills to fund these feed-in tariffs. This EEG-surcharge in principle needs to be paid by both regular consumers and industrial and corporate consumers. However, industrial electricity consumers have in some cases been exempted from paying the surcharge, for fears that the higher electricity costs would lead to competitiveness problems. These exemptions have been classified as state aid, although the state aid was also considered compatible with the internal market after Germany made changes to the EEG.

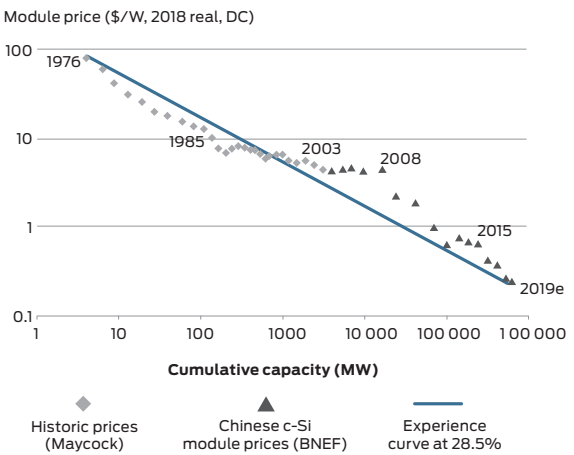
The goal of the EEG[63] is to increase the share of renewables in the energy system, particularly in electricity generation. Since the electricity system is also covered by the EU ETS, interactions between

62 Bundesministerium der Justiz und für Verbraucherschutz (n.d), "Gesetz für den Ausbau erneuerbarer Energien", available via https://www.gesetze-im-internet.de/eeg_2014/
63 See also Dinkloh (2014).

the German law and the EU ETS will occur. As renewables replace conventional sources of electricity generation, emissions will go down. In theory this creates a similar waterbed problem as with the UK price floor, or the *Kohleausstieg*. However, the EU has also set targets for the share of renewables in the energy system (the Renewable Energy Directive). Germany's EEG can thus be seen as contributing to the fulfilment of this target.

More importantly, the EEG shows the impact that specific technology policies can have on lowering the costs of low-carbon technology. The feed-in tariffs of Germany, even if they came at a high cost for German taxpayers, created stable revenues for operators and combined with the renewable targets, the certainty of a market for new renewables technologies such as solar PV panels and wind. This certainty of a market supports investment and increased scale, which in turn leads to learning effects, economies of scale and lower costs. Once the renewables become cheaper and more competitive, the carbon price at which fossil fuels such as coal may be replaced by renewables also declines. This leads to a positive interaction between renewables policies and the EU ETS. Nevertheless, the more rapid national emissions reduction that may result from the renewables policies show the importance

Figure 5: PV module experience curve



Source: Paul Maycock, BloombergNEF

of mechanisms such as the Market Stability Reserve to deal with supply-demand imbalances.

The example of the EEG is also an example of how 'push' and 'pull' policies can complement each other more generally. This is a discussion that is also relevant for the EU's industrial strategy. While policy tools such as a carbon price can be very effective in 'pushing' carbon intensive products out of the market by making them less competitive, other policies that help lower the costs of low-carbon technologies can help 'pull' these climate-neutral alternatives into the market. The feed-in tariffs of the EEG are an

example of such a pull mechanism, but policies such as green public procurement or contracts for differences can have similar market-making impacts.[64]

The Netherlands: The CO_2 surcharge for industry

The Dutch climate policy ambition is to reduce GHG emissions by 49% by 2030, compared to 1990. This is a political agreement reached between the coalition parties in the Netherlands' government and is not yet legally binding. However, just as with European Council conclusions, the political weight of such agreements is considerable. The details of the agreement are described in the "Climate Accord" of June 2019[65]. In this Climate Accord, the Netherlands also indicates that it supports a 2030 target of -55% for the EU, or failing at that, a higher target for like-minded north-west European member states.

The Climate Accord contains[66] a number of specific proposals that still need to be turned into domestic laws by parliament. One of these proposals is to introduce a floor price for CO_2 emissions in

64 Graph: learning rate of solar PV – source: BloombergNEF – retrieved via https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/bnef_2019-10-30_isa-cif_report-final_002.pdf
65 Netherlands Government (2019),"Climate Accord"
66 Ibid.

electricity generation, i.e. an additional CO_2 tax that will interact with the ETS. This is comparable to the carbon price floor of the UK. In fact, the Netherlands supports the introduction of a price floor in the EU ETS as a whole. However, in a separate proposal, the Netherlands also wants to introduce an additional CO_2 surcharge for industrial ETS emissions.[67] This is different from existing CO_2 levies in other member states in that it targets the industrial sectors which are normally shielded from additional charges because of concerns about carbon leakage risk and competitiveness.

Just as in Germany, the Netherlands has set out sector-specific contributions towards its target for 2030. For the industrial sectors, a reduction of 14.3 million tonnes is targeted. A CO_2 surcharge on top of the ETS price is meant to deliver this reduction. The surcharge is supposed to be an effective levy. That is to say, the law will set out a pathway with increasing CO_2 price levels, where the additional surcharge varies as the ETS price fluctuates so that the effective levy is stable. For example, for the year 2021, if the targeted CO_2 price for industry is 30 euros per tonne, and the ETS price averaged 20 euros per tonne, the surcharge will be an additional 10 euros per tonne. Since the surcharge is levied after the emissions

67 See Netherlands government (2020), "Wetsvoorstel CO2-heffing industrie".

occurred (i.e. in 2022 for emissions taking place in 2021), the EU ETS system of monitoring, reporting, and verification already ensures that the necessary data is available and reliable.

The Climate Accord includes a suggested price pathway (based on modelling) starting at 30 EUR per tonne and rising to 125-150 euros per tonne in 2030 (including the ETS price).[68] However, the legal proposal explicitly leaves the starting price for the effective levy empty and therefore to be decided by the legislator. The same goes for the increase in subsequent years.

Another key element of the industry surcharge proposal is to have 'dispensation rights' to mirror the effect that free allocation has in the EU ETS.[69] Most energy-intensive industrial sectors receive a large share of the allowances they need for free, based on the benchmark-based free allocation rules of the EU ETS. Likewise, the dispensation rights would be tradable assets within the Dutch industrial surcharge system to ensure that companies only pay the surcharge for the share of their emissions for which they do not receive free allowances. Additionally, the amount of dispensation rights will be reduced every year by a factor of 1.2

68 National Climate Agreement of the Netherlands, the Hague, 2019. page 103.
69 Ibid.

(this factor is also reduced every year by a yet-to-be determined amount) to create incentives to reduce emissions early and over-perform. This incentive is strengthened by allowing for dispensation rights to be banked from previous years, which can lead to a recalculation of the surcharge for previous years.

While the Dutch industry proposal is not law yet and the final design therefore still uncertain, especially in the context of the Covid-19 crisis, the proposal shows that national measures can also target industrial ETS emissions while calibrating the policy design with the existing EU ETS rules. Nevertheless, the same pros and cons that apply to the industrial decarbonisation debate at the EU level will also apply to these national measures. Competitiveness concerns and risk of carbon leakage vis-à-vis other member states will play a debate in turning the Dutch proposal into law. On the other hand, the desirability of having industries that are among the first to develop and deploy breakthrough low-carbon industrial technologies – also for domestic competitiveness – are also discussed in the Climate Accord. The CO_2 surcharge for Dutch industry is meant to be implemented from 2021 onwards. We will therefore find out over the next few months if the proposal will survive the domestic political process.

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MILAN ELKERBOUT
LARS ZETTERBERG

EU ETS

Reform needs in the light of national policies

The European Union emissions trading system, EU ETS, is the foundation of European climate policy and the largest emissions-trading scheme in the world, covering sectors that emit over 2 billion tonnes of CO_2. By putting a limit on the total emissions in the sectors covered by the EU ETS and distributing a corresponding number of permits, the system aims to create incentives for emission reductions by making them more expensive. But the system has not been working perfectly from the start. Thus there is a need for continuous reforms. Moving forward, challenges for the EU ETS includes how the system can co-exist with national climate policies and how to avoid carbon leakage for the sectors covered. The purpose of this publication is thus to deepen the understanding of the EU ETS, give an overview of the reforms discussed and how national policies interact with the system.

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