

Climate Protection by way of the EU ETS

Status and outlook following the reform

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In advance of its 4th trading period (2021–2030), the EU Emission Trading System (EU ETS) has been comprehensively reformed. cep gives the following assessment of the reform:

- ▶ The EU ETS is an ecologically sound and at the same time economically efficient instrument for reducing greenhouse gas emissions and thus makes a vital contribution to achieving the EU climate targets. After aviation, therefore, additional sectors should also be included in the EU ETS in the future.
- ▶ In order to prevent emissions from being moved from the EU to third countries (“carbon leakage”), the proportion of emissions allowances allocated free of charge to EU industrial companies that compete internationally should not be limited to a maximum of 46%.
- ▶ A minimum price for greenhouse gas emissions that are regulated by the EU ETS, is economically inefficient because it distorts pricing in the EU ETS and thereby prevents cost-optimised reduction of greenhouse gas emissions in the EU.

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1 Introduction

Since its introduction in 2005, the Emission Trading System (EU ETS) has become the most important climate protection instrument in the European Union. It limits the greenhouse gases (GHG) emitted from approx. 11,600 industrial plants and from the aviation sector and thereby covers approx. half of all GHG emissions in the EU.¹ Thus it makes a material contribution to achieving EU climate targets. These provide for a reduction in GHG emissions in the EU of 20% by 2020 and of 40% by 2030, as compared with 1990 levels.²

The EU ETS is essentially regulated by the EU-ETS Directive [2003/87/EC]³, which has been amended several times since its adoption in 2003. In advance of the forthcoming 4th EU-ETS trading period from 2021 to 2030, it has once again been comprehensively reformed. After the EU Commission submitted a proposal for a Directive on this in 2015⁴, there was fierce debate in the European Parliament and the Council before they could agree on a compromise in November 2017. With publication of the Amending Directive, there is now clarity on the design of the EU ETS post-2021.⁵

However, with the reform complete, discussion continues on the further design of the EU ETS. Thus, critics believe that there is further need for negotiations because emissions trading based on a low price for emissions allowances does not “work” properly.⁶ Thus “after the reform” may also be “before the reform” and therefore further major changes cannot be ruled out.

In this **ceplnput**, we firstly provide a comprehensive summary of the current⁷ EU ETS legal framework as well as of the reformed⁸ EU ETS legal framework to apply post-2021 (Section 2). For this we set out the general functioning of the EU ETS as well as the detailed regulations for avoiding the relocation of GHG emissions to third countries (“carbon leakage”) and for distributing emissions rights (“allowances”). Secondly, we look at the current discussion about possible EU ETS adjustments due to the allegedly “too low” price of allowances. On this basis, we evaluate the efficiency and effectiveness of the EU ETS as a whole and the main changes brought about by the reform and also develop proposals for its further development (Section 3).

¹ European Environment Agency (2017), Annual European Union greenhouse gas inventory 1990–2015 and inventory report 2017 – Submission to the UNFCCC Secretariat, pp. 55–71.

² European Council (2007), Conclusions of 8/9 March 2007, Doc. 7224/1/07, para. 32; European Council (2014), Conclusions of 23/24 October 2014, Doc. EUCO 169/14, para. 2.

³ Directive 2003/87/EC of the European Parliament and of the Council to enhance cost-effective emission reductions and low-carbon investments [hereinafter: “EU-ETS Directive”].

⁴ EU-Commission (2015), Proposal COM(2015) 337 of 15 July 2015 for a Directive of the European Parliament and of the Council amending the EU-ETS Directive; see [ceplnput Policy Brief No. 2015-14](#).

⁵ Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending the EU-ETS Directive and Resolution (EU) 2015/1814.

⁶ Mercator Research Center on Global Commons and Climate Change (2016), EU-Emissionshandel durch Mindestpreis reformieren, MCC-Kurz dossier; PBL Netherlands Environmental Assessment Agency (2013), Evaluation of policy options to re-form the EU Emission Trading System Effects on carbon price, emissions and the economy.

⁷ Hereinafter: “EU-ETS Directive (2013–2020)”.

⁸ Hereinafter: “EU-ETS Directive (2021–2030)”.

2 Regulatory Framework and Development of the EU Emission Trading System

2.1 Scope

The EU Emission Trading System (EU ETS) regulates greenhouse gas emissions (GHG emissions) from plants for power generation (power stations), heat supply, metal production and -processing, mineral processing, pulp and paper production as well as from the chemical industry and plants for the capture and underground storage of carbon dioxide (Carbon Capture and Storage, CCS).⁹ With the inclusion of all flights taking off or landing at airports in an EU Member State, aviation has also been formally incorporated into the EU ETS since 2012.¹⁰

The regulated GHGs include carbon dioxide (CO₂), nitrous oxide (N₂O) and perfluorocarbons (PFCs). To allow comparison and aggregation of the various greenhouse gases, they are converted according to their global-warming potential into CO₂ equivalents ("CO₂e").¹¹

Exceptionally, Member States may exempt small plants, with annual GHG emissions below 25,000 tonnes CO₂e and a thermal input below 35 MW, from the EU ETS if they instead have to undertake "measures" with "equivalent" GHG emissions reduction. They can also unilaterally include additional sectors or GHGs – not so far included – in the EU ETS with prior approval of the Commission.¹²

2.2 Functioning

In the EU ETS, every operator of a plant or aircraft must have emission rights ("allowances") for its planned GHG emissions. One allowance gives the owner a right to emit one tonne of CO₂e.¹³ The EU ETS takes a "cap & trade" approach. The total amount of allowances is limited at EU level ("cap") and reduced annually. The allowances are tradeable ("trade") and can be transferred to any person within the EU.¹⁴

2.3 Determining the overall budget for allowances (EU Cap)

Until 2012, the number of allowances was fixed by the Member States by way of annual national GHG limits. Since the start of the 3rd trading period in 2013, there has only been one overall EU-wide budget for allowances ("EU cap") which is made available annually to the companies that are subject to EU-ETS obligations. In 2013, the EU cap was approx. 2 billion allowances. By comparison with 2005, GHG emissions in the EU ETS are to fall by 21% by 2020 and by 43% by 2030.¹⁵ In order to achieve these targets, the EU cap is reduced each year by a "linear reduction factor" (LRF) (see Fig. 1). This is 1.74% for each year between 2013 and 2020 and will be increased as from 2021 to 2.2%.¹⁶

⁹ Art. 4 in conjunction with Annex I EU-ETS Directive (2013–2020 and 2021–2030).

¹⁰ Ibid., Art. 3a to 3g, see Section 2.6.

¹¹ Ibid., Art. 2, 3 (a) and (j), Annexes I and II

¹² Ibid., Art. 24 and 27

¹³ Ibid., 4, 5, 6 and 16 (3)

¹⁴ Ibid., Art. 12. (1)

¹⁵ European Council of 23 and 24 October 2014, Conclusions, Doc. EUCO 169/14, para. 2.1.

¹⁶ Art. 9 EU-ETS Directive (2013–2020) and Art. 9 EU-ETS Directive (2021–2030).

2.4 Carbon leakage¹⁷

The obligation to hold allowances for GHG emissions increases production costs particularly in sectors which emit large amounts of GHGs. This may result in industrial output and the associated GHG emissions being transferred out of the EU to third countries where there is less ambitious climate protection legislation. This relocation of GHG emissions to third countries is known as “carbon leakage”.¹⁸ Energy-intensive production companies that are not themselves subject to ETS obligations, may be indirectly affected by carbon leakage if the EU ETS causes higher electricity prices for these companies.

Carbon leakage weakens both the international competitiveness of European companies and global climate protection. It is to be prevented by exempting plants, in those sectors that are at a high risk of carbon leakage, from the costs of climate protection. The identification of a carbon leakage risk takes place at sectoral level. In the period 2013–2020, it is determined on the basis of two factors: firstly, the percentage increase in production costs for the sector due to the costs of the EU ETS and secondly the sector’s trading intensity¹⁹ with third countries. These two factors are used to define three categories of sector with carbon leakage risk.

For the period 2013–2020 the following applies regarding the existence of a carbon leakage risk (see Fig. 2):²⁰

Fig. 1: Criteria for determining carbon leakage risk 2013-2020

A carbon leakage risk exists where at least one of the three criteria is met:

A: Production cost rise due to EU ETS \geq 5% and trading intensity with third countries \geq 10%

B: Production cost rise due to EU ETS \geq 30%

C: Trading intensity with third countries \geq 30%

Source: Own diagram pursuant to Art. 10a (15) and (16) EU-ETS Directive (2013–2020)

As of 2021, a sector will be deemed to be at risk of carbon leakage where the product of multiplying GHG intensity and trading intensity with third countries is greater than or equal to 0.2. The sectoral GHG intensity corresponds to the result of dividing the volume of CO₂e (in kg) emitted by gross value added (in Euro).²¹

¹⁷ For a comprehensive analysis of this see Bonn, M.; Reichert, G.; Voßwinkel, J. (2016), Carbon Leakage – Reform of EU emissions trading post-2021 and global climate protection, [ceplnput 04/2016](#).

¹⁸ Martin, R.; Muuls, M.; de Preux, L.B.; Wagner, U.J. (2014), “On the empirical content of carbon leakage criteria in the EU Emissions Trading Scheme”, *Ecological Economics*, No. 105, pp. 78–88.

¹⁹ Defined as the sum of the total value of imports from and exports to third countries divided by the “total size of the community market”. The latter includes annual turnover in the EU plus the value of imports in this sector.

²⁰ Art. 10a (15) and (16) EU-ETS Directive (2013–2020).

²¹ Art. 10b (1) EU-ETS Directive (2021–2030). As of 2021, many sectors will be taken off the carbon leakage list that are currently only included due to the high trading intensity (Category C).

Fig. 2: Criteria for determining carbon leakage risk post-2021

A carbon leakage risk exists where the following criterion is met:

Trading intensity with third countries × GHG intensity* of production ≥ 0.2

*measured as the volume of CO₂e (in kg) divided by gross value added (in Euro)

Source: Own diagram pursuant to Art. 10a (1) EU-ETS Directive (2021-2030)

The Commission will include the at-risk sectors on a carbon leakage list which is updated every five years. It currently covers approx. 170 sectors which cause 97% of all industrial GHG emissions in the EU.²² As a result of the reform of the carbon leakage provision, the number of sectors will fall substantially post-2021 because the large number of sectors, that are currently only included on the list due to their high trading intensity with third countries (Category C), will no longer be classified as being at risk of carbon leakage.²³

Industrial sectors that do not meet the criteria may, however, be classified as being at risk of carbon leakage by way of a qualitative evaluation. This applies post 2021 inter alia for sectors where the product of multiplying trading intensity with third countries and emissions intensity is greater than 0.15.²⁴ Sectors that are indirectly at risk of carbon leakage will be placed on a separate list.²⁵

2.5 Allocation of allowances to fixed installations

In the first two EU ETS trading periods between 2005 and 2012, allowances were allocated to installations, that were subject to EU ETS obligations, basically free of charge based on past figures (“grandfathering”). Since the start of the 3rd trading period in 2013, participants in the EU ETS must purchase the allowances largely by auction. This basically applies to all power plants. Industrial installations²⁶, on the other hand, may continue to receive free allowances for up to 100% of their GHG emissions, but their proportion of the EU cap cannot exceed a certain threshold. For the period 2013-2020, this threshold depends on what proportion of the total emissions in the EU ETS came from industrial installations during the period 2005–2007.²⁷

As from 2021, there will be a generally applicable threshold of 43%. Where the proportion of free allowances allocated in a year is less than 43%, the surplus may be used to balance out a reduced allocation of free allowances in later years. If, however, it is not possible to meet the threshold of 43%, this may be increased by up to 3 percentage points.²⁸

²² EU Commission, Decision 2014/746/EU of 27 October 2014 determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and sub-sectors which are deemed to be exposed to a significant risk of carbon leakage, for the period 2015 to 2019, Annex [hereinafter: “carbon leakage list”].

²³ EU Commission, Notice (2018/C 162/01) of 8 May 2018, Preliminary Carbon Leakage List 2021–2030.

²⁴ Art. 10a (17) EU-ETS Directive (2013–2020) and Art. 10b (2) EU-ETS Directive (2021–2030).

²⁵ EU Commission, Guidelines (2012/C 158/04) on Certain State Aid Measures in the Context of the Greenhouse Gas Emission Allowance Trading Scheme Post 2012, Annex II.

²⁶ Installations for district heating and the highly efficient co-generation of heat and power (CHP) also receive free allowances for heating and cooling.

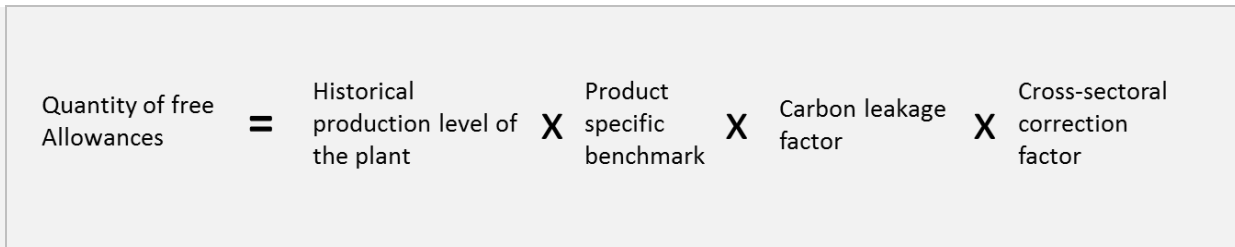
²⁷ Art. 10a (4) EU-ETS Directive (2013-2020).

²⁸ Art. 10 (1) and (Art. 10a (5) EU-ETS Directive (2021-2030).

2.5.1 Formula for the allocation of free allowances

The quantity of free allowances allocated to an installation each year derives – as shown in Fig. 4 – from the product of multiplying the “historic production levels”, a “product-specific ex-ante benchmark”, the “sectoral carbon leakage factor” and a “cross-sectoral correction factor”.

Fig. 3: Formula for the allocation of free allowances in the EU ETS



Source: own diagram (based on EU Commission Impact Assessment SWD(2015) 135 of 15 July 2015, p. 31)

(1) Historic production levels: Member States determine the historic production levels for the installations that are subject to ETS obligations. For every year of the 3rd trading period 2013-2020, this corresponds to the average output of the installation (in tonnes) during the period 2005-2008 or – if higher – in the years 2009 and 2010.²⁹ A subsequent fall in the production of an installation of at least 50% (“partial cessation of operations”) is taken into account when free allowances are allocated.³⁰ For the 4th trading period from 2021, Member States must determine the historic production levels based on the previous five years.³¹ The historic production levels used for the allocation of allowances must be adjusted subsequently as soon as the actual production levels diverge from the former by more than 15%.³²

(2) Product-specific ex-ante benchmark: The product-specific ex-ante benchmark shows how many tonnes of CO₂e were emitted in the production of one tonne of a product (“CO₂e output-ratio”)³³ in the 10% most efficient installations of a sector or sub-sector during a basis period. The basis period for the third trading period is 2007 and 2008.³⁴ Thus the product-specific ex-ante benchmark for e.g. aluminium is 1.514 and for lime 0.954.³⁵ As from 2021, the benchmarks will be reduced by an annual factor and the trading period will be subdivided into two sub-periods – 2021 to 2025 and 2026 to 2030. For the sub-period 2021 to 2025, the factor corresponds to the actual average increase in efficiency of the 10% most efficient installations of a sector during the period 2007/2008 to 2016/2017. For the sub-period 2026 to 2030, the factor corresponds to the said increase in efficiency during the period 2007/2008 to 2021/2022. The annual percentage factor will however be a minimum of 0.2% and a maximum of 1.6%.³⁶

²⁹ Art. 9 EU Commission, Decision 2011/278/EU of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council [hereinafter: “Benchmark Decision”].

³⁰ Art. 23 Benchmark Decision 2011/278/EU.

³¹ Art. 11 (1) EU-ETS Directive (2021–2030).

³² Ibid., Art. 10a (20)

³³ For some products, benchmarks based on heat or fuel use (“fall-back benchmarks”) are used instead, see EU Commission, Impact Assessment SWD(2015) 135 of 15 July 2015, p. 97.

³⁴ Art. 10a (2) EU-ETS Directive (2013-2020).

³⁵ Annex I Benchmark Decision.

³⁶ Art. 10a (2) EU-ETS Directive (2021-2030).

(3) Carbon leakage factor: The carbon leakage factor depends on a sector's carbon leakage risk.³⁷ For all installations that belong to a sector with carbon leakage risk, the factor is "1" for the entire third trading period; for all other industrial installations, the factor was "0.8" in 2013 and since then has been proportionally reduced each year and will reach "0.3" in 2020. Between 2026 and 2030, the carbon leakage factor will be proportionally reduced each year from 0.3 to 0.³⁸

(4) Cross-sectoral correction factor: Where there is a risk of exceeding the maximum permitted amount of free allowances³⁹, the amount of free allowances will be reduced by the same percentage in all sectors by applying a cross-sectoral correction factor.⁴⁰ Thus in 2013, the quantity of free allowances calculated prior to applying the cross-sectoral correction factor was reduced by 6% because in total only 809 million of the 2.084 billion allowances could be allocated free of charge.⁴¹ Thus the number of free allowances had to be reduced by 6% in all sectors.⁴²

2.5.2 "Reserve for new market entrants"

Installations that are new to the EU ETS ("new market entrants") – provided they are not power stations – receive free allowances from a "reserve for new market entrants". For the period 2013–2020, "new market entrants" are those installations which have only been taking part in the EU ETS since 30 June 2011; for the period 2021–2030 it is those which first receive an authorisation for GHG emissions after 30 June 2019.⁴³ During the period 2013–2020, the reserve for new market entrants is limited to 5% of the EU cap.⁴⁴ Allowances that have not been allocated during this period, will be placed, together with 200 million allowances from the market stability reserve (MSR)⁴⁵, into the reserve for new market entrants for the period 2021–2030.⁴⁶

2.5.3 Modernising the energy sector

By way of exception, certain central and eastern European Member States can allocate free allowances to power stations within their sovereign territory so that they can invest in the modernisation of electricity production. During the period 2013–2020, this exception will affect, on the one hand, Member States that were not or only marginally connected to the EU power grid; on the other, Member States that had a per capita gross domestic product (GDP/capita) of no more than 50% of the EU average in 2006 and produced more than 30% of electricity from a single fossil fuel.⁴⁷ As from 2021, the exception will only apply to Member States with a GDP/capita below 60% of the EU average.⁴⁸

2.5.4 Auctioning of allowances

Since 2013, Member States have had to auction all allowances that are not allocated free of charge. Revenues from the auctioning of allowances primarily flow into the Member States. The auction

³⁷ See above Section 2.4

³⁸ Art. 10b (1) and (4) EU-ETS Directive (2021–2030).

³⁹ See above Section 2.5.1.

⁴⁰ Art. 10a (5) EU-ETS Directive (2013–2020 and 2021–2030) in conjunction with Art. 15 Benchmark Decision.

⁴¹ EU Commission, Impact Assessment SWD(2015) 135 of 15 July 2015, p. 23.

⁴² *Ibid.*, p. 30.

⁴³ Art. 3 (h) EU-ETS Directive (2013–2020 and 2021–2030).

⁴⁴ Art. 10a (7) EU-ETS Directive (2013–2020).

⁴⁵ See below Section 2.8

⁴⁶ Art. 10a (7) EU-ETS Directive (2021–2030).

⁴⁷ Art. 10c (1) EU-ETS Directive (2013–2020).

⁴⁸ Art. 10c (1) EU-ETS Directive (2021–2030).

revenues are not given a mandatory purpose, but Member States should invest at least 50% of the revenues in climate protection measures.⁴⁹ The allowances to be auctioned during the period 2013–2020 are distributed to the Member States in three categories:⁵⁰

Category A: 88% according to the Member State's respective share of emissions in 2005,

Category B: 10% as an additional allocation for Member States "with low per capita income and good chances for growth" and

Category C: 2% for Member States whose GHG emissions were at least 20% below their reduction obligations under the Kyoto Protocol as compared with 1990 levels.

As from 2021, Category C will no longer apply. Instead, the share of allowances under Category A increases from 88% to 90%.⁵¹

In May 2018, in connection with the design of the EU Multiannual Financial Framework for the period 2021–2027, the Commission proposed that, in future, 20% of the revenue from auctioning allowances be used to finance the EU budget.⁵²

Member States are obliged to auction the allowances that are allocated to them. However, the amendment to the EU-ETS Directive of March 2018 permits them to cancel allowances to the extent of the volume of GHGs saved by national measures which have resulted in the closure of power stations that were subject to EU-ETS obligations.⁵³

2.5.5 Electricity price compensation

Member States can pay energy-intensive companies financial compensation in accordance with EU law on state aid ("electricity price compensation"), in respect of an increase in the electricity price caused by the EU ETS, where these companies would otherwise be liable to an "indirect carbon leakage risk".⁵⁴ For the period 2013–2020, the Commission has adopted guidelines to serve as a basis for assessing electricity price compensation in accordance with the law on state aid.⁵⁵ This stipulates that only part of the electricity price increase can be compensated, and this part must decrease gradually over time.⁵⁶ The Commission must now submit new guidelines for the period post-2021. According to the amended EU-ETS Directive, as of 2021 Member States should not use more than 25% of their revenue from the auctioning of allowances for electricity price compensation.⁵⁷

2.5.6 Supporting climate-friendly technologies

In addition to allowances that are issued to the Member States to be auctioned, there are also allowances that earmark the use of auctioning revenues at EU level. Thus for the period 2013–2020, revenue from up to 300 million allowances, and for the period 2021–2030 the revenue from up to 450 million allowances, must be used to support the construction and operation of demonstration plants

⁴⁹ Art. 10 (1) and (3) EU-ETS Directive (2013–2020 and 2021–2030).

⁵⁰ Art. 10 (2) EU-ETS Directive (2013–2020).

⁵¹ Art. 10 (2) EU-ETS Directive (2021–2030).

⁵² EU Commission, Commission Staff Working Paper SWD(2018) 172 of 2 May 2018, Financing the EU budget: report on the operation of the own resources system, pp. 25–27.

⁵³ Art. 12 (4) EU-ETS Directive (2021–2030).

⁵⁴ Art. 10a (6) EU-ETS Directive (2013–2020 and 2021–2030).

⁵⁵ EU Commission (2012), Guidelines (2012/C 158/04) on Certain State Aid Measures in the Context of the Greenhouse Gas Emission Allowance Trading Scheme Post 2012.

⁵⁶ *Ibid.*, para. 12.

⁵⁷ Art. 10a (6) EU-ETS Directive (2021–2030).

both for the capture and geological storage of CO₂ (Carbon Capture and Storage, CCS) and for renewable energy technologies.⁵⁸ In addition, as of 2021, 2% of the annual EU cap will be transferred to a “Modernisation Fund”.⁵⁹ Auctioning these allowances will inter alia support energy efficiency measures in Member States whose per-capita GDP in 2013 was less than 60% of the EU average.⁶⁰

2.6 Inclusion of aviation

Since 2012, the EU aviation sector has also been included in the EU ETS. In principle, aviation companies must hold allowances for all GHGs that are emitted from flights whether between two EU airports or between an EU airport and a non-EU airport.⁶¹ Since some third countries – including USA, China and India – have refused to recognise the inclusion of aviation in the EU ETS and the International Civil Aviation Organisation (ICAO) has decided to implement a “global market-based mechanism” to reduce GHG emissions⁶², the EU-ETS will initially only be applied to flights between two EU airports.⁶³

The annual average amount of GHG emissions from aviation during the period 2004-2006 (“historic emissions”) serves as a reference for the number of allowances envisaged for the EU aviation sector. In 2012, the maximum number of allowances for aviation was 97%, and has been a maximum of 95% of historic emissions per year since then. Of these allowances, 15% are auctioned by the Member States and 85% allocated free of charge. Since the end of 2017, auction revenues were supposed to be used to combat climate change in the EU and third countries.⁶⁴

In principle, aviation companies can also trade allowances with companies that operate fixed installations in the EU. However, the inclusion of the aviation sector in the EU ETS by the end of 2020 constitutes a “half-open system”, which means that until then, aviation companies can also surrender allowances for fixed installations to cover their GHG emissions whereas operators of fixed installations are not permitted to surrender any allowances for aviation.⁶⁵

⁵⁸ Art. 10a (6) EU-ETS Directive (2013–2020 and 2021–2030).

⁵⁹ Art. 10 (1) EU-ETS Directive (2021–2030).

⁶⁰ *Ibid.*, Art. 10d.

⁶¹ Annex I (6) EU-ETS Directive (2013–2020 and 2021–2030).

⁶² ICAO-Resolution A38-17/2.

⁶³ Art. 28a (1) EU-ETS Directive (2013–2020 and 2021–2030).

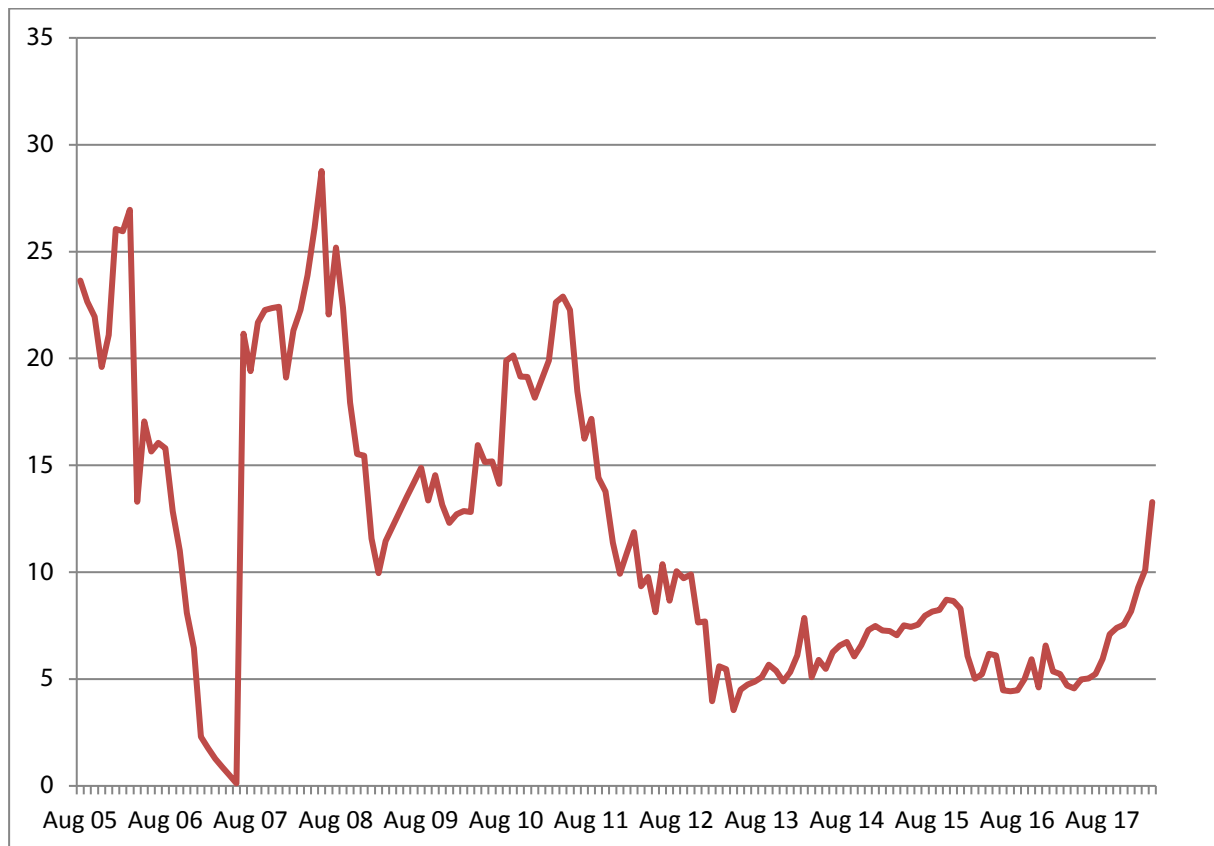
⁶⁴ *Ibid.*, Art. 3, 3c and 3d.

⁶⁵ *Ibid.*, Art. 12.

2.7 Evolution of the allowance price

A flexible allowance price that achieves a balance between supply and demand is crucial for the EU ETS. The allowance price is an indicator of a shortage of allowances in the EU ETS and signals the cost burden for the companies taking part in the EU ETS. Fig. 5 illustrates the evolution since the start of the EU ETS in August 2005.

Fig. 4: Evolution of the allowance price (future) in euro



Source: www.investing.com⁶⁶

In the 1st trading period 2005–2007, allowances were distributed to the companies free of charge on the basis of national allocation plans without limiting the overall number of allowances by way of an EU cap. Due to the generous allocation of allowances, the allowance price collapsed and fell right down to € 0 by 2007. In the 2nd trading period 2008–2012, the allowance price rose once more but again collapsed falling to a value below € 5 by 2013. In the 3rd trading period 2013–2020, in which the amount of allowances was limited for the first time by the EU cap, the allowance price fluctuated for a long time between € 4 and € 9 until it began rising significantly once more in November 2017 and by March 2018 had already got back up to € 13.⁶⁷

There are several reasons why the allowance price remained generally low. Economic growth in the EU was much lower than forecast, particularly between 2008 and 2012. The low level of industrial production associated with that and low electricity consumption reduced the demand for allowances.

⁶⁶ Last retrieval of this and all other links: 28 June 2018

⁶⁷ Agora Energiewende (2015), Die Rolle des Emissionshandels in der Energiewende – Perspektiven und Grenzen der aktuellen Reformvorschläge, Background Paper, p. 5 et seq.

Also detrimental to the demand for allowances was the fact that more electricity was produced from renewable energy sources than expected. Companies subject to EU ETS obligations were also able to transfer unused allowances from the 2nd to the 3rd trading periods and, instead of allowances, also use “emission credits”⁶⁸ which they received for financing GHG reduction projects in third countries.⁶⁹

The low demand for allowances meant that the number of allowances issued was higher than the number of allowances redeemed. In 2014, the accumulated surplus was approx. 2 billion allowances and therefore about the same as the amount of new allowances made available annually.⁷⁰ The low allowance price is often used by critics to argue that the EU ETS is “not working” because a low allowance price means there is insufficient incentive to develop technologies which would enable the EU to achieve its climate protection targets in the long term.⁷¹

2.8 Backloading and Market Stability Reserve (MSR)

In reaction to the surplus of allowances and the low allowance price, the EU has repeatedly intervened in the EU cap. Thus, under the so-called “Backloading” Decision⁷², 900 million allowances were temporarily taken off the market in the 2014–2016 period which were then to be additionally auctioned between 2019–2020.⁷³ However, since the allowance surplus has continued to grow since 2013 despite backloading, the EU decided, in May 2015, not to place the allowances, retained by backloading, back on the market but to put them in the “Market Stability Reserve” (MSR) in order to reduce the surplus of unused allowances on a permanent basis.⁷⁴

In addition, as of 2019, 12%, and as of 2023, 24% of allowances not used in the previous year must be withdrawn each year from the market and placed in the MSR if this annual “surplus” exceeds 833 million allowances. Where the quantity of allowances held in the MSR is greater than the overall number of allowances auctioned in the previous year, the allowances making up the difference will be cancelled.⁷⁵

2.9 Minimum price for greenhouse gas emissions

Despite backloading and the introduction of the MSR, several Member States are considering a national minimum price for GHG emissions. While the United Kingdom introduced a minimum GHG price as early as 2013 in the form of a “Carbon Price Floor” (CPF), heated discussions are currently still ongoing in Germany and France.⁷⁶ At the Paris climate change summit in December 2017, the

⁶⁸ Art. 24a (1) EU-ETS Directive (2013–2020 and 2021–2030).

⁶⁹ Agora Energiewende (2015), Die Rolle des Emissionshandels in der Energiewende – Perspektiven und Grenzen der aktuellen Reformvorschläge, Background Paper, p. 7

⁷⁰ Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC [“MSR Decision (EU) 2015/1814”], Recital 4.

⁷¹ Edenhofer, O.; Flachslund, C.; Wolff, C.; Schmid, L.K.; Leipprand, A.; Koch, N.; Kornek, U.; Pahle, M. (2017), Decarbonization and EU ETS Reform: Introducing a price floor to drive low-carbon investments, Draft Policy Paper, pp. 5-7.

⁷² Decision No. 1359/2013/EU of the European Parliament and of the Council of 17 December 2013 amending Directive 2003/87/EC clarifying provisions on the timing of auctions of greenhouse gas allowances

⁷³ Art. 10 in conjunction with Annex IV EU-ETS Directive (2013-2020).

⁷⁴ Art. 1 (2) MSR Decision (EU) 2015/1814.

⁷⁵ Art. 1 (5)–(8) MSR Decision (EU) 2015/1814.

⁷⁶ Knight, S. (2017), Der CO₂-Mindestpreis – eine Idee auch für Deutschland?, Energiewirtschaftliche Tagesfragen 3/2017, p. 4.

environment ministers of France, Germany, UK, Sweden and the Netherlands declared that they wanted to consider the introduction of a GHG minimum price in certain sectors.⁷⁷

A minimum price is increasingly being considered in the EU ETS as well. Thus, in his keynote address on Europe in September 2017⁷⁸, France's President, Emmanuel Macron, called for the introduction of an EU-wide "significant" GHG minimum price of at least € 25 to € 30 per tonne CO₂e in order to encourage investment in low-emission technologies. The introduction of an EU-wide "CO₂ price floor" was put up for discussion by the EU Commission in 2012.⁷⁹ In the German parliamentary election campaign in 2017, the SPD also spoke out in favour of "initiating negotiations to agree minimum GHG prices at European level".

3 Ordoliberal Assessment

3.1 Functioning

The EU ETS is an ecologically sound and at the same time economically efficient instrument for reducing GHG emissions and achieving EU climate targets. It is ecologically sound because it stipulates a reduction target for all the companies participating in the EU ETS and thus limits their overall amount of permitted GHG emissions. At the same time, the EU ETS is economically efficient because it leaves it up to the companies themselves to decide whether they want to buy allowances or – e.g. by investing in more efficient technologies – reduce their GHG emissions. Thus, GHG emissions are saved where this can be achieved at the lowest cost. As many sectors as possible should therefore be incorporated into the EU ETS or at least in an ETS at national level.⁸⁰ This has not so far been the case, nor is it currently planned: Large sections of the economy, particularly road transport and heating, are exempt from the EU ETS.

3.2 Carbon leakage protection

When deciding on a location, wage costs, infrastructure and investment security as well as climate regulations play a decisive role for companies. Where, due to the cost burden in the EU ETS, companies move their production out of the EU or lose market share to competitors from third countries, this not only has a negative impact on growth and industrial jobs in the EU but may also lead to a global increase in GHG emissions because climate protection requirements in other countries are often much less strict.⁸¹

In order to avoid carbon leakage, ideally all globally competing GHG emitters should be subject to the same climate policy. This is currently not the case. The EU should therefore champion the global

⁷⁷ BMU (2017), "One Planet Summit" in Paris, Press Report No. 379/17.

⁷⁸ "Initiative pour l'Europe: Une Europe souveraine, unie, démocratique", speech by Emmanuel Macron on 26 September 2017, <<https://de.ambafrance.org/Staatsprasident-Macron-Initiative-fur-Europa>>.

⁷⁹ EU Commission, Report COM(2012) 652 of 14 November 2012 to the European Parliament and the Council on the state of the European carbon market in 2012, p. 11 et seq.; see [cepPolicyBrief No. 2013-3](#).

⁸⁰ See above Sections 2.4, 2.5.1 and 2.5.5. On this: Nader, N.; Reichert, G. (2015), Extend emissions trading! Effective and efficient reduction of greenhouse gases in road transport, [ceplnput 05/2015](#).

⁸¹ On this and the points that follow, see Bonn, M.; Reichert, G.; Voßwinkel, J. (2016), Carbon Leakage – Reform of EU emissions trading post-2021 and global climate protection, [ceplnput 04/2016](#).

uniform pricing of GHG emissions in international bodies.⁸² However, as long as there is no global uniform regulation and thus no uniform cost burden placed on GHG-intensive industrial installations, it will remain necessary to support industrial installations in the EU that compete internationally in order to avoid carbon leakage.

In order to guarantee sufficient carbon leakage protection, the allocation of free allowances should not – as proposed in the revised EU-ETS Directive – be limited to 43% or 46% because a fixed proportion of free allowances is not necessary in order to achieve EU climate targets; it is only necessary to ensure that the EU cap falls year on year in accordance with the linear reduction factor (LRF). Abolishing the limit on the proportion of free allowance means that the cross-sectoral correction factor could also be abolished. Thus, free allowances would then only be allocated according to criteria that are foreseeable for companies – such as production volume, the production-specific benchmark and the carbon leakage risk⁸³.

Using product-specific benchmarks as orientation when allocating free allowances in the EU ETS has proven reliable. In this regard, it is necessary to ensure that the product-specific benchmark is based exclusively on data which realistically reflect the potential of the installations for reducing emissions. However, the EU-ETS Directive, revised in March 2018, fails to take sufficient account of the actual savings potentials. Thus, the benchmark for production processes in which new developments have led to huge savings in GHGs only falls by a maximum of 1.6% per year which can lead to companies receiving an over-allocation of free allowances. On the other hand, an under-allocation of free allowances may arise where even installations whose savings potential has already been technically exhausted, still have to reduce GHG emissions in their production, or where as a result of changed conditions – e.g. higher regulatory requirements applicable to the end product – they actually have to emit more CO_{2e} per unit of production.

3.3 Evolution of the allowance price

A lower allowance price is no obstacle to achieving the short-term and medium-term EU climate targets. In fact, it indicates that the costs of achieving the targets in the EU ETS are low. In addition, the allowance price is only one of a number of factors for companies to consider when making long-term investment decisions and therefore not the only source of uncertainty. Thus, it is not currently possible to predict what technologies will be the most efficient for achieving GHG savings in the distant future – e.g. 2050.⁸⁴

Uncertainty also arises in relation to policy decisions that affect the EU ETS directly – such as the MSR – or indirectly and also cannot be predicted over the medium and long-term. This uncertainty leads to companies already starting to hoard large numbers of allowances because it is cheaper to acquire allowances today for use in the future.⁸⁵

Even if the low allowance price in itself is no problem, it does suggest that incorrect macroeconomic data was used at the outset to determine the GHG reduction targets – in particular economic growth

⁸² Bonn, M.; Menner, M.; Voßwinkel, J. (2017), Globalising Climate Protection – Ways to world-wide harmonisation of carbon pricing, [ceplnput 07/2017](#).

⁸³ See above Section 2.5.1.

⁸⁴ Andor, M.; Frondel, M.; Neuhoff, K.; Petrick, S. Rüter, S. (2016), Klimaschutzpolitik in Europa: Wie kann ein Politikmix gestaltet werden?, rwi Discussion Paper, p. 7.

⁸⁵ Weimann, J. (2017), Der Emissionshandel: Besser als sein Ruf, ifo Schnelldienst, Vol. 14/2017, p. 25 et seq.

rates that were too high.⁸⁶ Ultimately, however, the EU climate targets and values derived from them for the annual cap, represent a compromise on which the Member States were able to agree prior to a trading period. The increase in the LRF from 1.74% to 2.2% post-2021, however, is likely to result in an increased shortage of allowances and thus to a rise in allowance prices in the 4th trading period.⁸⁷ This is already indicated by the significant increase in the price of allowances since the end of the reform.⁸⁸

3.4 Backloading and Market Stability Reserve

In order to achieve the EU's climate policy targets, the annual reduction in the number of allowances only needs to be in accordance with the LRF. If, however, some allowances remain permanently in the MSR, or are cancelled, the total quantity of allowances will run short which would result in a tightening of the GHG reduction target in the EU ETS. The extent to which allowances will be taken out of the MSR and sent back to the market or cancelled, depends on the development of the allowance surplus over the next few years and is not currently foreseeable.⁸⁹

3.5 Minimum price for greenhouse gas emissions

The effectiveness and economic efficiency of the EU ETS in terms of climate policy is based on the fact that the number of allowances and thus the amount of permitted GHG emissions is fixed whilst the allowance price develops freely on the allowance market and brings about balance in the supply of and demand for allowances. A minimum price for GHG emissions⁹⁰ is economically inefficient, however, as it distorts free pricing in the EU ETS and thereby prevents GHG emissions reduction at minimal cost in the EU.

An EU-wide minimum price⁹¹ also increases the carbon leakage risk as, due to the rise in the allowance price, the costs of GHG-intensive and energy-intensive production in the EU will go up.

Particularly inefficient is the introduction of a national GHG minimum price because it means that GHG emissions will be disproportionately reduced in those Member States where the minimum price applies rather than where GHG savings can be achieved the most cheaply EU wide. In addition, a national GHG minimum price can only contribute to climate protection at all if, at the same time, the Member State cancels a corresponding number of the allowances allocated to it. Otherwise, as a result of the minimum price, GHG emissions in the Member State concerned will only be relocated to other Member States rather than saved at a global level. The impact in terms of climate policy would then be zero.

⁸⁶ Wood, P; Jotzo, F. (2011), Price floor for emissions trading, *Energy Policy*, Vol. 39, No. 3, p. 1746–1753.

⁸⁷ Weimann, J. (2017), *Der Emissionshandel: Besser als sein Ruf*, ifo Schnelldienst, Vol. 14/2017, p. 25 et seq.

⁸⁸ See above Section 2.7

⁸⁹ For a prognosis see: Agora Energiewende (2015), *Die Rolle des Emissionshandels in der Energiewende – Perspektiven und Grenzen der aktuellen Reformvorschläge*, Background Paper, p. 13 et seq.

⁹⁰ Bonn, M.; Voßwinkel, J. (2017), CO₂ minimum price - Curse or blessing of EU climate policy? [ceplnput 05/2017](#), p. 9 et seq.

⁹¹ *Ibid.*, p. 11 et seq.

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