Carbon Leakage

Reform of EU emissions trading post-2021 and global climate protection

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The EU Emissions Trading System (ETS) is an ecologically sound and economically effective instrument for climate protection. However, it can only contribute to global climate protection if carbon emissions are actually reduced and not simply moved to third countries (carbon leakage). The reform of the ETS post-2021 should therefore meet the following requirements:

▶ The annual reduction in emissions allowances must not be further increased, above the 2.2% figure already set by the European Council, until 2030.

▶ The number of free allowances allocated to industrial companies competing at a global level, should not be rigidly restricted because too few allocations may result in carbon leakage.

▶ The reference values used to calculate the number of free allowances must be updated regularly in order to prevent high levels of over-allocation or under-allocation.

Table of Contents

1   Introduction

The European Union sees itself as a pioneer in climate protection. By comparison with other economies, it has ambitious goals. This presents a huge challenge: On the one hand, the EU wants to reduce the emission of harmful greenhouse gases (GHG) such as carbon dioxide (CO_2) year by year. On the other hand, it must ensure that, as a result of its climate protection policy and the associated cost burden for European companies, industrial output is not moved from the EU to third countries with less ambitious climate protection regulations.

Where emissions costs result in the relocation of carbon-intensive production to countries where there are no or only low emissions costs, it is known as "carbon leakage".[1] This takes place, firstly, because European countries lose market share to competitors in third countries and EU production is thereby replaced by production outside the EU. Secondly, carbon leakage occurs where European companies carry out new investment in energy-intensive facilities in third countries rather than in the EU.

Carbon leakage gives rise to economic costs in the EU in the form of lower industrial output and the loss of jobs. In addition, there is also the risk of an overall higher global level of emissions because companies in third countries with less strict CO_2 regulations have less incentive to reduce CO_2 than in the EU. Consequently, carbon leakage jeopardises both the international competitiveness of European companies and the objective of global climate protection. These two negative consequences of carbon leakage will be avoided if plants at risk of carbon leakage are freed from the cost of climate protection.

In the context of the ongoing legislative procedure for the reform of the EU Emissions Trading System (ETS)[2] for the period post-2021[3], the avoidance of carbon leakage is currently the subject of fierce debate. The ETS is the most important instrument of climate policy for energy-intensive industrial companies and power plants. Costs are incurred by the companies participating in the ETS in particular on acquisition of allowances which each allow the emission of one tonne of CO_2. Although the allowance price of under € 5 is currently relatively low[4], it is likely to rise after 2021 due to the European Commission's proposed progressive reduction in the number of allowances; this will increase the risk of carbon leakage.

This cep**Input** analyses the extent to which the plans to reform the ETS currently under discussion are appropriate for avoiding carbon leakage. For this purpose, we will first set out the climate policy context (Section 2) and the design of the ETS in the current third trading period 2013–2020 (Section 3). Building on this, we will then examine in greater detail the current reform plans for the fourth ETS trading period (2021–2030) (Section 4) and evaluate them (Section 5).

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[1]   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.

[2]   Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (hereinafter: ETS Directive 2003/87/EC).

[3]   EU Commission Proposal COM(2015) 337 of 15 July 2015 for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low carbon investments [hereinafter: Proposal for a Directive COM(2015) 337], see cep**PolicyBrief** No. 2015-14.

[4]   European Energy Exchange "EU Emission Allowances, Secondary Market", https://www.eex.com/de/marktdaten/umweltprodukte/spotmarkt/european-emission-allowances#!/2016/07/13 (last accessed on: 15 July 2016).

2   Climate Policy Context

2.1   EU Climate Protection Target 2030 and the EU Emissions Trading System

The European Union wants to reduce harmful GHG emissions by at least 20% by 2020 and by at least 40% by 2030 as compared with 1990 levels.[5] In its Decision of October 2014 on the readjustment of European climate and energy policy between 2021 and 2030, the European Council emphasised that the European Emissions Trading System (ETS), in place since 2005, will remain the "the main European instrument to achieve" this GHG reduction target.[6] Participants in the ETS are mainly plants generating electricity and heat, metal production and processing plants, mineral processing plants, plants manufacturing pulp and paper and plants in the chemical industry.[7] The ETS obliges plants in the participating sectors to submit an emission entitlement in the form of an allowance for every tonne of GHGs emitted, the allowance is then deleted after use. GHGs covered by the ETS also include, in addition to CO_2, nitrous oxide (N_2O) and perfluorocarbons (PFCs).[8] The GHG emissions from the plants covered by the ETS will be reduced by 21% by 2020 and by 43% by 2030 compared with 2005 levels.[9] For this purpose, the overall volume of GHG emissions which plants are permitted to emit will be reduced annually.[10] The sectors not participating in the ETS – including road transport, buildings as well as trade and the service sector – have to reduce their GHG emissions by 10% by 2020[11] and by 30% by 2030, compared with 2005 levels[12], and this requirement is divided into varying partial targets for the Member States ("burden sharing").

2.2   Paris Climate Change Agreement

Climate change is a global problem. The current discussion on the design of the ETS for the period 2021–2030 cannot therefore be considered separately from the global efforts being made in respect of climate protection. Authoritative in this regard is the international agreement on climate change reached in Paris ("Paris Agreement")[13] which was approved by the 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) on 12 December 2015.

The Paris Agreement, which covers 98% of GHG emissions, will reduce the risks and effects of climate change by limiting the rise in the global average temperature in the long term to below 2°C and, if possible to 1.5°C, above the pre-industrial level.[14] To achieve this, all parties to the Agreement are legally obliged to set for themselves the most ambitious GHG reduction targets possible (Nationally Determined Contributions, NDCs) and to implement the climate protection measures necessary for this.[15] In 2023, and every five years thereafter, the parties to the Agreement

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[5]   European Council of 24 October 2014, Conclusions Doc. EUCO 169/14 ("2030 Decision"), para. 2. See on this cep**Input** No. 02/2015 EU Climate and Energy Policy.
[6]   European Council of 24 October 2014, Conclusions Doc. 169/14, para. 2.3.
[7]   Annex I, ETS Directive 2003/87/EC). In addition to industrial installations and power plants, aviation has been included in the ETS since 2012 as regards flights taking off and landing at airports in an EU Member State, Art. 3a to 3g ETS Directive 2003/87/EC; see cep**Compass** Klima und Energiepolitik der EU (2014), p. 17 et seq., cep**PolicyBrief** No. 2014-04 and cep**PolicyBrief** No. 2016-14.
[8]   Art. 2, Annexes I and II ETS Directive 2003/87/EC. In order to be able to aggregate them with CO_2 based on their volume, the greenhouse gas N_2O and PFCs are converted into CO_2 equivalents on the basis of how harmful they are to the climate.
[9]   European Council of 24 October 2014, Conclusions Doc. EUCO 169/14, para. 2.1.
[10] See below Section 3.1 and Section 4.1.
[11] Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020. See on this cep**Compass** Klima- und Energiepolitik der EU (2014), p. 26 et seq.
[12] European Council of 24 October 2014, Conclusions Doc. EUCO 169/14, para. 2.1.
[13] UNFCCC, Paris Agreement of 12 December 2015, http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf (last accessed on: 15 July 2016).
[14] Art. 2 (1) Paris Agreement.
[15] Art. 3 and Art. 4 (2) Paris Agreement.

must carry out an assessment of the GHG reductions which have been achieved ("global stocktake") and step up their NDCs on the basis thereof.[16] The Paris Agreement comes into effect when it has been ratified – i.e. confirmed as legally binding – by at least 55 of the parties responsible for 55% of global GHG emissions.[17]

The EU registered its NDCs with the Secretariat of the UNFCCC in March 2015 and gave notification that, pursuant to the European Council Decision of October 2014, it will reduce its GHG emissions by at least 40% by 2030 as compared with 1990 levels.[18] The 43% emissions reduction in the ETS, called for by the European Council and proposed by the Commission, is in line with the reduction target of 40% by 2030. In its Communication to implement the Paris Agreement, the Commission confirmed that the ETS will be the main instrument for achieving the EU's NDC. The rules for avoiding carbon leakage, contained in its proposal to reform the ETS Directive 2003/87/EC of July 2015, are described therein by the Commission as "balanced", although the EU will make greater efforts to motivate third countries to price their GHG emissions too.[19]

3   EU Emissions Trading System 2013–2020

3.1   Method: "Cap & Trade"

The ETS is based on a "cap and trade" approach.[20] The "cap" is the maximum total volume of CO_2 which can be emitted each year by all plants subject to ETS obligations. A fixed number of allowances corresponding to this upper limit is made available to these plants annually. Plant operators either have to purchase allowances at auction[21] or on the so-called secondary market for allowances or they are allocated them free of charge[22]. An annual reduction of the total allowances made available ensures that the CO_2 reduction targets for the sectors covered by the ETS are achieved. Thus the overall number of allowances in the current third trading period 2013–2020 is reduced each year by 1.74% ("linear reduction factor", LRF)[23], which by 2020 will result in a 21% reduction in CO_2 as compared with 2005 levels. The LRF only applies to the plants subject to ETS obligations as a whole, not to individual plants, economic sectors or Member States. As all allowances – irrespective of whether they are obtained at auction of allocated free of charge – can be traded, every plant operator can decide for itself whether to reduce CO_2, or to cover its emissions by way of a corresponding number of allowances via the allowance market. Companies that can reduce their CO_2 emissions at low cost can sell surplus allowances and thereby generate revenue. This incentive will ensure that CO_2 emissions are reduced across sectors and across borders in those locations where it is most cost effective.

3.2. Carbon Leakage

The obligation to hold allowances for GHG emissions increases production costs, particularly in sectors which produce large volumes of GHGs. European companies are at a sometimes significant

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[16] Art. 4 (11) and Art. 14 Paris Agreement.
[17] Art. 20 and 21 Paris Agreement.
[18] EU Commission, Communication COM(2015) 81 of 25 February 2015, The Paris Protocol – A blueprint for tackling global climate change beyond 2020; see cep**PolicyBrief** No. 2015-10.
[19] EU Commission, Communication COM(2016)110 of 2 March 2016, After Paris: assessing the implications of the Paris Agreement and accompanying the proposal for a Council Decision on the signing, on behalf of the European Union, of the Paris Agreement adopted under the United Nations FrameworkConvention on Climate Change, p. 8; see cep**PolicyBrief** No. 2016-3.
[20] For comprehensive assessment see cep**Compass** Klima- und Energiepolitik der EU (2014), p. 10 et seq.
[21] Art. 10 ETS Directive 2003/87/EC.
[22] Art. 10a ETS Directive 2003/87/EC.
[23] Art. 9 ETS Directive 2003/87/EC.

competitive disadvantage in relation to their non-European competitors to the extent that they have to acquire emissions allowances, or incur additional costs in the avoidance of emissions – the risk carbon leakage arises.

In the case of sectors subject to ETS obligations, there is a risk of carbon leakage where operators incur costs due to the acquisition of emissions allowances and they cannot pass these on to their customers due to intensive competition with companies based in third countries. In addition, they may be indirectly affected by carbon leakage if their production requires high levels of electricity and the fossil-fuel-based electricity producer's participation in the ETS results in higher electricity prices.

Identifying companies that are at risk of carbon leakage, so that they can be relieved of this financial burden, is no trivial matter. In particular, identification must take place, where possible, before emission-intensive production is taken out of the EU. The ETS Directive 2003/87/EC determines the risk of carbon leakage in a sector in the period 2013–2020, based on two factors: the percentage increase in production costs in a sector due to the direct and indirect costs of the ETS (ETS-induced increase in production costs) and the intensity of trade with third countries in the sector (intensity of trade with third countries). The intensity of trade with third countries is defined for every sector as the sum of the total value of exports to and imports from third countries divided by the "total market size for the Community". The total market size for the Community comprises the annual turnover for the sector in the EU plus the value of imports allocated to this sector.[24]

Based on these two factors – as shown in Figure 1 – three categories of sector at risk of carbon leakage can be identified: Category A contains sectors with an ETS-induced increase in production costs of at least 5% and an intensity of trade with third countries of at least 10%. A risk of carbon leakage also exists, however, where the ETS-induced increase in production costs in a sector is above 30% (Category B) or the intensity of trade with third countries is above 30% (Category C).

Figure 1: Criteria for risk of carbon leakage pursuant to ETS Directive 2003/87/EC

There is a risk of carbon leakage where at least one of the three criteria is met:

A: ETS-induced increase in production costs ≥ 5% and trade intensity with third countries ≥ 10%

B: ETS-induced increase in production costs ≥ 30%

C: Intensity of trade with third countries ≥ 30%

Source: cep pursuant to Art. 10a (15) and (16) ETS Directive 2003/87/EC.

The sectors affected by carbon leakage according to these criteria are set out by the Commission in a carbon-leakage list which is updated every five years. For the period 2015–2019, it comprised approx. 170 sectors producing 97% of all industrial CO_2 emissions in the EU.[25] The majority of the sectors on the current carbon leakage list fall under Category C, i.e. sectors with a low ETS-induced cost burden but high intensity of trade with third countries.

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[24] On this and the following see Art. 10a (15) and (16) ETS Directive 2003/87/EC.
[25] Annex to 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 (hereinafter: Carbon Leakage List 2014/746/EU).

Sectors, whose companies are indirectly at risk of carbon leakage due to ETS-induced increases in electricity prices, are contained in a separate list[26]. In line with EU law on state aid[27], Member States can, pay these companies compensation for the additional electricity costs resulting from the ETS ("electricity price compensation").[28] This aims to prevent energy-intensive production being moved to third countries making CO_2 emissions higher due to increased electricity generation ("indirect carbon leakage").

3.3   Allocation of allowances

In the first two trading periods between 2005 and 2012, plants subject to ETS obligations were allocated allowances free of charge based on past figures ("grandfathering"). Since the start of the third trading period 2013–2020, emitters have had to obtain most of their allowances at auction. This applies in particular to electricity generation plants or power stations which cause the majority of the CO_2 emissions in the ETS. Unlike power stations, industrial installations can continue to receive free allowances for 100% of their CO_2emissions. The quantity of free allowances allocated annually is determined – as shown in Figure 2 – by multiplying the "plant's historical production levels" with a "product-specific ex-ante benchmark", the "sectoral carbon leakage factor" and a "cross-sectoral correction factor".

Figure 2: Formula to determine free allocation in the ETS

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

The **historical production level** for each year of the third trading period 2013–2020 corresponds to the average output of the plant (in tonnes) in the years 2005–2008 or – if it is higher – in the years 2009 and 2010.[29] A subsequent fall in a plant's production of at least 50% ("significant production decrease") is taken into account on allocation of free allowances.[30]

The **product-specific ex-ante benchmark** indicates how many tonnes of CO_2 were emitted in the production of one tonne of the product ("CO_2 Output Ratio")[31] in the 10% most efficient plants in a sector or sub-sector in the years 2007 and 2008.[32] Thus the product-specific ex-ante benchmark e.g. for aluminium is "1.514" and "0.954" for lime.[33] Focussing on the 10% most efficient plants in a sector or sub-sector will also ensure that incentives to reduce CO_2 are maintained.

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[26] Annex II EU Commission, Impact Assessment SWD(2012)130 of 22 May 2012 on Guidelines on certain State aid measures in the context of Greenhouse Gas Emission Allowance Trading Scheme post-2012.

[27] Art. 107 et seq. Treaty on the Functioning of the European Union (TFEU), Consolidated Version available at http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%206655%202008%20REV%207.

[28] Art. 10a (6) ETS Directive 2003/87/EC.

[29] Art. 9 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 2011/278/EU).

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

[31] Alternatively, in the case of certain products, benchmarks are used based on the heat or energy use ("fall back benchmark"), see EU Commission Impact Assessment SWD(2015) 135 of 15 July 2015, p. 97.

[32] Art. 10a (2) ETS Directive 2003/87/EC.

[33] Annex I Benchmark Decision 2011/278/EU.

The **carbon leakage factor** depends on the risk of carbon leakage in a sector.[34] For all plants affected by carbon leakage, the carbon leakage factor for the entire third trading period is "1", for all other industrial installations, it was still "0.8" in 2013 since when it has been reduced proportionally each year and will reach "0.3" in 2020.

The share of free allowances, as a percentage of the total quantity of allowances, is not, however, permitted to exceed a certain threshold. This threshold is based on the amount of CO_2 from plants entitled to receive free allowances from 2013, as a proportion of the total amount of emissions in the ETS, in the years 2005–2007. It is currently about 39% but may rise by 2020 due to new entrants.[35] In order to guarantee the cap on free allowances, a **cross-sectoral correction factor** is applied which, when the threshold is exceeded, reduces the quantity of free allowances in all sectors by the same percentage.[36] Thus, in 2013, the quantity of free allowances calculated prior to application of the cross-sectoral correction factor fell by 6% because the maximum amount available for free allocation was 809 million of the total 2,084 billion allowances available.[37] The quantity of free allowances therefore had to be reduced in all sectors by 6%. The cross-sectoral correction factor is expected to increase further by 2020 to 18%.[38]

4   Reform of the EU Emissions Trading System post-2021

In July 2015, the European Commission submitted its proposal for the design of the ETS between 2021 and 2030[39] in order to adapt it to the 2030 GHG reduction target. The proposal is subject to the ordinary legislative procedure [40], in which the European Parliament and Council must agree on a joint wording of the legislative proposal.

In this legislative procedure, the Environment Committee (ENVI) is responsible in the European Parliament. Although the ENVI Rapporteur, Ian Duncan (UK, ECR Group), largely followed the Commission's proposal on the reform of the ETS in his draft report of 31 May 2016[41] ("Duncan Report"), he also called for some important changes.

The Council has not yet formed a final opinion. In principle, however, environment ministers approved the Commission's reform proposals at the Council Meeting on 20 June 2016. Nevertheless, a majority of Member States favoured basing the benchmark to a greater extent on "realistic" values and a more frequent alignment with production levels.[42]

The following section will set out the current status of discussions in the legislative procedure in more detail by looking at the European Commission proposal of July 2015 and the amendment requests contained in the Duncan Report of May 2016.

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[34] See above Section 3.2.
[35] EU Commission Impact Assessment SWD(2015) 135 of 15 July 2015, p. 25.
[36] Art. 15 Benchmark Decision 2011/278/EU.
[37] EU Commission Impact Assessment SWD(2015) 135 of 15 July 2015, p. 23.
[38] Ibid. p. 30.
[39] Proposal for a Directive COM(2015) 337), see cep**PolicyBrief** No. 2015-14.
[40] Art. 294 TFEU
[41] European Parliament ENVI Committee, Draft Report of 31 May 2016 on the proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low carbon investments (hereinafter: Duncan Report), http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+COMPARL+PE-582.397+02+NOT+XML+V0//EN (last accessed on: 15 July 2016).
[42] Council of the European Union, Outcome of the Council Meeting of 20 June 2016, http://www.consilium.europa.eu/en/meetings/env/2016/06/st10444_en16_pdf (last accessed on: 15 July 2016), p. 4–7.

4.1   Lowering the linear reduction factor (LRF)

Compared with the ETS in the third trading period 2013–2020, the Commission proposal for the future design of the ETS contains some important changes. Thus, according to the European Council Decision of October 2014, the LRF will be increased post-2021 from 1.74% to 2.2% in order to ensure that in 2030 the CO_2 emissions in plants subject to ETS obligations are 43% lower than in 2005.[43]

In this respect, the Duncan Report goes even further. Thus the 2.2% LRF will only constitute a lower limit and depending on the result of the "Global Stocktake" set out in the Paris Agreement, the Commission will submit a legislative proposal to increase the LRF post-2023.[44]

4.2   Allocation of free allowances

The European Commission proposal provides that the share of free allowances will be fixed at 43% as of 2021. The remaining 57% of the allowances will be auctioned in order to comply with the requirements of the European Council of October 2014[45] and to generate a high level of proceeds at auction.[46]

In addition, the rules will be changed under which sectors are classified as being at risk of carbon leakage. Thereunder, carbon leakage sectors would have to have such a high CO_2 intensity and such a high intensity of trade with third countries that the product of these two variables ("carbon-leakage value") is greater than 0.2.[47] In addition, the sectoral CO_2 intensity will be measured as the quantity of CO_2 (in kg) divided by the gross value added (in Euro) in this sector. These new carbon leakage rules – see Figure 3 – would mean that particularly those sectors that are only included due to their high intensity of trade (Category C) would be taken off the carbon leakage list. As a result, the carbon leakage list would in future only contain 50 rather than the previous figure of 170 sectors.[48]

Figure 3: Criteria for risk of carbon leakage pursuant to proposal for a Directive COM(2015)337

A risk of carbon leakage exists where the following requirement is met:

Intensity of trade with third countries $\times$ CO_2 intensity* of production ≥ 0.2

*measured as quantity of CO_2 (in kg) divided by the gross value added (in Euro)

Source: cep according to amended Art. 10b (1) ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.

The individual elements of the free allowance formula will also be amended under the Commission's proposal. The timing of **historic production levels** would be adapted in that the average production levels during the years 2013-2017 would be used for the period 2021–2025 and for the period 2026–2030, the average production levels from the years 2018–2022. In

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[43] Amended Art. 9 ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.
[44] Amendment proposal 79 Duncan Report of 31 May 2016.
[45] European Council of 24 October 2014, Conclusions Doc. EUCO 169/14, para. 2.7.
[46] Amended Art. 10 (1) ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337; see EU Commission, Impact Assessment SWD(2015) 135 of 15 July 2015, p. 26.
[47] Amended Art. 10b ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.
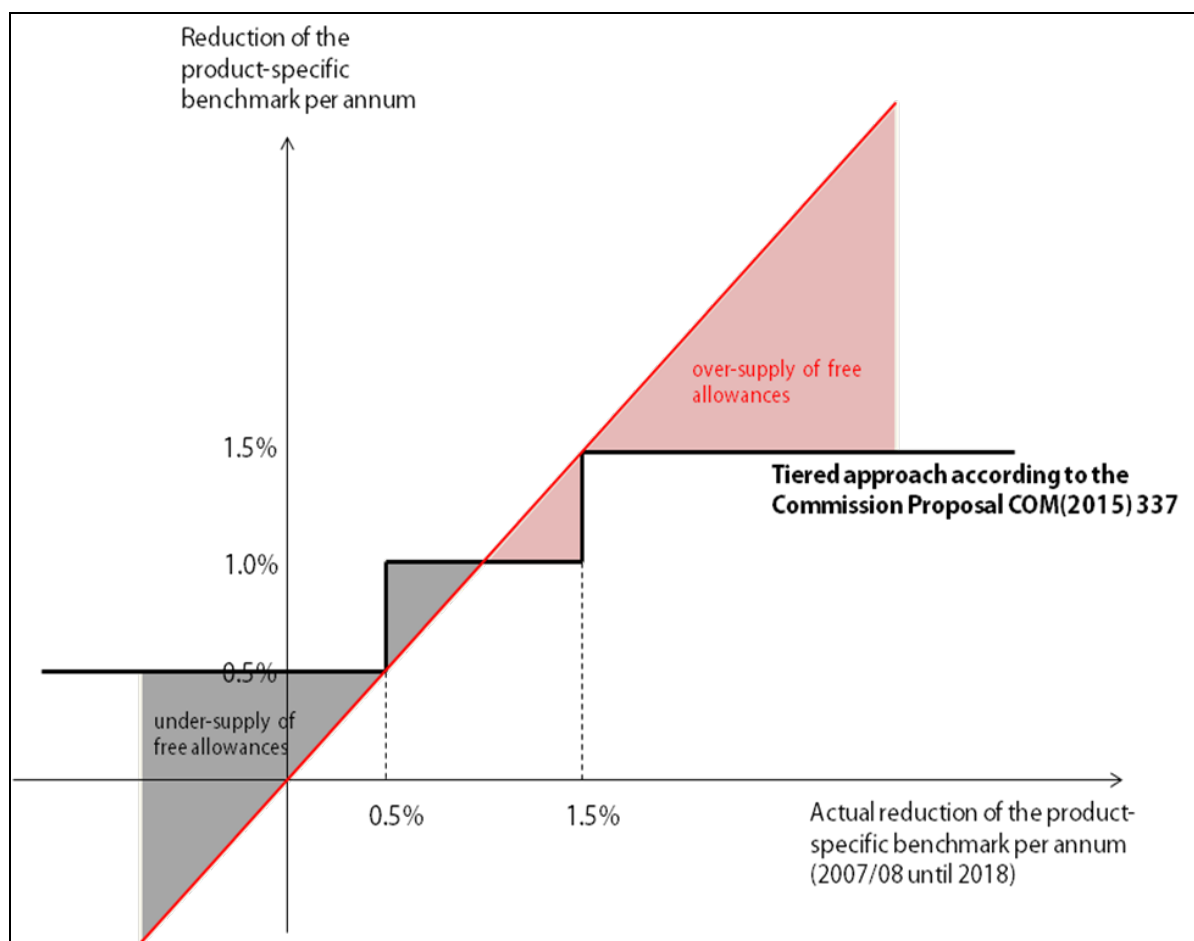[48] EU Commission Impact Assessment SWD(2015) 135 of 15 July 2015, p. 27.

addition, when it comes to the allocation of free allowances, subsequent significant increases in plant production will be taken into account in just the same way as significant decreases in production. Significant is deemed to be a rise or fall in production of at least 50%.[49]

The **product-specific benchmarks** will also be further reduced in order to continue to provide incentives for CO_2 reductions in production. The reduction of the benchmarks will depend on the actual reduction in the "CO_2 output ratio" since 2007/2008. For this purpose, a list will be drawn up by September 2018 of all the plants participating in the ETS post-2021. The list will contain information on production volumes, electricity consumption and CO_2 emissions, on the basis of which, the change in the production-specific CO_2 output ratio can be determined as compared with 2007/2008.[50] In principle, every product benchmark for the period 2021–2025 will be 15% lower than 2008 – which corresponds an average annual linear reduction over the five years of 1% compared with 2008. Where, according to the list, the CO_2 output ratio of the 10% most efficient plants in a sector, has only fallen by less than 0.5% per year since 2008, the product benchmark in the sector for the period 2021–2025 would be reduced by 7.5% as compared with 2008 (0.5% per year). Where the CO_2 output ratio of a sector has fallen annually by more than 1.5%, however, the benchmark would be reduced for the period 2021–2025 by 22.5% as compared with 2008 (1.5% per year). The benchmarks will be updated again for 2026.

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[49] Amended Art. 10a (1) and amended Art. 10b (3) ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337 in conjunction with Art. 23 Benchmark Decision 2011/278/EU.
[50] Amended Art. 11 ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.

Figure 4: Reduction of the product-specific benchmark per annum

Source: cep

Figure 4 shows how the reduction in the product specific benchmark proposed by the Commission depends on the actual reduction in the CO_2 output ratio of the 10% most efficient plants in a sector. The tiered approach only takes a very rough account of the actual reduction of CO_2 in production. As a result, those sectors whose 10% most efficient plants actually saved more than 1.5% of CO_2 in production each year would, in particular, benefit from an over-supply of free allowances (red areas). By contrast, in sectors that saved less than 0.5% of CO_2 in production each year there would be an under-supply of free allowances (grey areas).

The **carbon leakage factor** will continue to be "1" for all sectors and sub-sectors on the carbon leakage list. For all other sectors, it will be set at 0.3 as from 2021 for the entire trading period 2012–2030 and thereafter – contrary to the ETS Directive 2003/87/EC – will not be further reduced to 0% in 2027.[51]

The uniform **cross-sectoral correction factor** will be set by the Commission in such a way that the sum of the free allocation of allowances – based on the aforementioned criteria – is not greater than 43% of the total quantity of allowances.[52]
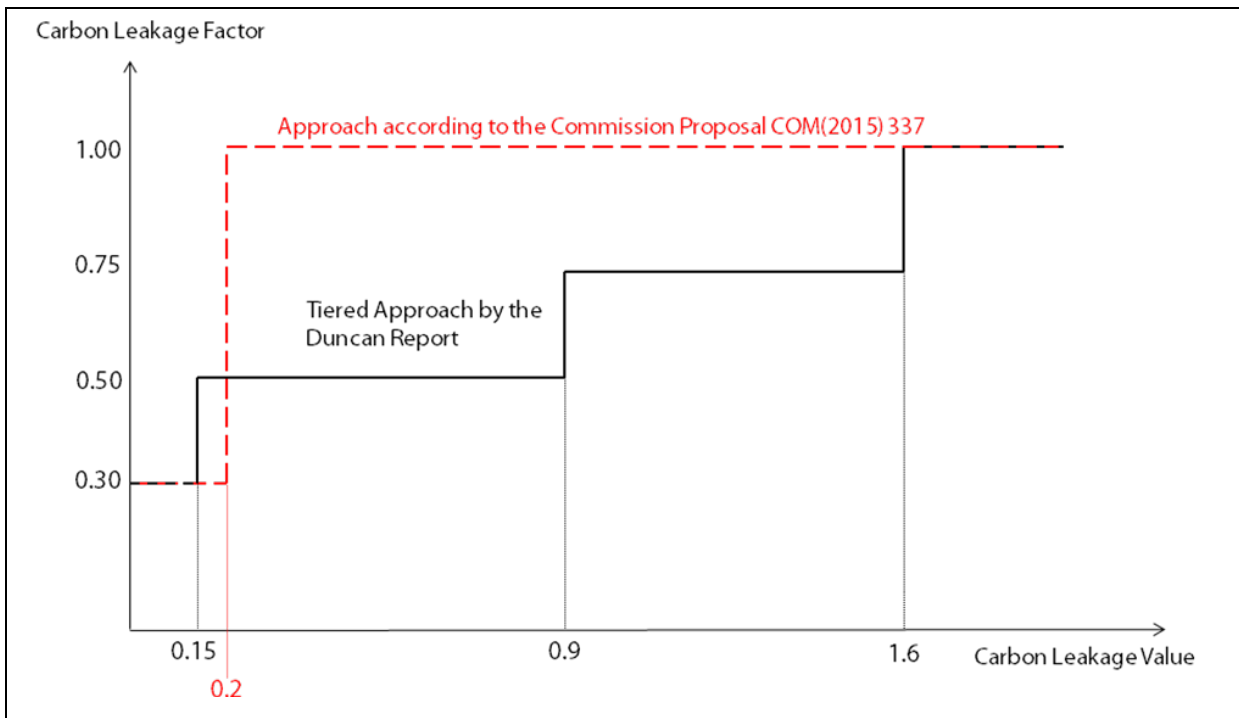
Unlike the Commission proposal, the Duncan Report provides that the rules on free allowances be tightened as a result of a risk of carbon leakage.[53] Thus a 100% allocation of free allowances would

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[51] Amended Art. 10a (11) and amended Art. 10b (3) ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.
[52] Amended Art. 10a (5) ETS Directive 2003/87/EC pursuant to proposal for a Directive COM(2015) 337.

only be granted to plants in sectors and sub-sectors where the carbon leakage value is greater than 1.6. This figure is significantly higher than that provided for in the Commission proposal of 0.2. For all sectors and sub-sectors with a carbon leakage value below 1.6, the allocation of free allowances would be reduced in stages ("tiered approach"). Thus for sectors with a carbon leakage value exceeding 0.9, the carbon leakage factor is 0.75 and for sectors with a carbon leakage value exceeding 0.15 the carbon leakage factor is 0.5. For all other sectors, the factor will remain at 0.3. Figure 5 illustrates the differences in determining the carbon leakage factor between the Commission proposal (red dotted line) and the Duncan Report (black line).

Figure 5: Determining the Carbon Leakage Factor

Source: cep

The tiered approach used by the Duncan Report aims to take account of the fact that some sectors are able to pass on part of their CO_2 costs to their customers. It also aims to prevent the total number of free allowances from becoming too great and the cross-sectoral correction factor from having to be applied too frequently. In order to avoid such situations, the Duncan Report also provides that the number of free allowances as a proportion of the total quantity of allowances may in exceptional cases exceed the 43% figure, established by the Commission proposal, by up to two percentage points. Thus the cross-sectoral correction factor will only be applied if topping up free certificates by two percentage points is not sufficient to allocate free allowances in accordance with the free allowance formula.[54]

The Duncan Report also provides for changes in production levels to be given greater consideration when it comes to the allocation of free allowances. Thus changes in production level of 10%, instead of the 50% provided for under the Commission proposal, would already result in an adjustment of the quantity of free allowances.[55]

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[53] Amendment proposal 40 Duncan Report of 31 May 2016.
[54] Amendment proposals 21 and 31 Duncan Report of 31 May 2016.
[55] Amendment proposal 33 Duncan Report of 31 May 2016.

5   Assessment

The ETS is an ecologically sound and economically effective instrument for climate protection. Firstly, the reduction in the number of available allowances guarantees that a self-imposed GHG reduction target is always reached. Secondly, the trade in allowances between the participating companies means that the necessary reductions in CO_2 take place where this can be achieved at the lowest possible cost.

The ETS can only contribute to global climate protection, however, where GHG emissions in the EU are in fact reduced at a global level and not simply moved to third countries. In order to avoid carbon leakage, ideally all globally competing GHG emitters would be subject to the same climate policy. This is not currently the case. Although the Paris Agreement requires the contracting parties to commit to self-imposed CO_2 reduction targets, this is not expected to result in a cost burden for industrial companies in third countries comparable to that in the EU. In its reform of the ETS post-2021, the EU should therefore take greater account of the climate protection measures taken by third countries and use international fora to campaign for CO_2 emissions to be subject to pricing which is as uniform as possible at global level. As long as there is no globally uniform regulation and thus no uniform cost burden on carbon-intensive industrial installations, however, the risk of carbon leakage will remain in place thereby impairing an effective contribution to climate protection by the EU. To avoid carbon leakage, therefore, industrial installations in the EU which are subject to international competition must continue to be relieved of the financial burden.

On this basis, the proposed changes are assessed as follows:

5.1   Reduction of the linear reduction factor

The annual reduction in emissions allowances must not be further increased, above the 2.2% figure already set by the European Council, until 2030.

By raising the annual LRF to 2.2%, the Commission is complying with the demand made by the European Council to reduce the number of emissions allowances in the ETS sectors by 43% by 2030, as compared with 2005. This increase in the LRF will result, as from 2021, in a shortage in allowances and thus to an increase in the allowance price. The energy-intensive companies that are subject to international competition but do not receive the full allocation of free certificates will be disadvantaged vis à vis the competition in third countries which may lead to carbon leakage. The LRF – as advocated by the Duncan Report (see above Section 4.1) – should not therefore be further increased above the 2.2% figure already set by the European Council.

5.2   Allocation of free allowances

The number of free allowances allocated to industrial companies competing at a global level, should not be rigidly restricted because too few allocations may result in carbon leakage.

The allocation of free allowances must not be artificially limited by setting a rigid 43% share of free allowances. In order to achieve the EU climate targets, there is no need for a fixed proportion of free allowances; it is simply necessary to ensure that the total quantity of allowances made available under the cap, falls in accordance with the LRF year by year.[56] Any limit on the quantity of allowances could, however, cause a shortfall in free allowances for industrial companies that are subject to international competition which will increase their production costs in the EU and may therefore lead to carbon leakage.

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[56]   A limit on free allowances would then only be necessary in exceptional cases where the quantity of free allowances exceeds the total quantity of allowances.

The small amount of flexibility in the share of free allowances, called for by the Duncan Report, of up to two percentage points, slightly reduces the risk of an under-supply of free allowances but does not solve the underlying problem.

Determining whether and to what extent a plant is directly or indirectly at risk of carbon leakage is extremely difficult and involves a huge amount of red tape as plants may vary considerably even within sectors and sub-sectors. A risk of carbon leakage determined at sectoral level can therefore result, in the individual case, to certain plants receiving a significant over-supply or under-supply of free allowances.

The sectors to be put on the carbon leakage list should, however, be chosen on a liberal rather than a restrictive basis because even if all industrial sectors were to be classified as being at risk of carbon leakage, and their companies were therefore to receive at least some of their allowances free of charge, this would not have a negative effect on the climate. It is after all irrelevant for the functioning of the ETS whether the plant operators have to acquire allowances at auction or are allocated them free of charge. In both cases, they have the same incentive to reduce GHG emissions if the cost of doing so is lower than the allowance price.[57] Thus, if the carbon leakage risk is defined very liberally, this will result, at most, in low revenue from the auctioning of allowances or to excessive electricity price compensation; it will, however, have no negative effect on the climate. On the other hand, if the allocation of free allowances is too low, this may result in carbon leakage and will therefore have a negative impact on the climate because if industrial production from the EU is moved to third countries, a cost-induced saving in GHGs in the EU will generally be accompanied by a larger increase in GHGs in the rest of the world.

Changes in production levels should have a greater effect on the allocation of free allowances than currently planned.

For industry, using **historical production levels** and product specific benchmarks as a basis has proven successful for the allocation of free allowances in the ETS. Changes in production levels in a plant must, however, – as the Duncan Report provides – have a greater effect on its allocation of free allowances. Thus, on the one hand, a decrease in production must give rise to a lower number of free allowances in order to prevent the plant operator from having the incentive to move production to a third country and then sell the surplus allowances. On the other hand, an increase in production must result in an increase in the number of allocated allowances in order to facilitate industrial growth in the EU because the growth of CO_2-intensive industrial sectors in the EU, can have a positive effect on the climate if it prevents the respective industrial products from being produced in third countries using more CO_2-intensive methods.

The reference values used to calculate the number of free allowances must be updated regularly in order to prevent high levels of over-allocation or under-allocation.

It must be ensured that the **product-specific benchmarks** are based on data which realistically reflect the potential of plants to reduce emissions. Using the 10% most efficient plants as a basis already provides less efficient plants with enough incentive to reduce their GHG intensity. Reducing the benchmark should not be based on arbitrary targets set by the EU but solely on actual technological developments in the respective production processes. The Commission, however, takes insufficient account of the actual reduction potential in its proposal on the design of the ETS post-2021. Thus, in the case of production processes where new developments have

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[57] It is irrelevant for operators whether they save the cost of acquiring allowances by investing in CO_2 reduction or, where the allocation is free, are able to achieve additional revenues by selling the allowances which they no longer need. In both cases the investment is worthwhile if the investment costs are lower than the allowance price.

given rise to huge savings in CO_2, the benchmark falls by a maximum of 1.5% per year which may lead to an over-supply of free allowances. Conversely, companies may be under-supplied with free allowances where plants still have to reduce CO_2 emissions in production when their CO_2 reduction potential is already technically exhausted, and where, due to a change in circumstances – e.g. stricter regulatory requirements relating to the end product –, they even have to emit more CO_2 per production unit.

The carbon leakage factor should not be limited to just 0 or 1 but should also be able to indicate intermediate carbon leakage risks

It is likely that many sectors can pass on at least part of the ETS-induced costs to the customers and for this part of production there is no risk of relocation to third countries. The carbon leakage factor therefore – as under the tiered approach in the Duncan Report – should also be able to show a value between 0 and 1 depending on the level of the **carbon leakage factor**.

Since the limitation on the share of free allowances should be lifted, the **cross-sectoral correction factor** should also be abolished.

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