

Special Report

# The EU's Emissions Trading System: free allocation of allowances needed better targeting



EUROPEAN  
COURT  
OF AUDITORS

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## Executive summary

I The reduction of greenhouse gas emissions is one of the main challenges of our times. The EU has established a series of climate change targets to be achieved in 2020, 2030 and 2050. While the EU is firmly on track to achieve its 2020 targets, this is not the case for its – more ambitious – 2030 and 2050 targets. The Commission’s “Green Deal”, put forward in 2019, proposed moving to a target of cutting emissions by between 50 and 55 % by 2030 and achieving “no net emissions” of greenhouse gases by 2050. This implies a significant increase in efforts.

II The EU Emissions Trading System is one of the EU’s key climate change mitigation policies and it is the world’s first carbon market. It aims at providing an efficient mechanism to reduce emissions. Under the EU ETS companies need to obtain emission allowances covering their carbon emissions. The default option is for these to be purchased at an auction; they can also be allocated for free.

III This audit focused on the free allocation of allowances. In phases 3 and 4 of the EU ETS (years 2013-2020 and 2021-2030 respectively), free allowances aim at mitigating the risk of carbon leakage while the carbon price is intended to provide a progressive incentive for decarbonisation. This is supported by the use of benchmarks derived from the top performers in a given sector. The power sector in eight Member States also received free allowances linked to the modernisation of electricity production.

IV Our audit question was **“Did decisions on free Emissions Trading System allowances provide a reasonable basis to encourage the reduction of greenhouse gas emissions?”** We examined whether free allocation of allowances was successfully used to modernise electricity generation, sufficiently targeted and allocated to provide incentives to reduce greenhouse gas emissions, and had not contributed to increasing such emissions. We found that while the use of free allocation was justified, better targeting of free allowances would have had multiple benefits for decarbonisation, public finances and the operation of the single market.

V In particular we found:

- (a) The specific rules for free allocation to modernise the electricity generation sector applying to the EU ETS phase 4 have been improved. However, we consider that free allocation to the power sector did not promote decarbonisation in phase 3.
- (b) Free allowances were intended to provide an exceptional method of allocating allowances in contrast to the default method (auctioning). However, during

phase 3 and the early stages of phase 4, they continue to represent more than 40 % of the total number of available allowances. We found that the number of free allowances allocated to the industry and aviation sectors in phase 3 was not based on their ability to pass through costs and that, while carbon leakage has the potential to affect the EU carbon market and the evolution of the greenhouse gas emissions worldwide, there was limited targeting of the allocation of free allowances.

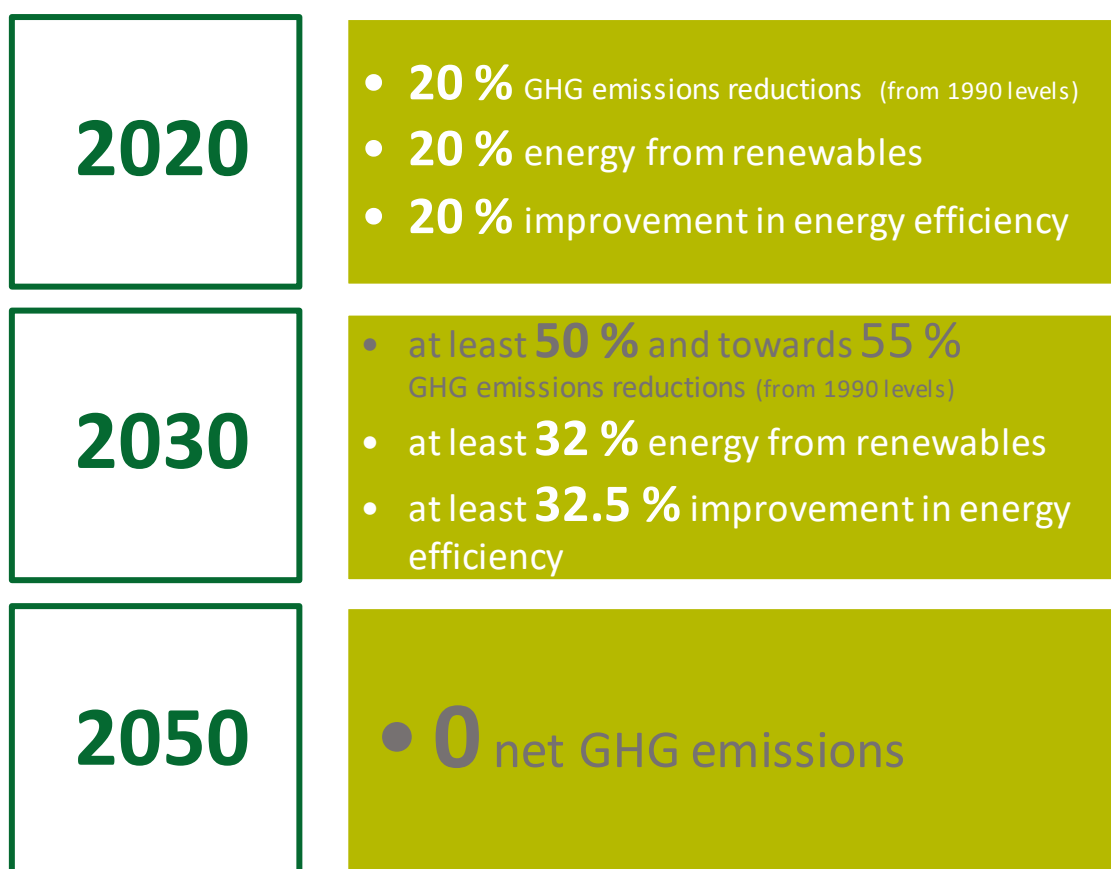
- (c) The approach to allocate free allowances on the basis of benchmarks provided significant incentives for improvement of energy efficiency, but there is scope to improve the application of these benchmarks. The Commission has not quantified the impact of allocation of free allowances on changes in energy efficiency.

**VI** Based on these findings, we make recommendations aimed at better targeting the allocation of free allowances as well as improving the methodology for setting benchmarks.

# Introduction

**01** The European Union has established a series of climate change targets to be achieved in 2020 and 2030, and is currently revising its targets for 2030 and 2050. In its European Climate Law proposal of 2020<sup>1</sup>, in line with its Green Deal communication, the Commission has proposed a target of “no net emissions” of greenhouse gases (GHGs) by 2050<sup>2</sup>. These targets are summarised in *Figure 1*.

**Figure 1 – Summary of EU climate objectives**



Source: ECA, based on EU legislation (text in white), and on proposed EU legislation and commitments (text in grey).

<sup>1</sup> [COM\(2020\) 80 final](#) – Proposal for a Regulation of the European Parliament and of the Council establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law).

<sup>2</sup> [COM\(2019\) 640 final](#) – Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal.

**02** According to the European Environment Agency (EEA), the EU is firmly on track to achieve its 2020 targets, but not its 2030 targets<sup>3</sup>. The EU emitted about 8.5 % of global GHG emissions in 2018, a share that has been declining over time<sup>4</sup>; per capita emissions in the EU are still higher than the world average, although this gap is narrowing. Since 2005 and the creation of the EU's Emissions Trading System (EU ETS), EU per capita emissions have fallen. At the end of 2018 they were below those in the USA, China and Japan<sup>5</sup>.

**03** The Commission considers that the EU as a whole has performed better in terms of decarbonisation than most other jurisdictions, and has decoupled economic growth from growth in greenhouse gas emissions. Between 1990 and 2016, greenhouse gas emissions in the EU fell 22 % while economic growth was 54 %. Many factors have contributed to this, including energy efficiency, fuel switch policies, increased use of renewables and technological changes<sup>6</sup>.

**04** The EU ETS is one of the two key pillars of EU climate policy aiming to reduce greenhouse gas emissions (the second is the Effort Sharing Decision and Regulation<sup>7</sup>). The EU ETS covers, broadly, heavy industries and electricity installations (together known as "stationary installations"), as well as aviation<sup>8</sup>, encompassing all EU Member States plus Norway, Liechtenstein and Iceland. It is currently in its third phase (2013-2020). Its first two phases ran, respectively, from 2005-2007, and from 2008-2012. Phase 4 will run from 2021 until 2030.

**05** The EU ETS works as a "cap-and-trade" programme. Legislation defines the annual maximum number of allowances available (the "cap") and a market is created

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<sup>3</sup> EEA, [Trends and Projections in Europe 2019: Tracking progress towards Europe's climate and energy targets](#), 2019, p. 7.

<sup>4</sup> UNEP, [Emissions Gap Report 2019](#), 2019, p. 5.

<sup>5</sup> Idem, p. XVI.

<sup>6</sup> COM(2018) 773 final – "A clean planet for all: a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy".

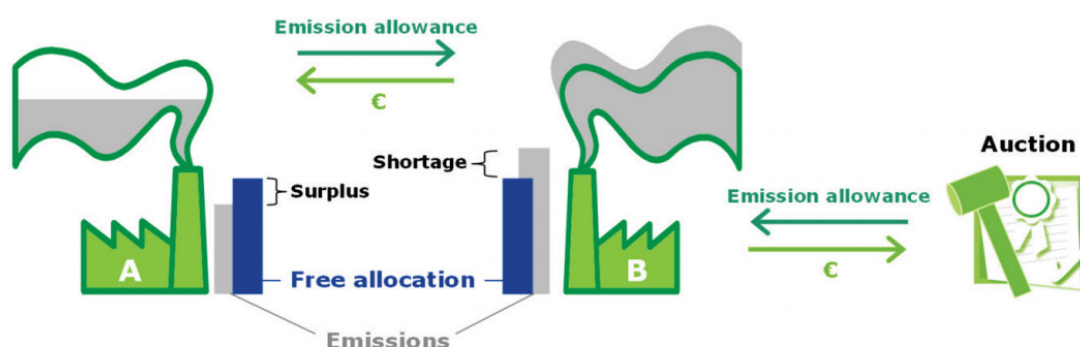
<sup>7</sup> Governed by [Decision No 406/2009/EC](#) of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, and by [Regulation \(EU\) 2018/842](#) on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

<sup>8</sup> Categories of activities as defined by Annex I of Directive 2003/87/EC.

where allowances are bought and sold. Operators need an allowance for each tonne of carbon dioxide equivalent emitted. Allowances are obtained either through auctions – where installations have to bid for them – or for free. Operators can also buy allowances on specialised markets, and from each other. The system is explained in [Figure 2](#).

## Figure 2 – The Emissions Trading Scheme

In this example, factory A receives more than enough free allowances to cover its emissions. It can decide to keep the surplus or sell them. Factory B does not receive enough free allowances to cover its emissions and must acquire the balance at auction, or from other operators (if it does not have a stock of allowances from previous years).



Source: ECA adapted from the European Commission's [EU ETS Handbook](#), 2015.

**06** The EU ETS is governed by a 2003 Directive<sup>9</sup> (EU ETS Directive) last amended in 2018, alongside with several Commission's Decisions and Regulations (see [Annex I](#)).

**07** Requiring operators to pay for their allowances through auctions respects the “polluter pays” principle and provides a stronger incentive for them to reduce GHG

<sup>9</sup> [Directive 2003/87/EC](#) of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union.

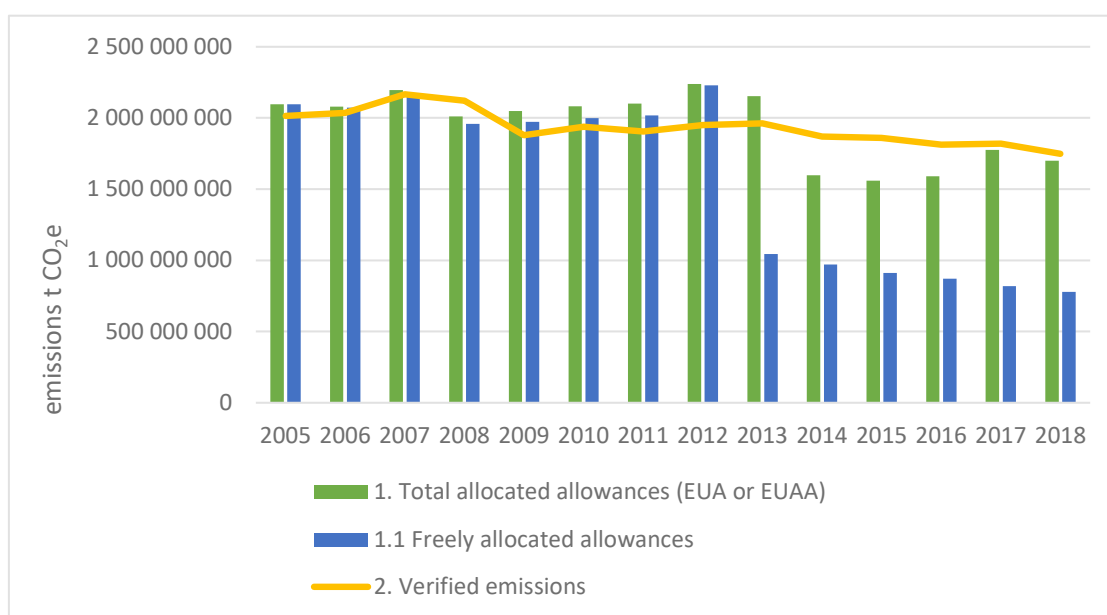


emissions, than providing free allowances<sup>10</sup>. Free allowances were to be allocated in a way that:

- (1) Reduced risks of **carbon leakage** (offshoring of production in a way that produces a rise in global GHG emissions);
- (2) Provided an incentive for **decarbonisation** (avoiding increases in GHG emissions<sup>11</sup>), through the application of free allocation benchmarks derived from the top performers in a given sector. This should encourage less efficient operators to improve their performance, while rewarding those that perform well.

**08** *Figure 3* shows how all greenhouse gas emissions covered by the EU ETS compare with allowances allocated either at auctions or for free. Until 2012, all sectors received most of their allowances for free.

**Figure 3 – Most allowances issued under the EU ETS have been for free**



Source: ECA, based on data from the EU ETS data viewer of the European Environment Agency.

<sup>10</sup> SWD(2015) 135 final – Commission Staff Working Document Impact Assessment Accompanying the document 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.

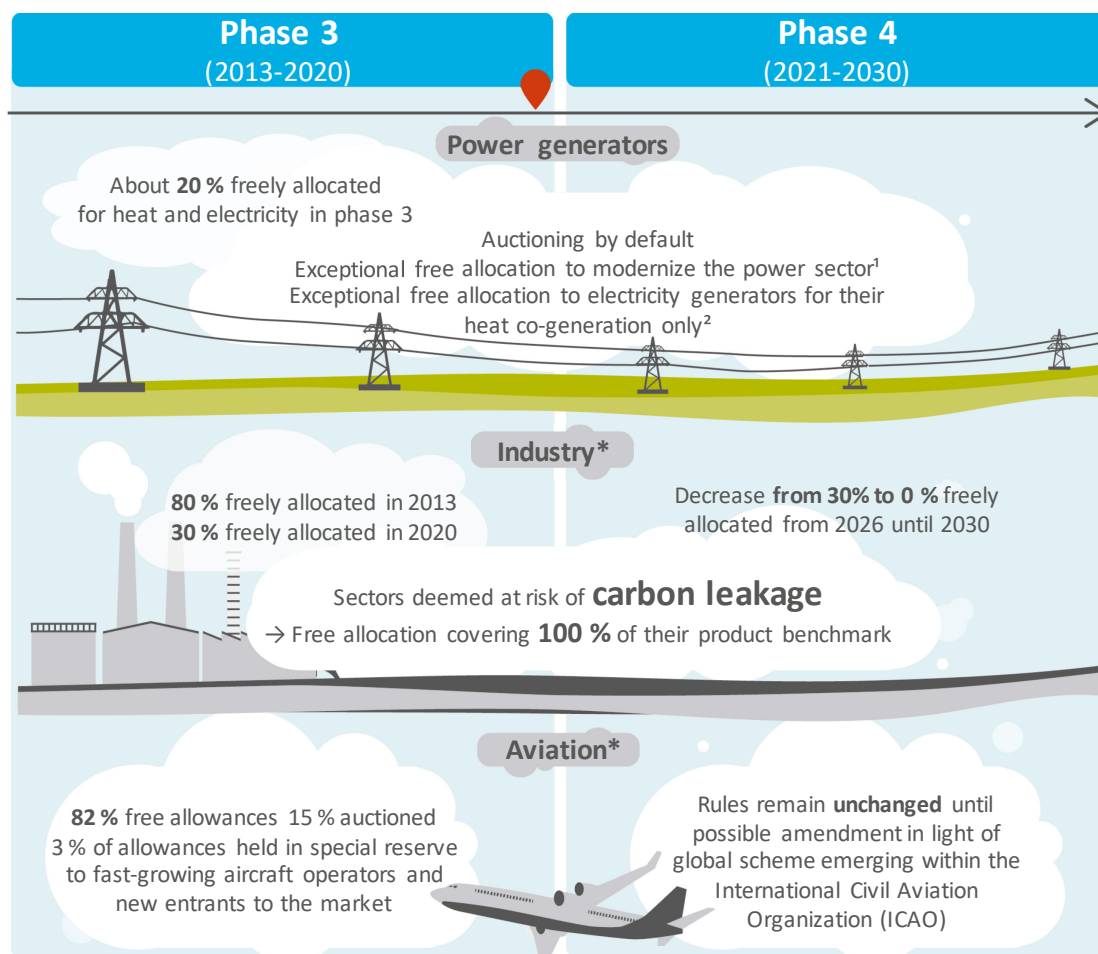
<sup>11</sup> Article 10a(1) of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union.

**09** Since 2013, the industrial and aviation sectors receive free allocation. Between 2013 and 2019, industry received over 5 000 million free allowances, and aviation received over 200 million free allowances<sup>12</sup>. For industrial sectors, the amount of allowances allocated for free decreases each year. The sectors classified as at risk of carbon leakage benefit from additional free allocation and, independently of how the installations in those sectors perform, they receive as many free allowances as the most efficient installation in line with the established benchmarks. The power sector only benefits from free allocation to help modernise the sector in specific Member States under specific conditions. *Figure 4* shows how free allowances are allocated.

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<sup>12</sup> Report from the Commission to the European Parliament and the Council on the functioning of the European carbon market, January 2020.

**Figure 4 – Proportion of free allowances per sector and per phase**



\* Categories of activities as defined by Annex I of Directive 2003/87/EC

<sup>1</sup> Article 10c of the ETS Directive

<sup>2</sup> Article 10a(4) of the ETS Directive

📍 ECA report

Source: ECA, based on ETS legislation.

**10** The free allocation of allowances was, in phases 1 and 2, based on historical emissions. This led<sup>13</sup> to an over allocation of allowances to many operators, in particular in light of the reduction in production caused by the 2008 recession. Under phase 3 (2013-2020), free allocation took account of product benchmarks, basing allocation on the performance of the most efficient operators. This aimed at providing an incentive for efficiency gains (i.e. lower emissions per unit produced) at the operator level, but may still allow an increase in emissions in the industrial sector if

<sup>13</sup> See, for example, “Post-2020 reform of the EU Emissions Trading System, European Parliament Research Service 2018; “Last Chance Saloon for the EU ETS”, Sandbag, 2016; or “The EU ETS phase IV reform; implications for system functioning and for the carbon price signal”, Oxford University for energy studies, 2018.

production levels grow. The choice of the sectors entitled to receive free allocations is in principle linked with the incapacity of some sectors to pass costs through to their customers (see [Box 1](#)).

### **Box 1 - What is “cost pass-through” for the EU ETS?**

Passing costs through means recognising the cost of the EU ETS in the price of a product.

The scope for passing through carbon costs in final product prices is a factor in the impact of the EU ETS on companies’ competitiveness.

If a sector can pass through the costs of EU ETS, then there is less justification for it to receive free allocation. This explains why the power sector mostly obtains its allowances via auctions, and not for free.

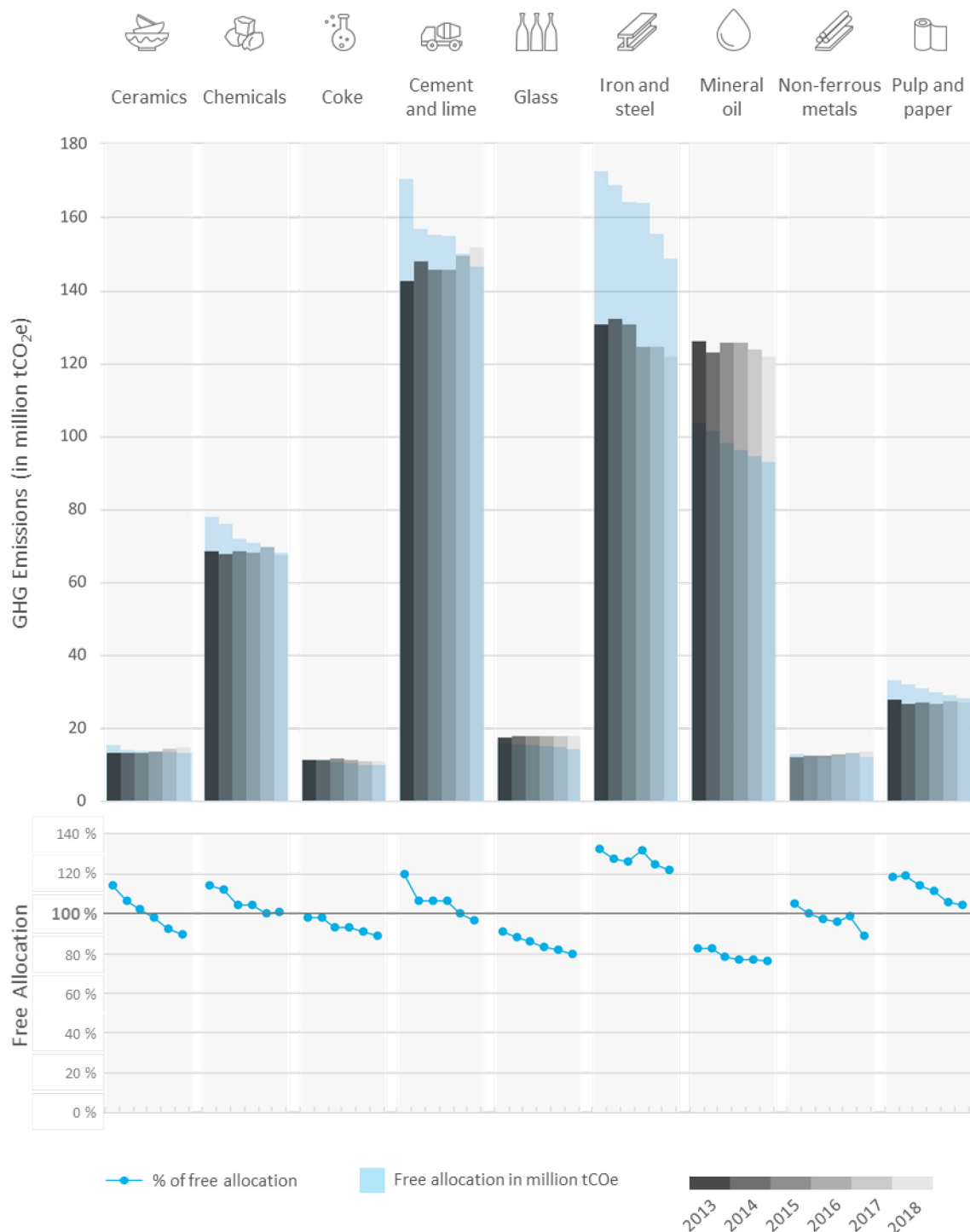
Even when installations receive their allowances for free, they can still pass on their notional carbon cost to their customers. The introduction of the EU ETS created, especially in its first two phases, windfall profits for many operators<sup>14</sup>.

**11** [Figure 5](#) shows that after the introduction of benchmarks in 2013 all industrial sectors continued to receive most of the allowances they needed to cover their emissions for free, and also that industrial emissions remained relatively stable. For some sectors, free allowances allocated exceeded emissions. This was due to the poor quality of the data used for the first established benchmarks and the limited alignment with the operator’s production volumes (see paragraph [48](#)).

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<sup>14</sup> EU ETS Handbook, p. 42.

**Figure 5 – Stable industrial emissions mostly covered by free allowances in phase 3 of the EU ETS**

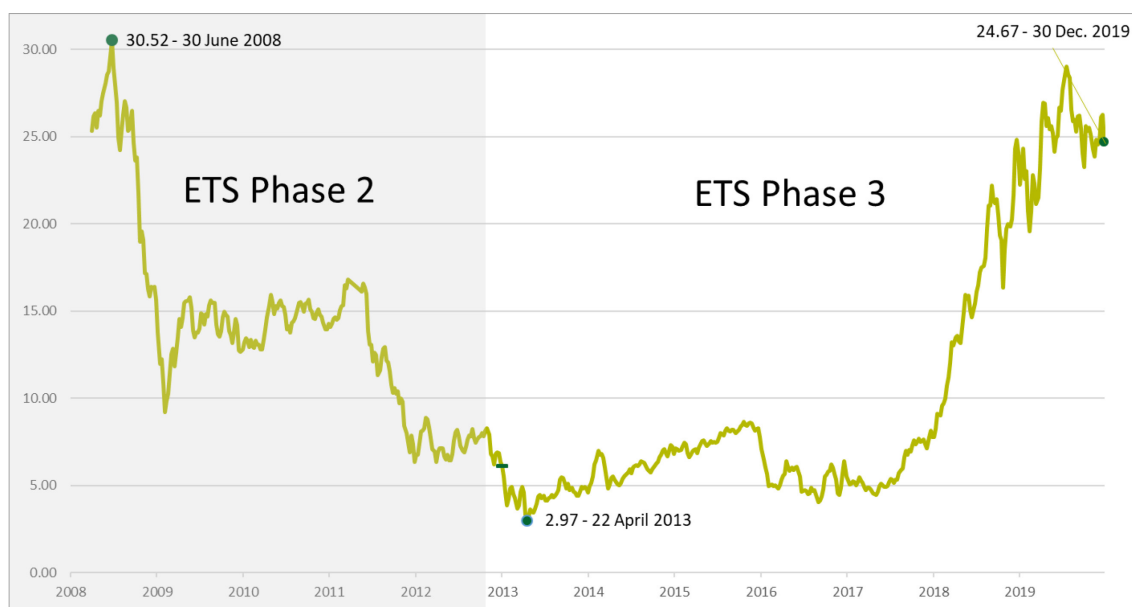


Source: ECA, based on data from the EU ETS data viewer of the European Environment Agency.

**12** Operators and investors trade allowances on both the primary and secondary markets, where price is influenced by the dynamics of supply (limited by the EU ETS' cap) and demand. The price signal should act as an incentive to reduce GHG emissions. In 2019, the lowest registered price of a European Union Allowance (EUA) stood at

€19.59 and the highest, at €29.03<sup>15</sup> (see [Figure 6](#)). Many experts have concluded that significantly higher carbon prices would be needed to provide the right incentives to reach the Paris Agreement's objectives<sup>16</sup>.

**Figure 6 – Price (in €) of European Emission Allowance (EUA) for EU ETS phases 2 and 3 (until 30 December 2019)**



*Note:* The EUA price rise observed from 2017 is attributed by the Carbon Tracker report “Carbon Countdown: Prices and Politics in the EU-ETS”, to the market’s anticipation of the start-up from January 2019 of the Market Stability Reserve (MSR), agreed in 2017.

*Source:* ECA, based on data from [Sandbag](#).

**13** The EU ETS Directive provides that at least half of the revenue from the auctioning of allowances must be used by Member States for climate and energy actions. According to data from the European Environment Agency (EEA), between 2013 and 2020 over 6.66 billion allowances were allocated for free under phase 3 (2013-2020) of the EU ETS. During this time, the prices of allowances fluctuated but increased from less than €3 to around €25. If more allowances for industry had been auctioned, Member States would have received significant additional revenues. The Commission has identified that Member States received €42 billion in auction receipts between 2012 and June 2019<sup>17</sup>.

<sup>15</sup> See [Sandbag Carbon Price Viewer](#).

<sup>16</sup> See “[Report of the High-Level Commission on Carbon Prices](#)”, by the carbon pricing leadership coalition, 2017, which identified prices of up to \$80 by 2020, and \$100 by 2030.

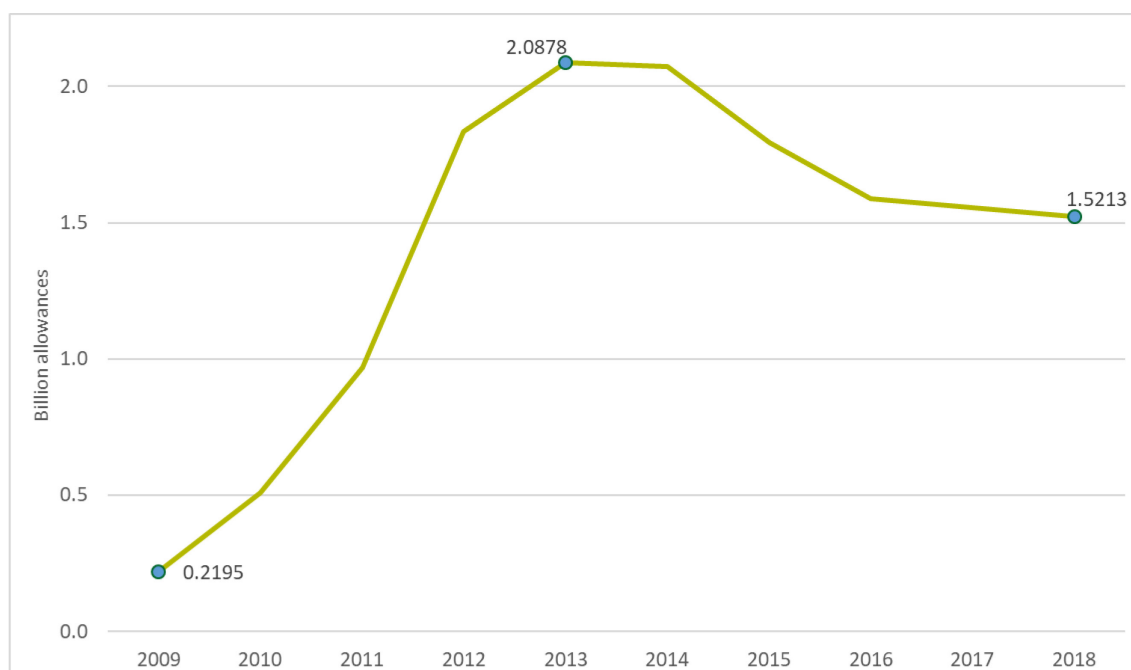
<sup>17</sup> Report from the Commission to the European Parliament and the Council on the functioning of the European Carbon market, COM(2019) 557 final of 31.10.2019.

## 14 The roles of the key actors in the EU ETS include:

- (1) The Commission overseeing action by Member States under the EU ETS Directive; devising rules for auctioning and the free allocation of allowances; providing guidelines on applying the Directive to Member States, operators, and third-party verifiers; and making legislative proposals on the EU ETS to the European Parliament and the Council.
- (2) Competent authorities in EU Member States checking and approving operators' emissions monitoring plans; inspecting operators; and accepting operators' verified emission reports, based on EU legislation and Commission guidance.
- (3) Operators subject to the EU's GHG emissions cap, obtaining and surrendering, each year, an amount of allowances corresponding to their emissions. Failure to surrender enough allowances results in a penalty of €100 per uncovered carbon dioxide equivalent (CO<sub>2</sub>e), plus additional penalties established at Member State level (according to harmonized provisions in the EU ETS Directive).
- (4) Third-party verifiers (approved by accreditation bodies in the Member States) checking and certifying operators' emissions data.

**15** From 2005 until 2012 (the first two phases of the EU ETS), almost all allowances were allocated for free. Each year the number of allowances allocated was greater than the amount needed to cover actual emissions, particularly when the economic downturn after 2008 kicked in, leading to increasing balances of allowances (see [Figure 7](#)) held by operators. This caused the price of allowances to tumble (see [Figure 6](#)), weakening the incentive of operators to reduce emissions. Many operators were able to rely on allowances previously received for free to comply in full with their surrendering obligations. Changes to the system in its 3<sup>rd</sup> phase largely eliminated this system-wide annual surplus.

**Figure 7 – Excess allowances accumulated in the EU ETS**



Source: ECA, with data from [Sandbag](#).

**16** The consolidated EU ETS Directive provides for the revision of certain provisions relating to phase 4 (2021-2030), in light of the following circumstances:

- (1) The global stocktake under the Paris Agreement, scheduled for 2023, where the parties to the agreement will assess their current commitments and ratchet up their efforts to meet the agreement's targets<sup>18</sup>.
- (2) The implementation of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), under the aegis of the International Civil Aviation Organization, a programme aimed at globally offsetting emissions from civil aviation (see [Box 4](#))<sup>19</sup>.
- (3) The potential adoption of carbon border adjustments on imports from third countries (see paragraph [40](#)).

<sup>18</sup> Article 30 of [Directive 2003/87/EC](#) of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union.

<sup>19</sup> Article 28b of [Directive 2003/87/EC](#) of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union.



In 2020 the Commission proposed a new European Climate Law<sup>20</sup> and planned to launch a public consultation on a carbon border adjustment mechanism. The Commission's communication on a European Green Deal dealt with the potential to amend the provisions governing the EU ETS.

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<sup>20</sup> Commission proposal for a regulation: European Climate Law.

## Audit scope and approach

**17** We examined whether the Commission's decisions on free EU ETS allowances provided a reasonable basis to encourage the reduction of GHG emissions. In particular we examined whether free allocation was:

- successfully used as a modernisation instrument for the power sector;
- targeted the sectors at highest risk of carbon leakage;
- used in a way that provided incentive to reduce GHG emissions and did not contribute to increase such emissions.

**18** As part of our audit work we:

- examined the Commission's proposals, guidelines, and other relevant reports;
- consulted relevant Member States authorities in Czechia, Germany, Poland and Sweden, as well as representatives from the industrial, power and aviation sectors, and non-governmental organisations;
- assessed the available records and reports on the operation of the EU ETS and of the free allowance mechanism;
- consulted an expert panel. Their expertise was used to assess preliminary findings on the effects of the free allowances system;
- surveyed competent authorities responsible for monitoring the EU ETS in all EU Member States, to collect relevant information on benchmarks and carbon leakage.

**19** The period covered by the audit is 2013-2019, thus covering phase 3 of the EU ETS and the legislation put forward for phase 4. The impact of the coronavirus epidemic on EU ETS prices, and the likely impact of the resulting economic downturn, has therefore not been covered by this audit.

**20** This report provides material which can feed into the planned review of the legislation, needed for the global stocktake scheduled for 2023 under the Paris Agreement (see paragraph [16](#)).

## Observations

### Free allowances brought uncertain results when used as a modernisation instrument for the power sector

**21** Free allowances for the electricity sector were allowed during phase 3 as a derogation to the general rule that this sector had to acquire its allowances by auction or on the market. These free allowances should support investments to modernise the power sector in the eight Member States applying the derogation. We looked at the changes in the allocation of free allowances between phases 3 and 4 and examined whether the power sectors in these Member States reduced their carbon footprint.

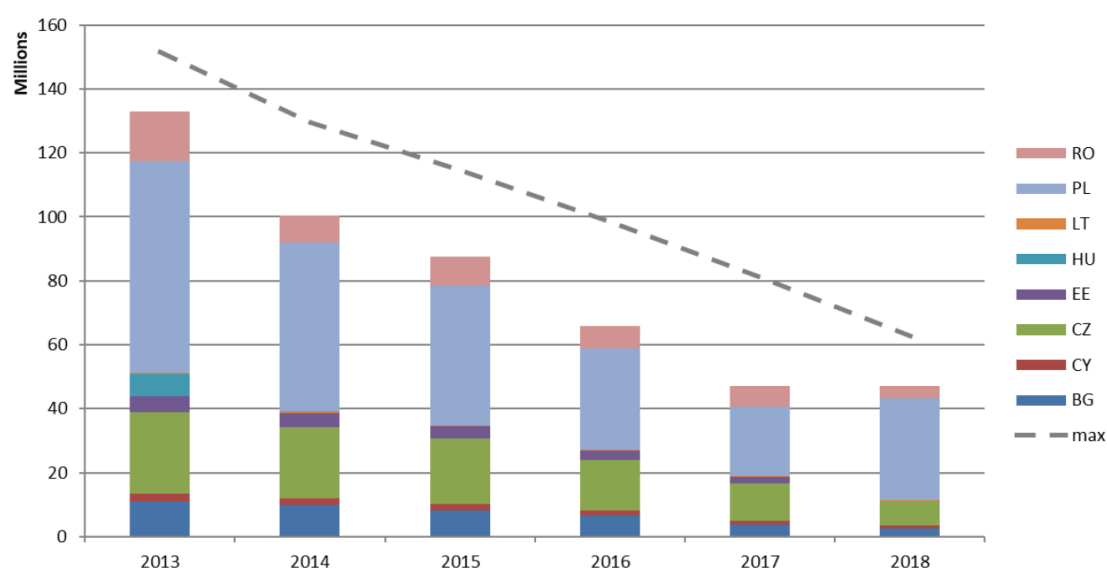
### Tighter conditions on the use of free allowances in the power sector apply from 2021

**22** The electricity sector is, since 2013, not entitled to receive free allocation, given that it can pass through costs to its consumers. A derogation<sup>21</sup> to this general principle was made for ten Member States which in 2013 had a GDP per capita below 60 % of the Union average. Eight of them used this derogation during phase 3 (see [Figure 8](#)). From 2013 to 2018, over 479 million allowances were freely allocated under this provision ([Figure 6](#) indicates the changing price of allowances). The aim of this free allocation was to contribute to modernise the electricity generation sector in these countries, some of which were heavily reliant on coal.

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<sup>21</sup> Article 10c of [Directive 2003/87/EC](#) of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union.

**Figure 8 – Allowances allocated for free for the modernisation of the power sector (on the basis of Article 10c)**



*Note:* The dotted line shows the maximum amount of free allowances that were available.

*Source:* European Commission.

**23** The Member States that intended to use the derogation had to send to the Commission an application meeting a number of requirements set out in the Directive and subsequent Commission guidance documents<sup>22</sup> (see [Box 2](#)). The Commission endorsed the Member States applications following several rounds of discussions between the Commission and the eight applicant Member States.

<sup>22</sup> Set out in: [Directive 2003/87/EC](#), Article 10c; Communication from the Commission “Guidance document on the optional application of Article 10c of Directive 2003/87/EC” ([2011/C 99/03](#)) and Commission Decision of 29 March 2011, [C\(2011\)1983 final](#).

### **Box 2 – Conditions on using free allowances for modernising electricity generation in phase 3**

Member States that intended to allocate free allowances on the basis of Article 10c of the EU ETS Directive had to provide to the Commission their proposed allocation methodology and demonstrate that the allocations would not create undue distortions of competition.

The value of the free allowances could not be used to increase capacity to supply a growing market demand. Where free allowances funded new capacity an equivalent amount of less-efficient electricity generation capacity had to be decommissioned.

Proposed investments had to form part of National Investment Plans. These plans had to show that the installations receiving investments were already operational at the end of 2008, and provide for diversification of the countries' energy mix through investments of at least the market value of the freely allocated allowances.

**24** In its 2014 conclusions on the climate and energy policy framework to 2030<sup>23</sup>, the Council recognised that free allocations to the power sector should be improved, to ensure that the funds were used to promote real investments modernising the energy sector. The revised Directive for phase 4 requires that competent authorities select investments following a compulsory bidding procedure (instead of the fixed national investment plans used for phase 3). For phase 4, of the ten eligible Member States, only Bulgaria, Hungary and Romania will provide free allowances to their power sectors.

### **Available data point to ineffective results of free allocation as a tool to modernise the power sector in phase 3**

**25** The investments resulting from the use of free allowances under Article 10c were expected to result in a decrease of the emission intensity of electricity production as well as a reduction in the absolute emissions. A study performed for the Commission in

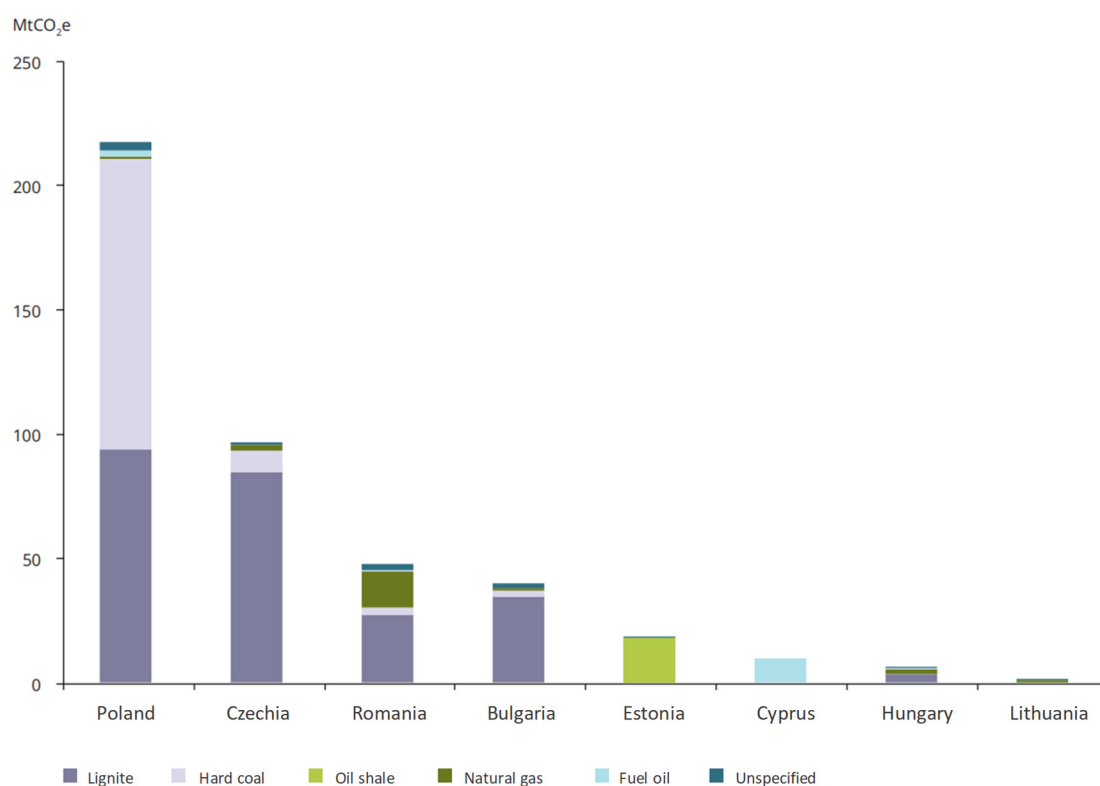
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<sup>23</sup> EUCO 169/14 – European Council (23 and 24 October 2014) – Conclusions.

2015 concluded that the effectiveness and efficiency of GHG reductions fostered by these investments could not be evaluated<sup>24</sup>.

**26** *Figure 9* shows that the majority of the revenues flowing from allowances allocated for free have been used to refurbish lignite and hard coal power plants, mainly in Bulgaria, Czechia, Poland and Romania.

**Figure 9 – Free allowances for the modernisation of electricity generation, by fuel type of the receiving power plant and by Member State, 2013-2017**



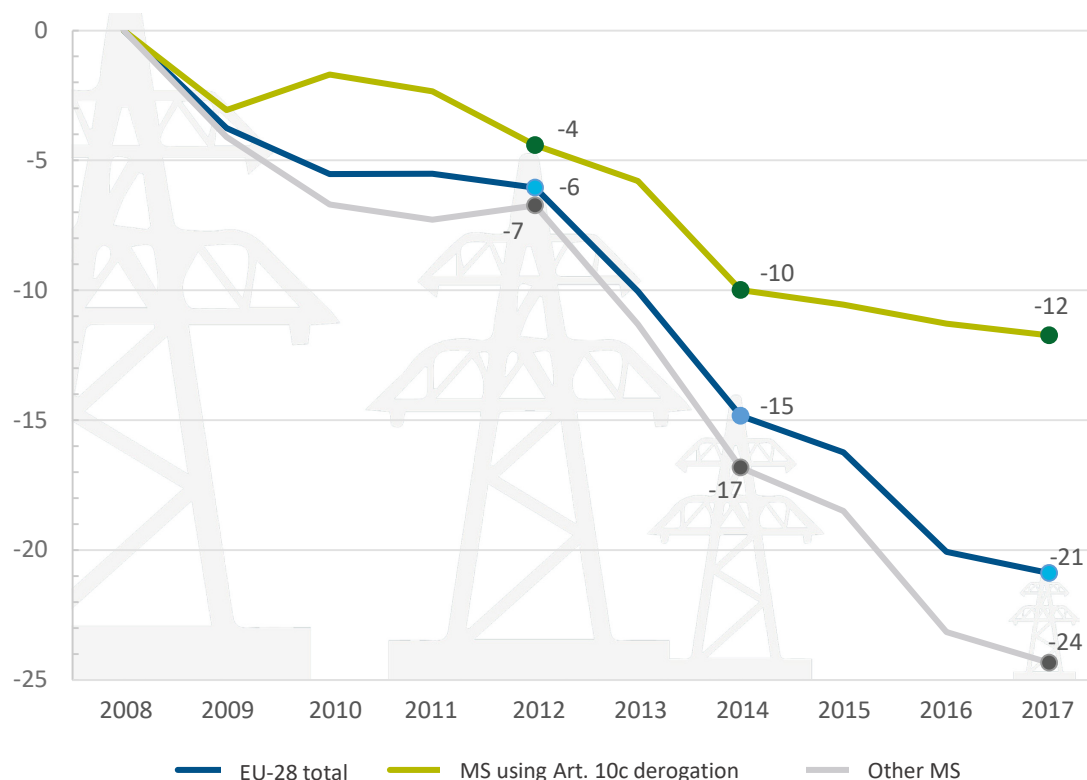
Source: European Environment Agency. [Trends and projections in the EU ETS in 2018](#).

**27** We assessed the reduction of carbon intensity for the power sector for countries eligible for free allocation of allowances under Article 10c and compared it with the same data for countries not benefitting from free allocation (see *Figure 10*). The results show a much lower decrease in terms of carbon intensity for the Member

<sup>24</sup> Environment Agency Austria (Umweltbundesamt). [Evaluation of the EU ETS Directive: Carried out within the project “Support for the Review of the EU Emissions Trading System”](#). European Commission, 2015.

States that received free allowances to modernise the power sector. Recent research<sup>25</sup> on the reduction of coal as a basis for power generation in 2019 confirms this trend.

**Figure 10 – Change in carbon intensity of the power sector in relation to 2008 (in %)**



Source: ECA, calculated based on data from Eurostat and Sandbag.

**Free allocation of allowances to industry and aircraft operators took limited account of the ability to pass on costs, and tended to slow decarbonisation**

**28** The EU ETS Directive provides that the free allocation of allowances is a “transitional and exceptional” derogation from<sup>26</sup> the default option of auctioning (see

<sup>25</sup> Sandbag. *The Great Coal Collapse of 2019 – Mid-year analysis of the EU power sector*.

<sup>26</sup> Articles 10a, 10b and 10c of Directive 2003/87/EC of the European Parliament and of the Council 13 October 2003, establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC. See also [https://ec.europa.eu/clima/policies/ets/allowances\\_en](https://ec.europa.eu/clima/policies/ets/allowances_en).

**Figure 4).** Free allocation should be targeted at those sectors most exposed to international competition and least able to pass through carbon costs to customers.

### **Free allocation to industry and aircraft operators did not reflect sectoral capacity to pass through costs**

**29** As noted above, with the exception of ten lower income Member States (see paragraph 21), the EU ETS excluded the electricity sector from the allocation of free allowances because this sector was able to pass costs through to its customers and was therefore not at risk of carbon leakage. We found that the allocation of free allowances to other sectors was not always consistent with their capacity to pass on costs:

- The aviation sector receives free allowances. However, this sector can pass EU ETS costs through to customers. The 2006 impact assessment preceding the inclusion of aviation within the EU ETS<sup>27</sup> confirmed this.
- The Commission impact assessment for the revision of the EU ETS for phase 4 provides<sup>28</sup> information concerning cost pass through rates for different industrial sectors. The Commission has not proposed to modulate the amount of free allowances allocated to any sector.

**30** When free allocation is not properly targeted, this can result in situations where sectors may pass through carbon costs even when receiving free allowances. As a result “free allowances imply a financial transfer from consumers (or client industries) to energy-intensive industries, which would give rise to what is often referred to as

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<sup>27</sup> (SEC)2006 1684 – Commission Staff Working Document Accompanying document to the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community - Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community {COM(2006) 818 final} {SEC(2006) 1685}.

<sup>28</sup> P. 199, Table 32, of SWD(2015) 135 final – Commission Staff Working Document Accompanying the document 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.



‘windfall profits’<sup>29</sup>. The impact assessment accompanying the Commission’s 2014 proposal acknowledges<sup>30,31</sup> that free allocation can reduce incentives for installations to cut emissions and that sectors which get allowances for free can pass through some of their costs.

**31** In its 2014 conclusions<sup>32</sup>, the European Council agreed that the share of allowances to be auctioned under the EU ETS post-2020 should not be reduced. The Commission proposed auctioning the same share of allowances as in phase 4 as in phase 3<sup>33</sup> (57 %). The legislator then introduced<sup>34</sup> the possibility to increase the amount of available free allowances up to 3 % if necessary (see the “free allocation buffer” in [Figure 11](#)). The legislator has power to decide when to apply this increase. This clause was not part of the Commission’s impact assessment nor of the Commission’s proposal. The result is that around 40 % of the allowances will still be allocated for free in phase 4.

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<sup>29</sup> [Ex-post investigation of cost pass-through in the EU ETS](#). CE Delft and Oeko-Institut. November 2015.

<sup>30</sup> [Memo/08/35](#) – Questions and Answers on the Commission’s proposal to revise the EU Emissions Trading System.

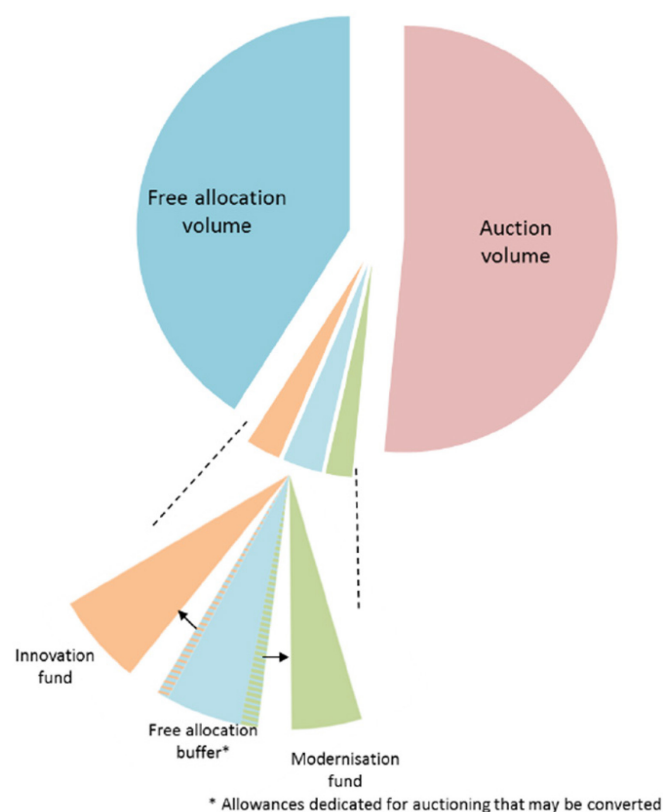
<sup>31</sup> Pp. 83-90 of [SWD\(2014\) 15 final](#) – Commission Staff Working Document – Impact Assessment Accompanying the document “Communication of the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A policy framework for climate and energy in the period from 2020 up to 2030.

<sup>32</sup> [EUCO 169/14](#) – European Council (23 and 24 October 2014) – Conclusions.

<sup>33</sup> [COM\(2015\) 337 final](#) – 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.

<sup>34</sup> Article 1(14)(e) of [Directive \(EU\) 2018/410](#) of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814.

**Figure 11 – Around 40 % of the allowances will still be allocated for free in phase 4**



Source: [COM\(2018\) 842 final](#): Report from the Commission to the European Parliament and the Council. Report on the functioning of the European carbon market.

## Sectors producing over 90 % of industrial emissions received all or most of their allowances for free

**32** The EU ETS uses the free allocation of allowances to mitigate the risk of carbon leakage (see paragraph 07). Carbon leakage “refers to the possible increase in global greenhouse gas emissions if, because of costs related to climate policies in the EU, businesses were to transfer production to other countries where industry is not subject to comparable climate policies”<sup>35</sup>. The risk of carbon leakage exists because of differences in the cost of carbon within the EU, and between the EU and third countries.

<sup>35</sup> Page 4 of [SWD\(2019\) 22 final](#), Commission Staff Working Document – Impact Assessment Accompanying the document “Commission Delegated Decision supplementing Directive 2003/87/EC of the European Parliament and of the Council concerning the determination of sectors and subsectors deemed at risk of carbon leakage for the period 2021 to 2030”.

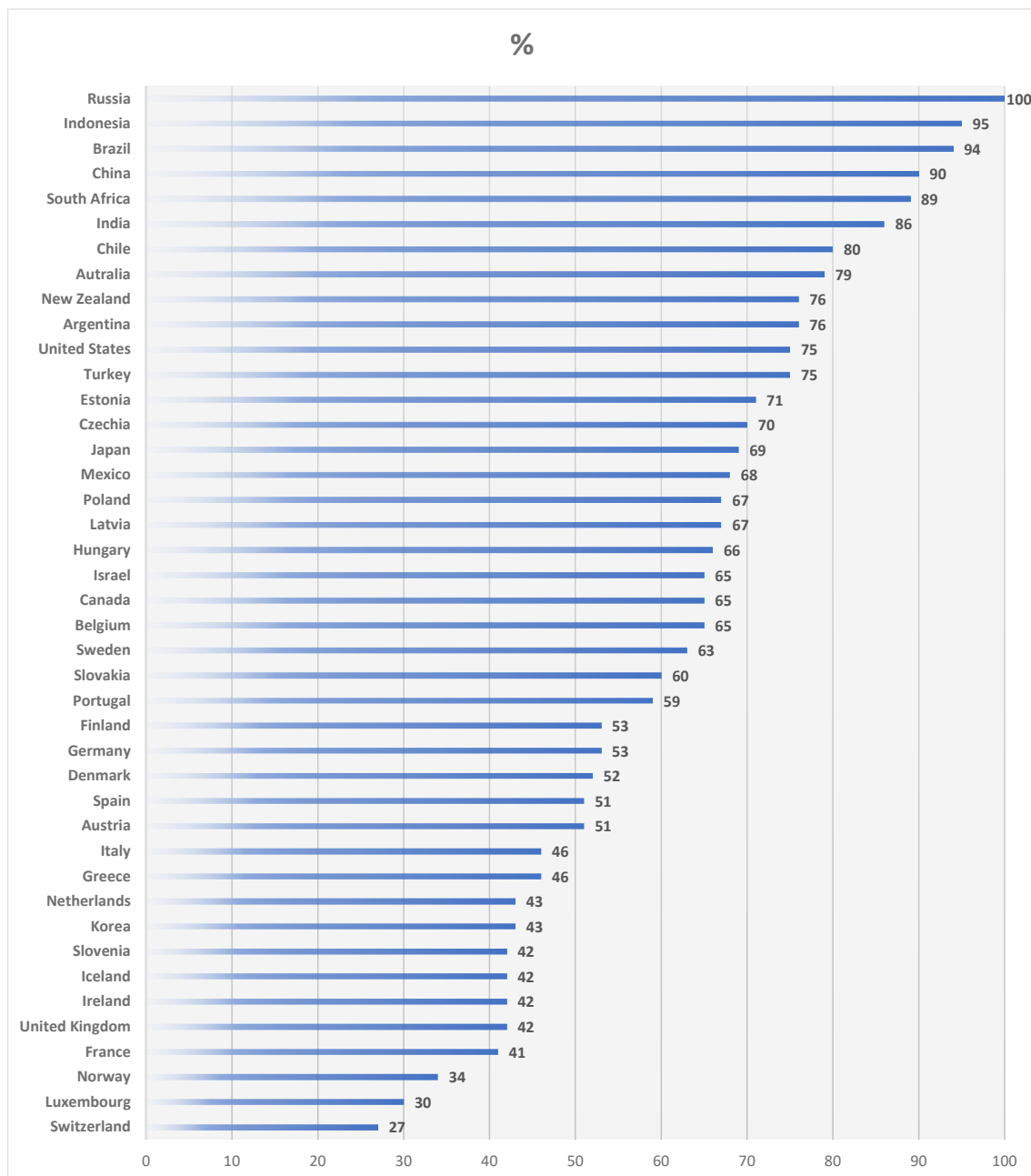
**33** According to the OECD (see [Figure 12](#)) carbon costs vary significantly between states. For example, overall carbon costs in most EU Member States were lower than in Switzerland and Norway; but higher than the USA and China. A study paid for by the European Commission has found no evidence of carbon leakage<sup>36</sup>, although other studies argue that carbon leakage has not happened precisely because of the free allocation of allowances<sup>37</sup>. Given that carbon leakage can translate into fewer jobs and investments in the EU, it has economic and social implications.

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<sup>36</sup> Bolscher, Hans; Graichen, Verena; Hay, Graham; Healy, Sean; Lenstra, Jip; Meindert, Lars; Regeczi, David; Von Schickfus, Marie-Theres; Schumacher, Katja; Timmons-Smakman, Floor. [Carbon Leakage Evidence Project: Factsheet for selected sectors](#). Ecorys. Rotterdam, p. 11. September 2013.

<sup>37</sup> Montenegro, Roland; Fahl, Ulrich; Zabel, Claudia; Lekavičius, Vidas; Bobinaitė, Viktorija; Brajković, Jurica. [D3.2 - Case study on carbon leakage and competitiveness](#). REEEM Project 2018.

**Figure 12 – Carbon pricing gap for OECD and G20 countries, 2015**



*Note:* The **carbon pricing gap** measures how much countries fall short of pricing carbon emissions in line with a €30/t benchmark value (low-end estimate carbon cost estimated by the OECD in 2018).

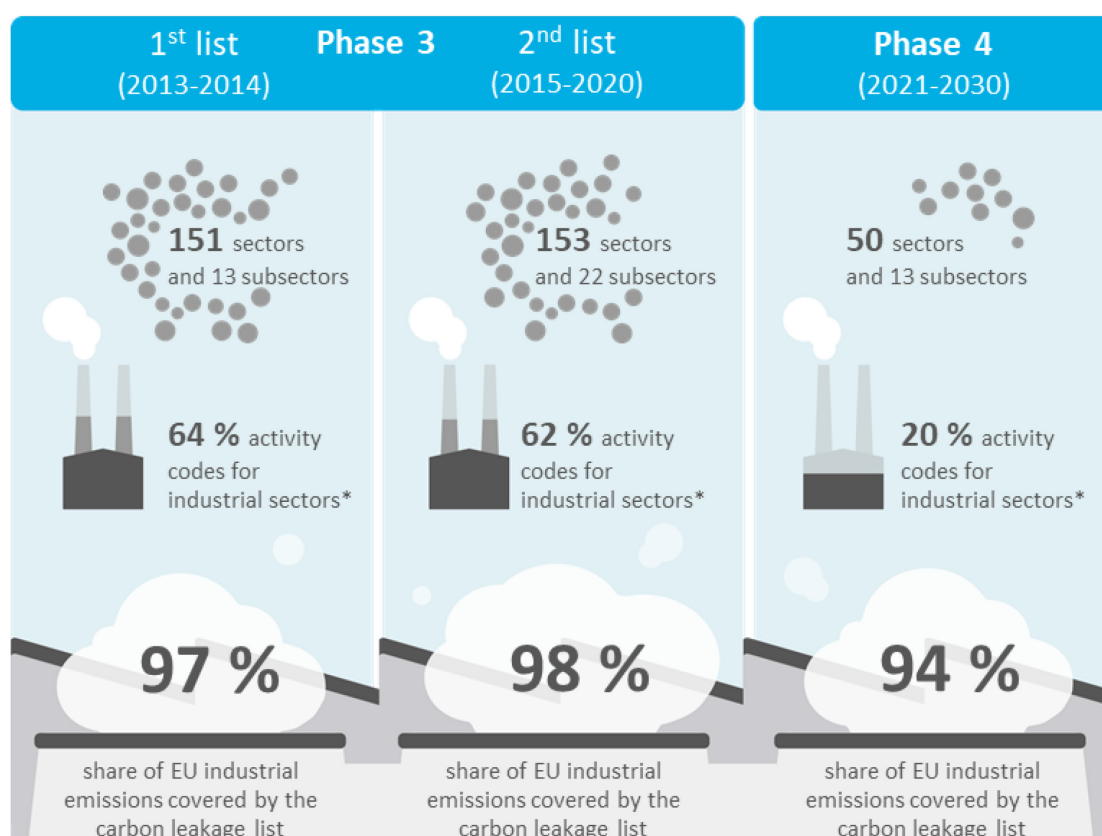
The difference between the benchmark value and the actual effective carbon rate (ECR) is presented as percentage: if the ECR on all emissions is at least as high as the benchmark, the gap is zero, and if the ECR is zero throughout, the gap is 100 % (e.g. Russia).

*Source:* ECA, based on OECD data in Effective Carbon Rates 2018.

**34** The free allocation of allowances deals with the risk of carbon leakage by reducing the costs of compliance faced by the operators covered by the EU ETS. These allowances thus help them to remain competitive against producers based in third countries.

**35** Industrial operators from sectors considered at risk of carbon leakage benefit from free allocation based on the product benchmarks mentioned in paragraph 42 each year – unlike other sectors (not considered at risk of carbon leakage), which see their free allowances progressively reduced (see [Figure 4](#)) to zero. For phase 4, and following Commission proposals, the share of industrial sectors considered at risk of carbon leakage was substantially reduced. But these sectors still represent 94 % of EU industrial emissions (see [Figure 13](#)). The carbon leakage list does not establish different degrees of carbon leakage risk for the various sectors included in it, treating all of them equally (see [Box 3](#) for a comparison with other ETS systems).

**Figure 13 – General information on EU ETS carbon leakage lists**



\* The percentage indicated refers to the number of industrial sectors in the Statistical Classification of Economic Activities in the European Community (NACE), and does not provide any information on industrial production or industry size.

Source: ECA, based on EU legislation and European Commission data.

### Box 3 - Carbon leakage risk in other Emissions Trading Schemes

The EU ETS treats equally all sectors that are deemed to be at risk of carbon leakage. This means that all sectors included in the EU ETS carbon leakage list benefit from free allocation based on 100 % of the relevant benchmark.

In comparison, the ETS systems in place in the US state of California and in the Canadian province of Québec adopt a carbon leakage list with sectors classified under high, medium, and low risk of carbon leakage<sup>38</sup>.

**36** The EU ETS legislation uses emissions intensity and trade intensity as criteria for assessing the risk of carbon leakage. The impact assessment for the revision of the EU ETS for the upcoming phase 4 also looked into the pass-through rates (see [Box 1](#)) for different sectors<sup>39</sup>, but the Commission did not include this among the criteria for assessing carbon leakage risk<sup>40</sup>, in its proposals for phase 4.

**37** The lack of targeting of free allowances for carbon leakage means that under current arrangements most allocations of free allowances will not be reduced to zero before 2030 – which is the default for free allowances (see [Figure 4](#)).

**38** An OECD study on the first ten years of the EU ETS, published in 2018, found that sectors considered at risk by the European Commission “indeed operate in fiercely competitive markets and face difficult economic times”. But it also found that “companies regulated under the EU ETS performed relatively better than their non-ETS counterpart (...) (which) indicates that the distribution of free allowances may have more than compensated EU ETS firms at risks for the induced carbon abatement costs

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<sup>38</sup> More information on California and Québec available, respectively, at:  
<https://ww3.arb.ca.gov/cc/capandtrade/allowanceallocation/allowanceallocation.htm>;  
<http://www.environnement.gouv.qc.ca/changements/carbone/mecanismes-protoger.htm>.

<sup>39</sup> Pp. 193-202 of [SWD\(2015\) 135 final](#) – Commission Staff Working Document Impact Assessment Accompanying the document 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.

<sup>40</sup> [COM\(2015\) 337 final](#) – 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.

of the regulation”<sup>41</sup>. A more targeted distribution of free allowances would therefore have addressed the risk of carbon leakage, reduced windfall profits, and (by increasing the share of allowances auctioned) improved public finances.

### **The Commission examined but did not propose other approaches to mitigate the risk of carbon leakage caused by EU ETS**

**39** The Commission looked into alternatives to free allocation to address carbon leakage in the 2008 Impact Assessment for the phase 3 revision<sup>42</sup>, and in a 2010 Commission communication on ways to increase emission reductions and assess carbon leakage<sup>43</sup>, but did not make specific proposals. In particular, in 2014, when assessing the possible policy framework for climate and energy in the period from 2020 up to 2030, the Commission assessed the situation of carbon leakage in the EU and proposed pathways to address it, all of which relied exclusively on free allocation<sup>44</sup>. A key alternative to free allocation, currently under discussion by the Commission, is using carbon border adjustments to equalize GHG costs of imports with those of domestic production<sup>45</sup>.

**40** Carbon border adjustments would include the cost of carbon mitigation in imports originating from places without climate policies comparable to the EU ETS,

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<sup>41</sup> [The joint impact of the European Union Emissions Trading System on carbon emissions and economic performance](#). ECO/WKP(2018)63; Economics department working papers No. 1515. By Antoine Dechezleprêtre, Daniel Nachtigall and Frank Venmans.

<sup>42</sup> Section 5.6.3 of [SEC\(2008\) 52](#) – Commission Staff Working Document Accompanying document to the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system – Impact Assessment.

<sup>43</sup> [COM\(2010\) 265 final](#) – Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage.

<sup>44</sup> Section 5.5 of [SWD\(2014\) 15 final](#) – Commission Staff Working Document – Impact Assessment accompanying the document “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions ‘A policy framework for climate and energy in the period from 2020 up to 2030’”.

<sup>45</sup> Claeys, Grégory; Tagliapietra, Simone; Zachmann, Georg; [How to make the European Green Deal work](#). Policy Contribution. n. 13. November 2019. Bruegel, Brussels, p. 6.

thus mitigating the risk of carbon leakage (although it would not address costs embedded in EU exports to third countries). The 2015 Impact Assessment accompanying the Commission's original legislative proposal for phase 4 of the EU ETS found that there were no plausible alternatives to the benchmarking system to address carbon leakage. It noted that a border tax was a significantly less appropriate tool, pointing to potential conflicts with multilateral trade rules and negative reactions by third countries<sup>46</sup>. However, the Directive for phase 4 mentions that free allocation of allowances could be replaced by, adapted, or complemented by carbon border adjustments<sup>47</sup>. The communication on the "European Green Deal" proposes moving forward with a proposal for a "Carbon Border Adjustment" if significant differences in carbon prices persist<sup>48</sup>.

## **Benchmarking used to allocate free allowances is progressively improving incentives to reduce emissions**

**41** In line with the EU ETS Directive, free allowances under phase 3 were to be allocated in a manner that provides incentives for reduction of GHG emissions. The rules governing this allocation should not contribute to an increase in GHG emissions.

### **The approach based on benchmarks provided incentives to reduce greenhouse gas emissions**

**42** From phase 3 onwards, the amount of free allowances that each operator receives is calculated using product-specific benchmarks, (or where this is not possible, by a fall-back approach linked to the use of heat and fuel). In line with the EU ETS

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<sup>46</sup> P. 139 of [SWD\(2015\) 135 final](#) – Commission Staff Working Document Impact Assessment Accompanying the document 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.

<sup>47</sup> Recital 24 of [Directive 2018/410](#) of the European Parliament and of the Council of 14 March 2018.

<sup>48</sup> Section 2.1.1 of [COM\(2019\) 640 final](#) – Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal.



Directive<sup>49</sup>, the Commission used benchmarks to ensure “that allocation takes place in a manner that provides incentives for reductions in greenhouse gas emissions and energy efficient techniques, (...), and shall not provide incentives to increase emissions”.

**43** Product benchmarks are set as the average emission level of the 10 % most efficient installations within each sector. In this way, “installations that are highly efficient should receive all or almost all of the allowances they need to comply with EU ETS obligations. Inefficient installations have to make a greater effort to cover their emissions with allowances, either by reducing emissions or by purchasing more allowances (...)”<sup>50</sup>.

**44** The use of benchmarks is widely accepted as an improvement on the system used in previous EU ETS phases, when allocation was based on historical GHG emissions<sup>51</sup>. The approach based on benchmarks provides stronger incentives to reduce emissions in the production process.

### **The effective use of benchmarks faces some technical challenges**

**45** Free allocation benchmarks currently do not fully account for indirect emissions in supply chain linkages. This can be problematic in some sectors if some installations are able to reduce their apparent emissions intensity (but retain free allocation levels) by replacing direct (onsite) emissions with indirect emissions<sup>52</sup>.

**46** GHG emissions caused by burning biomass are not included when calculating the allowances that an operator is requested to surrender (see paragraph **05**). Industrial installations which use biomass therefore typically receive more free allowances than they need to surrender. In addition, operators producing electricity with biomass do not have to surrender allowances for the emissions generated from this fuel. The EU

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<sup>49</sup> Article 10a(1), second paragraph of [Directive 2003/87/EC](#) of the European Parliament and of the Council 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC.

<sup>50</sup> [EU ETS Handbook](#), p. 41.

<sup>51</sup> See e.g. [Position paper on benchmarking and allocation rules in phase III of the EU Emissions Trading System](#), CAN Europe, February 2010.

<sup>52</sup> Zipperer, V., Sato, M., and Neuhoﬀ, K. (2017) [Benchmarks for emissions trading – general principles for emissions scope](#). GRI working paper.

ETS system does not impose any sustainability criteria for this type of fuel. The revised Renewable Energy Directive (RED II) included sustainability criteria for biomass<sup>53</sup>, with the rationale that only sustainable bioenergy that reduces GHG emissions compared to fossil fuels is eligible for financial support. The Commission has not proposed changes to EU ETS rules to limit free allocation to operators using biomass meeting the RED II criteria.

**47** The application of the polluter pays principle and the users pay principle to carbon costs can provide incentives for producers and consumers to modify their behaviour and reduce emissions. The impact assessment for phase 4 of the ETS recognised that free allocation does not fit well with the polluter pays principle<sup>54</sup>: the incentive to lower emissions that this principle brings is reduced when allowances are given for free.

**48** For phase 4, in 2014 the Council agreed<sup>55</sup> that, in order to avoid windfall profits, the level of allocation had to be better aligned with the operators' production volumes. In 2015 the Commission proposed a method for updating the benchmarks, which would allow this dynamic allocation in line with the operator's production volumes. In doing so, the Commission proposal considered several criteria (e.g. better alignment with production levels, no increase of administrative complexity).

### **Phase 4 of the EU ETS is expected to provide better information on incentives to decarbonise**

**49** The EU ETS legislation sets out obligations of installations, verifiers and Member States to reliably calculate free allowances and report emissions data<sup>56</sup>.

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<sup>53</sup> As laid down in Article 29(2) to (7) of [Directive \(EU\) 2018/2001](#) of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

<sup>54</sup> [SWD\(2015\) 135 final](#) – Commission Staff Working Document Impact Assessment Accompanying the document 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.

<sup>55</sup> [EUCO 169/14](#) – European Council (23 and 24 October 2014) – Conclusions.

<sup>56</sup> [Commission Regulation \(EU\) No 601/2012](#) of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council.

The Commission can also rely on the EU ETS compliance reviews and the EU ETS compliance forum to ensure that information on emissions is accurate. The current legislation does not provide for the collection of information to assess whether the free allocation of allowances has resulted in greater energy efficiency by installations. The Commission has therefore not yet made such an assessment. The revised EU ETS Directive establishes<sup>57</sup> that installations receiving free allocation in phase 4 will need to submit data on production activity as part of the National Implementation Measures (NIMs). According to the Commission, this data will enable it to assess the results of free allowances in providing incentives for industrial sectors to decarbonise.

### Free allocation of allowances favoured air travel over rail travel

**50** Free allocation of allowances aims at preventing carbon leakage and avoiding an increase in global GHG emissions from activity shifting from the EU towards third countries. Within the EU, we noted that free allocation of allowances can support carbon-intensive air travel, to the detriment of rail transport.

**51** Aviation operators receive free allowances, and must surrender allowances to cover their emissions originating from flights within the EU (plus Norway, Iceland, and Liechtenstein). At the prices for EU ETS allowances prevailing during phase 3, the additional cost per passenger is limited: between €0.3 to €2 per passenger for most of the flights set out in [Table 1](#). Rail transport is not included in the EU ETS, but electrified rail pays for the EU ETS costs passed through from the power generation sector (and 54 % of the EU rail network was electrified by 2016<sup>58</sup>).

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<sup>57</sup> Article 11 of [Directive 2003/87/EC](#) of the European Parliament and of the Council 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC.

<sup>58</sup> Page 2 of [COM\(2019\) 51 final](#), Report from the Commission to the European Parliament and the Council – Sixth report on monitoring development of the rail market.

**Table 1 – Estimated average emissions per passenger by plane and by train for the ten busiest air routes covered by the EU ETS**

Route (ordered by No of scheduled flights)	No of scheduled flights (03/2018 – 02/2019)	Estimated average emissions by plane (kg per passenger)	Estimated average emissions by train (kg per passenger)
Barcelona – Madrid	18 812	115.40	17.00
Frankfurt – Berlin Tegel	17 591	104.50	15.00
Paris Orly – Toulouse	17 081	120.50	5.70
Oslo – Trondheim	16 940	131.90	0.50
Bergen – Oslo	16 451	119.70	0.44
Amsterdam – London Heathrow	13 115	124.70	13.30
Stockholm – Oslo	12 841	139.60	1.30
Stockholm – Copenhagen	12 679	108.90	2.70
Copenhagen – Oslo	12 383	110.50	2.90
Lisbon – Madrid	11 843	109.30	21.70

*Note:* Calculation of train emissions take into account the power sources along the train routes. Plane emissions are based on average load factors between 71 and 80 %, depending on the route. Train emissions are calculated based on a default load factor of 35 %, except when specific load factor information is available for a given route. Actual emissions figures may vary depending on factors such as airplane model, actual number of passengers in the flight, and flight path used.

*Source:* Elaborated by ECA with data from [Ecopassenger](#) (for emissions figures) and from [OAG](#) (for number of flights).

**52** The International Energy Agency reported in 2019 that rail is one of the most efficient and lowest emitting modes of transport<sup>59</sup>. Most intra-EU flights cover a distance of less than 1 000 km<sup>60</sup>, for many of which trains could be a less carbon-intensive alternative wherever rail infrastructure already exists (see [Table 1](#)). However,

<sup>59</sup> IEA (2019), “[The Future of Rail](#)”, IEA, Paris.

<sup>60</sup> Alonso, G.; Benito, A.; Lonza, L.; Kousoulidou, M. [Investigations on the distribution of air transport traffic and CO<sub>2</sub> emissions within the European Union](#). *Journal of Air Transport Management*. v. 36, pp. 85-93, April 2014, p. 92.

emissions from rail infrastructure construction also need to be taken into account when assessing rail transport's potential contribution to decarbonisation<sup>61</sup>.

**53** To address global aviation GHG emissions, the International Civil Aviation Organisation (ICAO) has devised the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), which will require aviation operators worldwide to offset their emissions through reductions in other sectors (see **Box 4**). Offsetting entails investment in emissions reductions in other sectors, rather than in the aviation sector itself.

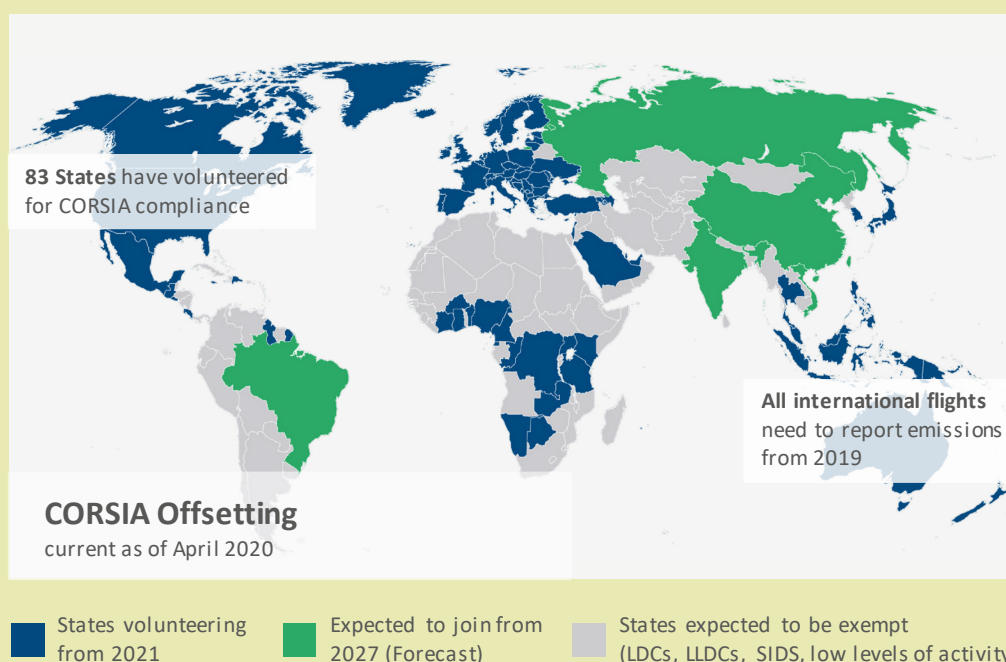
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<sup>61</sup> Timperley, Jocelyn. [Eight charts show how 'aggressive' railway expansion could cut emissions](#). Carbon Brief, 2019.

### Box 4 - CORSIA and the challenge of globally decarbonising civil aviation

The ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) will be voluntary from 2021 until 2026, and mandatory from 2027 to most States with significant civil aviation sectors<sup>62</sup>. It will rely on emissions offsets rather than allowances, with emissions compensated by reductions elsewhere.

**Figure 14 – CORSIA Programme coverage**



Source: ECA, based on data from the Air Transport Action Group (ATAG).

Actual decarbonisation of civil aviation is challenging. Alternative fuels meeting the current standards, but made from plants or algae, or synthesised from other non-fossil materials, are usable in current planes, but currently have a limited supply and are more expensive than regular fuels. Electrification can reduce operational costs, but current battery technology only allows for very short distance flights. Hydrogen is an option (in 1988, a Soviet manufacturer successfully flew a hydrogen-powered commercial airliner<sup>63</sup>), but it would require new infrastructure, major adaptation of current planes, and changes to future plane designs.

<sup>62</sup> ICAO Assembly Resolution A40-19.

<sup>63</sup> Van Zon, N., *Analysis of the technical feasibility of sustainable liquid hydrogen powered commercial aircraft in 2040*, 2018, TU Delft, p. 1. See also Browne, M. W., "Clean Hydrogen Beckons Aviation Engineers", *The New York Times*, 24 May 1988.

## Conclusions and recommendations

**54** This audit concentrated on the role of free allocation of allowances within the EU ETS. Our main audit question was “Did decisions on free Emissions Trading System allowances provide a reasonable basis to encourage the reduction of greenhouse gas emissions?” We found that, despite good reasons for their use, better targeting of free allocation would have had multiple benefits for decarbonisation, public finances and the operation of the single market.

**55** The Directive describes free allowances as a transitional method of allocating allowances in contrast to the default method (auctioning). However, for both phase 3 and 4 of the EU ETS, they continue to represent more than 40 % of the total number of available allowances.

**56** Free allocation was provided to eight Member States where per capita GDP was below 60 % of the EU average, to support modernisation of their electricity production sectors. We note that the legislative authorities improved the rules for free allocation of allowances to better promote real investment in the power sector (see paragraphs 22 to 24) for phase 4 of the EU ETS. We find that, collectively, the power sectors of the Member States providing these free allowances made significantly slower progress in decarbonisation. Investments made focused on improving power generation through coal (see paragraphs 25 to 27).

**57** We found that the number of free allowances allocated to the industry and aviation sectors in phase 3 was not based on their ability to pass through costs (see paragraphs 29 to 31) and that, while carbon leakage has the potential to affect EU carbon markets, and thus the evolution of the greenhouse gas emissions worldwide, there is limited targeting of the free allocation of allowances (see paragraphs 32 to 38).

### Recommendation 1 – Better targeting the allocation of free allowances

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The Commission should use the review of the operation of the Directive (required under Article 30) to re-examine the role of free allowances, and in particular, to assess the scope to apply a consistent approach to their allocation, targeting sectors based on their exposure to risks of carbon leakage, for example by classifying the sectors

currently receiving free allowances as highly exposed, moderately exposed, or lightly exposed.

**Timeframe: 2021.**

**58** We found that the approach to allocate free allowances on the basis of benchmarks provided significant incentives for improvement of energy efficiency (see paragraphs 42 to 44) but that there is scope to improve the application of these benchmarks (see paragraphs 45 to 48). At the same time, we found that the Commission has not yet quantified the impact of the free allowances on efficiency gains, but plans to do so (see paragraph 49) and that free allowances have tended to favour air travel over rail travel (see paragraphs 50 to 53), potentially contributing to an increase in total emissions.

## **Recommendation 2 – Improving the methodology for benchmarks**

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Taking into account the EU's obligations under the Paris agreement, and the aspirations of its proposed "Green Deal", the Commission should revise the methodology for allocating free allowances to better address technical challenges such as those identified in this report, for example:

- (a) to improve price signals at all stages of production and consumption,
- (b) to distinguish between RED II compliant and non-compliant sources of biomass.

**Timeframe: 2022.**

This Report was adopted by Chamber I, headed by Mr Samo Jereb, Member of the Court of Auditors, in Luxembourg at its meeting of 8 July 2020.

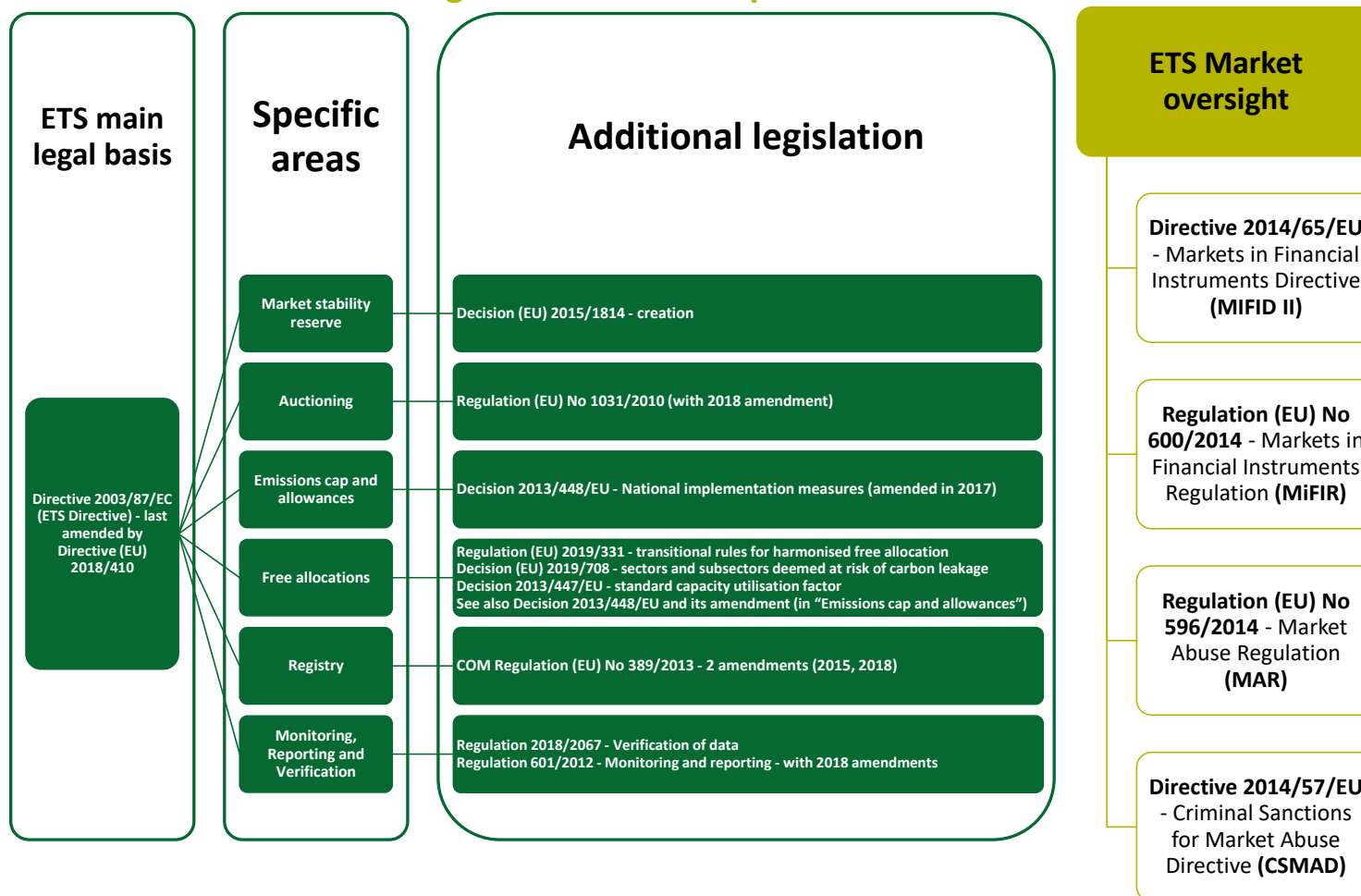
*For the Court of Auditors*

Klaus-Heiner Lehne  
*President*



# Annex

## Annex I – Overview of the EU ETS legal framework for phase 4



## Terms and abbreviations

**Allowance:** Under the European Union Emissions Trading System (EU ETS), one European Union Allowance (EUA) corresponds to the right to emit 1 tonne of carbon dioxide equivalent during a specific period (CO<sub>2</sub>e). European Union Allowances can be used by operators within the EU ETS to cover their verified emissions or can be traded with other operators.

**Benchmark:** Reference value in tCO<sub>2</sub>, set at the average emission level of the 10 % most efficient installations within each sector. In this way, installations that are highly efficient should receive all or almost all of the allowances they need to comply with EU ETS obligations.

**Biomass:** Plant or animal material used for energy production, such as wood, wood residues, and waste from food crops.

**Cap-and-trade:** The EU ETS is considered to be a 'cap-and-trade' system. This means that there is a 'cap', or limit, on the total amount of allowed emissions by the installations covered in the system. Operators under the system may receive allowances for free or have to buy them in auctions. Voluntary traders may also enter the market to buy and sell allowances. The limit on the total number of available emissions allowances ensures that they have a value.

**Carbon border adjustment:** A fee imposed on products originating from a country or jurisdiction without a climate change policy that provides a carbon price.

**Carbon intensity:** Measure/level of how much CO<sub>2</sub> emissions are produced in the course of specific economic activity, or an industrial production.

**Carbon leakage:** Increase in greenhouse gases emitted when businesses transfer production from a jurisdiction with a strict climate policy to other countries with laxer emission constraints.

**Climate change:** Changes in the Earth's climate system that result in new weather patterns that remain in place for an extended period. Scientific research points that the current process of climate change is being caused by anthropogenic (manmade) emissions of greenhouse gases.

**Climate change mitigation:** Policies and actions aimed at reducing emissions of greenhouse gases and thus slow down or stop climate change.

**CO<sub>2</sub>:** Carbon dioxide

**CO<sub>2</sub>e:** Carbon dioxide equivalent. Accounting unit used to consolidate emissions of different kinds of greenhouse gases. Emissions are adjusted based on a Global Warming Potential (GWP) calculated according to their contribution to global warming relative to carbon dioxide, and expressed in CO<sub>2</sub>e. For instance, methane (CH<sub>4</sub>) has a GWP of 25 over 100 years, meaning that 1 tonne of emitted CH<sub>4</sub> (methane) is expressed as 25 tonnes of CO<sub>2</sub>e.

**CORSIA:** Carbon Offsetting and Reduction Scheme for International Aviation, a system developed by the International Civil Aviation Organization (ICAO) aimed at mitigating the impact of global civil aviation on climate change.

**Cost pass-through:** An increase in the price a customer pays for the products because of an increase in a company's costs.

**Cross sectoral correction factor (CSCF):** Factor to ensure total allocation remains below the maximum amount pursuant to Article 10a(5) of the Directive 2003/87/EC (EU ETS Directive).

**Decarbonisation:** The process of reducing the emissions of greenhouse gas emissions resulting from an economic activity or from the overall economy.

**Effort Sharing Decision (ESD):** Establishes annual greenhouse gas emission targets for Member States for the period 2013-2020, expressed as percentage changes from 2005 levels. These targets concern emissions from most sectors not included in the EU Emissions Trading System (EU ETS), such as transport, buildings, agriculture and waste. Emissions from land use, land use change and forestry (LULUCF) and international shipping are not included.

**Emissions intensity:** A ratio of GHG emissions per unit of a product.

**Emissions trading:** A market-based approach to controlling pollution. It is based on the creation of emissions rights (allowances) that can be traded among operators covered by the system. It can also make use of offsets, i.e. certificates of emissions reductions obtained elsewhere.

**Emissions cap:** The overall amount of emissions permitted under a cap-and-trade system.

**EU ETS:** European Union Emissions Trading System

**European Green Deal:** Package of measures, presented by the European Commission, aimed at enabling Europe to become the world's first climate-neutral continent

by 2050. It involves investing in innovation and research, redesigning economy, updating industrial policy and decarbonising energy-intensive industries.

**Fall-back approach:** The use of an alternative benchmark for the allocation of emissions allowances under the EU ETS. Rather than based on specific products, these fall-back benchmarks are based on heat or fuel consumption.

**Greenhouse gases (GHG):** Gases acting as a blanket in the Earth's atmosphere, trapping heat and warming the Earth's surface through what is known as the 'greenhouse effect'. The main greenhouse gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and fluorinated gases (HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>).

**Market stability reserve (MSR):** A rule-based mechanism that allows the supply of allowances to respond to changes in demand, maintaining the balance in the EU ETS carbon market. The MSR adjusts the number of allowances available at auctions in response to changes in supply and demand.

**Mitigation policies and measures:** Policies and measures to reduce emissions and thus mitigate climate change.

**Offsets:** Carbon offsets are reduction of emission of greenhouse gases performed to compensate for greenhouse gases emitted elsewhere.

**Operators (in the EU ETS):** Installations and business in sectors covered by the EU ETS.

**Polluter pays principle:** An environmental law principle that states that those who produce pollution should bear the cost of managing it. In the EU, it is laid down in article 191 of the Treaty on the Functioning of the European Union (TFEU), which states that the cost of preventing, reducing or repairing environmental impairment should be borne by the polluter.

**Third countries:** Countries that are not Member-States of the European Union.

**Tonne-kilometre:** A unit of measure used to calculate emission from aircraft operators covered by the EU ETS. It represents one tonne transported by an airplane over a distance of one kilometre.

**Trade intensity:** A measure of intensity of trade between the EU and third countries. It corresponds to the ratio between total of value of exports to third countries plus the value of imports from third countries and the total market size for the European Economic Area (annual turnover plus total imports).

**Verifiers (in the EU ETS):** Third-party verifiers verify the EU ETS operators' GHG emissions reports, as well as the tonne-kilometre reports by aviation operators covered by the EU ETS.

**Windfall profit:** additional revenue earned by operators subject to the EU ETS when the CO<sub>2</sub> cost passed through to consumers exceeds the level of compliance costs incurred by the operator under the EU ETS.

# **FINAL REPLIES OF THE EUROPEAN COMMISSION TO THE EUROPEAN COURT OF AUDITORS SPECIAL REPORT**

## **“THE EU’S EMISSIONS TRADING SYSTEM: FREE ALLOCATION OF ALLOWANCES NEEDED BETTER TARGETING”**

### **EXECUTIVE SUMMARY**

I. The EU Emissions Trading System (EU ETS) is a cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one.

In 2018, the EU ETS Directive was revised<sup>1</sup> to reform the EU ETS for its fourth trading period (2021-2030). The reform aimed to facilitate a 43% GHG emissions reduction from EU ETS sectors by 2030 compared to 2005 (in line with the EU's 2030 climate objectives and its commitments under the Paris Agreement), safeguard industrial competitiveness, and foster low-carbon modernisation and innovation.

In line with the Communication on the European Green Deal (EGD) adopted in 2019<sup>2</sup>, the Commission will present an impact-assessed plan to increase the EU's greenhouse gas emission reductions target for 2030 to at least 50% and towards 55% compared with 1990 levels in a responsible way.

To deliver these additional greenhouse gas emission reductions, the Commission will, by June 2021, review and propose to revise where necessary, all relevant climate-related policy. This will comprise the EU ETS, including a possible extension of the system to new sectors.

III. The main purpose of free allocation is to avoid the risk of carbon leakage while remaining compatible with the decarbonisation objective of the EU ETS. Benchmarks are therefore used to reward best performers and to avoid that free allocation leads to windfall profits. For industrial sectors, free allocation based on the use of benchmarks reflecting the emission levels of the best installations per sector resulted in a significant reduction of allowances allocated for free. As of 2013 no free allocation is provided for electricity production.

V. a) In the Commission's view, a distinction should be made between the rules determining free allocation to the electricity generation sector in phase 3 of the EU ETS (2013-2020), and the implementation of these rules.

With regard to the latter, the Commission considers that the implementation of the Article 10c derogation in phase 3 of the EU ETS did promote reduction of greenhouse gas emissions, as shown in the verification reports on emissions savings from completed investments submitted by Member States that implemented the Article 10c derogation.

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<sup>1</sup> Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76, 19.03.2018, p.3

<sup>2</sup> COM(2019) 640 final – Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal.

b) The Commission considers that there has been a progressive improvement in targeting the free allocation of allowances through the successive phases of the ETS, notably through ending the free allocation for power production and the introduction of performance based benchmarks for industry.

VI. The Commission accepts the recommendation to better target free allocated allowances and partially accepts to improve the methodology for setting benchmarks.

## **INTRODUCTION**

04. Until 2020, the two pillars to monitor greenhouse gas emissions reductions are the ETS Directive and the Effort-Sharing Decision.

After 2020, there are three ‘pillars’ in the form of the ETS Directive, Effort-Sharing Regulation and LULUCF (land use, land use change and forestry) Regulation.

08. As of 2013, as a general rule, electricity generators do not receive allowances allocated for free, the only exception being the transitional free allocation of allowances to the power sector in eight lower income Member States, granted subject to investments in modernisation.

For industrial installations, free allocation of allowances is based on the use of benchmarks reflecting the emission levels of the 10% most emissions-efficient installations per sector. This resulted in a significant reduction of allowances allocated for free. As of 2021, the rules will reflect technological progress since when the benchmarks were first set.

14. (1) The co-legislators set the legal framework for auctioning and free allocation. The Commission devises implementing rules. These, the oversight of Member States’ actions, and the guidance the Commission provides are applying the rules agreed by the co-legislators.

(2) National competent authorities are responsible for important aspects of the free allocation of allowances. The decisions on National Implementing Measures granting allowances allocated for free are taken by the national competent authority responsible for the respective installation, in line with the EU rules, and not by the Commission.

## **OBSERVATIONS**

25. It should be taken into account that the 2015 study was only based on 1 year of 10c reporting (2014), concerning implementation progress in 2013. Moreover, the study encompassed three out of eight Member States applying the derogation: Poland, Czechia and Romania. Since then more countries have submitted reports on emission reductions from 10c projects, with varying levels of detail, following the completion of the respective investments.

27. The Commission considers that the presented comparison does not establish a causality between the eligibility for transitional free allocation under Article 10c of the ETS Directive and the observed carbon intensity trends in the examined Member States. The reason why those countries were deemed eligible was that their investment challenges were estimated to be greater and in turn, their reduction of carbon intensity lower than in the other countries. A more appropriate assessment would be the comparison with the counterfactual of expected reduction in those countries had they not received free allocation to support it. This is of course difficult to do.

33. The OECD study referred to covers all forms of carbon pricing and taxation, not only the EU ETS. This should be taken into account in the context of carbon leakage when referring to Norway, which participates in the EU ETS. Likewise, Switzerland has an ETS, which as from 2020 is linked to the EU ETS, with similar carbon price and carbon leakage measures as the EU ETS.

Moreover, there are large differences in carbon costs across countries due to e.g. taxation of fuels for road transport and building heating, and these differences have limited impact on carbon leakage linked to the EU ETS.

The study commissioned by the European Commission examined if there is factual evidence of carbon leakage over phases 1 and 2 of the EU ETS (2005-2012).

### **Box 3 - Carbon leakage risk in other Emissions Trading Schemes**

Those sectors considered at limited risk of carbon leakage have a progressively reduced amount of free allocation of allowances. This is comparable to the treatment of sectors deemed at low risk of carbon leakage in other jurisdictions.

38. The Commission highlights the timing period and ETS context of the assessments. The study conducted by OECD examines the impact of the EU ETS on carbon emissions and economic performance of regulated companies during the first two phases of the System's existence, from 2005 to 2012. The study also concludes that different impacts could be observed in the future, as the EU ETS cap becomes increasingly tighter – phase 3 (2013 to 2020) has different free allocation rules and a more stringent cap.

While the carbon leakage list is in the form of a Commission Decision, it is pure implementation of the rules in the Directive as set by the co-legislators. The Commission had no discretion on deciding if sectors are considered at risk of carbon leakage or not, even though a qualitative assessment, based on clear criteria, was possible based on the rules in the Directive.

The report covers the period up to 2012, while the system with auctioning as the general rule and free allocation of allowances based on benchmarks that applies since 2013, coupled with a general reduction in free allocation of allowances (as a share of the total number of allowances available in a given year) due to the cross sectoral correction factor, means that there is definitely not a general over allocation to ETS installations. For phase 4, the free allocation will be even more stringent.

40. The position of the Commission as stated in the Communication on the European Green Deal is the one that reflects best its intentions in view of the latest developments on this issue. Indeed, as indicated in the Communication on the European Green Deal, “should differences in levels of ambition worldwide persist, as the EU increases its climate ambition, the Commission will propose a carbon border adjustment mechanism, for selected sectors, to reduce the risk of carbon leakage. This would ensure that the price of imports reflect more accurately their carbon content. This measure will be designed to comply with World Trade Organization rules and other international obligations of the EU. It would be an alternative to the measures that address the risk of carbon leakage in the EU's Emissions Trading System.”

45. For sectors where there is a choice between using electricity or heat, an exchangeability factor for heat and electricity is considered. Benchmark values reflect all emissions from the sector, but the final allocation granted to installations only covers their direct emissions.

46. The Renewable Energy Directive (so called “RED-I”) defined sustainability criteria for liquid biomass, which had to be fulfilled for zero-rating such liquid biomass during EU ETS phase 3. The new Renewable Energy Directive (so called “RED-II”) added new sustainability criteria and GHG emission saving criteria to solid biomass and biogas, which in turn requires the application of these criteria for EU ETS zero-rating from 2022.

The Commission proposes to implement the new RED-II sustainability criteria and GHG emission saving criteria in the EU ETS for zero-rating biomass emissions in the draft amendment of the ETS Monitoring and Reporting Regulation.

In addition, industrial installations using biomass to reduce their emissions will generate a reduction of the benchmark value and this will be visible in phase 4.



50. Free allocation of allowances to aircraft operators however covered less than the 50% of 2019 emissions (i.e. pre-Covid 19) and in line with the European Green Deal, the Commission envisages reducing the share of freely allocated allowances through the upcoming review of the ETS.

#### **Box 4 - CORSIA and the challenge of globally decarbonising civil aviation**

CORSIA will be implemented into EU law through a revision of the ETS directive.

Over Phase 3, the inclusion of aviation in the ETS is expected to result in a total mitigation of around 200 million metric tonnes of carbon dioxide emissions in the European Economic Area achieved by incentivising emission reductions in all sectors covered by the EU ETS.

Through the Green Deal, the Commission is looking at different policy options to increase the use of sustainable aviation fuels. A Commission proposal will be made in due time, in the context of the EGD.

Significant investments made through Clean Sky, as well as H2020, aim at disruptive technological developments from 2035, such as electrification and hybrid aviation. Such investments will be pursued under the next Clean Aviation program as well as Horizon Europe framework.

Deployments of SESAR at network level, concerning airport and en-route improvements, will help to mitigate the emissions.

#### **CONCLUSIONS AND RECOMMENDATIONS**

57. The Commission considers that there has been a progressive improvement in targeting through the successive phases of the ETS.

#### **Recommendation 1 – Better targeting the allocation of free allowances**

The Commission accepts the recommendation.

#### **Recommendation 2 – Improving the methodology for benchmarks**

(a) The Commission accepts the recommendation.

(b) The Commission partially accepts the recommendation and will start with the alignment of the monitoring and reporting framework, in the context of revision of the Monitoring and Reporting Commission Regulation, to ensure that only biomass meeting RED II sustainability criteria and GHG emission saving criteria are zero rated. However, the Commission does not consider that it will be possible to align the benchmarks before 2022.

# Audit team

The ECA's special reports set out the results of its audits of EU policies and programmes, or of management-related topics from specific budgetary areas. The ECA selects and designs these audit tasks to be of maximum impact by considering the risks to performance or compliance, the level of income or spending involved, forthcoming developments and political and public interest.

This performance audit was carried out by Audit Chamber I, headed by ECA Member Samo Jereb. The audit was led by ECA Member Samo Jereb, supported by Kathrine Henderson, Head of Private Office and Jerneja Vrabič, Private Office Attaché; Colm Friel, Principal Manager; Maria Eulàlia Reverté i Casas, Head of Task; Ernesto Roessing, Deputy Head of Task; Kurt Bungartz and Oana Cristina Dumitrescu, Auditors. Lars Markström, Marek Říha and Anna Zalega provided linguistic support; Marika Meisenzahl, graphical support and Terje Teppan-Niesen administrative support.

As a consequence of the COVID-19 pandemic and the strict confinement conditions, no picture of the audit team could be provided.

# Timeline

Event	Date
Adoption of Audit Planning Memorandum (APM) / Start of audit	15.5.2019
Official sending of draft report to Commission (or other auditee)	7.5.2020
Adoption of the final report after the adversarial procedure	8.7.2020
Commission's (or other auditee's) official replies received in all languages	29.7.2020

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PDF	ISBN 978-92-847-5050-4	1977-5679	doi:10.2865/33737	QJ-AB-20-016-EN-N
HTML	ISBN 978-92-847-5036-8	1977-5679	doi:10.2865/487419	QJ-AB-20-016-EN-Q

The reduction of greenhouse gas emissions is one of the main challenges of our times. Under the EU Emissions Trading System, companies need to obtain emission allowances covering their carbon emissions. Free allocation is set as a transitional method of allocating allowances in contrast to the default method (auctioning). However, for both phase 3 and 4 of the EU ETS, allowances allocated for free continue to represent more than 40 % of the total number of available allowances. We found that there is limited targeting of the free allocation of allowances. We make recommendations to the Commission on better targeting as well as better addressing technical challenges when revising the methodology for the free allocation of allowances.

ECA special report pursuant to Article 287(4), second subparagraph, TFEU.



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