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Report on the functioning of the European carbon market

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List of acronyms and abbreviations

AVR	Accreditation and Verification Regulation
CA	Competent Authority
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CSCF	Cross-Sectional Correction Factor
EA	European Cooperation for Accreditation
EEA	European Economic Area
EEX	European Energy Exchange
EIB	European Investment Bank
ERUs	Emission Reduction Units
ESMA	European Securities and Markets Authority
EU ETS	European Union Emissions Trading System
EUTL	European Union Transaction Log
GHG	Greenhouse Gas
ICAO	International Civil Aviation Organization
ICE	InterContinental Exchange Futures Europe
InnovFin EDP	InnovFin Energy Demonstration Projects
JI	Joint Implementation
MAR	Market Abuse Regulation
MiFID2	Directive on Markets in Financial Instruments
MiFIR	Regulation on Markets in Financial Instruments
MRR	Monitoring and Reporting Regulation
MRVA	Monitoring, Reporting, Verification and Accreditation
MSR	Market Stability Reserve
NAB	National Accreditation Body
NER	New Entrants Reserve
OTC	Over-the-counter

PFCs	Perfluorocarbons
RES	Renewable Energy Sources
SARPs	CORSIA Standards and Recommended Practices
TNAC	Total Number of Allowances in Circulation

1. INTRODUCTION

The European Emissions Trading System (EU ETS) has been the cornerstone of the EU's strategy for reducing greenhouse gas (GHG) emissions from industry, electricity and heat production since 2005. It contributes significantly to achieving the overall EU target of cutting GHG emissions by 20% from 1990 levels by 2020, which the EU is on track to surpass.

This Report on the functioning of the European carbon market is presented in accordance with the requirements of Articles 10(5) and 21(2) of Directive 2003/87/EC[1] (EU ETS Directive). The objective of the report is to provide a snapshot of developments in the European carbon market on an annual basis. The report covers the year 2019, but also presents developments in the first half of 2020.

Looking towards the next decade, the Commission's Communication on the 2030 Climate Target Plan[2] proposed to increase the EU's 2030 GHG emissions reductions target from 40% to at least 55% compared with 1990 levels. To deliver on this higher ambition, the Commission will, by June 2021, review and propose to revise where necessary, all relevant climate-related policies. As part of the broader package of legislation under the European Green Deal[3], the EU ETS will also be revised, including a possible extension of the system to new sectors.

Following the revision of the ETS Directive[4], the work on implementation for phase 4[5] has been active and is progressing swiftly. Over the past year, implementing legislation on the adjustment of free allocation based on activity level changes[6] and on the operation of the Modernisation Fund[7] has been adopted, and the second revision of the Auctioning

[1] 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 and amending Council Directive 96/61/EC, OJ L 275, 25.10.2003, p. 32.
[2] COM(2020) 562 final– Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Stepping up Europe's 2030 climate ambition, Investing in a climate-neutral future for the benefit of our people – The 2030 Climate Target Paln
[3] 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
[4] 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
[5] The EU ETS is regulated in phases. Phase 3 covers the period 2013-2020, while phase 4 covers the period 2021-2030.
[6] Commission Implementing regulation (EU) 2019/1842 of 31 October 2019 laying down rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards further arrangements for the adjustments to free allocation of emission allowances due to activity level changes, OJ L 282/, 4.11.2019, p. 20
[7] Commission Implementing Regulation (EU) 2020/1001 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States, OJ L 221, 10.7.2020, p. 107

Regulation[8] to implement phase 4 requirements has been completed (see chapters 3.1.2.1, 3.1.2.2, and 3.1.2.6). The remaining implementing provisions are currently being finalised, with the aim of having them adopted before January 2021.

Since the publication of the last carbon market report[9], the Market Stability Reserve surplus indicator was published for the fourth time, showing that in 2019 the surplus of allowances decreased from 1.65 billion in 2018 to around 1.39 billion allowances[10]. Based on the indicator and the revised EU ETS legislation, the auction supply in 2020 will be reduced by around 375 million allowances (nearly 35%) (see chapter 3.3).

In 2019, there was a significant decrease of emissions from stationary installations of 9.1% compared to 2018 (see chapter 3.2). The decrease was mainly driven by the the power sector, where emissions fell by close to 15% as a result of coal being replaced by electricity from renewables and gas-fired power production. With this latest decrease, overall emissions from stationary installations since the start of phase 3 of the EU ETS have decreased by close to 20%. In the aviation sector, emissions continued growing, marking a slight increse of 1% compared to 2018 (see chapter 4).

There were also important ETS–related political developments such as the entry into force of the agreement on the linking of the EU ETS with Switzerland's ETS on 1 January 2020, and the lifting of the suspension of UK auctioning and free allocation processes following the entry into force of the Agreement on the withdrawal of the United Kingdom from the EU (see chapter 2.2).

Last, but not least, the COVID-19 crisis led to a significant short-term dip in the carbon price in March/April 2020. In spite of that, the carbon price signal remained stable at around EUR 24[11] on average between January 2019 and the end of June 2020. Revenues from the auctioning of ETS allowances exceeded EUR 14 billion in 2019 alone, and EUR 7.9 billion for the first six months of 2020. Based on data submitted by Member States, over the course of 2019, a total of 77% of these revenues were spent (or were planned for spending) on specified climate and energy related purposes (see chapter 3.1.2.2).

Unless otherwise indicated, data used for this report were the ones publicly available and at the disposal of the Commission by June 2020[12]. General and descriptive information on the EU ETS is included in boxes throughout the report.

[8] Commission Delegated Regulation (EU) 2019/1868 of 28 August 2019 amending Regulation (EU) No 1031/2010 to align the auctioning of allowances with the EU ETS rules for the period 2021 to 2030 and with the classification of allowances as financial instruments pursuant to Directive 2014/65/EU of the European Parliament and of the Council, OJ L 289, 8.11.2019, p. 9

[9] The 2019 carbon market report can be found here: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0557R(01)

[10] C(2020) 2835 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2020_2835_en.pdf

[11] Source: ICE

[12] The cut-off date used was 30 June 2020.

2. EU ETS INFRASTRUCTURE

2.1 Coverage of activities, installations and aircraft operators

The EU ETS currently operates in the 27 Member States of the EU, Iceland, Liechtenstein and Norway, as well as in the United Kingdom until the end of 2020. As of 1 January 2020, the EU ETS is also linked to the Swiss carbon market (see chapter 2.2). From 2021, besides the EU and EEA/EFTA countries, the EU ETS will cover electricity generating installations in Northern Ireland. It regulates emissions from nearly 11 000 power plants and manufacturing installations as well as around 600 aircraft operators flying from/to EEA's airports. It covers around 38% of the EU's GHG emissions.

In phase 3 of the EU ETS (2013-2020)*, the sectors with stationary installations regulated by the EU ETS are energy intensive industries, including power stations and other combustion plants with >20MW thermal rated input (except hazardous or municipal waste installations), oil refineries, coke ovens, iron and steel, cement clinker, glass, lime, bricks, ceramics, pulp, paper and board, aluminium, petrochemicals, ammonia, nitric, adipic, glyoxal and glyoxylic acid production, CO_2 capture, transport in pipelines and geological storage of CO_2.

The aviation scope of the EU ETS was limited to flights within the European Economic Area (EEA) in the period 2013-2016, to sustain momentum in the International Civil Aviation Organization (ICAO) for an international agreement to control greenhouse gas emissions from aviation. To continue to promote momentum and to facilitate the operationalisation of the ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and to facilitate the scheme's operationalisation, in 2017 the limitation to intra-EEA flights was prolonged until 2023 (see chapter 4).

The EU ETS covers carbon dioxide (CO_2) emissions, nitrous oxide (N_2O) emissions from nitric, adipic, glyoxylic acid and glyoxal production, and perfluorocarbons (PFC) emissions from aluminium production. Even though participation in the EU ETS is mandatory, in some sectors only installations above a certain size are included. Moreover, participating countries can exclude small installations (emitting less than 25 000 tonnes of CO_{2e}) from the system if alternative and equivalent measures are in place. In phase 4 (2021-2030), very small emitters (with reported emissions of less than 2 500 tonnes of CO_{2e} in the last three years) can be excluded from the EU ETS subject to the existence of simplified monitoring arrangements to assess the quantity of their emissions. Participating countries may also add more sectors and GHGs to the EU ETS (the so called "opt-in").

* Information on phases 1 and 2 of the EU ETS can be found here: https://ec.europa.eu/clima/policies/ets/pre2013_en

According to the Article 21 reports submitted by participating countries[13] in 2020, there were a total of 10 569 installations in 2019 covered by the ETS, with the necessary ETS permit.

Emissions from biomass used by ETS installations increased by 4% in 2019 compared to the previous year, while emissions from coal declined by 19%, contributing to the significant 15% reduction in emissions from the power sector. Regarding only fuels, and as was the case in previous years, the fuels combusted within the EU ETS in 2019 remained overwhelmingly fossil. However, 29 countries also reported biomass use in connection with 2 197 installations (20.8% of all installations). The highest percentage of emissions from biomass compared to emissions covered by the EU ETS per country was reported by Lithuania: 68%. Two countries (LI and MT) did not report any use of biomass. Total emissions from biomass in 2019 amounted to approximately 170 million tonnes CO_2 (11% compared to ETS reported emissions), a clear increase from the 145 million tonnes CO_2 in 2018 (8% compared to ETS reported emissions). Out of these, 99.2% were zero-rated[14]. In 2019, for the first time a small amount of biofuel was reported to be used. Two aircraft operators (one in DE and one in SE) reported covering 0.01% of the 2019 ETS aviation emissions.

Within the installation categories based on annual emissions[15], the data for 2019 shows that, as in previous years, 72% of installations are category A, 21% are category B and 7% are category C. 6 053 installations were reported as "installations with low emissions"[16] (57% of the total).

Regarding EU ETS activities additionally listed for non-CO_2 emissions, permits are reported as issued in 13 countries for primary aluminium and perfluorocarbons (PFCs) (DE, FR, EL, ES, IS, IT, NL, NO, RO, SE, SI, SK and UK), while for nitric acid production and N_2O permits are reported as issued in 21 countries (all except CY, DK, EE, IE, IS, LI, LU, LV, MT and SI). The other N_2O sectors – adipic acid production and glyoxal and glyoxylic acid production are reported in three (DE, FR and IT) and two (DE and FR) countries, respectively. Only Norway and Austria declared CO_2 capture and storage activities.

As last year, seven countries (ES, FR, HR, IS, IT, SI and UK) have made use of the possibility to exclude small emitters from the EU ETS in line with Article 27 of the EU ETS Directive. Emissions excluded for 2019 amounted to 3.81 million tonnes CO_2 (some 0.25% of total stationary EU ETS emissions, compared to 0.17% the year before).

[13] "Article 21 reports" refer to reports submitted by Member States based on requirements in the Article 21 of the ETS Directive, In this context, "participating countries" or simply "countries" include the 27 EU Member States, the UK, and the EEA countries (Iceland, Norway and Liechtenstein).

[14] In the EU ETS, the emission factor of biomass is set to zero if the definition of the term "biomass" is fulfilled and – where biofuels or bio-liquids are concerned – the sustainability criteria pursuant to Article 17(1) of Directive 2009/28/EC (the Renewable Energy Directive) are met. No allowances have to be surrendered for zero-rated emissions. In the 2020 Article 21 submissions, two participating countries (LV and DK) only reported the energy content of zero-rated biomass, and not the actual emissions. Their emissions are therefore not taken into account in the total provided.

[15] Category C installations emit more than 500 000 tonnes CO_2e per year, category B installations emit between 500 000 and 50 000 tonnes CO_2e per year, and category A installations emit less than 50 000 tonnes CO_2e per year. See Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of GHG emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council, OJ L 181, 12.7.2012, p. 30

[16] Installations with low emissions are a sub-set within category A installations, which emit less than 25 000 tonnes CO_2e per year (see Article 47(2) of Regulation (EU) No 601/2012).

According to Article 21 submissions in 2020, just as in previous years, eight countries (BE, DK, FR, HR, HU, LI, LT and NL) have taken advantage of the provision offered by Article 13 of the Monitoring and Reporting Regulation (MRR)[17] to allow use of simplified monitoring plans in low risk cases for stationary installations. In the case of aircraft operators with low emissions, two countries reported use of this provision for 2019 (BE and IS).

In 2019, 611 aircraft operators were reported as having a monitoring plan (7% fewer than in 2018). 50% (308) of the reported operators were commercial, while the other 50% (303) were non-commercial.[18] A total of 262 (43%) qualified as small emitters (compared to 287 (44%) in 2018).

2.2 Union Registry and the European Union Transaction Log (EUTL)

The Union Registry and the European Union Transaction Log (EUTL) track the ownership of general and aviation allowances by recording the amounts owned in the accounts and the transactions between accounts. Furthermore, these systems register the emissions of stationary installations and aircraft operators, and the compliance with obligations stemming from these emissions. Both systems are operated and maintained by the Commission, whereas the national registry administrators in the participating countries remain the point of contact for the holders and representatives of the accounts (companies and natural persons). While the Union Registry holds accounts and registers compliance information, the EUTL automatically checks, records and authorises all transactions between accounts, thus ensuring that all transfers comply with EU ETS rules.

The data recorded in the Union Registry and the EUTL is an important source of information for various types of ETS reporting, such as the calculation of the Market Stability Reserve surplus indicator (see chapter 3.3) and the reporting done by the European Environment Agency. The EUTL also provides for transparency in the EU ETS by publishing* information on the compliance of stationary installations and aircraft operators with ETS provisions and on the transactions between accounts

* The information published by the EUTL can be found at: https://ec.europa.eu/clima/ets/

The Union Registry, the EUTL, and the public website of the EUTL were fully operational for 365 days around the clock throughout 2019, with only minor interruptions adding up to a total of approximately 7 hours due to technical upgrades.

From 1 January 2019, the Commission suspended[19] all processes for the UK relating to free allocation, auctioning and the exchange of international credits, in accordance with the

[17] 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, OJ L 181, 12.7.2012, p. 30.
[18] An example of a commercial aircraft operator would be a passenger airline providing services to the general public. An example of a non-commercial aircraft operator would be a privately owned aircraft.
[19] Commission Decision C(2018) 8707 of 17.12.2018 on instructing the central administrator to temporarily suspend the acceptance by the European Union Transaction Log of relevant processes for the United Kingdom relating to free allocation, auctioning and the exchange of international credits

safeguard measures[20] to protect the environmental integrity of the EU ETS in cases where EU law ceases to apply to a Member State withdrawing from the EU. This suspension was automatically lifted on 1 February 2020, when the Agreement on the withdrawal of the United Kingdom[21] from the EU entered into force and ensured that UK installations and aircraft operators would follow through with their compliance obligations stemming from 2019 and 2020 emissions.

The agreement on linking the EU ETS with Switzerland's ETS[22] entered into force on 1 January 2020. To operationalise the link between the emissions trading systems, the parties agreed to establish a provisional solution[23] for linking the two registries and enabling the transfer of allowances between them. The provisional solution became operational on 21 September 2020.

In March 2019, Commission Delegated Regulation (EU) 2019/1122[24] was adopted, setting the rules for the functioning of the Union Registry in 2021-2030. The technical implementation of the new rules introduced by the Regulation is ongoing and the new functionalities will be available in the Union Registry as of 1 January 2021.

3. FUNCTIONING OF THE CARBON MARKET IN 2019

This chapter provides information on aspects relating to the supply and demand of allowances in the EU ETS. The supply side section includes information on the cap, free allocation, auctioning, the derogation from full auctioning for electricity and heat production (Article 10c), the NER300 programme and preparations for the Innovation and Modernisation Funds, a chapter on indirect carbon cost compensation schemes, and the use of international credits.

On the demand side, information is provided on the quantity of verified emissions. The balancing of the different elements of the supply and demand of allowances in the carbon market via the Market Stability Reserve (MSR) is then presented.

[20] Commission Regulation (EU) 2018/208 of 12 February 2018 amending Regulation (EU) No 389/2013 establishing a Union Registry, OJ L 39, 13.02.2018, p.3.
[21] Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community (2019/C 384 I/01), OJ C 384 I, 12.11.2019, p.1.
[22] Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems, OJ L 322, 7.12.2017, p.3.
[23] https://ec.europa.eu/clima/sites/clima/files/ets/markets/docs/decision_201902_swiss_ets_linking.pdf
[24] Commission Delegated Regulation (EU) 2019/1122 of 12 March 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council as regards the functioning of the Union Registry, OJ L 177, 2.7.2019, p. 3.

3.1. Supply: allowances put in circulation

3.1.1. Cap

The cap is the maximum absolute quantity of GHGs, which may be emitted by covered entities to ensure the emission reduction target is met and that it corresponds to the number of allowances put in circulation over a trading period. A common EU-wide cap applies for the entire EU ETS.

The 2013 cap for emissions from stationary installations was set at 2 084 301 856 allowances. This cap decreases each year by a linear reduction factor of 1.74% of the average total quantity of allowances issued annually in 2008-2012, thus ensuring that the maximum number of allowances that can be used by stationary installations will be 21% lower in 2020 than in 2005.

The aviation sector cap was originally set at 210 349 264 aviation allowances per year, which is 5% below the average annual level of aviation emissions in 2004-2006. It increased by 116 524 aviation allowances on 1 January 2014 to accommodate Croatia joining the EU ETS. This cap was meant to reflect the 2008 legislation* which included all flights from, to and within the EEA in the EU ETS. However, the scope of the EU ETS was temporarily limited to flights within the EEA between 2013 and 2016 to support the development of a global measure by the ICAO to stabilise emissions from international aviation at 2020 levels. Therefore, the number of aviation allowances put into circulation in 2013-2016 was significantly lower than the original cap. In 2017, to support the development of the ICAO global measure, the limitation to intra-EEA flights was prolonged until 2023 (see chapter 4).

In phase 4 of the EU ETS (2021–2030), the cap for both stationary installations and aviation will decrease by a linear reduction factor of 2.2%.

* Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008,amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community

Table 1 shows the figures for the cap for stationary installations and the number of aviation allowances put annually into circulation[25] for each year during phase 3 of the EU ETS.

[25] The number of aviation allowances put into circulation since 2013 is the result of a bottom-up approach starting from free allocation (determined on the basis of activity-based benchmarks for operators' activity within the EEA). The number of allowances auctioned is then derived based on the fact that free allocation (including a special reserve for later distribution to fast-growing aircraft operators and new entrants) should be 85% of the total and auctioning should be 15%.

Table 1: EU ETS cap 2013-2020

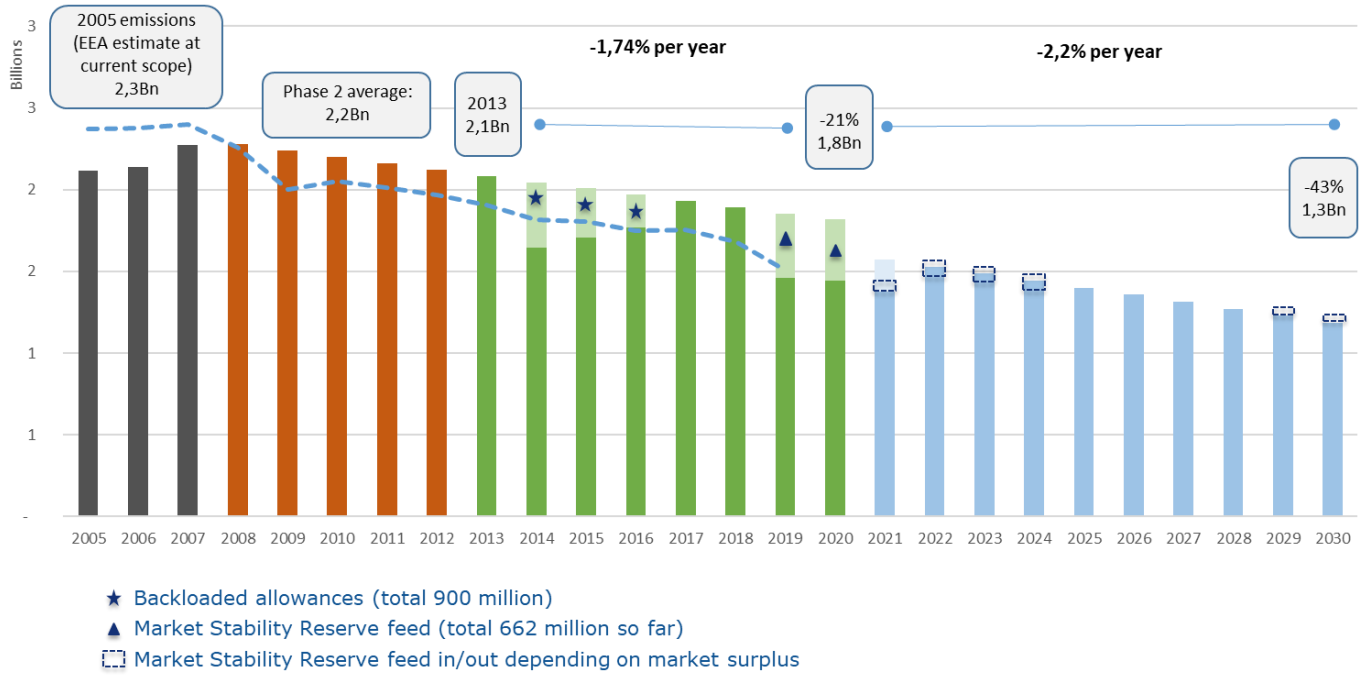
Year	Annual cap (installations)	Annual aviation allowances put into circulation[26]
2013	2 084 301 856	32 455 296
2014	2 046 037 610	41 866 834
2015	2 007 773 364	50 669 024
2016	1 969 509 118	38 879 316
2017	1 931 244 873	38 711 651
2018	1 892 980 627	38 909 585
2019	1 854 716 381	38 946 562
2020	1 816 452 135	

On 1 February 2020, the Agreement on the withdrawal of the United Kingdom from the European Union[27] entered into force. The ETS Directive applies to the UK until the end of 31 December 2020, and pursuant to the Protocol of Ireland and Northern Ireland[28], electricity generation located in Northern Ireland (NI) remains in the EU ETS with the relevant rights and obligations.

The Commission took these developments into account by adopting a Commission Decision[29] on the adjusted Union-wide quantity of allowances on 16 November 2020. Figure 1 summarises the cap reduction following the increase of the linear reduction factor to 2.2% as of 2021, while also visualising the role of the Market Stability Reserve (MSR) feed and the backloading contributions to the MSR (see also chapter 3.3).

[26] The updated figures include exchanges of international credits in addition to the free allocation and auctioned amounts.
[27] https://ec.europa.eu/info/european-union-and-united-kingdom-forging-new-partnership/eu-uk-withdrawal-agreement_en
[28] https://ec.europa.eu/info/european-union-and-united-kingdom-forging-new-partnership/eu-uk-withdrawal-agreement/protocol-ireland-and-northern-ireland_en
[29] Commission Decision C/2020/7704

Figure 1: Cap reduction with increase of the Linear Reduction Factor to 2.2% as of 2021[30]



[30] The cap for 2021-2030 reflects the post-BREXIT publication of the EU ETS total volume of allowances via Commission Decision C/2020/7704. The impact of the increased 2030 emission reduction targets proposed by the Commission on 17 September 2020 in the Climate Target Plan on the ETS legislation will be assessed in the upcoming climate legislation review exercise.

3.1.2. Issued allowances

3.1.2.1.Free allocation

Although in phase 3 of the EU ETS, auctioning is the default allocation method, a significant amount of allowances has been allocated for free to industrial installations to address the risk of carbon leakage (a situation where companies transfer production to third countries with laxer constraints on GHG emissions, which may lead to an increase in their total emissions). The following principles apply:

- Electricity production is not eligible for free allowances;
- Free allowances to manufacturing industry are distributed according to EU-wide harmonised rules;
- The free allocation is based on performance benchmarks to strengthen the incentives for GHG emission reductions and innovation and reward the most efficient installations;
- An EU-wide New Entrants' Reserve (NER) for new industrial installations and installations significantly increasing capacity has been established, equivalent to 5% of the total amount of allowances for phase 3.

The sectors and sub-sectors deemed to be exposed to a significant risk of carbon leakage are placed on a carbon leakage list*. While originally the list covered the period 2015-2019, the revised EU ETS Directive prolonged its validity until 31 December 2020.

In phase 3, as the demand for free allocation exceeded the amount available, the allocation for all installations under the EU ETS was reduced by the same percentage through the application of a "cross-sectoral correction factor (CSCF)"**. In 2017, the original CSFC values were revised.***

* The current carbon leakage list can be found here: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32014D0746

** Commission Decision 2013/448/EU, OJ L 240, 7.9.2013, p.27.

*** Commission Decision 2017/126/EU, OJ L 19, 25.1.2017, p. 93.

In phase 3, about 43% of the total quantity of available allowances is allocated for free, while the share of allowances to be auctioned by Member States amounts to some 57%.

The initial New Entrants Reserve (NER), after deducting 300 million allowances for the NER300 programme that aims to support innovation, held 480.2 million allowances. Until June 2020, 171.1 million allowances have been reserved for 1089 installations for the entirety of phase 3. The remaining NER amounts to 309.1 million allowances. While it is expected that there will be allocation changes until the end of phase 3, a significant number of these allowances will remain unallocated. At the end of phase 3, the unallocated allowances from

the phase 3 NER will be placed in the Market Stability Reserve (MSR), out of which 200 million allowances will be placed in the NER for phase 4.

Until the end of June 2020, the originally approved free allocation up to the end of phase 3 has been reduced by around 570 million allowances due to installations that have closed or reduced their production or production capacity.

Table 2: The number of allowances (in millions) allocated to industry for free from 2013 to June 2020[31]

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Free allocation[32] **(EU27+UK+EEA EFTA states)**	903.0	874.8	847.6	821.3	796.2	771.9	748.1[33]	724.8
Allocation from the new entrants reserve (greenfield investments and capacity increases)	11.7	15.2	18.9	22.7	24.4	26.0	26.5	25.4
Free allowances remaining unallocated due to closures or changes in production or production capacity	40.6	59.5	73.1	70.5	79.1	83.4	79.8	84.6

To prevent the risk of carbon leakage, free allocation will continue after 2020, based on updated benchmark values derived with reference to the performance of the 10% most efficient installations in the EU. In February 2019, the Commission adopted the carbon leakage list for 2021-2030[34], which will be valid for the entirety of that period. This list specifies which industrial sectors benefit from a higher share of free allocation.

To reflect progress in technology and innovation, the benchmark values will be updated for 2021-2025 and 2026-2030 on the basis of real data. The delegated act on revising the free

[31] While figures in previous years were based on notifications by Member States until the end of June of the respective year, in this year's report they are based on the Union Registry with a cut-off date 30 June 2020. This new approach was chosen to more accurately reflect allocations as they occur and are recorded in the Union Registry.
[32] Initial amount, before application of the reductions mentioned below.
[33] Allocation for the UK (48.0 million allowances of the total for 2019) that was suspended in 2019 due to the safeguard measures to protect the environmental integrity of the EU ETS resumed in 2020.
[34] Commission Delegated Decision (EU) 2019/708, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:120:FULL&from=EN

allocation rules for 2021-2030 was adopted in December 2018[35]. It is expected that the implementing Regulation on revised benchmark values to be applied in the period 2021–2025 will be adopted by the end of 2020 (see Appendix 6 to the Annex).

In phase 4, allocations to individual installations will be adjusted in a timely manner to reflect significant increases and decreases in operation. To prevent manipulation and abuse of the allocation adjustment system and to avoid any undue administrative burden, the Commission adopted an implementing act defining further arrangements for the adjustments in October 2019[36] (see Appendix 6 to the Annex).

3.1.2.2. Auctioning of allowances

Auctioning is the default mode for allocating allowances. Primary auctions are governed by the Auctioning Regulation* which specifies the timing, administration and other aspects of how auctions should take place to ensure an open, transparent, harmonised and non-discriminatory process.

* Commission Regulation (EU) No 1031/2010 of 12 November 2010 on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances pursuant to Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowances trading within the Community, OJ L 302, 18.11.2010, p.1.

The 2019 auctions took place through the auction platform EEX, providing auctions as the common auction platform for the 25 Member States participating in a joint procurement procedure, for Poland, which opted-out from the joint procurement procedure but has not appointed a separate auction platform, and for Germany as an 'opt-out' auction platform.

EEX started auctioning for Iceland, Liechtenstein and Norway in June 2019, after the EEA Agreement was amended to allow them to participate in the Joint Procurement Agreement for the common auction platform. In agreement with the three countries, the auction volumes for 2013-2018 are spread over the years 2019 and 2020 to ensure a stable and predictable supply of allowances to the market.

In accordance with the safeguard measures adopted to protect the environmental integrity of the EU ETS[37], no allowances were auctioned in 2019 on behalf of the United Kingdom. With the entry into force of the Withdrawal Agreement on 1 February 2020, the auctions for the UK restarted on 4 March 2020 and take place through the auction platform ICE. The quantity included in the 2020 UK auction calendar amounts to the combined volumes to be auctioned for the calendar years 2019 and 2020.

[35] Commission Delegated Regulation (EU) 2019/331, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:059:FULL&from=EN
[36] Commission Implementing Regulation (EU) 2019/1842, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L.2019.282.01.0020.01.ENG
[37] Commission Decision C(2018) 8707 of 17.12.2018 on instructing the central administrator to temporarily suspend the acceptance by the European Union Transaction Log of relevant processes for the United Kingdom relating to free allocation, auctioning and the exchange of international credits.

More than 1700 auctions had been held by 30 June 2020. Table 3 provides an overview of the volumes of allowances[38] auctioned by the EEX and ICE up to 30 June 2020, including early auctions[39] of general allowances.

Table 3: Total volume of phase 3 allowances auctioned in from 2012 to 30 June 2020[40]

Year	General allowances	Aviation allowances
2012	89 701 500	2 500 000
2013	808 146 500	0
2014	528 399 500	9 278 000
2015	632 725 500	16 390 500
2016	715 289 500	5 997 500
2017	951 195 500	4 730 500
2018	915 750 000	5 601 500
2019	588 540 000	5 502 500
2020 (until 30 June 2020)	360 446 000	3 371 500

Source: EEX

The entering into operation of the Market Stability Reserve (MSR) in January 2019 has substantially lowered the auction supply, as can be seen in Table 3. The auctions were generally conducted smoothly and the auction clearing prices were generally closely aligned with secondary market prices.

Between January 2019 and June 2020, three auctions were cancelled due either to the reserve price not being met or due to the total bid volume falling short of the auctioned volume, in line with the relevant rules in the Auctioning Regulation. With these three auctions, a total of fifteen auctions were cancelled out of the more than 1700 auctions held since late 2012. An overview of the auction clearing prices from 2013 to 30 June 2020 is provided in Figure 2:

[38] The volumes of general allowances have been determined taking into account Decision 1359/2013/EU. The volumes of aviation allowances have been determined taking into account Decision No 377/2013/EU and Regulation (EU) No 421/2014.
[39] Early auctions of allowances in phase 3 were performed in 2012 in view of the widespread commercial practice in the electricity sector of selling electricity on a forward basis and purchasing the required inputs (including allowances) when they sell their output.
[40] The table includes auction volumes for EU27 + UK + EEA.

Figure 2: Clearing price for general allowances auctions from 2013 to 30 June 2020



___ Auction Clearing Price

Source: EEX

The number of participants in the auctions of general allowances from 2013 to 30 June 2020 is provided in Appendix 2. The auction platforms publish detailed results of each auction in a timely manner on dedicated websites. Further information on the performance of the auctions, including on the participation, cover ratios and prices, can be found in the Member States' reports published on the Commission's website[41].

The total revenues generated by Member States, the UK and EEA countries from the auctions between 2012 and 30 June 2020 exceeded EUR 57 billion (see Tables 2.1 and 2.2 in Appendix 2). In 2019 alone, the generated total revenues were above EUR 14 billion, while in the first half of 2020 they reached EUR 7.9 billion. The EU ETS Directive provides that at least 50% of auction revenues, including all revenues generated from allowances distributed for the purposes of solidarity and growth, and all revenues from allowances issued in respect of aviation[42], should be used by Member States for climate and energy related purposes.

According to the information submitted to the Commission by the Member States, Member States spent or planned to spend a total of 77% of these revenues for specified climate and energy related purposes in 2019. In the period 2013-2019, about 78% of auction revenues were spent for such purposes. While a small share of this amount (about 1.9 billion or 4% of total revenues in this period) was spent on international climate and energy purposes, the

[41] http://ec.europa.eu/clima/policies/ets/auctioning/documentation_en.htm
[42] Article 3d(4) of Directive 2003/87/EC.

majority of auction revenues in phase 3 were spent on domestic climate and energy purposes (mostly on renewable energy, energy efficiency and sustainable transport).[43]

In 2019, the Auctioning Regulation was amended[44] to establish the framework for the auctioning of allowances and the management of projects under the Innovation Fund and the Modernisation Fund in phase 4. The amendment also reflects the classification of EU ETS allowances as financial instruments under Directive 2014/65/EU on markets in financial instruments (MiFID2).

In May 2020, the Commission published an invitation[45] to the procurement of the third common auction platform of the EU ETS, which will auction allowances on behalf of 25 Member States and the 3 EEA-EFTA States, as well as the allowances for the Innovation Fund and the Modernisation Fund. The auctions at the third common auction platform are expected to start in the beginning of 2021.

3.1.2.3. Derogation from full auctioning for electricity and heat production

Article 10c of the EU ETS Directive derogates from the general rule of auctioning in order to support investments in the modernisation of the electricity sector in certain lower income EU Member States. Eight out of ten eligible Member States* made use of this derogation in phase 3 and allocate to electricity generators a number of free allowances provided corresponding investments were carried out.
The free allowances under Article 10c are deducted from the quantity that the respective Member State would otherwise auction. The general principle is that electricity generators can receive free allowances of an equivalent value to the investments they carry out from their National Investment Plans, or to payments made into a national fund through which such investments are financed, based on national rules for the implementation of the derogation. As the free allocation of allowances to electricity generators under Article 10c of the ETS Directive would in principle involve State aid, the national schemes for the implementation of the Article 10c derogation have been cleared under state aid rules and are subject to the requirements of the State Aid Guidelines. Allocation takes place on the basis of annual reporting to, and authorisation by, the Commission.**
Transitional free allocation under Article 10c will continue to be available in phase 4 but with enhanced transparency provisions and with the option for eligible Member States to use all or part of their Article 10c allocation to support investments within the framework of the Modernisation Fund (see chapter 3.1.2.6). Based on information submitted to the Commission by Member States, use of Article 10c will be limited in the next phase, with only Bulgaria, Romania, and Hungary opting to implement the derogation. The other eligible Member States***, including Poland and Czechia, which had the highest volumes of transitional free allocation in phase 3, opted not to use the derogation any longer.

* In phase 3, Bulgaria, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland and Romania were eligible for the derogation. Malta and Latvia decided not to make use of it.

** Guidelines on certain State aid measures in the context of the greenhouse gas emission allowances trading scheme post 2012, OJ C158, 05.06.2012, p.4.

*** In phase 4, Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Romania are eligible for the derogation.

The total value of reported investment support during the years 2009-2019 is around EUR 13.1 billion. About 83% of this amount was dedicated to upgrading and retrofitting infrastructure, while the rest of the investments were in the diversification of the energy mix and in clean technologies.

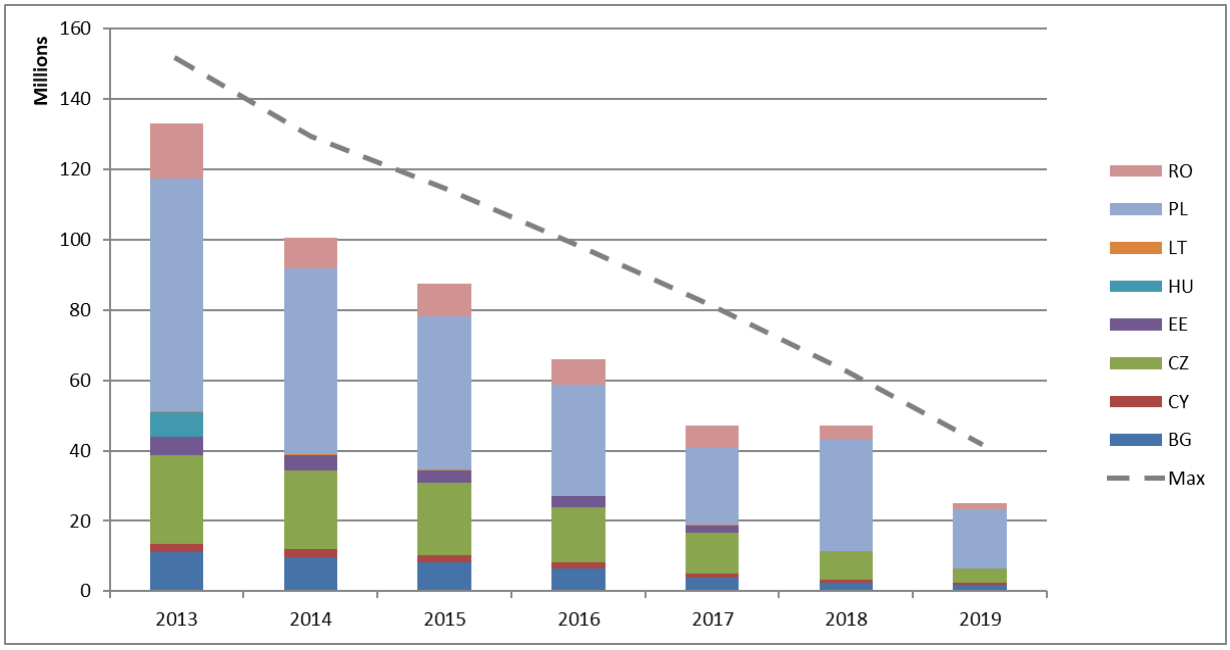
[43] More detailed information on the use of auctioning revenues can be found in the EU Climate Action Progress Report 2020.
[44] Commission Delegated Regulation (EU) of 28.8.2019 amending Regulation (EU) No 1031/2010 to align the auctioning of allowances with the EU ETS rules for the period 2021 to 2030 and with the classification of allowances as financial instruments pursuant to Directive 2014/65/EU of the European Parliament and of the Council
[45] https://etendering.ted.europa.eu/cft/cft-display.html?cftId=6456

The number of allowances allocated for free to electricity generators in 2019 is indicated in Table 1.1, Appendix 1 to the Annex, while the maximum number of allowances per year is indicated in Table 1.2 of Appendix 1.

Allowances remaining unallocated from phase 3 may either be auctioned or, following the provisions of the EU ETS Directive, may be allocated in 2021-2030 to Article 10c investments selected through competitive bidding or to the Modernisation Fund. While Hungary opted to transfer its unallocated 10c allowances from phase 3 to its 10c volume in phase 4, most other Member States decided to auction their remaining allowances. Romania made use of both options, transferring part of its unallocated allowances to phase 4, and auctioning part of it.

Figure 3 shows the number of 10c allowances that were allocated for the period 2013-2019 per Member State.

Figure 3: Number of allowances allocated for free pursuant to Article 10c[46]

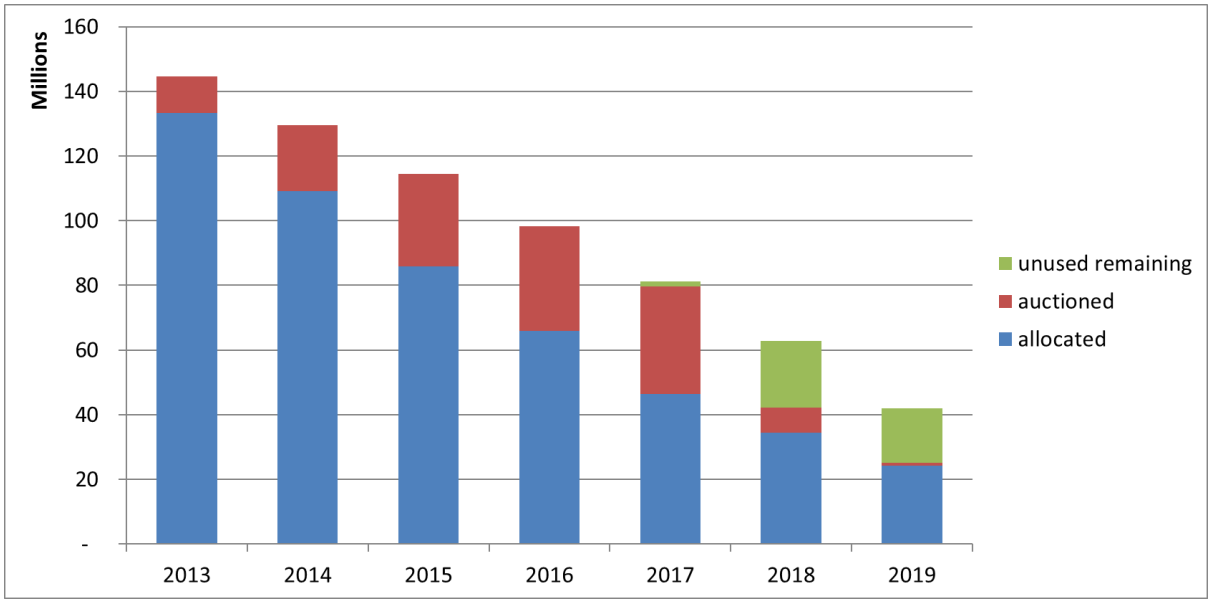


Source: DG Climate Action

Figure 4 shows the extent to which 10c allowances from each allocation year of phase 3 have been allocated, added to the auctions, or remain unused.

[46] The number of 10c allowances included in this figure can include allowances issued with a delay for previous years. In this case, the relevant amounts per year are reflected in the EUTL.

Figure 4: Distribution of allowances (allocated, auctioned, remaining unused)[47]



Source: DG Climate Action

Table 4 shows the number of unused 10c allowances which have been auctioned in the period 2013-2020, as well as the number of allowances remaining unused after allocation year 2019 that will either be auctioned in 2021, transferred for allocation under Article 10c in phase 4, or transferred to the Modernisation Fund.

Table 4: Treatment of the unused 10c allowances from allocation years 2013-2019[48]

Member State	Number of 10c allowances which have been auctioned (in millions)	Number of 10c allowances remaining unused (in millions)
BG	**9.8**	**0.5**
CY	**0.0**	**0.0**
CZ	**0.4**	**0.0**
EE	**2.9**	**0.0**
LT	**1.2**	**0.1**
PL	**105.3**	**34.7**
RO	**15.4**	**3.6**
HU	**0**	**0.9**
Total	**135.0**	**39.7**

Source: DG Climate Action

The number of unallocated allowances that have been auctioned (or planned for auctioning) by Member States under the Article 10c derogation for the period 2013-2021 is indicated in Table 1.3 in Appendix 1 to the Annex.

[47] The figures include amounts to auction up to and including the 2020 auctioning calendar.
[48] The figues include amounts to auction up to and including the 2020 auction calendar (from allocation years 2013-2019).

3.1.2.4. NER 300 programme

The NER 300 is a large-scale funding programme for innovative low-carbon energy demonstration projects. It is aimed at demonstrating environmentally safe carbon capture and storage (CCS) and innovative renewable energy (RES) technologies on a commercial scale within the EU. The NER 300 was funded from the monetisation of 300 million emission allowances from the NER. The funds were awarded to projects selected through two rounds of calls for proposals in December 2012 and July 2014.

As a result of the two calls for proposals of the NER 300 programme, 38 RES projects and 1 CCS project were awarded in 20 EU Member States, amounting to EUR 2.1 billion. By 31 December 2019, 9 projects are operational: bionergy project Verbiostraw in Germany, on-shore wind projects Windpark Blaiken in Sweden and Windpark Handalm in Austria, offshore wind projects Veja Mate and Nordsee One in Germany, smart grid project Puglia Active Network in Italy, floating off-shore wind projects Vertimed in France and Windfloat in Portugal, as well as the concentrated solar power project Minos in Greece. One project, the Italian bionergy BEST, is considered completed.

Another three projects from the second call are advancing in their preparations to enter into operation by 30 June 2021. Given the challenging economic and policy context since the NER 300 programme was established, 22 projects have not been able to raise sufficient additional financial support and have been withdrawn, releasing a total of EUR 1.455 billion. Four more projects are under various stages of development.

The amended NER 300 Decision[49] allowed for the re-investment of the released funds from the cancelled projects of the first call (EUR 708.7 million so far) in existing financial instruments - the InnovFin Energy Demonstration Projects (EDP) and the Connecting Europe Facility Debt Instrument (CEF DI), both managed by the European Investment Bank. This will allow maximising the benefits of the NER 300 programme and leveraging additional private investments in low-carbon innovation.

In the period covered by the report, two new projects have been selected to benefit from the unspent funds of the NER 300 under the InnovFin EDP, with the support amounting to some EUR 95 million (see Appendix 8 to the Annex).

Project development assistance (PDA) under the InnovFin instrument is also available to project promoters to increase the maturity of their projects. Recently, three climate projects benefited from EUR 692.000 of PDA-financing, backed by the NER 300 undisbursed funds. These projects, in Sweden, Italy and the Netherlands, address climate change by developing innovative, first-of-a-kind demonstration plants (see Appendix 8 to the Annex)

Finally, support of some EUR 34 million from undisbursed NER 300 funds was awarded under the CEF DI to three innovative clean transport projects that are located in Italy and Germany (see Appendix 8 to the Annex).

[49] Commission Decision (EU) 2017/2172 of 20 November 2017 amending Decision 2010/670/EU as regards the deployment of non-disbursed revenues from the first round of calls for proposals.

The released funds from the cancelled projects of the second call (EUR 746 million so far) will be added to the resources avaible for the Innovation Fund.

Table 5: NER 300 projects awarded under the first and second calls for proposals[50]

	1st Call for proposals	2nd Call for proposals
Projects in preparation	0	6
Projects under status revision	1	0
Projects in operation	8	1
Projects completed	1	0
Projects withdrawn	10	12
Total	20	19

Source: DG Climate Action

3.1.2.5. The Innovation Fund

The Innovation Fund is one of the two low-carbon funds created by the EU ETS Directive for 2021-2030. It will support, on a competitive basis, first-time market development and commercial scale demonstration of innovative technologies and breakthrough innovation in sectors covered by the EU ETS, including innovative renewables, energy intensive industries, carbon capture, utilisation and storage (CCUS),energy storage, as well as substitute products and cross-sectoral projects. It will be funded by the auctioning of 450 million allowances and undisbursed revenues from the second call of the NER 300 Programme.

The first call for proposals[51] under the Innovation Fund was launched in July 2020. The call is open for projects in eligible sectors from EU Member States, Norway and Iceland. It will provide grant funding of EUR 1 billion in total to large-scale clean technology projects with capital costs of above EUR 7.5 million. The Innovation Fund will give grants in a flexible manner, based on project-specific milestones, and can support up to 60% of the costs linked to innovation. Grants from the fund can be combined with other public funding initiatives, such as State aid or other EU funding programmes. The first call will be followed by regular calls until 2030, to help companies invest and bring to the market the breakthrough clean technology solutions needed for EU climate neutrality in 2050.

[50] In line with Commission Decision 2010/670/EU, projects awarded under the first call had to reach final investment decision by end 2016, while projects awarded under the second call had to do so by end June 2018.
[51] The call for proposals can be accessed here: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innovfund-lsc-2020-two-stage

Independent external evaluators will assess the projects based on a comprehensive set of criteria: greenhouse gas emission avoidance, innovation potential, the financial, technical and operational maturity of the projects, as well as their potential for scaling up and cost efficiency.

For projects that are found promising, but not yet sufficiently mature, the call foresees a budget of EUR 8 million to assist with project development.

Projects can apply via the EU Funding and Tenders portal[52]. The deadline for submission of applications to the first stage is 29 October 2020. Applicants will be informed about the results of the evaluation and invited to submit a full application or receive project development assistance in the first quarter of 2021. The information on the evaluation results from the second stage will be provided in the fourth quarter of 2021. Grants will be awarded at the end of 2021.

Furthermore, the Commission is planning to launch a dedicated call for small-scale projects by the end of 2020.

3.1.2.6. The Modernisation Fund

The Modernisation Fund is the second of the two low-carbon funds created by the EU ETS Directive for phase 4. It will support investments in modernising the power sector and wider energy systems in ten lower-income Member States.[53] The fund will be operational as of 2021.

The financial resources of the Modernisation Fund are distributed among the beneficiary Member States based on Article 10(d) and Annex IIb of the ETS Directive. In addition, Romania, Lithuania, Czechia, Croatia, Hungary, and Slovakia decided to transfer more allowances to their shares of the Modernisation Fund. As a result, almost 650 million allowances in total are available to the fund.

The ETS Directive defines the priority areas for investment, namely generation and use of electricity from renewable sources, the improvement of energy efficiency (except fossil fuels installations), energy storage, the modernisation of energy networks, and just transition in carbon-dependent regions. At least 70% of the Modernisation Fund resources must be spent on priority investments. Investments in non-priority areas would be subject to a deeper assessment by the European Investment Bank (EIB) and a vote by an investment committee composed of Member States, the EIB and the Commission.

The Commission adopted the implementing act[54] on the operation of the Modernisation Fund in July 2020. The implementing act establishes a lean procedure where beneficiary Member States are responsible for the selection, financing and reporting of investments, and must

[52] https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home
[53] Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia
[54] Commission Implementing Regulation (EU) 2020/1001, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32020R1001

comply with applicable State Aid rules. The Commission will be responsible for the disbursement decisions, following the assessment by the EIB.

3.1.2.7. Compensation of indirect carbon costs

In addition to EU-wide harmonised free allocation to cover direct carbon costs, EU Member States may grant State aid to compensate some electro-intensive industries for indirect carbon costs, i.e. costs resulting from increased electricity prices due to power generators passing on the costs of purchasing allowances to consumers.

To minimize competition distortions in the internal market, increase transparency, and preserve the objective of the EU ETS to achieve a cost-effective decarbonisation, the Commission adopted the EU ETS State Aid Guidelines*, which are valid until end of 2020. The Guidelines determine, *inter alia*, eligible sectors and maximum amounts for compensation of indirect carbon costs.

In view of the imminent expiration of the current Guidelines, the Commission revised the EU ETS State Aid Guidelines for 2021-2030. The new State Aid Guidelines** were adopted on 21 September 2020 (see also Appendix 6 to the Annex).

* Guidelines on certain State aid measures in the context of the greenhouse gas emission allowances trading scheme post 2012, OJ C158, 05.06.2012, p.4

** Guidelines on certain State aid measures in the context of the system for greenhouse gas emission allowance trading post 2021, OJ C 317, 25.09.2020, p. 5–19

To date, the Commission has approved 14[55] indirect carbon cost compensation schemes in 13 Member States. In August 2019, the Commission approved a new scheme for Poland[56]. Poland is expected to start compensating in 2020 for indirect costs incurred in 2019. The same holds for a Romanian scheme which was approved by the Commission in May 2020[57]. A number of other Member States have indicated their intention to start compensating for indirect costs.

The EU ETS Directive determines that within three months of the end of each year, Member States that have an indirect cost compensation scheme in place should make available to the public, in an easily accessible form, the total amount of compensation provided and a breakdown per benefitting sector and subsector.

A summary of the data published by the Member States for compensation paid out in 2019 is presented in Table 6. Since Poland and Romania did not compensate for indirect costs incurred in 2018, these Member States are not reflected in the table.

[55] In addition, modifications have been adopted to the French and Spanish schemes.
[56] https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_53850
[57] https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_56403

Table 6: Indirect carbon cost compensation paid out in 2019

Country	Duration of the scheme	Compensation disbursed in 2019 for indirect costs incurred in 2018 (in EUR million)	Number of beneficiaries (installations)	Auction revenue 2018 (in EUR million)[58]	Percentage of auction revenues spent on indirect cost compensation
UK[59]	2013 - 2020	22	60	1607	3.7%
DE	2013 - 2020	219	898	2565	8.5%
BE (FL)	2013 - 2020	35.9	107	379	11.4%
BE (WL)	2017 - 2020	7.5	29		
NL	2013 - 2020	40.3	92	501	8.0%
EL	2013 - 2020	16.8	50	519	3.2%
LT	2014 - 2020	0.3	1	80	0.3%
SK	2014 - 2020	6	8	229	2.6%
FR	2015 - 2020	102.1	286	818	12.4%
FI	2016 - 2020	29.1	61	250	11.6%
ES	2013 - 2015	172.2	183	1291	13.3%
LU	2018-2020	4.2	4	18	23.2%

Source: Countries' submissions to DG Climate Action

The total indirect cost compensation paid out by the 10 EU Member States and the UK in 2019 for costs incurred in 2018 amounted to around EUR 656 million. That is almost 200 million more than the amount paid out in 2018. The notable increase compared to the previous year can be explained, on the one hand, by the significant budget increase of Spain (from EUR 6 million in 2018 to EUR 172 million in 2019), and on the other hand by the slight increase of the carbon price used to calculate the compensation. The sustained increase of the carbon price in 2018 is not yet fully reflected in the amounts paid out in 2019 due to the fact that the Guidelines prescribe the use of the forward price at year x-1.

One of the transparency provisions in the revised EU ETS Directive determines that Member States that have spent more than 25% of their auction revenues on indirect cost compensation in any year have to publish a report setting out the reasons why this amount was exceeded. The fact that in 2018 auction revenues were significantly higher than in previous years, combined with the fact that compensation did not increase so rapidly yet given the obligation to use the price of the previous year, means that in none of the Member States the 25% threshold was reached. On average, Member States spent 7.9% of their auction revenues on the compensation of indirect costs. In the coming years, Member States are invited to keep a close watch on their budgets for this item of expenditure.

[58] Revenues from the auctioning of aviation allowances are excluded.

[59] The figures for the UK reflected in the table are the same figures as in last year's report. The reason is comparability with other countries implementing indirect carbon cost compensation schemes. The UK publishes its figures faster than other countries and hence 2020 figures are already available here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/903187/indirect-cost-compensation-uk-2019.pdf

3.1.3. International credits

Participants in the EU ETS can still use international credits from the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) towards fulfilling part of their EU ETS obligations until the end of the 2020 compliance cycle*, subject to qualitative and quantitative restrictions. These credits are financial instruments that represent a tonne of CO_2 removed or reduced from the atmosphere as a result of an emissions reduction project. Credits are not surrendered directly, but may be exchanged for allowances at any time during the calendar year.

According to the provisions of the EU ETS Directive, international credits will no longer be used for EU ETS compliance in 2021-2030.

* CDM and JI projects generate Kyoto carbon credits: Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs) respectively.

Although the exact quantity of international credit entitlements over phases 2 and 3 (2008-2020) partially depend on the quantity of future verified emissions, market analysts estimate that it will amount to approximately 1.6 billion credits. As of end June 2020, the total number of international credits used or exchanged amounted to around 1.54 billion, accounting for over 96% of the estimate for the allowed maximum. In 2019 alone, about 17.3 million units were exchanged.

For a full overview of the international credits exchange, see Appendix 3 to the Annex.

3.2. Demand: allowances taken out of circulation

In 2019, emissions from stationary installations participating in the EU ETS decreased strongly by 9.1% compared to 2018 based on the information recorded in the Union Registry. As table 7 demonstrates, the decrease was mainly driven by electricity and heat production, where emissions fell by about 15% compared to 2018, reflecting decarbonisation from coal being replaced by electricity from renewables and gas-fired power production. Emissions from industry fell by close to 2%, marking their strongest decrease in phase 3 so far. Overall, since the start of phase 3 in 2013, ETS emissions from stationary installations have decreased by 19.8%.

Table 7: Verified emissions from stationary installations (in million tonnes CO_2 equivalents)[60]

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019
Verified total emissions	1 904	1 867	1 908	1 814	1 803	1 750	1 755	1 682	1 530
Change from year x-1		-2.0%	2.2%	-4.9%	-0.6%	-2.9%	0.2%	-4.1%	-9.1%
Verified emissions from electricity and heat production	1 206	1 201	1 138	1 049	1 043	1 001	996	930	792
Change from year x-1		-0.5%	-5.2%	-7.8%	-0.5%	-4.1%	-0.5%	-6.6%	-14.9%
Verified emissions from industrial installations	698	666	770	765	760	750	759	753	738
Change from year x-1		-4.6%	15.6%	-0.7%	-0.7%	-1.3%	1.3%	-0.8%	-1.9%
Real GDP growth rate EU27 + UK	1.8%	-0.4%	0.3%	1.7%	2.4%	2.0%	2.6%	2.0%	1.5%

Source: EUTL, GDP data as reported on Eurostat (table code: tec00115, accessed in July 2020). Verified aviation emissions are reported separately in chapter 4.

A breakdown of ETS verified non-CO_2 emissions from installations by type of greenhouse gas (N_2O and PFCs) is provided in table 4.1, Appendix 4 to the Annex.

[60] Figures for EU27 + UK + EEA. The categorisation into electricity and heat production and industry in Table 7 is based on the NACE classification from the 2020 submission by Member States of their National Implementation Measures pursuant to Article 11 of Directive 2003/87/EC.

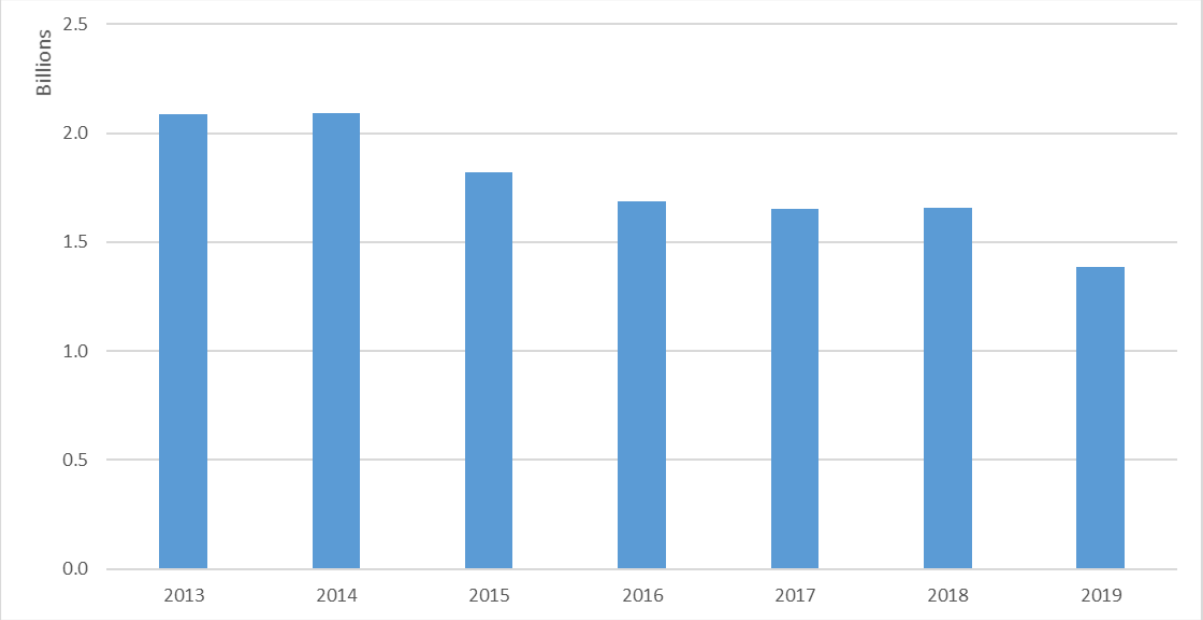
The number of allowances cancelled on a voluntary basis amounts to 33 498 in 2019. In total, voluntary cancellations of 372 840 allowances have been recorded until June 2020. Most of the cancellations between 2013 and June 2020 were performed by account holders in the Registries of the United Kingdom, Germany, Sweden, Norway, and the Netherlands.

3.3. Balancing supply and demand

At the start of phase 3 in 2013, the EU ETS was characterised by a large structural imbalance between the supply and demand of allowances, equaling 2.1 billion allowances. To address the structural imbalance, a Market Stability Reserve (MSR) was created in 2015 to render the auction supply of emission allowances more flexible. The MSR began operating in 2019.

In 2018, the surplus was 1.65 billion allowances, while in 2019 it reached a significantly lower level, of 1.385 billion allowances. Figure 5 presents the development of the surplus in the European carbon market by the end of 2019.

Figure 5: Development of the surplus in the European carbon market in 2013-2019



Source: DG CLIMATE ACTION

In the context of the revision of the EU ETS[61], important changes were made to the functioning of the MSR, as shown in the text box below.

[61] 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 March 2018, p. 3); available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.076.01.0003.01.ENG&toc=OJ:L:2018:076:TOC

A key notion for the functioning of the MSR is the total number of allowances in circulation (TNAC). Allowances will be added to the reserve, if the TNAC is above a predefined upper threshold (833 million allowances) and will be released from the reserve, if the number is below a predefined lower threshold (below 400 million allowances)*. Thus, the MSR absorbs or releases allowances if the circulating ones are outside of a predefined range. Back-loaded and so-called unallocated** allowances will also be put in the reserve. From 2023, allowances held in the MSR exceeding the previous year's auction volume will no longer be valid.

The total number of allowances in circulation relevant for determining the MSR feeds and releases is calculated on the basis of the following formula:

TNAC = Supply – (Demand + allowances in the MSR)

The components of supply and demand used in the formula are described in the Communication from the Commission on the TNAC, which is published every year by 15 May.***

*Or where measures are adopted under Article 29a of the EU ETS Directive.

**Unallocated allowances are allowances not allocated pursuant to Article 10a(7) of the EU ETS Directive, i.e. allowances remaining in the new entrants' reserve, and resulting from the application of Article 10a(19) and (20), i.e. allowances foreseen for free allocation to installations but remaining unallocated because of (partial) cessation of operations or significant capacity reductions. De facto "unallocated" allowances stemming from the application of the relevant carbon leakage factor to sectors not included in the carbon leakage list during the current period, as well as any allowances that are not allocated under Article 10c of the ETS Directive, are not foreseen to be placed in the Market Stability Reserve under Article 1(3) of Decision (EU) 2015/1814. Such allowances are therefore not covered (please refer to p. 225 of the Impact Assessment (SWD(2015) 135 final) accompanying the 2015 proposal for revision of the EU ETS Directive.

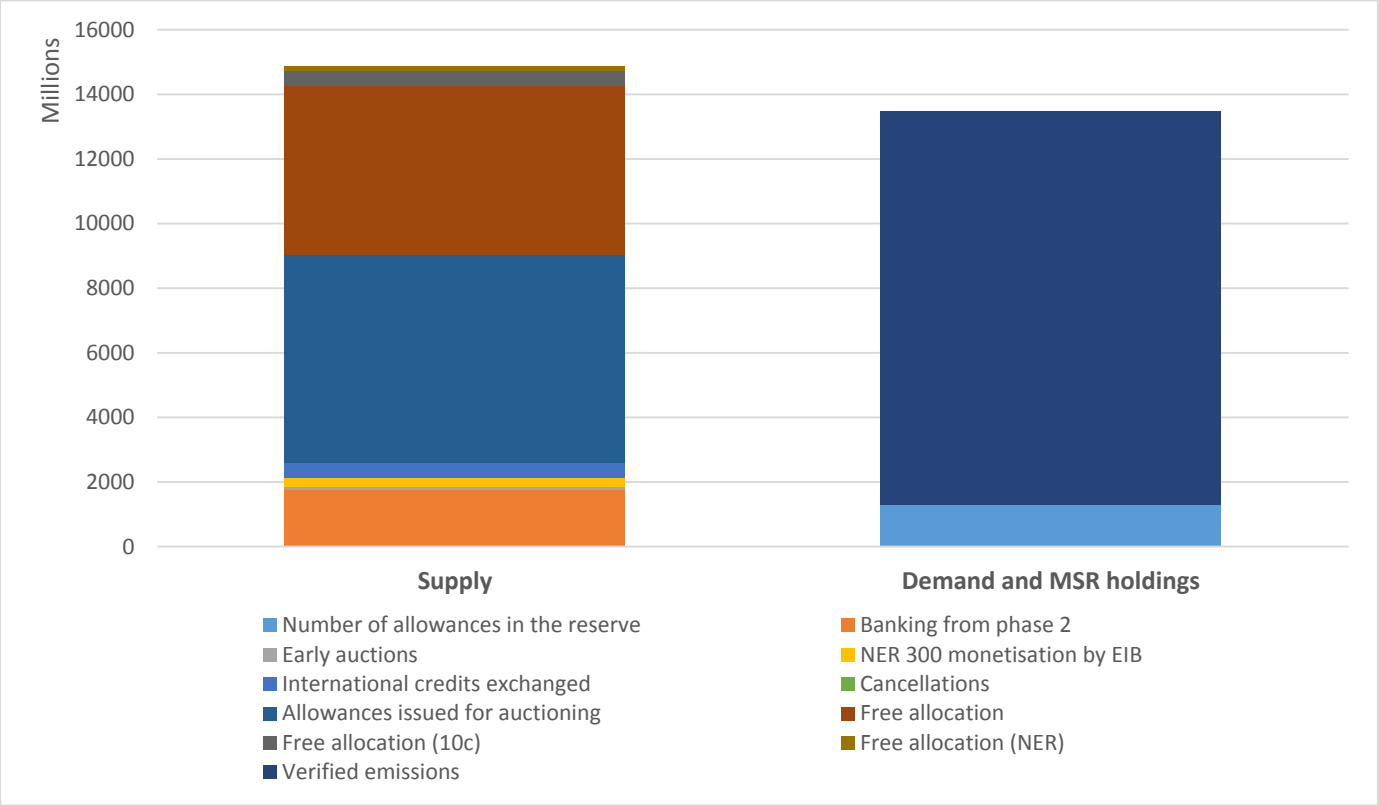
***See the latest TNAC Communication, published in May 2020: C(2020) 2835 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2020_2835_en.pdf.

The carbon market report allows for the consolidation of supply and demand figures which are published according to the timeline of reporting obligations stemming from the EU ETS Directive and its implementing provisions.

Figure 6 shows the composition of supply and demand in 2019. The relevant data have also been published as part of the fourth communication on the total number of allowances in circulation (TNAC) for MSR purposes[62].

[62] C(2020) 2835 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2020_2835_en.pdf

Figure 6: Composition of cumulative supply and demand (in million allowances) until the end of 2019



Source: DG Climate Action

In preparation for the MSR becoming operational in 2019, the Commission has regularly published as from mid-May 2017[63] the TNAC for the preceding year. In May 2020, the TNAC was published for the fourth time, corresponding to 1 385 496 166 allowances[64]. The 2020 publication will continue to lead to the placement of allowances in the MSR, reducing the auction volume in 2020 and 2021.

Thus, on the basis of the 2019 and 2020 TNAC and the revised legislation, the auctions in 2020 were reduced by close to 375 million allowances (or nearly 35%). Auction volumes in 2021 will also be reduced following the same approach. Appendix 7 provides information on the contributions by Member State to the MSR for the whole of 2020 .

In 2021, the Commission will carry out the first review of the MSR. The MSR Decision requires that a review be carried out three years after the start of its operation (i.e. the end of 2021). The review will be carried out in the wider context of a revision of the EU ETS in the light of the EU's increased emissions reductions target for 2030, which is planned for June 2021. The Commission will review the MSR on the basis of an analysis of the orderly functioning of the European carbon market, paying particular attention to the percentage figure for the MSR feed, the numerical value of the threshold, and the number of allowances

[63] C(2017) 3228 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2017_3228_en.pdf
[64] C(2020) 2835 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2020_2835_en.pdf

to be released from the reserve, and looking also into the impact of the reserve on growth, jobs, the EU's industrial competitiveness and on the risk of carbon leakage.

4. AVIATION

The aviation sector has been part of the EU ETS since 2012. The original legislation covered all flights outgoing and incoming to the European Economic Area (EEA). However, the EU has temporarily limited obligations to flights of all nationalities of airline within the EEA, in order to support the development of a global measure by the International Civil Aviation Organisation (ICAO) to reduce aviation emissions.

In October 2016, the ICAO Assembly agreed on a resolution on the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), to start in 2021. CORSIA is a carbon offsetting scheme with the objective of stabilising net emissions from international aviation at 2020 levels through the purchase and cancellation of international credits. In light of this outcome, the EU ETS Directive was amended in 2017 to prolong the intra-EEA scope for aviation until 2023.

The EU ETS for aviation covers flights on routes between aerodromes situated in the European Economic Area (EEA), and ensures equal treatment of airlines on flight routes. The EU ETS Directive foresees that the European Commission will report to the European Parliament and to the Council on ways to implement CORSIA in EU law through a revision of the Directive. Unless actively revised, the geographic scope derogation of the EU ETS expires at the end of 2023, reverting to cover all flights departing from (and, unless exempted, arriving) in the EEA.

In 2019, allowances were issued in line with the intra-EEA scope. The free allocation amounted to slightly over 32.4 million allowances. This number comprises the free allocation (slightly over 31.3 million allowances) and nearly 1.1 million free allowances allocated from the special reserve for new entrants and fast growing operators. Allocations from this reserve are doubled in 2017-2020 as they relate to the full period 2013-2020. The volume auctioned in 2019 was approximately 5.5 million allowances. With regard to developments in aviation emissions, verified emissions grew more slowly in 2019 (by 1% compared to 2018), reaching the level of 68.2 million tonnes of CO_2.

Table 8 shows a summary of verified emissions, free allocation, and auction volumes for the aviation sector since the start of phase 3.

Table 8: Verified emissions and allocation to the aviation sector (in millions)

Year	2013	2014	2015	2016	2017	2018	2019	2020
Verified emissions (in million tonnes CO_2 equivalents)	53.5	54.8	57.1	61.5	64.4	67.5	68.2	
Change of verified emissions to year x-1		2.5%	4.1%	7.7%	4.8%	4.8%	1%	
Free allocation (EU27 +UK+EEA)[65]	32.4	32.4	32.1	32.0	33.1	31.3	31.3[66]	31.2
Free allocation from special reserve for new entrants and fast growing operators	0	0	0	0	1.1	1.1	1.1	0.9
Volumes of allowances auctioned	0	9.3	16.4	6.0	4.7	5.6	5.5	3.4[67]

Sources: EUTL, DG Climate Action, EEX

The volumes of aviation allowances auctioned over the period 2013-2015 reflect the 2013 co-legislator's decision to "stop the clock"[68] and limit climate obligations only to flights within the EEA. Compliance for the aviation sector was postponed for 2012 and 2013. The postponed 2012 volumes of allowances were thus auctioned in 2014, while compliance took place between January and April 2015 for aviation emissions from 2013 and 2014.

The inclusion of the aviation sector in the EU ETS had a significant impact on the environmental performance of the system as a whole. In Phase 3, until 2019, aircraft operators surrendered 296 million aviation allowances and 127 million general allowances, the latter figure representing the contribution of the aviation sector to the overall stringency of the EU ETS.

[65] These numbers do not take into account all closures of aircraft operators and free allowances from the Special Reserve.
[66] Taking into account the numbers withheld due to closures, the real allocation for 2019 would be 1.4 million below the presented figure. Allocation for the UK (4.31 million allowances of the total for 2019) that was suspended in 2019 due to the safeguard measures adopted by the Commission to protect the environmental integrity of the EU ETS, resumed in 2020.
[67] Until end June 2020
[68] Decision No 377/2013/EU of the European Parliament and of the Council of 24 April 2013 derogating temporarily from Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community Text with EEA relevance, OJ L 113, 25.4.2013, p. 1.

In June 2018, ICAO adopted the CORSIA Standards and Recommended Practices (SARPs)[69], which, together with the Implementation Elements, detail the functioning of the scheme. While supporting the formal adoption of the SARPs by ICAO, the EU and its Member States followed ICAO procedures to notify the existing differences between relevant EU legislation and CORSIA[70]. Differences from other States have not yet been published by the ICAO.

The significant impact of COVID-19 on international aviation also had repercussions on CORSIA. Aviation emissions in 2020 are expected to fall to below 40% of 2019 levels. In light of this impact, the global aviation industry, supported by numerous ICAO participating countries, successfully requested the altering CORSIA's baseline from the original 2019-2020 average of emissions to a 2019 average only for the CORSIA pilot phase. Thereby, the future offsetting obligations for airlines have been significantly reduced or eliminated compared to the originally foreseen baseline. Whether the 2019-only baseline will be extended beyond 2023 is to be decided in the coming years.

As part of the broader package of legislation under the European Green Deal and based on the EU ETS Directive as amended in 2017[71], the Commission is currently preparing a proposal to amend the EU ETS for aviation by June 2021. The proposal will be two-fold. It will reduce the share of allowances allocated for free to aircraft operators, to reduce greenhouse gas emissions further. It will also address the implementation of CORSIA in EU law in a way that is consistent with the EU's 2030 climate objectives.[72] Already agreed revisions to the EU ETS provide for the extension of the Linear Reduction Factor of 2.2% to the aviation cap as of phase 4 of the EU ETS, starting in 2021.

[69] https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx
[70] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018D2027
[71] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.350.01.0007.01.ENG
[72] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12494-Revision-of-the-EU-Emission-Trading-System-Directive-concerning-aviation-

5. MARKET OVERSIGHT

Under the revised Directive on Markets in Financial Instruments* (MiFID2), emission allowances are classified as financial instruments as of 3 January 2018. This means that rules applicable to traditional financial markets (those including carbon derivatives trade on leading platforms or over-the-counter (OTC)) also apply to the spot segment of the secondary carbon market (transactions in emission allowances for immediate delivery in the secondary market). This segment is thus put on equal footing with the derivatives market in terms of transparency, investor protection and integrity. Oversight in the primary market continues to be covered by the Auctioning Regulation, other than issues related to market abuse.

By virtue of cross-references to MiFID2 definitions of financial instruments, other pieces of financial market legislation apply. This is in particular the case for the Market Abuse Regulation (MAR)**, which covers transactions and conduct involving emission allowances, on both primary and secondary markets. Similarly, a cross-reference to MiFID2 in the Anti-Money Laundering Directive*** will trigger a mandatory application of customer due diligence checks by MiFID-licensed carbon traders to their clients in the secondary spot market in emission allowances. ****

* Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU

** Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC

*** Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC

****Due diligence checks are already mandatory in the primary market and in the secondary market in emission allowances' derivatives.

In 2019, the number of participants eligible to bid in the auctions at the Common Auction Platform continued to grow. Starting with 80 participants in January, the year ended with 86 eligible bidders in December 2019. Operators remained the most dominant category of participants eligible to bid in the auctions (around 70%) followed by investment firms and credit institutions (around 20%) and persons exempt from MiFID requirements (10%).[73]

Under the existing market abuse rules, the national competent authorities[74] are responsible for monitoring the market, both with respect to the auctions and the secondary market. At

[73] All data is taken from the Common Auction Platform (CAP2) monthly reports to the Commission.
[74] More detailed information on the activities of national competent authorities in monitoring the market is available in the 2019 Carbon Market Report (COM(2019) 557 final/2), available here: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0557R(01)

European level, their actions are coordinated by the European Securities and Markets Authority (ESMA), as is the case for other financial instruments.[75]

[75] The list of national competent authorities responsible under the Market Abuse Regulation can be found on ESMA's webpages. The list of European Financial Intelligence Units, which deal with issues related to money laundering and terrorist financing, can be found on the webpages of Europol.

6. MONITORING, REPORTING AND VERIFICATION OF EMISSIONS

The monitoring, reporting, verification and accreditation (MRVA) requirements of the EU ETS are harmonised in the Monitoring and Reporting Regulation (MRR)* and the Accreditation and Verification Regulation (AVR)**.

The monitoring system in the EU ETS is designed as a 'building block' approach which allows a high degree of flexibility for operators to ensure cost-efficiency, while at the same time achieving high reliability of the monitored emissions data. For this purpose, several monitoring methods ('calculation-based' or 'measurement-based', as well as by exception 'fall-back approaches') are allowed. Methods may be combined for individual parts of an installation. For aircraft operators, only calculation-based approaches are feasible, with fuel consumption being the central parameter to be determined for the flights covered by the EU ETS. The requirement for installations and aircraft operators to have a monitoring plan approved by the competent authority on the basis of the MRR prevents arbitrary selection of monitoring methods and temporal variations.

With the AVR for phase 3 and beyond, an EU-wide harmonised approach towards the accreditation of verifiers has been introduced. Verifiers must be accredited by a National Accreditation Body (NAB) in order to carry out verifications in compliance with the AVR. This uniform accreditation system allows verifiers to operate with mutual recognition across all participating countries, thereby taking full advantage of the internal market and helping to ensure sufficient availability overall.

* 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, OJ L 181, 12.7.2012, p. 30.

** Commission Regulation (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council, OJ L 181, 12.7.2012, p. 1.

6.1. General Developments

Experience with the implementation of the MRR and the AVR during phase 3 of the ETS has shown the need for further improvement, clarification and simplification of rules to further promote harmonisation, reduce administrative burden for the operators and participating countries, and to further enhance the efficiency of the system.

Taking this into account, the first update of the two Regulations so as to prepare for phase 4 of the EU ETS and to improve and simplify the MRVA processes, took place in 2018. The revised versions of the MRR[76] and AVR[77] entered into effect on 1 January 2019. Work on the

[76] Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012, OJ L 334, 31.12.2018, p. 1–93

second update started in February 2019. Participating countries were consulted for updating these two Regulations on some targeted issues that could not be addressed during the first update, such as the implementation of the recast of the Renewable Energy Directive[78]. The overall MRVA revision process should be concluded sufficiently ahead of the beginning of phase 4 in 2021.

The efficiency of the compliance system has improved since the MRR allowed countries to make electronic reporting mandatory. As last year, 17 participating countries reported the use of electronic templates or specific file formats for monitoring plans, emissions reports, verification reports and/or improvement reports based on the minimum requirements set by the Commission. 13 participating countries reported that they use some form of automated IT system for EU ETS reporting.

6.2. Monitoring applied

According to the Article 21 reports submitted in 2020, most installations use the calculation-based methodology[79]. Only 155 installations (1.5%) in 23 countries were reported to use continuous emissions measurement systems, most frequently in Germany, the Czechia and France. While the number of countries is the same as last year, there are fewer installations overall using this approach.

Only 13 countries reported the use of the fall-back approach by 34 installations, covering approximately 3.0 million tonnes CO_{2e} (compared to 2.6 million tonnes CO_{2e} by 38 installations in 11 countries in the year before). One installation in the Netherlands is responsible for 42% of the overall emissions reported in relation to the fall-back methodology.

The minimum tier defaults[80] of the MRR are met by the vast majority of installations. Only 90 category C installations (compared to 97 last year), that is 11.8%, were reported to deviate for at least one parameter from the requirement to apply the highest tiers for the major source streams. These deviations are only allowed where the operator demonstrates that the highest tier is technically not feasible or incurs unreasonable costs. Once these conditions no longer apply, the operator has to improve their monitoring system accordingly.

Similarly, reports from 23 participating countries indicate that overall 22% of category B installations are permitted with some form of deviation from the MRR default requirements,

[77] Commission Implementing Regulation (EU) 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council, OJ L 334, 31.12.2018, p. 94–134

[78] 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, OJ L 328, 21.12.2018, p. 82–209

[79] The main reason for this is that the measurement-based methodology involves the deployment of significant resources and know-how for the continuous measurement of the concentration of relevant GHGs, which a lot of smaller operators do not have.

[80] Commission Regulation (EU) No 601/2012 requires all operators to meet certain minimum tiers, with larger emission sources required to meet higher tiers (involving more reliable data quality), while for cost-efficiency reasons less strict requirements apply for smaller sources.

which is nearly similar compared to 19% last year and 21% the year before, demonstrating a steady level of the highest tier compliance.

6.3. Accredited verification

The total number of verifiers is not reported in Article 21 reports. However, the European cooperation for Accreditation (EA) provides a central link to relevant National Accreditation Bodies (NABs) and their lists of EU ETS accredited verifiers[81].

The mutual recognition of verifiers among participating countries is working successfully: 28 countries reported that at least one foreign verifier is active in their territory.

Compliance of verifiers with the AVR is found to be high. No country reported a suspension or withdrawal of accreditation of a verifier. This compares to one suspension and no withdrawals for 2018. Germany reported a reduction made in the scope of six verifiers' accreditation, and Poland for one verifier for 2019, compared to scope reductions for respectively two, one and three verifiers reported by Germany, France and Poland in 2018. Seven countries reported complaints received about verifiers this year (three fewer than last year). The overall number of complaints (66) is 7% lower. 71% of the complaints received are detailed as resolved at the time of reporitng (last year this rate was 93%). Eight countries reported identification of verifier non-conformities as part of the information exchange process between NABs and competent authorities (compared to ten last year).

7. OVERVIEW OF ADMINISTRATIVE ARRANGEMENTS

Countries participating in the EU ETS use different approaches regarding the competent authorities in charge of its implementation. In some countries several local authorities are involved, while in others the approach is much more centralised.

According to Article 21 submissions in 2020, there were, on average, 4 competent authorities involved in EU ETS implementation per country.[82] With regard to the coordination between authorities, different tools were reported, such as legislative instruments for central management of monitoring plans (in 14 countries), binding instructions and guidance by a central competent authority to local authorities (in 10 countries), and regular working groups or meetings between authorities (in 13 countries). Seven countries indicated that no such tools are in place (CY, IE, IS, IT, LI, LU and MT).

On administrative fees charged in relation to permitting and approval of monitoring plans, 13 countries reported in 2020 that they do not charge any fees to installation operators (CY, DE, EE, EL, IE, LI, LT, LU, LV, MT, NL, SE, SK), the same as last year. Aircraft operators in 15

[81] EA list of access points to NABs accrediting verifiers for EU ETS: https://european-accreditation.org/national-accreditation-bodies-having-successfully-undergone-peer-evaluation-by-ea/

[82] In some cases, countries may be reporting a multiple number of regional/local authorities as one competent authority.

countries do not pay fees (BE, CY, CZ, DE, EE, ES, EL, LI, LT, LU, LV, MT, NL, SE, SK). Charges vary significantly across countries and types of services, ranging from EUR 5 to EUR 7283.17 for permit and monitoring plan approval for installations and from EUR 2.19 to EUR 2400 for the same service for aviation operators.

Overall, participating countries' ETS administrative organisation is largely effective. Communication and the sharing of best practices, including via the activities of the EU ETS Compliance Forum and the annual EU ETS Compliance Conference, should continue to be reinforced and encouraged.

8. COMPLIANCE AND ENFORCEMENT

The EU ETS Directive provides for an excess emissions penalty in the form of EUR 100 (indexed to inflation) for each tonne of CO_2 emitted for which no allowance has been surrendered in due time, as well as requiring allowances to be surrendered for these emisisons. Other penalties applicable to infringements in implementation of EU ETS are according to the national provisions set by the concerned country.

For the 2019 compliance cycle, despite the difficult economic situation due to the COVID-19 crisis, the level of compliance with the EU ETS remained very high: most operators, covering more than 99% of emissions from stationary installations, complied with their legal obligations in March and April 2020. Non-compliant installations were typically small. Around 500 aircraft operators reported and complied, including more than 100 commercial aircraft operators that are based outside of the EU but operate flights within the EEA. Non-compliant operators were typically small or ceased operating in 2018.

The competent authorities continue to carry out different compliance checks on the annual emissions reports. Based on Article 21 submissions in 2020, all participating countries[83] check annual emission reports from installations for completeness (100% of reports except BE 31%, ES 94%, FR 95%), and most countries check reports from aircraft operators - all except Hungary, Latvia (both have two aircraft operators) and Liechtenstein (no aircraft operators). The reports further indicate that on average countries check about 83% of installations' reports for consistency against monitoring plans (with 91% of aviation reports) and about 70% of installations' reports against allocation data. Twenty-three countries reported that they also carry out cross-checks against other data for both installations and 24 countries do this for aircraft operators.

Competent authorities in 12 countries carried out conservative estimates regarding missing data in the case of 101 installations (approximately 1% of installations overall), almost twice as many as in the previous three years. The increase seems to be due to a higher number of

[83] Italy did not answer the relevant question in the 2020 submission, therefore, for this country data from the previous year was used as an approximation.

conservative estimates in the Netherlands (51 affected installations in 2019 compared to 11 in 2018), because of more received notifications of monitoring errors compared to previous years. The reported quantity of affected 2019 emissions was 61.0 million tonnes CO_2 (compared to 11.2 million tonnes CO_2 in 2018), approximately 4% of overall emissions (compared to 0.7% in 2018). The most common reasons given for making conservative estimates were emission reports that were not fully in line with MRR requirements and the absence of an emission report by 31 March.

Conservative estimates regarding missing data for aviation were reported by seven countries concerning 33 aircraft operators (5.4% of all operators), and 1.6% of aviation emissions.

Competent authorities' checks remain important to supplement the verifier's work. For 2019, all countries confirmed that they carry out further checks in the case of installations. Most countries reported a similar approach regarding aircraft operators (all except HU, IT, LI and LV). Most countries (all except EL, IT, LU and MT) reported that they carried out spot checks at installations in 2019, and almost half the countries reported spot checks for aviation (all except BG, CY, CZ, EE, ES, FI, FR, EL, HU, IT, LI, LT, LU, LV, MT, NO, PT and UK).

In 2019, the application of excess emissions penalty was reported for 25 installations by 8 countries (DE 1, DK 2, ES 1, IT 4, PL 2, PT 1, RO 7 and UK 7). For aviation, excess emission penalties were reported for 34 aircraft operators (CY 1, DE 3, ES 4, IT 3, PT 11 and UK 12).

Six countries confirmed issue of penalties (other than excess emissions penalties) in 2019. No imprisonments were reported, but fines, formal notices, and warning letters were noted as carried out or yet to be carried out (e.g. due to ongoing legal proceedings), amounting to a total financial value of EUR 7.8 million (of which EUR 0.15 million for aviation).

The most common violations reported for 2019 were failure to submit verified annual emission reports by the due deadline, failure to notify planned or effective changes to capacity, activity levels and operation of an installation on time, and failure to monitor in accordance with the approved monitoring plan and Regulation (EU) No 601/2012.

As reported last year, a fifth EU ETS compliance cycle evaluation took place in 2018 and 2019, with the aim to identify EU ETS compliance issues at the level of participating countries and support them in improving their implementation of the EU ETS. The evaluation was finalised in 2020 and a technical report on the results was published[84].

The report concludes that, while the quality and effectiveness of the approval of Monitoring Plans, the review of Annual Emission Reports and Verification Reports, as well as inspections have improved due to the increased use of the Commission's templates and IT systems, as well as strengthened Competent Authority procedures, some MRV areas continue to cause interpretation problems and would benefit from dedicated training or tailored guidance.

[84] https://ec.europa.eu/clima/sites/clima/files/ets/monitoring/docs/report_5th_compliance_en.pdf

Differences in Member States' implementation can mostly be found in the review of Annual Emission Reports and Verification Reports, and in the follow-up of issues identified during verification, inspection procedures,and enforcement. While these differences do not seem to have a detrimental effect on the robustness of the MRV system, in some areas - such as information exchange across borders, follow-up of recommendations for improvement, and inspection procedures, improvements can be made at the EU level. Member States' recommendations for improvement have been made in tailored action plans.

Once the revisions of the regulations start to apply, some of the areas of improvement identified in the analysis can likely be resolved. Tailored updates in guidance material, templates and following the recommendations listed in Member States' action plans can improve implementation even more. Specific recommendations to this effect have been made in the technical report and in the Member States' action plans.

9. CONCLUSIONS AND OUTLOOK

In 2019, greenhouse gas emissions from EU ETS-covered installations marked a historical fall of 9.1% compared to 2018. This was mainly driven by a reduction of almost 15% in emissions from electricity and heat production, with a strong penetration of renewable sources of energy, increased use of natural gas and a reduction of coal of around 19%. Emissions from industry also marked their strongest decrease in phase 3 so far, of close to 2%. Verified aviation emissions however continued growing, albeit by a much smaller amount than in previous years (1% above 2018).

The legislative changes agreed in recent years to reinforce the ETS and to address the surplus of allowances continue to show positive results. The Market Stability Reserve surplus indicator was published for the fourth time in May 2020, showing that the surplus has decreased to around 1.39 billion allowances. On the basis of the surplus and the revised EU ETS legislation for phase 4, the auctions in 2020 were reduced by nearly 40% (around 375 million allowances). Auction volumes in 2021 will be reduced in a similar manner.

Despite the difficult economic situation for industry and aviation due to the COVID-19 crisis, the carbon price signal remained stable between January 2019 and end June 2020, with a short exception in March/April. The total revenues generated by the EU ETS from the auctions between 2012 and 30 June 2020 exceeded EUR 57 billion, with total revenues to Member States of more than EUR 14 billion in 2019 and EUR 7.9 billion in the first half of 2020. A large part of these revenues are used by the Member States for climate action.

Moreover, in spite of the exceptional circumstances in 2020, the level of compliance with the EU ETS for 2019 remained very high: most operators, covering more than 99% of emissions from stationary installations, complied with their legal obligations. For both stationary installations and aircraft operators, non-compliant operators were typically small. The EU

ETS architecture remained robust and the administrative organisation across Member States proved to be effective.

In the following years, as part of the broader package of legislation under the European Green Deal, the ETS could undergo substantive revisions regarding its scope and aviation requirements, to enable it to meet the EU's heightened climate ambitions. 2021 will be the first year of implementation of phase 4 of the EU ETS. The next carbon market report, foreseen for publication in late 2021, will provide an overview of the entire ETS implementation in phase 3. It will also provide a first look at the operation of the EU ETS in phase 4.

ANNEX

Appendix 1

Table 1.1: Number of free allowances allocated for modernising the electricity sector[85]

Member State	2013	2014	2015	2016	2017	2018	2019
BG	11 009 416	9 779 243	8 259 680	6 593 238	3 812 436	2 471 297	1 948 441
CY	2 519 077	2 195 195	1 907 302	1 583 420	1 259 538	935 657	575 789
CZ	25 285 353	22 383 398	20 623 005	15 831 329	11 681 994	7 661 840	3 830 905
EE	5 135 166	4 401 568	3 667 975	2 934 380	2 055 614	38 939	19 471
HU[86]	7 047 255	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
LT	322 449	297 113	269 475	237 230	200 379	158 922	94 432
PL[87]	65 992 703	52 920 889	43 594 320	31 621 148	21 752 908	31 942 281	16 912 108
RO	15 748 011	8 591 461	9 210 797	7 189 961	6 222 255	3 778 439	1 723 016
Total	133 059 430	100 568 867	87 532 554	65 990 706	46 985 124	46 987 375	25 104 162

Source: DG Climate Action

Table 1.2: Maximum number of free allowances per year under the derogation from full auctioning for electricity and heat production

Member State	2013	2014	2015	2016	2017	2018	2019	Total
BG	13 542 000	11 607 428	9 672 857	7 738 286	5 803 714	3 869 143	1 934 571	54 167 999
CY	2 519 077	2 195 195	1 907 302	1 583 420	1 259 538	935 657	575 789	10 975 978
CZ	26 916 667	23 071 429	19 226 191	15 380 953	11 535 714	7 690 476	3 845 238	107 666 668
EE	5 288 827	4 533 280	3 777 733	3 022 187	2 266 640	1 511 093	755 547	21 155 307
HU	7 047 255	0	0	0	0	0	0	7 047 255
LT	582 373	536 615	486 698	428 460	361 903	287 027	170 552	2 853 628
PL	77 816 756	72 258 416	66 700 076	60 030 069	52 248 393	43 355 049	32 238 370	404 647 129
RO	17 852 479	15 302 125	12 751 771	10 201 417	7 651 063	5 100 708	2 550 354	71 409 917
Total	151 565 434	129 504 488	114 522 628	98 384 792	81 126 965	62 749 153	42 070 421	679 923 881

Source: DG Climate Action

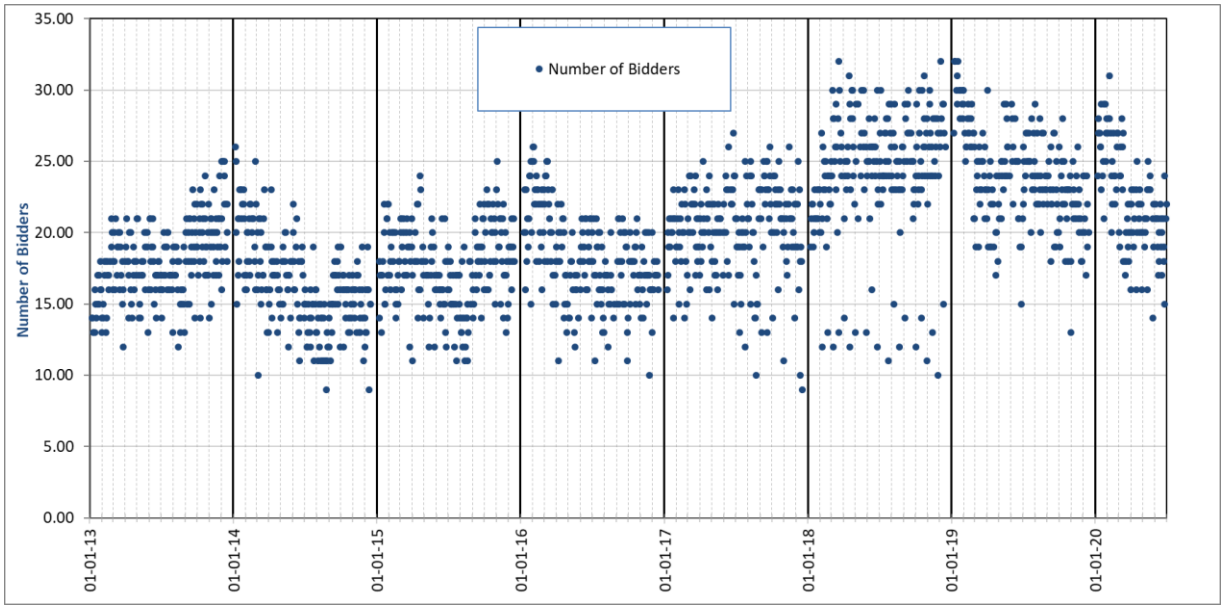
[85] The number of 10c allowances listed in this table can include allowances issued with a delay for previous years. In this case, the relevant amounts per year are reflected in the EUTL.
[86] HU made use of the Article 10c derogation only in 2013.
[87] Final allocation numbers for Poland will be available in next year's report, pending the finalisation of all allocation requests.

Table 1.3: Number of unused free allowances under the Article 10c derogation which have been auctioned or are planned for auctioning in 2013-2021[88]

Member State	2015	2016	2017	2018	2019	2020	2021
BG	5 444 169	1 461 360	920 823	604 908	1 386 372	0	476 621
CY	0	0	0	0	0	0	0
CZ	0	90 694	77 741	66 740	54 550	80 295	0
EE	0	188 682	134 897	1 767 499	761 088	50 026	0
LT	259 924	0	456 725	191 229	161 522	128 105	76 120
PL	1 196	0	7 491	0	55 800 000	49 520 000	34 501 299[89]
RO	2 104 468	6 710 664	3 540 974	3 011 456	0	0	827 338
HU	0	0	0	0	0	0	0

Appendix 2

Figure 2.1: Number of bidders in general allowances auctions from 2013 to 30 June 2020



Source: EEX

- Number of bidders

[88] No unused Article 10c allowances were auctioned in 2013 and 2014.
[89] Final numbers for Poland will be available in next year's report, pending the finalisation of all allocation requests.

Table 2.1: Revenues generated from the auctioning of emission allowances by Member States and the UK in the period 2012 – 30 June 2020 (in million EUR)[90]

	2012		2013		2014		2015		2016		2017		2018		2019		2020	
	General (early auctions)	Aviation (early auctions)	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation
AT	11.05	0.00	55.75	0.00	52.17	1.18	76.24	2.36	58.81	0.65	78.74	0.69	208.20	2.16	180.94	2.89	82.07	1.50
BE	0.00	0.00	114.99	0.00	95.03	2.05	138.96	2.69	107.14	0.74	143.52	0.79	379.00	2.47	353.47	3.30	160.28	1.70
BG	22.14	0.00	52.63	0.00	36.19	0.22	120.91	0.91	85.08	0.25	130.15	0.27	367.34	0.83	439.19	1.11	205.96	0.58
CY	1.58	0.00	0.35	0.00	0.43	0.30	0.00	1.42	0.00	0.39	6.15	0.41	24.66	1.30	24.4	1.74	17.03	0.91
HR	0.00	0.00	0.00	0.00	0.00	0.00	86.40	0.49	20.09	0.16	26.97	0.18	70.96	0.55	71.97	0.74	32.52	0.37
CZ	0.00	0.00	0.00	0.00	55.24	0.47	110.30	1.20	117.63	0.33	199.43	0.35	583.33	1.10	628.94	1.46	329.84	0.75
DE	166.18	17.52	791.25	0.00	749.97	0.00	1093.31	16.87	845.74	4.65	1141.74	5.07	2565.34	16.31	3146.14	17.89	1149.91	0.00
DK	1.07	0.00	56.06	0.00	46.93	1.16	68.64	2.71	52.93	0.74	70.93	0.79	187.32	2.48	162.78	3.31	73.56	1.70
EE	0.00	0.00	18.07	0.00	7.41	0.04	21.13	0.15	23.57	0.04	39.31	0.05	139.89	0.14	142.65	0.20	65.81	0.08
EL	14.84	0.00	147.64	0.00	129.97	1.10	190.17	4.99	146.68	1.37	196.57	1.46	518.96	4.57	503.34	6.11	229.19	3.16
ES	68.53	0.00	346.11	0.00	323.53	6.56	473.20	16.32	364.97	4.48	488.78	4.77	1291.07	14.97	1225.22	19.97	555.93	10.31
FI	13.28	0.00	66.97	0.00	62.68	0.81	91.64	2.13	70.63	0.58	94.64	0.62	249.84	1.96	217.35	2.60	98.33	1.33
FR	43.46	0.00	219.25	0.00	205.29	10.05	299.94	12.18	231.34	3.35	309.85	3.55	818.40	11.16	711.64	14.89	322.10	7.69
HU	3.99	0.00	34.59	0.00	56.21	0.29	82.28	0.99	63.43	0.27	84.94	0.29	224.48	0.91	226.8	1.21	102.98	0.62
IE	0.00	0.00	41.68	0.00	35.11	0.87	51.32	2.15	39.54	0.59	52.93	0.63	140.10	1.97	121.64	2.62	54.97	1.37
IT	76.50	0.00	385.98	0.00	361.25	5.24	528.00	14.41	407.23	3.96	545.44	4.21	1440.10	13.22	1271.35	17.64	576.06	9.11
LT	3.29	0.00	19.98	0.00	17.28	0.06	28.13	0.29	20.76	0.08	31.43	0.09	80.11	0.25	83.69	0.35	39.49	0.17

[90] Source: EEX

LU	0.74	0.00	4.97	0.00	4.52	0.63	6.62	0.22	5.08	0.06	6.81	0.07	18.09	0.20	16.79	0.28	7.74	0.17
LV	2.13	0.00	10.79	0.00	10.08	0.14	14.76	0.53	11.36	0.15	15.24	0.15	40.20	0.49	41.92	0.66	18.58	0.33
MT	0.27	0.00	4.47	0.00	3.81	0.10	5.62	0.57	4.30	0.16	5.78	0.17	15.19	0.52	15.21	0.71	6.97	0.37
NL	25.61	0.00	134.24	0.00	125.63	5.47	183.57	3.68	141.59	1.01	189.63	1.07	500.84	3.37	435.64	4.50	197.44	2.33
PL	0.00	0.00	244.02	0.00	78.01	0.00	129.84	2.98	135.57	0.58	505.31	0.69	1209.98	1.59	2545.94	2.89	1384.13	4.38
PT	10.65	0.00	72.78	0.00	65.82	1.27	96.32	2.89	74.29	0.79	99.50	0.85	262.96	2.65	253.58	3.53	115.37	1.83
RO	39.71	0.00	122.74	0.00	97.57	0.32	193.62	1.60	193.56	0.44	260.29	0.47	717.64	1.45	747.87	1.95	369.33	1.00
SE	7.07	0.00	35.67	0.00	33.34	1.02	48.79	3.63	37.61	1.00	50.45	1.06	132.98	3.34	124.1	4.43	56.52	2.29
SI	3.51	0.00	17.74	0.00	16.59	0.05	24.28	0.14	18.70	0.04	25.05	0.04	66.19	0.12	65.14	0.16	29.42	0.08
SK	12.19	0.00	61.70	0.00	57.59	0.04	84.31	0.20	64.99	0.06	87.01	0.06	229.74	0.18	244.47	0.24	111.50	0.12
UK	75.74	0.00	409.63	0.00	387.42	14.08	567.72	18.54	418.96	5.37	604.02	5.30	1607.32	0.00	0	0	1043.32	0.83
TOTAL	**603.52**	**17.53**	**3550.73**	**0.00**	**3115.11**	**53.53**	**4815.97**	**117.26**	**3761.57**	**32.28**	**5490.60**	**34.14**	**14090.23**	**90.27**	**14002.17**	**117.37**	**7436.36**	**55.11**

Table 2.2: Revenues generated from the auctioning of emission allowances by EEA countries in the period 2019 - 30 June 2020 (in million EUR)[91]

	2019		2020	
	General	**Aviation**	**General**	**Aviation**
IS	23.91	1.86	16.26	1.66
LI	0.52	0	0.47	0.00
NO	476.78	18.24	332.17	15.84
TOTAL	**501.21**	**20.1**	**348.90**	**17.51**

Appendix 3

Table 3.1: Summary of international credits exchange until June 2020[92]

International credits exchanged by end June 2020	**million**	**percentages**	**International credits exchanged by end June 2020**	**million**	**percentages**
CERs	**288,86**	**60,06%**	**ERUs**	**192,07**	**39,94%**
China	213.31	73.85	Ukraine	147.69	76.89%
India	20.30	7.03	Russia	32.06	16.69%
Uzbekistan	10.17	3.52	Poland	2.82	1.46%
Brazil	6.00	2.08	Germany	1.65	0.85%
Vietnam	3.71	1.28	France	1.24	0.64%
Chile	3.21	1.11	Bulgaria	0.50	0.26%
Mexico	3.17	1.10	Others	6.11	3.21%
Korea	2.93	1.01			
Others	26.06	9.02			
TOTAL CERs and ERUs	**480.94**	**100%**			

Source: EUTL

Table 3.2: Summary of international credits exchange until June 2020 by type of installations

International credits exchanged by end June 2020 by:	**CERs in million**	**ERUs in million**
Stationary installations	282.54	191.25
Aviation operators	6.32	0.82

[91] Source: EEX

[92] UK exchanges that were suspended in 2019 due to the safeguard measures adopted to protect the environmental integrity of the EU ETS resumed in 2020.

TOTAL	**288.86**	**192.07**

Source: EUTL

Appendix 4

Table 4.1 ETS verified non-CO_2 emissions from installations by type of greenhouse gas 2013-2019 (in million tonnes)[93]

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
PFCs	0.40	0.74	0.58	0.64	0.51	0.64	0.57
N_2O	2.48	5.48	5.31	4.62	4.92	4.108	3.68

Source: EUTL

Appendix 5

Table 5.1: Selected rulings of the Court of Justice of the EU relevant to the functioning of the EU ETS in the period July 2019 to June 2020

Case reference	**Legislation Concerned**	**Parties**	**Context of the case**	**Date**	**Finding by the Court**
Case C- 189/19	Commisison Decision 2011/278	Spenner GmbH & Co. KG/DE	Spenner Gmbh wanted to receive more free allocation for phase 3 of the ETS (2013-2020), claining that the German competent authority did not give it enough free allocation because of is misinterpretation of the 2011/278/EU Commission Decision, in particular Article 9 that concerns historical activity levels.	14.05. 2020	The Court ruled that Article 9 (9) of Decision 2011/278 does not apply to significant increases in the capacity of a working installation that occurred before the base period determined in accordance with Article 9 (1) of the decision, and that Article 9 (1) of Decision 2011/278 does not oblige the competent authority to determine the relevant base period itself in order to assess the historical activity levels of an installation.

[93] For some installations, emissions from N_2O or PFCs might not have been reported separately in the Union Registry, with the total emissions reported in tonnes of CO_2 equivalent instead. The data in the table reflects the breakdown of emissions by GHG as available in the Union Registry. Emissions of N_2O were included in the EU ETS as of phase 2 (from 2008) as a voluntary opt-in by some Member States, and together with PFCs on a mandatory basis– as of phase 3 (from 2013).

Case C- 113/19	Directive 2003/87/EC, Charter of Fundamental Rights of the European Union	Luxaviation SA/ Minister for the Environment, Luxembourg	Luxaviation thought it had completed the procedure for surrendering emission allowances in 2016, but according to the Ministry of the Environment this was not the case. In June 2016, the Minister for the Environment indicated to Luxaviation that it had failed to carry out the surrender required in the time allowed, namely before 30 April of that year. A penalty was imposed and Luxaviation's name was published on the website of the Environment Agency.	26.03. 2020	The Court ordered that Articles 20, 47 and Article 49(3) of the Charter of Fundamental Rights of the EU do not preclude that the flat-rate penalty under the ETS Directive can be varied by a national court, Article 41 of the Charter does not apply to the issue of whether it is obligatory or optional for Member States to issue warnings or reminders to operators acting in good faith, and that the principle of the protection of legitimate expectations does not preclude the imposition of the penalty provided for in Article 16(3) of Directive 2003/87, in a situation where the competent authorities did not warn the operator prior to the expiry of the time limit for surrender.

Appendix 6

Table 6.1: State of play of EU ETS phase 4 implementation

Measure	Purpose	Type of legislative act	Foreseen adoption
Carbon Leakage List for 2021-2030	Establishing the new Carbon Leakage List for phase 4 of the EU ETS based on the criteria for determining sectors significantly exposed to the risk of carbon leakage	Commission Delegated Decision	Adopted on 15 February 2019 and published in the Official Journal on 8 May 2019[94]
Revision of the free allocation rules for 2021-2030	Revising Commission Decision 2011/278/EU on determining transitional union-wide rules for harmonised free allocation so as adapt it to the new legal context set for phase 4	Commission Delegated Regulation	Adopted on 19 December 2018 and published in the Official Journal on 27 February 2019[95]
Adjustment to free allocation due to production changes	Defining the arrangements for the adjustment of the level of free allocation to installations on the basis of changing levels of operation of more than 15% upwards or downwards on average over a period of two years	Commission Implementing Regulation	Adopted on 31 October 2019 and published in the Official Journal on 4 November 2019[96]
Update of the	Determining updated benchmarks for 2021-	Commission	2020

[94]https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:120:FULL&from=EN
[95]https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0331&from=EN
[96] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1842&from=EN

benchmark values for free allocation for 2021-2025	2025 on the basis of data submitted by Member States by 30 September 2019 for the years 2016 and 2017.	Implementing Regulation	
Establishment of the Innovation Fund	Determining the rules on the operation of the Innovation Fund, including the selection procedure and criteria	Commission Delegated Regulation	Adopted on 26 February 2019 and published in the Official Journal on 28 May 2019[97]
Establishment of the Modernisation Fund	Determining the rules for the operation of the Modernisation Fund	Commission Implementing Regulation	Adopted on 9 July 2020 and published in the Official Journal on 10 July 2020[98]
Revision of Regulation (EU) No 389/2013 (the Registry Regulation)	Laying down the requirements for the Union Registry for phase 4 in the form of standardised electronic databases containing common data elements to track the issue, holding, transfer and cancellation of allowances, and to provide for public access and confidentiality	Commission Delegated Regulation	Adopted on 12 March 2019 and published in the Official Journal on 2 July 2019[99]
Amendment of Regulation (EU) No 1031/2010 (the Auctioning Regulation)	Enabling the auctioning of the first 50 million allowances for the Innovation Fund taken from the Market Stability Reserve (MSR) in 2020	Commission Delegated Regulation	Adopted on 30 October 2018 and publsihed in the Official Journal on 4 January 2019[100]
Revision of Regulation (EU) No 1031/2010 (the Auctioning Regulation)	Revising some aspects of the auctioning process to implement requirements for phase 4, in particular to enable the auctioning of allowances for the Innovation Fund and the Modernisation Fund, as well as to reflect the classification of EU ETS allowances as financial instruments under Directive 2014/65/EU on markets in financial instruments (MiFID2).	Commission Delegated Regulation	Adopted on 28 August 2019 and published in the Official Journal on 8 November 2019[101]
Revision of Regulation N° 601/2012 on Monitoring and Reporting	Simplifying, improving and clarifying the monitoring and reporting rules and reducing administrative burden, based on implementation experience from phase 3	Commission Implementing Regulation	Adopted on 19 December 2018 and published in the Offical Journal on 31 December 2018[102]
Revision of Regulation N° 600/2012 on Verification and Accreditation	Simplifying, improving and clarifying the accreditation and verification rules and reducing administrative burden to the extent possible, based on implementation experience from phase 3	Commission Implementing Regulation	Adopted on 19 December 2018 and publsihed in the Official Journal on 31 December 2018[103]
Regulation (EU) 2019/1603 supplementing Directive 2003/87/EC for the monitoring, reporting and	Supplementing the EU ETS Directive as regards measures adopted by the International Civil Aviation Organisation for the monitoring, reporting and verification of aviation emissions for the purpose of implementing CORSIA	Commission Delegated Regulation	Adopted on 18 July 2019 and published in the Official Journal on 30 September 2019[104]

[97] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0856&from=EN
[98] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R1001&from=EN
[99] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1122&from=EN
[100] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0007
[101] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1868&from=EN
[102] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R2066
[103] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R2067&from=EN
[104] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1603&from=EN

verification of aviation emissions as regards CORSIA			
EU ETS State Aid Guidelines 2021-2030	Revising the EU ETS State Aid Guidelines for phase 4 to accommodate the new provisions introduced by the revised EU ETS Directive for indirect carbon cost compensation schemes	Communication from the Commission	2020
Commission Delegated Decision (EU) 2020/1071 on the exclusion of incoming flights from Switzerland from the EU emissions trading system	Amends Annex I of the EU ETS Directive to exclude incoming flights from Switzerland from the EU emissions trading system as from 1 January 2020	Commission Delegated Regulation	Adopted on 18 May 2020 and published in the Official Journal on 21 July 2020[105]

State of play
Planned
Ongoing
Done

Appendix 7

Table 7.1: Member State/ EEA EFTA state contributions to the Market Stability Reserve in 2019-2020(number of allowances)

Member State/ EEA EFTA State	**MSR contributions 2019[106]**	**MSR contributions 2020[107]**
Austria	**5 935 748**	**5 614 399**
Belgium	**9 846 994**	**9 313 899**
Bulgaria	**8 292 720**	**7 843 771**
Croatia	**1 614 984**	**1 527 552**
Cyprus	**932 844**	**882 342**
Czech Republic	**15 406 858**	**14 572 765**
Denmark	**5 340 750**	**5 051 614**
Estonia	**2 904 319**	**2 747 085**
Finland	**7 130 025**	**6 744 021**
France	**23 346 791**	**22 082 847**
Germany	**85 389 770**	**80 766 957**
Greece	**12 684 492**	**11 997 782**
Hungary	**5 115 708**	**4 838 755**
Iceland	**166 450**	**157 439**
Ireland	**3 991 393**	**3 775 308**

[105] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020D1071
[106] For the period January to August 2019, the figures are based on the Communication from the Commission C(2018) 2801 final of 15.5.2018, available at https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2018_2801_en.pdf
[107] For the periods between September to December 2019 and January to August 2020, the figures are based on the Communication from the Commission C(2019) 3288 final, available at https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2019_3288_en.pdf

Italy	**40 304 729**	**38 122 721**
Latvia	**865 501**	**818 645**
Liechtenstein	**3 725**	**3 524**
Lithuania	**1 792 324**	**1 695 292**
Luxembourg	**467 394**	**442 090**
Malta	**354 798**	**335 590**
Netherlands	**14 291 411**	**13 517 705**
Norway	**3 314 570**	**3 135 127**
Poland	**39 282 170**	**37 155 520**
Portugal	**6 478 775**	**6 128 029**
Romania	**14 941 290**	**14 132 401**
Slovakia	**4 752 513**	**4 495 223**
Slovenia	**1 577 714**	**1 492 300**
Spain	**32 660 234**	**30 892 081**
Sweden	**3 457 106**	**3 269 946**
United Kingdom	**44 480 623**	**42 072 540**
Total	**397 124 722**	**375 625 270**

Appendix 8

Table 8.1: NER300 unspent funds under the InnovFin EDP and and CEF DI: supported projects in the period August 2019 to June 2020

Project title	Description
VOLTALIS (EDP)	Voltalis is a demand response aggregator in the electricity sector. It provides smart technical solutions to enable household loads and small commercial and industrial loads to participate in energy markets and unlock their flexibility potential. The project will improve security of supply, by reducing the risk of black-outs, and will improve energy efficiency by reducing overall electricity consumption. Voltalis was awarded an EUR 20 million loan financed from the NER 300 unspent funds.
STEELANOL (EDP): Advanced bio-fuel production from waste gas coming from steel-making	The Steelanol operation received an EUR 75 million loan fully backed by NER 300 unspent resources to support the demonstration of low carbon steelmaking. This first-of-a-kind project aims to demonstrate an effective pathway for producing bioethanol from wood waste feedstock and fully integrate it into a large-scale steel mill. It represents a major breakthrough in the decarbonisation of the sector.
EV Charging Italy (CEF DI)	The project aims to develop electric vehicle charging infrastructure in Italy. It will involve the installation of approximately 6 850 charging points and the associated connections to the distribution network over the period 2019-2023. The financing of the project amounts to EUR 25 million fully backed by the NER 300 unspent funds.

Hamburger Hochbahn E-mobility programme (CEF DI)	This project by Hamburger Hochbahn, a public transport operator in Hamburg, aims to renew and electrify Hamburg's urban public transport fleet with the replacement of current diesel buses by 100 e-buses and the deployment of the related charging infrastructure. The project promoter uses 100% certified renewable energy for its e-buses. The company's strategy foresees that the charging infrastructure should be modular and scalable, easy to maintain, and highly energy and cost-efficient.
VHH Hamburg e-mobility programme (CEF DI)	This project supports VHH, a public transport operator in Hamburg, in purchasing approximately 155 e-buses to substitute old diesel buses and build the associated charging infrastructure. It includes the adaptation of four depots to electro mobility and the construction of one new depot adapted to electric buses, as well as the implementation of software and IT systems. The project promoter uses 100% certified renewable energy.
LIGNOL (PDA)	This project supports the building of a Lignol production plant at an existing pulp mill in Mörrum, Sweden, which is expected to produce approximately 185 000 tons of Lignol (a renewable, lignin-based bio-oil, mixable in combustion engines to any degree and suitable for blending with aviation fuel) annually. Besides reducing CO_2 emissions from the Swedish transport sector, the production process for Lignol is highly energy efficient and does not produce toxic emissions or harmful waste products. The estimated demonstration costs amount to EUR 105.5 million.
Solar Thermo Electric Magaldi (PDA)	This project, based in Italy, supports a first-of-a-kind plant based on a new solar thermal generation and storage concept and generating green electricity dispatchable on demand. The plant will offer continuous electrical supply from renewables without the need to build long transmission lines, displacing the cost of thermal plants running on heavy fuel oil or diesel. The total power generated annually from the plant is expected to be about 14300 MWh/year. Costs are currently estimated to some EUR 36 million.
BIOFOREVER (PDA)	This project supports a demonstration-scale wood-to-ethanol biorefinery based in Rotterdam, producing 8 000 tonnes of ethanol per year. The input to the production process will be wood waste of grades A or B. The output of the production process will be ethanol for biofuels. The demosntration costs of the project are estimated at EUR 30 million.