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on the Functioning of the European Carbon Market in 2020 pursuant to Articles 10(5) and 21(2) of Directive 2003/87/EC (as amended by Directive 2009/29/EC and Directive (EU) 2018/410)

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APPENDIX 1 - EU ETS INFRASTRUCTURE AND COVERAGE

The European Union Emissions Trading System (EU ETS) in phase 3 (2013-2020)[1] covered larger stationary installations such as 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, as well as capture of, transport in pipelines and geological storage of carbon dioxide.

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 support further development and facilitate operationalisation of the ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), in 2017, the limitation of the ETS scope to intra-EEA flights was prolonged until 2023.

The EU ETS covers emissions of carbon dioxide (CO_2), nitrous oxide (N_2O) from nitric, adipic, glyoxylic acid and glyoxal production, and perfluorocarbons (PFCs) from aluminium production. In some sectors, only installations above a certain size or production level are included. Participating countries can exclude small installations, emitting less than 25 000 tonnes of carbon dioxide equivalent (CO_2eq) from the system if alternative and equivalent measures to limit emissions are in place.

According to Article 21 reports submitted by EU ETS participating countires[2] in 2021, a total of 9 628 installations in 2020 were covered by the system, with the necessary permit. Similarly to previous years, 7% of installations were category C, 20% were category B and 73% were category A[3], which is 6 990 installations, of which 5 534 were classified as installations with low emissions[4] (58% of the total). Figure 1.1 shows the number of installations in 2020 divided by emissions category.

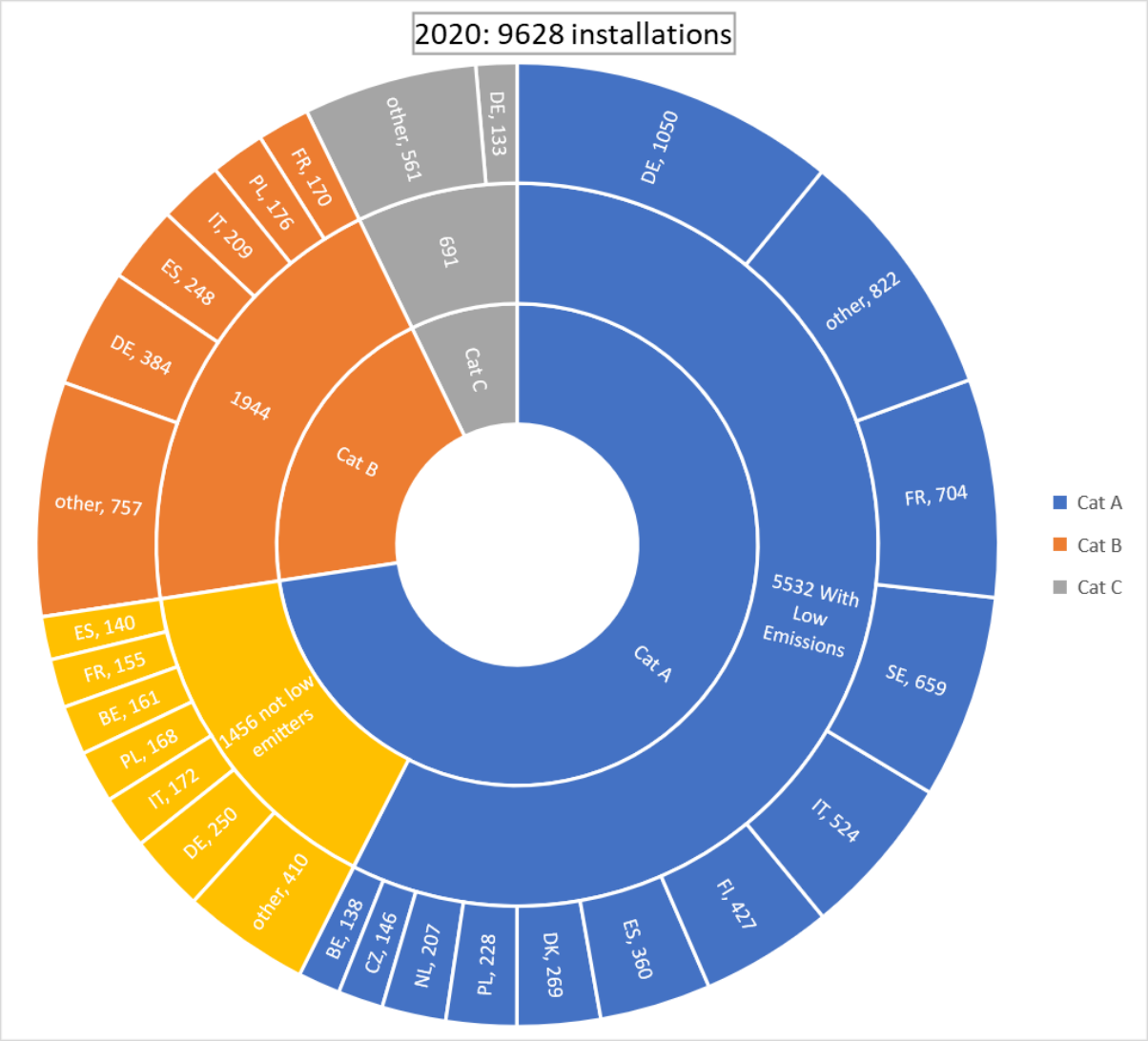
[1] Phases 1 and 2 of the EU ETS

[2] Article 21 reports refer to the reports submitted by the EU ETS countries in line with Article 21 of the EU ETS Directive. In this context, EU ETS participating countries or 'countries' include EU27 plus Iceland, Liechtenstein and Norway, and the UK. For 2020, the UK reported only on the five installations in Northern Ireland that remain covered by the EU ETS.

[3] Category C installations emit more than 500 000 tonnes CO_2eq per year, category B installations emit between 500 000 and 50 000 tonnes CO_2eq per year, and category A installations emit less than 50 000 tonnes CO_2eq per year. See 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

[4] Installations with low emissions are a subset within category A, which emit less than 25 000 tonnes CO_2eq per year (see Article 47(2) of the Regulation (EU) No 2018/2066).

Figure 1.1. Number of installations per emissions category in 2020



The EU ETS activities additionally listed for non-CO_2 emissions are shown in Table 1.1.

Table 1.1. Greenhouse gases other than CO_2 per activity and EU ETS participating country

Gas	Activity	Number of countries	EU ETS participating country
PFCs	Primary aluminium	12	DE, ES, FR, GR, IS, IT, NL, NO, RO, SE, SI, SK
N_2O	Nitric acid	20	AT, BE, BG, CZ, DE, ES, FI, FR, GR, HR, HU, IT, LT, NL, NO, PL, PT, RO, SE, SK
	Adipic acid	3	DE, FR, IT
	Glyoxal and glyoxylic acid	2	DE, FR

PFCs permits were reported as issued in 12 EU ETS participating countries for primary aluminium and perfluorocarbons, while 20 countries reported issued N_2O permits for nitric acid production. N_2O permits for other sectors – adipic acid production and glyoxal and glyoxylic acid production were reported in three countries. Only Norway declared CO_2 capture and storage activities.

Six countries (ES, FR, HR, IS, IT and SI) have continued to use of the possibility to exclude small emitters from the EU ETS in line with Article 27 of the Directive 2003/87/EC (EU ETS Directive)[5]. Emissions excluded for 2020 amounted to 1.70 million tonnes CO_2 (some 0.13% of total stationary EU ETS emissions, compared to 0.25% for 2019).

Just as in previous years, eight countries (BE, DK, FR, HR, HU, LI, LT and NL) have taken advantage of the provision of Article 13 of the Monitoring and Reporting Regulation (MRR)[6] to allow the use of simplified monitoring plans in low risk cases for stationary installations. For aircraft operators with low emissions, two countries reported to have used this provision for 2020 (BE and IS).

In 2020, 349 aircraft operators were reported as having a monitoring plan in place, 254 (42%) fewer than in 2019, of which 151 had been previously administered by the UK. Some 62% (217) of the reported aircraft operators were commercial, while the other 38% (132) were non-commercial.[7] A total of 116 operators (33%) qualified as small emitters (compared to 262 (43%) in 2019).

[5] 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

[6] 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

[7] 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.

APPENDIX 2 - THE EU ETS CAP

The 2013 cap on emissions from stationary installations was set at 2 084 301 856 allowances. This cap decreased each year by a linear reduction factor of 1.74% of the average total quantity of allowances issued annually in 2008-2012. This implied that the cap in 2020 was 21% lower than in 2005.

The annual cap on aviation allowances for phase 3 of the EU ETS (2013-20) was originally 210 349 264 allowances, 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 reflects the 2008 legislation[8], which includes all flights from, to and within the European Economic Area (EEA) in the EU ETS. However, the scope of the EU ETS was temporarily limited to flights within the EEA to support the development of a global measure by the International Civil Aviation Organization (ICAO) to stabilise emissions from international aviation at 2020 levels. Therefore, the number of aviation allowances put into circulation since 2013 has been significantly lower than the original cap. In 2017, to support further development and facilitate operationalisation of the ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), the limited aviation scope of the EU ETS was extended until 2023.

[8] 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, OJ L 8, 13.1.2009, p. 3

APPENDIX 3 – CROSS-SECTIONAL CORRECTION FACTOR

Table 3.1. Cross-Sectional Correction Factor: 2013 (original) and 2017 values

Cross-Sectional Correction Factor	2013	2014	2015	2016	2017	2018	2019	2020
Values as of 1 March 2017	0.892071	0.876577	0.860901	0.845062	0.829051	0.812885	0.796517	0.780092
Original 2013 values	0.942721514	0.926347308	0.90978052	0.893041051	0.876121241	0.859036851	0.841739502	0.824382045

APPENDIX 4 - IMPLEMENTING LEGISLATION FOR PHASE 4 OF THE EU ETS

Table 4.1 Legislative acts adopted to implement phase 4 of the EU ETS (2021-30)

Measure	Purpose	Type of legislative act	Adoption
Carbon leakage list for 2021-30[9]	Established the new carbon leakage list for the entire phase 4 based on criteria for determining sectors significantly exposed to the risk of carbon leakage. This list specifies, which industrial sectors receive a higher share of free allocation.	Commission Delegated Decision	Adopted on 15 February 2019 and published in the Official Journal on 8 May 2019
Revision of the free allocation rules for 2021-30[10]	Adapted free allocation to the new legal context of phase 4. Based on this Regulation the Commission, Member States and operators prepared National Implementation Measures that provided data for calculating revised benchmark values and free allocation for the first allocation period 2021-25.	Commission Delegated Regulation	Adopted on 19 December 2018 and published in the Official Journal on 27 February 2019
Adjustment to free allocation due to production changes[11]	In phase 4, allocations to individual installations are adjusted in a timely manner to reflect significant increases and decreases in operation. The Regulation defined the rules 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
Update of benchmark values for free allocation for 2021-25[12]	To reflect technological progress and innovation, benchmark values for 2021-25 were updated on the basis of real data submitted by installations for the years 2016-17.	Commission Implementing Regulation	Adopted on 12 March 2021 and published in the Official Journal on 15 March 2021
National Implementation Measures 2021-25[13]	Rejection or acceptance of installations in the National Implementation Measures' list – the Commission accepted the list and data of installations under the EU ETS.	Commission Decision	Adopted on 25 February 2021 and published in the Official Journal on 26 February 2021

[9] Commission Delegated Decision (EU) 2019/708 of 15 February 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council concerning the determination of sectors and subsectors deemed at risk of carbon leakage for the period 2021 to 2030, OJ L 120, 8.5.2019, p. 20

[10] Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 59, 27.2.2019, p. 8

[11] 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

[12] Commission Implementing Regulation (EU) 2021/447 of 12 March 2021 determining revised benchmark values for free allocation of emission allowances for the period from 2021 to 2025 pursuant to Article 10a(2) of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 87, 15.3.2021, p. 29

[13] Commission Decision (EU) 2021/355 of 25 February 2021 concerning national implementation measures for the transitional free allocation of greenhouse gas emission allowances in accordance with Article 11(3) of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 68, 26.2.2021, p. 221

Cross-Sectoral Correction Factor 2021-25[14]	Determined the uniform cross-sectoral correction factor for the adjustment of free allocations for the period 2021-25. The value of the cross-sectoral correction factor for every year between 2021 and 2025 was determined to be 1.	Commission Implementing Decision	Adopted on 31 May 2021 and published in the Official Journal on 9 June 2021
National Allocation Tables 2021-25[15]	After the calculation of the cross-sectoral correction factor, Member States submitted to the Commission the final annual free allocations over 2021-25. Based on that, the Commission adopted national allocation tables per Member State per year.	Commission Decision	Adopted on 29 June 2021 and publlished in the Official Journal on 28 July 2021
Establishment of the Innovation Fund[16]	Determined 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
Establishment of the Modernisation Fund[17]	Determined 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
Revision of the Registry Regulation[18]	Laid down the requirements for the EU 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 public access and eensure confidentiality.	Commission Delegated Regulation	Adopted on 12 March 2019 and published in the Official Journal on 2 July 2019
Amendment of the Auctioning Regulation[19]	Enabled the auctioning of the first 50 million allowances for the Innovation Fund taken from the Market Stability Reserve in 2020.	Commission Delegated Regulation	Adopted on 30 October 2018 and publsihed in the Official Journal on 4 January 2019
Revision of the Auctioning Regulation[20]	Revised some aspects of the auctioning process to implement requirements for phase 4, in particular to enable the	Commission Delegated Regulation	Adopted on 28 August 2019 and published in the

[14] Commission Implementing Decision (EU) 2021/927 of 31 May 2021 determining the uniform cross-sectoral correction factor for the adjustment of free allocations of emission allowances for the period 2021 to 2025 (notified under document C(2021)3745), OJ L 203, 9.6.2021, p. 14

[15] Commission Decision of 29 June 2021 instructing the Central Administrator of the European Union Transaction Log to enter the national allocation tables of Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and Sweden into the European Union Transaction Log, OJ C 302, 28.7.2021, p. 1

[16] Commission Delegated Regulation (EU) 2019/856 of 26 February 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council with regard to the operation of the Innovation Fund, OJ L 140, 28.5.2019, p. 6

[17] 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

[18] 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

[19] Commission Delegated Regulation (EU) 2019/7 of 30 October 2018 amending Regulation (EU) No 1031/2010 as regards the auctioning of 50 million unallocated allowances from the market stability reserve for the innovation fund and to list an auction platform to be appointed by Germany, OJ L 2, 4.1.2019, p. 1

[20] 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

	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[21] on markets in financial instruments (MiFID2).		Official Journal on 8 November 2019
Revision of the Monitoring and Reporting Regulation[22]	Simplified, improved and clarified the monitoring and reporting rules and reduced 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
Revision of Verification and Accreditation Regulation[23]	Simplified, improved and clarified the accreditation and verification rules and reduced 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
Monitoring, reporting and verification of aviation emissions as regards CORSIA[24]	Supplemented 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
EU ETS State aid Guidelines 2021-30[25]	Revised 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	Adopted on 21 September 2020 and in force as of 1 January 2021
Exclusion of incoming flights from Switzerland from the EU ETS[26]	Amended 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 Decision	Adopted on 18 May 2020 and published in the Official Journal on 21 July 2020
Exclusion of incoming flights from the UK from the EU ETS[27]	Amended Annex I of the EU ETS Directive to exclude incoming flights from the United Kingdomfrom the EU emissions trading system as from 1 January 2020	Commission Delegated Regulation	Adopted on 17 June 2021 and published in the Official Journal on 31 August 2021

[21] 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, OJ L 173, 12.6.2014, p. 349

[22] 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

[23] 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

[24] Commission Delegated Regulation (EU) 2019/1603 of 18 July 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council as regards measures adopted by the International Civil Aviation Organisation for the monitoring, reporting and verification of aviation emissions for the purpose of implementing a global market-based measure, OJ L 250, 30.9.2019, p. 10

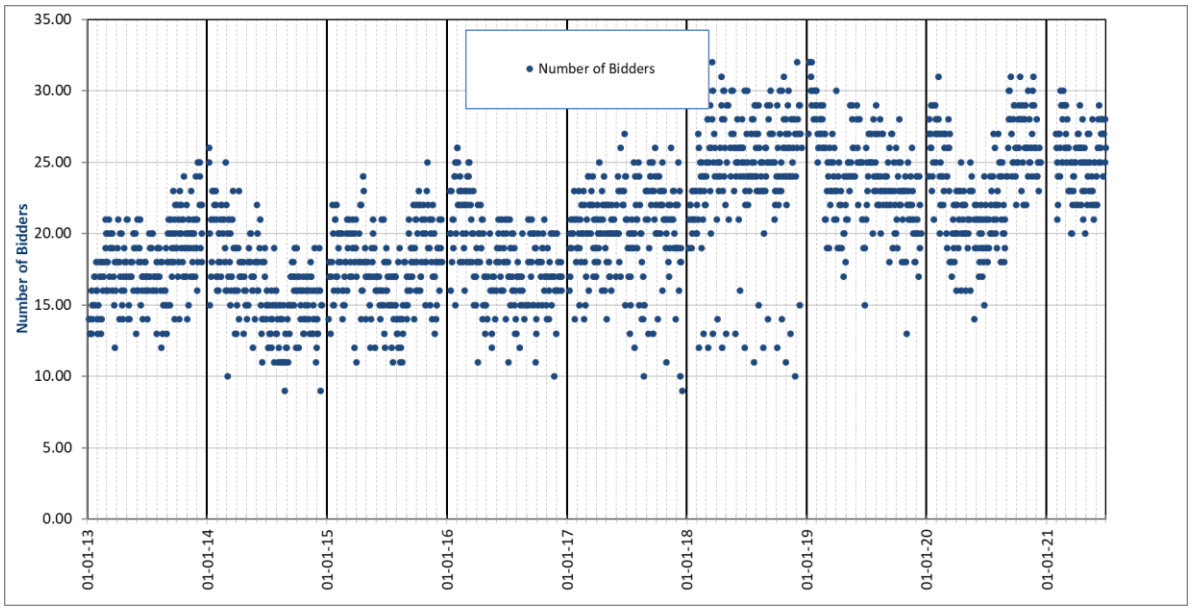
[25] Guidelines on certain State aid measures in the context of the system for greenhouse gas emission allowance trading post 2021, OJ C 317, 25.9.2020, p. 5

[26] Commission Delegated Decision (EU) 2020/1071 of 18 May 2020 amending Directive 2003/87/EC of the European Parliament and of the Council, as regards the exclusion of incoming flights from Switzerland from the EU emissions trading system, OJ L 234, 21.7.2020, p. 16

[27] Commission Delegated Regulation (EU) 2021/1416 of 17 June 2021 amending Directive 2003/87/EC of the European Parliament and of the Council as regards the exclusion of incoming flights from the United Kingdom from the Union emissions trading system, OJ L 305, 31.8.2021, p. 1

APPENDIX 5 – AUCTIONS AND AUCTION REVENUES

Figure 5.1. Number of bidders in general allowances' auctions, 1 January 2013 - 30 June 2021[28]



[28] Source: EEX

Table 5.1. Revenues generated from the auctioning of emission allowances by EU27 (and the UK until 2020), 1 January 2013 - 30 June 2021 (in million EUR)[29]

	2013		2014		2015		2016		2017		2018		2019		2020		2021	
	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation	General	Aviation
AT	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	181.62	2.60	143.42	1.54
BE	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	353.07	2.98	246.24	2.11
BG	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	447.55	1.01	369.36	0.72
CY	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	38.50	1.57	33.82	0.53
HR	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	71.52	0.66	50.06	0.58
CZ	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	718.12	1.32	289.54	0.77
DE	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	2641.79	20.58	2364.82	0.00
DK	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	163.47	2.99	133.95	1.87
EE	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	142.26	0.17	110.94	0.19
EL	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	501.16	5.53	454.60	3.80
ES	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	1222.29	18.05	1114.86	10.81
FI	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	218.22	2.36	188.06	1.54
FR	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	714.65	13.47	665.67	8.22
HU	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	225.21	1.10	189.42	0.72
IE	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	122.17	2.37	70.35	1.39
IT	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	1274.55	15.95	1150.03	8.94

[29] Source: EEX

LT	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	86.30	0.31	37.88	0.34
LU	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	16.75	0.25	4.06	0.24
LV	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	41.72	0.58	25.71	0.38
MT	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	15.13	0.63	12.18	0.43
NL	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	437.34	4.07	407.25	3.12
PL	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	3155.44	2.19	2601.21	4.96
PT	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	252.60	3.19	230.01	2.84
RO	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	801.34	1.77	247.60	1.35
SE	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	123.88	4.02	98.77	2.69
SI	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	64.88	0.15	58.18	0.10
SK	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	241.85	0.21	127.18	0.10
UK	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	2652.29	39.20		
TOTAL	**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**	**16925.69**	**149.27**	**11425.16**	**60.28**

Table 5.2. Revenues generated from the auctioning of emission allowances by Iceland, Liechtenstein and Norway, 2019 - 30 June 2021 (in million EUR)[30]

	2019		2020		2021	
	General	**Aviation**	**General**	**Aviation**	**General**	**Aviation**
IS	23.91	1.86	36.29	2.82	1.35	0.67
LI	0.52	0	0.79	0.00	0.14	0.00
NO	476.78	18.24	720.58	27.19	81.18	3.08
TOTAL	**501.21**	**20.1**	**757.66**	**30.02**	**82.68**	**3.75**

Table 5.3: Revenues generated from the auctioning of emission allowances for the Innovation Fund and the Modernisation Fund (in million EUR)[31]

	2020		2021	
	General	**Aviation**	**General**	**Aviation**
Innovation Fund	1333.82		861.85	
Modernisation Fund			1495.04	

[30] Source: EEX
[31] Source: EEX

APPENDIX 6 – MODERNISATION OF THE ELECTRICITY SECTOR IN CERTAIN MEMBER STATES UNDER ARTICLE 10C OF THE EU ETS DIRECTIVE

Table 6.1. Number of free allowances allocated to modernising the electricity sector[32]

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[33]	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	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**

[32] Source: DG Climate Action. 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.

[33] Hungary made use of the Article 10c derogation only in 2013.

Table 6.2. Maximum number of free allowances per year under the Article 10c per Member State[34]

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**

Table 6.3. Number of unused free allowances under the Article 10c derogation that have been auctioned or are planned for auctioning in 2013-2021[35]

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
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

[34] Source: DG Climate Action

[35] Source: DG Climate Action. No unused Article 10c allowances were auctioned in 2013 and 2014.

Table 6.4. Distribution of Article 10c allowances from phase 4 of the EU ETS (2021-30)[36]

Eligible Member States	Maximum Article 10c derogation (40% of regular allowances)	Amount to be used under Article 10c	Amount transferred from Article 10c to the Modernisation Fund	Amount to be auctioned
BG	51 599 838	51 599 838	0	0
CZ	111 462 281	0	111 462 281	0
EE	17 583 702	0	0	17 583 702
HR	11 957 703	0	5 978 852	5 978 851
LV	3 794 677	0	0	3 794 677
LT	8 696 818	0	8 696 818	0
HU	34 610 750	20 748 000	0	13 862 750
PL	273 211 665	0	0	273 211 665
RO	91 673 704	5 600 000	86 073 704	0
SK	33 228 414	0	33 228 414	0
TOTAL	**637 819 552**	**77 947 838**	**245 440 068**	**314 431 646**

[36] Source: DG Climate Action.

APPENDIX 7 – EU ETS FUNDING INSTRUMENTS: NER 300, INNOVATION FUND AND MODERNISATION FUND

Table 7.1.[37] NER 300 projects awarded support under the first and second calls for proposals[38]

	1st Call for proposals	2nd Call for proposals
Projects in preparation	0	5
Projects under status revision	1	0
Projects in operation	7	1
Projects completed	2	0
Projects withdrawn	10	13
TOTAL	20	19

Since 2020, one new project was awarded support from the unspent funds of the NER 300 under the InnovFin Energy Demonstration Projects (InnovFin EDP), worth EUR 2.1 million. Another six operations eligible for the NER 300 support, amounting to some EUR 219 million, are in the InnovFin EDP pipeline.

Financing of some EUR 70 million from the undisbursed NER 300 funds was also awarded under the Connecting Europe Facility Debt Instrument (CEF DI) to two innovative projects in Denmark and Spain. Five more CEF DI projects have been confirmed as eligible for the NER 300 support, requesting financing of EUR 272.3 million.

Table 7.2 below provides detailed information on the projects supported from the unspent NER 300 funds via the InnovFin EDP and and CEF DI over 2020-21.

Table 7.2. Projects supported under the InnovFin EDP and and CEF DI (NER 300 funds), June 2020 - June 2021

Project title	Description
CH New Charging and Energy Storage Solutions (InnovFin EDP)	The proposed technology platform allows the integration of electric vehicles ("EVs") into the power grid by aggregating and leveraging the energy storage potential of end-user EVs batteries as stationary storage devices in order to provide power system services. The project's demonstration is located in Germany, France and the Netherlands and the NER 300 contribution amounts to EUR 2.1 million.
DK Everfuel Green Hydrogen Project	The project comprises the deployment of a hydrogen distribution infrastructure and a hydrogen production plant, to supply green hydrogen to a large-scale fleet of fuel cell electric buses in Denmark. The financing of EUR 20.7 million is supported under the Future Mobility product, backed by the Connecting Europe Facility and the NER300 Programme.

[37] Source: DG Climate Action

[38] In line with the Commission Decision 2010/670/EU, projects awarded under the first call had to reach final investment decision by the end of 2016, while projects awarded under the second call had to do so by the end of June 2018.

ES Evervest	The project consists of the roll out of an electric vehicle charging network involving the deployment of 476 charging points in 200 sites over a 3-year implementation period. Charging points will only sell electricity sourced from renewable sources backed by relevant certificates. This project requested the EIB loan of EUR 50 million, fully covered from NER300 unspent funds.

Table 7.3. Transfers of allowances to the Modernisation Fund decided by eligible Member States in 2019[39]

Member States	Share as per Annex IIb of the EU ETS Directive	Allowances as per Article 10(1) of the EU ETS Directive	Transfers from Article 10(2)(b) of the EU ETS Directive (solidarity)	Transfers from Article 10c of the EU ETS Directive	Total transfers from Article 10(2)(b) (solidarity) and Article 10c	Total
BG	5.84%	16 095 825	0	0	0	**16 095 825**
CZ	15.59%	42 968 135	38 722 276	111 462 281	150 184 557	**193 152 692**
EE	2.78%	7 662 054	0	0	0	**7 662 054**
HR	3.14%	8 654 262	0	5 978 852	5 978 852	**14 633 114**
LV	1.44%	3 968 834	0	0	0	**3 968 834**
LT	2.57%	7 083 265	0	8 696 818	8 696 818	**15 780 083**
HU	7.12%	19 623 677	0	0	0	**19 623 677**
PL	43.41%	119 643 793	0	0	0	**119 643 793**
RO	11.98%	33 018 490	81 673 875	86 073 704	167 747 579	**200 766 069**
SK	6.13%	16 895 104	1 783 231	33 228 414	35 011 645	**51 906 749**
TOTAL	**100.00%**	**275 613 439**	**122 179 383**	**245 440 068**	**367 619 451**	**643 232 890**

[39] Source: DG Climate Action.

APPENDIX 8 – INTERNATIONAL CREDITS

Table 8.1.[40] Summary of international credits surrendered during phase 2 of EU ETS (2008-12)

International credits surrendered 2008-12 (in millions)					
Origin	**Certified Emssions Reductions**		**Origin**	**Emissions Reduction Units**	
China	422.25	62.51	Ukraine	212.72	55.48%
India	108.36	16.04	Russia	130.53	34.04%
Korea	80.60	11.93	Germany	11.13	2.90%
Brazil	32.15	4.76	Poland	10.82	2.82%
Mexico	10.48	1.55	France	5.86	1.53%
Argentina	4.87	0.72	Romania	5.19	1.35%
Egypt	3.30	0.49	Lithuania	2.62	0.68%
Vietnam	3.08	0.46	Czechia	1.63	0.43%
Chile	2.16	0.32	New Zeland	0.90	0.23%
South Africa	1.86	0.28	Hungary	0.81	0.21%
Others	6.39	0.94	Others	1.21	0.32%
Total	**675.50**	**63.79%**	**Total**	**383,40**	**36,20%**
TOTAL	**1058.90**				

Table 8.2.[41] Summary of international credits exchanged during phase 3 of EU ETS (2013-20) until June 2021[42]

International credits exchanged by end June 2021 (in millions)					
Origin	**Certified Emssions Reductions**		**Origin**	**Emissions Reduction Units**	
China	228.18	72.60	Ukraine	147.69	76.89%
India	21.14	6.72	Russia	32.06	16.69%
Uzbekistan	10.65	3.38	Lithuania	3.54	1.84%
Brazil	6.98	2.21	Poland	2.82	1.47%
Vietnam	4.38	1.40	Germany	1.65	0.86%
Indonesia	4.09	1.30	France	1.24	0.65%
Chile	3.99	1.27	Romania	0.67	0.35%
Mexico	3.36	1.07	Sweden	0.64	0.33%
Cambodia	3.17	1.01	Bulgaria	0.50	0.26%
Korea	3.04	0.99	Spain	0.43	0.22%
Others	25.29	8.05	Others	0.84%	0.44%
Total	**314.27**	**62.07%**	**Total**	**192.08**	**37.93%**
TOTAL	**506.35**				

[40] Source: EUTL
[41] Source: EUTL
[42] 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.

Table 8.3.[43] Summary of international credits surrendered in phase 2 (2008-12) and exchanged in phase 3 (2013-20) by types of operators (in millions)

	Certified Emissions Reductions and Emissions Reduction Units	
	2008-12	**2013-20**
Stationary installations	1047.94	498.42
Aviation operators	10.96	7.93
TOTAL	**1058.90**	**506.35**

[43] Source: EUTL

APPENDIX 9 - NON-CO_2 EMISSIONS FROM STATIONARY INSTALLATIONS IN THE EU ETS

Table 9.1. Reported ETS verified non-CO_2 emissions from installations by greenhouse gas in phase 3 of the EU ETS (2013-20) (in million tonnes)[44]

	2013	2014	2015	2016	2017	2018	2019	2020
PFCs	0.40	0.74	0.58	0.64	0.53	0.67	0.59	0.54
N_2O	2.48	5.48	5.31	4.62	4.92	4.08	3.68	3.16

[44] Source: EUTL. For some installations, N_2O or PFCs emissions might not have been reported separately in the EU 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 EU Registry. Emissions of N_2O had been included in the EU ETS as of phase 2 (2008-12) as a voluntary opt-in by some Member States, and together with PFCs on a mandatory basis as of phase 3 (2013-20).

APPENDIX 10 – MARKET STABILITY RESERVE

Figure 10.1 – TNAC methodology

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

The TNAC 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 European Commission on the TNAC, published annually in 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 MSR 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 2021: C(2021)3266 final.

Table 10.1. Annual contributions to the Market Stability Reserve by EU ETS participating country[45]

EU ETS participating country	MSR contributions 2019	MSR contributions 2020	MSR contributions 2021
Austria	5 935 748	5 614 399	5 563 187
Belgium	9 846 994	9 313 899	9 228 856
Bulgaria	8 292 720	7 843 771	6 531 499
Croatia	1 614 984	1 527 552	1 513 604
Cyprus	932 844	882 342	874 285
Czech Republic	15 406 858	14 572 765	14 108 876
Denmark	5 340 750	5 051 614	5 005 490

[45] For the period of January to August 2019, the figures are based on the Communication from the Commission C(2018)2801 final of 15.5.2018. For the periods of September to December 2019 and January to August 2020, the figures are based on the Communication from the Commission C(2019)3288 final. For the period of September to December 2020 and January to August 2021, the figures are based on the Communication from the Commission C(2020)2835 final. For the period of September to December 2021 and January to August 2022, the figures are based on the Communication from the Commission C(2021)3266 final.

Estonia	2 904 319	2 747 085	2 225 742
Finland	7 130 025	6 744 021	6 682 443
France	23 346 791	22 082 847	21 881 211
Germany	85 389 770	80 766 957	80 029 579
Greece	12 684 492	11 997 782	11 888 232
Hungary	5 115 708	4 838 755	4 381 023
Iceland	166 450	157 439	156 001
Ireland	3 991 393	3 775 308	3 740 851
Italy	40 304 729	38 122 721	37 775 362
Latvia	865 501	818 645	480 330
Liechtenstein	3 725	3 524	3 492
Lithuania	1 792 324	1 695 292	1 100 842
Luxembourg	467 394	442 090	438 053
Malta	354 798	335 590	332 525
Netherlands	14 291 411	13 517 705	13 394 277
Norway	3 314 570	3 135 127	3 106 500
Poland	39 282 170	37 155 520	34 583 085
Portugal	6 478 775	6 128 029	6 072 075
Romania	14 941 290	14 132 401	11 604 041
Slovakia	4 752 513	4 495 223	4 206 047
Slovenia	1 577 714	1 492 300	1 478 674
Spain	32 660 234	30 892 081	30 610 010
Sweden	3 457 106	3 269 946	3 246 409
United Kingdom (Northern Ireland installations only as of 2021)	44 480 623	42 072 540	883 013
TOTAL	**397 124 722**	**375 625 270**	**323 125 614**

APPENDIX 11 - MONITORING, REPORTING, VERIFICATION AND ACCREDITATION IN THE EU ETS[46]

11.1 Monitoring applied in 2020

According to Article 21 reports submitted by EU ETS participating countries in 2021, most installations used the calculation-based methodology[47] to detrmine their emissions. Only 153 installations (1.6%) in 22 countries reported to have use continuous emissions measurement systems (CEMs), most frequently in Germany and Czechia. While the number of countries is the same as last year, compared to 2019, 10 installations used CEMs for the first time and 6 installations stopped reporting CEMs.

Only 11 countries reported the use of the fall-back approach, by 27 installations covering approximately 2.9 million tonnes CO_2eq (adding one small Italian installation to the 26 installations that used the fall-back approach in 2019, then covering 2.8 million tonnes CO_2eq). One installation in the Netherlands is responsible for 53% of the overall emissions reported in relation to the fall-back methodology.

The minimum tier defaults[48] of the MRR were met by the vast majority of installations. Only 80 category C installations (compared to 81 in 2019), that is 11.6%, were reported to have deviated for at least one parameter from the requirement to apply the highest tiers for major source streams. These deviations are only allowed when 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, 22 participating countries reported that 21% of category B installations were permitted to operate with some form of deviation from the MRR default requirements. This is similar to the level of 19%[49] of the last two years, demonstrating a steady level of the highest tier compliance.

11.2. Accredited verification in 2020

The total number of verifiers is not reported in Article 21 reports. However, the European Cooperation for Accreditation provides a central link to relevant National Accreditation Bodies and their lists of EU ETS accredited verifiers[50].

The mutual recognition of verifiers among participating countries is working successfully: 27 countries reported that at least one foreign verifier was active in their territory.

Compliance of verifiers with the Accreditation and Verification Regulation[51] (AVR) is found to be high. No country reported a suspension and only one country reported a withdrawal of

[46] The information in this appendix is updated to cover EU ETS participating countries without the UK. Where the text compares figures with the previous year, the 2019 values have been recalculated to exclude the UK.
[47] 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 greenhouse gases, which many smaller operators do not have.
[48] The MRR 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 to smaller sources.
[49] Calculated excluding UK.
[50] European Cooperation for Accreditation: National Accreditation Bodies and their lists of EU ETS accredited verifiers

accreditation of a verifier. This compares to no suspensions and no withdrawals for 2019. Germany reported a reduction made in the scope of two verifiers' accreditation, compared to scope reductions for six and one verifiers in 2019 by Germany and Poland respectively. Five countries reported complaints received about verifiers in 2020 (one fewer than in 2019). The overall number of complaints (49) is 11% higher. 86% of the complaints received were detailed as resolved at the time of reporitng (last year this rate was 61%). Seven countries reported identification of verifier non-conformities as part of the information exchange process between National Accreditation Bodies and competent authorities (compared to seven last year). An overview of these developments is presented in Table 11.2.1 below.

[51] 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

Table 11.2.1 Overview of developments in the EU ETS accreditation and verification in 2020 ([ ] is the difference from previous year, omitted if unchanged)

	Countries	Number	Differences compared to 2019 country by country
Number of verifiers accredited by another Member State - for installations	24 [+1]	65 [+1]	BE (4), BG (6 [+1]), CY (2), CZ (1), DE (1), DK (1), EE (1), ES (4 [-1]), FR (7 [+7]), HR (1), HU (2 [-3]), IE (5 [-1]), IS (3), LI (1), LT (3), LU (5), MT (1), NL (2), NO (3), PL (5), PT (1 [-2]), RO (2), SE (3 [+1]), SK (1 [-1])
Number of verifiers accredited by a national accreditation body in another Member State - for aviation	23 [+2]	50 [+8]	AT (2 [-1]), BE (4 [+4]), BG (4), CY (1 [-1]), DE (3 [+3]), DK (1), EE (0 [-1]), ES (1), FI (1), FR (2 [+1]), HR (1), HU (1 [-1]), IE (3), IS (1), IT (3 [+3]), LT (1), LU (2), MT (2), NL (4), NO (2), PL (6 [+2]), PT (2 [-1]), SE (2), SK (1)
Number of complaints made about verifiers	5 [-1]	49 [+5]	DE (11 [-1]), DK (6), ES (29 [+12]), FR (0 [-1]), HU (0 [-5]), PL (1 [+1]), RO (2 [+2]), SE (0 [-3])
Number of resolved complaints	4	42 [+15]	DE (10 [+6]), ES (29 [+12]), FR (0 [-1]), HU (0 [-5]), PL (1 [+1]), RO (2 [+2])
Number of non-conformities for verifiers reported in the information exchange	7	66 [+7]	BE (2), DE (0 [-12]), DK (6), FI (18 [+18]), HR (9 [+9]), IE (11 [+1]), NL (14 [-6]), NO (6 [+1]), SE (0 [-4])
Number of non-conformities resolved	6	45 [+5]	BE (0 [-2]), DE (1 [-3]), FI (9 [+9]), HR (6 [+6]), IE (11 [+4]), NL (14 [-6]), NO (4 [+1]), SE (0 [-4])
Verifiers suspended	0	0	
Withdrawal of accreditation certificate	1 [+1]	1 [+1]	PL (1 [+1])
Scope of accreditation reduced	1 [-1]	2 [-5]	DE (2 [-4]), PL (0 [-1])

11.3 Overview of administrative arrangements in 2020

According to Article 21 submissions in 2021, there were, on average, four competent authorities involved in EU ETS implementation per country (129 competent authorities in 30 countries, three fewer than last year)[52]. Different tools to coordinate between authorities 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 nine countries), and regular working groups or meetings between authorities (in 13 countries). Seven countries indicated that no such tools were in use.

A more detailed overview of the coordination between EU ETS countries is presented in Table 11.3.1 below.

Table 11.3.1 Coordination between competent authorities in EU ETS participating countries ([ ] shows the difference from the previous year, omitted if unchanged)

	Countries	
Does national legislation require a central competent authority to review and provide binding instructions on monitoring plans, notifications of changes to the monitoring plan or emissions reports?	14 [+1]	BG, DE, EE, ES, GR, HR, HU, LT, LV, NL, NO, PL, RO, SE [new]
Does a central competent authority steer local and/or regional competent authorities by giving binding instructions and guidance?	9	BG, DK, FR, LT, LV, NL, PT, RO, SK
Does a central competent authority review and provide advice on monitoring plans, notifications and emissions reports on a voluntary basis?	15 [+1]	AT, BG, CZ, DK, EE, FR, GR, HR, LT, LV, NL, PL, PT, SE [new], SK
Are regular working groups or meetings organised with the competent authorities?	13	BE, BG, DK, ES, FI, FR, GR, HR, LT, LV, NL, PT, SE
Is common training organised for all competent authorities to ensure consistent implementation of requirements?	9 [+1]	AT, BG, DK, FR, HR, LV, NL, PT, SE [new]
Are IT systems or tools used to ensure common approaches to monitoring and reporting issues?	12	AT, DK, ES, HU, LT, LV, NL, NO, PT, SE, SI, SK
Is a coordination group established, with competent authority staff, which discusses monitoring and reporting issues and develops common approaches?	9	BG, DK, ES, FR, GR, HR, NL, PT, SE

On administrative fees charged in relation to permitting and approval of monitoring plans, 13 countries reported in 2021 that they do not charge any fees to installation operators, the same as in 2019. Aircraft operators in 15 countries do not pay fees. 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 29977 for the same service for aviation operators. Most of the price changes in 2020 compared to 2019 are upward.

Table 11.3.2 below presents a detailed overview of administrative charges in EU ETS participating countries.

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

Table 11.3.2 Administrative fees charged by EU ETS participating countries ([ ] is difference from previous year, omitted if unchanged)

		EU ETS countries (values in EUR)	
Installations	**Are fees charged to operators?**	17	AT, BE, BG, CZ, DK, ES, FI, FR, HR, HU, IS, IT, NO, PL, PT, RO, SI
	Permit issuance/monitoring plan approval	13	AT (100), BG (500), CZ (400), FI (1900), HR (5), HU (257 [+105]), IS (7167 [+4042]), IT (250), NO (3327 [+215]), PL (18), PT (207 [+1]), RO (366 [-9]), SI (23)
	Permit update	11	AT (100), BG (250), FI (1500), HR (5), HU (143 [-9]), IS (734 [-436]), NO (989 [+59]), PL (2), PT (103), RO (366 [-9]), SI (23)
	Permit transfer	9	AT (100), BG (100), FI (750), HR (5), HU (143 [-9]), IS (734 [+144]), PL (2), PT (103), SI (23)
	Permit surrender	3	HR (5), HU (143 [-9]), PL (2)
	New entrant reserve application	6	HR (5), HU (14 [-3]), IS (2447 [+467]), PT (1447 [+4]), RO (366 [-9]), SI (23)
	Annual subsistence charge amount	2	DK (4071 [+830]), IT (250)
Aircraft operators	**Are fees charged to aircraft operators?**	15	AT, BG, DK, FI, FR, HR, HU, IE, IS, IT, NO, PL, PT, RO, SI
	Approval of monitoring plan for emissions	13 [+1]	AT (100), BG (500), FI (550), HR (5), HU (603 [+603]), IE (200), IS (29977 [+27577]), IT (250), NO (519 [+26]), PL (2), PT (277 [+4]), RO (1500), SI (23)
	Approval of change to monitoring plan for emissions	12 [+1]	AT (100), BG (50), FI (180), HR (5), HU (603 [+603]), IS (999 [+199]), IT (62), NO (260 [+13]), PL (2), PT (139 [+2]), RO (500), SI (23)
	Approval of monitoring plan for tonne-kilometre data	10 [+1]	AT (100), BG (50), HR (5), HU (603 [+603]), IE (200), IS (2977 [+577]), PL (2), PT (277 [+4]), RO (2500 [+500]), SI (23)
	Approval of change to monitoring plan for tonne-kilometre data	10 [+1]	AT (100), BG (50), FI (180), HR (5), HU (603 [+603]), IS (999 [+199]), PL (2), PT (139 [+2]), RO (500), SI (23)
	Transfer of monitoring plan	7 [+1]	AT (100), BG (50), HR (5), HU (603 [+603]), IS (999 [+199]), PT (139 [+2]), SI (23)
	Surrender of monitoring plan	2 [+1]	HR (5), HU (603 [+603])

11.4 Compliance and enforcement

Competent authorities in EU ETS participating countries carry out different compliance checks on installations' annual emissions reports. Based on Article 21 submissions in 2021, all participating countries check completeness of annual emission reports from installations, and most do so for reports from aircraft operators - except for Hungary and Latvia (two and one aircraft operators respectively), as well as Liechtenstein, Estonia and Slovenia (no aircraft operators). 23 countries reported that they also carry out cross-checks against other data for both installations, and 22 countries do this for aircraft operators.

Table 11.4.1 below presents a detailed overview of the compliance checks performed in EU ETS participating countries.

Table 11.4.1 Compliance checks in EU ETS participating countries ([ ] is difference from previous year, omitted if unchanged)

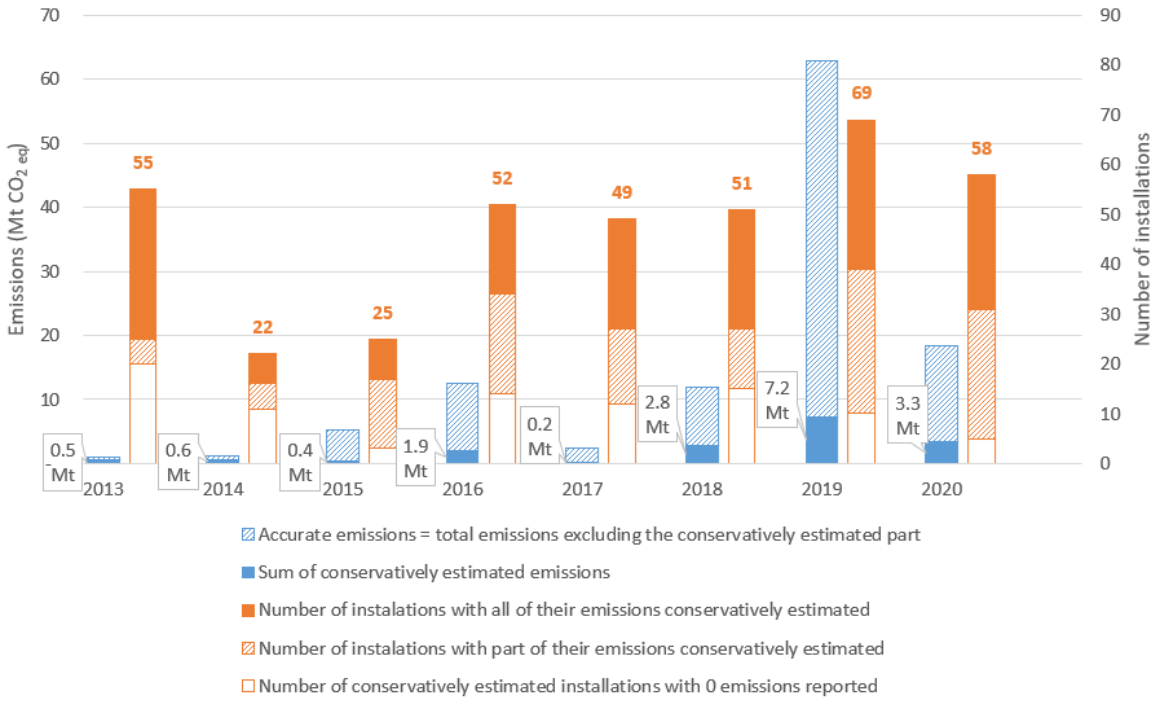
Type of check		EU ETS countries	
Installations	Share of the emissions reports checked for completeness and internal consistency (%)	30	AT (100), BE (100), BG (100), CY (100), CZ (100), DE (100), DK (100), EE (100), ES (90 [-4]), FI (100), FR (95), GR (100), HR (100), HU(100), IE(100), IS(100), IT(100]), LI (100), LT (100), LU (100), LV (100), MT (100), NL (100), NO (100), PL (100), PT (100), RO (100), SE (100), SI (100), SK (100)
	Share of the emissions reports checked for consistency with the monitoring plan (%)	30	AT (20), BE (31), BG (100), CY (100), CZ (50 [+20]), DE (100 [+90]), DK (100), EE (100), ES (82 [-4]), FI (100), FR (65), GR (100), HR (100), HU (100), IE (75 [+14]), IS (100), IT (60), LI (100), LT (80 [-20]), LU (100), LV (100), MT (100), NL (100), NO (100), PL (100), PT (100), RO (100), SE (4 [-1]), SI (100), SK (100)
	Share of the emissions reports that were cross- checked with allocation data (%)	23 [-2]	AT (100), BE (1 [-3]), BG (100), CY (100), CZ (20), DE (100), EE (100), ES (44 [+2]), FR (100), GR (100), HR (0 [-100]), HU (100), IE (0 [-100]), IS (100), IT (20), LI (100), LT (80 [-20]), LU (100), LV (100), NL (90), PL (25 [+16]), PT (100), RO (100), SI (100), SK (100)
	Share of the emissions reports that were cross- checked with other data (%)	23 [+1]	AT (100), BE (31), BG (10), CY (100), CZ (30 [+10]), DK (80 [+80]), EE (100), ES (29 [+2]), FR (62), GR (100), HR (100), IE (2), IS (0 [-100]), LI (100), LT (80 [-15]), LU (100), NL (100), NO (100), PL (100 [+100]), PT (100), RO (100), SE (100), SI (100), SK (100)
	Share of the emissions reports that were analysed in detail (%)	23 [-3]	AT (20), BE (30), BG (100), CY (100), CZ (50 [+20]), DE (0 [-10]), DK (48 [+4]), EE (100), ES (19 [+7]), FI (0 [-100]), FR (24), GR (100), HR (100), HU (100), IE (75 [+14]), IS (100), LI (100), LT (100), LU (100), MT (100), NL (30), NO (100), PL (0 [-100]), PT (100), RO (100), SE (4 [-1])
	Number of inspections of installations that were carried out through site visits by the competent authority	10 [-3]	Total: 95 [-45] CY (19), CZ (0 [-5]), DE (0 [-2]), ES (7 [-7]), FR (7), HR (20 [+8]), HU (0 [-32]), IE (0 [-2]), IS (0 [-2]), LT (9 [+9]), LV (2 [+2]), NL (26 [-6]), NO (1), RO (3 [-2]), SE (1 [-6])
	Number of emission reports rejected for non-compliance	3 [+1]	Total: 13 [-5] ES (1 [+1]), FR (7 [-2]), NO (5 [-4])
Aircraft operators	Share of the emissions reports checked for completeness and internal consistency (%)	25 [-2]	AT (100), BE (100), BG (100), CY (100 [+50]), CZ (100), DE (100), DK (100), EE (0 [-100]), ES (100), FI (100), FR (100), GR (100), HR (100), IE (100), IS (100), IT (100), LT (100), LU (100), MT (100), NL (100), NO (100), PL (100), PT (100), RO (100), SE (100 [+90]), SI (0 [-100]), SK (100)
	Share of the emissions reports checked for consistency with the monitoring plan (%)	25 [-1]	AT (100), BE (100), BG (100), CY (100 [+50]), CZ (50 [-50]), DE (100), DK (100 [+100]), EE (0 [-100]), ES (100), FI (100), FR (100 [+95]), GR (100), HR (100), IE (43 [-57]), IS (100), IT (100), LT (100), LU (100), MT (100), NL (100), NO (100), PL (100), PT (100), RO (100), SE (100), SI (0 [-100]), SK (100)
	Share of the emissions reports that were cross- checked with other data (%)	23	AT (100), BE (100), BG (100), CY (100 [+50]), DE (100), DK (100), ES (100), FI (100), FR (100), GR (100), HR (100), IE (100), IS (100), IT (100), LT (100), LU (100), MT (100), NL (100), NO (50 [-17]), PT (100), RO (100 [+100]), SE (100), SI (0 [-100]), SK (100)
	Share of the emissions reports that were analysed in detail (%)	21 [+1]	AT (100), BE (14 [-13]), BG (100), DE (100), DK (100 [+100]), EE (0 [-100]), ES (100), FI (100), FR (2 [+2]), GR (100), HR (100), IE (43 [-57]), IS (100), LT (100 [+50]), LU (100), MT (100), NL (100), NO (50 [-

			17]), PL (100), PT (100), RO (100), SE (100)
	Number of inspections of installations that were carried out on aircraft operators	0 [-2]	Total: 0 [-3] DE (0 [-1]), SE (0 [-2])
	Number of emission reports rejected for non-compliance	0	0

Competent authorities in eight countries carried out conservative estimates regarding missing data in the case of 58 installations (approximately 0.6% of installations overall), compared to 69 in 2019. Of the 58 installations, in 27 cases all emissions were conservativly estimated, in 26 cases part of the emissions was estimated and in five cases the estimate was that there were no emissions. In total, 3.3 Mt CO_2 emissions were conservatively estimated (compared to 7.2 Mt in 2019), while the total emissions of the 58 installations were 18 Mt (compared to 63 Mt in 2019). 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.

Figure 11.4.1 provides an overview of conservative estimates in EU ETS participating countries in phase 3.

Figure 11.4.1 Overview of conservative estimates in EU ETS participating countries in phase 3 (2013-20)



Conservative estimates regarding missing data for aviation were reported by eight countries (two more than in 2019) concerning 23 (same as in 2019) aircraft operators and 0.14 Mt emissions.

Competent authorities' checks remain important to supplement the verifier's work. Additional to the checks on emission reports, 26 countries reported that they carried out spot checks at installations in 2020 (unchanged from 2019), and 13 (unchanged from 2019, also three countries (EE, LI, SI) do not admisister any aircraft operators) countries reported spot checks for aviation.

Table 11.4.2 provides an overview of compliance measures administered in EU ETS participating countries.

Table 11.4.2 Overview of compliance measures administered in EU ETS participating countries ([ ] is difference from previous year, omitted if unchanged)

Compliance measures		Countries	
Installations	Spot-Checks	26	AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, HR, HU, IE, IS, LI, LT, LV, NL, NO, PL, PT, RO, SE, SI, SK
	Regular meetings with industry and/or verifiers	25 [-2]	BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HR, HU, IE, IS, IT, LI, LT[end], MT, NL, NO, PL, PT, RO[end], SE, SI, SK
	Ensuring that selling of emission allowances is prohibited in the case of irregularities	23	AT, BE, BG, CY, CZ, DE, DK, EE, FI, FR, HR, HU, IE, LI, LT, LU, LV, NL, NO, PT, SE, SI, SK
	Publishing the names of operators that are not in compliance	15 [-1]	BE, BG, CY, DE, DK, FI, HR, HU, IE, LI, LT[end], LV, PT, SE, SI, SK
	Imprisonment possible?	9	BE, CY, DK, EE, FR, IE, LU, NO, SE
Aircraft operators	Spot-Checks	13	AT, BE, DE, DK, HR, IE, IS, NL, PL, RO, SE, SI, SK
	Regular meetings with aircraft operators and/or verifiers	13	BE, BG, CZ, DK, ES, FR, HR, IE, IS, MT, PT, RO, SE
	Ensuring that selling of emission allowances is prohibited in the case of irregularities	16	AT, BE, BG, DE, DK, HR, HU, IE, LT, LU, LV, NL, PT, SE, SI, SK
	Publishing the names of aircraft operators that are not in compliance	14	BE, BG, DE, DK, FI, FR, HR, HU, IS, LV, PT, SE, SI, SK

As shown in Table 11.4.3 below, in 2020, the application of an excess emissions penalty was reported for 20 installations by nine countries. For aviation, excess emission penalties were reported for eight aircraft operators by six countries.

Table 11.4.3 Imposition of excess emissions penatlies in EU ETS participating countries ([ ] is difference from previous year, omitted if unchanged)

	Countries	Operators	
Imposition of excess emission penalties to installation	9 [+1]	20 [+1]	DE (2 [+1]), DK (1 [-1]), ES (1), FR (1), HR (1 [+1]), IT (5 [+1]), LU (1 [+1]), PL (3 [+1]), PT (0 [-1]), RO (5 [-2])
Imposition of excess emission penalties to aircraft operators	6 [-2]	8 [-17]	CY (0 [-1]), DE (3), ES (1 [-3]), FR (1), IT (1 [-2]), LT (1), NL (1), PT (0 [-11])

For 2020, ten Member States (HR, CZ, DK, FR, DE, HU, NL, PL, RO and ES) reported issuing 27 penalties (other than excess emissions' penalties) and two formal notices for installations. No imprisonments were reported, but fines (exercised or yet to be exercise, e.g. due to ongoing legal proceedings) amounting to a total of EUR 2.4 million were reported. For aviation, only Poland reported fines in 2020, for failure to submit a verified emissions report on time, four cases for a total of EUR 0.43 million). The most common violations reported for 2020 were: operation without a permit, a failure to monitor emissions in accordance with the approved monitoring plan and the MRR, a failure to submit a verified emissions report in

due time, a failure to notify planned or effective changes to capacity, activity levels and operation of an installation by 31 December of the reporting year in accordance with Article 24 of the Decision 2011/278/EU[53].

[53] Commission Decision of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 130, 17.5.2011, p. 1