



**Auctioning (EU ETS)**  
**German Auctioning of  
Emission Allowances**

Periodical Report: Annual Report 2022

## Editorial information

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## German Auctioning of Emission Allowances

The German auctions of the fourth trading period are held weekly on the European Energy Exchange (EEX) spot market. The German Emissions Trading Authority (DEHSt) at the German Environment Agency is the competent authority for the German auctions. Further updated information on the fourth trading period auctions can be downloaded from the [EEX website](#). Reports on the second (2008–2012), third (2013–2020) and fourth (2021–2030) trading periods auction results are available on the [DEHSt auction website](#). The 2022 and 2023 auction calendars are published on the [EEX website](#).

The following tables summarise the key data of the German auctions on the EEX in 2022 and 2023:

2022		
Auction product	Fourth trading period EUA spot contracts	Fourth trading period EUAA spot contracts
Period	14/01/2022 to 16/12/2022	19/10/2022
Auction volume entire year	84,230,000 EUA <sup>1</sup>	586,500 EUAA
Auction volume per auction	January–July: 1,944,000 EUA August: 972,000 EUA September–December: 1,861,500 EUA	586,500 EUAA on 19/10/2022
Auction frequency	Weekly (Fridays, 09:00 to 11:00 CET)	On 19/10/2022 (13:00 to 15:00 CET)
Gebotsgröße	500 EUA/EUAA	
Versteigerungsmodus	Single-round, uniform-price procedure with a closed order book	

2023		
Auction product	Fourth trading period EUA spot contracts	Fourth trading period EUAA spot contracts
Period	13/01/2023 to 15/12/2023	18/10/2023
Auction volume entire year	113,094,000 EUA (provisional) <sup>2</sup>	907,000 EUAA
Auction volume per auction	January–July: 1,939,500 EUA August: 970,000 EUA September–December: 3,552,500 EUA (provisional) <sup>2</sup>	907,000 EUAA on 18/10/2023
Auction frequency	Weekly (Fridays, 09:00 to 11:00 CET)	18/10/2023 (09:00 to 11:00 CET)
Gebotsgröße	500 EUA/EUAA	
Versteigerungsmodus	Single-round, uniform-price procedure with a closed order book	

<sup>1</sup> The MSR reduction for the auction volumes from September 2022 to August 2023 was [published](#) by the European Commission on 12<sup>th</sup> May 2022.

<sup>2</sup> The MSR reduction for the auction volumes from September 2023 to August 2024 is expected to be determined by the European Commission in May 2023.

# 1 Overview

## 1.1 Overview of the entire year 2022

In 2022 a total of about **85 million EUA and EUAA** (2021: 101 million) with a total value of over **€ 6.8 billion** (2021: € 5.3 billion) were auctioned at EEX for Germany. This resulted in a volume-weighted average price per allowance of **€ 80.32** (2021: € 52,50).

At the EUA auction on 19<sup>th</sup> August, the **highest auction price since the start of auctioning in 2010** was achieved with € 96.87 (see also Figure 1). Due to an overall higher level of EUA prices in the past year, the average auction clearing price in 2022 was more than 50 percent higher compared to 2021.

Hence, despite considerably lower auction volumes, the total annual revenue in 2022 was almost 30 percent higher than in the previous year.

The following table summarizes the auction results on a monthly basis differentiated by auctions for EUA and EUAA.

Table 1: Overview of the entire year 2022

Month	Type	Auction volume	Bid volume	Cover ratio	Bidders	Successful bidders	Price	Revenue
January	EUA	5,832,000	7,951,500	*1.36	*21	*19	*€ 84.93	€ 495,331,200
February	EUA	7,776,000	12,599,000	*1.62	*21	*16	*€ 89.80	€ 698,245,920
March	EUA	7,776,000	20,001,500	*2.57	*21	*13	*€ 75.36	€ 585,979,920
April	EUA	7,776,000	20,026,000	*2.58	*21	*16	*€ 82.12	€ 638,545,680
May	EUA	5,832,000	15,149,000	*2.60	*20	*17	*€ 86.89	€ 506,742,480
June	EUA	5,832,000	13,969,500	*2.40	*19	*14	*€ 82.21	€ 479,448,720
July	EUA	9,720,000	20,459,500	*2.11	*19	*16	*€ 82.12	€ 798,167,520
August	EUA	3,898,000	10,337,000	**2.65	*16	*8	**€ 89.56	€ 349,095,160
September	EUA	9,307,500	16,174,500	*1.74	*16	*13	*€ 69.81	€ 649,756,575
October	EUA	7,446,000	19,061,500	*2.56	*17	*14	*€ 70.97	€ 528,442,620
	EUAA	586,500	1,178,000	2.01	6	4	€ 68.62	€ 40,245,630
November	EUA	7,446,000	17,010,000	*2.29	*19	*14	*€ 75.76	€ 564,127,575
December	EUA	5,588,500	12,830,500	**2.30	*18	*15	**€ 85.63	€ 478,515,760
<b>EUA</b>		<b>84.230.000</b>	<b>185.569.500</b>	<b>**2.20</b>	<b>*19</b>	<b>*14</b>	<b>**€ 80.40</b>	<b>€ 6,772,399,130</b>
<b>EUAA</b>		<b>586.500</b>	<b>1.178.000</b>	<b>2.01</b>	<b>6</b>	<b>4</b>	<b>€ 68.62</b>	<b>€ 40,245,630</b>
<b>Total</b>		<b>84,816,500</b>	<b>186,747,500</b>	<b>**2.20</b>	<b>*19</b>	<b>*14</b>	<b>**€ 80.32</b>	<b>€ 6,812,644,760</b>

Source: EEX, DEHSt  
\*average  
\*\* volume-weighted average

As in previous years, the deviations of the EUA-clearing prices from the reference prices on the lead markets were mostly in the tenths of a percent range. The average deviation just before the end of the bidding period (11:00 a.m. CET) was 0.44 percent or € 0.35 (see also Section 3.4). A major factor behind this development was the robust demand on the primary market.

Overall, valid bids totaling about 186 million allowances were entered in the trading system across the 46 EUA-auction dates. Thus, the average cover ratio in the reporting period was 2.20 (see also Section 2.2). In 2022 the average number of participants in the German EUA-auctions was 19, the average number of successful bidders amounted to 14. The participation number in 2022 was thus below the level as of 2021. From a bidder's perspective, the average success rate over all auction dates was about 76 percent (see also Section 2.1).

In addition, 586,500 aviation allowances (EUAA) with a total value of about € 40 million were auctioned for Germany on 19<sup>th</sup> October. The auction price for the 4 successful bidders was € 68.62. Overall, 6 bidders with valid bids totalling about 1.2 million allowances participated in the auction.

Overall, last year's auctions were implemented in accordance with the applicable national and European regulations (see also Chapter 4).

## 1.2 Overview since the beginning of the third trading period

The following table summarizes the auction results since the beginning of the third trading period on a yearly basis. Although the general regulatory framework of the EU Auctioning Regulation has remained largely unchanged since the start of the third trading period, major decisions were taken during this period to determine the amount of auction volumes. In addition, this period was characterized by significant changes in the European carbon market, which had a considerable impact on price levels.

Between 2014 and 2016 the development of the auction volumes was substantially affected by the so-called “backloading”-decision. Accordingly, 900 million emission allowances less were auctioned EU-wide than originally planned.<sup>3</sup> In line with this decision, German auction volumes were reduced by some 174 million EUA over the same period. In addition, the Market Stability Reserve (MSR) came into effect at the beginning of 2019: the auction volume was reduced EU-wide by over 1.4 billion EUA in the period 2019 to 2022 in accordance with the MSR mechanism, of which more than 300 million EUA were cut from German auction volumes in said period.

In addition to these auction volume adjustments, the EUA-price development on the lead markets had a major effect on the revenue development of the individual years. In 2013, the average revenue of € 4.33 per allowance was significantly below the previous year's figure (referred to as so-called “early auctions”<sup>4</sup>). In April and May 2013, the so far lowest auction price at a German EUA-auction was reached at € 2.95 (see also Figure 1). In the period from 2014 to 2017, the average annual auction prices ranged between about € 5.20 and € 7.60. As a result of a strong upward trend on the carbon market, average revenues of almost € 15 were achieved in 2018 and almost € 25 in each of the following years. In 2021, average price had already exceeded the € 50 mark and reached over € 80 last year (see also Figure 2).

The auctions of aviation allowances (EUAA) were significantly influenced by the adjustment of the scope of the Emissions Trading Directive in relation to aviation emissions. Firstly, the scope has been substantially reduced by the EU's so-called “stop-the-clock” decision in 2012. Furthermore, an additional restriction was made for the period from 2013 to 2020 (“reduced scope”). As a result, EU-wide EUAA-auction volumes from 2012 onwards were noticeably lower than originally planned. In line with the European requirements, Germany carried out a total of ten EUAA-auctions in 2012 and from 2015 to 2022.

<sup>3</sup> The auction volumes were reduced as follows: 400 million EUA in 2014, 300 million EUA in 2015 and 200 million EUA in 2016. The overall backloading volume of 900 million EUA was transferred to the Market Stability Reserve (MSR) in 2019.

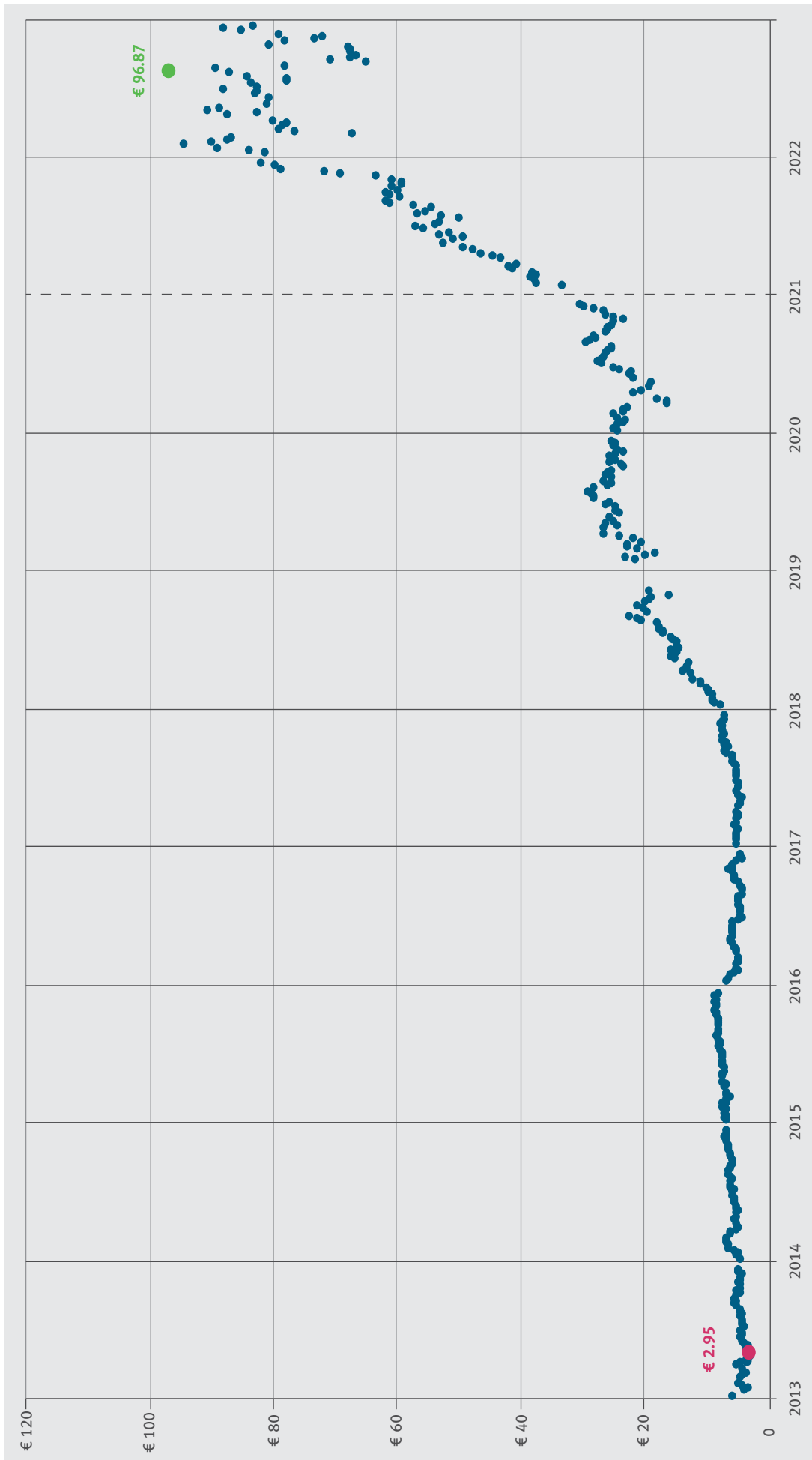
<sup>4</sup> In the Fourth Quarter of 2012, some 90 million EUA of the third trading period were auctioned in the EU. These amounts have been deducted proportionately from the planned auction volumes of 2013 and 2014.

Table 2: Overview since the start of the third trading period

Year	Type	Auction volume	Bid volume	Cover ratio	Bidders	Successful bidders	Price	Revenue
2012	EUA	23,531,000	86,799,000	**3.69	*14	*7	**€ 7.06	€ 166,178,670
	EUAA	2,500,000	4,552,000	1.82	6	5	€ 7.01	€ 17,525,000
2013	EUA	182,560,500	529,511,500	**2.90	*18	*14	**€ 4.33	€ 791,253,420
2014	EUA	127,127,500	614,996,000	**4.84	*16	*11	**€ 5.90	€ 749,973,880
2015	EUA	143,893,500	412,946,500	**2.87	*17	*13	**€ 7.60	€ 1,093,312,500
	EUAA	2,229,000	7,665,500	**3.44	*12	*6	**€ 7.57	€ 16,867,680
2016	EUA	160,770,500	358,232,500	**2.23	*18	*13	**€ 5.26	€ 845,739,870
	EUAA	857,500	3,362,500	3.92	10	6	€ 5.42	€ 4,647,650
2017	EUA	196,820,000	493,172,500	**2.51	*20	*15	**€ 5.80	€ 1,141,744,975
	EUAA	675,500	2,525,000	3.74	7	6	€ 7.51	€ 5,073,005
2018	EUA	172,220,000	436,379,500	**2.53	*24	*18	**€ 14.90	€ 2,565,336,800
	EUAA	800,500	1,823,500	2.28	9	6	€ 20.38	€ 16,314,190
2019	EUA	127,561,500	234,026,000	**1.83	*22	*17	**€ 24.66	€ 3,146,135,125
	EUAA	801,500	2,377,000	2.97	9	5	€ 22.32	€ 17,889,480
2020	EUA	107,433,000	209,032,500	**1.95	*23	*16	**€ 24.59	€ 2,641,787,980
	EUAA	769,000	2,307,000	3.00	10	5	*€ 26.76	€ 20,578,440
2021	EUA	100,462,500	171,888,000	**1.71	*23	*17	**€ 52.47	€ 5,270,913,940
	EUAA	600,000	1,785,000	2.98	8	4	€ 58.75	€ 35,250,000
2022	EUA	84.230.000	185.569.500	**2.20	*19	*14	**€ 80.40	€ 6,772,399,130
	EUAA	586.500	1.178.000	2.01	6	4	€ 68.62	€ 40,245,630
<b>EUA</b>		<b>1.426.610.000</b>	<b>3.732.553.500</b>	<b>**2.62</b>	<b>*19</b>	<b>*14</b>	<b>**€ 17.65</b>	<b>€ 25,184,776,290</b>
<b>EUAA</b>		<b>9.819.500</b>	<b>27.575.500</b>	<b>**2.81</b>	<b>*9</b>	<b>*5</b>	<b>**€ 17.76</b>	<b>€ 174,391,075</b>
<b>Total</b>		<b>1.436.429.500</b>	<b>3.760.129.000</b>	<b>**2.62</b>	<b>*19</b>	<b>*14</b>	<b>**€ 17.65</b>	<b>€ 25,359,167,365</b>

Source: EEX, DEHSt  
 \* average  
 \*\* volume-weighted average

The following chart shows the auction prices of the German EUA auctions held since 2013 (dots). The lowest (red dot) and the highest (green dot) auction price levels achieved in this period are indicated separately.

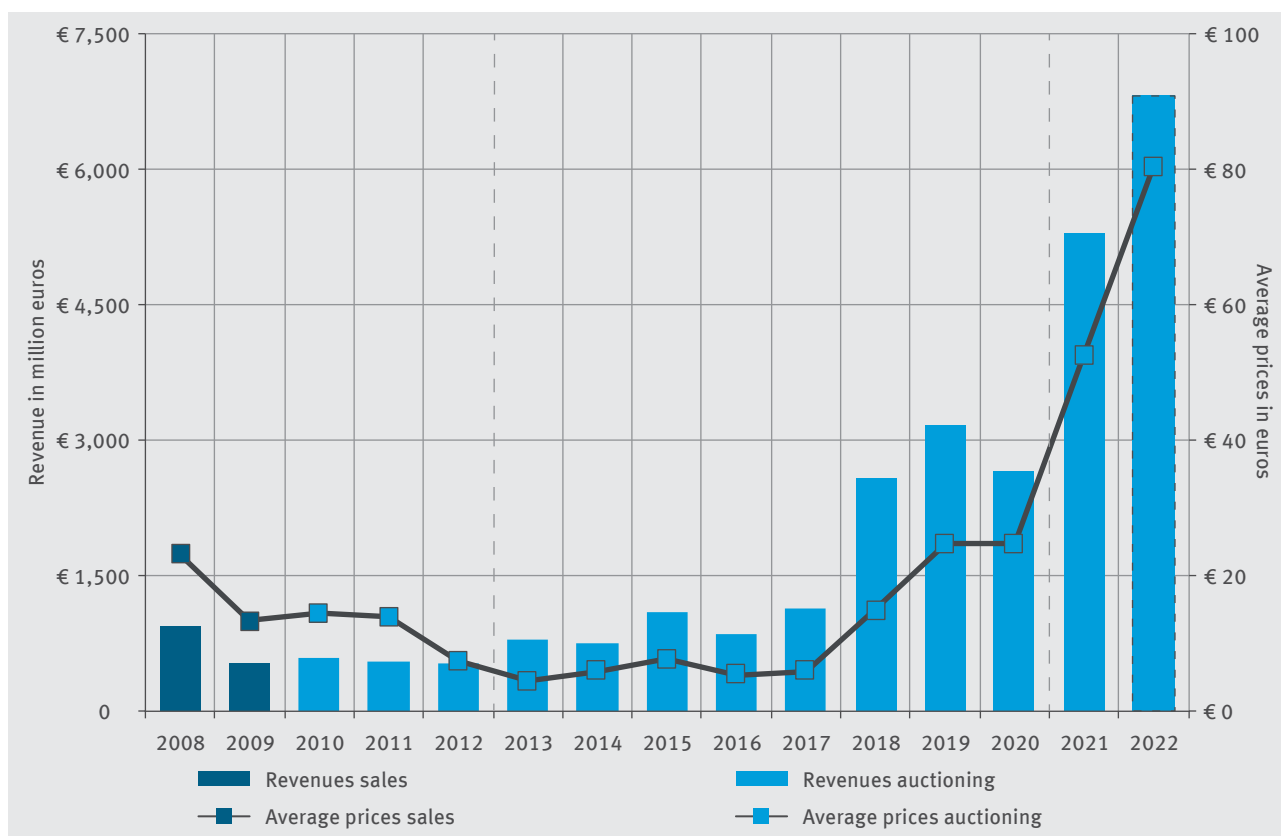


Source: EEX, DEHST

Figure 1: German auction prices since 2013

The following chart shows the annual revenues from the sales (2008–2009) and auctioning (since 2010) of emission allowances for Germany and the average prices achieved. In addition to the auction volumes of the third and fourth trading period, the figure thus also includes the sales and auction volumes of the second trading period. In 2021, revenues reached a record level and exceeded the 6 billion euro mark for the first time.

Between 2008 and 2022, the Federal Government raised a total of more than **€ 28 billion** from the sale of over **1.6 billion emissions allowances**. In Germany, all auction revenues have been paid into the so-called Climate and Transformation Fund (KTF)<sup>5</sup> since 2012. Even before 2012, a large proportion of the sales proceeds had already been channeled into national and international projects of the German government’s climate protection initiative. Since January 2010, almost **750 auctions** have been successfully held for Germany on the EEX.



Source: EEX, DEHSt

Figure 2: Revenues from sales/auctioning and average prices since 2008

5 Until July 2022 – Energy and Climate Fund (EKF).

## 2 Bidder Participation

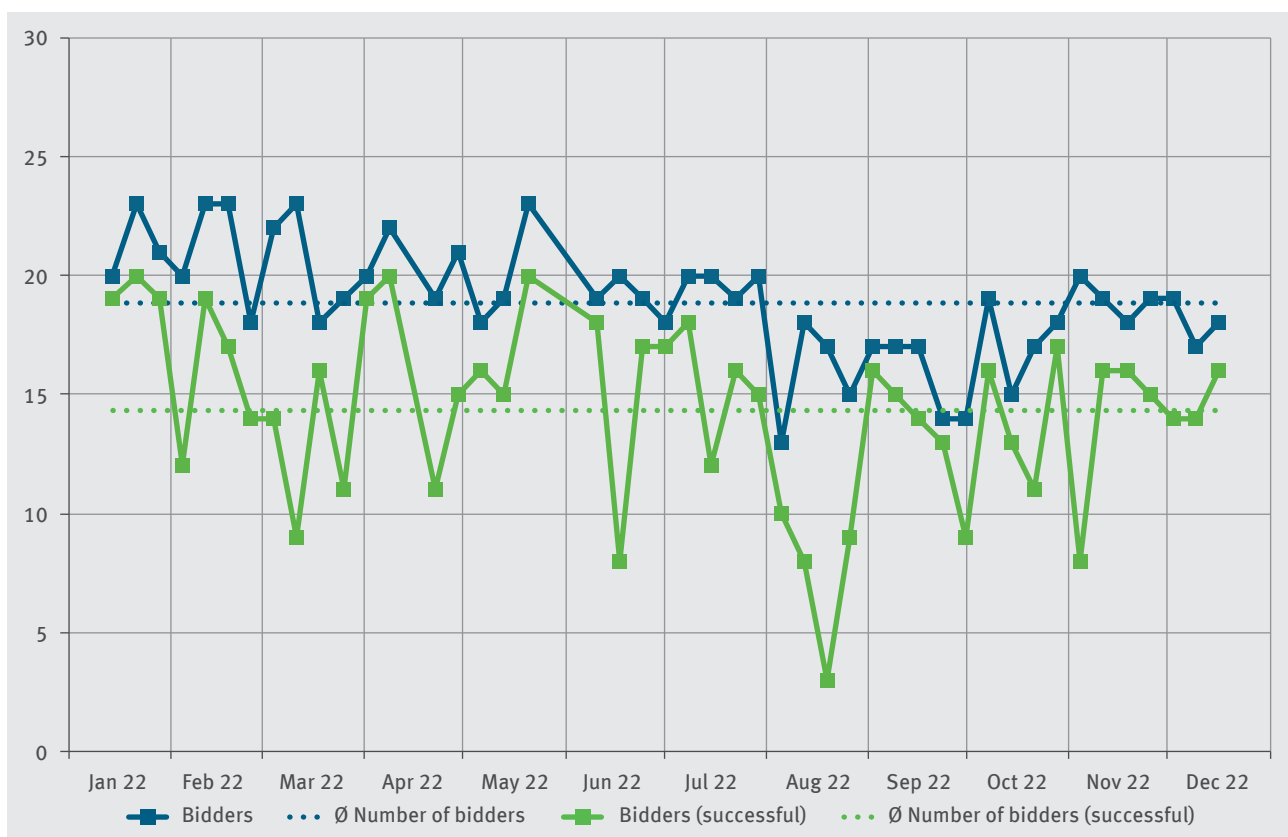
### 2.1 Participation

By the end of December 2022, a total of 93 trading members of EEX had been authorized to submit bids in the primary market auctions (December 2021: 93). In 2021 a total of 43 (2021: 45) different bidders were successful in the German primary market auctions, including 26 plant operators as well as 17 non-compliance companies (2021: 29/16). The 26 plant operators purchased a total of approximately 71 percent of the auctioned volumes (2021: 68 percent). Participation in the **EUA-auctions** fluctuated during the reported period between 13 and 23 bidders (2021: 18 to 30). Thus, all approved bidders together were never simultaneously active in one auction. The number of successful participants varied between 3 and 20 bidders (2021: 11 to 24). There was no such auction where all participating bidders were successful.

The number of participants in the German **EUA-auctions** in 2022 averaged across all dates was around 19 bidders (2021: 23). The average number of successful bidders averaged around 14 (2021: 17). The average ratio of successful to participating bidders was thus around 76 percent (2021: 75 percent). Therefore, on an annual average, about 3 out of 4 auction participants were awarded allowances in a German EUA-auction. At almost all auction dates, the ratio of successful to participating bidders was above a level of 50 percent. The probability of successfully being awarded emission allowances in an auction was therefore relatively high from the average bidder's perspective.

With 6 bidders (2021: 8), the participation in the **aviation allowances** auction in October was well below the average participation in the EUA-auctions.

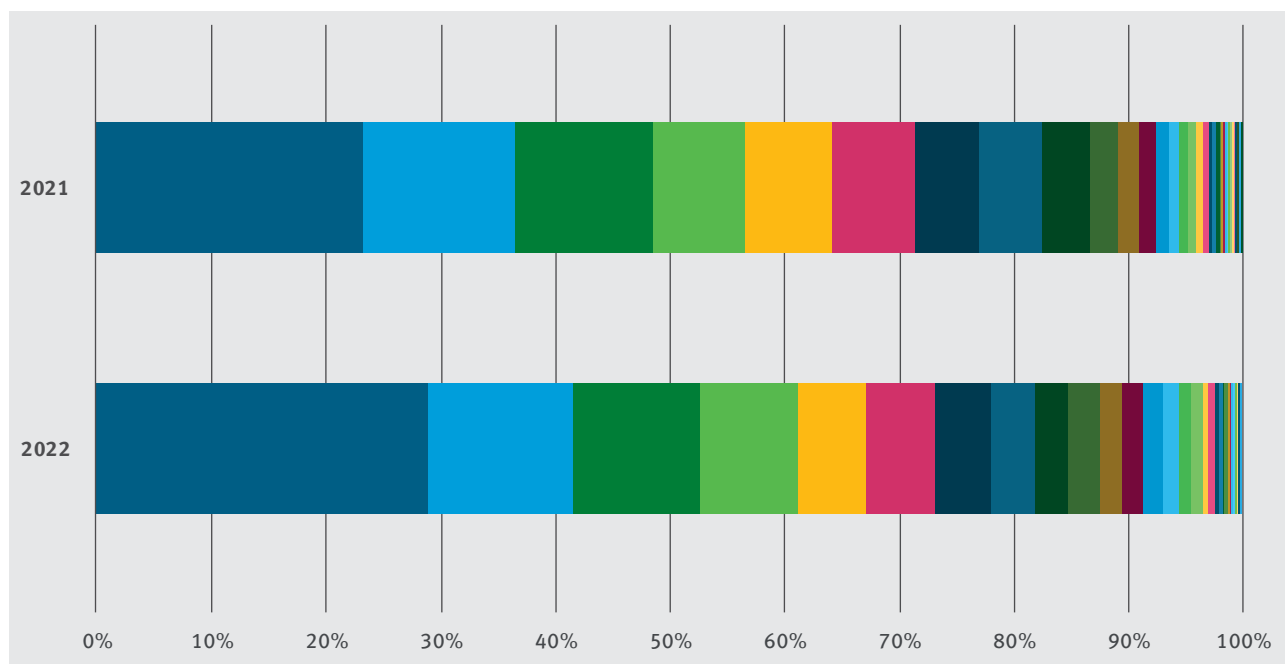
The following figure illustrates EUA-auction participation over time for the year 2022.



Source: EEX, DEHSt

Figure 3: Number of participating and successful bidders per EUA-auction date

The following chart shows the shares of the individual bidders in the aggregated purchased volumes in 2021 and 2022. The colours are based exclusively on the order ranked by volumes and are not linked to the individual bidders. In both years, the five largest bidders by combined volumes accounted for just over 60 percent of the annual auction volume.



Source: EEX, DEHSt

Figure 4: Share of successful bidders in purchased volume in 2021 and 2022

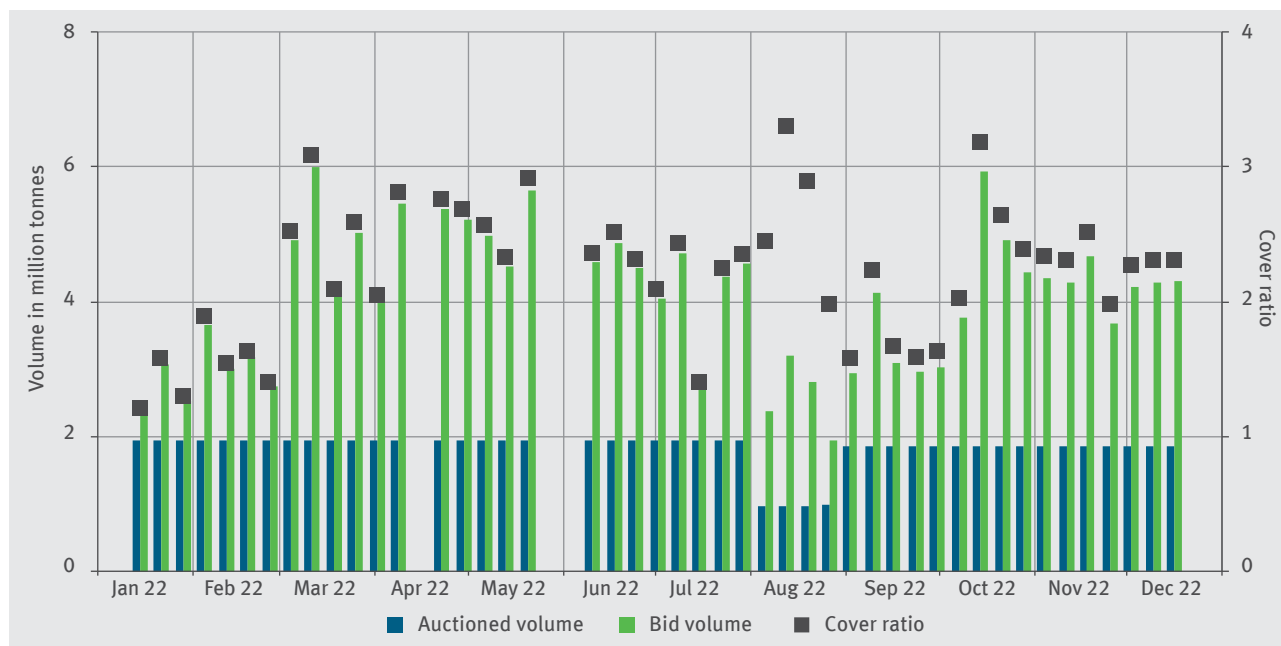
## 2.2 Volume Demand

In 2022, a total of valid bids amounting to some 186 million allowances were made in the German **EUA-auctions** (2021: 172 million). In relation to the total auctioned volume, this determines an average cover ratio of 2.20 (2021: 1.71). Deviations of the clearing prices from the reference prices on the lead markets remain marginal and were mostly in the tenths of a percent range (see also Section 3.3). The demand situation on the primary market can therefore be described as robust.

The aggregated bid volumes for each EUA-auction date fluctuated during the reporting period from 1.9 to 6 million allowances (2021: 1.9 to 5.5 million). The resulting cover ratio for each auction date varied within a range of 1.21 to 3.30 (2021: 1.28 to 2.73). It should be noted that supply volumes in the individual auctions varied to some extent. Since the beginning of 2019, the Market Stability Reserve (MSR) has come into effect. Hence, the 2022 EUA auction volume was reduced by the MSR scheme. Between January and July, 1,944,000 EUA were offered per auction date. In accordance with the requirements of the EU Auctioning Regulation, the auction volumes were halved in August to 972,000 EUA. Between September and December, 1,861,500 EUA were auctioned.

The cover ratio in the **EUA-auction** in October was 2.01 (2021: 2.98) and thus within the fluctuation range of the cover ratios in EUA-auctions.

The following figure summarizes the main findings for each EUA-auction date.



Source: EEX, DEHSt

Figure 5: Auctioned and bid volume and cover ratio (secondary axis) for each EUA-auction date

The average bid volume per auction participant in an EUA-auction, averaged over all dates, was approximately 215,000 allowances (2021: 170,000 EUA). The average award volume was around 130,000 allowances per successful bidder (2021: 130,000 EUA).

In the EUAA-auction the bid volume per auction participant was about 195,000 allowances (2021: 225,000 EUAA). The average volume awarded to each successful bidder was about 150,000 allowances (2021: 150,000 EUAA).

Awarding allowances at the auctions is based on the EU-wide applicable uniform price procedure with one prescribed round of bidding (also see Info box below).



### Uniform Price Auction at the EEX

The auctions at the EEX follow the uniform price procedure which is common practice throughout the European Union. It involves one round of bidding and a closed order book. This simple and robust procedure protects against market manipulation and was used already for German auctions during the second trading period. The uniform price procedure means that all successful bidders pay the same price. The auction clearing price is determined by ranking all eligible bids, beginning with the highest bid, according to the bidding price.

In the event of equal bids, the bids are sorted by a random process. The bid volumes are aggregated starting with the highest bid until the volume of emission allowances on offer (e.g. 1.9 million EUA) is reached. The bid price at which the aggregate volume of bids reaches or exceeds the offered volume of auctioned allowances determines the auction clearing price.

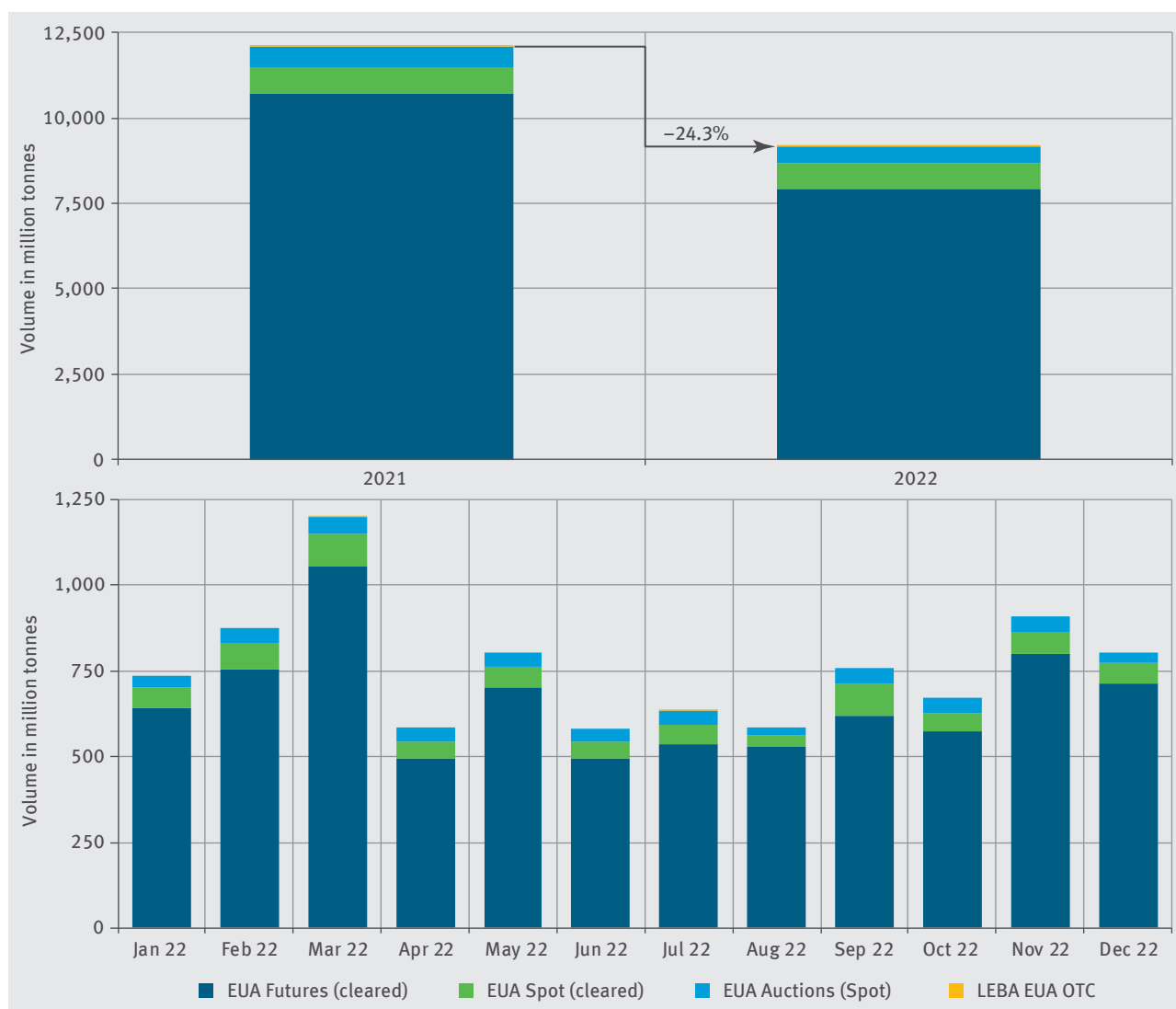
Bidders will thus be awarded their bid volume if their bidding price at least matches the auction clearing price. If a bid matches the clearing price exactly, the bidder may be awarded the remaining allowances which may be below the volume requested, depending on the bidding situation. If the bid from several participants matches the auction clearing price exactly, the above-mentioned random process applies.

## 3 Auctions and the Secondary Market

### 3.1 Trading Volume EUA in 2022

In 2022, a total of roughly 85 million EUA were auctioned at EEX for Germany (primary market). During the reporting period, the cumulative trading volume in the relevant total market<sup>6</sup> was about **9.1 billion EUA** (2021: 12 billion). This comprises the monthly data of the London Energy Brokers' Association (LEBA) on OTC-volumes.<sup>7</sup> The trading volume on the secondary market in 2022 declined by almost 25 percent compared to the previous year, reaching its lowest level since 2019. However, due to an overall higher EUA price level, a new high mark was set with a **market value** of around **€ 700 billion** (2021: ~€ 650 billion).

The figure below illustrates the monthly trading volumes separately for different market segments.

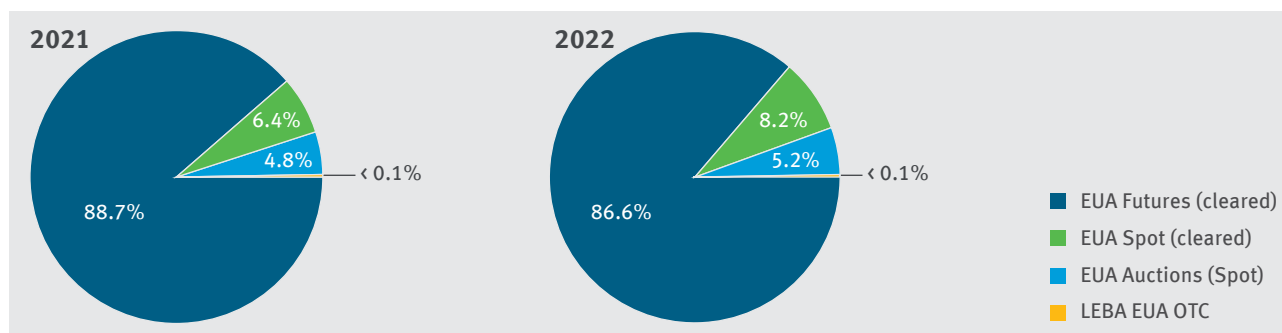


Source: ICE, EEX, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 6: Trading volumes on the primary and secondary market in 2021 and 2022 (EUA)

- 6 All emission allowances (EUA) of the third trading period traded on the spot and futures markets on the ICE, EEX and Nasdaq OMX exchanges are considered. Transactions completed directly on the stock exchange (screen traded) or those bilateral transactions that at least used the stock exchange clearing mechanism are included. Option contracts are not involved. The EUA spot contracts auctioned in 2022 on the EEX are also considered. As far as data on OTC volumes from bilateral trading activity (i. e. off-exchange) is available, it is included in the analysis.
- 7 LEBA is an association of large brokerage firms active in the trading of energy commodities (including EUA). Their monthly volume reports also include bilaterally settled contracts that were not registered on clearing platforms. The data are available as monthly aggregated values and are not broken down into futures-/spot-contracts.

The secondary market trading volume of 8.7 billion EUA (2021: 11.5 billion) was divided into approximately 7.9 billion EUA (2021: 10.7 billion) on the cleared futures market, some 750 million EUA (2021: 770 million) on the cleared spot market and about 0.7 million EUA (2021: 10 million) bilaterally settled through the LEBA-Brokers. A decline in trading volume was thus recorded across all segments of the secondary market, the market shares are shown in the figure below.

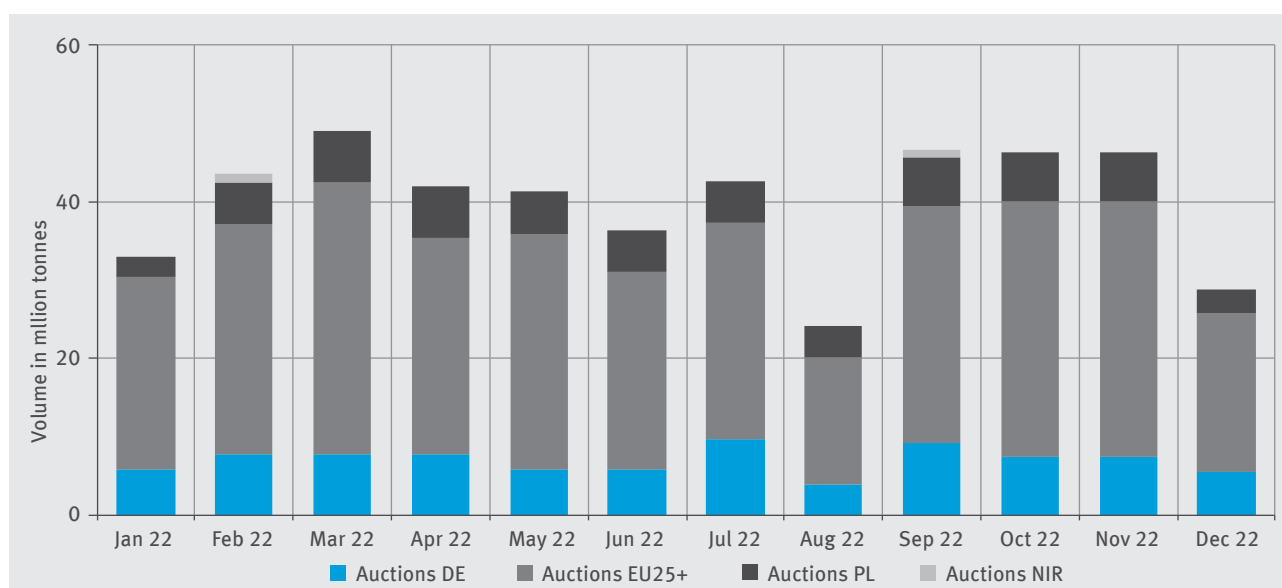


Source: ICE, EEX, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 7: Market shares of the various trading segments in 2021 and 2022 (EUA)

In 2022, a total of about 480 million allowances (2021: 583 million) were auctioned by Member States on the primary market as spot contracts. Thereof, about 18 percent of the EU-wide auction volume was auctioned by Germany. The decline in auction volumes compared to the previous year is partially due to the higher reduction by the MSR. The EU-wide auction volume was evenly distributed over the entire year. However in August, the auction volumes were halved compared to the other months as required by the EU Auctioning Regulation. Only for the first weeks of the year as well as for the two weeks over Christmas and New Year auctioning of allowances rested completely in accordance with European requirements. Based on the total relevant market for emission allowances, about 5.2 percent of the volume traded can be attributed to the auctions (2021: 4.8 percent).

The figure below shows the monthly auction volumes on the primary market. In addition to the German auctions, auction volumes of other EU Member States, as well as Norway, Iceland and Liechtenstein, for the EU innovation/modernisation funds and Northern Ireland<sup>8</sup> are also included in the figure.



Source: EEX, Refinitiv Eikon, DEHSt

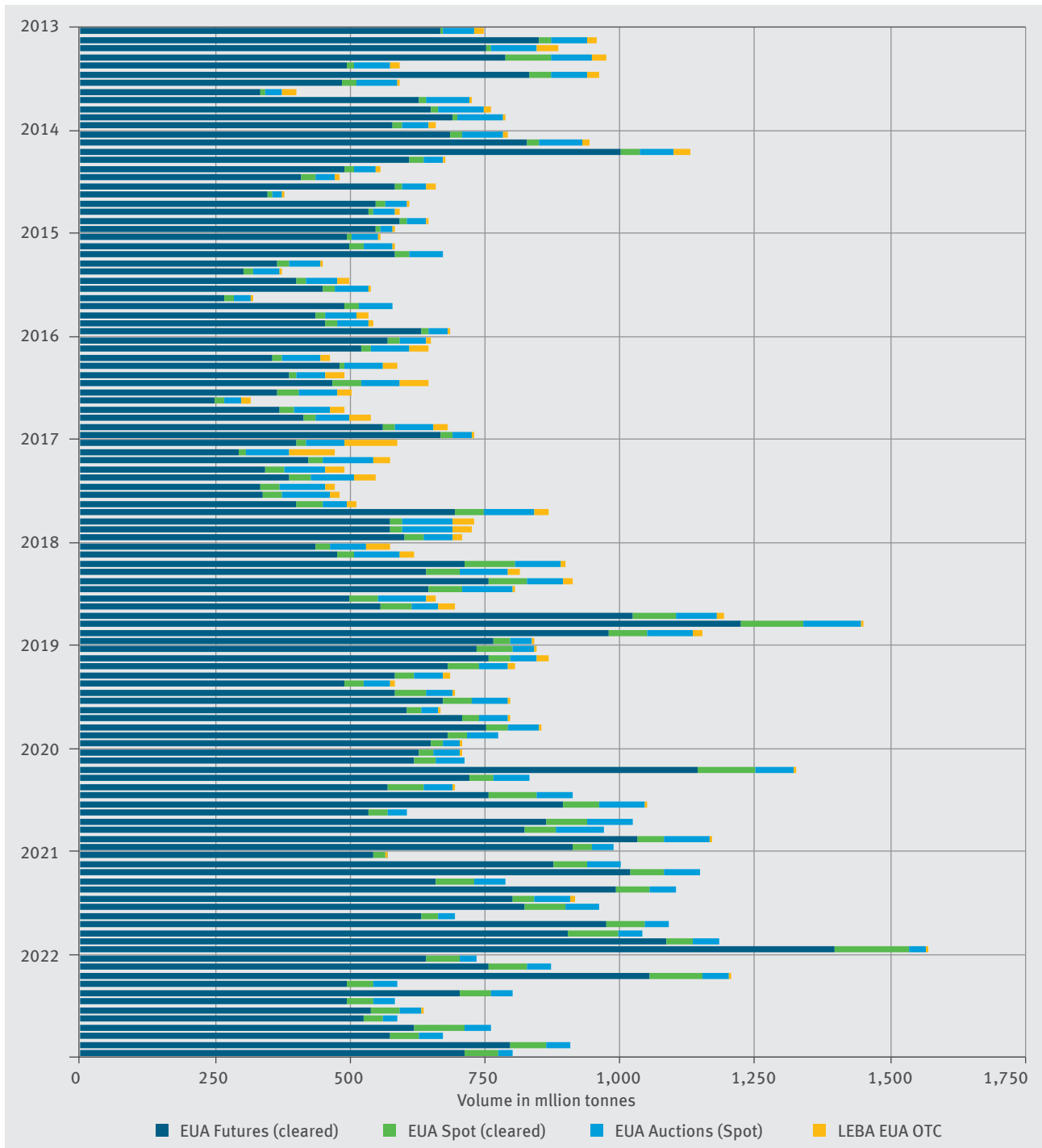
DE = Germany, PL = Poland, EU25+ = EU-Commission on behalf of other member states and Norway, Iceland and Liechtenstein; EU Innovation/Modernisation funds, NIR = Northern Ireland

Figure 8: Auction volumes on the primary market in 2022 (EUA)

<sup>8</sup> In 2021, the UK left the EU. However, pursuant to the Protocol of Ireland and Northern Ireland, the EU ETS continues to apply to generation of electricity in Northern Ireland. Therefore, a small volume of allowances is auctioned on the EEX on behalf of the UK, corresponding to its share in the Union-wide cap.

### 3.2 Trading Volume EUA since 2013

The following chart shows the monthly EUA trading volumes since the beginning of the third trading period. In December 2021, the highest trading activity on a monthly basis was observed with a total of around 1.57 billion allowances, significantly surpassing the old high from October 2018. Since 2013, the one billion EUA mark was exceeded 16 times, including 4 times in 2020, 7 times in 2021, but only once in 2022. The lowest volumes were achieved in the years 2013 to 2016 with less than 400 million allowances during the “holiday month” of August, when auction volumes were halved in accordance with the requirements of the EU Auctioning Regulation. In the past years, however, a clear correlation between auction amounts and trading volumes in August could not always be observed.



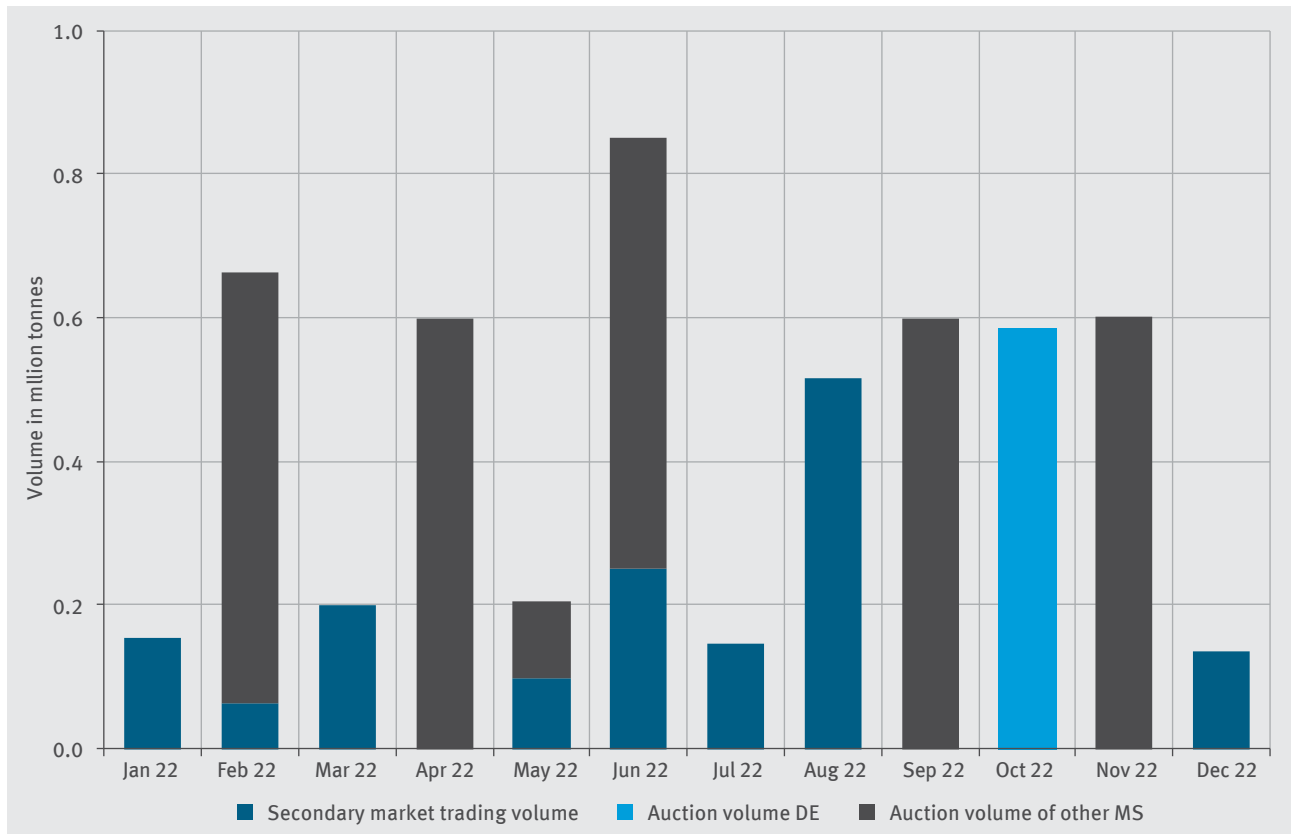
Source: ICE, EEX, CME, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 9: Trading volumes on the primary and secondary market since 2013 (EUA)

### 3.3 Trading Volume EUAA

In 2022, a total of about 1.6 million aviation allowances (EUAA)<sup>9</sup> were traded on the secondary market (2021: 6.8 million EUAA). Compared to the EUA secondary market, liquidity remained very low. During the reporting period, a total of about 3.7 million EUAA (2021: 3.8 million) were auctioned by Member States on the primary market as spot contracts. Further information on the distribution of EUAA auction volumes between calendar years is available on the website of the [European Commission](#).

The figure below shows the monthly trading volume in the secondary market and the auction volumes on the primary market.



Source: EEX, Refinitiv Eikon, DEHSt  
DE = Germany, MS = EU Member States

Figure 10: Trading volume on the secondary market and volume of auctions conducted in 2022 (EUAA)

<sup>9</sup> All aviation allowances (EUAA) of the third trading period traded on the spot and futures markets on the ICE/ECX and EEX exchanges are considered. Transactions completed directly on the stock exchange (screen traded) or those bilateral transactions that at least used the stock exchange clearing mechanism are included. By the end of 2022, ICE has ceased trading EUAA contracts.

### 3.4 Clearing Prices and Price Development on the Secondary Market

Reference prices from the most liquid trading venues served as appropriate benchmarks for evaluating the auction clearing prices achieved on the EUA spot auctions. The reference contract for the auctions is the daily future traded on the ICE Endex or the EEX EUA spot contract. The product specifications are comparable with the spot-product of the auctions. The trade price immediately before the end of the bidding period was used as a reference price. If no trades take place immediately before the end of the bidding period, the last best bid is used as a reference price (see also Info Box below).

Due to the very low liquidity on the benchmark secondary market for EUAA (see Section 3.3) no clearing price evaluation of the EUAA-auction is made in this report.

#### Reference Prices

In regular exchange trading (secondary trading), participants enter their buying and selling requests (bids and asks) into an order book which is constantly updated. As in auctions, such buying bids in secondary trading include quantity and price limits. The price limit is the highest price a buyer is prepared to pay for the purchase of an allowance. Sellers can also put a price limit on their bid, i. e. a minimum price per allowance sold.

The order book is open to inspection by any participant. It shows the current highest purchase offer (best bid) and the lowest sales offer (best ask) with the relevant quantities. Trading occurs where best bid and best ask overlap. Trading price records finally show the price limits where supply equals demand.



Table 3 shows the relative deviations of the clearing price from the EUA lead markets based on monthly averages. For a mean value analysis, the arithmetic mean of the absolute values of individual deviations per auction date is calculated. This prevents positive and negative deviations balancing each other when averaged, thus, the resulting values correspond to the average absolute deviations per month.

The monthly average deviation from the ICE daily future/EEX spot observed immediately before the end of the bidding period (11:00 a.m. CET), varied during the reporting period between € 0.15 and € 0.62 (2021: between € 0.06 and € 0.29). The relative monthly deviations ranged between 0.17 and 0.76 percent (2021: between 0.11 and 0.77 percent). The average deviation over the full year was € 0.35 or 0.44 percent (2021: € 0.14 or 0.26 percent).

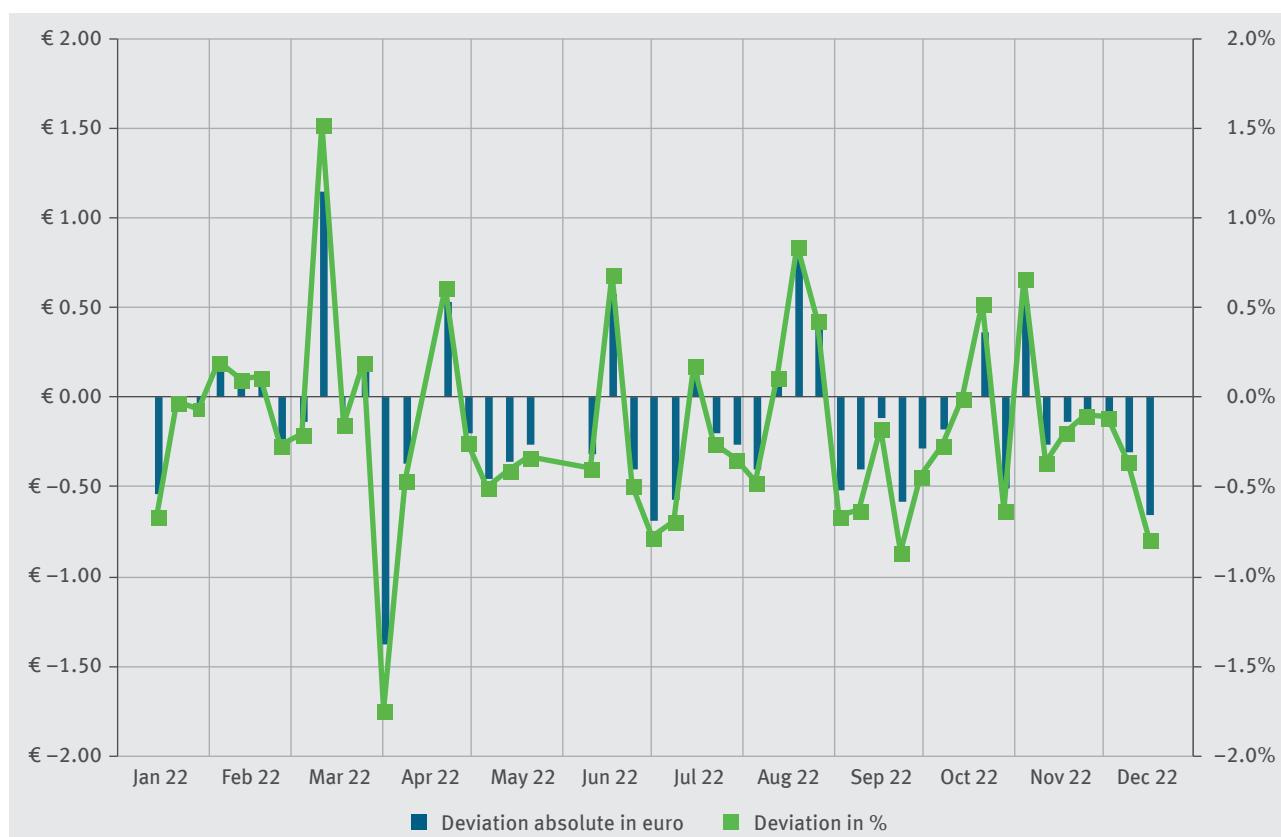
**Table 3: EUA-Auctions and deviations from secondary market prices in 2022**

Date	Contract	Clearing price	Deviation from secondary market	
			Absolute	%
January	EUA Spot 4 <sup>th</sup> TP	*€ 84.93	€ 0.21	0.25%
February	EUA Spot 4 <sup>th</sup> TP	*€ 89.80	€ 0.15	0.17%
March	EUA Spot 4 <sup>th</sup> TP	*€ 75.36	€ 0.39	0.52%
April	EUA Spot 4 <sup>th</sup> TP	*€ 82.12	€ 0.62	0.76%
May	EUA Spot 4 <sup>th</sup> TP	*€ 86.89	€ 0.36	0.41%
June	EUA Spot 4 <sup>th</sup> TP	*€ 82.21	€ 0.43	0.53%
July	EUA Spot 4 <sup>th</sup> TP	*€ 82.12	€ 0.38	0.45%
August	EUA Spot 4 <sup>th</sup> TP	**€ 89.56	€ 0.43	0.47%
September	EUA Spot 4 <sup>th</sup> TP	*€ 69.81	€ 0.39	0.55%
October	EUA Spot 4 <sup>th</sup> TP	*€ 70.97	€ 0.26	0.36%
November	EUA Spot 4 <sup>th</sup> TP	*€ 75.76	€ 0.25	0.33%
December	EUA Spot 4 <sup>th</sup> TP	**€ 85.63	€ 0.35	0.41%
<b>Mean absolute deviation</b>			<b>€ 0.35</b>	<b>0.44%</b>

Source: ICE, EEX, Refinitiv Eikon, DEHSt  
 \* Average  
 \*\* Volume-weighted average  
 \*\*\* ICE EUA Daily Future/EEX EUA Spot

In addition to the table above, the following figure illustrates the actual deviations of the clearing prices from the secondary spot market for each of the 46 EUA-auction dates. A statistical arithmetic mean assessment has not been carried out here, so the difference between positive and negative deviations can be seen. Clearing prices that were below the respective last trade or best bid, lead to a negative deviation. However, if the clearing prices were above the reference price in the secondary market, the figure shows a positive deviation.

Over the year, deviations fluctuated within the range of minus € 1.38 and plus € 1.15 (blue bars). Depending on the particular price level, this resulted in a relative deviation interval of minus 1.74 percent to plus 1.53 percent (green line). In a total of 13 auctions, the auction price was above the secondary market price and in 32 auctions it was below. In one auction, both prices were identical. The relative deviation averaged over all 46 dates was only around minus 0.17 percent (minus € 0.13). Positive and negative deviations have thus almost completely balanced each other out throughout the year.



Source: ICE, EEX, Refinitiv Eikon, DEHSt

Figure 11: Deviations of the clearing price from secondary market price in 2022

The following figure shows an overview of the price development for emissions allowances on the Intercontinental Exchange (ICE), the lead market for EUAs. In addition to the daily futures the development of futures for December delivery of the current and the following year is also shown (so-called “front-December future”)<sup>10</sup>. Rather than following the common practice of just looking at settlement prices, our analysis takes into account all trades completed at the exchanges during the reporting period.<sup>11</sup> The following graphic is based on volume-weighted daily average trading prices (VWAP). In 2022, these volume-weighted daily average prices (here front-December Future) fluctuated in a range between € 58.95 and € 97.48 (2021: € 31.78 to € 88.48). At € 81.15, the average value was around 51 percent higher than the previous year’s value (2021: € 53.66).<sup>12</sup> The trading range in the trading course of the front-December futures contract in 2022 was between € 55 and € 99.22.

After a strong upward trend in 2021, when the EUA price gained almost 150 percent in value, the year 2022 was overall characterised by a sideways movement with high price volatility. Initially, the steady upward trend from the previous year continued and the EUA reference contract rose to a new high of over € 98 by the beginning of February. This was followed by a significant downward correction, particularly as a result of extraordinarily high price fluctuations on the international energy markets, and the EUA price briefly reached its year low of € 55 at the beginning of March. Subsequently, the EUA reference contract recovered again and by mid-August even reached its **highest level since the start of the EU ETS in 2005 at € 99.22**. In the following consolidation phase, the EUA price first moved towards the € 65 mark and then upwards again. The EUA reference contract was quoted at € 83.97 at the trading close of 30<sup>th</sup> December, 5 percent above its value at the beginning of the year.

In addition to the secondary market prices, the following figure also shows the German auction clearing prices. In principle, the auction clearing prices followed the prevailing prices on the secondary market. The relevant deviations between auction clearing price and the secondary market price per auction date are shown in Figure 11.<sup>13</sup>



Source: ICE, EEX, Refinitiv Eikon, DEHSt  
DE = Germany

Figure 12: ICE secondary market prices and EEX auction clearing prices (EUA) in 2022

<sup>10</sup> ICE EUA Dec22 contract expired on 19/12/2022.

<sup>11</sup> Settlement prices are determined by the exchanges at the end of the trading day. Hence, they only reflect trade activity immediately before closure of the exchange and are, thus, not always an adequate reflection of the prevailing intra-day prices in the secondary market.

<sup>12</sup> The volume-weighted average prices (VWAP) for the ICE EUA front-December future and the ICE daily future contract is based on data from Refinitiv Eikon.

<sup>13</sup> It should be noted that the VWAP takes into account all trades completed at the exchanges during the full trading day (green, blue lines), while the auctioning price only reflects the trade activity at a particular time of the day (black dots). Deviations between the two variables are therefore usually attributed to price movements within the trading day.

## 4 Implementation of Valid Regulations

### 4.1 Surveillance Report by HÜSt

In order to guarantee above-board market activities are free of manipulation on the EEX continuous surveillance is conducted by an independent Market Surveillance Office (Handelsüberwachungsstelle, HÜSt) as required under German law. HÜSt reports to the DEHSt on the results of its surveillance activities through regular internal reports. HÜSt reported on auctions in 2022 as follows (excerpt):

*“Within their surveillance for the auctioning of emission allowances on behalf of the German Environment Agency at the EEX in 2022 the Market Surveillance Office of the EEX could not detect any irregularities and especially no behaviour of bidders that was targeted at manipulating the auction price.”*

### 4.2 Fair and Open Access

The implementation of the provisions of the EU Auctioning Regulation guarantees a fair and open access for all auction participants at EEX. Current access options can be found at [EEX Website \(Access to the auctions\)](#).

More information about the auction process is also available on the EEX auction hotline. EEX can be reached by phone from Mondays to Fridays from 8:00 to 18:00 CET at +49 341 2156-331 or by e-mail at [auctions@eex.com](mailto:auctions@eex.com).

### 4.3 Auction Result Publication

All auction results and accompanying data were made publicly available during the reporting period within a 15-minute time window directly linked to the respective auction at [EEX Website](#).

### 4.4 Other Events

There are no matters relating to the implementation of the existing rules to be reported during the reporting period. The current regulations can be downloaded from [EEX Website \(Rules and Regulations\)](#).

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