



# Auctioning

## German Auctioning of Emission Allowances Periodical Report: Annual Report 2018

## Editorial information

### **Publisher**

German Emissions Trading Authority (DEHSt)  
at the German Environment Agency

Bismarckplatz 1

D-14193 Berlin

Phone: +49 (0) 30 89 03-50 50

Fax: +49 (0) 30 89 03-50 10

[emissionstrading@dehst.de](mailto:emissionstrading@dehst.de)

Internet: [www.dehst.de/EN](http://www.dehst.de/EN)

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Responsible Editor: Dmitri Lewandrowski, Nadine Pauly, Jan Weiß (Section V 3.3)

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# Content

<b>1 Overview</b> .....	<b>5</b>
1.1 2018 .....	5
1.2 Third Trading Period .....	6
<b>2 Bidder Participation</b> .....	<b>7</b>
2.1 Participation .....	7
2.2 Volume Demand .....	9
<b>3 Auctions and the Secondary Market</b> .....	<b>11</b>
3.1 Trading Volume EUA in 2018 .....	11
3.2 Trading Volume EUA in the third trading period .....	13
3.3 Trading Volume EUAA in 2018 .....	15
3.4 Clearing Prices and Price Development on the Secondary Market.....	15
<b>4 Implementation of Valid Regulations</b> .....	<b>19</b>
4.1 Surveillance Report by HÜSt.....	19
4.2 Fair and Open Access.....	19
4.3 Adjustment of the Auction Calendar .....	19
4.4 Auction Result Publication .....	19
4.5 Other Events .....	19

## German Auctioning of Emission Allowances

The German auctions of the third 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 third trading period auctions can be downloaded from the [EEX website](#). Reports on the second and third trading period auction results are available on the [DEHSt auction website](#). The 2018 and 2019 auction calendars are published on the [EEX website](#).

The following tables summarise the key data of the German auctions on the EEX in 2018 and 2019:

2018		
<b>Auction product</b>	Third trading period <b>EUA spot contracts</b>	Third trading period <b>EUAA spot contracts</b>
<b>Period</b>	12/01/2018 to 09/11/2018	10/10/2018
<b>Auction volume entire year</b>	172,220,000 EUA <sup>1</sup>	800,500 EUAA
<b>Auction volume per auction</b>	<b>4,360,000 EUA</b> (2,180,000 EUA in August)	<b>800,500 EUAA</b> am 10/10/2018
<b>Auction frequency</b>	Weekly (Fridays, 09:00 to 11:00 CET)	On 10/10/2018 (13:00 to 15:00 CET)
<b>Bid volume</b>	500 EUA/EUAA	
<b>Auction mode</b>	Single-round, uniform-price procedure with a closed order book	
2019		
<b>Auction product</b>	Third trading period <b>EUA spot contracts</b>	Third trading period <b>EUAA spot contracts</b>
<b>Period</b>	01/02/2019 to 13/12/2019	09/10/2019
<b>Auction volume entire year</b>	156,028,500 EUA <sup>2</sup>	801,500 EUAA
<b>Auction volume per auction</b>	<b>3,209,000 EUA (see footnote 2)</b> (1,604,500 EUA in August)	<b>801,500 EUAA</b> am 09/10/2019
<b>Auction frequency</b>	Weekly (Fridays, 09:00 to 11:00 CET)	On 09/10/2019 (13:00 to 15:00 CET)
<b>Bid volume</b>	500 EUA/EUAA	
<b>Auction mode</b>	Single-round, uniform-price procedure with a closed order book	

1 The amount of emission allowances to be auctioned by Germany in 2018 initially totaled 194,027,000 EUA. Auctions that were previously provisionally scheduled for the period after 9<sup>th</sup> November 2018 have been removed from the 2018 auction calendar. The corresponding volume of 21,807,000 EUA will be distributed over the volume to be auctioned in 2019.

2 Since the beginning of 2019, the Market Stability Reserve (MSR) has come into effect. The 2019 EUA auction volume is reduced by the MSR scheme until August and includes the volume of the cancelled auctions after 9<sup>th</sup> November 2018. **The MSR reduction for the auction volumes from September 2019 to August 2020 is expected to be determined by the European Commission in May 2019.**

# 1 Overview

## 1.1 2018

In 2018 a total of about **173 million EUA and EUAA** of the third trading period with a total value of over **€ 2.58 billion** were auctioned at the EEX for Germany. This results in a volume-weighted average price per allowance of **€ 14.92**.

At the EUA auction on 7<sup>th</sup> September, the **highest auction price since the start of auctioning in 2010** was achieved with € 22.51. Due to last year's market price development, the 2018 average auction clearing price was around 157 percent higher than in the previous year. Despite the lower auction volumes, total revenues in 2018 increased by around 125 percent year-on-year. This was the **highest annual revenue since the start of the sales/auctioning in 2008**.

The following table summarizes the auction results on a monthly basis.

Table 1: Overview of the entire year 2018

Date	Type	Auction volume	Bid volume	Cover ratio	Bidders	Successful bidders	Price	Revenue
January	EUA	13,080,000	31,950,500	*2.44	*21	*14	*€ 8.47	€ 110,787,600
February	EUA	17,440,000	40,112,500	*2.30	*21	*16	*€ 9.31	€ 162,279,200
March	EUA	17,440,000	37,299,000	*2.14	*24	*18	*€ 11.08	€ 193,278,800
April	EUA	17,440,000	29,346,000	*1.68	*25	*20	*€ 13.20	€ 230,251,600
May	EUA	13,080,000	26,474,000	*2.03	*26	*21	*€ 14.62	€ 191,273,200
June	EUA	21,800,000	52,446,000	*2.40	*24	*18	*€ 14.99	€ 326,694,800
July	EUA	17,440,000	47,763,000	*2.74	*24	*20	*€ 16.29	€ 284,097,600
August	EUA	10,900,000	38,234,000	*3.51	*24	*16	*€ 19.02	€ 207,318,000
September	EUA	14,170,000	44,262,500	**3.12	*26	*17	**€ 20.74	€ 293,842,200
October	EUA	20,710,000	65,814,500	**3.18	*25	*18	**€ 19.85	€ 411,169,800
	EUAA	800,500	1,823,500	2.28	9	6	€ 20.38	€ 16,314,190
November	EUA	8,720,000	22,677,500	*2.60	*24	*18	*€ 17.70	€ 154,344,000
<b>EUA</b>		<b>172,220,000</b>	<b>436,379,500</b>	<b>**2.53</b>	<b>*24</b>	<b>*18</b>	<b>**€ 14.90</b>	<b>€ 2,565,336,800</b>
<b>EUAA</b>		<b>800,500</b>	<b>1,823,500</b>	<b>2.28</b>	<b>9</b>	<b>6</b>	<b>€ 20.38</b>	<b>€ 16,314,190</b>
<b>Total</b>		<b>173,020,500</b>	<b>438,203,000</b>	<b>**2.53</b>	<b>*24</b>	<b>*17</b>	<b>**€ 14.92</b>	<b>€ 2,581,650,990</b>

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

The deviations of the EUA-clearing prices from the reference prices on the lead markets in London and Leipzig were mainly in the tenths of a percent range. The average deviation just before the end of the bidding period (11:00 a. m. CET) was 0.47 percent or € 0.07 (see also Section 3.4). A major factor behind this development was the robust demand on the primary market.

Overall, valid bids totaling about 436 million allowances were entered in the trading system across the 41 EUA-auction dates. Thus the average cover ratio in the reporting period was 2.53 (see also Section 2.2). In 2018 the average number of participants in the German auctions was 24, the average number of successful bidders amounted to 18. The participation number in 2018 was thus significantly higher than in 2017. From a bidder's perspective, the average success rate over all auction dates was about 74 percent (see also Section 2.1).

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

## 1.2 Third Trading Period

In current third trading period, a total of over **one billion EUA and EUAA** with a total value of around **€ 7.41 billion** were auctioned at the EEX for Germany in **288 single auctions**. This results in a volume-weighted average price per allowance of **€ 7.31**.

The following table summarizes the auction results of the current trading period on a yearly basis. The development of the auction volumes was substantially affected by the so-called “backloading”-decision. Accordingly, between 2014 and 2016, 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 to “backloading”, 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. In the period from 2014 to 2017, the average annual auction prices ranged between about € 5.20 and € 7.60.

Due to a strong upward trend, the highest annual auction price since the start of the German auctions in 2010 was achieved last year with average proceeds of almost € 15 (see also Figure 1).

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 2017 (“reduced scope”). As a result, EU-wide EUAA-auction volumes for the period from 2012 to 2017 were noticeable lower than originally planned. In line with the European requirements, Germany carried out a total of five EUAA-auctions in 2012 and from 2015 to 2018.

Table 2: Overview 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
<b>EUA</b>		<b>163,500,000</b>	<b>413,702,000</b>	<b>**2.53</b>	<b>*24</b>	<b>*18</b>	<b>**€ 14.75</b>	<b>€ 2,410,992,800</b>
<b>EUAA</b>		<b>800,500</b>	<b>1,823,500</b>	<b>2.28</b>	<b>9</b>	<b>6</b>	<b>€ 20.38</b>	<b>€ 16,314,190</b>
<b>Total</b>		<b>1,013,985,500</b>	<b>2,951,966,000</b>	<b>**2.91</b>	<b>*18</b>	<b>*13</b>	<b>**€ 7.31</b>	<b>€ 7,413,967,640</b>

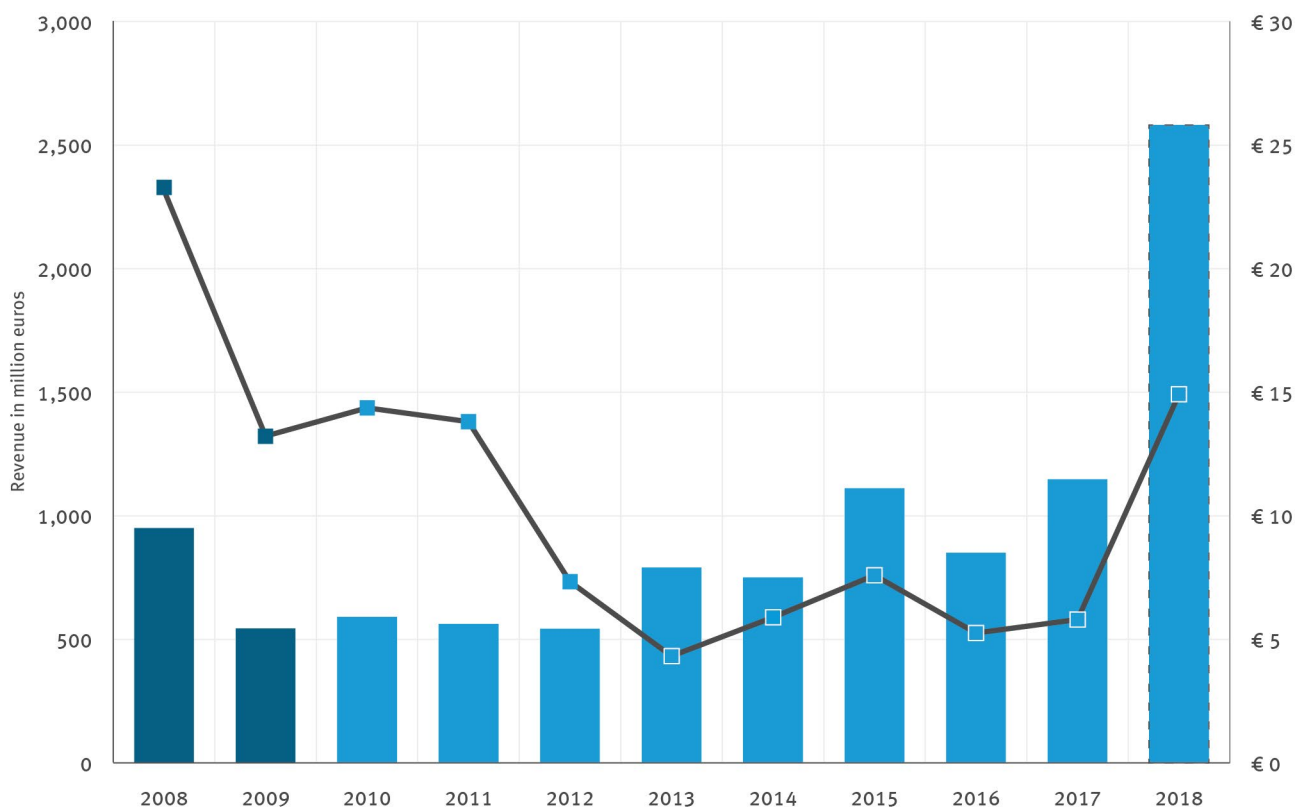
Source: EEX, DEHSt  
\* average  
\*\* volume-weighted average

3 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 will be transferred to the Market Stability Reserve (MSR) in 2019.

4 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.

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 the year 2018 revenues have reached a new record level.

Between 2008 and 2018, the Federal Government raised a total of more than **€ 10.4 billion** from the sale of over **1.2 billion emission allowances**. In Germany, all auction revenues have been paid into the so-called Energy and Climate Fund (EKF) 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, more than **550 auctions** have been successfully held for Germany on the EEX.



Source: EEX, DEHSt

Figure 1: Revenues from sales/auctioning and average prices since 2008

## 2 Bidder Participation

### 2.1 Participation

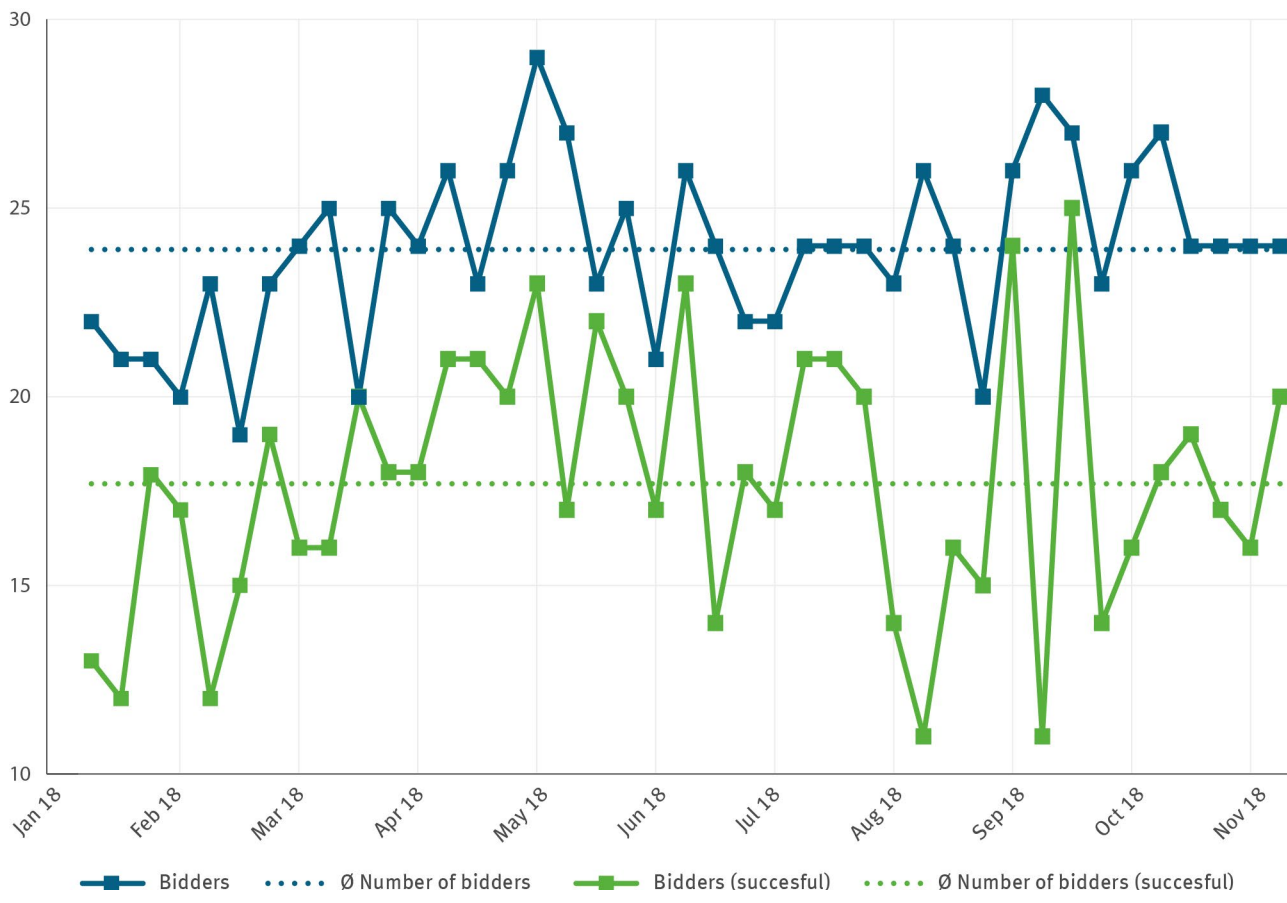
By the end of November 2018, a total of 78 trading members of EEX had been authorized to submit bids in the primary market auctions (December 2017: 72). In 2018 a total of 43 (2017: 39) different bidders were successful in the German primary market auctions, including 27 plant operators as well as 16 non-compliance companies (2017: 25/14). The 27 plant operators purchased a total of approximately 56 percent of the auctioned volumes (2017: 60 percent). Participation in the EUA-auctions increased significantly over the previous year and fluctuated during the reported period between 19 and 29 bidders (2017: 14 to 24). Thus, never all approved bidders were simultaneously active in one auction. The number of successful participants varied between 11 and 25 bidders (2017: 8 to 21). At the auction on 16<sup>th</sup> March all participating bidders were successful.

The number of participants in the German EUA-auctions in 2018 averaged across all dates was around 24 bidders (2017: 20). The average number of successful bidders averaged around 18 (2017: 15).

The average ratio of successful to participating bidders was thus around 74 percent (2017: 74 percent). Therefore, on an annual average, about 3 out of 4 auction participants were awarded allowances in a German EUA-auction. With the exception of two 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 9 bidders (2017: 7), the participation in the single aviation allowances auction in October was well below the average participation in the EUA-auctions. However, it has to be noted that the usability of EUAA for ETS compliance is limited to aircraft operators, whereas EUA can be used by all operators subject to emissions trading.

The following figure illustrates EUA-auction participation over time for the year 2018.



Source: EEX, DEHSt

Figure 2: Number of participating and successful bidders per auction date (EUA)

The following chart shows the shares of the individual bidders in the aggregated purchased volumes in 2017 and 2018. This shows that the demand structure has slightly diversified compared to the previous year. The colours are based exclusively on sequence and are not linked to the individual bidders.



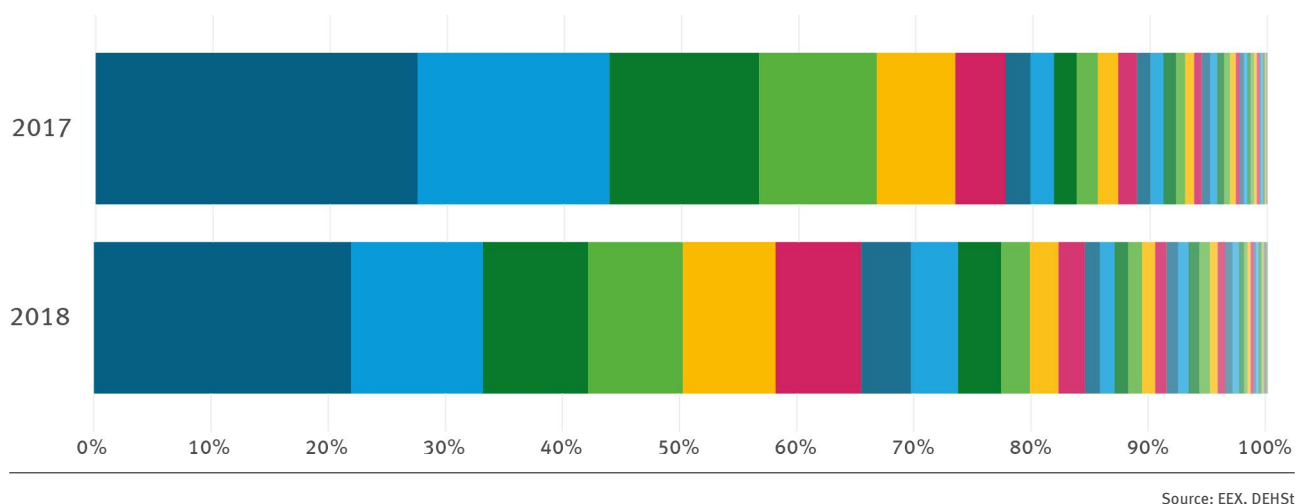


Figure 3: Share of successful bidders in purchased volume in 2017 and 2018

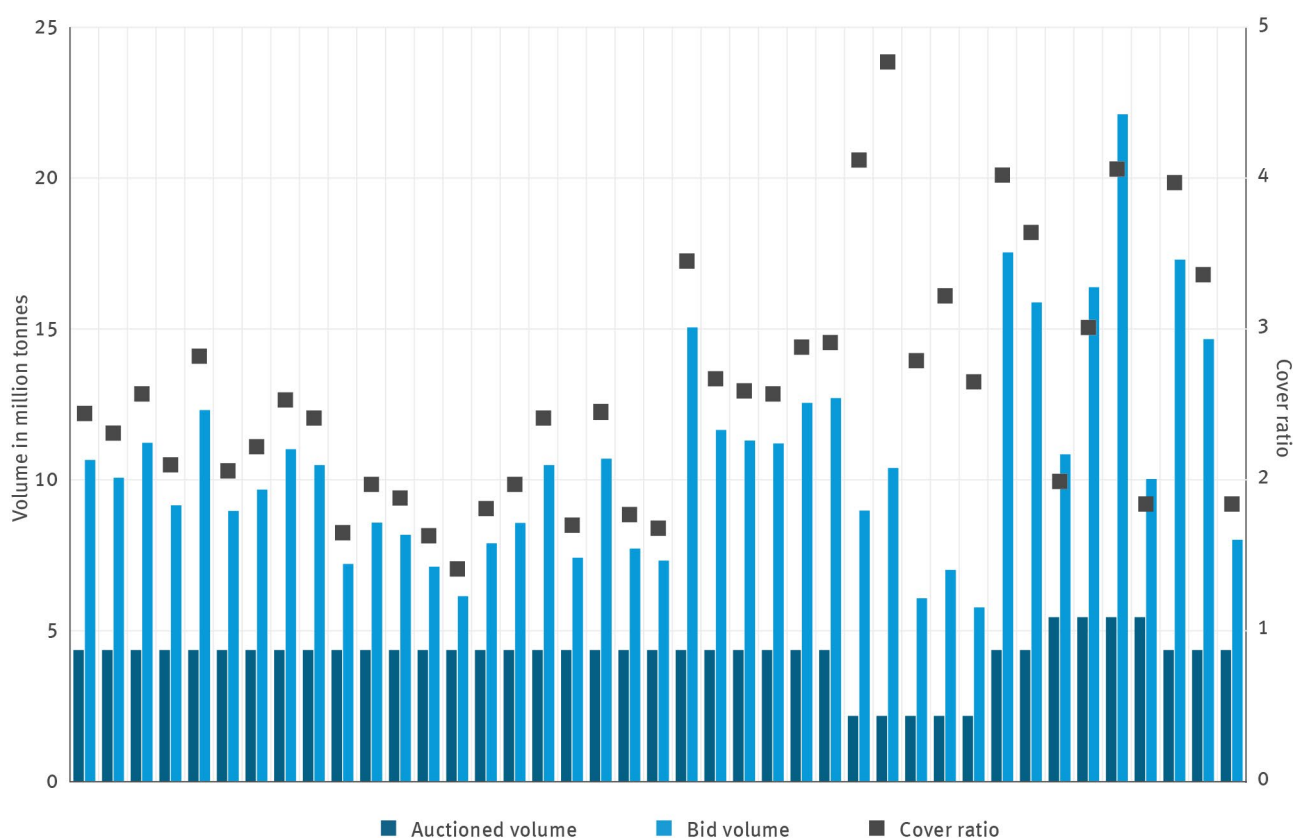
## 2.2 Volume Demand

In 2018, a total of valid bids amounting to some 436 million allowances were made in the German **EUA-auctions** (2017: 493 million). In relation to the total auctioned volume, this determines an average cover ratio of 2.53 (2017: 2.51). Deviations of the clearing prices from the reference prices on the lead markets remain marginal and were mainly 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 5.8 to 22.1 million allowances (2017: 4.7 to 15.2 million). The resulting cover ratio for each auction date varied within a range of 1.41 to 4.77 (2017: 1.43 to 3.54). It should be noted that supply volumes in the individual auctions varied to some extent. 4.360.000 EUA were regularly offered per auction date. In accordance with the requirements of the EU Auctioning Regulation, the auction volumes were halved in the four August auction dates to 2,180,000 EUA. On 21<sup>st</sup> September 2018, the planned German auction of emission allowances (EUA) was terminated without result as the auction clearing price would have been below the reserve price. The volume not auctioned was evenly distributed over the four subsequent German auctions in accordance with the EU Auctioning Regulation. Therefore, the auction volume in the auctions between 28<sup>th</sup> September and 19<sup>th</sup> October 2018 was effectively raised to 5,450,000 allowances.

The cover ratio at the **EUAA-auction** was 2.28 (2017: 3.74) and hence 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 4: Auctioned and bid volume and cover ratio (secondary axis) for each EUA-auction date**

The average bid volume per auction participant, averaged over all dates, was approximately 450,000 allowances (2017: 550,000 EUA). The average award volume was around 250,000 allowances per successful bidder (2017: 300,000 EUA).

In the EUAA-auction the bid volume per auction participant was about 200,000 allowances (2017: 360,000 EUAA). The average volume awarded to each successful bidder was about 135,000 allowances (2017: 115,000 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).

### Info Box: 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. 4.36 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.

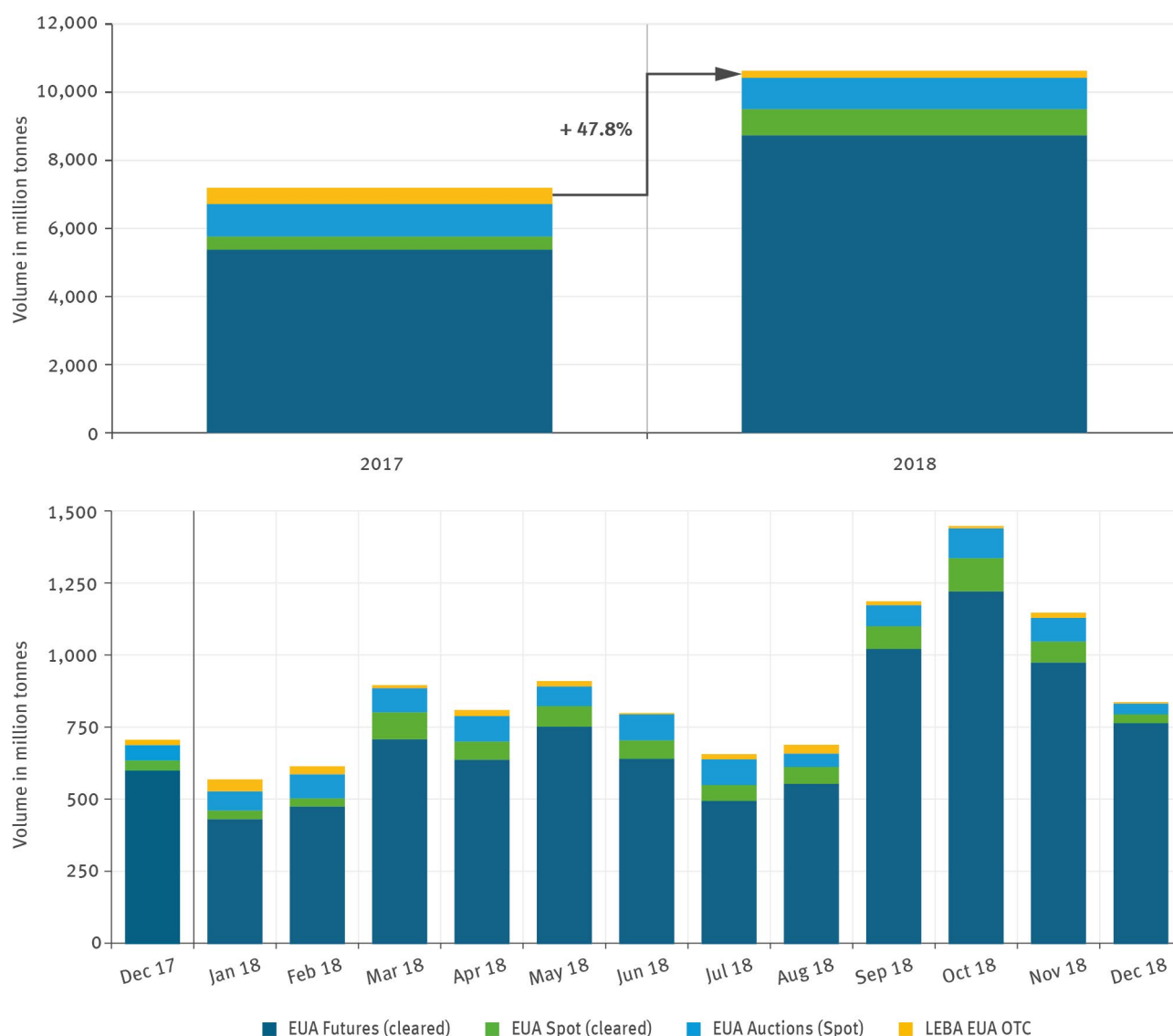
Bidders will thus be awarded their bid volume if their bidding price at least matches the auction clearing price. If a bid matches the clearing price exactly, the bidder may be awarded the remaining allowances which may be below the volume requested, depending on the bidding situation. If the bid from 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 2018

In 2018, a total of roughly 172 million EUA of the third trading period were auctioned at the EEX for Germany (primary market). During the reporting period, the cumulative trading volume in the relevant total market<sup>5</sup> was about **10.6 billion EUA** (2017: 7.2 billion). This comprises the monthly data of the London Energy Brokers' Association (LEBA) on OTC-volumes.<sup>6</sup> The inclusion of this data allows for a more complete picture of the entire market volume in EUA trades. The trading volume on the secondary market in 2018 posted a significant increase of almost 50 percent over the previous year and reached a **new record high**. With a **market value of almost € 160 billion** (2017: ~ € 35 billion), a new record was also set.

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

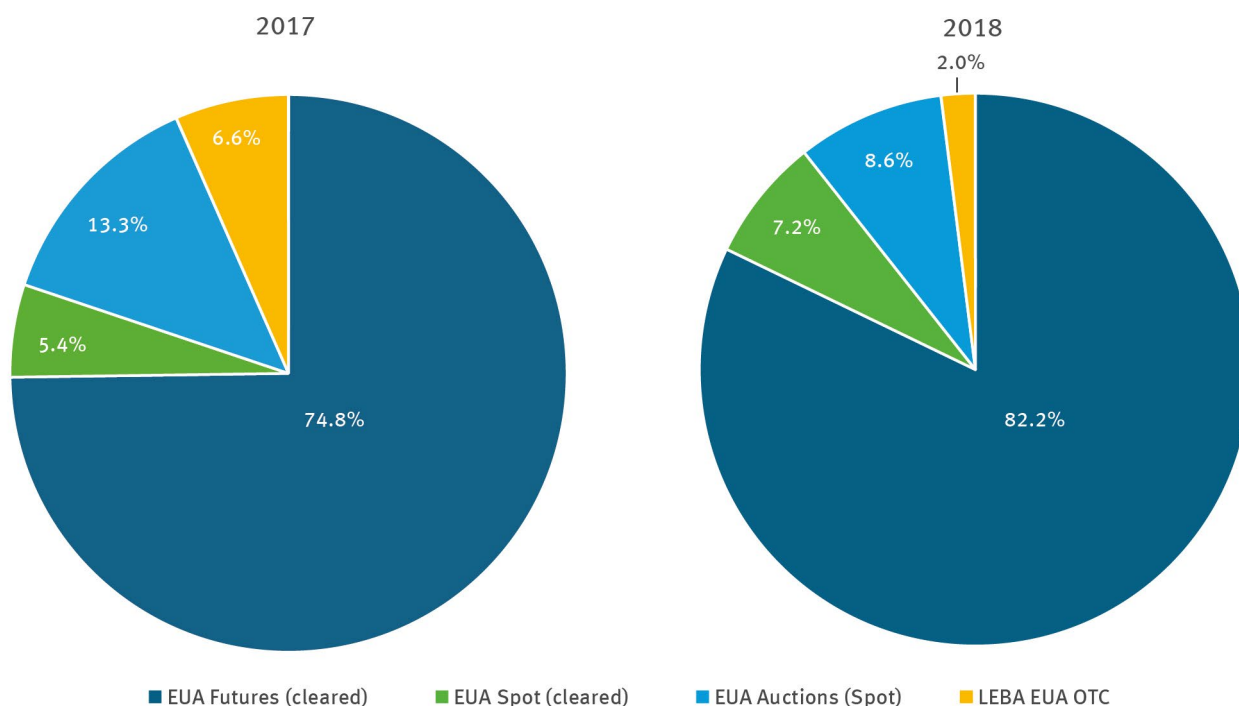


Source: ICE, EEX, CME, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 5: Trading volumes on the primary and secondary market in 2017 and 2018 (EUA)

- All emission allowances (EUA) of the third trading period traded on the spot and futures markets on the ICE/ECX, EEX, CME/NYMEX 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 2018 on the EEX and ICE/ECX 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.
- 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 9.7 billion EUA (2017: 6.2 billion) was divided into approximately 8.7 billion EUA (2017: 5.4 billion) on the cleared futures market, some 765 million EUA (2017: 386 million) on the cleared spot market and about 212 million EUA (2017: 474 million)<sup>7</sup> bilaterally settled through the LEBA-Brokers. With respect to the total market share, futures trading market volume increased, while the shares of auctions decreased, see the figure below.



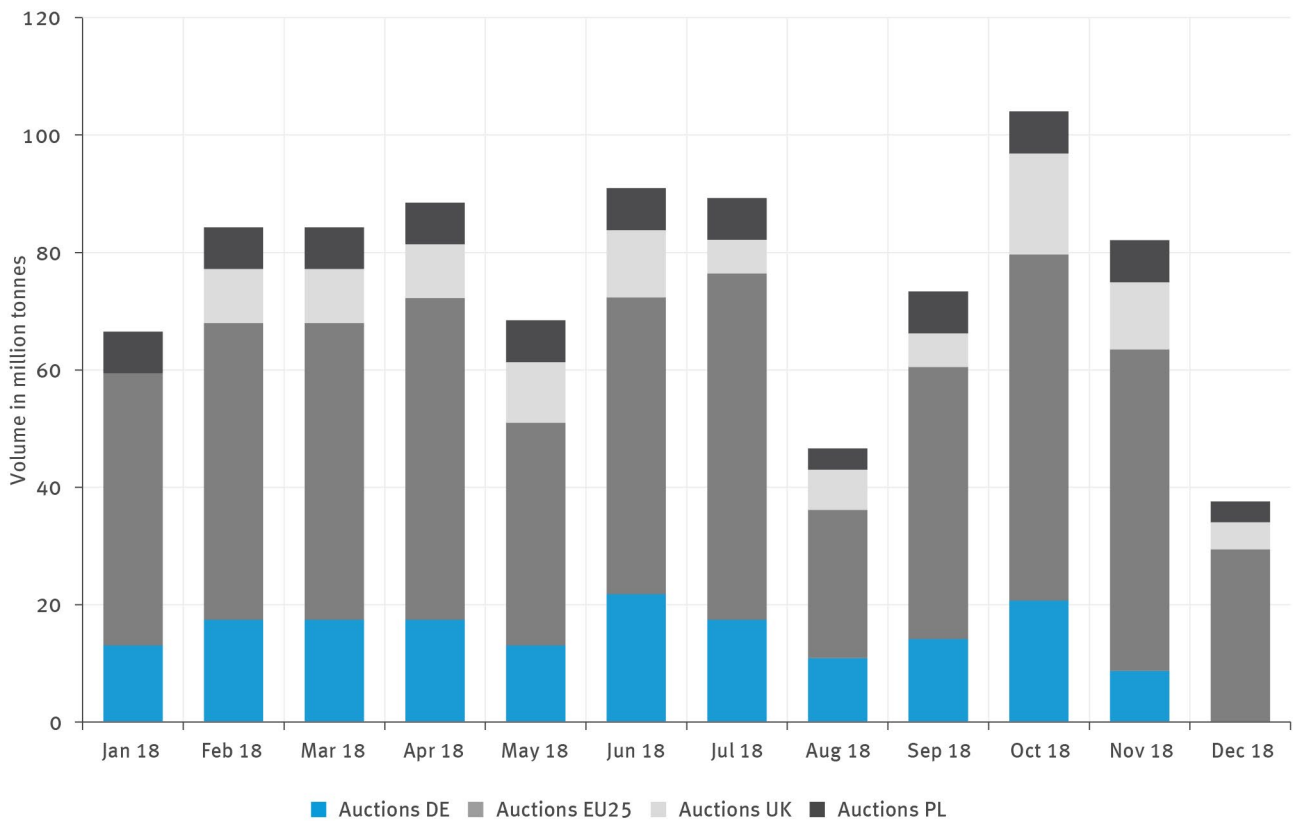
Source: ICE, EEX, CME, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 6: Market shares of the various trading segments in 2017 and 2018 (EUA)

In 2018, a total of about 916 million allowances (2017: 951 million) were auctioned by Member States on the primary market as spot contracts. Thereof, about 19 percent of the EU-wide auction volume was auctioned by Germany. 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 week of the year as well as for the two weeks over Christmas and New Year auctioning of allowances rested completely. Based on the total relevant market for emission allowances, about 8.6 percent of the volume traded can be attributed to the auctions (2017: 13.3 percent).

The figure below shows the monthly auction volumes on the primary market. In addition to the German auctions, auction volumes of the other EU Member States are also included in the figure.

<sup>7</sup> The LEBA retroactively adjusted its reported data for the year 2018. This applies in particular to the data reported for April, where the trading volume was corrected from 160 million to 20 million EUA.

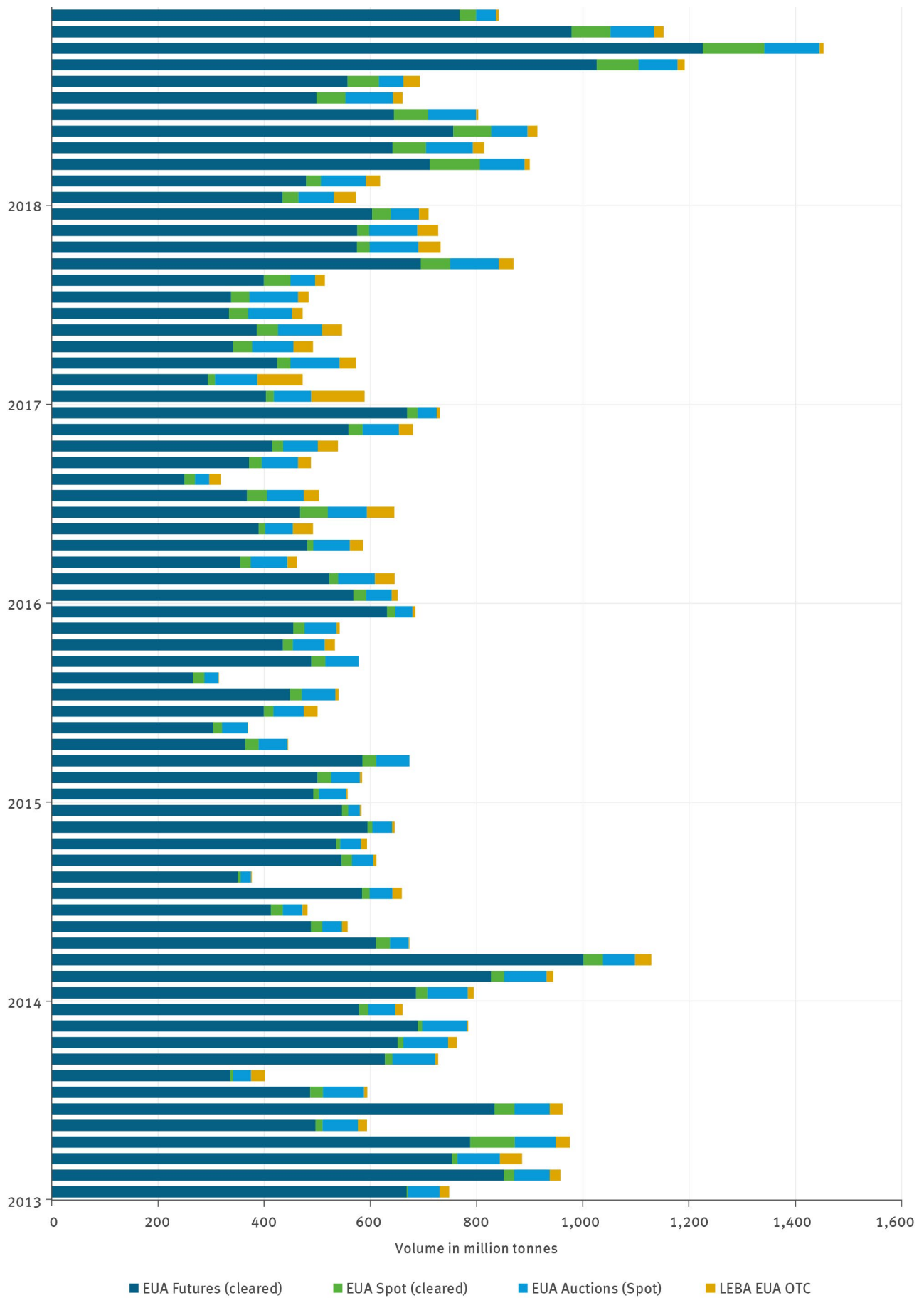


Source: ICE, EEX, Refinitiv Eikon, DEHSt  
 DE = Germany, UK = United Kingdom, PL = Poland, EU25 = EU-Commission on behalf of other member states

Figure 7: Auction volumes on the primary market in 2018 (EUA)

### 3.2 Trading Volume EUA in the third trading period

The following chart shows the monthly EUA trading volumes since the beginning of the third trading period in 2013. The highest trading activity was observed in October 2018, when the monthly EUA trading volumes of around 1.45 billion tonnes clearly exceeded the one billion mark. The lowest volumes were achieved during the “holiday month” in August (except in 2017 and 2018), when the auction volumes were halved according to the EU Auctioning Regulation.



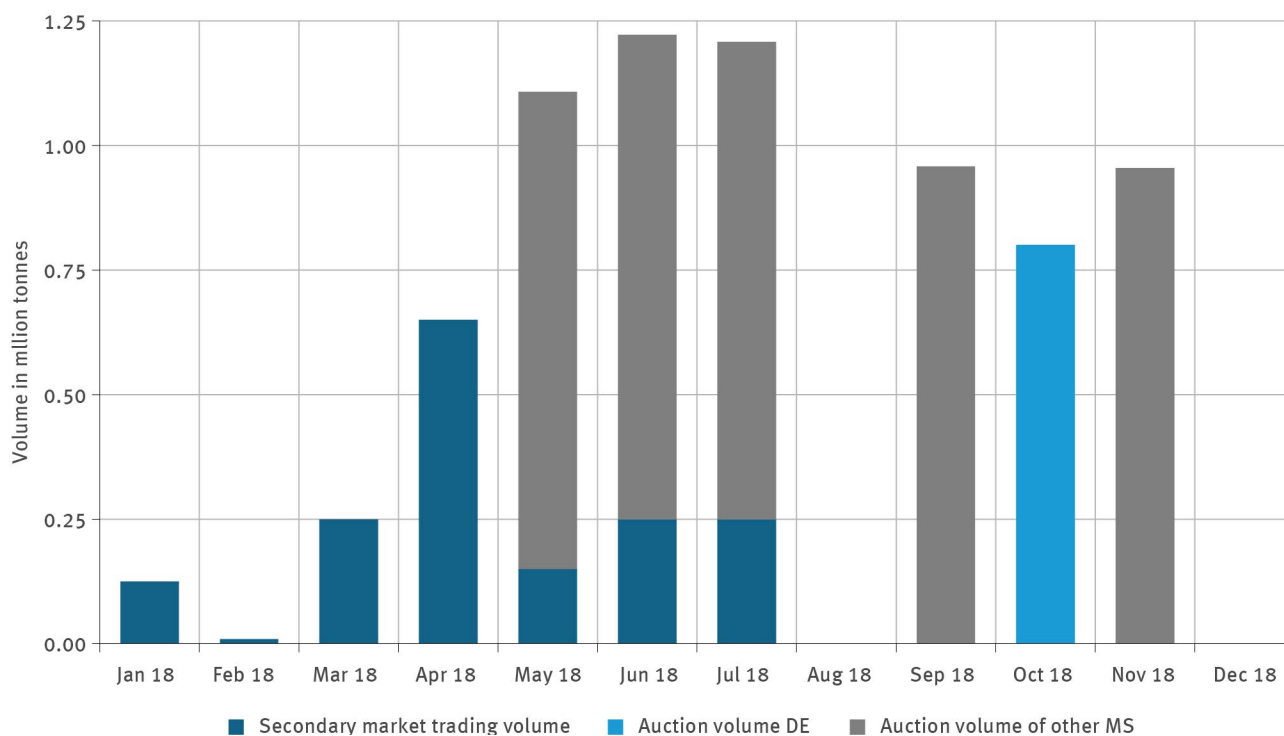
Source: ICE, EEX, CME, Nasdaq OMX, Refinitiv Eikon, LEBA, DEHSt

Figure 8: Trading volumes on the primary and secondary market since 2013 (EUA)

### 3.3 Trading Volume EUAA in 2018

In 2018, a total of 1.7 million aviation allowances (EUAA)<sup>8</sup> were traded on the secondary market (2017: 26,000). Compared to the EUA secondary market, liquidity remained very low. During the reporting period, a total of about 5.6 million EUAA (2017: 4.7 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: ICE, EEX, Refinitiv Eikon, DEHSt  
DE = Germany, MS = EU Member State

Figure 9: Trading volume on the secondary market and volume of auctions conducted in 2018 (EUAA)

### 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 London ICE 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.

<sup>8</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.

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 € 0.02 and € 0.22 (2017: between € 0.01 and € 0.05). The relative deviations ranged between 0.20 percent and 1.08 percent (2017: between 0.28 and 0.93 percent). The average deviation over the full year was € 0.07 or 0.47 percent (2017: € 0.03 or 0.53 percent).

**Table 3: EUA-Auctions and deviations from secondary market prices in 2018**

Date	Contract	Auction price	Deviation from secondary market***	
			Absolute	%
January	EUA Spot 3 <sup>rd</sup> TP	*€ 8.47	€ 0.02	0.20 %
February	EUA Spot 3 <sup>rd</sup> TP	*€ 9.31	€ 0.03	0.29 %
March	EUA Spot 3 <sup>rd</sup> TP	*€ 11.08	€ 0.05	0.44 %
April	EUA Spot 3 <sup>rd</sup> TP	*€ 13.20	€ 0.10	0.76 %
May	EUA Spot 3 <sup>rd</sup> TP	*€ 14.62	€ 0.07	0.46 %
June	EUA Spot 3 <sup>rd</sup> TP	*€ 14.99	€ 0.07	0.48 %
July	EUA Spot 3 <sup>rd</sup> TP	*€ 16.29	€ 0.08	0.52 %
August	EUA Spot 3 <sup>rd</sup> TP	*€ 19.02	€ 0.05	0.25 %
September	EUA Spot 3 <sup>rd</sup> TP	**€ 20.74	€ 0.22	1.08 %
October	EUA Spot 3 <sup>rd</sup> TP	**€ 19.85	€ 0.07	0.36 %
November	EUA Spot 3 <sup>rd</sup> TP	*€ 17.70	€ 0.10	0.53 %
<b>Mean absolute deviation</b>			<b>€ 0.07</b>	<b>0.47 %</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 41 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 € 0.36 and plus € 0.18 (blue bars). Depending on the particular price level, this resulted in a relative deviation interval of minus 1.81 percent to plus 0.88 percent (green line).

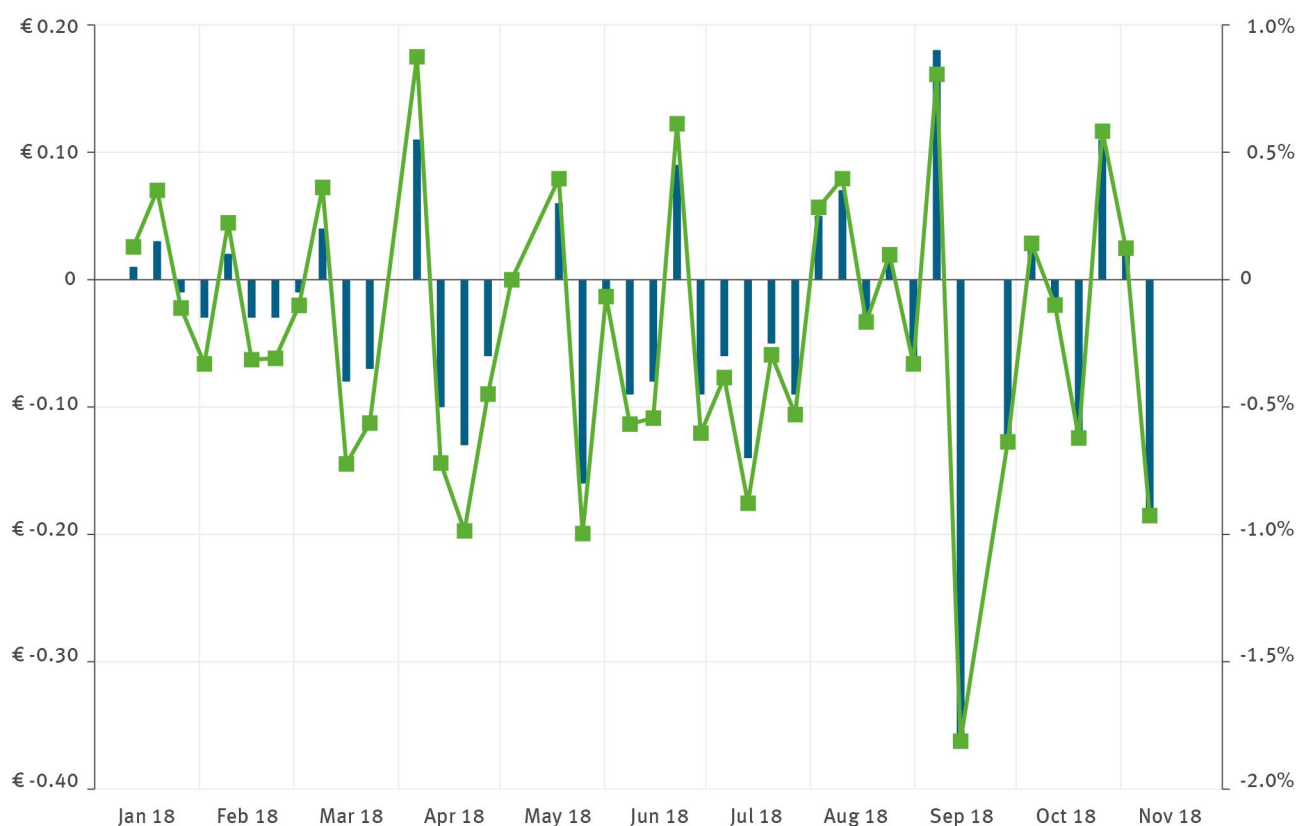


## Info Box: Reference Prices

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.

In a total of 14 auctions, the auction price was above the secondary market price and in 26 auctions it was below. In one auction, both prices were identical. The absolute deviation averaged over all 41 dates was around minus € 0.03 (minus 0.21 percent).



Source: ICE, EEX, Refinitiv Eikon, DEHSt

Figure 10: Deviations of the clearing price from secondary market price in 2018

The following figure shows an overview of the price development for emission allowances of the third trading period on the London lead market. 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>9</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>10</sup> The following graphic is based on volume-weighted average trading prices (VWAP), which fluctuated in 2018 in an interval between around € 7.70 to € 25.30 (2017: between € 4.40 and € 8.20), whereby the highest daily value was reached during the second last trading week of the year on 24<sup>th</sup> December 2018.<sup>11</sup>

<sup>9</sup> ICE EUA Dec18 contract expired on 17/12/2018.

<sup>10</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>11</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.

Overall, the EUA-price performance in 2018 was generally characterized by a strong and sustained upward trend. Between early January and mid-September, the EUA reference contract initially gained over 200 percent in value, reaching its highest level since 2008 at € 25.79. This was followed by a short-lived downward correction and the EUA price temporarily fell to around € 15 by the beginning of November. In the last two months of the year, however, an upward trend was observed again. On 31<sup>st</sup> December 2018 the EUA reference contract closed at € 25.01, about 210 percent above the level 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 10.<sup>12</sup>



Source: ICE, EEX, Refinitiv Eikon, DEHSt

Figure 11: ICE secondary market prices and EEX auction clearing prices (EUA) in 2018

<sup>12</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 2018 as follows (excerpt):

*“Within their surveillance for the auctioning of emission allowances on behalf of the German Environment Agency at the EEX in 2018 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 \(Access\)](#).

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 a. m. to 6:00 p. m. CET at +49 341 2156-331 or by email at [auctions@eex.com](mailto:auctions@eex.com).

### 4.3 Adjustment of the Auction Calendar

In accordance with the provisions of Article 7 of the EU Auctioning Regulation, the auction planned for 21/19/2018 was terminated without a result because the auction clearing price would have been below the reserve price. The volume not auctioned was evenly distributed over the four subsequent German auctions in accordance with Article 7 (8) of the EU Auctioning Regulation. Therefore, the auction volume in the auctions between 28/09/2018 and 19/10/2018 was effectively raised to 5,450,000 allowances.

### 4.4 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 \(2018 auction results\)](#).

### 4.5 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 \(Regulations\)](#).

German Emissions Trading Authority (DEHSt) at the German Environment Agency  
Bismarckplatz 1  
D-14193 Berlin

[www.dehst.de/EN](http://www.dehst.de/EN) | [emissionstrading@dehst.de](mailto:emissionstrading@dehst.de)