



Auctioning

German Auctioning of Emission Allowances Periodical Report: First Quarter 2018

Editorial information

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Content

1	Current Developments	4
2	Overview	4
2.1	First Quarter of 2018	4
2.2	Overview of the entire year 2018	5
3	Bidder Participation	6
3.1	Participation	6
3.2	Volume Demand	7
4	Auctions and the Secondary Market	9
4.1	Trading Volume EUA	9
4.2	Trading Volume EUAA	12
4.3	Clearing Prices and Price Development on the Secondary Market.....	12
5	Implementation of Valid Regulations	13
5.1	Surveillance Report by HÜSt.....	13
5.2	Fair and Open Access.....	14
5.3	Auction Result Publication	14
5.4	Other Events	14

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 auction calendar is published on the [EEX website](#).

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

2018	
Auction product	Third trading period EUA spot contracts ¹
Period	12/01/2018 to 14/12/2018
Auction volume entire year	194,027,000 EUA
Auction volume per auction	4,360,000 EUA (2,180,000 EUA in August)
Auction frequency	Weekly (Fridays, 09:00 to 11:00 a.m. CET)
Bid volume	500 EUA/EUAA
Auction mode	Single-round, uniform-price procedure with a closed order book

1 Current Developments

Germany auctions more than 1,000,000,000 emission allowances on the EEX

Since the start of German auctions in January 2010, more than one billion emission allowances have been auctioned on the European Energy Exchange (EEX). This threshold was exceeded with the auction on 23/02/2018 and the total volume amounted to about 1,019 million emission allowances by the end of March. This overall figure is divided into 130 million allowances (EUA) for the second trading period, 883 million allowances (EUA) for the current third trading period and another 6 million aviation allowances (EUAA). In the 526 successful auctions, a total revenue of over € 6.8 billion has been generated. These funds have been used almost completely for financing national and international climate protection measures.

2 Overview

2.1 First Quarter of 2018

Between January and March, eleven auctions of emission allowances (EUA) of the third trading period were successfully carried out for Germany at the EEX.

Overall about **48 million EUA** with a total value of over **€ 466 million** were auctioned. This results in a volume-weighted average price per allowance of **€ 9.72** (+33 percent compared to the previous quarter). Thus, this was the highest quarterly average price since the fourth Quarter of 2011. In addition, the highest monthly revenue since the start of sales/auctioning in 2008 was achieved in March. The deviations of the clearing prices from the current prices on the lead market fluctuated between -0.72 and +0.36 percent (see also Section 4.3).

Overall, valid bids totalling about 109 million allowances were entered into trading system across the eleven EUA-auction dates. Thus the average cover ratio in the reporting period was 2.28 (see also Section 3.2). The average participation number of 22 bidders was above the level of the previous quarter (20). This also applies to the average number of 16 (14) successful bidders (see also Section 3.1).

¹ The 2018 auction calendars for aviation allowances (EUAA) will be determined and published at a later stage. Further information is available on the website of the [European Commission](#).

The following table gives an overview of the most important auction figures from the EUA-auctions performed during the reporting period.

Table 1: Overview of German EUA-auctions in the first Quarter of 2018

Date	Auction volume	Bid volume	Cover ratio	Bidders	Successful bidders	Price	Revenue
12/01/2018	4,360,000	10,656,500	2.44	22	13	€ 7.79	€ 33,964,400
19/01/2018	4,360,000	10,069,000	2.31	21	12	€ 8.60	€ 37,496,000
26/01/2018	4,360,000	11,225,000	2.57	21	18	€ 9.02	€ 39,327,200
January	13,080,000	31,950,500	*2.44	*21	*14	*€ 8.47	€ 110,787,600
02/02/2018	4,360,000	9,153,000	2.10	20	17	€ 9.04	€ 39,414,400
09/02/2018	4,360,000	12,312,000	2.82	23	12	€ 8.97	€ 39,109,200
16/02/2018	4,360,000	8,971,500	2.06	19	15	€ 9.53	€ 41,550,800
23/02/2018	4,360,000	9,676,000	2.22	23	19	€ 9.68	€ 42,204,800
February	17,440,000	40,112,500	*2.30	*21	*16	*€ 9.31	€ 162,279,200
02/03/2018	4,360,000	11,014,500	2.53	24	16	€ 9.89	€ 43,120,400
09/03/2018	4,360,000	10,489,500	2.41	25	16	€ 11.10	€ 48,396,000
16/03/2018	4,360,000	7,213,500	1.65	20	20	€ 10.97	€ 47,829,200
23/03/2018	4,360,000	8,581,500	1.97	25	18	€ 12.37	€ 53,933,200
March	17,440,000	37,299,000	*2.14	*24	*18	*€ 11.08	€ 193,278,800
Q1 2018	47,960,000	109,362,000	*2.28	*22	*16	*€ 9.72	€ 466,345,600

Source: EEX, DEHSt
* Average

2.2 Overview of the entire year 2018

In the first Quarter of the current year a total of about **48 million EUA** with a total value of over **€ 466 million** were auctioned at the EEX for Germany. This results in a volume-weighted average price per allowance of **€ 9.72**.

The amount of emission allowances to be auctioned by Germany in 2018 totals about 194 million EUA. Taking into account the total annual amount, about 25 percent of the EUA-auction budget for 2018 has been auctioned to date.

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

Table 2: Overview of the entire year 2018

Month	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
Total		47,960,000	109,362,000	*2.28	*22	*16	*€ 9.72	€ 466.345.600

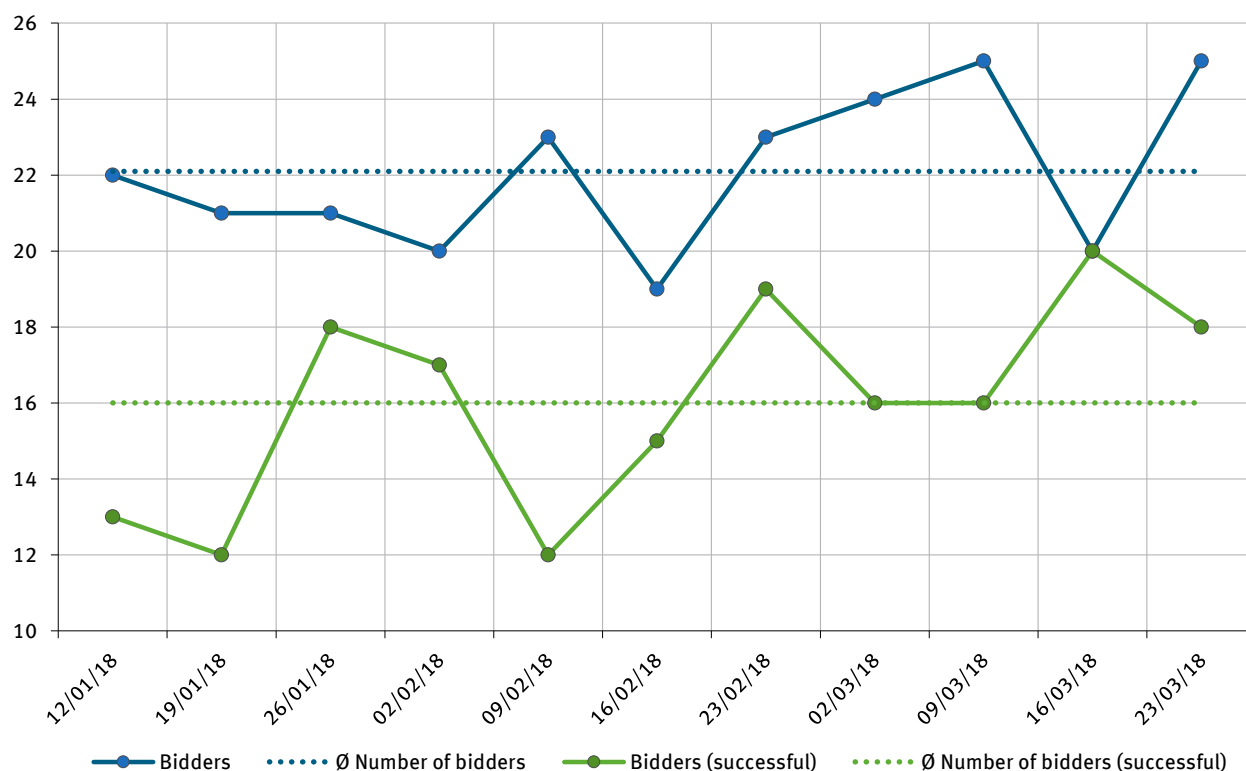
Source: EEX, DEHSt
* Average

3 Bidder Participation

3.1 Participation

The number of participants in the German EUA-auctions in the first Quarter averaged across all dates was about 22 bidders. The average number of successful bidders was 16. Participation in the auctions fluctuated between 19 and 25 bidders during the reporting period. The number of successful participants ranged from 12 to 20. At the auction on 16/03/2018 all participating bidders were successful.

The following figure illustrates EUA-auction participation over time.



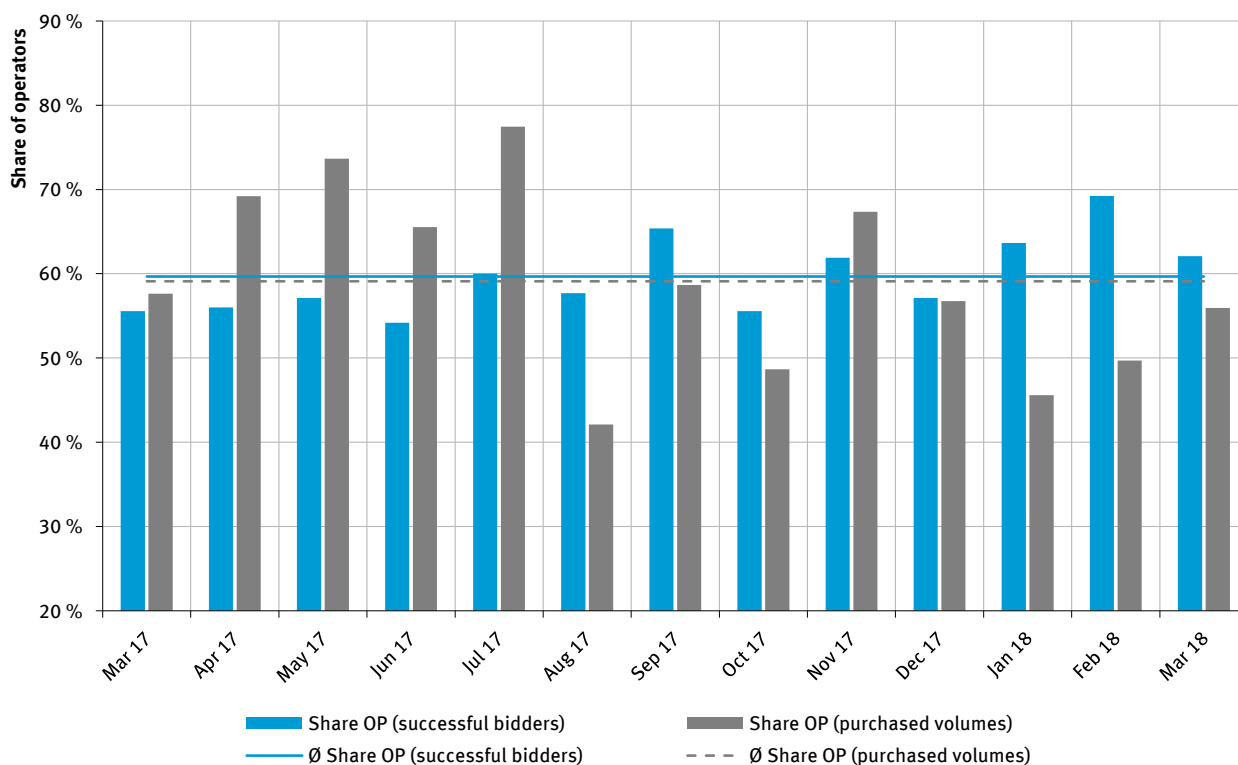
Source: EEX, DEHSt

Figure 1: Number of participating and successful bidders per auction date (EUA)

By the end of March 2018, a total of 75 trading members (+1 compared to the previous month) of EEX had been authorized to submit bids in the primary market auctions. In March, a total of 29 different bidders were successful in the German primary market auctions. Out of the 29 of those bidders, 18 were operators (i.e. companies of ETS covered installations), which accounts for about 62 percent of all successful bidders.² Overall, operators purchased approximately 56 percent of the auctioned volumes in March 2018. In the months of the preceding year, the operators' share of the purchased auction volumes fluctuated significantly more than the proportion of successful bidders. Nonetheless, average values of both ratios in the past 12 months stayed very close together (around 60 percent respectively).

The following figure illustrates the development of the proportion of operators among the successful bidders as well as of the purchased auction volumes in the past 12 months before the current reporting month.

² Pursuant to Art. 18 of the EU Auctioning Regulation bidding categories eligible to take part in the auctions at EEX are amongst others (stationary and aircraft) operators, credit institutions, investment firms and business groupings.



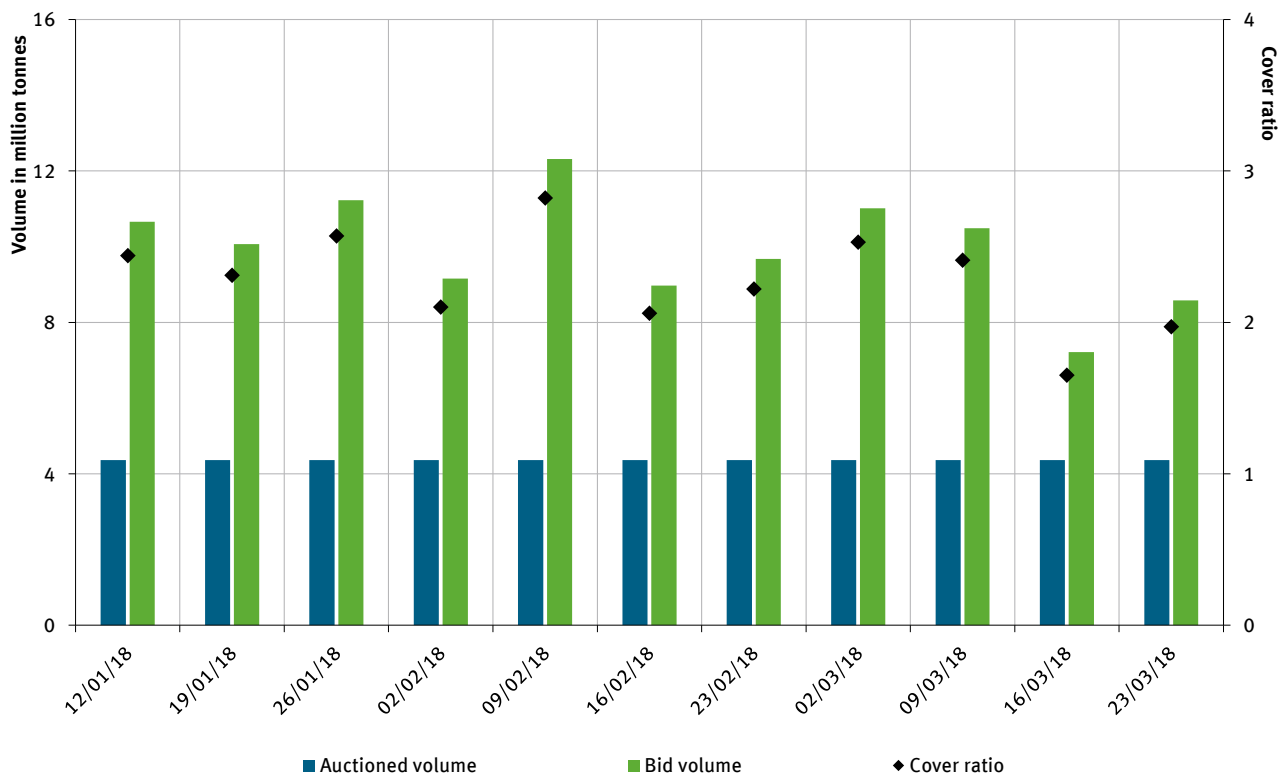
Source: EEX, DEHSt
OP = Operators

Figure 2: Share of operators among successful bidders and purchased auction volumes over the past 12 months (EUA)

3.2 Volume Demand

During the reporting period, the aggregated bid volumes per auction date fluctuated from 7.2 to 12.3 million allowances. Overall, valid bids totalling about 109 million allowances were entered into trading system in the first Quarter. The resulting cover ratios during the reporting period ranged between 1.65 and 2.82 (2.28 on average).

The figure below summarises the results for each EUA-auction date.



Source: EEX, DEHSt

Figure 3: Auctioned and bid volume and cover ratio for each auction date (EUA)

Thus, the average bid volume per EUA-auction participant in the first Quarter was about 450,000 allowances. The average volume awarded to each successful bidder was about 275,000 allowances.

Awarding allowances at all 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.

4 Auctions and the Secondary Market

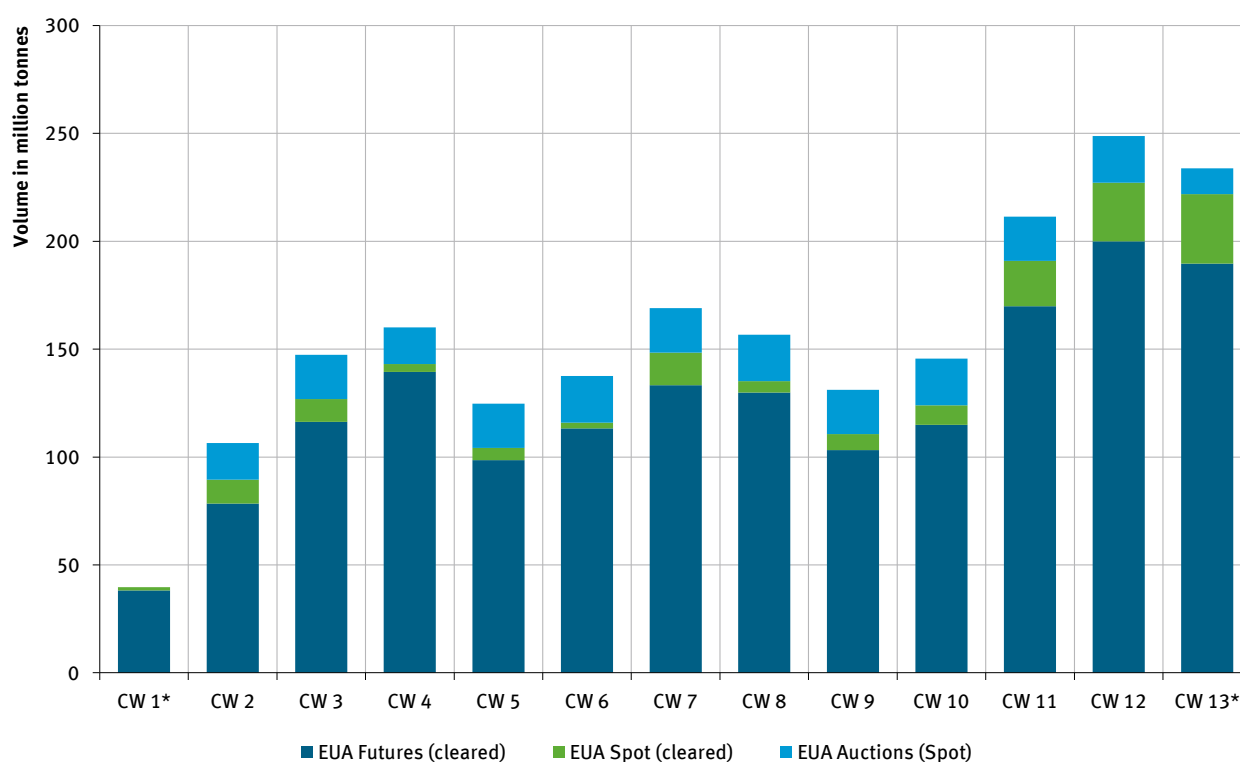
4.1 Trading Volume EUA

In the first Quarter of 2018, a total of about 48 million EUA were auctioned at the EEX for Germany. During the reporting period, the cumulative trading volume in the relevant total market was about 2.1 billion EUA.³ This comprises the monthly data of the London Energy Brokers' Association (LEBA) on OTC (see also Figure 6). The inclusion of this data allows for a more complete picture of the entire market volume in EUA trades.⁴

The secondary market trading volume of 1.86 billion EUA was divided into approximately 1.63 billion EUA on the cleared futures market, some 152 million EUA on the cleared spot market and about 79 million EUA bilaterally settled through the LEBA-Brokers (OTC). Overall, the secondary market trading volume in March reached its highest level in four years, and the trading activities in the spot market even reached its highest level since summer 2009.

In the first Quarter of 2018, a total of about 235 million allowances were auctioned by Member States on the primary market as spot contracts. With respect to the relevant total market for EUA, around 11.2 percent of the traded volume was related to auctions.

The figure below illustrates the trading volumes separately for different market segments based on calendar weeks (CW). In this weekly view, the LEBA data are not included as they are only published on a monthly basis.



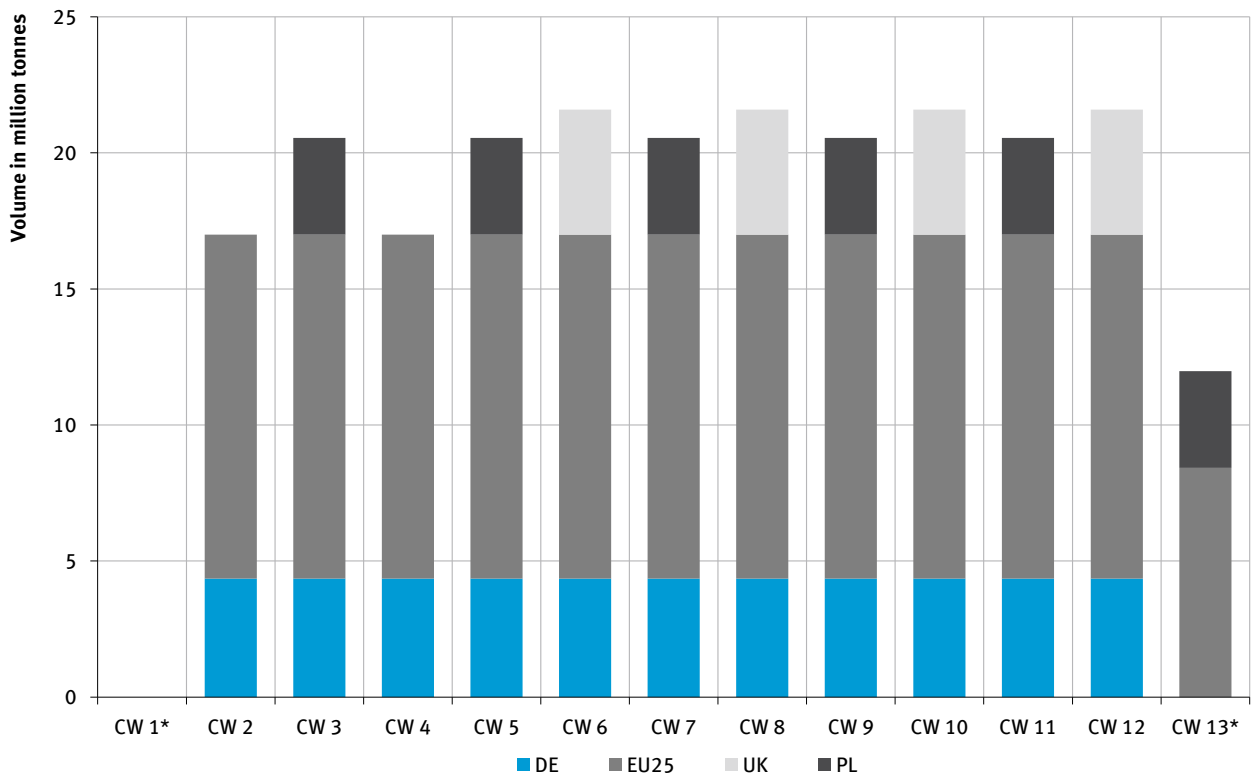
Source: ICE, EEX, CME, Nasdaq OMX, Thomson Reuters Eikon, DEHSt
* CW 1: 02/01/2018-05/01/2018; CW 13: 26/03/2018-29/03/2018

Figure 4: Trading volumes on the primary and secondary market in the first Quarter of 2018 (EUA)

³ 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. The EUA spot contracts auctioned in the first Quarter of 2018 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. Option contracts are not involved.

⁴ 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 not broken down into futures-/spot-contracts. Moreover, since the volumes are only available as monthly aggregated values, the data were taken into account only in Figure 6, but not in Figure 4.

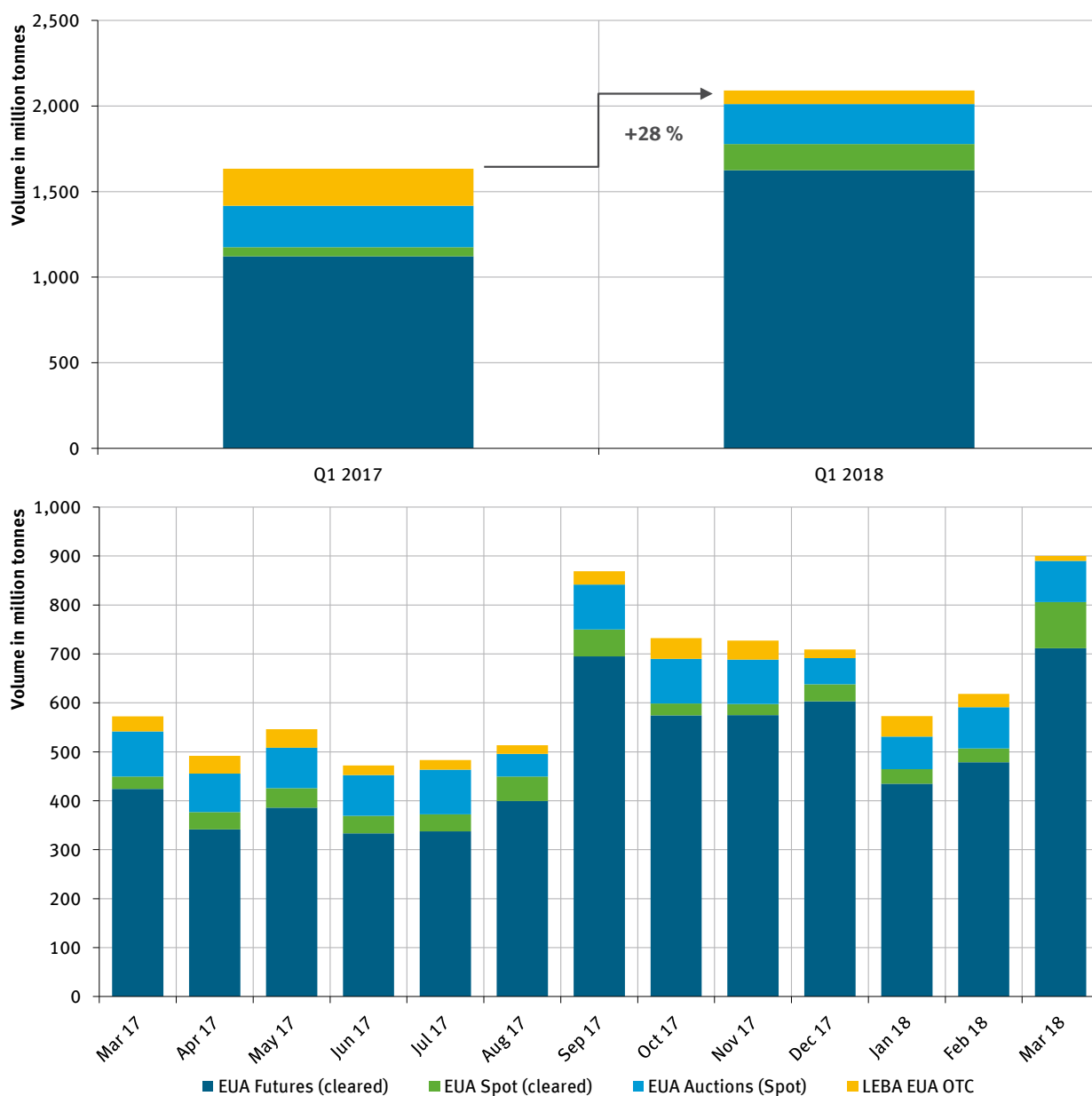
Figure 5 shows the auction volumes on the primary market per calendar week (CW). In addition to the German auctions, auction volumes of other EU Member States are also included in the figure.



Source: ICE, EEX, CME, Nasdaq OMX, Thomson Reuters Eikon, DEHSt
 DE = Germany, UK = United Kingdom, PL = Poland, EU25 = EU-Commission on behalf of other member states
 * CW 1: 02/01/2018-05/01/2018; CW 13: 26/03/2018-29/03/2018

Figure 5: Auction volumes on the primary market in the first Quarter of 2018 (EUA)

The following chart shows the development of the monthly EUA trading volumes on the primary and secondary market over the past 12 month before the current reporting month. In the first Quarter of the current year, the total market volume of 2.1 billion EUA was about 28 percent above the previous year's figure (Q1 2017: 1.6 billion EUA). The volume of bilateral transactions (OTC) settled through the LEBA members recorded a significant decline compared to the same period of the previous year (from around 217 million to 79 million EUA).



Source: ICE, EEX, CME, Nasdaq OMX, Thomson Reuters Eikon, LEBA, DEHSt

Figure 6: Trading volumes on the primary and secondary market over the past 12 month (EUA)

Table 3: Market shares of the various trading segments (EUA)

Market segments		Mar 2018	Feb 2018	Q1 2018	Q1 2017
Primary market	EUA-Auctions (Spot)	9.4 %	13.6 %	11.2 %	14.8 %
	EUA-Futures (cleared)	79.1 %	77.4 %	77.7 %	68.7 %
Secondary market	EUA-Spot (cleared)	10.4 %	4.6 %	7.3 %	3.3 %
	LEBA EUA OTC	1.1 %	4.4 %	3.8 %	13.3 %

Source: ICE, EEX, CME, Nasdaq OMX, Thomson Reuters Eikon, LEBA, DEHSt

4.2 Trading Volume EUAA

In the first Quarter of 2018, about 380.000 aviation allowances (EUAA) were traded on the secondary market⁵. During the reporting period, no EUAA were auctioned by the EU Member States on the primary market. Further information on the EUAA auction calendars is available on the website of the [European Commission](#).

4.3 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 was used as a reference price (see also Info box below).

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.

Table 4 shows the relative deviations of the auction clearing price from the secondary market. The deviation on each EUA-auction date just before the end of the bidding period (11 a.m. CET) varied over the reporting period between -€ 0.08 (-0.72 percent) and +€ 0.04 (+0.36 percent).

For a mean value analysis, the arithmetic mean of the absolute values of individual deviations over the reporting period is calculated. The average deviation from the last best bid was € 0.03 or 0.32 percent averaged over all dates.

Table 4: Auctions and deviations from secondary market prices in the first Quarter of 2018 (EUA)

Date	Contract	Auction price	Deviation from secondary market	
			Absolute	%
12/01/2018	EUA Spot 3 rd TP	€ 7.79	€ 0,01	0,13 %
19/01/2018	EUA Spot 3 rd TP	€ 8.60	€ 0,03	0,35 %
26/01/2018	EUA Spot 3 rd TP	€ 9.02	€ -0,01	-0,11 %
02/02/2018	EUA Spot 3 rd TP	€ 9.04	€ -0,03	-0,33 %
09/02/2018	EUA Spot 3 rd TP	€ 8.97	€ 0,02	0,22 %
16/02/2018	EUA Spot 3 rd TP	€ 9.53	€ -0,03	-0,31 %
23/02/2018	EUA Spot 3 rd TP	€ 9.68	€ -0,03	-0,31 %
02/03/2018	EUA Spot 3 rd TP	€ 9.89	€ -0,01	-0,10 %
09/03/2018	EUA Spot 3 rd TP	€ 11.10	€ 0,04	0,36 %
16/03/2018	EUA Spot 3 rd TP	€ 10.97	€ -0,08	-0,72 %
23/03/2018	EUA Spot 3 rd TP	€ 12.37	€ -0,07	-0,56 %
Mean absolute deviation			€ 0.03	0.32 %

Source: ICE, EEX, Thomson Reuters Eikon, DEHSt
* best bid ICE Daily Future

⁵ 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.

The following figure shows an overview of the price development for emission allowances in 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“).⁶ Rather than following the common practice of considering only settlement prices, our analysis takes into account all trades completed at the exchanges during the reporting period.⁷ The following graphic is based on volume-weighted average trading prices (VWAP), which fluctuated in an interval between around € 7.70 to € 13.40⁸ in the first Quarter of 2018. On 28/03/2018, the highest value since July 2011 was reached.

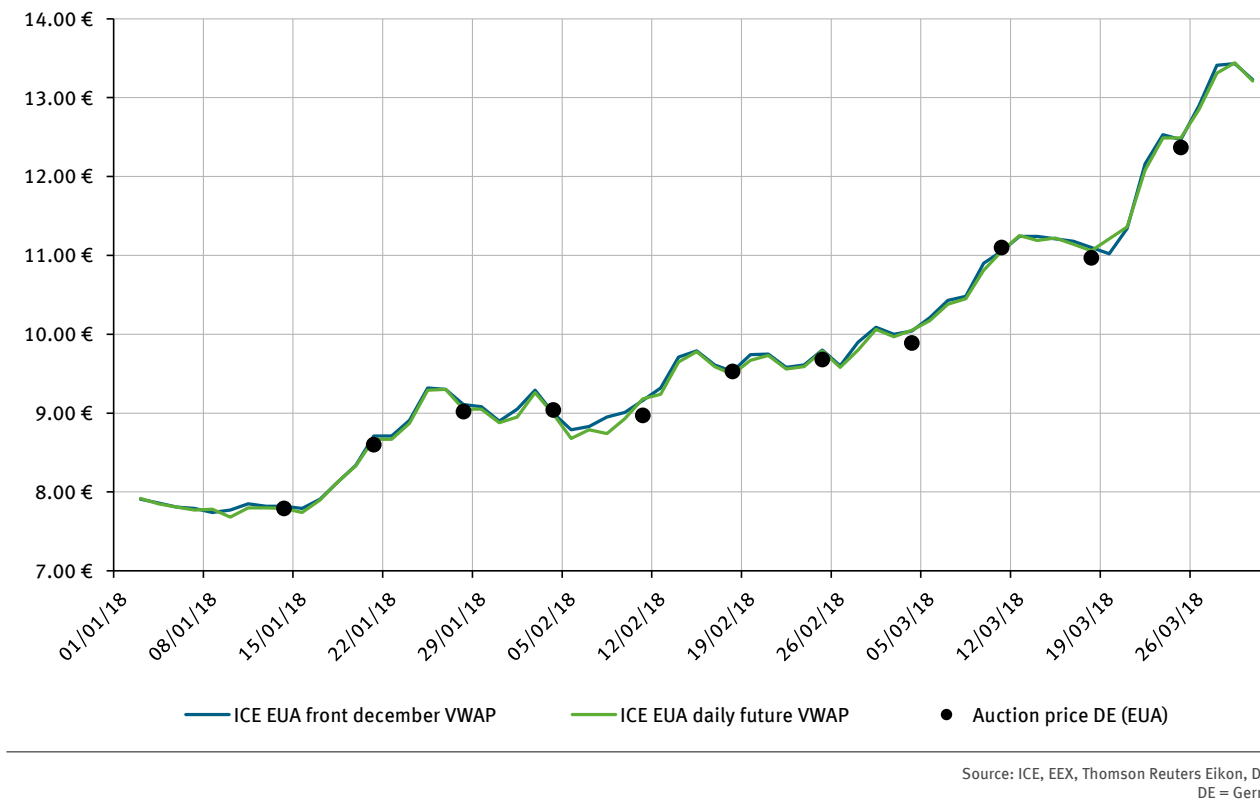


Figure 7: ICE secondary market prices and EEX auction clearing prices (EUA)

5 Implementation of Valid Regulations

5.1 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 the first Quarter of 2018 as follows (excerpt):

“Within their surveillance for the auctioning of emission allowances on behalf of the German Environment Agency at the EEX in the first Quarter of 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.”

⁶ ICE EUA Dec18 contract expires on 17/12/2018.

⁷ 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.

⁸ The volume-weighted average prices (VWAP) for the ICE EUA front-december future and the ICE daily future contract is based on data from Thomson Reuters Eikon.

5.2 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 e-mail at auctions@eex.com.

5.3 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](#).

5.4 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 \(Regulations\)](#).

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