Auctioning

German Auctioning of Emission Allowances
Periodical Report: April 2017
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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 2017 auction calendar is published on the EEX website.

The following tables summarise the key data of the German auctions on the EEX in 2017:

<table>
<thead>
<tr>
<th>2017</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auction product</td>
<td>Period</td>
<td>Auction volume entire year</td>
<td>Auction volume per auction</td>
<td>Auction frequency</td>
<td>Bid volume</td>
<td>Auction mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third trading period EUA spot contracts¹</td>
<td>13/01/2017 to 15/12/2017</td>
<td>196,820,000 EUA</td>
<td>4.473 million EUA (2.2375 million EUA in August)</td>
<td>Weekly (Fridays, 09:00 to 11:00 a.m. CET)</td>
<td>500 EUA</td>
<td>Single-round, uniform-price procedure with a closed order book</td>
<td></td>
</tr>
</tbody>
</table>

1 Overview

1.1 April 2017

In April, three auctions of emission allowances (EUA) of the third trading period were carried out for Germany at the EEX. Due to banking holiday no German auction was conducted on 14/04/2017.

Overall 13,419,000 EUA with a total value of € 64,008,630 were auctioned. This results in a volume-weighted average price per allowance of € 4.77 (-6.5 percent compared to the previous month). The deviations of the clearing prices from the current prices on the lead market fluctuated between -0.22 and +0.42 percent (see also Section 3.3).

Overall, valid bids totalling about 35 million allowances were entered into trading system across the three EUA-auction dates. Thus the average cover ratio in the reporting period was 2.64 (see also Section 2.2). The average participation number of 20 bidders was slightly below the level of the previous month (21). The average number of successful bidders was however stable at 15 (15), (see also Section 2.1).

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 April 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Auction volume</th>
<th>Bid volume</th>
<th>Cover ratio</th>
<th>Bidders</th>
<th>Successful bidders</th>
<th>Price</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/04/2017</td>
<td>4,473,000</td>
<td>10,853,000</td>
<td>2.43</td>
<td>19</td>
<td>16</td>
<td>€ 5.06</td>
<td>€ 22,633,380</td>
</tr>
<tr>
<td>21/04/2017</td>
<td>4,473,000</td>
<td>12,850,000</td>
<td>2.87</td>
<td>22</td>
<td>13</td>
<td>€ 4.73</td>
<td>€ 21,157,290</td>
</tr>
<tr>
<td>28/04/2017</td>
<td>4,473,000</td>
<td>11,691,000</td>
<td>2.61</td>
<td>19</td>
<td>16</td>
<td>€ 4.52</td>
<td>€ 20,217,960</td>
</tr>
<tr>
<td>April</td>
<td>13,419,000</td>
<td>35,394,000</td>
<td>*2.64</td>
<td>*20</td>
<td>*15 *€ 4.77</td>
<td></td>
<td>€ 64,008,630</td>
</tr>
</tbody>
</table>

Source: EEX, DEHSt

¹ The auction calendars for aviation allowances (EUAA) on the EEX and the ICE have not been determined and published yet. The further coordination process with regard to the inclusion of the aviation sector in the EU-ETS for the period from 2017 to 2020 is awaited.
1.2 Overview of the entire year 2017

In the first four month of the current year a total of 67,095,000 EUA with a total value of € 338,829,750 were auctioned at the EEX for Germany. This results in a volume-weighted average price per allowance of € 5.05.

The amount of emission allowances to be auctioned by Germany in 2017 totals 196,820,000 EUA. Taking into account the total annual amount, around 34 percent of the EUA-auction budget for 2017 has been auctioned to date.

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

Table 2: Overview of the entire year 2017

<table>
<thead>
<tr>
<th>Month</th>
<th>Type</th>
<th>Auction volume</th>
<th>Bid volume</th>
<th>Cover ratio</th>
<th>Bidders</th>
<th>Successful bidders</th>
<th>Price</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>EUA</td>
<td>13,419,000</td>
<td>38,880,000</td>
<td>*2.90</td>
<td>*21</td>
<td>*13</td>
<td>*€ 5.09</td>
<td>€ 68,302,710</td>
</tr>
<tr>
<td>February</td>
<td>EUA</td>
<td>17,892,000</td>
<td>48,750,000</td>
<td>*2.72</td>
<td>*20</td>
<td>*15</td>
<td>*€ 5.17</td>
<td>€ 92,501,640</td>
</tr>
<tr>
<td>March</td>
<td>EUA</td>
<td>22,365,000</td>
<td>64,004,500</td>
<td>*2.86</td>
<td>*21</td>
<td>*15</td>
<td>*€ 5.10</td>
<td>€ 114,016,770</td>
</tr>
<tr>
<td>April</td>
<td>EUA</td>
<td>13,419,000</td>
<td>35,394,000</td>
<td>*2.64</td>
<td>*20</td>
<td>*15</td>
<td>*€ 4.77</td>
<td>€ 64,008,630</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>67,095,000</strong></td>
<td><strong>187,028,500</strong></td>
<td>*2.79</td>
<td>*20</td>
<td>*14</td>
<td>*€ 5.05</td>
<td><strong>€ 338,829,750</strong></td>
</tr>
</tbody>
</table>

Source: EEX, DEHSt

* Average

2 Bidder Participation

2.1 Participation

The number of participants in the German EUA-auctions in April averaged across all dates was 20 bidders. The average number of successful bidders was 15. Participation in the auctions fluctuated between 19 and 22 bidders during the reporting period. The number of successful participants ranged from 13 to 16. There was no such auction where all participating bidders were successful.

The following figure illustrates EUA-auction participation over time.

![Number of participating and successful bidders per auction date (EUA)](source: EEX, DEHSt)
2.2 Volume Demand

During the reporting period, the aggregated bid volumes per auction date fluctuated from 10.9 to 12.9 million allowances. Overall, valid bids totalling about 35 million allowances were entered into trading system in April. The resulting cover ratios during the reporting period ranged between 2.43 and 2.87 (2.64 on average).

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

![Figure 2: Auctioned and bid volume and cover ratio for each auction date (EUA)](image)

Thus, the average bid volume per EUA-auction participant in April was about 590,000 allowances. The average volume awarded to each successful bidder was about 300,000 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. 4.473 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 April 2017, a total of about 13 million EUA were auctioned at the EEX for Germany. During the reporting period, the cumulative trading volume in the relevant total market was about 492 million EUA.2 This comprises the monthly data of the London Energy Brokers’ Association (LEBA) on OTC (see also Figure 5). The inclusion of this data allows for a more complete picture of the entire market volume in EUA trades.3

The secondary market trading volume of 413 million EUA was divided into approximately 342 million EUA on the cleared futures market, some 35 million EUA on the cleared spot market and about 36 million EUA bilaterally settled through the LEBA-Brokers (OTC).

In April 2017, a total of about 79 million allowances were auctioned by Member States on the primary market as spot contracts. With respect to the relevant total market for EUA, around 16 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.

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2 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 April 2017 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.

3 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 5, but not in Figure 3.
Figure 3: Trading volumes on the primary and secondary market in April 2017 (EUA)

Figure 4 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.

Figure 4: Auction volumes on the primary market in April 2017 (EUA)
The following chart shows the development of the monthly EUA trading volumes on the primary and secondary market over the past 12 month. The sharp rise in OTC volumes in the current year, which is highly disproportionate compared to the overall market, is remarkable. This is reflected in a growing share of this segment in the total market volume (see also Table 3).

![Chart showing EUA trading volumes]

**Figure 5:** Trading volumes on the primary and secondary market over the past 12 month (EUA)

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary market</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUA-Auctions (Spot)</td>
<td>16.0 %</td>
<td>16.1 %</td>
<td>15.1 %</td>
<td>10.9 %</td>
</tr>
<tr>
<td>EUA-Futures (cleared)</td>
<td>69.5 %</td>
<td>74.1 %</td>
<td>68.9 %</td>
<td>82.2 %</td>
</tr>
<tr>
<td>EUA-Spot (cleared)</td>
<td>7.2 %</td>
<td>4.4 %</td>
<td>4.2 %</td>
<td>3.1 %</td>
</tr>
<tr>
<td>LEBA EUA OTC</td>
<td>7.3 %</td>
<td>5.4 %</td>
<td>11.9 %</td>
<td>3.9 %</td>
</tr>
</tbody>
</table>

Source: EEX, CME, Nasdaq OMX, Thomson Reuters Eikon, LEBA, DEHSt
3.2 Trading Volume EUAA

In April 2017 25,000 aviation allowances (EUAA) were traded on the secondary market\(^4\), the only transaction took place in the CW 16. No EUAA were auctioned on the primary market during the reporting period. Further information on the EUAA auction calendars is available on the website of the European Commission.

3.3 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).

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 -€ 0.01 (-0.22 percent) and +€ 0.02 (+0.42 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 € 0.01 or 0.28 percent averaged over all dates.

Table 4: Auctions and deviations from secondary market prices in April 2017 (EUA)

<table>
<thead>
<tr>
<th>Date</th>
<th>Contract</th>
<th>Auction price</th>
<th>Deviation from secondary market</th>
<th>Absolute</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/04/2017</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.06</td>
<td>*€ -0.01</td>
<td>€ -0.01</td>
<td>-0.20 %</td>
</tr>
<tr>
<td>21/04/2017</td>
<td>EUA Spot 3rd TP</td>
<td>€ 4.73</td>
<td>**€ 0.02</td>
<td>**€ 0.02</td>
<td>0.42 %</td>
</tr>
<tr>
<td>28/04/2017</td>
<td>EUA Spot 3rd TP</td>
<td>€ 4.52</td>
<td>**€ -0.01</td>
<td>€ -0.01</td>
<td>-0.22 %</td>
</tr>
<tr>
<td>Mean absolute deviation</td>
<td></td>
<td>€ 0.01</td>
<td>0.28 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ICE, EEX, Thomson Reuters Eikon, DEHSt
\(^*\) best bid ICE Daily Future
\(^**\) last trade ICE Daily Future

\(^4\) 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 year is also shown (so-called „front-december future“). 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.\footnote{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.} The following graphic is based on volume-weighted average trading prices (VWAP), which fluctuated in an interval between around \(4.50\) to \(5.10^\circ\) in April 2017.

\[\text{Figure 6: ICE secondary market prices and EEX auction clearing prices (EUA)}\]

\section{Implementation of Valid Regulations}

\subsection{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 April 2017 as follows (excerpt):

“Within their surveillance for the auctioning of emission allowances on behalf of the German Environment Agency at the EEX in April 2017 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.”

\footnote{The volume-weighted average price (VWAP) for the ICE EUA front-december futures is \text{published} on a daily basis by the ICE. The VWAP for the ICE daily future contract is based on data from Thomson Reuters Eikon.}
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 e-mail at 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 (Regulations).