Auctioning

German Auctioning of Emission Allowances
Impressum

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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 2016 auction calendar is published on the EEX website.

The following tables summarise the key data of the German auctions on the EEX in 2016:

| 2016 |  
|---|---
| **Auction product** | Third trading period EUA spot contracts  
| **Period** | 15/01/2016 to 16/12/2016  
| **Auction volume entire year** | 160,770,500 EUA  
| **Auction volume per auction** | 3.495 million EUA  
| **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 Overview

#### 1.1 Second Quarter of 2016

Between April and June, thirteen auctions of emission allowances (EUA) of the third trading period and one auction of aviation allowances (EUAA) were carried out for Germany at the EEX.

Overall **45,435,000 EUA** with a total value of **€ 259,468,800** were auctioned. This results in a volume-weighted average price per allowance of **€ 5.71** (+4.4 percent compared to the previous quarter). The deviations of the clearing prices from the current prices on the lead market fluctuated between -1.20 and +1.41 percent (see also Section 3.3).

Overall, valid bids totalling about 94 million allowances were entered into trading system across the thirteen EUA-auction dates. Thus the average cover ratio in the reporting period was 2.07 (see also Section 2.2). The average participation number of 17 bidders was well below the level of the previous quarter (22). The average number of successful bidders was however at the previous quarter level at 14 (14), (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 the second Quarter of 2016

<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>01/04/2016</td>
<td>3,495,000</td>
<td>5,528,000</td>
<td>1.58</td>
<td>19</td>
<td>15</td>
<td>€ 5.18</td>
<td>€ 18,104,100</td>
</tr>
<tr>
<td>08/04/2016</td>
<td>3,495,000</td>
<td>7,788,000</td>
<td>2.23</td>
<td>18</td>
<td>17</td>
<td>€ 5.23</td>
<td>€ 18,278,850</td>
</tr>
<tr>
<td>15/04/2016</td>
<td>3,495,000</td>
<td>9,072,000</td>
<td>2.60</td>
<td>19</td>
<td>15</td>
<td>€ 5.54</td>
<td>€ 19,362,300</td>
</tr>
<tr>
<td>22/04/2016</td>
<td>3,495,000</td>
<td>7,130,000</td>
<td>2.04</td>
<td>15</td>
<td>8</td>
<td>€ 5.74</td>
<td>€ 20,061,300</td>
</tr>
<tr>
<td>29/04/2016</td>
<td>3,495,000</td>
<td>5,814,000</td>
<td>1.66</td>
<td>15</td>
<td>13</td>
<td>€ 6.29</td>
<td>€ 21,983,550</td>
</tr>
<tr>
<td>April</td>
<td>17,475,000</td>
<td>35,332,000</td>
<td>*2.02</td>
<td>*17</td>
<td>*14</td>
<td>*€ 5.60</td>
<td>*€ 97,790,100</td>
</tr>
<tr>
<td>06/05/2016</td>
<td>3,495,000</td>
<td>7,191,000</td>
<td>2.06</td>
<td>17</td>
<td>14</td>
<td>€ 6.13</td>
<td>€ 21,424,350</td>
</tr>
<tr>
<td>13/05/2016</td>
<td>3,495,000</td>
<td>5,355,000</td>
<td>1.53</td>
<td>16</td>
<td>16</td>
<td>€ 5.75</td>
<td>€ 20,998,250</td>
</tr>
<tr>
<td>20/05/2016</td>
<td>3,495,000</td>
<td>7,730,000</td>
<td>2.21</td>
<td>16</td>
<td>11</td>
<td>€ 5.95</td>
<td>€ 20,795,250</td>
</tr>
<tr>
<td>27/05/2016</td>
<td>3,495,000</td>
<td>8,352,000</td>
<td>2.39</td>
<td>14</td>
<td>11</td>
<td>€ 5.90</td>
<td>€ 20,620,500</td>
</tr>
<tr>
<td>May</td>
<td>13,980,000</td>
<td>28,628,000</td>
<td>*2.05</td>
<td>*16</td>
<td>*13</td>
<td>*€ 5.93</td>
<td>*€ 82,936,350</td>
</tr>
<tr>
<td>03/06/2016</td>
<td>3,495,000</td>
<td>6,338,000</td>
<td>1.81</td>
<td>19</td>
<td>14</td>
<td>€ 5.96</td>
<td>€ 20,830,200</td>
</tr>
<tr>
<td>10/06/2016</td>
<td>3,495,000</td>
<td>9,112,000</td>
<td>2.61</td>
<td>19</td>
<td>16</td>
<td>€ 5.93</td>
<td>€ 20,725,350</td>
</tr>
<tr>
<td>17/06/2016</td>
<td>3,495,000</td>
<td>6,487,000</td>
<td>1.86</td>
<td>16</td>
<td>16</td>
<td>€ 5.68</td>
<td>€ 19,851,600</td>
</tr>
<tr>
<td>24/06/2016</td>
<td>3,495,000</td>
<td>8,093,000</td>
<td>2.32</td>
<td>18</td>
<td>15</td>
<td>€ 4.96</td>
<td>€ 17,335,200</td>
</tr>
<tr>
<td>June</td>
<td>13,980,000</td>
<td>30,030,000</td>
<td>*2.15</td>
<td>*18</td>
<td>*15</td>
<td>*€ 5.63</td>
<td>*€ 78,724,350</td>
</tr>
<tr>
<td>Q2 2016</td>
<td>45,435,000</td>
<td>93,990,000</td>
<td>*2.07</td>
<td>*17</td>
<td>*14</td>
<td>*€ 5.71</td>
<td>*€ 259,468,800</td>
</tr>
</tbody>
</table>

Source: EEX, DEHSt

* Average

In addition, 857,500 aviation allowances (EUAA) with a total value of €4,647,650 were auctioned for Germany on 13/04/2016. The auction price for the 6 successful bidders was €5.42. Overall, 10 bidders with valid bids totaling about 3.4 million allowances participated in the auction.

1.2 Overview of the entire year 2016

In the first half of the current year a total of 81,242,500 EUA and EUAA with a total value of €455,153,150 were auctioned at the EEX for Germany. This results in a volume-weighted average price per allowance of €5.60. These overall figures are subdivided into 80,385,000 EUA with a total value of €450,505,500 (average price € 5.60) and 857,500 EUAA with a total value of €4,647,650 (€ 5.42).

The amount of emission allowances to be auctioned by Germany in 2016 totals 160,770,500 EUA and 857,500 EUAA. Taking into account the total annual amount, around 50 percent of the EUA-auction budget and 100 percent of the EUAA-auction budget for 2016 has been auctioned to date.

The following table summarises the auction results on a monthly basis.
Table 2: Overview of the entire year 2016

<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></td>
<td>EUA</td>
<td>10,485,000</td>
<td>23,660,500</td>
<td>2.26</td>
<td>21</td>
<td>15</td>
<td>€ 6.37</td>
<td>€ 66,754,500</td>
</tr>
<tr>
<td></td>
<td>EUA</td>
<td>13,980,000</td>
<td>30,818,500</td>
<td>2.20</td>
<td>22</td>
<td>14</td>
<td>€ 5.21</td>
<td>€ 72,800,850</td>
</tr>
<tr>
<td></td>
<td>EUA</td>
<td>10,485,000</td>
<td>25,693,000</td>
<td>2.45</td>
<td>22</td>
<td>13</td>
<td>€ 4.91</td>
<td>€ 51,481,350</td>
</tr>
<tr>
<td>April</td>
<td>EUA</td>
<td>17,475,000</td>
<td>35,332,000</td>
<td>2.02</td>
<td>17</td>
<td>14</td>
<td>€ 5.60</td>
<td>€ 97,790,100</td>
</tr>
<tr>
<td></td>
<td>EUAA</td>
<td>857,500</td>
<td>3,362,500</td>
<td>3.92</td>
<td>10</td>
<td>6</td>
<td>€ 5.42</td>
<td>€ 4,647,650</td>
</tr>
<tr>
<td>May</td>
<td>EUA</td>
<td>13,980,000</td>
<td>28,628,000</td>
<td>2.05</td>
<td>16</td>
<td>13</td>
<td>€ 5.93</td>
<td>€ 82,936,350</td>
</tr>
<tr>
<td>June</td>
<td>EUA</td>
<td>13,980,000</td>
<td>30,030,000</td>
<td>2.15</td>
<td>18</td>
<td>15</td>
<td>€ 5.63</td>
<td>€ 78,742,350</td>
</tr>
<tr>
<td>EUA</td>
<td>80,385,000</td>
<td>174,162,000</td>
<td>2.17</td>
<td>19</td>
<td>14</td>
<td>€ 5.60</td>
<td>€ 450,505,500</td>
<td></td>
</tr>
<tr>
<td>EUAA</td>
<td>857,500</td>
<td>3,362,500</td>
<td>3.92</td>
<td>10</td>
<td>6</td>
<td>€ 5.42</td>
<td>€ 4,647,650</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>81,242,500</td>
<td>177,524,500</td>
<td>2.19</td>
<td>19</td>
<td>14</td>
<td>€ 5.60</td>
<td>€ 455,153,150</td>
</tr>
</tbody>
</table>

Source: EEX, DEHSt
* Average
** Volume-weighted average

2 Bidder Participation

2.1 Participation

The number of participants in the German EUA-auctions in the second Quarter averaged across all dates was 17 bidders. The average number of successful bidders was about 14. Participation in the auctions fluctuated between 14 and 19 bidders during the reporting period. The number of successful participants ranged from 8 to 16. At the auctions on 13/05/2016 and 17/06/2016 all participating bidders were successful. The following figure illustrates EUA-auction participation over time.
With 10 bidders, the participation in the aviation allowances auction on 13/04/2016 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.

2.2 Volume Demand

During the reporting period, the aggregated bid volumes per EUA-auction date fluctuated from 5.4 to 9.1 million allowances. Overall, valid bids totalling about 94 million allowances were entered into trading system in the second Quarter. The resulting cover ratios during the reporting period ranged between 1.53 and 2.61 (2.07 on average). With 3.92 the cover ratio in the EUAA auction on 13/04/2016 was above the fluctuation range of the cover ratios in EUA auctions. The figure below summarises the results for each EUA-auction date.

![Auctioned and bid volume and cover ratio (secondary axis) for each auction date (EUA)](image)

**Figure 2:** Auctioned and bid volume and cover ratio (secondary axis) for each auction date (EUA)

Thus, the average bid volume per EUA-auction participant in the second Quarter was about 425,000 allowances. The average volume awarded to each successful bidder was about 250,000 allowances. In the EUAA auction on 13/04/2016 the average bid volume per auction participant was about 340,000 allowances. The average volume awarded to each successful bidder was about 140,000 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).


**Auctions and the Secondary Market**

**3.1 Trading Volume EUA**

In the second Quarter of 2016, a total of about 45 million EUA were auctioned at the EEX for Germany. During the reporting period, the cumulative trading volume in the relevant total market was about 1.61 billion EUA.¹

Thus, the total market trading volume was 6 percent below the level of the previous quarter. This market volume was divided into approximately 270 million allowances which were conducted as contracts for immediate delivery (spot) and about 1.34 billion allowances for delivery in the future (futures). Thus, about 83 percent of the traded volume was handled on the dominant futures market. The figure below illustrates the trading volumes separately for spot and futures segments based on calendar weeks (CW).

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¹ All emission allowances (EUA) of the third trading period traded on the spot and futures markets on the ICE/ECX, CME/NYMEX, 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. The EUA spot contracts auctioned in the second Quarter of 2016 are also considered. Option contracts are not involved.
In the second Quarter of 2016, a total of about 194 million allowances were auctioned by Member States on the primary market as spot contracts. On the spot secondary market about 76 million allowances were traded in the second quarter of 2016, including 52 million EUA in June, the highest monthly level since April 2013. This means that around 72 percent of traded spot contracts have been purchased in primary market auctions during the reporting period. With respect to the relevant total market for EUA, around 12 percent of the traded volume was related to auctions.

Figure 4 shows the trading volume in the spot secondary market and the auction volumes on the primary market per calendar week (CW). In addition to the German auctions, aggregated auction volumes of other EU Member States are also included in the figure.
3.2 Trading Volume EUAA

In the second Quarter of 2016, no aviation allowances (EUAA) were traded on the secondary market\(^2\). During the reporting period, a total of about 0.86 million EUAA were auctioned by Germany on the primary market as spot contracts.

Further information on the EUAA auction calendars is available on the website of the European Commission.

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\(^2\) 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.
Figure 5: Trading volume on the secondary market and volume of auctions conducted in the second Quarter of 2016 (EUAA)

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).

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.
Due to the very low liquidity on the benchmark secondary market for EUAA (see Section 3.2) no evaluation of the EUAA auction price on 13/04/2016 is made in this report.

Table 3 shows the relative deviations of the clearing price from the lead 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 -€ 0.06 (-1.20 percent) and +€ 0.08 (+1.41 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 0.46 percent averaged over all dates.

**Table 3: Auctions and deviations from secondary market prices in the second Quarter of 2016 (EUA)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Contract</th>
<th>Clearing price</th>
<th>Deviation from ICE Daily Future</th>
<th>Absolute*</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/04/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.18</td>
<td>***€ -0.05</td>
<td>***-0.96 %</td>
<td></td>
</tr>
<tr>
<td>08/04/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.23</td>
<td>*€ 0.00</td>
<td>*0.00 %</td>
<td></td>
</tr>
<tr>
<td>15/04/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.54</td>
<td>**€ 0.01</td>
<td>**0.18 %</td>
<td></td>
</tr>
<tr>
<td>22/04/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.74</td>
<td>*€ 0.08</td>
<td>*1.41 %</td>
<td></td>
</tr>
<tr>
<td>29/04/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 6.29</td>
<td>*€ -0.03</td>
<td>*-0.47 %</td>
<td></td>
</tr>
<tr>
<td>06/05/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 6.13</td>
<td>*€ -0.02</td>
<td>*-0.33 %</td>
<td></td>
</tr>
<tr>
<td>13/05/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.75</td>
<td>*€ -0.02</td>
<td>*-0.35 %</td>
<td></td>
</tr>
<tr>
<td>20/05/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.95</td>
<td>*€ 0.01</td>
<td>*0.17 %</td>
<td></td>
</tr>
<tr>
<td>27/05/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.90</td>
<td>**€ -0.02</td>
<td>**-0.34 %</td>
<td></td>
</tr>
<tr>
<td>03/06/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.96</td>
<td>*€ -0.01</td>
<td>*-0.17 %</td>
<td></td>
</tr>
<tr>
<td>10/06/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.93</td>
<td>*€ 0.00</td>
<td>*0.00 %</td>
<td></td>
</tr>
<tr>
<td>17/06/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 5.68</td>
<td>*€ -0.02</td>
<td>*-0.35 %</td>
<td></td>
</tr>
<tr>
<td>24/06/2016</td>
<td>EUA Spot 3rd TP</td>
<td>€ 4.96</td>
<td>***€ -0.06</td>
<td>***-1.20 %</td>
<td></td>
</tr>
</tbody>
</table>

**Mean absolute deviation**

€ 0.03 0.46 %

**Source:** ICE, EEX, Thomson Reuters, DEHSt
* best bid ICE Daily Future
** best bid EEX Spot
*** last trade EEX Spot

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.\(^3\) The following graphic is based on volume-weighted average trading prices (VWAP), which fluctuated in an interval between around € 4.50 to € 6.90\(^4\) in the second Quarter of 2016.

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\(^3\) 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.

\(^4\) The volume-weighted average price (VWAP) for the ICE EUA front-december futures is published on a daily basis by the ICE. The VWAP for the ICE daily future contract is based on the calculations of Thomson Reuters.
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 the second Quarter of 2016 as follows (excerpt):

"Within their surveillance for the auctioning of emission allowances on behalf of the German Environment Agency at the EEX in the second Quarter of 2016 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 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 (2016 auction results).
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).