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AUCTIONS BY THE TRANSITIONAL COMMON AUCTION PLATFORM

The world's largest auctioning of emissions allowances

March 2016

Auctions by the *Transitional Common Auction Platform*

March 2016

Auction platform: European Energy Exchange (EEX)

Auction dates/reporting period:

General Allowances:

1, 2(PL)¹, 3, 7, 8, 10, 14, 15, 17, 21, 22, 24, 29, 30(PL)¹, 31 March 2016;

Aviation Allowances:

16 March 2016

Auctioning is the default method of allocating allowances within the EU emissions trading system (EU ETS). Since the start of the *Third trading period* in 2013 over 2 billion allowances allocated under the EU ETS have been auctioned. Auctioning of emission allowances at that scale is unprecedented and delivers valuable experience for auction design in other carbon markets and for other environmental assets.

Auctioning is the most transparent and efficient method of allocating allowances and puts into practice the principle that the polluter should pay.

The auctions are conducted pursuant to the modalities stipulated in the *Auctioning Regulation*. Two auction platforms are in place. The European Energy Exchange (EEX) in Leipzig is the common platform for the large majority of countries participating in the EU ETS. EEX also acts as Germany's auction platform. The second auction platform is ICE Futures Europe (ICE) in London, which acts as the United Kingdom's platform. Poland may appoint an opt-out auction platform but is using for the time being the common auction platform.

The numbers of *General Allowances* to be auctioned by each State on behalf of which they are auctioned are determined on the basis of their historical share of emissions from installations covered by the EU ETS, taking into account the free allocation volumes. Up to 2020 ten per cent are allocated to the least wealthy EU Member States and the remaining two per cent is given as a 'Kyoto bonus' to nine EU Member States which by 2005 had reduced their greenhouse gas emissions by at least 20% of levels in their Kyoto Protocol base year or period.

At least half of auctioning revenues, or the equivalent in financial value, and all of the revenues from auctioning allowances to the aviation sector, should be used by the Member States to combat climate change in Europe or other countries.

For further information: http://ec.europa.eu/clima/policies/ets/cap/auctioning/index_en.htm

Editor's note: This report has been prepared by the Commission on behalf of the following Member States: Austria, Belgium, Bulgaria, Republic of Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. The report complies with the requirement laid down in the fourth paragraph of Article 10(4) of the *ETS Directive*.

Methodology: The report is based on the reports submitted by EEX, on the discussions in regular meetings between the Commission, its advisors and EEX and on any further relevant information available to the Commission. The authors of the report did not actively verify EEX's compliance with the specific rules and provisions applicable under European or national law. EEX has supplied the data used in this report and been consulted before its publication, whereas the *participating Member States* have been consulted on its template.

For reasons of confidentiality and proper enforcement of the applicable rules, the report refers to reporting on the auctions held based on information provided by EEX. Any data not directly related to the auctions is based only on public reports.

Disclaimer: The authors have made every effort to ensure that the information provided is complete, correct and precise for the reporting period. Nevertheless, the report is based on limited information available to the authors in a market context where much information has to remain confidential. The authors did not actively verify the information. Therefore, the authors and the Member States on whose behalf this report was drafted deny any responsibility or liability whatsoever for its contents, regardless of the nature of such contents. Any reliance by any person or entity on the information provided in this report is solely at that person's or entity's own risk. Monthly averages provided are weighted by each auction's auction volume, unless otherwise indicated.

Glossary: terms and expressions written in *italics* are included in the glossary.

Executive summary

This report covers the auctioning of emission allowances in the period March 2016. In that period, EEX, in its capacity as the common auction platform, auctioned a total of 44 525 000 *general allowances* in 13 auctions for the *third trading period* and 683 500 *aviation allowances* in one auction on behalf of those EU Member States (*participating Member States*) that participate in the *Transitional Common Auction Platform (TCAP)*. During this period EEX also auctioned on behalf of Poland 7 052 000 *general allowances* in two auctions.

All auctions were held successfully and no irregularities or deviations from the requirements were observed. The table below contains a summary of the information concerning the conducted auctions.

The March 2016 auctions at a glance:

| | General Allowances March | Aviation Allowances March |
|--|------------------------------------|-------------------------------------|
| General | | |
| Number of auctions | 15 | 1 |
| Total volume auctioned | 51 577 000 | 683 500 |
| Amount raised from the auctions (€) | 251 299 820 | 3 376 490 |
| Average Auction Clearing Price (€/allowance) | 4.87 | 4.94 |
| Total bid volume | 117 768 000 | 2 625 500 |
| Average <i>Cover ratio</i> | 2.3 | 3.8 |
| Participation | | |
| Number of eligible bidders | 70 | 70 |
| Number of participating bidders ⁽¹⁾ | 35 | 8 |
| Number of successful bidders ⁽¹⁾ | 31 | 3 |
| Average number of bidders per auction | 20.7 | 8.0 |
| Average number of successful bidders per auction | 14.8 | 3.0 |
| Auction data | | |
| Average total volume bid per bidder per auction | 384 552 | 328 187 |
| Average bid size (volume per bid) | 105 729 | 79 561 |
| Average volume won per bidder per auction | 245 210 | 227 833 |
| Average range of bids (€) | 1.57 | 1.33 |

(1): Number of unique individual bidders or unique successful bidders present in a whole month

Introduction

All the *participating Member States* were participating in the auctions as from January 2015.

In accordance with the second subparagraph of Article 30(7) of the *Auctioning Regulation*, pending the procurement, appointment and listing of its opt-out auction platform, Poland contracted EEX to auction its share of allowances to be auctioned. These auctions started on 16 September 2013. Due to the *Back-loading*, no auctions were held for Poland from April to December 2014, the auctions restarted in January 2015.

Accordingly, the present report includes data on the auctions performed by the common auction platform on behalf of the *participating Member States* and Poland.

The Member States of the European Free Trade Association (EFTA) that are Party to the European Economic Area (EEA)¹ have also stated their intention to make use of the *Transitional Common Auction Platform* by aggregating their volumes to those auctioned on behalf of the *participating Member States*. The preparations for this are on-going.

1. Results of the auctions

The total revenues from auctions of *general allowances* accrued to the *participating Member States* and Poland from the start of the *Third trading period* auctions (November 2012) to March 2016 are EUR 8 545 548 615. The total revenues from auctions of *aviation allowances* accrued to the *participating Member States* and Poland from the start of the *Third trading period* auctions (November 2012) to March 2016 are EUR 129 744 300. The revenues per each *participating Member State* in the reporting period as well as cumulative data are provided in Annex 1.

Information on *general allowances'* auctions is provided in section 1.1, and on *aviation allowances* in section 1.2 hereafter. Detailed information on the auctions held in the reporting period March 2016, including results per auction, is provided in Annex 2.

Please note that in all parts of this report monthly averages provided are weighted by each auction's auction volume, unless otherwise indicated.

¹ Iceland, Liechtenstein and Norway.

1.1. General allowances auctions

1.1.1. Clearing prices and participation - general allowances

An overview of the auction results for the *participating Member States* and Poland from March 2015 to March 2016 is provided in Table 1.

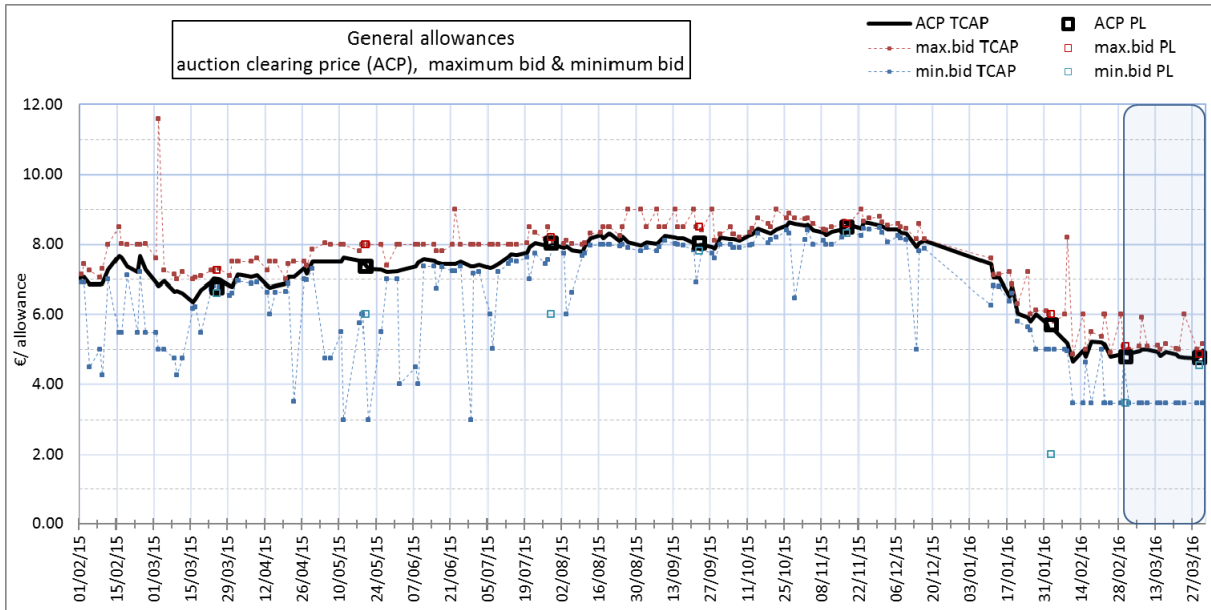
Table 1: General allowances - main statistics on the results of the auctions per month

| Month | Total auction volume | Total bid volume | Total revenue (€) | Average Cover ratio ² | Average number of bidders | Average number of successful bidders | Average auction clearing price (€) |
|-------------------|----------------------|----------------------|----------------------|----------------------------------|---------------------------|--------------------------------------|------------------------------------|
| March 2016 | 51 577 000 | 117 768 000 | 251 299 820 | 2.3 | 20.7 | 14.8 | 4.87 |
| February 2016 | 48 051 000 | 106 282 000 | 249 230 700 | 2.2 | 22.7 | 17.2 | 5.19 |
| January 2016 | 30 825 000 | 74 934 000 | 200 910 500 | 2.4 | 21.6 | 14.1 | 6.52 |
| December 2015 | 23 244 500 | 64 626 500 | 192 130 220 | 2.8 | 18.9 | 14.1 | 8.27 |
| November 2015 | 40 789 500 | 130 488 000 | 346 009 805 | 3.2 | 19.6 | 13.1 | 8.48 |
| October 2015 | 37 934 000 | 116 213 500 | 316 690 540 | 3.1 | 19.7 | 13.4 | 8.35 |
| September 2015 | 40 788 000 | 126 790 000 | 328 635 840 | 3.1 | 18.7 | 14.3 | 8.06 |
| August 2015 | 17 508 000 | 65 808 500 | 141 085 300 | 3.8 | 15.4 | 9.3 | 8.06 |
| July 2015 | 40 788 000 | 114 643 000 | 315 388 760 | 2.8 | 16.5 | 11.9 | 7.73 |
| June 2015 | 37 934 000 | 117 971 500 | 281 645 360 | 3.1 | 16.8 | 12.3 | 7.42 |
| May 2015 | 29 116 000 | 101 910 000 | 216 422 620 | 3.5 | 17.8 | 13.8 | 7.43 |
| April 2015 | 35 016 000 | 83 493 500 | 247 358 860 | 2.4 | 19.5 | 15.2 | 7.06 |
| March 2015 | 43 706 000 | 155 841 500 | 295 627 000 | 3.6 | 19.2 | 13.5 | 6.76 |
| 2015 total | 413 874 000 | 1 337 010 500 | 3 154 940 925 | 3.2 | 18.3 | 13.3 | 7.62 |
| 2014 total | 335 052 000 | 1 796 711 000 | 1 977 712 120 | 5.4 | 17.6 | 11.9 | 5.90 |
| 2013 total | 530 488 000 | 1 761 639 500 | 2 349 853 340 | 3.3 | 18.4 | 13.2 | 4.43 |

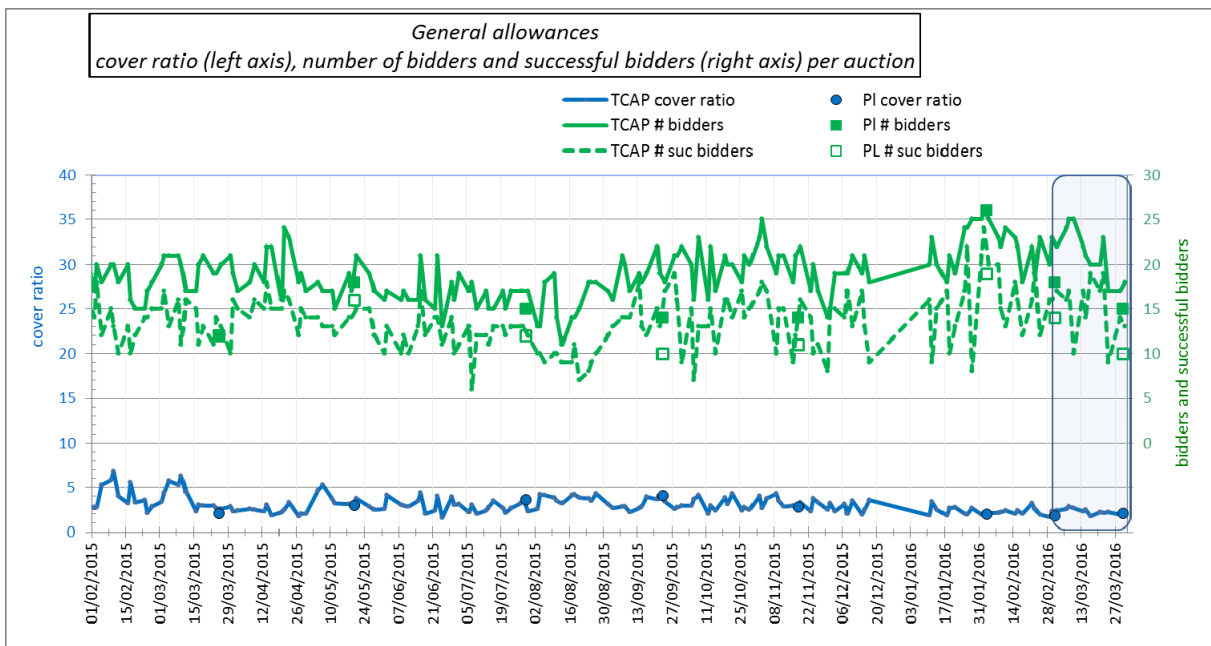
During March 2016, the difference between the Auction Clearing Prices and the mean of the *best-ask* and *best-bid* prices on the EEX *spot secondary market* for *general allowances* at the closure of the auction *bidding window* was on average EUR 0.01, and this difference had a standard deviation of EUR 0.06.

² Cover ratio is the ratio between the total bid volume and the auction volume.

Graph 1: General allowances - auction clearing price (ACP), maximum bid & minimum bid³



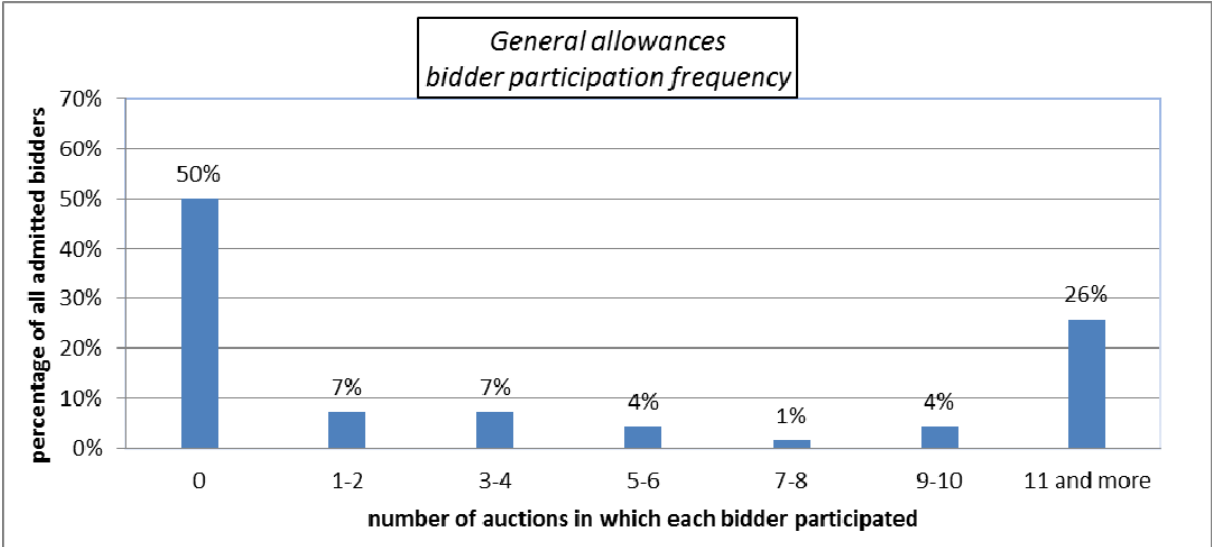
Graph 2: General allowances - cover ratio (left axis), number of bidders and successful bidders (right axis) per auction



There were 70 eligible bidders in March 2016. Out of these, 35 different bidders participated in the auctions in March 2016. Graph 3A indicates the participation frequency in March 2016.

³ Auctions on behalf of Poland were held on the following days: 28/1/2015, 25/3/2015, 20/5/2015, 29/7/2015, 23/9/2015, 18/11/2015, 3/2/2016, 2/3/2016 and 30/3/2016.

Graph 3A: General allowances -bidder participation frequency in March 2016



1.1.2. Bidding behaviour - general allowances

Table 2 provides monthly data on the bids submitted from March 2015 to March 2016. See also Graph 4.

Table 2: General Allowances - monthly statistics on the submitted bids

| Month | Nr of auctions | Nr of bidders ⁽¹⁾ | Total volume of bids | Average total volume bid per bidder per auction ⁴ | Average total volume bid per bidder per auction over the month ⁵ | standard deviation of total volume bid per bidder per auction over the month ⁶ | Total monthly nr of bids | Average nr. of bids per bidder per auction ⁷ | Average bid size ⁸ |
|----------------|----------------|------------------------------|----------------------|--|---|---|--------------------------|---|-------------------------------|
| March 2016 | 15 | 35 | 117 768 000 | 384 552 | 379 897 | 457 186 | 1147 | 3.7 ⁺⁺ | 105 729 |
| February 2016 | 14 | 30 | 106 282 000 | 338 333 | 334 220 | 461 502 | 1104 | 3.5 ⁺⁺ | 98 299 |
| January 2016 | 9 | 32 | 74 394 000 | 386 086 | 383 474 | 547 998 | 692 | 3.6 ⁺⁺ | 110 917 |
| December 2015 | 8 | 31 | 64 626 500 | 433 690 | 427 990 | 543 279 | 538 | 3.6 ⁺⁺ | 119 573 |
| November 2015 | 14 | 30 | 130 488 000 | 483 238 | 476 234 | 628 078 | 923 | 3.4 ⁺⁺ | 142 930 |
| October 2015 | 13 | 32 | 116 213 500 | 455 083 | 453 959 | 576 354 | 862 | 3.4 ⁺⁺ | 134 450 |
| September 2015 | 14 | 30 | 126 790 000 | 492 634 | 483 931 | 641 235 | 917 | 3.5 ⁺⁺ | 138 422 |
| August 2015 | 12 | 27 | 65 808 500 | 362 597 | 355 722 | 410 715 | 630 | 3.5 ⁺⁺ | 104 910 |
| July 2015 | 14 | 29 | 114 643 000 | 498 144 | 496 290 | 590 569 | 932 | 4.1 ⁺⁺ | 122 445 |
| June 2015 | 13 | 27 | 117 971 500 | 534 698 | 541 154 | 668 622 | 826 | 3.8 ⁺⁺ | 142 270 |
| May 2015 | 10 | 29 | 101 910 000 | 576 652 | 572 528 | 1 126 584 | 619 | 3.5 ⁺⁺ | 170 179 |
| April 2015 | 12 | 29 | 83 493 500 | 358 748 | 356 810 | 453 453 | 798 | 3.4 ⁺⁺ | 104 562 |
| March 2015 | 15 | 29 | 155 841 500 | 539 041 | 541 116 | 997 195 | 1108 | 3.9 ⁺⁺ | 138 843 |

++: indicates simple average

(1): Number of unique individual bidders or unique successful bidders present in a whole month

⁴ Monthly weighted average of the average bid volume per bidder in each auction (total bid volume in each auction divided by number of bidders participating in that auction), weighted by volume auctioned in each auction.

⁵ Average over the whole month of the volume bid by bidders each time they are present in an auction (computed as total volume bid for the month / sum over whole month of number of bidders present in each auction).

⁶ Standard deviation of total volume bid per bidder in each auction over the month.

⁷ Monthly simple average of the average number of bids per bidder in each auction (total number of bids in each auction divided by number of bidders participating in that auction).

⁸ Monthly weighted average of the average bid size per bidder in each auction (total bid volume in each auction divided by number of bids in that auction), weighted by volume auctioned in each auction.

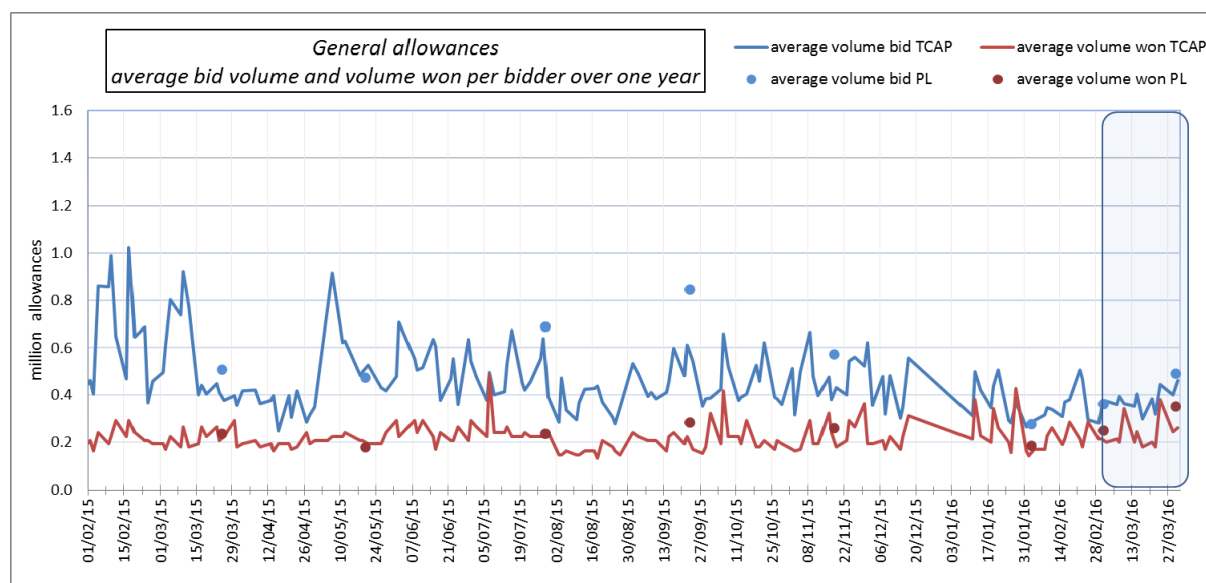
Table 3 provides monthly data on successful bids from March 2015 to March 2016. See also Graph 4.

Table 3: General Allowances - monthly statistics on successful bids

| Month | Nr of auctions | Nr of successful bidders ⁽¹⁾ | Total auction volume | Average volume won per bidder per auction ⁹ | Average volume won per bidder over the month ¹⁰ | Standard deviation of volume won per bidder per auction over the month ¹¹ | Total monthly nr of successful bids |
|----------------|----------------|---|----------------------|--|--|--|-------------------------------------|
| March 2016 | 15 | 31 | 51 577 000 | 245 210 | 232 329 | 256 557 | 416 |
| February 2015 | 14 | 27 | 48 051 000 | 207 756 | 199 382 | 213 657 | 468 |
| January 2016 | 9 | 30 | 30 825 000 | 268 407 | 242 717 | 293 170 | 264 |
| December 2015 | 8 | 29 | 23 244 500 | 212 431 | 205 704 | 218 453 | 219 |
| November 2015 | 14 | 26 | 40 789 500 | 237 529 | 222 893 | 253 845 | 311 |
| October 2015 | 13 | 26 | 37 934 000 | 232 204 | 218 011 | 244 823 | 302 |
| September 2015 | 14 | 27 | 40 788 000 | 209 499 | 203 940 | 218 967 | 378 |
| August 2015 | 12 | 23 | 17 508 000 | 158 449 | 156 321 | 187 135 | 173 |
| July 2015 | 14 | 24 | 40 788 000 | 255 324 | 245 711 | 314 528 | 334 |
| June 2015 | 13 | 24 | 37 934 000 | 243 436 | 237 088 | 345 804 | 284 |
| May 2015 | 10 | 28 | 29 116 000 | 212 874 | 210 986 | 232 455 | 267 |
| April 2015 | 12 | 26 | 35 016 000 | 194 267 | 192 396 | 224 960 | 305 |
| March 2015 | 15 | 29 | 43 706 000 | 220 982 | 215 300 | 270 467 | 362 |

(1): Number of unique individual bidders or unique successful bidders present in a whole month

Graph 4: General allowances - average bid volume and volume won per bidder over one year¹²



⁹ Monthly weighted average of the average volume won per bidder in each auction (total volume won in each auction divided by the number of successful bidders in that auction), weighted by volume auctioned in each auction.

¹⁰ Average over the whole month of the volume won per bidder each time they are successful in an auction (computed as total volume auctioned for the month / sum over whole month of number of bidders successful in each auction).

¹¹ Standard deviation of volume won per bidder in each auction over the month.

¹² Auctions on behalf of Poland were held on the following days: 8/1/2014, 5/2/2014, 5/3/2014, 28/1/2015, 25/3/2015, 20/5/2015, 29/7/2015, 23/9/2015, 18/11/2015, 3/2/2016, 2/3/2016 and 30/3/2016.

1.1.3. Type of bidders - general allowances

In March 2016, almost all volume bid was done on own account, with 0.00% of the volume (no bids) submitted by intermediaries on behalf of a client. The shares in the total successful bid volume per bidder category are indicated in graph 5 and in table 4.

Graph 5: General allowances - distribution of successful won volume per bidder category over one year

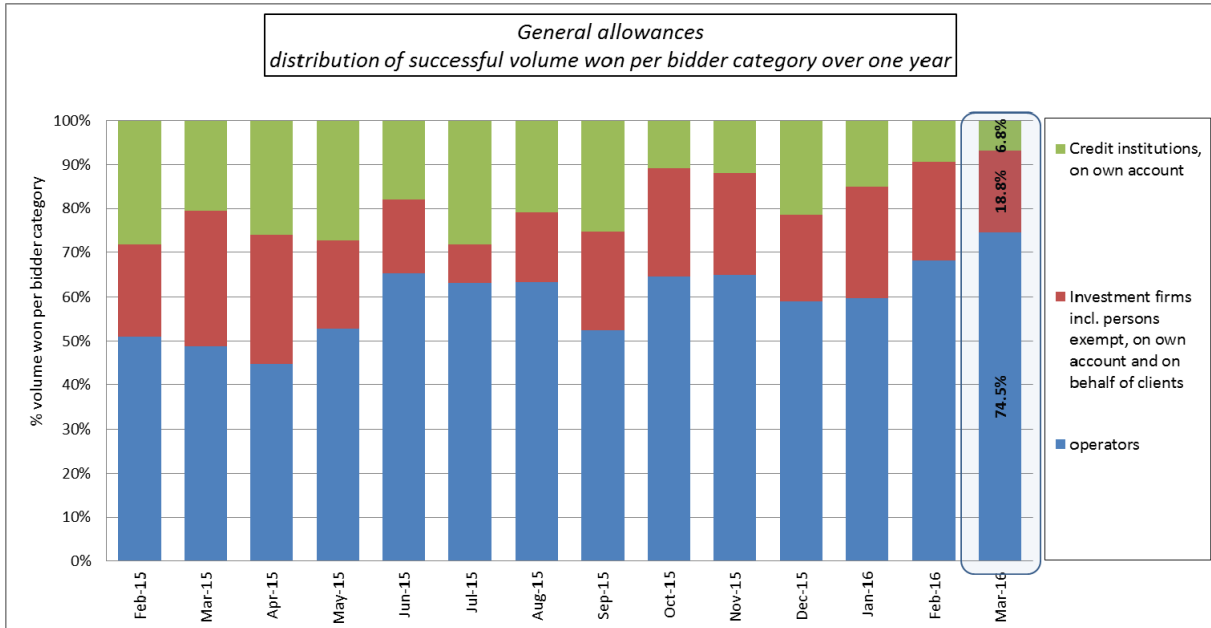


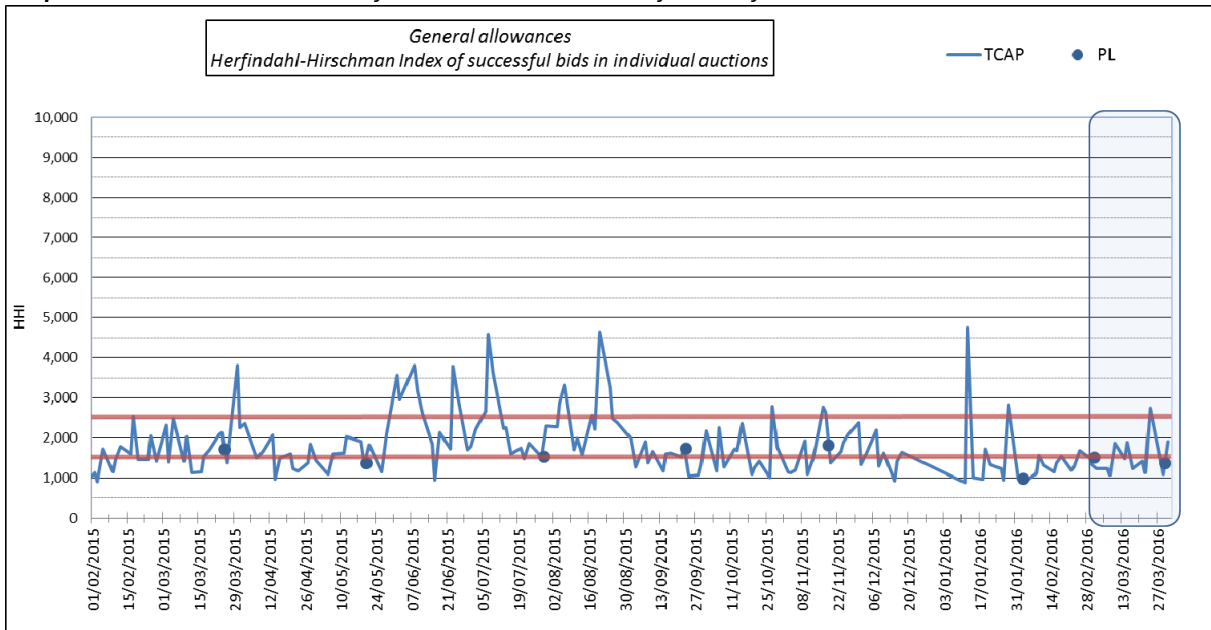
Table 4: General allowances – distribution of volume won per bidder category and their standard deviations

| Month | % volume won coming from bidding on behalf of a client | Bidder category | % volume won | Standard deviation of % of volume won |
|------------|--|---|--------------|---------------------------------------|
| March 2016 | 0.00% | Operators (including Business groupings) | 74.5% | 10.5 % points |
| | | Investment firms (including persons exempt) | 18.8% | 10.0 % points |
| | | Credit institutions | 6.8% | 3.8 % points |

1.1.4. Concentration - general allowances

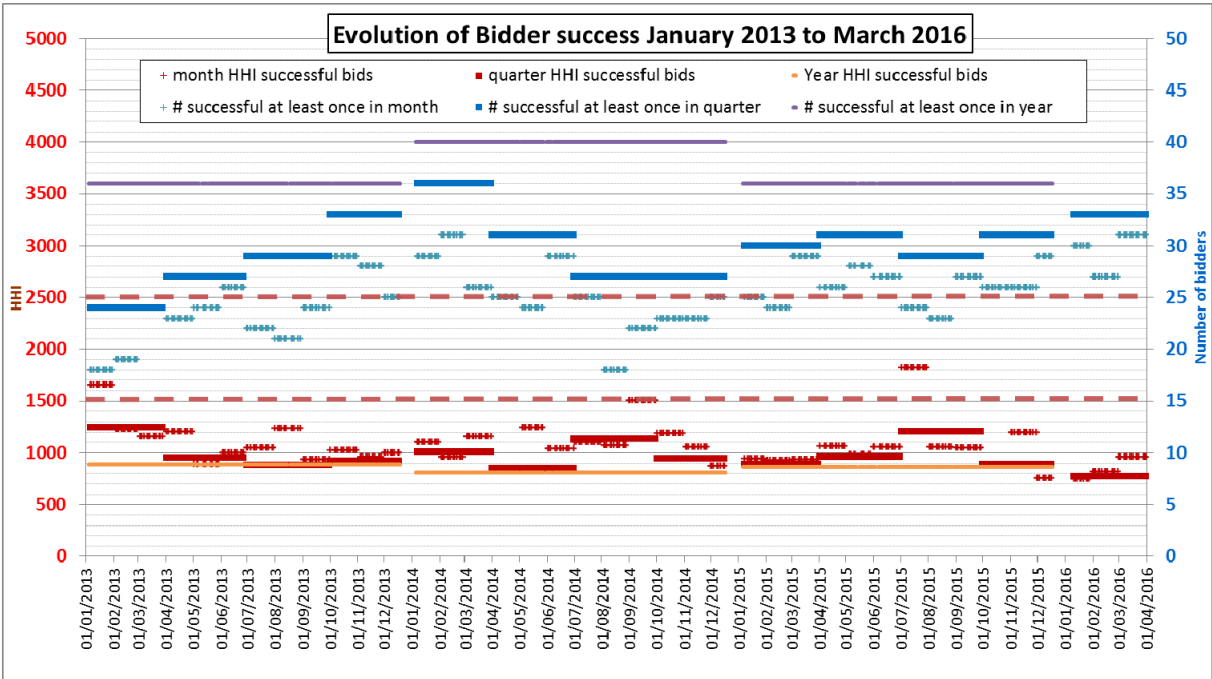
The Herfindahl-Hirschman Index (HHI) of successful bids is used to measure market concentration¹³. The HHI ranges from a value of 0 (perfect competition) to 10 000 (a single buyer). A common interpretation of the HHI is that a score below 1 500 is 'not-concentrated', between 1 500 and 2 500 is 'moderately concentrated,' and above 2 500 is 'highly concentrated' – these thresholds are indicated in Graphs 6 and 7. Graph 6 indicates the HHI of the individual auctions. Graph 7 indicates the monthly and quarterly HHI and successful bidder participation (number of bidders successful at least once in the period of interest) so as to show the variation over different periods, due to the turnover of participants in the auctions.

Graph 6: General allowances - Herfindahl-Hirschman Index of successful bids in individual auctions



¹³ The HHI is calculated as the sum of the squares of all successful bidders' shares (in % points) of the total auctioned volume over the period of interest.

Graph 7: General allowances - Herfindahl-Hirschman Index of successful bids and successful bidder participation at monthly, quarterly and yearly level



1.2 Aviation allowances auctions

The auctioning of *aviation allowances* restarted as of November 2014¹⁴. Pursuant to the published *auction calendar*, only *aviation allowances* for the calendar year 2012 were auctioned in 2014¹⁵; the *aviation allowances* for the calendar years 2013-2015 were auctioned in 2015, in accordance with the published 2015 *auction calendar*. Poland decided to aggregate the *aviation allowances* for the calendar years 2012 to 2015 in a single auction held in March 2015.

1.2.1 Clearing prices and participation – aviation allowances

An overview of the auction results from March 2015 to March 2016 is provided in Table 5.

Table 5: Aviation allowances – main statistics on the results of the auctions per month

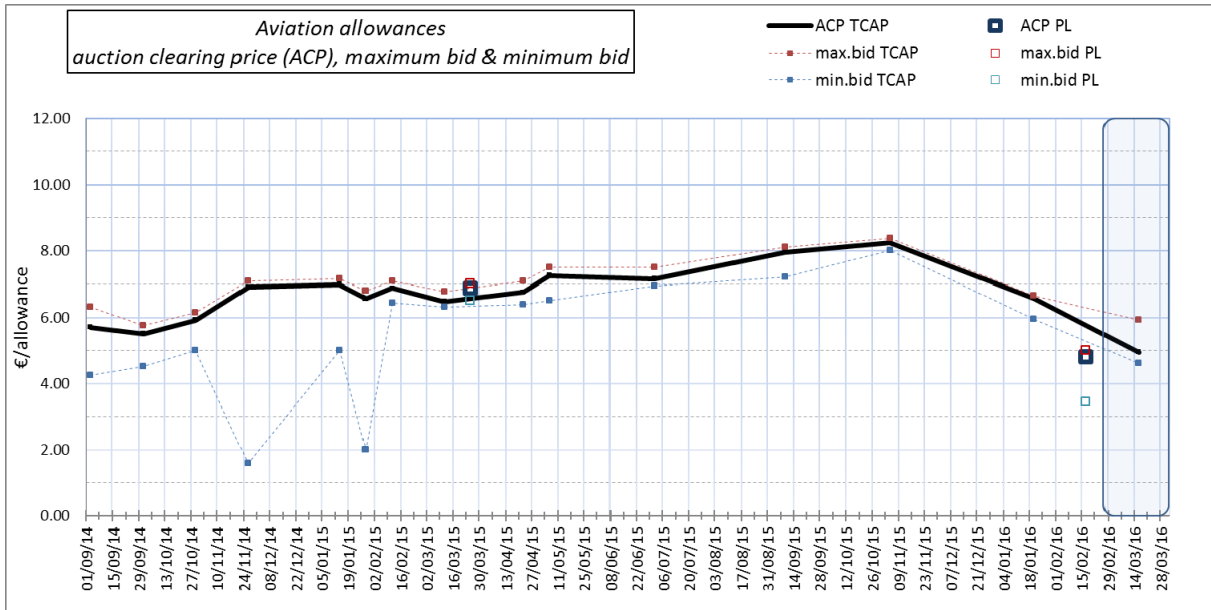
| Month | Total auction volume | Total bid volume | Total revenue (€) | Average Cover ratio ¹⁶ | Average number of bidders | Average number of successful bidders | Average auction clearing price (€) |
|-------------------|----------------------|-------------------|-------------------|-----------------------------------|---------------------------|--------------------------------------|------------------------------------|
| March 2016 | 683 500 | 2 625 500 | 3 376 490 | 3.8 | 8.0 | 3.0 | 4.94 |
| February 2016 | 120 000 | 1 663 000 | 576 000 | 13.9 | 12.0 | 2.0 | 4.80 |
| January 2016 | 683 500 | 3 866 000 | 4 490 595 | 5.7 | 12.0 | 5.0 | 6.57 |
| December 2015 | - | - | - | - | - | - | - |
| November 2015 | 933 000 | 3 754 000 | 7 697 250 | 4.0 | 11.0 | 3.0 | 8.25 |
| October 2015 | - | - | - | - | - | - | - |
| September 2015 | 935 000 | 4 683 000 | 7 423 900 | 5.0 | 12.0 | 5.0 | 7.94 |
| August 2015 | - | - | - | - | - | - | - |
| July 2015 | 935 000 | 4 095 000 | 6 694 600 | 4.4 | 12.0 | 6.0 | 7.16 |
| June 2015 | - | - | - | - | - | - | - |
| May 2015 | 935 000 | 2 008 000 | 6 778 750 | 2.2 | 11.0 | 6.0 | 7.25 |
| April 2015 | 1 493 500 | 3 475 500 | 10 081 125 | 2.3 | 11.0 | 11.0 | 6.75 |
| March 2015 | 1 927 500 | 6 016 500 | 12 663 600 | 3.1 | 11.0 | 6.7 | 6.57 |
| 2015 total | 11,641,000 | 39,026,000 | 81,846,705 | 3.4 | 11.0 | 7.5 | 7.03 |
| 2014 total | 6 570 500 | 28 201 500 | 39 454 510 | 4.3 | 13.0 | 8.0 | 6.00 |

¹⁴ The auctions were suspended end 2012, see the Regulatory update published by the Commission on 16 November 2012 http://ec.europa.eu/clima/news/articles/news_2012111601_en.htm.

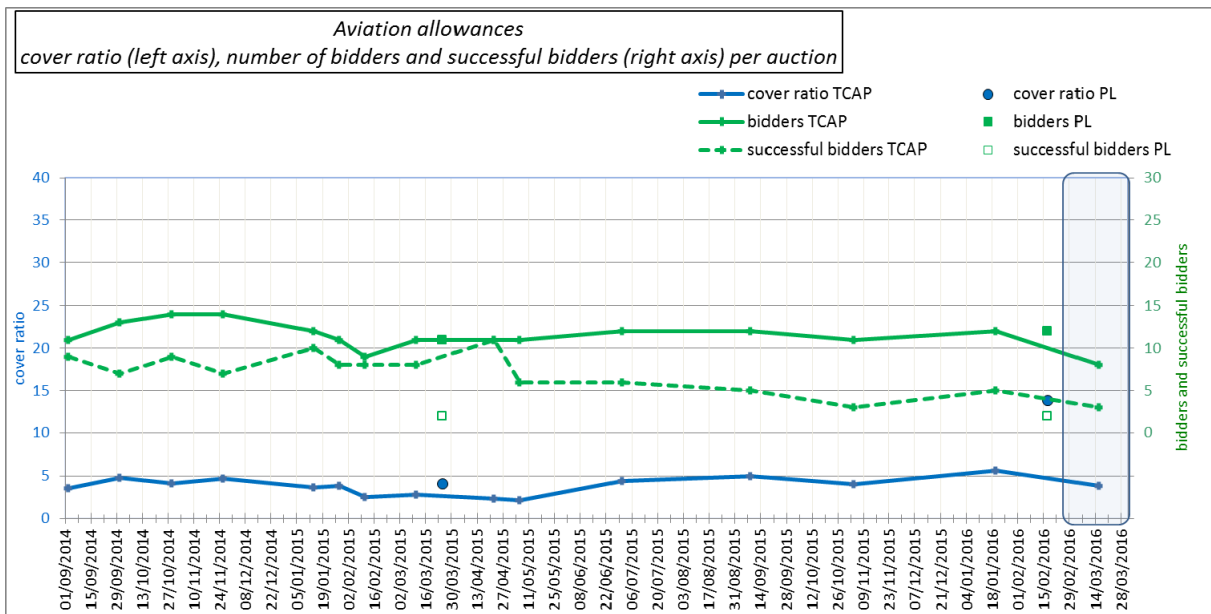
¹⁵ See also the regulatory update published by the Commission on 29 July 2014; http://ec.europa.eu/clima/news/articles/news_2014072901_en.htm.

¹⁶ The cover ratio is the ratio between the total bid volume and the auction volume.

Graph 8: Aviation allowances - auction clearing price (ACP) & maximum prices bid & minimum prices bid¹⁷

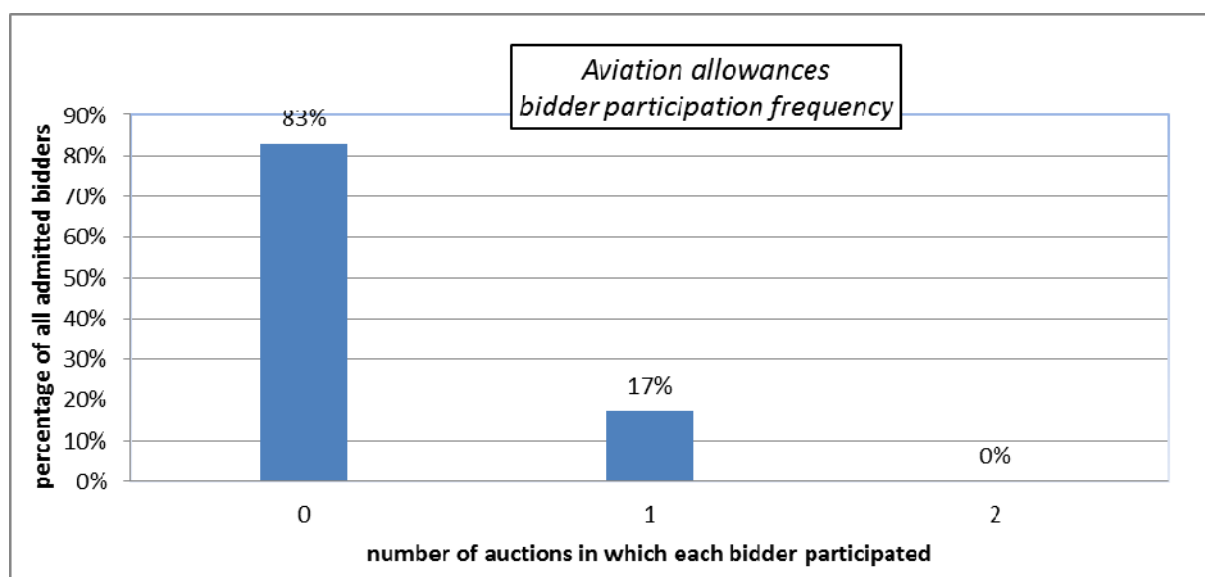


Graph 9: Aviation allowances - cover ratio (left axis), number of bidders and successful bidders (right axis) per auction



¹⁷ Auctions on behalf of Poland were held on the following days: 25/3/2015 and 17/2/2016.

Graph 10: Aviation allowances -bidder participation frequency in March 2016



1.2.2 Bidding behaviour – aviation allowances

Table 6 provides monthly data on the bids submitted from March 2015 to March 2016. See also Graph 11.

Table 6: Aviation allowances – monthly statistics on the submitted bids

| Month | Nr of auctions | Nr of bidders ⁽¹⁾ | Total volume of bids | Average total volume bid per bidder per auction ¹⁸ | Average total volume bid per bidder per auction over the month ¹⁹ | standard deviation of total volume bid per bidder per auction over the month ²⁰ | Total monthly nr of bids | Average nr. of bids per bidder per auction ²¹ | Average bid size ²² |
|----------------|----------------|------------------------------|----------------------|---|--|--|--------------------------|--|--------------------------------|
| March 2016 | 1 | 8 | 2 625 500 | 328 188 | 328 187 | 271 282 | 33 | 4.1 ⁺⁺ | 79 561 |
| February 2016 | 1 | 12 | 1 663 000 | 138 583 | 138 583 | 126 140 | 40 | 3.3 ⁺⁺ | 41 575 |
| January 2016 | 1 | 12 | 3 866 000 | 322 167 | 322 167 | 234 168 | 45 | 3.8 ⁺⁺ | 85 911 |
| December 2015 | - | - | - | - | - | - | - | - | - |
| November 2015 | 1 | 11 | 3 754 000 | 341 273 | 341 273 | 271 392 | 37 | 3.4 ⁺⁺ | 101 459 |
| October 2015 | - | - | - | - | - | - | - | - | - |
| September 2015 | 1 | 12 | 4 683 000 | 390 250 | 390 250 | 259 804 | 49 | 4.1 ⁺⁺ | 95 571 |
| August 2015 | - | - | - | - | - | - | - | - | - |
| July 2015 | 1 | 12 | 4 095 000 | 341 250 | 341 250 | 219 603 | 42 | 3.5 ⁺⁺ | 97 500 |
| June 2015 | - | - | - | - | - | - | - | - | - |
| May 2015 | 1 | 11 | 2 008 000 | 182 545 | 182 545 | 80 364 | 28 | 2.5 ⁺⁺ | 71 714 |
| April 2015 | 1 | 11 | 3 475 500 | 315 955 | 315 955 | 400 818 | 35 | 3.2 ⁺⁺ | 99 300 |
| March 2015 | 2 | 13 | 6 016 500 | 333 461 | 273 477 | 290 869 | 60 | 2.7 ⁺⁺ | 122 269 |

++: indicates simple average

(1): Number of unique individual bidders or unique successful bidders present in a whole month

¹⁸ Monthly weighted average of the average bid volume per bidder in each auction (total bid volume in each auction divided by number of bidders participating in that auction), weighted by volume auctioned in each auction.

¹⁹ Average over the whole month of the volume bid by bidders each time they are present in an auction (computed as total volume bid for the month / sum over the whole month of number of bidders present in each auction).

²⁰ Standard deviation of total volume bid per bidder in each auction over the month.

²¹ Monthly simple average of the average number of bids per bidder in each auction (total number of bids in each auction divided by number of bidders participating in that auction).

²² Monthly weighted average of the average bid size per bidder in each auction (total bid volume in each auction divided by number of bids in that auction), weighted by volume auctioned in each auction.

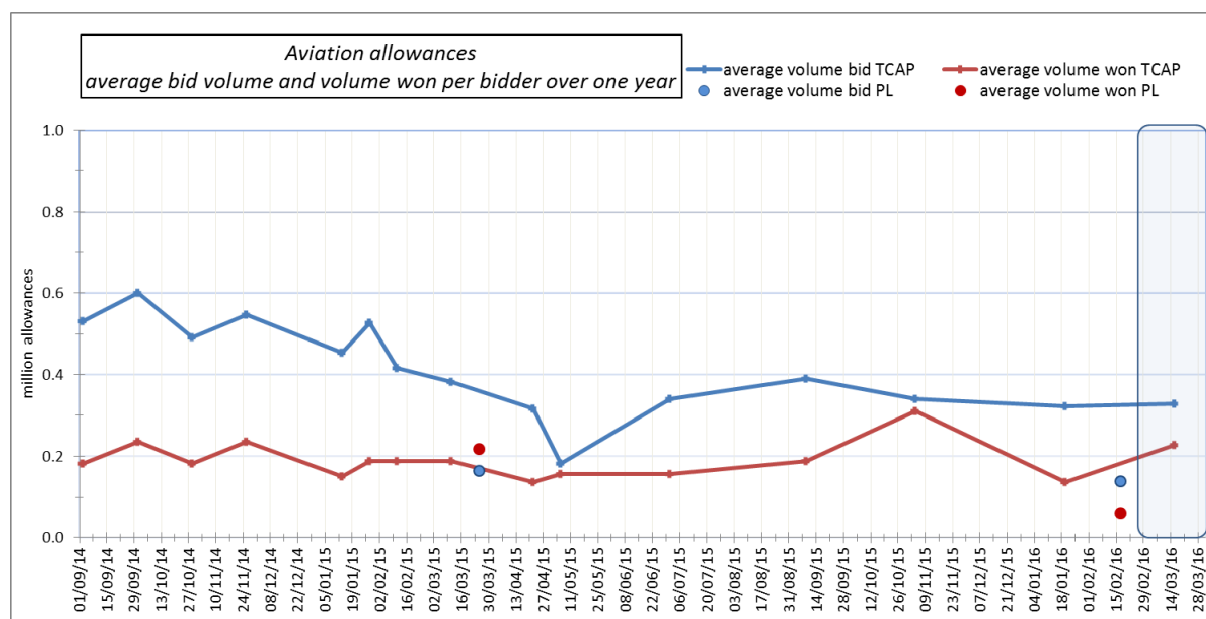
Table 7 provides monthly data on successful bids from March 2015 to March 2016. See also Graph 11.

Table 7: Aviation Allowances – Monthly statistics on successful bids

| Month | Nr of auctions | Nr of successful bidders ⁽¹⁾ | Total auction volume | Average volume won per bidder per auction ²³ | Average volume won per bidder per auction over the month ²⁴ | Standard deviation of volume won per bidder per auction over the month ²⁵ | Total monthly nr of successful bids |
|----------------|----------------|---|----------------------|---|--|--|-------------------------------------|
| March 2016 | 1 | 3 | 683 500 | 227 833 | 227 833 | 199 581 | 7 |
| February 2016 | 1 | 2 | 120 000 | 60 000 | 60 000 | 40 000 | 2 |
| January 2016 | 1 | 5 | 683 500 | 136 700 | 136 700 | 32 366 | 6 |
| December 2015 | - | - | - | - | - | - | - |
| November 2015 | 1 | 3 | 933 000 | 311 000 | 311 000 | 212 228 | 8 |
| October 2015 | - | - | - | - | - | - | - |
| September 2015 | 1 | 5 | 935 000 | 187 000 | 187 000 | 99 615 | 8 |
| August 2015 | - | - | - | - | - | - | - |
| July 2015 | 1 | 6 | 935 000 | 155 833 | 155 833 | 100 847 | 11 |
| June 2015 | - | - | - | - | - | - | - |
| May 2015 | 1 | 11 | 935 000 | 155 833 | 155 833 | 91 750 | 13 |
| April 2015 | 1 | 11 | 1 493 500 | 135 773 | 135 773 | 132 536 | 20 |
| March 2015 | 2 | 9 | 1 927 500 | 193 497 | 192 750 | 176 192 | 18 |

(1): Number of unique individual bidders or unique successful bidders present in a whole month

Graph 11: Aviation allowances - average bid volume and volume won per bidder over one year



²³ Monthly weighted average of the average volume won per bidder in each auction (total volume won in each auction divided by the number of successful bidders in that auction), weighted by volume auctioned in each auction.

²⁴ Average over the whole month of the volume won per bidder each time they are successful in an auction (computed as total volume auctioned for the month / sum over the whole month of number of bidders present in each auction).

²⁵ Standard deviation of volume won per bidder in each auction over the month.

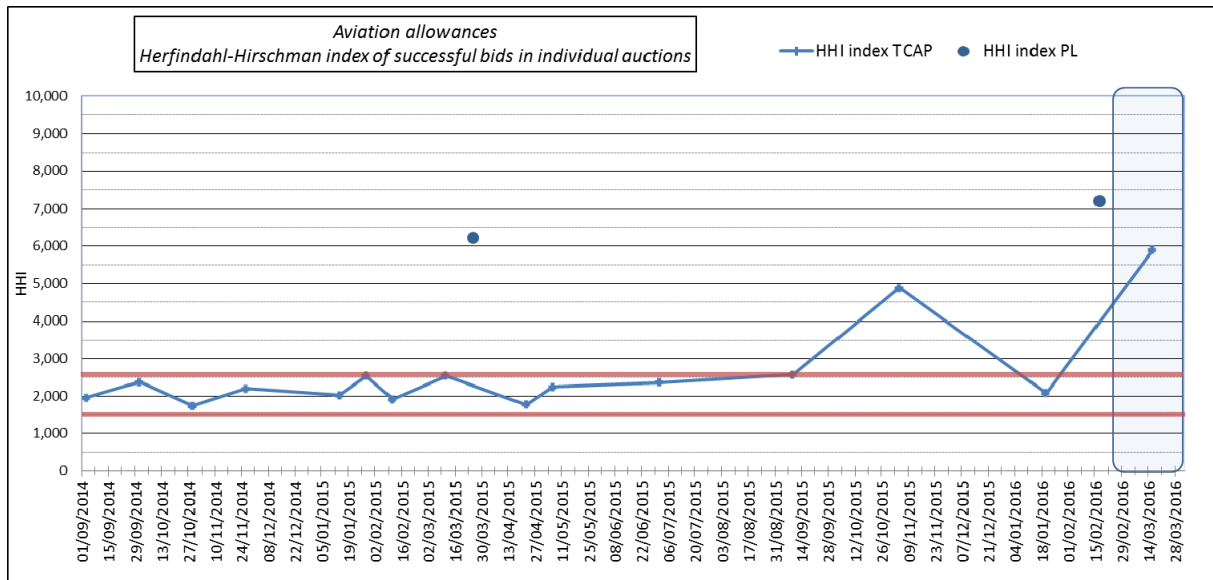
1.2.3 Type of bidders – aviation allowances

In March 2016, all volume bid was done on own account.

1.2.4 Concentration – aviation allowances

The HHI of successful bids is used to measure market concentration²⁶. The HHI ranges from a value of 0 (perfect competition) to 10 000 (a single buyer). A common interpretation of the HHI is that a score below 1 500 is ‘not-concentrated’, between 1 500 and 2 500 is ‘moderately concentrated,’ and above 2 500 is ‘highly concentrated’. Graph 12 indicates the HHI of the individual auctions.

Graph 12: Aviation allowances - Herfindahl-Hirschman index of successful bids in individual auctions



²⁶ The HHI is calculated as the sum of the squares of all successful bidders' shares (in % points) of the total auctioned volume over the period of interest.

2. Implementation of and compliance with the applicable rules

Fair and open access

EEX verified that each auction participant belonged to one of the categories of eligible bidders set out in Article 18 of the *Auctioning Regulation*. Table 9 presents the number of eligible bidders under each category in March 2016

Most of the active participants in the secondary carbon market are assumed to also have been admitted to bid in the auctions²⁷.

Table 8: Eligible participants to the auctions in March 2016, by category

| Number of participants | Operator | | Investment firm | Credit Institution | Business grouping | Person exempt from MiFID requirements | Total |
|---|------------|----------|-----------------|--------------------|-------------------|---------------------------------------|-------|
| | Stationary | Aircraft | | | | | |
| Participants admitted to EEX's emissions spot secondary market | | | | | | | 114 |
| Participants eligible to bid in the auctions | 48 | 1 | 11 | 4 | 0 | 6 | 70 |
| (Of which:) Participants eligible to bid in the auctions on behalf of clients | - | - | 2 | 2 | - | 1 | 5 |
| (Of which:) Auction-only access | 2 | 0 | 1 | 0 | 0 | 0 | 3 |

Throughout the period, EEX actively promoted the auctions in view of attracting bidders.

No irregularities or deviations from the admission and access requirements were found.

Transparency

The results for each auction were published in accordance with Article 61 of the *Auctioning Regulation*, not later than 15 minutes after the close of the *bidding window*.

EEX revised its webpage on auctioning where necessary for keeping it up to date.

Technical and operational aspects

No irregularities or deviations from the requirements were found as regards the auctions themselves or the *clearing* and *settlement* processes.

EEX's Market Surveillance department surveyed all auctions with a view to detecting any *market abuse*, money laundering, terrorist financing or other criminal activities. No such wrongdoing was publicly reported. EEX's Market Surveillance department takes its instructions only from SMWA (Saxony's Ministry for Economy and Employment) and is independent of the exchange itself.

No infringements of the confidentiality requirements were identified.

²⁷ This assessment is based on the auction participants' activity in EEX's secondary market and general market knowledge of EEX.

Other aspects

No problems or issues were identified as regards coordination of the auctions between the various auction platforms.

A new auctioneer was appointed by Greece in November 2014 and by Hungary in January 2015.

3. Overview of, and any updates on breaches of provisions or ongoing proceedings

No breaches or problems of non-conformity were reported. There were no proceedings on such breaches or problems of non-conformity dating from before the reporting period.

Comments of the auction platform on the draft of this report and the way they have been taken into account

EEX made no comments on the report.

Date of publication: 17/05/2016

Glossary

| | |
|------------------------------|--|
| Auction calendar | Document setting out the <i>bidding windows</i> , individual volumes and auction dates of the auctions in a given calendar year. See Articles 11, 13 and 32 of the <i>Auctioning Regulation</i> . |
| Auction Clearing Price | Price determined upon closure of the <i>bidding window</i> . |
| Auction-only access | Access to the auctions without becoming a member of or participant in other markets organised by the auction platform. |
| Auctioning Regulation | Commission Regulation (EU) No 1031/2010 — Timing, administration and other aspects of auctioning of greenhouse gas emission allowances pursuant to Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowances trading within the Community, Official Journal L 302, 18.11.2010, p. 1, as subsequently amended. See: http://ec.europa.eu/clima/policies/ets/cap/auctioning/documentation_en.htm . |
| Auctioneer | Entity appointed by a Member State that offers the allowances to be auctioned to the auction platform and receives the auction proceeds due to the appointing Member State. See Articles 22 and 23 of the <i>Auctioning Regulation</i> . |
| Back-loading | Proposal by the Commission to postpone, as a short-term measure, the auctioning of 900 million allowances from the years 2013-2015 until 2019-2020. See: http://ec.europa.eu/clima/policies/ets/reform/index_en.htm . |
| Best-bid and best-ask prices | The best-bid price is the highest price any buyer is willing to pay and the best-ask price is the lowest price any seller is willing to accept. |
| Business groupings | Groupings of operators or aircraft operators. See Article 18(1)(d) of the <i>Auctioning Regulation</i> . |
| Bidding window | Time during which bidders can submit bids. See Article 8(1) of the <i>Auctioning Regulation</i> . |
| Clearing | Processes preceding the opening of the <i>Bidding window</i> , during the <i>Bidding window</i> and following the closure of the <i>Bidding window</i> until <i>Settlement</i> , involving the management of any risks arising during that interval including margining, netting or novation or any other services carried out possibly by a <i>Clearing</i> or <i>Settlement</i> system. See Article 3(31) of the <i>Auctioning Regulation</i> . |
| Cover ratio | Total bid volume divided by the available volume in the auction. |
| Credit institution | Credit institution as defined in EU legislation on credit institutions (Article 4(1) of Directive 2006/48/EC). |
| ETS Directive | Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive |

96/61/EC, OJ L 275, 25.10.2003, p. 32, as subsequently amended. See: http://ec.europa.eu/clima/policies/ets/documentation_en.htm.

| | |
|--------------------------------------|---|
| General Allowance | Allowance to emit one tonne of CO ₂ -equivalent, see Article 3(a) of the <i>ETS Directive</i> , also referred to as <i>EUA</i> . |
| Aviation Allowance | Allowance to emit one tonne of CO ₂ -equivalent that can be used by aircraft operators, also referred to as <i>EUA</i> . See Article 12(2a) and (3) of the <i>ETS Directive</i> . |
| Investment firms | Investment firms as defined in EU financial markets legislation (point (1) of Article 4(1) of Directive 2004/39/EC). |
| Market abuse | Insider dealing and market manipulation. See Article 36 of the <i>Auctioning Regulation</i> and Article 1 of Directive 2003/6/EC ('Market Abuse Directive'). |
| Participating Member States | All EU Member States except Germany, Poland and the UK, which decided to opt out from the joint procurement of a common auction platform pursuant to Article 30 of the <i>Auctioning Regulation</i> . |
| Persons exempt from MiFID | Natural or legal persons exempt from the authorisation requirements in EU financial law because their trading and investment services activities are only ancillary to their main business (Article 2(1)(i) of Directive 2004/39/EC) and that have been authorised under national legislation implementing the rules laid down in the <i>Auctioning Regulation</i> to bid for allowances in the auctions. See Article 18(2) of the <i>Auctioning Regulation</i> . |
| Secondary market | Market in which persons buy or sell allowances either before or after they are allocated either free of charge or through auctioning. To be distinguished from the 'primary market', consisting of the auctions of allowances. |
| Settlement | Payment on delivery of the allowances. See Article 3(34) of the <i>Auctioning Regulation</i> . |
| Spot secondary market | <i>Secondary market</i> for allowances with delivery within 5 days from the transaction. |
| Transitional common auction platform | Auction platform appointed pursuant to Article 26(2) of the <i>Auctioning Regulation</i> , also referred to as <i>TCAP</i> . |
| Third trading period | The period 2013-2020, including the allowances referred to in Article 10(1) of the <i>Auctioning Regulation</i> auctioned in 2012. Allowances are valid during a given period without distinction as regards the year within that period. See Article 13 of the <i>ETS Directive</i> . |

Annex 1 Auction revenues per Member State until March 2016 (reported in euros)

(The data used in this annex can also be obtained directly from the EEX website.)

| | General Allowances | | Aviation Allowances | | All Allowances |
|-----------------|----------------------------------|--------------------|----------------------------------|------------------|-------------------------------|
| | 12 November 2012 – February 2016 | March 2016 | 12 November 2012 – February 2016 | March 2016 | 12 November 2012 – March 2016 |
| Austria | 205 880 885 | 5 399 200 | 3 671 840 | 101 270 | 215 053 195 |
| Belgium | 368 439 430 | 9 845 600 | 4 897 595 | 116 090 | 383 298 715 |
| Bulgaria | 247 311 565 | 7 812 960 | 1 186 915 | 39 520 | 256 350 960 |
| Croatia | 90 039 440 | 1 842 080 | 523 000 | 24 700 | 92 429 220 |
| Cyprus | 2 359 150 | - | 1 801 085 | 61 750 | 4 221 985 |
| Czech Republic | 267 696 620 | 10 861 920 | 1 732 065 | 51 870 | 280 342 475 |
| Denmark | 182 354 280 | 4 891 040 | 4 030 680 | 116 090 | 191 392 090 |
| Estonia | 50 877 015 | 2 159 680 | 202 195 | 7 410 | 53 246 300 |
| Finland | 247 371 700 | 6 479 040 | 3 063 400 | 91 390 | 257 005 530 |
| France | 810 130 905 | 21 342 720 | 22 923 265 | 521 170 | 854 918 060 |
| Greece | 509 357 005 | 13 529 760 | 6 373 305 | 212 420 | 529 472 490 |
| Hungary | 188 621 020 | 5 843 840 | 1 335 635 | 41 990 | 195 842 485 |
| Ireland | 135 259 705 | 3 620 640 | 3 140 065 | 91 390 | 142 111 800 |
| Italy | 1 426 057 135 | 37 603 840 | 20 477 935 | 617 500 | 1 484 756 410 |
| Latvia | 39 770 875 | 1 016 320 | 701 960 | 22 230 | 41 511 385 |
| Lithuania | 72 440 455 | 1 905 600 | 360 740 | 12 350 | 74 719 145 |
| Luxemburg | 17 731 645 | 444 640 | 868 710 | 9 880 | 19 054 875 |
| Malta | 14 921 910 | 381 120 | 701 730 | 24 700 | 16 029 460 |
| The Netherlands | 494 787 275 | 13 021 600 | 9 362 675 | 158 080 | 517 329 630 |
| Poland | 471,970,880 | 33,743,820 | 3 558 480 | - | 509,273,180 |
| Portugal | 259,137,750 | 6,860,160 | 4 326 585 | 123 500 | 270,447,995 |
| Romania | 488 914 210 | 17 849 120 | 2 012 110 | 69 160 | 508 844 600 |
| Slovak Republic | 227 601 235 | 5 970 880 | 251 745 | 7 410 | 233 831 270 |
| Slovenia | 65 515 500 | 1 715 040 | 190 885 | 4 940 | 67 426 365 |
| Spain | 1 277 987 980 | 33 697 360 | 23 812 755 | 696 540 | 1 336 194 635 |
| Sweden | 131 713 225 | 3 461 840 | 4 860 455 | 153 140 | 140 188 660 |
| TOTAL | 8 294 248 795 | 251 299 820 | 126 367 810 | 3 376 490 | 8 675 292 915 |

Annex 2 Results of individual auctions on behalf of participating Member States and Poland in March 2016

(The data used in the highlighted subsection of the tables presented in this annex can also be obtained directly from the EEX website.)

| General Allowances – March 2016 | | | | | | | | | | | | | | | | | | | |
|---------------------------------|------------------------|-------------------|-------------------|--------------------|------------------|-------------------------|------------------|-------------|-------------------|--------------------------|--------------------------|------------|-----------------------|---------------------------|------------------------|---------------------------------|---|-------------------------------|---|
| Date | Auction Clearing Price | Minimum Bid price | Maximum Bid price | Mean Bid price | Median Bid price | Total Auction Volume | Total Bid Volume | Cover ratio | Nr of Bidders | Nr of Successful Bidders | Total Revenue | Nr of Bids | Nr of Successful Bids | Avg nr of bids per bidder | Average bid size | Avg total volume bid per bidder | standard deviation of total volume bid per bidder | Average volume won per bidder | Standard deviation of volume won per bidder |
| 01/03/2016 | 4.90 | 4.66 | 5.10 | 4.88 | 4.89 | 3 425 000 | 8 020 500 | 2.3 | 23 | 16 | 16 782 500 | 71 | 26 | 3.1 | 112 965 | 348 717 | 453 608 | 214 063 | 228 620 |
| 02/03/2016 | 4.80 | 3.45 | 5.10 | 4.74 | 4.80 | 3 526 000 | 6 503 000 | 1.8 | 18 | 14 | 16 924 800 | 69 | 33 | 3.8 | 94 246 | 361 278 | 451 576 | 251 857 | 266 032 |
| 03/03/2016 | 4.88 | 3.45 | 5.00 | 4.79 | 4.84 | 3 425 000 | 8 239 000 | 2.4 | 22 | 17 | 16 714 000 | 95 | 26 | 4.3 | 86 726 | 374 500 | 413 670 | 201 471 | 211 970 |
| 07/03/2016 | 4.95 | 3.45 | 5.10 | 4.87 | 4.92 | 3 425 000 | 8 694 000 | 2.5 | 24 | 16 | 16 953 750 | 94 | 26 | 3.9 | 92 489 | 362 250 | 381 239 | 214 063 | 210 492 |
| 08/03/2016 | 5.00 | 3.45 | 5.92 | 4.92 | 4.97 | 3 425 000 | 9 847 500 | 2.9 | 25 | 17 | 17 125 000 | 90 | 25 | 3.6 | 109 417 | 393 900 | 533 943 | 201 471 | 180 848 |
| 10/03/2016 | 5.00 | 3.45 | 5.10 | 4.89 | 4.96 | 3 425 000 | 9 068 000 | 2.7 | 25 | 10 | 17 125 000 | 79 | 15 | 3.2 | 114 785 | 362 720 | 453 720 | 342 500 | 318 389 |
| 14/03/2016 | 4.92 | 3.45 | 5.12 | 4.84 | 4.90 | 3 425 000 | 7 774 000 | 2.3 | 22 | 17 | 16 851 000 | 88 | 29 | 4.0 | 88 341 | 353 364 | 441 770 | 201 471 | 249 072 |
| 15/03/2016 | 4.81 | 3.45 | 5.00 | 4.73 | 4.79 | 3 425 000 | 8 475 000 | 2.5 | 21 | 14 | 16 474 250 | 92 | 27 | 4.4 | 92 120 | 403 571 | 485 473 | 244 643 | 314 304 |
| 17/03/2016 | 4.92 | 3.45 | 5.15 | 4.88 | 4.95 | 3 425 000 | 5 977 000 | 1.8 | 20 | 19 | 16 851 000 | 78 | 53 | 3.9 | 76 628 | 298 850 | 393 884 | 180 263 | 207 650 |
| 21/03/2016 | 4.86 | 3.45 | 5.01 | 4.80 | 4.86 | 3 425 000 | 7 721 000 | 2.3 | 20 | 17 | 16 645 500 | 77 | 40 | 3.9 | 100 273 | 386 050 | 393 733 | 201 471 | 238 554 |
| 22/03/2016 | 4.80 | 3.45 | 5.00 | 4.74 | 4.80 | 3 425 000 | 7 346 000 | 2.1 | 23 | 19 | 16 440 000 | 88 | 43 | 3.8 | 83 477 | 319 391 | 387 060 | 180 263 | 193 512 |
| 24/03/2016 | 4.76 | 3.45 | 6.00 | 4.68 | 4.72 | 3 425 000 | 7 595 000 | 2.2 | 17 | 9 | 16 303 000 | 57 | 14 | 3.4 | 133 246 | 446 765 | 433 913 | 380 556 | 462 534 |
| 29/03/2016 | 4.75 | 3.45 | 5.00 | 4.65 | 4.73 | 3 425 000 | 6 827 000 | 2.0 | 17 | 14 | 16 268 750 | 56 | 20 | 3.3 | 121 911 | 401 588 | 451 177 | 244 643 | 178 160 |
| 30/03/2016 | 4.77 | 4.54 | 4.87 | 4.73 | 4.74 | 3 526 000 | 7 356 000 | 2.1 | 15 | 10 | 16 819 020 | 51 | 17 | 3.4 | 144 235 | 490 400 | 550 691 | 352 600 | 211 783 |
| 31/03/2016 | 4.97 | 3.45 | 5.15 | 4.86 | 4.95 | 3 425 000 | 8 325 000 | 2.4 | 18 | 13 | 17 022 250 | 62 | 22 | 3.4 | 134 274 | 462 500 | 581 243 | 263 462 | 319 169 |
| Monthly Value | - | - | - | - | - | 51 577 000 | 117 768 000 | - | 35 ⁽¹⁾ | 31 ⁽¹⁾ | 251 299 820 | 1147 | 416 | 3.7 ⁽²⁾ | 102 675 ⁽³⁾ | 379 897 ⁽⁴⁾ | 457 186 ⁽⁵⁾ | 232 329 ⁽⁶⁾ | 256 557 ⁽⁷⁾ |
| Monthly minimum | 4.75 | 3.45 | 4.87 | 4.65 | 4.72 | 3 425 000 | 5 977 000 | 1.8 | 15 | 9 | 16 268 750 | 51 | 14 | 3.1 | 76 628 | 298 850 | - | 180 263 | - |
| Monthly average | 4.87 | 3.60 | 5.17 | 4.80 ⁺⁺ | - | 3 438 467 ⁺⁺ | 7 847 590 | 2.3 | 20.7 | 14.8 | 16 753 321 ⁺⁺ | 76.4 | 27.7 | 3.7 ⁺⁺ | 105 729 | 384 552 | - | 245 210 | - |
| Monthly maximum | 5.00 | 4.66 | 6.00 | 4.92 | 4.97 | 3 526 000 | 9 847 500 | 2.9 | 25 | 19 | 17 125 000 | 95 | 53 | 4.4 | 144 235 | 490 400 | - | 380 556 | - |

Note: volume variables reported in tCO₂, monetary variables reported in €

(1): Number of unique individual bidders or unique successful bidders present in a whole month. (2): Average number of bids submitted over the whole month by each bidder in each auction. Computed as total number of bids for the month / sum over whole month of number of bidders present in each auction. (3): Average size of all bids submitted in all auctions over the month. Computed as total bid volume for the month / number of bids for the month. (4): Average over the whole month of the volume bid by bidders each time they are present in an auction. Computed as total volume bid for the month / sum over whole month of number of bidders present in each auction. (5): Standard deviation of the total volume bid, by each bidder in each auction, over the whole month. (6): Average over the whole month of the volume won by bidders each time they are successful in an auction. Computed as total auction volume for the month / sum over whole month of number of bidders successful in each auction. (7): Standard deviation of the total volume won by each bidder in each auction, over the whole month.

++: indicates simple average

Auctions by the transitional common auction platform March 2016

| Aviation Allowances – March 2016 | | | | | | | | | | | | | | | | | | | |
|----------------------------------|------------------------|-------------------|-------------------|--------------------|------------------|----------------------|------------------|-------------|------------------|--------------------------|-------------------------|------------|-----------------------|---------------------------|-----------------------|---------------------------------|---|-------------------------------|---|
| Date | Auction Clearing Price | Minimum Bid price | Maximum Bid price | Mean Bid price | Median Bid price | Total Auction Volume | Total Bid Volume | Cover ratio | Nr of Bidders | Nr of Successful Bidders | Total Revenue | Nr of Bids | Nr of Successful Bids | Avg nr of bids per bidder | Average bid size | Avg total volume bid per bidder | standard deviation of total volume bid per bidder | Average volume won per bidder | Standard deviation of volume won per bidder |
| 16/03/2016 | 4.94 | 4.60 | 5.93 | 4.96 | 4.82 | 683 500 | 2 625 500 | 3.8 | 8 | 3 | 3 376 490 | 33 | 7 | 4.1 | 79 561 | 328 188 | 271 282 | 227 833 | 199 581 |
| Monthly Value | - | - | - | - | - | 683 500 | 2 625 500 | - | 8 ⁽¹⁾ | 3 ⁽¹⁾ | 3 376 490 | 33 | 7 | 4.1 ⁽²⁾ | 79 561 ⁽³⁾ | 328 188 ⁽⁴⁾ | 271 282 ⁽⁵⁾ | 227 833 ⁽⁶⁾ | 199 581 ⁽⁷⁾ |
| Monthly minimum | 4.94 | 4.60 | 5.93 | - | - | 683 500 | 2 625 500 | 3.8 | 8 | 3 | 3 376 490 | 33 | 7 | 4.1 | 79 561 | - | - | 227 833 | - |
| Monthly average | 4.94 | 4.60 | 5.93 | 4.96 ⁺⁺ | - | 683 500 | 2 625 500 | 3.8 | 8.0 | 3.0 | 3 376 490 ⁺⁺ | 33.0 | 7.0 | 4.1 ⁺⁺ | 79 561 | - | - | 227 833 | - |
| Monthly maximum | 4.94 | 4.60 | 5.93 | - | - | 683 500 | 2 625 500 | 3.8 | 8 | 3 | 3 376 490 | 33 | 7 | 4.1 | 79 561 | - | - | 227 833 | - |

Note: volume variables reported in tCO₂, monetary variables reported in €

(1): Number of unique individual bidders or unique successful bidders present in a whole month. (2): Average number of bids submitted over the whole month by each bidder in each auction. Computed as total number of bids for the month / sum over whole month of number of bidders present in each auction. (3): Average size of all bids submitted in all auctions over the month. Computed as total bid volume for the month / number of bids for the month. (4): Average over the whole month of the volume bid by bidders each time they are present in an auction. Computed as total volume bid for the month / sum over whole month of number of bidders present in each auction. (5): Standard deviation of the total volume bid, by each bidder in each auction, over the whole month. (6): Average over the whole month of the volume won by bidders each time they are successful in an auction. Computed as total auction volume for the month / sum over whole month of number of bidders successful in each auction. (7): Standard deviation of the total volume won by each bidder in each auction, over the whole month.

++: indicates simple average

The data for previous auctions can be downloaded from EEX's website: <https://www.eex.com/en/market-data/emission-allowances/auction-market/european-emission-allowances-auction/european-emission-allowances-auction-download>

