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Data quality checks for the update of the EEA’s

EU ETS data viewer

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# Data quality checks of the new EUTL data used for the update of the EEA’s EU ETS data viewer

This paper describes the data quality checks of new EU ETS data provided by the EU Commission to update the EEA EU ETS DataViewer. New data are usually made available every year in April, May and July and compared, among other things, for consistency with previous datasets.

The current dataset was made available on April 3, 2023. The comparison data set is from July 2022.

# Key findings

|  |  |  |
| --- | --- | --- |
| DataExtract | 1st July 2022 | 3rd April 2023 |
| DataRows | 17 830 | 17 921 |
| Stationary | 16 209 | 16 294 |
| Aviation operators | 1 616 | 1 627 |
| DataRows excluded | 5 | 0 |
| Stationary | 4 | 0 |
| Aviation operators | 1 | 0 |
| Verifed Emissions (2021/2022) [Mt] | 1 363 | 1 364/1 292 |
| Stationary [Mt] | 1 335 | 1 337/1 247 |
| Aviation operators [Mt] | 28 | 28/45 |
| Allocated | 592 | 569/563 |
| Stationary | 568 | 545/541 |
| Aviation operators | 23 | 23/22 |
| Surrendered Units | 1 360 | 1 360/200 |
| Stationary | 1 332 | 1 332/198 |
| Aviation operators | 28 | 28/2 |

# Preparation of the data

## Data capture from Commission Excel file

The European Commission extracted data from the EUTL on April 1st, 2023 and provided this extract to the EEA (referred to as “extract for EEA” in the text). The data used for the ETS data viewer[[1]](#footnote-1) is based on this extract.

It contained **17 921** installations-rows with detailed information which all had been used for the EU ETS DataViewer. In the past, data rows had to be merged or deleted several times because there were duplicate entries. The known duplications no longer occurred in April 2023. Therefore, all rows could be used for the ETS DataViewer.

## Results of plausibility checks

The latest data extract is compared with a previous data extract to check for plausibility. This contains checks if rows/MS-IDs are doubled or are missing.

The check shows that no MS-IDs are doubled. Compared with the previous dataset from July 2022 no installations are missing, and 96 new installations were added.

No rows are doubled.

## Comparison of installation IDs

17 aviation accounts relocated to other registry codes / country codes. Of these, a total of 15 accounts switched from GB and one account each from FR and NL to other countries' codes.

## Changes within the dataset

After plausibility checks the dataset is adapted in order to harmonize it with the EU ETS registry.

In April 2018 new columns were inserted into the extract for EEA: From 2013 onwards a column per year states if an entity was excluded from the ETS in that particular year. A reason for annual exclusion of entities can e.g. be low production / emissions or a small number of flights in the scope of the EU ETS. An entity that was excluded in one year can be part of the ETS again in following year(s).

The information on annual exclusion is not directly linked to account status. Most of the entities with closed accounts are marked as “included” which does not seem completely consistent.

Furthermore, there are entities which show ETS information (verified emissions, allocations or surrendered units) in the database provided to EEA by the Commission although these entities have been excluded in that year. In the EU ETS registry, these entities do not show verified emissions if they are excluded in a year. To harmonize the EEA data viewer with the EU ETS registry it has been decided by EEA in May 2018 to delete verified emissions and allocations of all excluded entities. Surrendered units are kept for excluded entities because these units can also be used to cover emissions from earlier years. The amount of deleted verified emissions and allocations can be seen in **Error! Reference source not found.**. Entities with an indication of zero for any ETS information have not been counted here.

Table 0‑1 Overview of excluded and therefore deleted verified emissions and allocations from 2013 to 2022



Source: EUTL extract April 3rd, 2023, own calculation; Entities with an indication of zero for any ETS information have not been counted here.

# Comparison of the dataset provided by the Commission and the Excel file published on the Commission’s website

A quick comparison between ETS data from the registry as published on the Commission’s website[[2]](#footnote-2), and the extract for EEA directly provided by the Commission on April 4th, 2023 was performed. No differences were found.

# Consistency checks within the dataset

The main findings are:

* There are 7 099 entities with a closure date. This is higher compared to the last data extract from July 2022 (6 907 entities).
* There are 301 entities with a given year of last emissions and the indication “open” in the field “account closure”.

## Update of the disaggregated database (installation level)

## Deletion of double installations

No deletion of double installations in April 2023

### Adjustment of free allowances for aviation operators for the year 2012

Free allowances for the year 2012 had to be returned by aviation operators if they chose to account for the reduced scope of the stop the clock decision.

The amount which had to be returned is publicly available on operator level. In addition, the Commission sent an excel file with details on amounts which finally had been returned and on the partial adjustment of the numbers in EUTL (“Aviation return before and after deadline.xlsx”).

With information in this file, the adjustment of free allowances for 2012 takes place for the update of the EEA data viewer because it seems necessary to reflect the reduced amount of free allowances for the comparison with verified emissions.

The calculation of corrections has been conducted in April 2015.

As there have been no changes to free allocation for aviation in 2012 (see **Error! Reference source not found.**), no update of this correction has to be done.

### Consistency check of surrendered units

There is no longer an inconsistency related to the sums of total ERU, CER and EUA compared with total units surrendered, as it has been revealed in the 2013 dataset.

### Reallocation of main activity codes

With start of the 3rd trading period in 2013 new activity codes were introduced. Some installations which already have been part of the EU ETS in the 1st or 2nd Trading Period haven’t changed their old activity codes with new ones.

In total, 3 554 installations (20% of all entities), still report old activity codes (see **Error! Reference source not found.**). These are 26 less than in the dataset of July 2022.

Table 0‑1 Number of installations with old activity type codes



Source: EUTL extract April 3rd, 2023 and former extracts, own calculation

Since 2015 the EU ETS data viewer no longer includes old activity codes except for code 99 which will remain as it is, if no other country specific information is available. For the installations reporting an old code, a correction will be made. Since 2015 the translation procedure follows the methodology explained in the ETC/ACM document “Attribution of new activity codes for installations with old codes in the EEA’s EU ETS data viewer” (latest version as of April 2016[[3]](#footnote-3)). The result of this methodology has been amended with country specific information. The translation table will be made publicly available to make the translation of activity codes as transparent as possible.

As highlighted in the methodology document, there is a risk that the number of installations allocated to activity codes 38 to 41 (Production of specific chemicals) are underestimated, because the allocation to these codes is not possible without further detailed knowledge of the activity of single installations. Consequently, there is also a risk that the number of installations allocated to activity code 42 (Production of bulk chemicals) is overestimated.

Looking at verified emissions 2022 (see **Error! Reference source not found.**), emissions of installations with code 42 still increased because of the allocation to new codes (from 34 to 35 Mt). But it can be considered that due to the inclusion of Member State specific information allocated verified emissions due to the translation process have decreased by a high amount of emissions: With the translation of September 2015, verified emissions of sector 42 has been 23 Mt before and 43 Mt after the translation (+20 Mt), whereas the difference has now been reduced to 1.06 Mt for the year 2022.

Similarly, it is not possible to differentiate between the production of primary (code 26) and secondary aluminium (code 27) without more information on single installations. NACE code 24.42 (Aluminium production) has now been completely translated to code 26, leading to possible overestimation and an underestimation in code 27.

In September 2015 11 installations have been translated to code 26, whereas the number of installations which was translated in July 2021 was reduced to 7 (code 26).

The installation FR 956 SK 150 and CZ 73 were relocated from code 20 to code 24 based on information from the Member States as these plants are foremost steel plants.

For further details, see **Error! Reference source not found.**:

Table 0‑2 Allocation of new activity codes to installation with old codes



Note: The total number of translations given in the table (3 554) is not the absolute number of translations, because a small amount of other translations took place in the activity type codes 20-99.

Source: EUTL extract April 3rd, 2023, own calculation

The EU ETS data viewer separates between stationary installations and aviation. The total number of **aviation operators** (activity type code 10) is **1 627**, so there are **16 294 stationary installations** included in the data viewer.

## Main changes in EU ETS viewer data between July 2022 and April 2023

### Number of entities included in the scheme

The number of stationary installations and aviation operators by country is shown in the following table:

Table 0‑3 Number of entities by country



Source: EUTL extract April 3rd, 2023 and former extracts, own calculation

As shown in **Error! Reference source not found.**, the April 2023 dataset includes 96 more entities than the July 2022 dataset.

### Account closures

The indicator “account closure” is included in the dataset since May 2015. In July 2021, 10 822 entities have been indicated as open, 7 099 (40% of total) have a closure date that lies before the extraction date of the ETS dataset. All stationary installations from UK have been indicated as closed since the July 2021 dataset.

### Active installation in 3 TP/4 TP

3 403 entities – 19% of total – indicated that they are not operating in the third/fourth trading period. This number increased by 5 compared to the dataset of July 2022.

38 of those entities no longer active in the 3rd / 4th trading period still have open accounts.

### Verified emissions (stationary installations)

In the following table, data on verified emission is compared between the datasets from July 2022 and April 2023, just for stationary data. Differences are shown as percentages, calculated from the difference related to latest data.

Table 0‑4 Changes in VE between datasets (calculated as difference July 2022 and April 2023data / VE (April 2022))



Notes: Insert Purple: increase, light orange: decrease, green: zero difference

Source: EUTL extract April 3rd, 2023and former extracts, own calculation

In general, there are no major changes for the first and second trading period and minor changes for the third trading period. There are large changes in the fourth trading period at the moment. This is due to the fact that data for the year 2022 are included for the first time

### Free allocation to existing installations from 2005 to 2021 (stationary installations)

In the same structure, the data on free allowances to existing installations allocated under Article 10a(1) has been compared:

Table 0‑5 Changes in free allocation to existing installations (10a, 2005-2022) between datasets (calculated as difference between July 2022 and April 2023data / allowances (April 2022))



Notes: Purple: increase, light orange: decrease, green: zero difference

Source: EUTL extract April 3rd, 2023 and former extracts, own calculation

Differences in 2022 due to additional year in the data set. There are large differences for the year 2020 in Italy. This is mainly due to a single installation (IT 515).

### 1.6.6 Surrendered units from 2005 to 2022 (stationary installations)

The changes in surrendered units are shown in Table 0‑6.

Table 0‑6 Changes in surrendered units between datasets (calculated as difference between July 2022 and April 2023data / allowances (April 2022))



Notes: Purple: increase, light orange: decrease, green: zero difference

Source: EUTL extract April 3rd, 2023 and former extracts, own calculation

Differences in 2022 due to additional year in the data set.

### Comparison of allocated amounts under Article 10a(1), 10a(7)and 10c for the years 2013 to 2022

The comparisons of allocated amounts on those allocated under Article 10a, allocated amounts for new entrants (NER, Article 10a(7)) and transitional free allocations (10c) was not performed anymore, as the latter had no data in the datasets anymore.

### Aviation

For aviation a comparison of verified emissions, free allocation and surrendered units has been conducted together. Differences in 2022 due to additional year in the data set.

Table 0‑7 Changes in VE, free allocation and surrendered units to aviation operators (2018-2022) between datasets (calculated as difference between July 2022 and April 2023data / allowances (April 2022))



Notes: Purple: increase, light orange: decrease, green: zero difference

Source: EUTL extract April 3rd, 2023 and former extracts, own calculation

1. <https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1> [↑](#footnote-ref-1)
2. <https://ec.europa.eu/clima/policies/ets/registry_en#tab-0-1> [↑](#footnote-ref-2)
3. <http://acm.eionet.europa.eu/docs/ETCACM_EU-ETS_translation_of_activity_codes_April_2016_for_publication.pdf> [↑](#footnote-ref-3)