

# Air emissions accounts by NACE

## Rev. 2 activity (env\_ac\_ainah\_r2)

National Reference Metadata in Single Integrated  
Metadata Structure (SIMS)

Compiling agency: Statistical Service of Cyprus  
(CYSTAT)



### Eurostat metadata

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For any question on data and metadata, please contact: [EUROPEAN STATISTICAL DATA SUPPORT](#)

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### 1. Contact

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<b>1.1. Contact organisation</b>	Statistical Service of Cyprus (CYSTAT)
<b>1.2. Contact organisation unit</b>	Environment Statistics Unit
<b>1.5. Contact mail address</b>	Michail Karaoli Str., 1444 Nicosia, Cyprus

### 2. Metadata update

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<b>2.1. Metadata last certified</b>	29/09/2021
<b>2.2. Metadata last posted</b>	29/09/2021
<b>2.3. Metadata last update</b>	29/09/2021

### 3. Statistical presentation [Top](#)

#### 3.1. Data description

Air emissions accounts (AEA) record flows of gaseous and particulate materials emitted into the atmosphere as a result of economic activity.

AEA are a subset of environmental-economic accounts. They offer a detailed breakdown for 64 emitting economic activities (NACE), plus households, as defined in the national accounts of EU countries. They are aligned with economic statistics and GDP. These features make them suitable for integrated environmental-economic analyses and modelling – for example of 'carbon footprints' and climate-change modelling scenarios.

National Statistical Institutes (NSI) submit AEA to Eurostat through a mandatory annual data collection. The data collection includes an electronic questionnaire and this quality report.

#### 3.2. Classification system

The AEA dataset has the following dimensions:

- 1) **Air pollutant:** Emissions to air of the following gaseous and particulate substances are collected (greenhouse gases, air pollutants):
  - Carbon dioxide without emissions from biomass (CO<sub>2</sub>),
  - Carbon dioxide from biomass (Biomass CO<sub>2</sub>)\*,
  - Nitrous oxide (N<sub>2</sub>O), Methane (CH<sub>4</sub>),
  - Perfluorocarbons (PFCs),
  - Hydrofluorocarbons (HFCs),
  - Sulphur hexafluoride (SF<sub>6</sub>) including nitrogen trifluoride (NF<sub>3</sub>),
  - Nitrogen oxides (NO<sub>x</sub>),
  - Non-methane volatile organic compounds, (NMVOC),
  - Carbon monoxide (CO),
  - Particulate matter < 10µm (PM<sub>10</sub>),
  - Particulate matter < 2,5µm (PM<sub>2,5</sub>),
  - Sulphur dioxide (SO<sub>2</sub>),
  - Ammonia (NH<sub>3</sub>)
- 2) **Geopolitical entity:** EU Member States, EFTA Countries, Candidate Countries etc.
- 3) **Economic activities:** include 64 production activities (classified by NACE rev.2 A\*64), and households' consumption (3 sub-classes).
- 4) **Time:** reference year for which air emissions are reported
- 5) **Unit:** tonnes and thousand tonnes

#### 3.3. Coverage - sector

The data refer to national economies as defined in the system of national accounts. Greenhouse gases and air pollutants emitted by resident units representing the national economy are covered.

#### 3.4. Statistical concepts and definitions

Conceptually AEA belong to the international system of environmental economic accounting ([SEEA-Central Framework](#)). Furthermore, AEA is one of several physical modules of Eurostat's programme on

European environmental economic accounts. It is covered by [Regulation \(EU\) No.691/2011](#) on European environmental economic accounts.

AEA are closely related to concepts and definitions of national accounts. Most notably, they follow the residence principle, i.e. they record emissions related to resident unit's activities, regardless where those occur geographically.

Further methodological guidelines are provided in various publications by Eurostat (see Eurostat website > [Environment](#) > [Methodology](#), heading: 'Air emissions accounts').

### **3.5. Statistical unit**

Data refer to emissions by resident economic units in the sense of SEEA CF 2012 and National Accounts (ESA), including households.

### **3.6. Statistical population**

The national economy is as defined in SEEA CF 2012 and National Accounts (ESA), i.e. all economic activities undertaken by resident units.

### **3.7. Reference area**

The reference area is the economic territory as defined in SEEA CF 2012 and National Accounts (ESA). A unit is said to be a resident unit of a country when it has a centre of economic interest in the economic territory of that country, that is, when it engages for an extended period (1 year or more) in economic activities in that territory.

By following this residence principle, the Air Emission Accounts record emissions from resident units' activities, regardless where they occur. This is the main conceptual difference to emission inventories for greenhouse gases (UNFCCC) and air pollutants (CLRTAP).

### **3.8. Coverage - Time**

The data cover the years 2008 to 2019.

### **3.9. Base period**

Not applicable because AEA are not reported as indices.

## **4. Unit of measure**

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The unit of measure is tonnes or thousand tonnes.

F-gases (HFC, PFC, SF<sub>6</sub> and NF<sub>3</sub>) are reported in tonnes of CO<sub>2</sub> equivalents.

SO<sub>x</sub> are reported in tonnes of SO<sub>2</sub> equivalents, and NO<sub>x</sub> are reported in tonnes of NO<sub>2</sub> equivalents.

## **5. Reference Period**

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The data refer to calendar years.

## **6. Institutional Mandate**

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### **6.1. Institutional Mandate - legal acts and other agreements**

Air emissions accounts (AEA) are legally covered by [Regulation \(EU\) 691/2011](#) on European Environmental Economic Accounts.

### **6.2. Institutional Mandate - data sharing**

Not applicable at national level.

## 7. Confidentiality

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### 7.1. Confidentiality - policy

Official statistics are released in accordance with the confidentiality provisions laid down in the following:

- Official Statistics Law of 2021 (Law No. 25(I)/2021) (especially Article 16 on statistical confidentiality).
- Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and its later amendments (especially Chapter 5 on statistical confidentiality).
- European Statistics Code of Practice (especially Principle 5 on statistical confidentiality).
- CYSTAT's Code of Practice for the Collection, Publication and Storage of Statistical Data.

Under the provisions of the Official Statistics Law, all the information collected is treated as confidential and is used solely for statistical purposes. No data for any individual enterprise is published or disclosed to either public bodies or private individuals.

#### Annexes:

[Official Statistics Law of 2021 \(Law No. 25\(I\)/2021\)](#)

[Regulation \(EC\) No 223/2009 on European statistics](#)

[European Statistics Code of Practice](#)

[Code of Practice for the Collection, Publication and Storage of Statistical Data](#)

### 7.2. Confidentiality - data treatment

No data is considered confidential at the level published.

## 8. Release policy

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### 8.1. Release calendar

There is no schedule of release dates related to AEA data on the national website. Nevertheless, national data are disseminated annually by Eurostat on its database around December. Please see concept 10.3.

### 8.2. Release calendar access

Not applicable yet.

### 8.3. Release policy - user access

Not applicable.

## 9. Frequency of dissemination

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Data are disseminated annually.

## 10. Accessibility and clarity

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### 10.1. Dissemination format - News release

There are no news releases set up on the national website. However there are related news releases published by Eurostat on an annual basis around January and May.

<b>10.2. Dissemination format - Publications</b>
AEA data are not yet published on the national website. Please find below two related publication websites of Eurostat.  <b>Annexes:</b> <a href="#">Greenhouse gas emission statistics - air emissions accounts</a> <a href="#">Air pollution statistics - air emissions accounts</a>
<b>10.3. Dissemination format - online database</b>
There are no national databases related to AEA. Please find below related online databases of Eurostat.  <b>Annexes:</b> <a href="#">Air emissions accounts by NACE Rev. 2 activity</a> <a href="#">Air emissions accounts totals bridging to emission inventory totals</a> <a href="#">Air emissions intensities by NACE Rev. 2 activity</a>
<b>10.3.1. Data tables - consultations</b>
Not applicable
<b>10.4. Dissemination format - microdata access</b>
Not applicable.
<b>10.5. Dissemination format - other</b>
Not applicable.
<b>10.5.1. Metadata - consultations</b>
Not applicable.
<b>10.6. Documentation on methodology</b>
Not applicable.
<b>10.6.1. Metadata completeness - rate</b>
Not applicable.
<b>10.7. Quality management - documentation</b>
See Article 11 of the Official Statistics Law of 2021 (Law No. 25(I)/2021) at concept 7.1 See Article 12 of Regulation (EC) No 223/2009 on European statistics at concept 7.1

<b>11. Quality management</b>	<a href="#">Top</a>
<b>11.1. Quality assurance</b>	
Statistics are produced in accordance with the provisions of the European Statistics Code of Practice and in line with the principles governing its implementation. CYSTAT follows the guidelines provided in Eurostats' manual for air emissions accounts and the technical note "Allocating emissions of fluorinated gases to NACE industries in air emissions accounts" which set standards for the compilation of the data.	
<b>11.2. Quality management - assessment</b>	
The quality of statistics is assessed according to five quality criteria: relevance, accuracy, timeliness and punctuality, accessibility and clarity, coherence and comparability. CYSTAT endorses the Quality Declaration of the European Statistical System. In addition, CYSTAT is guided by the requirements provided for in Article 11 of the Official Statistics Law of 2021 (Law No. 25(I)/2021) as well as Article	

12 of Regulation (EC) No 223/2009 on European statistics, which sets out the quality criteria to be applied in the development, production and dissemination of European statistics.

## 12. Relevance

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### 12.1. Relevance - User Needs

Data on air emissions accounts are an important policy instrument at EU level. Yet, nationally there have not been any clear indications which could help determine the degree of policy need for this data at national level.

### 12.2. Relevance - User Satisfaction

Not applicable.

### 12.3. Completeness

The AEA questionnaire is duly completed for the years 2008-2019, which are mandatory under Regulation (EU) No 691/2011.

#### 12.3.1. Data completeness - rate

Not applicable; to ensure comparability, this will be calculated and provided by EUROSTAT in the European quality report using a standardised method.

## 13. Accuracy

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### 13.1. Accuracy - overall

See Annex 1.

#### Annexes:

[Annex 1](#)

### 13.2. Sampling error

Not applicable because data are not based on a sample survey.

#### 13.2.1. Sampling error - indicators

Not applicable because data are not based on a sample survey.

### 13.3. Non-sampling error

Not applicable.

#### 13.3.1. Coverage error

Not applicable.

##### 13.3.1.1. Over-coverage - rate

Not applicable.

##### 13.3.1.2. Common units - proportion

Not applicable.

#### 13.3.2. Measurement error

Not applicable.

#### 13.3.3. Non response error

Not applicable.

<b>13.3.3.1. Unit non-response - rate</b>
Not applicable.
<b>13.3.3.2. Item non-response - rate</b>
Not applicable.
<b>13.3.4. Processing error</b>
Not applicable.
<b>13.3.5. Model assumption error</b>
Not applicable.

<b>14. Timeliness and punctuality</b> <a href="#">Top</a>
<b>14.1. Timeliness</b>
The first and final estimates for reference year N are available at N+21 months. However, improvements in compilation processes may be applied later on that could affect the data of any of the years of the time series.
<b>14.1.1. Time lag - first result</b>
Not applicable.
<b>14.1.2. Time lag - final result</b>
Not applicable.
<b>14.2. Punctuality</b>
Eurostat deadlines for disseminating the data are respected. AEA are disseminated to Eurostat by the end of September each year.
<b>14.2.1. Punctuality - delivery and publication</b>
Not applicable.

<b>15. Coherence and comparability</b> <a href="#">Top</a>
<b>15.1. Comparability - geographical</b>
AEA are compiled according to harmonised guidelines provided by Eurostat and hence are comparable across European countries reporting AEA to Eurostat.
<b>15.1.1. Asymmetry for mirror flow statistics - coefficient</b>
Not applicable.
<b>15.2. Comparability - over time</b>
See Annex 2.
<b>Annexes:</b> <a href="#">Annex 2</a>
<b>15.2.1. Length of comparable time series</b>
Not applicable; to ensure comparability, this will be calculated and provided by EUROSTAT in the European quality report using a standardised method.
<b>15.3. Coherence - cross domain</b>

The main approach used to compile air emission accounts is not the energy-first approach which means that the final result is not entirely coherent with the Physical Energy Flow Accounts (PEFA). Except for the air and water transport emissions, the rest of the categories are calculated using the inventory-first approach. Please see 18.5.

#### **15.3.1. Coherence - sub annual and annual statistics**

Not applicable, because AEA data are annual.

#### **15.3.2. Coherence - National Accounts**

AEA data follow the residence principle just like the National Accounts. Find more information on the adjustments made in 18.5.4.

#### **15.4. Coherence - internal**

AEA data are based on the emissions inventories, as reported by the national experts of the Department of Environment and the Department of Labour Inspection to UNFCCC and CLRTAP respectively. The sources used by each of these departments are not entirely identical and therefore the final emissions calculated are not entirely coherent.

## **16. Cost and Burden**

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The cost and burden for the whole process of compiling the AEA time series each year is about 450 person/hours. Specifically, it's about 3 months of work for one person who is also attending to other work tasks.

## **17. Data revision**

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### **17.1. Data revision - policy**

There is a formal revision policy at Cystat. Cystat publishes its Revision Policy on its website, describing the general rules and principles governing the procedure of revising data published by Cystat. [http://www.mof.gov.cy/mof/cystat/statistics.nsf/dissemination\\_en/dissemination\\_en?OpenDocument](http://www.mof.gov.cy/mof/cystat/statistics.nsf/dissemination_en/dissemination_en?OpenDocument).

The policy is based on the guidelines of the European Statistical System (ESS) also taking into account the Quality Assurance Framework of the ESS and the European Statistics Code of Practice.

Specifically, note that whenever there are revisions of National Accounts data or of the emissions inventories, the changes are incorporated in AEA data during the next dissemination to Eurostat.

### **17.2. Data revision - practice**

Revisions of the auxiliary data for earlier years as well as methodological improvements are incorporated in the whole time series so as to update and further improve the allocation.

#### **17.2.1. Data revision - average size**

Not applicable; to ensure comparability, this will be calculated and provided by EUROSTAT in the European quality report using a standardised method.

## **18. Statistical processing**

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### **18.1. Source data**

The key sources of data used to compile AEA are the following:

- Emissions inventories, as reported by the Department of Environment and the Department of Labour Inspection to UNFCCC and CLRTAP respectively.



- Consumption of aviation fuel by aircraft type, as collected by resident airlines (in quantity)
- Consumption of shipping fuel, as provided by major resident shipping companies (in quantity) and as recorded by CYSTAT (in value) for small tourist pleasure boats.

### **18.2. Frequency of data collection**

Almost all primary data are available at most 18 months after the end of the reference year, but the necessary auxiliary information for the allocation to the economic activities is available around 19-20 months after the end of the reference year.

### **18.3. Data collection**

The primary data information which is received from bodies outside of the Statistical Service is listed under 18.1. Data is usually received by email and reminders are sent where necessary.

### **18.4. Data validation**

Data are carefully examined after collection and compared to previous years' data collections. If the quality of data is unsatisfactory, the providers of the data are contacted and revised data are submitted, where necessary. Otherwise, the part of the data which is of doubtful quality is identified and estimations are made to replace them, based on the rest of the data, on previous years' figures or other auxiliary sources.

### **18.5. Data compilation**

The main approach used to compile air emission accounts is inventory-first, except for the air and water transport emissions where the energy-first approach is used. The inventory-first approach starts from existing national emission inventories reported to UNFCCC and CLRTAP and adjusts and re-arranges those data to the AEA format.

#### **18.5.1. Imputation - rate**

Not applicable.

#### **18.5.2. Method used to allocate emissions to economic activities**

The source data are allocated to industries using the CRF/NFR-NACE correspondence matrix provided in the AEA Manual and auxiliary information such as:

- Fuel consumption in the Industry NACE activities B, C, D, E at 2-digit level, as recorded by CYSTAT (in quantity).
- Fuel consumption and lubricants of vehicles by NACE and by households, as recorded by CYSTAT (in value).
- Consumption of fuel for heating or production purposes by NACE, as recorded by CYSTAT (in value).
- Energy balances and sales of petroleum products by end-user, as recorded by CYSTAT (in quantity).
- A range of energy and production data, collected by the Department of Environment and the Department of Labour Inspection from various sources.
- Imports, exports and domestic production of paints and household paint use, as recorded by CYSTAT (in value).
- Employment by NACE, as recorded by CYSTAT.
- Number of vehicles by type or owner and other relevant information, as recorded by the Department of Road Transport.
- Number of landings and take-offs (LTOs) to/from Cyprus airports, as recorded by the Department of Civil Aviation.

#### **18.5.3. Method used to determine and distribute road transport emissions**

The emissions from road transport are found in the emissions inventories and are distributed by NACE industries (and households) using the consumption of fuels by motor vehicles from surveys carried out by CYPSTAT, such as the SBS surveys and the HBS survey

#### **18.5.4. Adjustments for residence principle**

The residence principle adjustment for each NACE division is carried out as follows:

Water transport: Water transport emissions for resident enterprises are calculated using the energy-first approach. Specifically, shipping fuel consumption is used and guidance from the “*EMEP/EEA Air Pollutant Emissions Inventory Guidebook 2016*” and the “*IPCC Guidelines for National Greenhouse Gas Inventories*”. Data cover passenger ships, cargo ships and small tourist pleasure boats. The emissions of the first two categories are bridged in full by recording them in the “residents abroad” cell, since only a minimal quantity of emissions is released on the territory. The pleasure boats are used by residents on the territory and since their “CLRTAP emissions” are not included in the national inventory (except for NH3) they need to be bridged in the “Other adjustments and statistical discrepancy” cell.

As far as national inventory emissions reported to CLRTAP are concerned, the NFR category “National navigation (Shipping)” records yachts and other vessels’ emissions at the main Cyprus ports. These are separated into residents and non-residents’ emissions using data from arrivals in the main Cyprus ports. The residents’ emissions are further added to the water transport emissions in AEA, while the rest are recorded in the “non-residents on the territory” cell.

Concerning the emissions reported to UNFCCC, the CRF category “Domestic navigation” only contains emissions of small tourist pleasure boats and these are already included in NACE 50 Water transport, as explained above.

Fishing: The inventory-first approach is used. There is no need for an adjustment, as only a minimal number of national fishing vessels operate out of the national territory.

Air transport: Air transport emissions for resident airlines are calculated for AEA purposes using the energy-first approach. Specifically, the quantity of fuel consumption of resident airlines is used and methodological guidance from the “*EMEP/EEA Air Pollutant Emissions Inventory Guidebook 2016*”. The methodology separates emissions into two groups: LTO emissions and cruise emissions. Due to the relatively small size of the Cyprus territory, cruise emissions are considered as out of the national territory. Therefore the on the territory emissions are the LTO emissions to/from Cyprus’ airports and all the rest are recorded in the “residents abroad” cell.

Regarding the emissions reported to CLRTAP and to UNFCCC, the data found in the category “Domestic aviation”, is calculated by Eurocontrol and only include emissions of aircrafts flying under civil instrument flight rules (IFR), between Cyprus’ two main airports. These flights are then split into resident commercial flights which comprise the main part, training flights, and non-resident flights. By definition, the first part is already included in LTO emissions to/from Cyprus’ airports as calculated for AEA purposes. The difference is that the first one is limited to the flights connecting the two main airports whereas the second concerns flights connecting one of the main airports to any other airport. The numerical difference of the emissions concerns residents on the territory. In the case of the CLRTAP data this difference is found in the NFR category “International aviation LTO” which is included in the national “territorial” total whereas in the case of the UNFCCC data, it is reported in the CRF category “1 A 3 a i - International Bunkers”, which is not included in the national “territorial” total and so it needs to be bridged in the “Other adjustments and statistical discrepancy” cell.

Land transport: The inventory-first approach is used. Since Cyprus is an island-nation, the emissions of residents abroad are considered as negligible. The share of the emissions of non-residents on the territory is also rather small and is estimated mainly using tourist expenditure data.

#### **18.6. Adjustment**

Please see 18.5.4.

##### **18.6.1. Seasonal adjustment**

Not applicable.

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