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| GHG machine readable CSV files – NAEI23 README |
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# Introduction

The data presented here are drawn from the UK’s National Atmospheric Emissions Inventory (NAEI), which underpins the UK Greenhouse Gas Inventory (GHGI). The GHGI is compiled by Ricardo on behalf of the Department for Energy Security and Net Zero (DESNZ).

As a Party to the United Nations Framework Convention on Climate Change (UNFCCC), the UK is required to regularly compile and report national greenhouse gas (GHG) emissions. This inventory is developed in accordance with the revised UNFCCC reporting guidelines (Decision 24/CP.1914) and uses Global Warming Potentials (GWPs) from the IPCC’s Fifth Assessment Report (AR5), in line with Decision 7/CP.2715 and the Paris Agreement when presenting emissions in units of CO2 equivalent.

The GHGs emissions reported are estimated using methodologies which are either directly from the 2006 IPCC Guidelines, or a methodology that is in accordance with 2006 IPCC guidelines, such as those set out in the 2019 refinement to the 2006 IPCC guidelines.

# CSV Format

The dataset presents UK emission factors and emissions of greenhouse gases in CSV format, designed to be easily machine-readable for data users. This data is consistent with the emissions presented in the UK Emissions Data Selector on the NAEI website (<https://naei.energysecurity.gov.uk/data/data-selector>) and the estimates derived under the National Atmospheric Emissions Inventory, and submitted by UK Government under the UNFCCC.

# Data Provision

## Scope

The geographical scope of greenhouse gas emissions data includes the United Kingdom, Guernsey, Jersey, the Isle of Man, Gibraltar, Bermuda, Cayman Islands and the Falkland Islands (consistent with reporting to the UNFCCC).

Please note, international aviation, international shipping and (non-building/transport) accidental fires are reported against NFR/CRT Codes 1D1a, 1D1b and non-IPCC respectively, however they should not be included in the national total in accordance with international reporting guidelines.

For the emission factors are only presented for the UK.

The greenhouse gases reported are:

▪ Carbon dioxide (CO2);

▪ Methane (CH4);

▪ Nitrous oxide (N2O);

▪ Hydrofluorocarbons (HFCs);

▪ Perfluorocarbons (PFCs);

▪ Sulphur hexafluoride (SF6); and,

▪ Nitrogen trifluoride (NF3).

## File Contents

There are three machine readable csv files provided in this output, details of these datasets, and descriptions of fields are presented below.

### GHG Emissions CSV

The file ‘GHG\_emissions\_output\_flat\_naei23.csv’ presents greenhouse gases emissions. UK emissions can also be obtained from the NAEI website, either through the [Data Selector](https://naei.energysecurity.gov.uk/data/data-selector) or through the [Pivot Table](https://naei.energysecurity.gov.uk/greenhouse-gases/greenhouse-gas-emissions-data).

Additionally, [UK greenhouse gas emissions statistics](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.gov.uk%2Fgovernment%2Fstatistics%2Ffinal-uk-greenhouse-gas-emissions-statistics-1990-to-2023&data=05%7C02%7CDom.Ingledew%40ricardo.com%7C76b6b72bf82143f09b5508ddeafa85d6%7C0b6675bca0cc4acf954f092a57ea13ea%7C0%7C0%7C638925083941156276%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=24eMhDRZVaTPQD%2B3vAbgAHepKWxFkaxLvJ43ImEkTRc%3D&reserved=0), including summary tables and datasets, are published annually by DESNZ as Official Statistics. The UK’s geographical coverage in these statistics differs to that reported under the UNFCCC and Paris Agreement, with emissions from the UK’s Crown Dependencies and Overseas Territories typically excluded. As well as presenting emissions on a source basis, emissions are also presented on an ‘end-user’ basis, where emissions from energy supply are reallocated to the sectors where the energy is used.

The below table presents the metadata of the fields and the descriptions.

| Field | Description |
| --- | --- |
| GasID | Numeric identifier code for each pollutant |
| Gas | Full pollutant name |
| NFR/CRT Code | Common Reporting Table category for reporting emission data (NFR only applies to AQ pollutants) |
| NFR/CRT Description | Descriptive name of CRT category (NFR only applies to AQ pollutants) |
| Sourcecode | Numeric identifier of the emission source |
| SourceName | Name descriptor of the emission source |
| Activitycode | Numeric identifier of the activity related to the emission source |
| ActivityName | Name descriptor of the activity related to the emission source |
| Units | Emission units |
| Year | Year of emission |
| Emission | Value of emission |

### GHG Emission Factors CSV

The file ‘GHG\_EFs\_output\_flat\_naei23.csv’ presents UK emission factors of greenhouse gases. UK emission factors can also be obtained from the NAEI website through the [Data Selector](https://naei.energysecurity.gov.uk/emission-factors/emission-factors-database).

| Field | Description |
| --- | --- |
| GasID | Numeric identifier code for each pollutant |
| Gas | Full pollutant name |
| Sector | Parent sector for NFR codes |
| NFR/CRT Code | Common Reporting Table category for reporting emission data (NFR only applies to AQ pollutants) |
| NFR/CRT Description | Descriptive name of CRT category (NFR only applies to AQ pollutants) |
| Territorycode | Numeric identifier code for the geographic territory |
| Territory | Descriptive name of the geographic territory |
| Sourcecode | Numeric identifier of the emission source |
| SourceName | Name descriptor of the emission source |
| Activitycode | Numeric identifier of the activity related to the emission source |
| ActivityName | Name descriptor of the activity related to the emission source |
| Activity\_Unit | Activity units form the denominator of the emission factor units |
| Emission\_Unit | Emission units form the numerator of the emission factor units |
| Year | Year of emission |
| Emission\_Factor | Value of emission |

### CO2e Conversion Factors CSV

The file ‘CO2e\_ConversionFactors\_naei23.csv’ presents factors to convert the gases presented in mass units (kilotonne) to mass of CO2 equivalent (kt CO2 equivalent). This uses Global Warming Potentials (GWPs) from the IPCC’s Fifth Assessment Report (AR5), in line with Decision 7/CP.2715 and the Paris Agreement. F-gases are already presented in mass of CO2­ equivalent and so conversion factors are not required.

| Field | Description |
| --- | --- |
| GasID | Numeric identifier code for each pollutant |
| Gas | Full pollutant name |
| ConvertFactor | Factor to convert from mass units to mass of CO2 equivalent |
| ConvertTo | Identifier showing target units |