

GUIDELINES

Greenhouse gas emission calculator

2025

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I. Introduction

The GHG Emissions Calculator is a user-friendly tool designed to estimate annual greenhouse gas (GHG) emissions for small, medium businesses and as well as whole organizations. Its goal is to simplify the process of calculating emissions in scope 1 and 2.

This tool allows users to easily introduce their organization's activity data and navigate through the Excel file. By utilizing this calculator, businesses can gain valuable insights into their emissions and take meaningful steps towards reducing their environmental impact.

In order to be able to efficiently navigate the tool, a manual has been prepared. It is divided into three parts:

1. Methodology
2. Overview of the tool
3. Glossary
4. GHG emission factor list

As for the methodology, the calculation is based on GHG Protocol, which means that in scope 1 the tool collects data on fuel combustion, refrigerant replenishment and if applicable direct emissions from agriculture, and in scope 2 data on energy. Calculation approaches and emission factors come from following databases: AIB, DEFRA, and national sources.

In the second part - an overview of the tool, you will get acquainted with the tool step by step. At each step, it is shown what you need to enter and what data you need to provide if you have no real consumption in a particular category.

In the third chapter there is a glossary that will help you understand the terms used in the tool and the final chapter is the GHG emission factor list.

The calculation should be considered as a carbon footprint estimate only. It does not represent exclusive calculation methodology and does not take exhaustive account of all circumstances affecting the calculation of the carbon footprint.

II. Methodology

GHG Protocol

The GHG Protocol, or Greenhouse Gas Protocol, has been widely adopted and serves as the basis for many greenhouse gas reporting programs and regulations around the world. The protocol is a set of internationally recognized standards and guidelines for accounting and reporting greenhouse gas emissions and provides a framework for organizations to measure, manage, and report their greenhouse gas emissions accurately and consistently.

The GHG protocol outlines the principles and methods for measuring and reporting emissions from an organization's activities and categorizes all emissions into three scopes:

- direct emissions (Scope 1),
- indirect emissions from purchased electricity and heat (Scope 2),
- other indirect emissions (Scope 3).

Scopes of emissions

Scope 1 emissions refer to direct greenhouse gas emissions from sources that are owned or controlled by the organization. These emissions are generated from activities such as the combustion of fuels in on-site equipment, vehicles, and industrial processes. Examples include emissions from company-owned vehicles, on-site heating, and use of refrigerants.

Scope 2 emissions are indirect greenhouse gas emissions associated with the generation of electricity, heating, or cooling that an organization purchases or consumes. While the organization does not directly control the sources of these emissions, they are related to the organization's energy consumption. Organizations can influence Scope 2 emissions by choosing to purchase cleaner, renewable energy sources or by improving energy efficiency.

Scope 3 emissions encompass all other indirect emissions that occur because of organization's activities but do not fall under Scope 1 or Scope 2. GHG Protocol sets 15 categories that fall under Scope 3 emissions, and they are typically more challenging to quantify and manage because they extend throughout the organization's value chain, including suppliers, customers, and other stakeholders. Scope 3 emissions can include emissions associated with supply chain activities,

business travel, employee commuting, product transportation, and the use of sold products to name a few.

They represent a significant portion of a company's overall carbon footprint, and measuring and managing them is important for a comprehensive understanding of an organization's environmental impact and for taking meaningful steps to reduce emissions.

For guidance on setting organizational boundaries for GHG calculations, refer to GHG Protocol Guidance <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>.

Emission factors

Emission factors are crucial in environmental assessments, pollution control strategies, and calculating greenhouse gas inventories. They are specific values used to estimate the amount of pollutants or greenhouse gases released into the atmosphere due to a particular activity, process, or source. They serve as conversion factors that relate the quantity of a pollutant produced to a specific unit of activity or output. These factors are typically expressed as a ratio of the amount of pollutant emitted to a unit of the activity that generates those emissions.

To ensure the right calculation of emission based on actual and estimated data, the tool employs national and internationally calculated emission factors from different databases and sources:

- National emission factors are taken from GHG National Inventory Reports submitted to United Nations Framework Convention on Climate Change (UNFCCC)
- Local Institutional sources (linked in detail in “List of used emission factors”)
- AIB
- DEFRA

By utilizing these comprehensive databases, the tool can provide a robust and reliable assessment of greenhouse gas emissions. This approach enables users to make informed decisions and take appropriate actions to mitigate their environmental impact.

The full list of used factors is available in part V of these guidelines. The use of emission factors for the relevant emission categories is as follows:

- [Scope 1] Stationary emissions: DEFRA 2024;
- [Scope 1] Non-stationary emissions: DEFRA 2024; EXIOBASE;

- [Scope 1] Fugitive emissions: DEFRA 2024
- [Scope 1] Agricultural emissions: GHG National Inventories Report Lithuania, Latvia, Estonia 2024.
- [Scope 2] Electricity: AIB; EXIOBASE.
- [Scope 2] Heat/Steam/Cool: DEFRA 2024; national institution sources Lithuania, Latvia, Estonia

Functionality of the tool

The calculator is divided into 5 sheets – The introduction, Basic information, Scope 1 sheet, Scope 2 sheet and Report where the results of emissions will be visible.

The introduction sheet is a non-active sheet, describes the tool, main aim, provides links to manual and video tutorial and point of contact.

Basic information sheet is the first active sheet for information input and it must be filled out otherwise the emissions will not be calculated – namely reporting year, country and the sector the company operates in. There is also the possibility to add calculated emissions in scope 3 (if applicable).

Scope 1 sheet will ask to input information regarding your stationary emissions, non-stationary emissions, fugitive emissions and if your company operates in the agricultural sector – data for agriculture specific emissions.

Scope 2 sheet will ask you to input information regarding your electricity and heating usage.

For some categories of scope 1 and scope 2, it is possible to determine the emission level based on data other than real consumption. It is important to remember that it is only when real consumption is given that the most actual greenhouse gas emissions result is received.

The report will show the results of greenhouse gas emissions and will not require to input any additional data.

Where to get data for the calculation?

SOURCE OF EMISSIONS	DATA REQUIRED	SOURCE OF DATA
SCOPE 1: STATIONARY EMISSIONS	The consumption of a given solid fuel stated in the appropriate unit, e.g. kilograms/year	Invoices available in internal databases of the company
SCOPE 1: NON-STATIONARY EMISSIONS	The consumption of a given fuel in vehicles belonging to or under the control of the company stated in appropriate unit, e.g. in liters/year	Invoices from employees or, for example, data from fuel cards
SCOPE 1: REFRIGERANTS	The leakage of a given refrigerant; refrigerant given in kilograms/year	Report on maintenance of e.g. system air conditioning
SCOPE 2: ELECTRICITY	-Electricity consumption given in an appropriate unit, such as kWh/year -Information on whether the electricity comes from renewable sources	Invoices available in internal databases of the company
SCOPE 2 HEAT/COOLING/STEAM	Thermal energy consumption as network heat given in the appropriate unit, e.g., in GJ/year	Invoices available in internal databases of the company

III. Overview of the tool

The tool is divided on 5 parts:

1. INTRODUCTION

This is the informative part of the tool. There you can find:

- a description of the tool,
- its main goal
- links to the video and this manual
- point of contact in case of any issues with the tool

There is no action needed.

2. INFORMATION

In this section you are supposed to provide basic information regarding reporting and your company.

Enter company's name.

Select a reporting year – here please select the year for which you want to report emissions data.

Select your main country of operation – here please select whether your main area of operations is located in Estonia, Latvia or Lithuania. This information will appear automatically throughout the sheets in certain cells.

Select your sector – here please select one of the 22 sectors according to the NACE codes in which your company operates. If you are unsure of what to select, please consult the European Union NACE code list, which could be found [here](#).

BASIC INFORMATION

Before filling in the data, please start here and provide basic information regarding the company.

Insert company's name

Select a reporting year:

Select your main country of operation:

Select your sector:

Do you calculate Scope 3 emissions?

- please fill in the information below only if Scope 3 emissions are calculated -

Please provide total emissions in scope 3
in a reporting year:

tCO₂e

Please provide information regarding included categories and covered emissions sources	Covered in the calculations?	Commentary?
Category 1: Purchased goods and services		
Category 2: Capital goods		
Category 3: Fuel- and energy-related activities		
Category 4: Transportation & distribution upstream		
Category 5: Waste generated in operations		
Category 6: Business travel		
Category 7: Employee commuting		
Category 8: Upstream leased assets		
Category 9: Transportation & distribution downstream		
Category 10: Processing of sold products		
Category 11: Use of sold products		
Category 12: End of life treatment of sold products		
Category 13: Downstream leased assets		
Category 14: Franchises		
Category 15: Investments		

If your company calculates Scope 3 emissions, answer the question *Do you calculate scope 3 emissions?* "YES" and in the box below enter the amount of emissions and if you can provide details in the calculated categories. The indicated scope 3 amount will automatically appear in the Result sheet. If you don't calculate these emissions, simply select "NO". Please note that this tool does not provide Scope 3 emission calculations.

The above information will be used in further steps of the calculator.

3. SCOPE 1

The Calculator provides possibilities for GHG calculations based on most popular fuels, however if company business model, manufacturing processes, industry specific requirements or other circumstances require an extended calculation, we encourage the company to seek an individual GHG calculation that will provide the most accurate results of greenhouse gas emissions.

This section is divided into four parts:

- Stationary emissions

Stationary emissions are one of the three emission sources in Scope 1. These emissions are due to the burning of fuels in stationary facilities like boilers for space heating of offices or warehouses owned by the organization. In the tool you can find most popular fuels used for these purposes. Please note that according to *GHG Protocol*¹, direct CO₂ emissions from the combustion of biomass shall not be included in scope 1 but reported separately. This is why emissions from biomass are not calculated in total Scope 1 emissions, with exception of methane (CH₄) and nitrous oxide (N₂O) as a result of biomass combustion will be added. For more information please see GHG Protocol Guidance, Appendix B: Accounting for Sequestered Atmospheric Carbon².

STATIONARY EMISSIONS

Emissions resulting from the use of fuel for heating buildings or for other purposes (e.g. in equipment such as a generator).

Please complete the data for all types of fuel consumed in stationary sources in the selected year. To start filling the data, please tick the box next to the selected fuel in the "Company use" column. Please be aware that the most accurate level of emissions will be achieved by providing [real consumption data](#), not by floor area.

FUEL	COMPANY USE	CONSUMPTION	UNIT	ESTIMATIONS BY FLOOR AREA	
				AREA	UNIT
Natural gas*	<input type="checkbox"/>				
Heating oil	<input type="checkbox"/>				
Diesel**	<input type="checkbox"/>				
Coal	<input type="checkbox"/>				
LPG	<input type="checkbox"/>				
Propane	<input type="checkbox"/>				
In case no activity data is available >>>					
Please fill in columns for estimations <u>only</u> if you do not have a data on consumption (on the left side)					
Biomass:					
Biomass - wood logs	<input type="checkbox"/>				
Biomass - wood chips	<input type="checkbox"/>				
Biomass - wood pellets	<input type="checkbox"/>				
Biomass - grass/straw	<input type="checkbox"/>				

* please include also natural gas in form of LNG and CNG (taking into account different density between LNG, CNG and natural gas in gaseous state)

** please include here also similar fuels such as burning oil, shale oil, kerosene, etc.

Please note that according to GHG Protocol, emissions from biomass are outside of the inventory of scope 1 emissions

¹ <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf> (page 25)

² <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf> (page 88)

Depending on the data that you have you can choose to calculate according to 3 options: real consumption levels or estimate by distance or expenses. Count the same consumption only once and please note that if you choose the estimation method, you have to enter relevant data for **either** estimation by distance **or** estimation by expenses.

In “consumption” column please provide the **real consumption of fuels** that occurred in the reported year (indicated in the previous tab). In the “unit” column please select the right unit of the consumption.

In case you are not able to provide real consumption, there are two possibilities to **calculate emissions by estimation**:

1. Provide the distance traveled on a given fuel, or
2. Provide the fuel expenses.

As for the first method, please provide information on the type of vehicle (passenger car / van / truck) and next to the type of car please indicate the number of kilometers traveled. While your company might have different types of vehicles, in this case choose to include them into the nearest category if you are estimating by distance.

As for the second method, please provide expenses related to specific type of fuel in a reported year and the unit you provide the data in. Note that data provided should be in actual numbers, not in thousands. Estimation by expense is not related to type of car, do not enter any data for types of cars.

Whenever you have the opportunity use real consumption data, as it provides you with a more accurate picture of the emissions generated.

AdBlue usage and GHG emissions: AdBlue is a high-purity urea solution used in Selective Catalytic Reduction (SCR) systems to reduce nitrogen oxide (NO_x) emissions from diesel engines. It works by being injected into the exhaust stream, where it reacts with NO_x gases to form harmless nitrogen and water vapor. This process significantly lowers the levels of NO_x, a major contributor to air pollution and smog, thus improving air quality. While AdBlue does not directly reduce GHG emissions like CO₂, it allows for cleaner combustion and better overall environmental performance.

- Fugitive emissions

Fugitive emissions occur from refrigerants used in industrial or refrigeration equipment, processes or in air conditioning within infrastructure or vehicles. Fugitive emissions happen due to:

1. leakage or additions of refrigerants and
2. emissions from direct technological processes (if applicable) in the reported year.

FUGITIVE EMISSIONS

Fugitive emissions from refrigeration and air conditioning result from leakage and service over the operational life of the equipment and from disposal at the end of the useful life of the equipment.

Please enter the amount of leakage or service over the operational life of the equipment and from disposal at the end of the useful life of the equipment. This considers both stationary machinery, refrigeration and AC equipment in vehicles. There is no possibility to estimate values.

REFRIGERANTS

No.	NAME	AMOUNT	UNIT
1			kg
2			kg
3			kg
4			kg
5			kg
6			kg
7			kg
8			kg
9			kg
10			kg

** Fugitive emissions from direct technological processes. If applicable, please provide the amount of emissions generated through technological process within the organization.*

Emissions from direct technological processes

tCO₂e

In the “name” column you should select the type of refrigerant that was used in the reported year. Additionally, in the “amount” column please provide the amount of leakage/addition of refrigerant in kilograms.

If you do not know whether you had any refrigerant added or for that calendar year you did have leakages or additions of refrigerants, simply leave this data unfilled. The name of the refrigerant should be indicated on the invoice or the service provider should be able to indicate that information.

Moreover, there is a possibility to add emissions from direct technological processes. If your organisation is aware of the level of emissions, you can put it here.

In this section there is no possibility to estimate emissions.

- Agriculture-specific emissions

Emissions from agriculture are produced in several ways. This section includes emissions from enteric fermentation, manure management, organic and artificial fertilizer use.

This category is only for companies operating in the agricultural sector. If you do not operate in this field, you move on to filling in information in Scope 2 emission sheet.

To see questions on emissions from agricultural activities, please answer "YES" to the question above the section.

Does your company operate in the agricultural industry? ☐ YES

After selecting “yes”, fields for entering the data will appear. Based on these, emissions will be counted in the following categories: enteric fermentation, manure management, emissions from use of organic and inorganic fertilisers.

There is no possibility to estimate data.

- Enteric fermentation and Manure management

Enteric fermentation is the process by which ruminant animals produce methane through digesting feed.

Manure management refers to the process of managing the excretion of livestock, particularly when they are not on paddocks, but also covers losses from manure that is deposited by livestock directly onto pasture. The storage and treatment of manure produces GHG emissions.

In terms of above categories, we suggest aggregated approach. Please provide number of animals in specified categories.

While the number of animals can vary throughout the year, use the yearly average of animals for calculations and use the same system as accounting animal stock for other purposes. Use the selected method consistently for comparable calculations.

Additionally, please provide % of manure that goes into the field. This is essential as otherwise the emissions from agricultural soils will not be calculated.

ENTERIC FERMENTATION AND MANURE MANAGEMENT

Enteric fermentation is the process by which ruminant animals produce methane through digesting feed. Manure management refers to the process of managing the excretion of livestock, particularly when they are not on paddocks, but also covers losses from manure that is deposited by livestock directly onto pastures. This calculator assumes that the remaining part of the animal manure is stored and results in (mostly) methane emissions.

Animal Type	Number of animals*	What % of manure goes into the field?
Dairy Cattle		
Non-dairy cattle		
Sheep		
Swine		
Goats		
Horses		
Poultry		
Rabbit		

* the average number of animals during the reporting period (usually between 1st of January to 31st of December)

- Emissions from fertilizer use - soil CO₂ and N₂O emissions

Not all fertilizers emit GHG emission, for example potassium or phosphorus do not. The bulk of GHG emissions come from nitrogen, but there are a few other categories also linked to GHG emissions:

- Nitrogen based fertilisers break down to produce nitrous oxide and carbon dioxide (urea) and in turn N₂O and CO₂ emissions.
- Dolomite and limestone fertilizers result in CO₂ emissions.
- Organic nitrogen fertilisers add to nitrogen emissions.
- Manure applied to soils as a fertilizer emits methane (CH₄).

Please provide number of **active** compound kilograms used in specified categories, especially for nitrogen based fertilisers.

EMISSIONS FROM FERTILISERS

The use of artificial fertilizer produces GHG emissions (soil N₂O and CO₂ emissions). Artificial nitrogen fertilizer breaks down to produce nitrous oxide and carbon dioxide (urea). On the other hand dolomite and limestone result in CO₂ emissions. For nitrogen fertilizers provide the amount in terms of active compound and not overall consumption.

Fertiliser type	AMOUNT	UNIT
Inorganic Nitrogen fertilizers (amount of nitrogen used)		kg
Organic Nitrogen fertilizers (amount of nitrogen used)		kg
Limestone		kg
Dolomite		kg
Animal manure purposefully applied to soils*		kg

* manure that was previously stored or was acquired from third parties, that was purposefully applied to soils

4. SCOPE 2

Scope 2 includes indirect energy emissions related to the consumption of electricity, district heating, technical steam or district cooling purchased by the organisation, i.e., to own, leased and rented facilities under the operational control of the organisation (e.g., offices/warehouses).

It is important to remember to report the amount of energy purchased from external suppliers and not to include the energy generated by the combustion of fuels within the organisation. Also note that district heat is NOT heat purchased from a local boiler house, just as district cooling is NOT chilled water purchased from a local chiller or air conditioning unit (cases encountered, for example, in rented offices).

Scope 2 section is divided into two parts:

- Electricity

In this section you should answer three questions:

1. how much electricity did you purchase in the reported year – please provide total purchased energy in MWh/kWh excluding from renewable sources (or RES)
2. how much renewable energy source electricity (RES) did you purchase in the reported year – please provide total RES energy in MWh/kWh
3. do you have a guarantee of origin or PPA in the reported year – please answer *yes* or *no*

The first column country will be automatically pre-filled based on your choice of country in *Information* sheet. Please note that the calculator only provides possibilities to choose from a list of European countries. If your company operates in more than three countries, you should choose the countries with largest material impact or run the calculations several times while choosing different countries.

In case you do not know the answer to the 1st question above, we provide possibility to estimate emissions based on 2 additional questions. These relate to electricity expenditure in the reported year. For each country you will be requested to provide the amount paid in actual numbers, not presented in terms of thousands.

If you do not know if the energy comes from renewable sources (for example solar or wind), leave the cells blank or you can also put “0”. You can check with your electricity provider about the source of electricity.

If you buy renewable electricity sources and have a contract/PPA/guarantees of origin, you can also mark that in the calculator and it will be reflected in the Results sheet.

ELECTRICITY

Please indicate all sources of purchased or externally supplied electricity and the annual consumption of this energy in the relevant unit. In most cases, consumption is the sum of purchase and production.

Please be aware that the calculator only covers countries from the Baltics. First column will automatically fill in as selected country of operation. If you do not have an energy purchase value,

Choose country: Lithuania Unit

PURCHASE	How much non-RES* electricity did you purchase in the selected year?				MWh
	Do you have a signed contract/Power Purchase Agreement (PPA) or guarantees of origin that you buy yourself for RES electricity?	NO	NO	NO	
	How much RES electricity did you buy in the selected year?				
	<p style="text-align: center;">↓↓↓ Please fill in columns for estimations only if you do not have data above ↓↓↓</p> <p>ESTIMATION: How much did you pay for non-RES electricity in the year selected?</p>				
	ESTIMATION: How much did you pay for RES electricity in the year selected?				EUR

* RES - renewable energy sources

NB! The company might directly buy electricity generated by renewable energy sources or RES (such as solar or wind) from the electricity provider or it can self-generate electricity. Electricity generated by RES (or thermal energy derived from RES) does not generate a carbon footprint. If the company self-generates electricity from RES it can account for that in the calculator in several ways. If all self-generated electricity was consumed on site, the company can either input the consumption data in the part for RES electricity or choose not to. If the self-generated electricity was fed into the electricity market and later purchased without a guarantee of origin/PPA it should be accounted as non-RES electricity.

- Heating, Cooling and process energy

In this section, please provide information on heating energy, cooling energy and steam. Please be aware that it is only possible to estimate emissions on a floor area basis for heating energy and not for cooling energy and steam.

HEATING, COOLING AND PROCESS ENERGY (STEAM)

Data on externally purchased or supplied heat/cooling energy, e.g. district heating. Please note that district heat is NOT heat purchased from a local boiler house, just as district cooling is NOT chilled water purchased from a local chiller or air conditioning unit (cases encountered, for example, in rented offices). Do not include the energy you produce that comes from RES. It does not generate emissions in Scope 2.

Please be aware that the most accurate level of emissions will be achieved by providing real consumption data, not by area.

Category	Applicable?	CONSUMPTION	UNIT	ESTIMATIONS BY FLOOR AREA	
				AREA	UNIT
Heating energy	NO				
Cooling energy	NO				
Steam	NO				

>>> Please fill in columns for estimations only if you do not have a data on consumption (on the left side)

You should provide data on externally purchased or supplied heating/cooling energy, for example

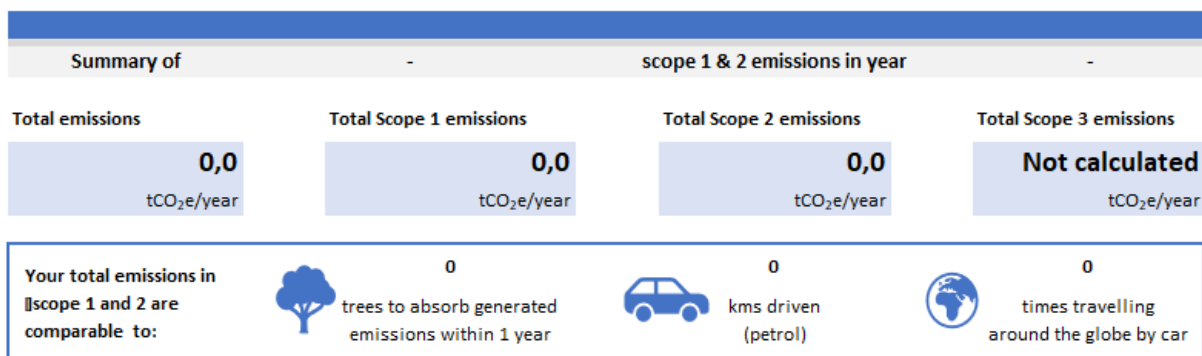
district heating. Please note that district heat is NOT heat delivered by your locally installed boiler (as it will show up in electricity consumption or fuel consumption), just as district cooling is NOT chilled water purchased from a local chiller or air conditioning unit (cases encountered, for example, in rented offices). Do not include heating energy that comes from renewable energy sources (or abbreviated RES). It does not generate emissions in Scope 2.

Please be aware that the most accurate level of emissions will be achieved by providing real consumption data and not by estimating according to floor area.

Select the applicable category by choosing “YES” and proceed to fill in the data of consumption.

5. REPORT

Report is the last section of the tool. Here you can see the results of emissions. You will not be required or be able to put in any data here.



In the top section you can see the general results of your emissions. Your total emissions, scope 1 emissions and scope 2 emissions (and if you entered data for Scope 3 emissions) will be presented here. Additionally, to better understand the amount of emissions, the calculator provides a comparison of the result with the number of trees needed to absorb this amount of carbon dioxide, the number of kilometers driven that would generate similar levels of emissions and the number of laps around the world.

Scope 1 (direct emissions)	0,0 tCO₂e/year	% share	% actual data
Stationary emissions	0,0 tCO ₂ e/year	0,0%	0%
Non-stationary emissions	0,0 tCO ₂ e/year	0,0%	0%
Fugitive emissions	0,0 tCO ₂ e/year	0,0%	0%
Biogenic emissions	0,0 tCO ₂ e/year	0,0%	0%
Scope 2 (indirect emissions)	0,0 tCO₂e/year	% share	% actual data
Electricity	0,0 tCO ₂ e/year	0,0%	0%
Heating/cooling energy	0,0 tCO ₂ e/year	0,00%	0%
RES certificates / PPA available?	No RES certificates/PPA available		
Scope 3 (other indirect emissions)			
Sum of Scope 3 emissions	0,0 tCO ₂ e/year	Data provided directly by the company	
Covered categories	0		

In this area the tool shows the breakdown of the various emission scopes into their component parts. It can be used to find out which emission category has the highest value, which categories are being estimated and do not yet have a proper data collection process.

If you have marked that you have Renewable energy sources (RES) certificates it will show up under Scope 2 emission data.

Scope 2 (indirect emissions)	0,0 tCO₂e/year	% share	% actual data
Electricity	0,0 tCO ₂ e/year	0,0%	0%
Heating/cooling energy	0,0 tCO ₂ e/year	0,00%	0%
RES certificates / PPA available?	No RES certificates/PPA available		

The following section of the report contains three graphs that illustrate these results and let you see what the distribution of actual and estimated data is.

IV. Glossary

GHG – greenhouse gas emissions. The main greenhouse gases are carbon dioxide - CO₂; methane - CH₄; nitrous oxide - N₂O; sulphur hexafluoride - SF₆; the HFC (hydrofluorocarbon) and PFC (perfluorocarbon) gas groups.

GHG Protocol – international organization that establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

Guarantees of origin - guarantees of electricity origin are an element of the EU's environmental policy, which aims at disclosing and certifying to the end consumer that a certain amount of electricity delivered to the distribution network or transmission grid was generated from renewable energy sources or in the process of high-efficiency cogeneration (CHP, i.e. Combined Heat and Power).

NACE code - Nomenclature of Economic Activities or NACE is the European statistical classification of economic activities. NACE groups organizations according to their business activities. Can check your NACE code [here](#).

PPA – Power Purchase Agreement is a long-term contract for the supply of electricity between two parties, usually between an electricity producer and a customer (electricity consumer or seller). The PPA details all the terms and conditions of the electricity business - the amount of electricity to be supplied, the negotiated prices, the method of accounting and penalties for non-compliance.

RES – Renewable Energy Sources. RES include wind, solar, aerothermal, geothermal, hydro, ocean energy sources, biomass and the biodegradable fraction of waste.

Scope 1 – direct emissions from owned or controlled sources.

Scope 2 – indirect emissions from purchased energy sources.

Scope 3 - all other indirect emissions that occur because of organization's activities but do not fall under Scope 1 or Scope 2. There are 15 categories that fall under Scope 3 emissions. Scope 3 emissions can include emissions associated with supply chain activities, business travel, employee commuting, product transportation, and the use of sold products to name a few.

V. List of used emission factors

Category	Subcategory	Emission factor	Unit	Database
SCOPE 1				
Stationary emissions	Natural gas (GJ)	56,3	kgCO ₂ e	DEFRA 2024
	Natural gas (kWh)	0,203	kgCO ₂ e	DEFRA 2024
	Natural gas (m ³)	2,5	kgCO ₂ e	DEFRA 2024
	Natural gas (GWh)	202640,0	kgCO ₂ e	DEFRA 2024
	Natural gas (MWh)	202,6	kgCO ₂ e	DEFRA 2024
	Heating oil (Litres)	2,540	kgCO ₂ e	DEFRA 2024
	Heating oil (kWh)	0,260	kgCO ₂ e	DEFRA 2024
	Heating oil (GWh)	260,000	kgCO ₂ e	DEFRA 2024
	Heating oil (MWh)	260	kgCO ₂ e	DEFRA 2024
	Coal (Tonnes)	2 904,952	kgCO ₂ e	DEFRA 2024
	Coal (kWh)	0,4	kgCO ₂ e	DEFRA 2024
	Coal (MWh)	365,5	kgCO ₂ e	DEFRA 2024
	LPG (Litres)	1,557	kgCO ₂ e	DEFRA 2024
	LPG (kWh)	0,230	kgCO ₂ e	DEFRA 2024
	LPG (Tonnes)	2 939,36	kgCO ₂ e	DEFRA 2024
	LPG (MWh)	230,3	kgCO ₂ e	DEFRA 2024
	Propane (Litres)	1,540	kgCO ₂ e	DEFRA 2024
	Propane (kWh)	0,233	kgCO ₂ e	DEFRA 2024
	Propane (MWh)	c	kgCO ₂ e	DEFRA 2024
	Propane (Tonnes)	2 997,55	kgCO ₂ e	DEFRA 2024
Non-stationary emissions	Diesel (Litres)	2,513	kgCO ₂ e	DEFRA 2024
	Diesel (Tonnes)	3 014,1	kgCO ₂ e	DEFRA 2024
	Petrol (Litres)	2,084	kgCO ₂ e	DEFRA 2024
	Petrol (Tonnes)	2778,5	kgCO ₂ e	DEFRA 2024
	LNG (Litres)	1,172	kgCO ₂ e	DEFRA 2024
	LNG (Tonnes)	2590,46	kgCO ₂ e	DEFRA 2024
	LPG (Litres)	1,557	kgCO ₂ e	DEFRA 2024
	LPG (Tonnes)	2 939,36	kgCO ₂ e	DEFRA 2024
	CNG (Litres)	0,449	kgCO ₂ e	DEFRA 2024
	CNG (Tonnes)	2568,169	kgCO ₂ e	DEFRA 2024
	AdBlue (Tonnes)	0,238	tCO ₂ e	DEFRA 2024 (Methodology Paper for Conversion Factors Final Report)

Agricultural industry – Enteric Fermentation (Latvia)	Dairy cattle	4,2616	tCO ₂ e/unit	Based on LV GHG National Inventory Report 2024 ³ Table 3.A
	Non-dairy cattle	2,3220	tCO ₂ e/unit	
	Sheep	0,2240	tCO ₂ e/unit	
	Swine	0,0420	tCO ₂ e/unit	
	Goats	0,1400	tCO ₂ e/unit	
	Horses	0,5040	tCO ₂ e/unit	
	Rabbit	0,0165	tCO ₂ e/unit	
	Poultry	0	tCO ₂ e/unit	
Agricultural industry – Enteric Fermentation (Lithuania)	Dairy cattle	3,8177	tCO ₂ e/unit	Based on LT GHG National Inventory Report 2024 ⁴ Table 3.A
	Non-dairy cattle	1,9515	tCO ₂ e/unit	
	Sheep	0,2848	tCO ₂ e/unit	
	Swine	0,0392	tCO ₂ e/unit	
	Goats	0,1400	tCO ₂ e/unit	
	Horses	0,5040	tCO ₂ e/unit	
	Rabbit	0,0165	tCO ₂ e/unit	
	Poultry	0	tCO ₂ e/unit	
Agricultural industry – Enteric Fermentation (Estonia)	Dairy cattle	4,4506	tCO ₂ e/unit	Based on EE GHG National Inventory Report 2024 ⁵ Table 3.A
	Non-dairy cattle	2,4273	tCO ₂ e/unit	
	Sheep	0,2240	tCO ₂ e/unit	
	Swine	0,0308	tCO ₂ e/unit	
	Goats	0,1400	tCO ₂ e/unit	
	Horses	0,5040	tCO ₂ e/unit	
	Rabbit	0,0165	tCO ₂ e/unit	Due to lack of data, values from LV and LT were used
	Poultry	0	tCO ₂ e/unit	
Agricultural industry – Manure Management (Latvia)	Dairy cattle	0,5827	tCO ₂ e/unit	Based on LV GHG National Inventory Report 2024 Table 3.B(a)
	Non-dairy cattle	0,0566	tCO ₂ e/unit	
	Sheep	0,0053	tCO ₂ e/unit	
	Swine	0,0613	tCO ₂ e/unit	
	Goats	0,0036	tCO ₂ e/unit	
	Horses	0,0437	tCO ₂ e/unit	
	Rabbit	0,0022	tCO ₂ e/unit	
	Poultry	0,0006	tCO ₂ e/unit	

³ Latvia National Inventories report, CRT tables: <https://unfccc.int/ghg-inventories-annex-i-parties/2024>, 2022 V0.1-20241212

⁴ Lithuanian National Inventories report, CRT tables: <https://unfccc.int/ghg-inventories-annex-i-parties/2024>, 2022 V0.4-20241217

⁵ Estonia National Inventories report, CRT tables: <https://unfccc.int/ghg-inventories-annex-i-parties/2024>, 2022 V1.0-20241220

Agricultural industry – Manure Management (Lithuania)	Dairy cattle	0,3881	tCO ₂ e/unit	Based on LT GHG National Inventory Report 2024 Table 3.B(a)
	Non-dairy cattle	0,2523	tCO ₂ e/unit	
	Sheep	0,0115	tCO ₂ e/unit	
	Swine	0,0731	tCO ₂ e/unit	
	Goats	0,0036	tCO ₂ e/unit	
	Horses	0,0437	tCO ₂ e/unit	
	Rabbit	0,0022	tCO ₂ e/unit	
	Poultry	0,0006	tCO ₂ e/unit	
Agricultural industry – Manure Management (Estonia)	Dairy cattle	0,9433	tCO ₂ e/unit	Based on EE GHG National Inventory Report 2024 Table 3.B(a)
	Non-dairy cattle	0,5314	tCO ₂ e/unit	
	Sheep	0,0053	tCO ₂ e/unit	
	Swine	0,1562	tCO ₂ e/unit	
	Goats	0,0036	tCO ₂ e/unit	
	Horses	0,0437	tCO ₂ e/unit	
	Rabbit	0,0022	tCO ₂ e/unit	
	Poultry	0,0006	tCO ₂ e/unit	
Agricultural industry – Agricultural soils (Estonia)	Dairy cattle	0,2699	tCO ₂ e/unit	Based on EE GHG National Inventory Report 2024 ⁶ Table 3.B(b)
	Non-dairy cattle	0,1907	tCO ₂ e/unit	
	Sheep	0,0161	tCO ₂ e/unit	
	Swine	0,0024	tCO ₂ e/unit	
	Goats	0,0197	tCO ₂ e/unit	
	Horses	0,0739	tCO ₂ e/unit	
	Poultry	0,0007	tCO ₂ e/unit	
	Rabbit	0,0189	tCO ₂ e/unit	
Agricultural industry – Agricultural soils (Latvia)	Dairy cattle	0,1935	tCO ₂ e/unit	Based on LV GHG National Inventory Report 2024 ⁷ Table 3.B(b)
	Non-dairy cattle	0,0281	tCO ₂ e/unit	
	Sheep	0,0196	tCO ₂ e/unit	
	Swine	0,0108	tCO ₂ e/unit	
	Goats	0,0297	tCO ₂ e/unit	
	Horses	0,0595	tCO ₂ e/unit	
	Poultry	0,0006	tCO ₂ e/unit	
	Rabbit	0,0169	tCO ₂ e/unit	
Agricultural industry – Agricultural soils (Lithuania)	Dairy cattle	0,1749	tCO ₂ e/unit	
	Non-dairy cattle	0,0769	tCO ₂ e/unit	
	Sheep	0,0133	tCO ₂ e/unit	

⁶ Estonia National Inventories report, CRT tables: <https://unfccc.int/ghg-inventories-annex-i-parties/2024>, 2022 V1.0-20241220

⁷ Latvia National Inventories report, CRT tables: <https://unfccc.int/ghg-inventories-annex-i-parties/2024>, 2022 V0.1-20241212

	Swine	0,0027	tCO ₂ e/unit	Based on LT GHG National Inventory Report 2024 ⁸ Table 3.B(b)
	Goats	0,0186	tCO ₂ e/unit	
	Horses	0,0086	tCO ₂ e/unit	
	Poultry	0,0002	tCO ₂ e/unit	
	Rabbit	0,0159	tCO ₂ e/unit	
Fertilisers (all countries)	Dolomite all countries	0,00013	tCO ₂ e	Based on GHG National Inventory Reports 2024 Table3.D; Table3.G-J
	Limestone all countries	0,00012	tCO ₂ e	
	Inorganic nitrogen fertiliser	0,00000265	tCO ₂ e	
	Organic nitrogen fertiliser	0,00000265	tCO ₂ e	
	Animal manure	0,00000265	tCO ₂ e	
SCOPE 2				
Electricity	Latvia (kWh) 2023, 2024	0,535	kgCO ₂ e	AIB 2023 ⁹
	Latvia (kWh) 2022	0,511	kgCO ₂ e	AIB 2022 ¹⁰
	Latvia (kWh) 2021	0,303	kgCO ₂ e	AIB 2021 ¹¹
	Latvia (kWh) 2020	0,422	kgCO ₂ e	AIB 2020 ¹²
	Lithuania (kWh) 2023, 2024	0,583	kgCO ₂ e	AIB 2023
	Lithuania (kWh) 2022	0,466	kgCO ₂ e	AIB 2022
	Lithuania (kWh) 2021	0,385	kgCO ₂ e	AIB 2021
	Lithuania (kWh) 2020	0,340	kgCO ₂ e	AIB 2020
	Estonia (kWh) 2023, 2024	0,712	kgCO ₂ e	AIB 2023
	Estonia (kWh) 2022	0,715	kgCO ₂ e	AIB 2022
	Estonia (kWh) 2021	0,637	kgCO ₂ e	AIB 2021
	Estonia (kWh) 2020	0,574	kgCO ₂ e	AIB 2020
Heating energy	Lithuania (MWh) 2020-2024	0,1	tCO ₂ e	Lithuanian Environmental protection agency ¹³
	Estonia (MWh) 2023-2024	0,115	tCO ₂ e	Estonian Environmental Research Centre EKUK ¹⁴
	Estonia (MWh) 2022	0,131	tCO ₂ e	

⁸ Lithuanian National Inventories report, CRT tables: https://unfccc.int/ghg-inventories-annex-i-parties/2024_2022_V0.4-20241217

⁹ https://www.aib-net.org/sites/default/files/assets/AIB_2023_Residual_Mix_FINALResults.pdf (page 7) [2025-04-01]

¹⁰ https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2022/AIB_2022_Residual_Mix_Results_inclAnnex.pdf (page 7) [2025-04-01]

¹¹ https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2021/AIB_2021_Residual_Mix_Results_1_1.pdf (page 6) [2025-04-01]

¹² https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2020/AIB_2020_Residual_Mix_Results.pdf (page 6) [2025-04-01]

¹³ Statybos techninis reglamentas STR 2.01.02:2016 Pastatų energetinio naudingumo projektavimas ir sertifikavimas (2 priedo 2.18 lentelė) [2025-04-01]

¹⁴ https://kasvuhoonegaasid.ee/#/emission-factors/inventory-emission-factors/i_heat_EF [2025-04-01]

	Estonia (MWh) 2021	0,124	tCO ₂ e	Latvian Ministry of Climate ¹⁵ Only CO ₂ figures are available.
	Estonia (MWh) 2020	0,136	tCO ₂ e	
	Latvia (MWh) 2023- 2024	0,072	tCO ₂	
	Latvia (MWh) 2022	0,075	tCO ₂	
	Latvia (MWh) 2021	0,088	tCO ₂	
	Latvia (MWh) 2020	0,0911	tCO ₂	
District cooling	Lithuania (MWh) 2020-2024	0,1	tCO ₂ e	Lithuanian Environmental protection agency ¹⁶
	Estonia (MWh) 2023-2024	0,115	tCO ₂ e	Estonian Environmental Research Centre EKUK ¹⁷
	Estonia (MWh) 2022	0,131	tCO ₂ e	
	Estonia (MWh) 2021	0,124	tCO ₂ e	
	Estonia (MWh) 2020	0,136	tCO ₂ e	
	Latvia (MWh) 2023-2024	0,072	tCO ₂	Latvian Ministry of Climate ¹⁸ Only CO ₂ figures are available.
	Latvia (MWh) 2022	0,075	tCO ₂	
	Latvia (MWh) 2021	0,088	tCO ₂	
	Latvia (MWh) 2020	0,091	tCO ₂	
Steam	Lithuania (MWh) 2020-2024	0,1	tCO ₂ e	Lithuanian Environmental protection agency ¹⁹
	Estonia (MWh) 2023-2024	0,115	tCO ₂ e	Estonian Environmental Research Centre EKUK ²⁰
	Estonia (MWh) 2022	0,131	tCO ₂ e	
	Estonia (MWh) 2021	0,124	tCO ₂ e	
	Estonia (MWh) 2020	0,136	tCO ₂ e	
	Latvia (MWh) 2023-2024	0,072	tCO ₂	Latvian Ministry of Climate ²¹
	Latvia (MWh) 2022	0,075	tCO ₂	
	Latvia (MWh) 2021	0,088	tCO ₂	
	Latvia (MWh) 2020	0,091	tCO ₂	

¹⁵ <https://www.kem.gov.lv/lv/siltumnicefekta-gazu-emisiju-aprekina-metodika> [2025-04-01]

¹⁶ <https://www.e-tar.lt/portal/lt/legalAct/TAR.A2E8B0079BC9/asr> [2025-04-01]

¹⁷ https://kasvuhoonegaasid.ee/#/emission-factors/inventory-emission-factors/i_heat_EF [2025-04-01]

¹⁸ <https://www.kem.gov.lv/lv/siltumnicefekta-gazu-emisiju-aprekina-metodika> [2025-04-01]

¹⁹ <https://www.e-tar.lt/portal/lt/legalAct/TAR.A2E8B0079BC9/asr> [2025-04-01]

²⁰ https://kasvuhoonegaasid.ee/#/emission-factors/inventory-emission-factors/i_heat_EF [2025-04-01]

²¹ <https://www.kem.gov.lv/lv/siltumnicefekta-gazu-emisiju-aprekina-metodika> [2025-04-01]

BIOMASS EMISSIONS				
Category	Subcategory	Emission factor	Unit	Database
Biomass (Scope 1 emissions – CH ₄ and N ₂ O denominated in CO ₂ e)	Biomass - grass/straw kWh	0,0000129	tCO ₂ e	DEFRA 2024
	Biomass - grass/straw MWh	0,0129	tCO ₂ e	DEFRA 2024
	Biomass - grass/straw Tonnes	0,0480	tCO ₂ e	DEFRA 2024
	Biomass - wood chips kWh	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood chips MWh	0,0105	tCO ₂ e	DEFRA 2024
	Biomass - wood chips Tonnes	0,0506	tCO ₂ e	DEFRA 2024
	Biomass - wood logs kWh	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood logs MWh	0,0105	tCO ₂ e	DEFRA 2024
	Biomass - wood logs Tonnes	0,0430	tCO ₂ e	DEFRA 2024
	Biomass - wood pellets kWh	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood pellets MWh	0,0105	tCO ₂ e	DEFRA 2024
	Biomass – wood pellets Tonnes	0,0506	tCO ₂ e	DEFRA 2024
Biomass (out of scopes emissions – CO ₂)	Biomass - grass/straw kWh	0,0541	tCO ₂ e	DEFRA 2024
	Biomass - grass/straw MWh	0,1454	tCO ₂ e	DEFRA 2024
	Biomass - grass/straw Tonnes	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood chips kWh	0,0428	tCO ₂ e	DEFRA 2024
	Biomass - wood chips MWh	0,00113	tCO ₂ e	DEFRA 2024
	Biomass - wood chips Tonnes	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood logs kWh	0,0463	tCO ₂ e	DEFRA 2024
	Biomass - wood logs MWh	0,0113	tCO ₂ e	DEFRA 2024
	Biomass - wood logs Tonnes	0,00001	tCO ₂ e	DEFRA 2024
	Biomass - wood pellets kWh	0,0543	tCO ₂ e	DEFRA 2024
	Biomass - wood pellets MWh	0,0113	tCO ₂ e	DEFRA 2024
	Biomass – wood pellets Tonnes	0,00001	tCO ₂ e	DEFRA 2024

REFRIGERANTS				
Category	Subcategory	Emission factor	Unit	Database
Refrigerants	CO ₂	0,0010	tCO ₂ e/kg	DEFRA 2024
	N ₂ O	0,2650	tCO ₂ e/kg	DEFRA 2024
	Propane	0,0001	tCO ₂ e/kg	DEFRA 2024
	CH ₄	0,0280	tCO ₂ e/kg	DEFRA 2024
	HFC-23	12,4000	tCO ₂ e/kg	DEFRA 2024
	HFC-32	0,6770	tCO ₂ e/kg	DEFRA 2024
	HFC-41	0,1160	tCO ₂ e/kg	DEFRA 2024
	HFC-125	3,1700	tCO ₂ e/kg	DEFRA 2024
	HFC-134	1,1200	tCO ₂ e/kg	DEFRA 2024
	HFC-134a	1,3000	tCO ₂ e/kg	DEFRA 2024
	HFC-143	0,3280	tCO ₂ e/kg	DEFRA 2024
	HFC-143a	4,8000	tCO ₂ e/kg	DEFRA 2024
	HFC-152a	0,1380	tCO ₂ e/kg	DEFRA 2024
	HFC-227ea	3,3500	tCO ₂ e/kg	DEFRA 2024
	HFC-236fa	8,0600	tCO ₂ e/kg	DEFRA 2024
	HFC-245fa	0,8580	tCO ₂ e/kg	DEFRA 2024
	HFC-43-10mee	1,6500	tCO ₂ e/kg	DEFRA 2024
	Perfluoromethane (PFC-14)	6,6300	tCO ₂ e/kg	DEFRA 2024
	Perfluoroethane (PFC-116)	11,1000	tCO ₂ e/kg	DEFRA 2024
	Perfluoropropane (PFC-218)	8,9000	tCO ₂ e/kg	DEFRA 2024
	Perfluorocyclobutane (PFC-318)	9,5400	tCO ₂ e/kg	DEFRA 2024
	Perfluorobutane (PFC-3-1-10)	9,2000	tCO ₂ e/kg	DEFRA 2024
	Perfluoropentane (PFC-4-1-12)	8,5500	tCO ₂ e/kg	DEFRA 2024
	Perfluorohexane (PFC-5-1-14)	7,9100	tCO ₂ e/kg	DEFRA 2024
	PFC-9-1-18	7,1900	tCO ₂ e/kg	DEFRA 2024
	Perfluorocyclopropane	9,2000	tCO ₂ e/kg	DEFRA 2024
	Sulphur hexafluoride (SF6)	23,5000	tCO ₂ e/kg	DEFRA 2024
	HFC-152	0,0160	tCO ₂ e/kg	DEFRA 2024
	HFC-161	0,0040	tCO ₂ e/kg	DEFRA 2024
	HFC-236cb	1,2100	tCO ₂ e/kg	DEFRA 2024
	HFC-236ea	1,3300	tCO ₂ e/kg	DEFRA 2024
	HFC-245ca	0,7160	tCO ₂ e/kg	DEFRA 2024
	HFC-365mfc	0,8040	tCO ₂ e/kg	DEFRA 2024
	Nitrogen trifluoride	16,1000	tCO ₂ e/kg	DEFRA 2024
	R125	3,1700	tCO ₂ e/kg	DEFRA 2024
	R134	1,1200	tCO ₂ e/kg	DEFRA 2024
	R134A	1,3000	tCO ₂ e/kg	DEFRA 2024

	R143a	4,8000	tCO ₂ e/kg	DEFRA 2024
	R32	0,6770	tCO ₂ e/kg	DEFRA 2024
	R401A	0,0180	tCO ₂ e/kg	DEFRA 2024
	R401B	0,0150	tCO ₂ e/kg	DEFRA 2024
	R401C	0,0210	tCO ₂ e/kg	DEFRA 2024
	R402A	1,9020	tCO ₂ e/kg	DEFRA 2024
	R402B	1,2050	tCO ₂ e/kg	DEFRA 2024
	R403A	1,7800	tCO ₂ e/kg	DEFRA 2024
	R403B	3,4710	tCO ₂ e/kg	DEFRA 2024
	R404A	3,9430	tCO ₂ e/kg	DEFRA 2024
	R405A	3,9200	tCO ₂ e/kg	DEFRA 2024
	R407A	1,9230	tCO ₂ e/kg	DEFRA 2024
	R407B	2,5470	tCO ₂ e/kg	DEFRA 2024
	R407C	1,6240	tCO ₂ e/kg	DEFRA 2024
	R407D	1,4870	tCO ₂ e/kg	DEFRA 2024
	R407E	1,4250	tCO ₂ e/kg	DEFRA 2024
	R407F	1,6740	tCO ₂ e/kg	DEFRA 2024
	R408A	2,4300	tCO ₂ e/kg	DEFRA 2024
	R410A	1,9240	tCO ₂ e/kg	DEFRA 2024
	R410B	2,0480	tCO ₂ e/kg	DEFRA 2024
	R411A	0,0150	tCO ₂ e/kg	DEFRA 2024
	R411B	0,0040	tCO ₂ e/kg	DEFRA 2024
	R412A	0,4450	tCO ₂ e/kg	DEFRA 2024
	R413A	1,9450	tCO ₂ e/kg	DEFRA 2024
	R415A	0,0250	tCO ₂ e/kg	DEFRA 2024
	R415B	0,1040	tCO ₂ e/kg	DEFRA 2024
	R416A	0,7670	tCO ₂ e/kg	DEFRA 2024
	R417A	2,1270	tCO ₂ e/kg	DEFRA 2024
	R417B	2,7420	tCO ₂ e/kg	DEFRA 2024
	R417C	1,6430	tCO ₂ e/kg	DEFRA 2024
	R418A	0,0030	tCO ₂ e/kg	DEFRA 2024
	R419A	2,6880	tCO ₂ e/kg	DEFRA 2024
	R419B	2,1610	tCO ₂ e/kg	DEFRA 2024
	R420A	1,1440	tCO ₂ e/kg	DEFRA 2024
	R421A	2,3850	tCO ₂ e/kg	DEFRA 2024
	R421B	2,8900	tCO ₂ e/kg	DEFRA 2024
	R422A	2,8470	tCO ₂ e/kg	DEFRA 2024
	R422B	2,2900	tCO ₂ e/kg	DEFRA 2024
	R422C	2,7940	tCO ₂ e/kg	DEFRA 2024
	R422d	2,4730	tCO ₂ e/kg	DEFRA 2024
	R422E	2,3500	tCO ₂ e/kg	DEFRA 2024
	R423A	2,2740	tCO ₂ e/kg	DEFRA 2024
	R424A	2,2120	tCO ₂ e/kg	DEFRA 2024

	R425A	1,4310	tCO ₂ e/kg	DEFRA 2024
	R426A	1,3710	tCO ₂ e/kg	DEFRA 2024
	R427A	2,0240	tCO ₂ e/kg	DEFRA 2024
	R428A	3,4170	tCO ₂ e/kg	DEFRA 2024
	R429A	0,0138	tCO ₂ e/kg	DEFRA 2024
	R430A	0,1050	tCO ₂ e/kg	DEFRA 2024
	R431A	0,0400	tCO ₂ e/kg	DEFRA 2024
	R434A	3,0750	tCO ₂ e/kg	DEFRA 2024
	R435A	0,0276	tCO ₂ e/kg	DEFRA 2024
	R437A	1,6390	tCO ₂ e/kg	DEFRA 2024
	R438A	2,0590	tCO ₂ e/kg	DEFRA 2024
	R439A	1,8280	tCO ₂ e/kg	DEFRA 2024
	R440A	0,1560	tCO ₂ e/kg	DEFRA 2024
	R442A	1,754	tCO ₂ e/kg	DEFRA 2024
	R444A	0,0880	tCO ₂ e/kg	DEFRA 2024
	R445A	0,1170	tCO ₂ e/kg	DEFRA 2024
	R500	0,0360	tCO ₂ e/kg	DEFRA 2024
	R503	4,9720	tCO ₂ e/kg	DEFRA 2024
	R504	0,3260	tCO ₂ e/kg	DEFRA 2024
	R507A	3,9850	tCO ₂ e/kg	DEFRA 2024
	R508A	11,6070	tCO ₂ e/kg	DEFRA 2024
	R508B	11,6980	tCO ₂ e/kg	DEFRA 2024
	R509A	4,9840	tCO ₂ e/kg	DEFRA 2024
	R511A	0,0069	tCO ₂ e/kg	DEFRA 2024
	R512A	0,1960	tCO ₂ e/kg	DEFRA 2024