

# Climate Management & GHG Balance Sheet 2024

Hellma GmbH & Co. KG

Location: Müllheim



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Reporting period covered: (Current balance sheet year)	2024

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## Introduction and background

*Hellma* was founded in Müllheim in 1922 and has since become synonymous with the precision processing of quartz, glass, and crystals for use in optical applications. Since its founding, the company's area of expertise has expanded to include products, assemblies, services, and complete solutions in the field of photonics and analytics. The company has been owner-managed for over three generations and focuses on optical components, laboratory supplies (e.g., quartz glass), and crystalline materials. The *Hellma* Group comprises various brands (including *Hellma Analytics* and *Hellma Materials*) and is represented worldwide. Its own products are manufactured at four production sites, three of which are located in Germany and one in the USA. *Hellma GmbH & Co. KG* is headquartered in Müllheim, where it also has its production facilities.

*Hellma GmbH & Co. KG* has been an official member of *Zielgerade2030* since March 2022. The alliance project is a cooperation between the Southern Upper Rhine Chamber of Industry and Commerce and “Energieagentur Regio Freiburg GmbH” and supports companies in the Southern Upper Rhine region on their path to climate neutrality. In addition to the holistic involvement of all employees, responsibility for people and the environment is one of the overarching goals of *Hellma GmbH & Co. KG's* business activities. Within the framework of the *Zielgerade2030* alliance, this corporate strategy can be linked to the company's own climate strategy.

The calculations and analyses in this report refer to the main location in Müllheim. In the future, other locations may also be included in the greenhouse gas balance (GHG balance). Mr. Ulf Heisterkamp and Ms. Regina Klein were available as direct contacts for data collection and the preparation of the GHG balance as well as the derivation of a reduction plan.

*Zielgerade2030* is based on the following climate management system:



Figure 1 (adapted from “Energieagentur Regio Freiburg GmbH”): “Zielgerade2030” climate management system,

The participating companies have set themselves the goal of reducing their own emissions as much as possible, sustainably and in compliance with the Paris Climate Agreement (SBTi) as part of an ambitious climate management system. The companies are supported in this by the “Energieagentur Regio Freiburg GmbH”. The **GHG balance sheet based on the GHG Protocol**, which forms the basis of this report, is a central element of the companies' individual climate management systems. The analysis of greenhouse gas emissions makes it possible to identify individual reduction potentials so that the companies' own **climate protection targets can be defined in line with the Paris Climate Agreement, with the aim of achieving climate neutrality**. The **individual catalog of measures** centrally collects climate protection measures that enable climate targets to be achieved. From the 2030 balance sheet year at the latest, climate protection projects outside the company's own value chain will also be financed in order to take responsibility for its own emissions that have not yet been avoided. For this purpose, these are priced with an appropriate factor. Assumptions, results, and objectives are communicated transparently. The **annual update** of the GHG balance sheet fundamentally controls this process.

The “Energieagentur Regio Freiburg GmbH” has prepared this GHG balance sheet for the *Zielgerade2030* alliance on behalf of *Hellma GmbH & Co. KG* for the 2024 balance sheet year. It builds on the 2021 baseline balance sheet and the subsequent balance sheets for 2022 and 2023 and serves to monitor the main sources of greenhouse gases and to plan and track further reductions in emissions.

This GHG balance sheet was prepared on the basis of the internationally accepted principles of the Greenhouse Gas Protocol (GHG Protocol). This report contains all essential information on the methodology, data basis, and results of the GHG balance sheet, including a year-on-year comparison. All supplementary information on the methodology and calculation can be found in the detailed reports of the previous year's balance sheets (not published).

This report has not yet been verified. At the company's request, this report may be published on the company's website (see copyright).

## Summary

*Hellma GmbH & Co. KG* has prepared four GHG balance sheets since joining the *Zielgerade2030* alliance project. Compared to the first balance sheet for the 2021 calendar year, GHG emissions have already been significantly reduced. The current balance sheet (balance sheet year 2024) has been expanded to include key Scope 3 emission categories. This process is to be continued in the coming years (especially optimization of data collection).

The reduction plan outlined shows ways in which Scope 1 and Scope 2 emissions can be reduced over the next 10 years and is therefore a valuable tool for the further successful and sustainable reduction of the alliance's own GHG emissions. The climate management system is continued through an annual cycle in the *Zielgerade2030* alliance.

Based on the GHG balances created and the evaluations carried out, the following statements can be derived within the framework of the climate management system:

**Statement 1:** Local emissions at the Müllheim site amounted to 1,120 t CO<sub>2</sub>e in 2024. Compared to previous years, the emissions include additional categories from Scope 3 and are therefore not directly comparable with the previous year's figures. Based on the same balance sheet boundary (starting balance sheet framework), emissions were reduced by 22% compared to the starting balance sheet (2021).

**Statement 2:** Most emissions, at 537 t CO<sub>2</sub>e, continue to be generated in Scope 2 from purchased electricity. This is followed by the current selection in Scope 3 with just under 400 t CO<sub>2</sub>e and, in third place, Scope 1 with 185 t CO<sub>2</sub>e. Compared to the initial balance sheet, emissions in Scope 1 were reduced by 20%, in Scope 2 by 27% and in Scope 3 (SBR) by 14%.

**Statement 3:** Emissions in the market-based approach total 981 t CO<sub>2</sub>e, which is around 140 t less than in the location-based balance sheet. Most emissions, at 408 t CO<sub>2</sub>e, arise in Scope 2 from purchased electricity. This is followed by the current selection in Scope 3 with just under 390 t CO<sub>2</sub>e and, in third place, Scope 1 with 185 t CO<sub>2</sub>e. Based on the same balance sheet boundary (starting balance sheet framework), emissions have increased by 5% compared to the starting balance sheet (2021). This is mainly due to the increase in the emission factor for electricity.

**Statement 4:** In terms of activity categories, emissions from electricity procurement (including upstream chains) rank first. These have fallen by 25% since the starting year. Emissions from heat supply rank second and have fallen overall but have risen slightly compared to the previous year. Employee commuting and purchased goods and services are in third place with the same level of emissions, although the accounting for purchased goods and services is still incomplete. Emissions from the vehicle fleet and business travel have risen significantly. Direct fugitive emissions (refrigerants) have fallen significantly.

**Statement 5:** An assessment of the impact of key climate protection measures shows significant potential for reducing Scope 1 and 2 emissions by almost 70% within 10 years. This would reduce emissions from around 720 t CO<sub>2</sub>e at present to around 230 t CO<sub>2</sub>e in 2034. The SBTi near-term targets for location-based Scope 1 & 2 emissions by 2034 can thus be achieved. The planning and gradual implementation of the measures is essential for achieving the targets.

## 1 Greenhouse gas balance methodology

The current GHG balance is calculated for the 2024 balance year (calendar year). To put the balance results into context, it should be noted that the company's activities in 2021 and 2022 were affected by the coronavirus pandemic.

### 1.1. Accounting Standard

This GHG balance sheet was prepared in accordance with the specifications and guidelines of the GHG Protocol (<https://ghgprotocol.org/>).

### 1.2. Organizational structure and organizational balance sheet boundary

The GHG balance sheet was prepared in accordance with the control approach (operational control). Under the control approach, the organization takes into account 100% of the greenhouse gas emissions from all facilities over which it has financial control or whose operating processes it controls (operational control).

Specifically, the following locations were included in the balance sheet at 100% (see Table 1):

*Table 1: Definition of the included locations with addresses and information on building allocation*

Location designation	Location content	Address	Buildings included
Müllheim	Headquarters: Administration, office, production/manufacturing, and kindergarten	Klosterrunsstr. 5 D-79379 Müllheim	All buildings, owned

*Table 2: Key figures for the reporting organization*

Parameter	2021	2022	2023	2024
Employees in FTE [-]	220	199	203	199
Annual revenue [€ million]	19.0	22.0	20.3	18.4
Annual operating performance [€ million]	20.1	23.4	21.6	19.3

### 1.3. Operational system boundary: reported GHG emissions

All greenhouse gases relevant to the Kyoto Protocol are accounted for separately where possible: fossil carbon dioxide (CO<sub>2</sub>), fossil/biogenic methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), nitrogen trifluoride (NF<sub>3</sub>), sulfur hexafluoride (SF<sub>6</sub>) and, where relevant, perfluorocarbons (PFC<sub>x</sub>) and hydrofluorocarbons (HFC<sub>x</sub>). Greenhouse gas emissions are reported exclusively in tons of CO<sub>2</sub>

equivalents (t CO<sub>2</sub>e for short). The global warming potential of individual gases is calculated using GWP100 in accordance with at least the 5th Assessment Report of the IPCC (2021).

The GHG Protocol distinguishes direct and indirect emission sources from three scopes (Scope 1, Scope 2, and Scope 3). The following figure shows the classification of GHG emissions according to the three scopes.

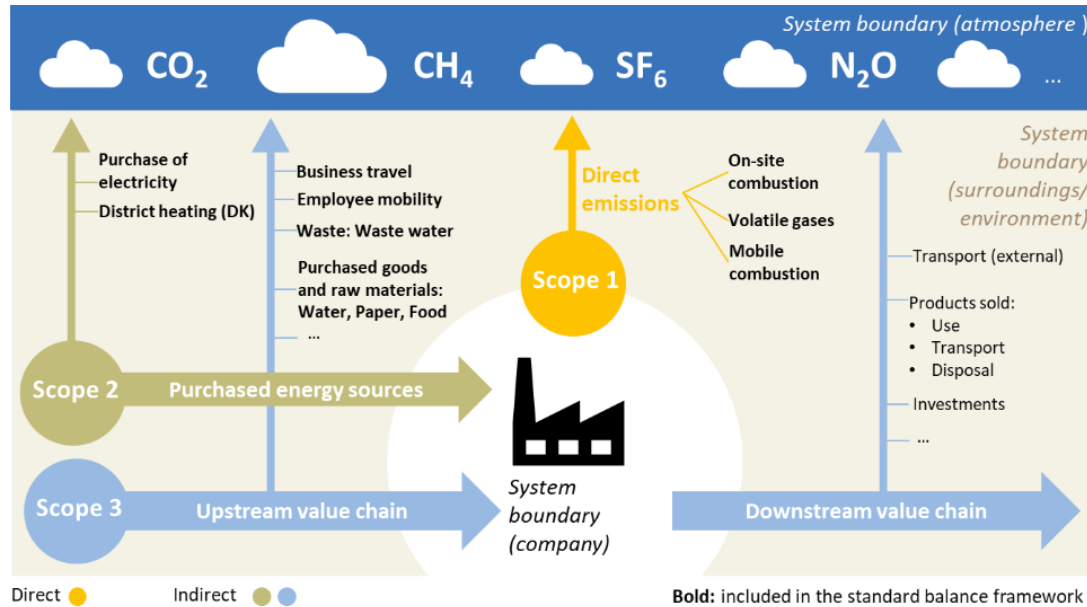


Figure 1: System boundaries and emission sources by scope according to the GHG Protocol  
Source: Energieagentur Regio Freiburg GmbH

Direct GHG emissions are emissions from sources owned or controlled by the company. They arise, for example, from the combustion of fossil fuels on site. Indirect GHG emissions are accounted for in Scope 2 and Scope 3. Scope 2 covers emissions from the purchase of imported/purchased energy. Scope 3 includes other indirect emissions within upstream or downstream activities in the value chain.

GHG emissions are generally quantified by multiplying activity data by specific emission factors (see chapter 2.3) using the following formula

$$\text{Activity data [unit]} \times \text{Emission factor [t CO}_2\text{e/unit]} = \text{Emissions [t CO}_2\text{e]}$$

**Activity data** are measured values that quantify a specific activity or resource, such as kilometers driven or kilowatt hours of electricity consumption.

**Emission factors** are parameters that indicate how many greenhouse gases (GHG) are produced during a specific activity, for example, when burning fuel or consuming electricity.

An expenditure-based approach was used to calculate emissions from purchased services. Emissions (primary data) were not measured.

Scope 1 and Scope 2 emissions were fully accounted for in all balances.

In addition to the initial accounting framework, other significant categories were accounted for in Scope 3. These were identified using a materiality analysis and are shown in **Fig 3**.

However, some of the categories identified as material could not be included in the balance sheet due to a lack of data. It is recommended that this data be recorded in future balance sheets and that the corresponding emissions be included.

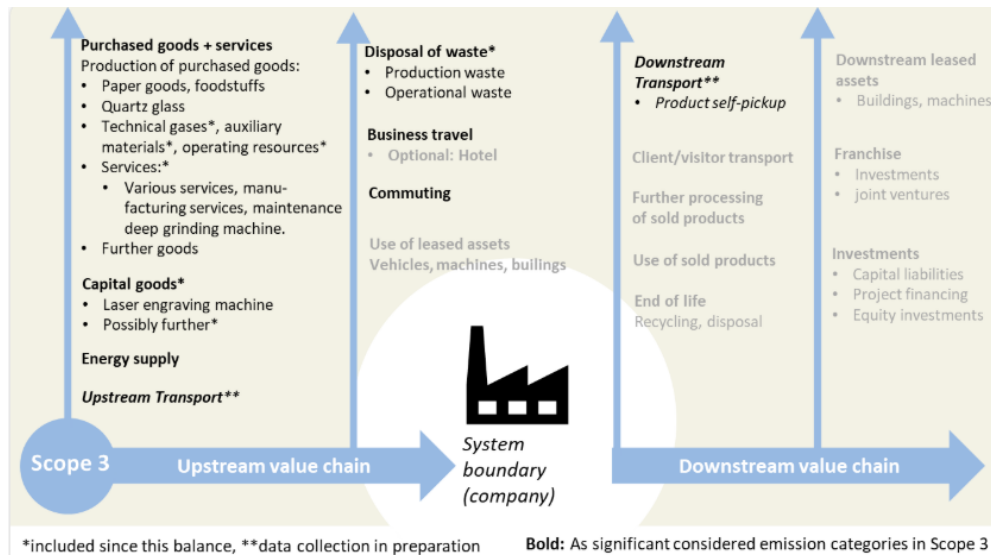


Fig.3: Emission sources included in Scope 3 (slightly adapted from GHG Protocol)  
Source: Energieagentur Regio Freiburg GmbH

**Direct biogenic CO2 emissions** are considered outside the scopes defined above (see section 1.1), where relevant. There were no official **greenhouse gas sinks** in the reporting year. Any relevant deviations in the quantification approach compared to previous years are reported, if relevant.

#### 1.4. Dual accounting of imported energy

In accordance with the GHG Protocol guidelines, emissions from imported energy in Scope 2 are calculated using both the location-based approach and the market-based approach and are separated from each other.

Balance sheet based on the location-based approach:

- Electricity: Calculation based on the German electricity mix according to scientific sources (UBA 2025)

Balance sheet according to the market-based approach:

- Electricity: Calculation for the electricity product in question (electricity labeling according to Section 42 EnWG: Vattenfall “Supply for all other tariffs”)

Unless otherwise stated, the balance sheet in this report is always evaluated according to the location-based approach.

## 2 Data basis

### 2.1. Activity data

The activity data used is specific primary data from *Hellma GmbH & Co. KG*, which was collected for the reporting year using a detailed questionnaire. For further information on the data basis, see Appendix A.2. Here you will find a brief description of the activity data used for each activity category.

### 2.2. Energy consumption in detail

Energy consumption (electricity and heat) generally has a significant impact on Scope 1 and Scope 2 emissions and is a relevant lever for potential GHG savings. The following figures and tables therefore show the development of *Hellma GmbH & Co. KG*'s electricity consumption and heat demand over the accounting years 2021 (opening balance), 2023, and 2024 (current balance).

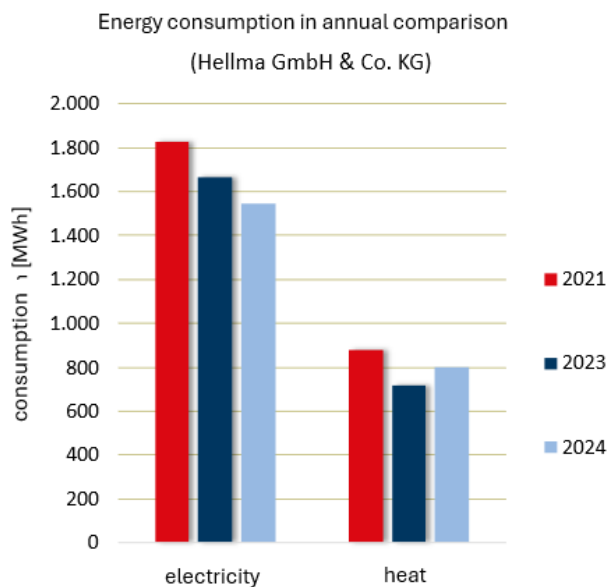


Figure 4 (adapted from "Energieagentur Regio Freiburg GmbH"): Electricity consumption (left) and heat demand (right) of Hellma GmbH & Co. KG in a year-on-year comparison

Table 3: Overview of the cumulative energy consumption of the reporting organization (electricity and heat) and the relative development in the balance sheet years 2021, 2023, and 2024.

Category	2021 [MWh]	2023 [MWh]	2023 [MWh]	Relative development since start year [%]
Electricity consumption	1,827.9	1,665.4	1,547.8	-15 %
Heat demand (natural gas + heating oil, calorific value)	877.8	715.6	802.2	-9 %

Energy consumption based on fossil fuels has a major impact on overall emissions. In addition, the organization has a direct influence on the amount of electricity, heating, and process heat consumed.

Since 2021, electricity procurement from the German electricity mix has fallen significantly by a total of 15% to 1,548 MWh in 2024.

Since 2021, total heat consumption (primarily natural gas for heating/process heat) has been reduced by 9% to 802 MWh (calorific value) in 2024.

It should be noted that the energy consumption for heat supply is not weather-adjusted. This means that fluctuations are also due to weather conditions.

### 2.3. Emission factors

In addition to activity data, specific emission factors have a decisive influence on the result and quality of the GHG balance. Recognized databases (including GEMIS, ecoinvent, DEFRA, TREMOD) and current scientific studies (including those by the UBA and ifeu) were always used as sources for secondary data.

In accordance with the principle of accuracy according to the GHG Protocol, the following guidelines were taken into account in the selection of emission factors in order to minimize uncertainties in the calculation as far as possible:

- Technological relevance
- Temporal relevance
- Geographical relevance
- Completeness
- Reliability

The emission factors in this GHG balance sheet therefore model the **technological processes** as accurately as possible. **Current** emission factors were used as a rule. In a few exceptions, slightly older data was used. For example, in the case of imported grid electricity, it is assumed that physical changes in (upstream) emissions, such as fuel combustion, are slower over time. With regard to the **geographical context**, emissions factors for Germany were generally used in the calculations. For emissions from mobility in Scope 3, both national and transport-specific as well as average emissions data were used. The use of data from recognized studies and databases ensures **complete** and **reliable** calculations.

The specific sources for the emission factors used in this balance sheet can be found in Appendix A.3.

### 3 Greenhouse gas balance results (including annual comparison)

#### 3.1. GHG balance according to location-based approach

##### 3.1.1. Total balance according to scopes

The following tables and figures show the results of the GHG balance for the 2024 balance year according to the location-based approach. In accordance with the GHG Protocol, the balance does not include any deductions (e.g., from compensation payments), biogenic emissions, or non-CO2 effects from air travel.

Table 4: Cumulative location-based GHG emissions in 2024 per scope

Allocation according to GHG Protocol	Current [t CO <sub>2</sub> e]	Share [%]	Comparison to starting year
Scope 1	185	17 %	-20 %
Scope 2	537	48 %	-27 %
Scope 3 – SBR	273	24 %	-14 %
Scope 3 – Expansion	125	11 %	n.a.
<b>Sum</b>	<b>1,120</b>	<b>100 %</b>	<b>n.a.</b>
Summe – nur SBR	996	n/a	-22 %

\* n.a.: „not applicable“, no direct comparison possible due to expansion of the balance sheet framework.

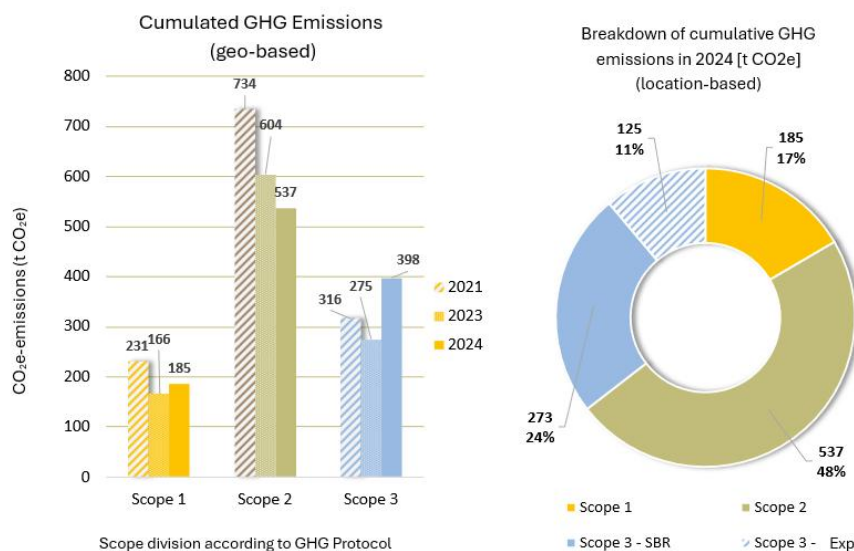


Figure 2 (adapted from “Energieagentur Regio Freiburg GmbH”): Cumulative location-based GHG emissions in 2024 by scope (absolute values, left; relative share, right)

Location-based emissions at the Müllheim site amounted to 1,120 t CO<sub>2</sub>e in 2024. Compared to previous years, the emissions include additional emission categories from Scope 3 and are therefore not directly comparable with the previous year's figures. It can be assumed that total emissions will be higher in the future as additional categories are taken into account.

Most emissions, at 537 t CO<sub>2</sub>e, continue to be generated in Scope 2 from purchased electricity. This is followed by the current selection in Scope 3 with just under 400 t CO<sub>2</sub>e and Scope 1 in third place with 185 t CO<sub>2</sub>e.

Based on the same balance sheet boundary (starting balance sheet framework), emissions were reduced by 22% compared to the starting balance sheet (2021).

### 3.1.2. Overall balance by activity category

A more detailed evaluation of location-based GHG emissions by activity category is shown in Figure 3.

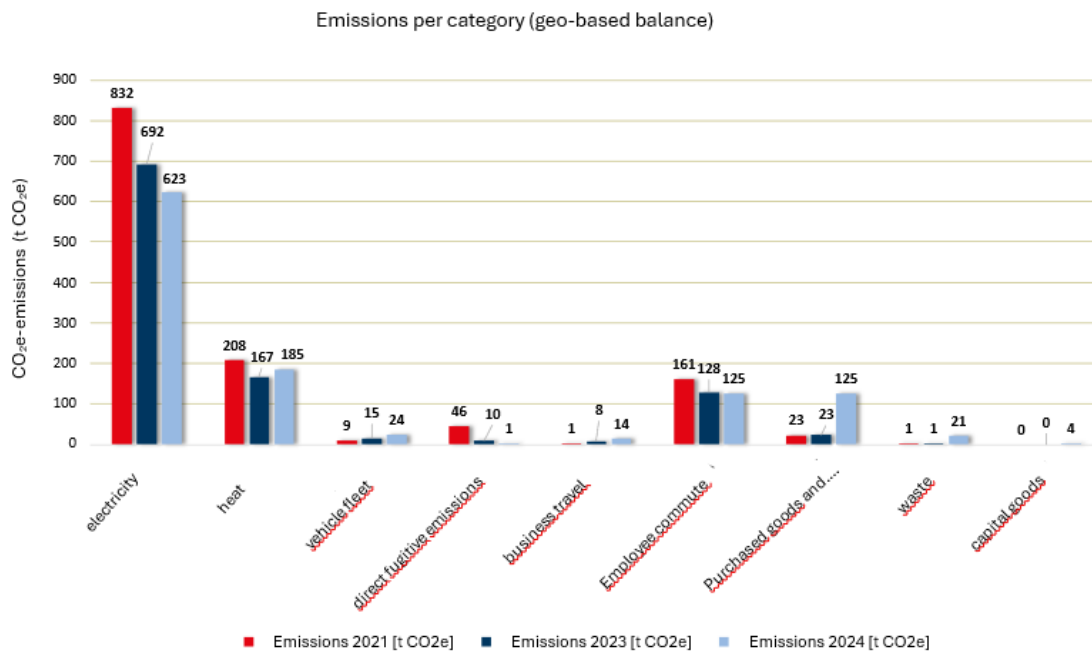


Figure 3 (adapted from "Energieagentur Regio Freiburg GmbH": Breakdown of location-based GHG emissions by activity category in a year-on-year comparison

Table 3: Breakdown of location-based GHG emissions by activity category.

Activity category	Current [t CO <sub>2</sub> e]	Absolute comparison to starting year [t CO <sub>2</sub> e]	Relative comparison to starting year [%]
Electricity	622.7	-209.0	-25%
Heat	185.0	-22.6	-11%
Vehicle fleet	23.8	+14.4	+152%
Direct fugitive emissions	0.5	-45.7	-99%
Business travel	13.9	+12.5	+859%
Employee commuting	125.3	-35.6	-22%
Purchased goods & services	124.7	n/a	n/a
Transportation in supply chain	-	-	-
Waste	20.9	n/a	n/a
Capital goods	3.7	n/a	n/a
<b>Sum</b>	<b>1,120.5</b>	<b>n/a</b>	<b>n/a</b>

\* n.a.: "not applicable," no direct comparison possible due to expansion of the balance sheet framework.

Emissions from electricity procurement (including upstream chains) rank first. These have fallen by 25% since the starting year. Emissions from heat supply rank second and have fallen overall but have risen slightly again compared to the previous year.

Employee commuting and purchased goods and services are in third place with the same amount, but the accounting for purchased goods and services is still incomplete. The increase is due to the expansion of the accounting framework.

Emissions from the vehicle fleet and business travel have risen significantly.

Direct fugitive emissions (refrigerants) have fallen significantly.

## GHG emissions by activity category and scope

The figure shows GHG emissions by activity category and scope for the current reporting year.

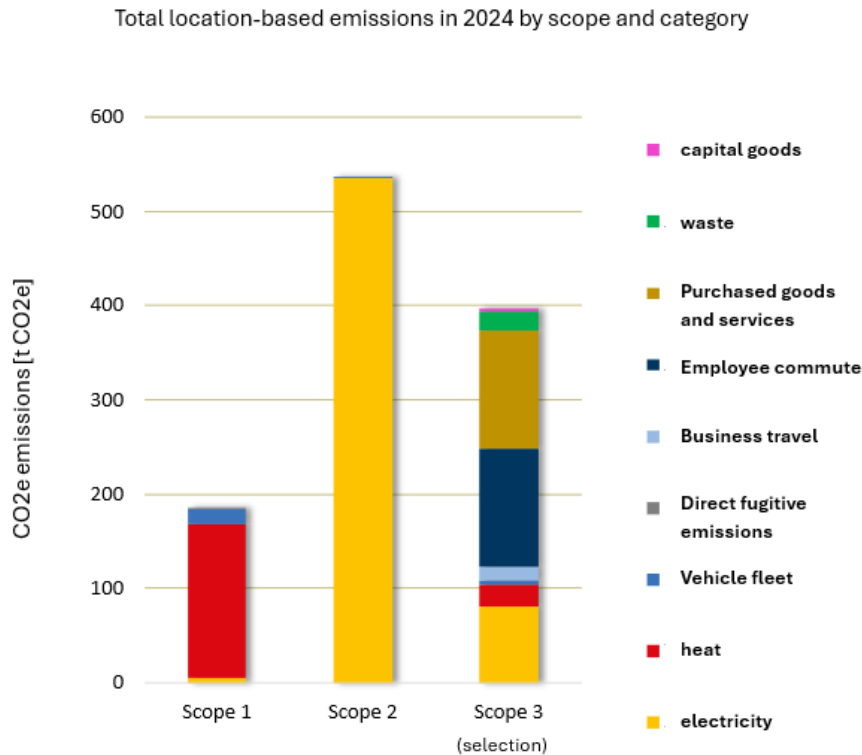


Figure 4 (adapted from “Energieagentur Regio Freiburg GmbH”): Breakdown of location-based GHG emissions by activity category and scope in the 2024 accounting year 2024

Scope 1 is dominated by direct emissions from heat supply (gas and oil combustion). The greenhouse effect of the vehicle fleet and from refrigerant leakage is comparatively low.

Overall, electricity consumption from the German electricity mix is responsible for the largest absolute amount of emissions and dominates Scope 2.

The currently reported Scope 3 emissions result primarily from purchased goods and services and employee commuting. Transportation has not yet been taken into account.

## Detailed evaluation of emissions from purchased goods and services

The following figure shows the composition of GHG emissions in the category “purchased goods & services.” It should be noted that not all purchased goods & services have been recorded yet. In addition, the data uncertainty for “services” is medium to high, as no suitable emission factors are available and an estimate had to be made.

Emission category	CO <sub>2</sub> e-emissions (t)
paper	5.4
food	18.2
Technical gases	5.4
glass	6.4
operating and auxiliary materials	33.5
water	0.5
services	54.8
Plastics and synthetic materials	0.6
<b>sum</b>	<b>124.7</b>

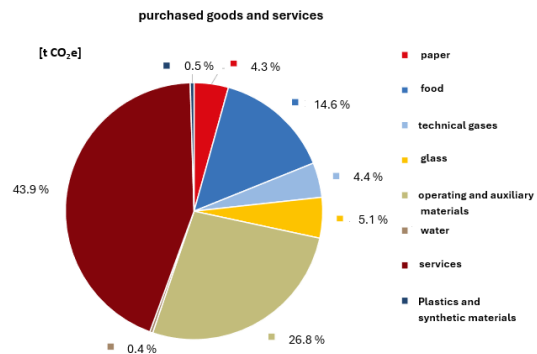


Figure 5 (adapted from “Energieagentur Regio Freiburg GmbH”) : Detailed breakdown of GHG emissions from purchased goods and services

GHG emissions from purchased goods and services have not yet been fully accounted for. Currently, purchased services dominate with just under 44% (relatively high data uncertainty). Purchased operating and auxiliary materials are also very relevant (27%).

Purchased food accounts for just under 15% of emissions.

Purchased glass (quartz glass) accounts for around 5% of emissions.

### 3.2. GHG balance sheet based on a market-based approach

In addition to the location-based balance sheet, a market-based balance sheet is prepared in accordance with the GHG Protocol.

In the market-based balance sheet, electricity emissions are accounted for using the electricity mix of the purchased electricity product, in accordance with the electricity labeling requirements under Section 42 of the German Energy Industry Act (EnWG) (see section 1.4).

*Hellma GmbH & Co. KG* currently purchases electricity from Vattenfall at a tariff that does not include green electricity.

Table 4: Cumulative market-based GHG emissions per scope

Classification according to GHG Protocol	Current [t CO <sub>2</sub> e]	Share [%]	Comparison to starting year
Scope 1	185	21 %	-20 %
Scope 2	408	39 %	+37 %
Scope 3 – SBR	263	27 %	-5 %
Scope 3 – extension	125	14 %	n/a.
<b>Sum</b>	<b>981</b>	<b>100 %</b>	n/a.
Sum – only SBR	856		+6 %

*no direct comparison possible due to expansion of the balance sheet framework.*

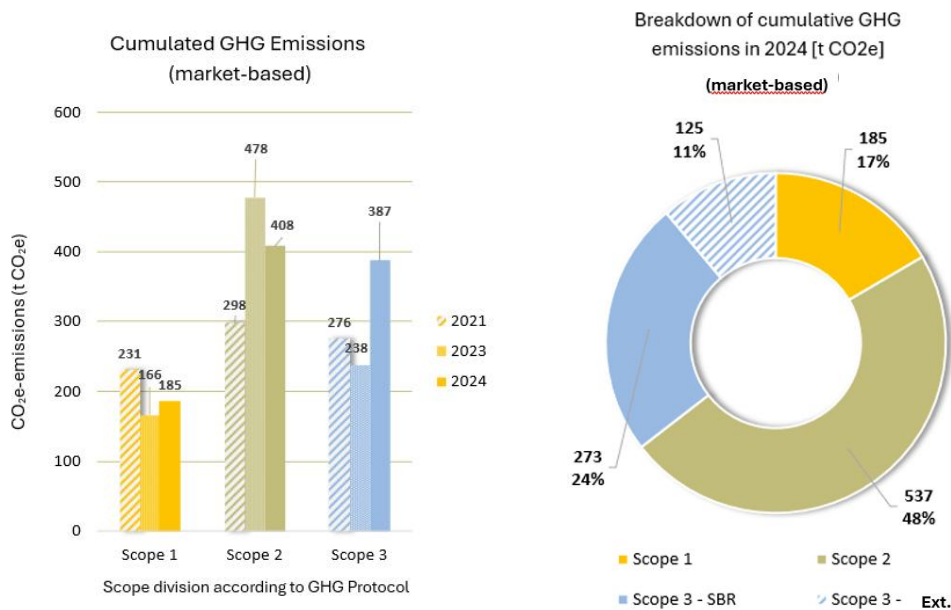


Figure 6 (adapted from “Energieagentur Regio Freiburg GmbH”): Cumulative market-based GHG emissions per scope (absolute values, left; relative share, right)

Emissions in the market-based approach total 981 t CO<sub>2</sub>e, which is around 140 t less than in the location-based balance sheet.

Most emissions, 408 t CO<sub>2</sub>e, are generated in Scope 2 by purchased electricity. This is followed by the current selection in Scope 3 with just under 390 t CO<sub>2</sub>e and Scope 1 in third place with 185 t CO<sub>2</sub>e.

Based on the same balance sheet boundary (starting balance sheet framework), emissions have increased by 5% compared to the starting balance sheet (2021). This is mainly due to the increase in Scope 2 emissions as a result of a deterioration in the emission factor for electricity.

### 3.3. Relative emissions (key figures)

Key figures can be used to assess the development of emissions even when employee numbers or turnover vary. Key figures can also be used to compare emissions with those of similar companies.

The following tables show the calculated key figures, i.e., emissions in relation to business parameters (number of employees (FTE), sales, and in the case of TKG: number of units produced, see section 1.1). Both location-based and market-based balance sheet key figures are shown

*Table 5: Relative key figures based on GHG emissions (location-based)*

Balance sheet framework	Key figure unit	Hellma GmbH & Co. KG			
		2021	2023	2024	Change compared to 2021
<b>Scope 1 &amp; 2</b>	t CO2e/FTE employee	4.39	3.79	<b>3.63</b>	-0.76
	t CO2e/million EUR revenue	50.80	37.91	<b>37.41</b>	-13.39
	t CO2e/million EUR operating performance	48.07	35.63	<b>39.24</b>	-8.82
<b>Scope 1,2 und 3*</b>	t CO2e/FTE employee	5.83	5.15	<b>5.63</b>	-0.19*
	t CO2e/million EUR revenue	67.43	51.42	<b>57.99</b>	-9.45*
	t CO2e/million EUR operating performance	63.81	48.33	<b>60.84</b>	-2.97*

*\*Due to the expansion of the balance sheet boundary in Scope 3 in the 2024 balance sheet, a comparison of the current key figure with those of the previous year is only of limited significance.*

Table 6: Relative key figures based on GHG emissions (**market-based**)

Balance sheet framework	Key figure unit	Hellma GmbH & Co. KG			
		2021	2023	2024	Change compared to 2021
<b>Scope 1 &amp; 2</b>	t CO2e/FTE employee	2.40	3.17	<b>2.98</b>	+0.58
	t CO2e/million EUR revenue	27.84	31.68	<b>30.71</b>	+2.87
	t CO2e/million EUR operating performance	26.35	29.78	<b>32.22</b>	+5.88
<b>Scope 1,2 und 3*</b>	t CO2e/FTE employee	3.66	4.34	<b>4.93</b>	+1.27*
	t CO2e/million EUR revenue	42.36	43.39	<b>50.76</b>	+8.40*
	t CO2e/million EUR operating performance	40.08	40.78	<b>53.25</b>	+13.17*

\*Due to the expansion of the balance sheet boundary in Scope 3 in the 2024 balance sheet, a comparison of the current key figure with those of the previous year is only of limited significance.

Relative location-based emissions in Scope 1 & Scope 2 in relation to full-time equivalents (employees), annual revenue, and operating performance have fallen to lower levels since 2021.  
Relative market-based emissions in Scope 1 & Scope 2 have increased over the same period, mainly due to the significant increase in Scope 2 emissions.  
The key figures including Scope 3 are not comparable with those of previous years due to the expansion of the balance sheet boundary in the current balance sheet.

### 3.4. Location-based balance sheet including additions

The GHG balance sheet can be supplemented with additional effects or emissions. This allows the greenhouse effect of business activities to be estimated or corrected upwards using additional calculations. The following additional effects or emissions are considered.

#### **Additional effects of air travel**

The German Federal Environment Agency (UBA) recommends calculating air travel using a reinforcement factor, the Radiative Forcing Index (RFI), to consider reinforcing non-CO2 effects. In this balance sheet, an RFI of 3 is assumed in the calculation of business trips by plane, in accordance with the recommendation of the UBA (see UBA 2019 “Environmentally friendly air transport”).

#### **Biogenic CO2 emissions from biomass**

According to the GHG Protocol, biogenic CO2 emissions must be reported, but outside the scopes. Thus, this balance sheet variant is supplemented by direct biogenic CO2 emissions from the combustion of biomass, which are excluded from Scope 1 and 2.

The following table and figures show the location-based emissions and the respective additions.

*Table 7: Cumulative location-based GHG emissions taking into account additional effects/emissions*

	<b>Emissions [t CO<sub>2</sub>e]</b>
<b>Location-based emissions (cumulative) – without additions</b>	<b>1,120</b>
<b>Addition:</b> Direct emissions from biomass in t CO <sub>2</sub>	0
<b>Addition:</b> Non-CO <sub>2</sub> effects from air travel (RFI) in t CO <sub>2</sub> e	21
<b>Location-based emissions (cumulative) – including additions</b>	<b>1,142</b>

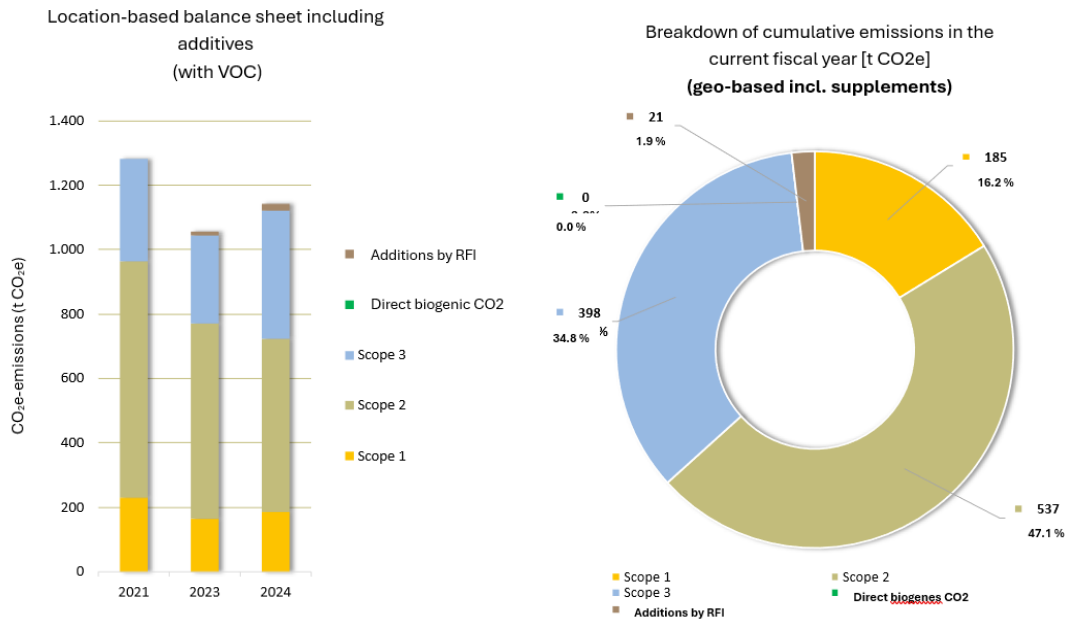


Figure 7 (adapted from “Energieagentur Regio Freiburg GmbH”): Cumulative location-based GHG emissions per scope with additions (absolute values in annual comparison, left; relative share, right)

### 3.5. Information outside the GHG balance sheet

#### External savings

Feeding electricity from our own PV systems into the grid leads to savings elsewhere by replacing fossil fuels.

## 4 Reduction of greenhouse gas emissions

Building on the GHG balance sheet, it is essential within the framework of a climate management system to plan climate protection measures or reduction initiatives tailored to the individual company situation and to implement them in concrete terms. In this way, GHG emissions can be consistently reduced in subsequent years.

Suitable measures are documented in the Zielgerade2030 alliance in an individual catalog of measures. In line with a PDCA cycle (Plan-Do-Check-Act), climate management is systematically reviewed through annual updates.

### 4.1. Climate protection measures

During the kick-off workshop for the first reporting year and in the run-up to the estimated calculation of the reduction potential of key measures, measures that have been implemented to date and those that are still planned or possible were discussed. These agreements serve as the basis for the calculations.

### 4.2. Climate Targets

The companies in the Zielgerade2030 alliance are striving for climate neutrality in the sense of a target that they aim to approach as closely as possible by reducing greenhouse gas emissions to a maximum extent.

In the kick-off workshop, possible targets and milestones for the coming years were discussed jointly. The near-term targets for Scope 1 and Scope 2 emissions of the Science Based Target Initiative (SBTi) are used as external targets for comparison with the calculated reduction plan. The SBTi defines targets for reducing emissions in line with the Paris Climate Agreement. The linear SBTi path is based on the “Absolute Contraction Approach” starting in the base year 2022.

An extension with regard to Scope 3 targets is possible. This requires the future accounting of all significant Scope 3 emissions.

### 4.3. Reduction plan and target alignment

Based on the catalog of measures, the reduction plan shown below was calculated for emissions development between 2024 and 2034. The potential impact of selected measures from various functional areas with an effect on Scope 1 and Scope 2 emissions was estimated (bottom-up method).

The following measures with an impact on Scope 1 and 2 were taken into account for the reduction plan:

### Electricity:

- Further replacement of lighting (with LED)
- 3 new PV systems: solar green roof (flat roof, 150 kWp), expansion of existing system by 120 kWp, parking lot PV (190 kWp). 75% self-consumption rate.
- Electricity storage: Increase in self-consumption rate of all PV systems by a flat rate of 10%
- Green roof: Reduction in electricity consumption for air conditioning by approx. 15%
- From energy audit: Reduction in electricity consumption through separation of room and process cooling and energy management (various measures)

### Heat:

- From energy audit: Reduction in heat demand through waste heat utilization, cold forming, and readjustment of oil heating.
- Renovation of building envelope in old building (flat-rate estimate).
- Decarbonization of gas heating/CHP through air-water heat pump, including calculation of additional electricity demand.

### Vehicle fleet:

- 100% electrification distributed linearly until the target year by means of BEV, including calculation of additional electricity demand.

In addition, the impact of the ongoing energy transition on the emissions of the future electricity mix was also assessed (electricity mix forecast).

It should be noted that the reduction plan is based on a blanket estimate of the savings potential of a limited set of measures. A more comprehensive and therefore more precise estimate of savings potential can be provided by a conceptual plan of measures, e.g., as part of a transformation plan.

The following figure shows the timing of the measures mentioned.

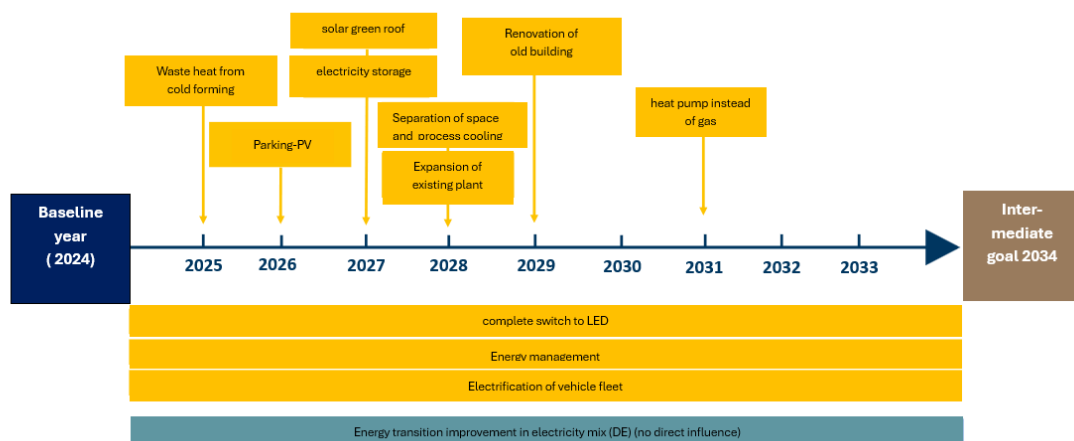


Figure 8 (adapted from "Energieagentur Regio Freiburg GmbH"): Timeline for measures to reduce GHG emissions

The expected emission reductions are shown in the figure below and are compared with the near-term targets for Scope 1 and Scope 2 emissions set by the Science Based Targets initiative (SBTi).

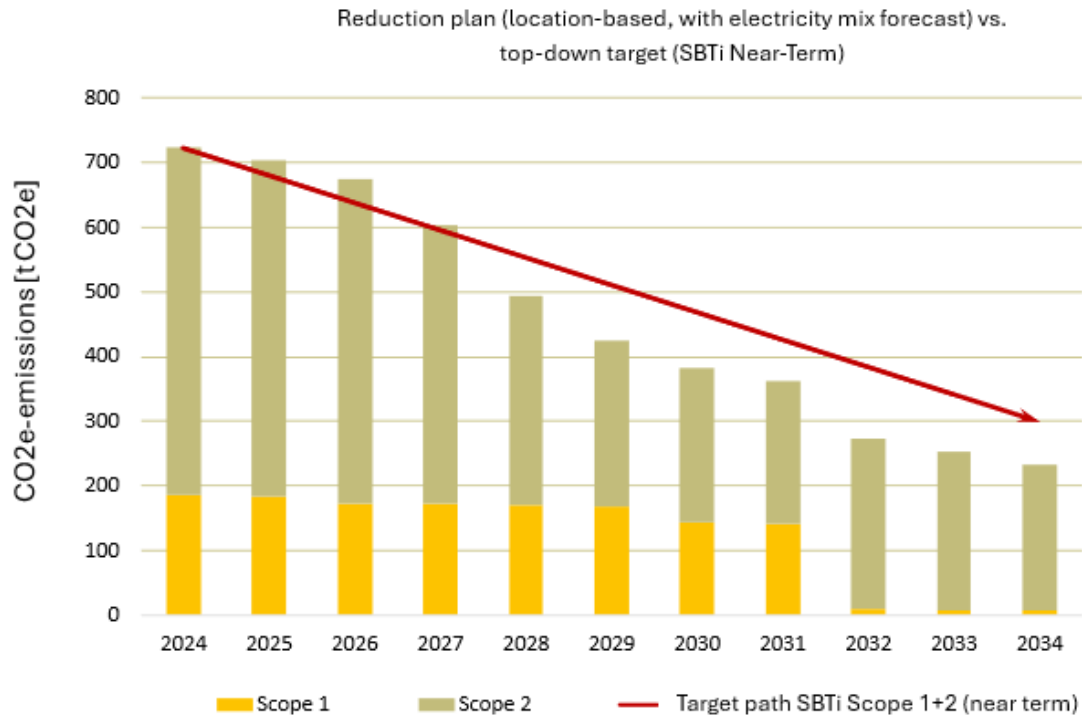


Figure 9 (adapted from “Energieagentur Regio Freiburg GmbH”: Reduction plan (location-based Scope 1 & Scope 2 emissions) + comparison with SBTi near-term target – including electricity mix forecast

The following table shows the current Scope 1 and Scope 2 emissions, the remaining emissions in 2035, and the reduction achieved in each case (absolute and percentage).

Table 8: GHG emissions in the base year and target year, achievable emission reduction

Scope	Emissions Base year [t CO <sub>2</sub> e]	Emissions Target year [t CO <sub>2</sub> e]*	Absolute reduction [t CO <sub>2</sub> e]*	Percentage reduction [%]*
<b>Scope 1</b>	185	6	179	96.6%
<b>Scope 2</b>	537	226	312	58.0%
<b>Scope 1 &amp; 2 (Summe)</b>	723	232	491	<b>67.9%</b>

\*with electricity mix forecast

The high-level estimate of the impact of key climate protection measures shows significant reduction potential in terms of Scope 1 and 2 emissions of just under 70% within 10 years. This would reduce emissions from the current level of around 720 t CO<sub>2</sub>e to around 230 t CO<sub>2</sub>e in 2034.

The SBTi near-term targets for location-based Scope 1 & 2 emissions by 2034 can thus be achieved. The planning and gradual implementation of the measures is essential for achieving the targets.

## 5 Certificates and climate protection projects

Financing external climate protection projects is another way to take responsibility outside the value chain and promote global climate protection. First and foremost, it is important to focus on climate protection efforts within the value chain as part of climate and sustainability management in order to achieve a sustainable reduction and avoidance of our own significant GHG emissions. In addition, financing and supporting external climate protection projects outside of our own GHG balance sheet is an additional valuable means of doing so.

*Hellma GmbH & Co. KG* does not currently have any such certified climate protection projects.

## Appendix A

### A.1 Operational system boundary: Consideration of emissions

#### Direct emissions: Scope 1

Table 9: Description of direct GHG emissions and application in this balance sheet with estimated data quality

Category	Emission sources	Consideration	Relevant Locations	Data Quality
1.1	Direct emissions from stationary combustion	Yes – completely	Müllheim	High
1.2	Direct emissions from mobile combustion	Yes – completely	Müllheim	High
1.3	Direct emissions and direct removal from industrial processes	Yes, but not relevant	-	-
1.4	Direct fugitive emissions	Yes – completely	Müllheim	High
1.5	Direct emissions and removals from land use, land-use change, and forestry	Yes, but not relevant	-	-

#### Indirect emissions: Scope 2

Table 10: Description of indirect GHG emissions in Scope 2 and application in the present balance sheet with estimated data quality:

Category	Emission sources	Consideration	Relevant Locations	Data Quality
2.1	Indirect emissions from imported electricity	Yes – completely	Müllheim	High
2.2	Indirect emissions from imported energy	Yes, but not relevant	-	-

### Indirect emissions: Scope 3

Table 11: Description of indirect GHG emissions in Scope 3 and application in the present balance sheet with estimated data quality:

Category	Emission sources	Consideration	Datenqualität
3.1	Emissions from procured goods and services	Yes – water, paper products and cardboard, food, technical gases, operating and auxiliary materials, quartz glass, optical glass, services.	Medium to High
3.2	Emissions from capital goods	Yes – Purchase of laser engraving machine	Medium
3.3	Emissions from energy and electricity not included in Scope 1 and 2	Yes- completely	High
3.4	Emissions from upstream transport and distribution of goods	No – relevant according to materiality analysis, data collection currently not possible.	-
3.5	Emissions from the disposal of solid and liquid waste	Yes- completely	High
3.6	Emissions from business travel	Yes- completely	Medium to High
3.7	Emissions from commuter traffic, including working from home	Yes- completely	Medium to High
3.8	Emissions from the use of leased equipment	No – not relevant according to materiality analysis	-
3.9	Emissions from downstream transport and distribution of goods	No – relevant according to materiality analysis, data collection currently not possible.	-

(3.9)	Emissions from the transportation of customers and visitors	No – not relevant according to materiality analysis	-
3.10	Emissions from the further processing of sold products	No – not relevant according to materiality analysis	-
3.11	Emissions from the use phase of sold products	No – not relevant according to materiality analysis	-
3.12	Emissions from the end-of-life phase of sold products	No – not relevant according to materiality analysis	-
3.13	Emissions from downstream rented/leased facilities	No – not relevant according to materiality analysis: no downstream rented/leased assets exist.	-
3.14	Emissions from franchise operations	No – not relevant according to materiality analysis: no franchise operations exist	-
3.15	Emissions from investments	No – not relevant according to materiality analysis: No significant investments made	-

### Materiality analysis to derive relevant Scope 3 emission categories

To estimate significant emission sources, a materiality analysis was conducted during an initial workshop using the following decision criteria.

- Magnitude of emissions (quantity)
- Degree of influence (influenceability)
- Data availability

Low data availability is only used as a relevant criterion if a low quantity and influenceability are also to be expected.

## A.2 Activity categories and activity data

Table 12: Grouping of activities into emission categories according to GHG Protocol & information on the data basis for activity data, including source and quality

Activity Category	Included Emission Sources	GHG Protocol Emission Categories	Data Source & Data Quality
<b>Electricity</b>	<b>Direct emissions and upstream chains</b>	Indirect emissions from imported electricity: <b>Scope 2</b> <hr/> Energy-related emissions outside <b>Scope 1/2: Scope 3, Cat. 3</b>	Consumption data from invoices – high data quality
<b>Heat</b>	Direct emissions and upstream chains	Direct emissions from stationary combustion: Scope 1; Imported energy: Scope 2; <hr/> Energy-related emissions outside <b>Scope 1/2: Scope 3, Cat. 3</b>	Consumption data from invoices – <b>high data quality</b>
<b>Vehicle fleet</b>	Direct and indirect emissions incl. upstream chains	Mobile combustion: Scope 1; Imported electricity: Scope 2 <hr/> Energy-related emissions outside <b>Scope 1/2: Scope 3, Cat. 3</b>	Annual mileage & fuel receipts per vehicle – high data quality (incl. estimated electricity at external charging stations)
<b>Production processes</b>	Direct CO <sub>2</sub> emissions	Industrial process emissions: <b>Scope 1</b>	-
<b>Fugitive emissions</b>	Refrigerant leakage	Direct (fugitive) emissions: <b>Scope 1</b>	Commissioning reports – <b>high data quality</b>
<b>Business travel</b>	Direct emissions without upstream chains	Business travel emissions: <b>Scope 3, Cat. 6</b>	Airlines, travel expense reports, rail business accounts – <b>high data quality</b>
<b>Employee commuting</b>	Direct emissions without upstream chains	Commuting: Scope 3, Cat. 7; Home office: Scope 3, Cat. 7	Conversion of initial analysis (postal code evaluation) – <b>medium to high data quality</b>
<b>Purchased goods &amp; services</b>	Raw materials, operating and auxiliary materials, services	Purchased goods & services: <b>Scope 3, Cat. 1</b>	Quantities from ERP system, financial accounting data – <b>high data quality</b>
<b>Transportation in the supply chain</b>	Inbound goods, outbound goods to first customer	Upstream & downstream transport and distribution: <b>Scope 3, Cat. 4 &amp; 9</b>	-
<b>Waste</b>	Production, operational and office waste, wastewater	Waste disposal emissions: <b>Scope 3, Cat. 5</b>	Waste data in kg – <b>high data quality</b>

<b>Down-stream product life cycle</b>	Use phase and end of life	Use, processing and end-of-life emissions: <b>Scope 3, Cat. 10-12</b>	-
<b>Energy trading goods</b>	Combustion of sold gas & electricity mix of sold power	Energy-related emissions outside <b>Scope 1/2: Scope 3, Cat. 3</b>	-
<b>Capital goods</b>	New plants, buildings, vehicles	Capital goods: <b>Scope 3, Cat. 2</b>	-
<b>Franchises &amp; investments</b>	Equity participation in Company A	Franchises & investments: <b>Scope 3, Cat. 14 &amp; 15</b>	-
<b>Upstream leased assets</b>	Energy consumption of rented buildings	Upstream leased assets: <b>Scope 3, Cat. 8</b>	-
<b>Down-stream leased assets</b>	Direct and indirect emissions	Downstream leased assets: <b>Scope 3, Cat. 13</b>	-
<b>Customer mobility</b>	Direct and indirect emissions incl. upstream chains	Customer & visitor travel: <b>Scope 3, Cat. 9</b>	-
<b>Land use &amp; forestry</b>	Land use, land-use change and forestry	Direct emissions and removals from land use, land-use change and forestry: <b>Scope 1</b>	-

### A.3 Data sources for emission factors

Table 13: Data sources for the emission factors used for the individual emission categories and data quality

Emission source	Source	Data quality
<b>Electricity mix Germany</b> (direct & upstream)	German Environment Agency (UBA 2025)	Medium to high
<b>Market-based electricity mix</b> (direct & upstream)	Electricity disclosure according to §42 EnWG based on utility bill; GEMIS/UBA emission factors and T&D losses via DE-FRA	High (primary data)
<b>Fuel emissions</b>	DEFRA 2024	Medium to high
<b>Natural gas / heating oil</b>	GEMIS 5.1 / 5.0	High
<b>Charging of battery-electric vehicles outside the company</b>	German Environment Agency (UBA 2024) & ADAC	High
<b>Passenger transport (car mobility and air travel)</b>	DEFRA 2024, UBA 2024, TREMOD 6.51	High
<b>Transport (truck, aircraft, ship)</b>	TREMOD 6.53	Medium to high
<b>Purchased goods and products (general)</b>	ecoinvent 3.10 / 3.11 (raw materials, packaging, metals)	Medium to high
<b>Technical gases</b>	UBA 2025	High
<b>Paper products, plastics</b>	UBA 2023 / DEFRA 2023	Medium to high
<b>Food</b>	ifeu	Low to medium
<b>Electronics, specialty glass</b>	ecoinvent 3.11 / scope3transparent 2024	Medium to high
<b>Services</b>	Office services: own estimation; manufacturing services: revenue-based indicator (Hellma Scope 1+2)	Low to medium
<b>Waste</b>	ecoinvent 3.9.1 / 3.10	Medium to high

### A.4 Location-based emissions by category according to GHG Protocol

Table 14: Overview of site-based GHG emissions [t CO<sub>2</sub> equivalents/year] by emission category (ISO 14064-01, site-based)

Emission source	Scope	2021 [t CO <sub>2</sub> e]	2022 [t CO <sub>2</sub> e]	2023 [t CO <sub>2</sub> e]	2024 [t CO <sub>2</sub> e]	Share (2024)
Direct emissions from stationary combustion	1	178.8	166.1	145.7	167.6	15.0%
Direct emissions from mobile combustion		6.2	10.2	10.4	<b>17.3</b>	1.5%
Direct emissions and removals from processes arising from industrial processes		0.0	0.0	0.0	<b>0.0</b>	0.0%
Direct fugitive emissions from the release of greenhouse gases in anthropogenic systems		46.2	21.3	9.6	<b>0.5</b>	0.0%
Direct emissions and removals from land use, land-use change and forestry		0.0	0.0	0.0	<b>0.0</b>	0.0%
Indirect emissions from imported electricity	2	734.1	784.3	604.2	<b>537.4</b>	48.0%
Indirect emissions from imported energy		0.0	0.0	0.0	<b>0.0</b>	0.0%
Emissions from upstream transport and distribution of goods	3	-	-	-	-	-
Emissions from downstream transport and distribution of goods		-	-	-	-	-
Emissions from commuting (including working from home)		162.7	128.1	129.6	<b>126.5</b>	11.3%
Emissions from transport of customers and visitors		-	-	-	-	-
Emissions from business travel		1.5	4.7	8.2	<b>13.9</b>	1.2%
Emissions from energy and electricity not included in Scope 1 and 2		128.0	125.5	112.5	<b>108.1</b>	9.6%
Emissions from purchased goods and services*		22.6*	20.2*	22.8*	<b>124.7*</b>	11.1%
Emissions from capital goods		-	-	-	<b>3.7</b>	0.3%
Emissions from disposal of solid and liquid waste		1.5*	1.5*	1.4*	<b>20.9</b>	1.9%
Emissions from use of assets (leased assets)		-	-	-	-	-
Emissions from further processing of sold intermediate products		-	-	-	-	-
Emissions from the use phase of the product		-	-	-	-	-

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Emissions from downstream leased assets	-	-	-	-	-
Emissions from end-of-life treatment of sold products	-	-	-	-	-
Emissions from investments	-	-	-	-	-
Emissions from franchise operations	-	-	-	-	-
<b>Sum</b>	<b>1,281</b>	<b>1,262</b>	<b>1,044</b>	<b>5,733</b>	<b>100%</b>

\*not fully accounted for; “-” not accounted for

