

# CARBON FOOTPRINT REPORT

FINANCIAL YEAR 2022/2023



**ideal**combi 

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## Introduction to Idealcombi

This greenhouse gas (GHG) Inventory covers emissions across parent company Idealcombi A/S and subsidiary Idealcombi UK Ltd. for the financial year 2022-23.

Idealcombi is a Danish manufacturer of quality windows and doors for the domestic and commercial markets. The headquarter and manufacturing facilities are located in Hurup, while sales offices are placed in Hvidovre and Tilst, Denmark. Subsidiary Idealcombi UK Ltd. is located in Milton Keynes, United Kingdom.

## Methodology and Data

The GHG emissions in the inventory were calculated in accordance with the GHG Protocol. Likewise, the data in this report are presented in accordance with guidance from the GHG Protocol (World Resources Institute & World Business Council for Sustainable Development, 2004; 2011; 2013 and World Resources Institute, 2015). However, as for biogenic emissions, only a partial inventory has been prepared. The standards of the upcoming Land Sector and Removals Guidance from the GHG Protocol (World Resources Institute & World Business Council for Sustainable Development, 2022a; 2022b) will be integrated as appropriate, at a later point in time.

Data were collected during 2024-25 and concerns the financial year 2022-23.

## Consolidation Approach

Operational control was chosen as the consolidation approach, and all operations and all sites have been included in the organisational boundary of the inventory. Please see Figure 1 for an illustration of the sites included.

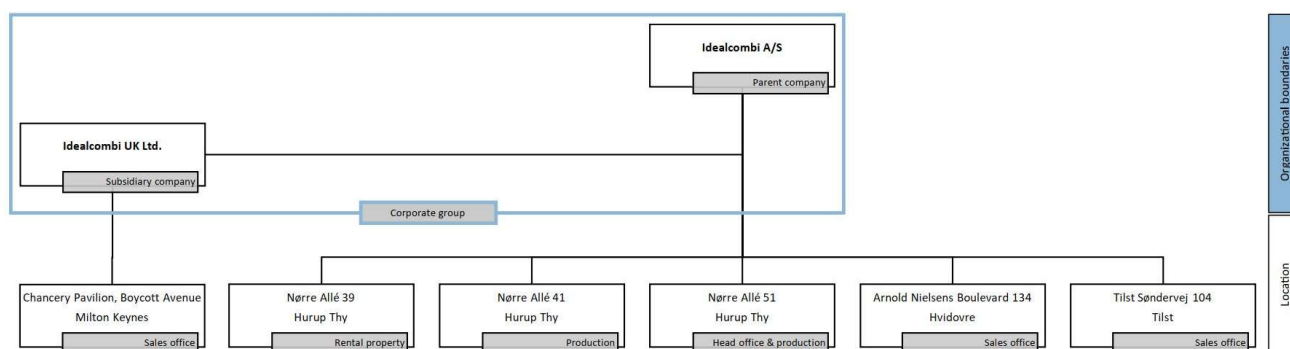


Figure 1. Organisational boundaries include parent company Idealcombi A/S, subsidiary Idealcombi UK Ltd. and sales offices in Denmark and the UK

Idealcombi's sales to all markets has been included in the inventory, which include Denmark, UK, Ireland, Norway, Iceland, the Faroe Islands and Greenland.

## Emissions Included

For scope 1 and 2, no activities have been excluded. In accordance with the GHG Protocol, we have calculated scope 2 emissions using both a location-based and a market-based approach for the consumption of electricity. Total emissions across scopes are reported based on the location-based approach.

For scope 3, a screening was conducted to determine relevant activities to include as well as to evaluate where data were available to calculate the associated emissions. As a result of this screening, most scope 3 activities were included in the inventory. Please refer to Table 1 for an overview of included categories and explanations for categories that have been excluded.

Scope 3 categories	Decision
Category 1: Purchased goods and services	Most activities in this category are included. However, a small fraction of purchased goods and services from maintenance in our manufacturing facility is excluded.
Category 2: Capital goods	Included
Category 3: Fuel- and energy-related activities (not included in scope 1 and 2)	Included
Category 4: Upstream transportation and distribution	Included
Category 5: Waste generated in operations	Included
Category 6: Business travel	Included
Category 7: Employee commuting	Included
Category 8: Upstream leased assets	Energy usage from leased assets is included in energy usage from Idealcombi's facilities in scope 1 and 2 (cf. the operational control consolidation approach) and thus no separate category 8 numbers are reported.
Category 9: Downstream transportation and distribution	Most activities that fall under this category are included in the inventory. However, transportation activities relating to a small fraction of sales has been excluded.
Category 10: Processing of sold products	Windows will occasionally be installed in finished building elements before the elements are transported to the building site. This type of sales nevertheless is estimated at less than 1% of our sales, and therefore category 10 is omitted.
Category 11: Use of sold products	A small fraction of windows is equipped with electric motor openers. These are small motors that are used sparingly during the lifetime of the windows. The result is that the impact from the use of the motor openers is negligible and category 11 is omitted.
Category 12: End-of-life treatment of sold products	Included
Category 13: Downstream leased assets	Included
Category 14: Franchises	Not applicable
Category 15: Investments	Not applicable

Table 1. Overview of scope 3 categories included and omitted

Additional qualitative information regarding assessments of categories 1, 9, 10 and 11 is available in the appendix.

## Calculation Tool

The emissions calculations for this inventory were done via Idealcombi's proprietary GHG tool, which was developed by Nordic LCA in collaboration with Idealcombi and Rotundo. The GHG tool was developed in accordance with the standards from GHG Protocol regarding all scopes (World Resources Institute & World Business Council for Sustainable Development, 2004; 2011; 2013 and World Resources Institute, 2015).

Carbon Dioxide equivalents (CO<sub>2</sub>e) for each activity were calculated using the general formula:

$$\text{CO}_2\text{e} = (\text{activity data} * \text{CO}_2 \text{ per activity} * 1) + (\text{activity data} * \text{CH}_4 \text{ per activity} * 29,8) + (\text{activity data} * \text{N}_2\text{O} \text{ per activity} * 273) + (\dots) + (\text{activity data} * \text{NF}_3 \text{ per activity} * 17200)$$

Equation 1. General formula for calculating CO<sub>2</sub>e emissions per activity

The Global Warming Potential values (GWP values) applied in the inventory stem from IPCC Sixth Assessment Report (Forster et al., 2021). Please see Table 2 for details on the applied GWP-values.

Greenhouse gas	GWP values
CO <sub>2</sub>	1
CH <sub>4</sub> -fossil	29,8
CH <sub>4</sub> -non fossil	27
N <sub>2</sub> O	273
HFC-32	771
HFC-134a	1526
CFC-11	6226
PFC-14	7380
SF <sub>6</sub>	22800
NF <sub>3</sub>	17200

Table 2. Applied GWP values (Forster et al., 2021)

The calculation methodologies are described in further detail in Idealcombi's Carbon Accounting Tool: Method Report, which can be requested from Idealcombi.

## Data Quality

Data quality was evaluated in terms of quality of activity data and quality of emission factors.

Activity data reflect the magnitude of business activities in Idealcombi with relevance to the GHG inventory. Primary activity data in physical units such as MWh, metric ton, m<sup>3</sup> etc. have been acquired where possible, as these reflect activities at Idealcombi most precisely. Scope 1 and 2 are predominantly calculated from primary activity data in physical units. As for scope 3, physical activity data have for instance been acquired for key manufacturing materials in category 1, transportation in category 4 and some waste fractions in category 5.

For other scope 3 categories, primary activity data in physical units were not available, and instead secondary activity data in monetary units (DKK and GBP) or in the form of estimations have been applied. Some manufacturing materials in category 1 and capital goods in category 2 are examples of activity data in monetary units. Secondary data for employee commuting in category 7, downstream transportation and distribution in category 9 and end-of-life treatment of sold products in category 12 were instead developed through estimations that were supported by one-day counting, industry averages or national averages where relevant. More information regarding the data sources is presented in Table 3.

Detailed emission factors specify how much of individual climate gases such as CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O etc. is emitted from a given activity, while less detailed emission factors specify how many CO<sub>2</sub> equivalents are emitted in total,

without details relating to the individual gases. Primary emission factors, i.e. emission factors from value chain partners, were acquired for district heating utilities and for unprocessed wood, finger-joint wood, laminated wood and hardwood via Environmental Product Declarations (EPDs). Emission factors were however mostly secondary and derived from Ecoinvent (version 3.10 Allocation, cut-off, EN15804), and Exiobase (version 3.4). Data from Ecoinvent were applied where activity data were available in physical units and from Exiobase where activities were only available in monetary units. Table 3 outlines the percentage of emission factors that were derived from value chain partners.

All emission factors acquired from the two databases were assessed for representativeness on a scale from 'very poor' to 'very good' for their geographical, technical and time representativeness. The assessment was based on criteria from Product Environmental Footprint Category Rules (European Commission, 2021). The majority of emission factors have a 'good' overall representativeness across geography, technology and time, while a smaller portion of the emission factors can be categorised as 'fair', when taking all three parameters into account.

Based on a combined evaluation of the quality of activity data and emission factors, the resulting quality of the reported emissions have been assessed for each scope and category in Table 3. The uncertainty of reported emissions is assessed on the scale: very poor – poor – fair – good – very good, and is based on the combined quality of the applied activity data and emission factors per scope and category.

Scope and category	Emission factors from value chain partners*	Data quality of reported emissions**
Scope 1	0%	Activity data are mostly primary and combined with secondary emission factors for combustion of fuels in physical units. These emission factors are of high validity, and the resulting emissions data are assessed to be of good quality.
Scope 2, Location-based calculation	22%	Activity data are mostly primary. Emission factors are based on national and local averages. The resulting emissions data are assessed to be of good quality.
Scope 2, Market-based calculation	22%	Activity data are mostly primary. Emission factors are based on a national average for Denmark. Danish average applied to UK context due to lack of UK-based data. The resulting emissions data are assessed to be of fair quality.
<i>Upstream scope 3 emissions</i>		
Category 1: Purchased goods and services	4%	<p>Activity data are a combination of primary data in physical units and secondary data in monetary units. Emission factors are secondary for the majority of purchased goods and services, although based on EPDs for some of the main wood products. Calculations are granular in terms of materials, goods and services and calculated per main supplier. However, materials, goods and services for maintenance in our manufacturing facility are calculated as one activity. The resulting emissions data are assessed to be of good quality.</p> <p>For a small portion of purchased goods and services, where only monetary units are available, average upstream transportation is included in the corresponding emission factors, which are based on economic value of goods. This means a small portion of emissions that would normally fall under category 4, are instead included in category 1.</p>

Category 2: Capital goods	0%	Activity data are secondary data in monetary units. Emission factors are secondary and divided into broad categories. The resulting emissions data are assessed to be of poor quality.
Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	0%	Category 3 emissions are for the most part based on primary activity data for the fuels and energy used and combined with secondary emission factors that are considered to be of high quality. As for the emissions relating to the combustion of waste wood, there is some uncertainty regarding the calorific value of the wood. The quality of the resulting emissions is assessed to be good.
Category 4: Upstream transportation and distribution (paid by Idealcombi)	0%	<p>Activity data relating to transportation of goods to Idealcombi are based on primary data around weight of goods and distances from suppliers, wherever possible.</p> <p>Activity data regarding transportation of finished goods to customers are based on a combination of primary activity data on yearly payload (i.e. weight of goods) from logistics partner, primary data on distances to/ between ports, and secondary activity data on an estimated average distance from ports to end customers. Emissions are calculated for the Danish market as well as for all export markets.</p> <p>Emission factors are secondary data based on ton.km. The resulting emissions data are assessed to be of good quality, although a small part of emissions is included in category 1, as noted under that category.</p>
Category 5: Waste generated in operations	0%	Activity data are split between primary data, where the weight of a fraction is known and secondary data where the weight of a fraction is estimated from the weight of a mixed fraction. Emission factors are secondary. The resulting emissions data are assessed to be of fair quality.
Category 6: Business travel	0%	Activity data for international flights and taxi are based on secondary (monetary) data. Mileage reimbursement is based on primary data in the form of kilometres driven. Emission factors are secondary. The resulting emissions data quality is assessed to be fair.
Category 7: Employee commuting	0%	Activity data based on number of employees, working days, estimated km travelled to/from Idealcombi and a physical one-day counting of number and type of transportation. Activity data estimation thus of higher quality than the base year 2021/22. Emission factors are secondary. The resulting emissions data are assessed to be of fair quality.
<i>Downstream scope 3 emissions</i>		
Category 9: Downstream transportation and distribution (not paid by Idealcombi)	0%	<p>Activity data relate to markets where Idealcombi only delivers finished goods as far as to a relevant Danish port. The activity data are a combination of payload information (weight) extrapolated from other markets and estimated sea and truck distances to end customers.</p> <p>Sea transportation estimates are considered of good quality, while truck transportation estimates are less so. Emission factors are secondary. The resulting emissions data are assessed to be of fair quality.</p>

Category 12: End-of-life treatment of sold products	0%	Due to limited knowledge of actual disposal behaviour, especially outside the Danish market, activity data has been based on average percentages from Product Category Rules for windows and doors (DS/EN17213) and Statistics Denmark. Associated emission factors are secondary. The resulting emissions data are assessed to be of fair quality.
Category 13: Downstream leased assets	0%	Activity data relating to electricity and district heating are primary. Emission factors are secondary but based on Danish averages in physical units. The resulting emissions data are assessed to be of fair quality.

Table 3. Data quality overview. \*Determined as number of sub-calculations with partner-specific emission factors compared to all sub-calculations in a given scope or category. \*\* Emissions data quality assessed on a scale from very poor to very good.

## Data Management Policy

Moving forward, we will be working on increasing the accuracy of our greenhouse gas inventories.

Purchased goods and services are by far the biggest category of greenhouse gas emissions at Idealcombi (see Table 4), and thus an important area for data quality improvements. A key point of improving the data quality in this category is acquiring product-specific data for our most important purchase types. We are therefore working with our suppliers to get more product-specific Environmental Product Declarations (EPDs) in the coming years. Some of the most important purchase types are glass, aluminium and PUR (Idealcore™), and we will focus on these materials as a first step.

Scope 2 represents significant CO<sub>2</sub>e emissions (see Table 4), and is an area where we consider it possible to increase the data quality by acquiring more supplier-specific declarations from the utilities that supply Idealcombi with electricity at our sites in both Denmark and the UK. As part of these efforts, emission factors for market-based electricity calculations in the UK will be an area of attention.

## Recalculation Principles

Base year emissions will be recalculated if there are significant changes to the GHG inventory. Certain situations may trigger such a recalculation. These include:

- Structural changes in Idealcombi that affect the organisational boundaries for the greenhouse gas inventory, such as acquisitions, mergers and divestitures
- Changes in calculation methodology
- Improvements in the accuracy of emission factors or activity data
- Discovery of significant errors or several cumulative errors that are collectively significant

At Idealcombi we have defined a 5% significance threshold for base year recalculations. That is, if the cumulative effect of any of these situations exceeds 5% of total base year emissions, a base year recalculation will be triggered. A recalculation where changes represent less than 5% of base year emissions may also be carried out at Idealcombi's discretion.

## Assurance

No third-party assurance review has been performed for this inventory.



## GHG Emissions

Emissions are calculated in metric tons of CO<sub>2</sub>e, metric tons of individual greenhouse gases (such as CO<sub>2</sub> and CH<sub>4</sub>), or metric tons of biogenic carbon. The calculated emissions relating to scopes 1, 2 and 3 can be found in Table 4.

Scopes and categories	Tons CO <sub>2</sub> e
Scope 1: Direct emissions from operations	665
Scope 2: Indirect emissions from purchased electricity and district heating*	924
Scope 3: Indirect emissions upstream and downstream*	29.042
<i>Upstream scope 3 emissions</i>	
Category 1: Purchased goods and services	22.985
Category 2: Capital goods	1.747
Category 3: Fuel- and energy-related activities*	1.060
Category 4: Upstream transportation and distribution	1.877
Category 5: Waste generated in operations	60
Category 6: Business travel	16
Category 7: Employee commuting	513
<i>Downstream scope 3 emissions</i>	
Category 9: Downstream transportation and distribution	541
Category 12: End-of-life treatment of sold products	242
Category 13: Downstream leased assets	2
<b>Total**</b>	<b>30.632</b>

Table 4. Emissions overview for Idealcombi. \*Scope 2 and scope 3 category 3 emissions are location-based calculations. \*\*Total can deviate from summed subtotals due to rounding

Scope 2 data in Table 4 and Figure 2 and 3 are calculated using the location-based methodology and are based on an electricity consumption across Idealcombi's sites of: 6.062 MWh.

Scope 2 emissions calculated via the market-based methodology are: 2.628 tons CO<sub>2</sub>e.

Table 4 and Figure 2 illustrates that although scope 1 and 2 contribute with sizeable carbon emissions, the majority of emissions stem from scope 3.

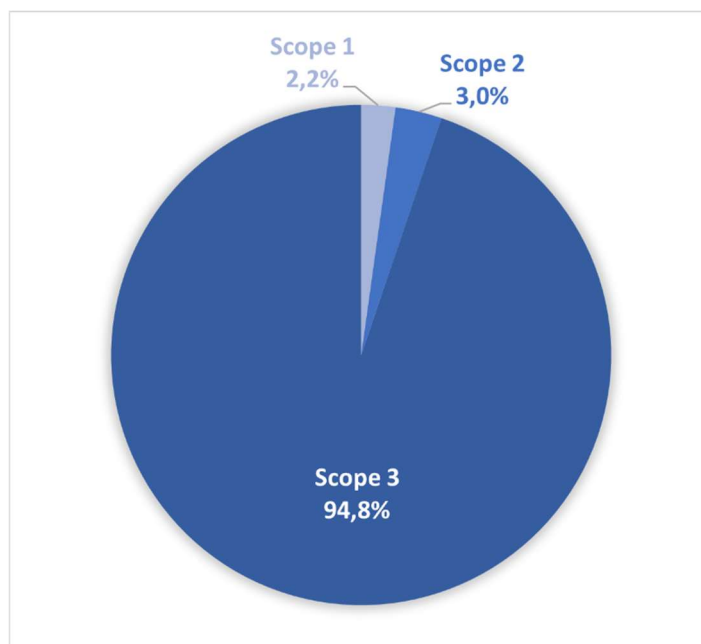


Figure 2. Distribution of emissions on scopes.

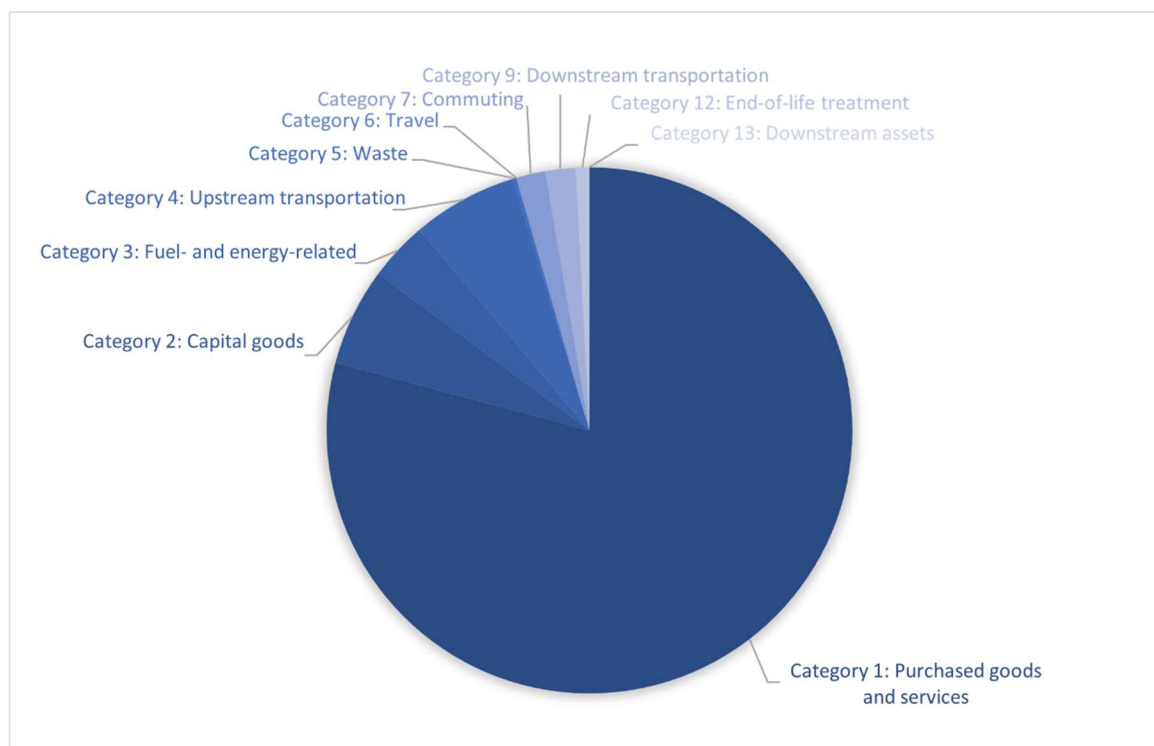


Figure 3. Scope 3 emissions distributed on categories

Within scope 3, Category 1, 'Purchased goods and services' constitutes 79,1% of emissions. Category 4, 'Upstream transportation and distribution' and category 2, 'Capital goods', are examples of other important categories, as illustrated in Figure 3 and Table 5.

Scope 3 categories	Tons CO <sub>2</sub> e	Percentage of scope 3 emissions
Category 1: Purchased goods and services	22.985	79,1%
Category 2: Capital goods	1.747	6,0%
Category 3: Fuel- and energy-related activities*	1.060	3,6%
Category 4: Upstream transportation and distribution	1.877	6,5%
Category 5: Waste generated in operations	60	0,2%
Category 6: Business travel	16	0,1%
Category 7: Employee commuting	513	1,8%
Category 9: Downstream transportation and distribution	541	1,9%
Category 12: End-of-life treatment of sold products	242	0,8%
Category 13: Downstream leased assets	2	0,0%
<b>Total</b>	<b>29.042</b>	<b>100,0%</b>

Table 5. Percentage of scope 3 emissions per category

## Distribution on Types of Greenhouse Gasses

Most greenhouse gas emissions in the inventory stem from Carbon Dioxide emissions (CO<sub>2</sub>), but a small fraction stem from Methane (CH<sub>4</sub>) and especially Nitrous Oxide (N<sub>2</sub>O) emissions. No data on emissions of HFCs, PFCs, SF<sub>6</sub> or NF<sub>3</sub> have been found during the preparation of the inventory.

Please see Table 6 for a detailed view of the greenhouse gas emissions in scope 1 and 2 of the inventory, and their conversion to Carbon Dioxide equivalents (CO<sub>2</sub>e). The scope 2 distribution is calculated from the location-based method.

	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O	
	Tons CO <sub>2</sub>	Tons CO <sub>2</sub> e	Tons CH <sub>4</sub>	Tons CO <sub>2</sub> e	Tons N <sub>2</sub> O	Tons CO <sub>2</sub> e
Scope 1	651	651	0,06	2	0,05	13
Scope 2	904	904	0,5	14	0,02	7

Table 6. Emissions distributed on types of greenhouse gasses. No emissions of HFCs, PFCs, SF<sub>6</sub> or NF<sub>3</sub> have been found during the preparation of the inventory.

Many of the emission factors obtainable for scope 3 calculations, provide only the Carbon Dioxide equivalents, whereas the individual greenhouse gas emissions are not available. Therefore, it has not been possible to prepare an overview of individual gases for scope 3.

## Intensity Ratios

The CO<sub>2</sub>e-intensity per million Danish krone of turnover provides a key figure that will allow us to compare CO<sub>2</sub>-performance from one year to the next. The 2022-23 CO<sub>2</sub>e-intensity taking all scopes into account is:

42,7 tons CO<sub>2</sub>e/mDKK

This ratio is calculated using the location-based method for scope 2 and the associated emissions that fall under scope 3, category 3.

The CO<sub>2</sub>e-intensity has decreased compared to base year. The calculation is based on decreased CO<sub>2</sub>e emissions and a minor increase in turnover compared to base year. It is relevant to note that the reporting year has been affected by a decreased activity level in our production and a market with rising material prices.

## Biogenic CO<sub>2</sub> emissions

Biogenic CO<sub>2</sub> is carbon stored in natural materials such as wood and other plant-based materials. Throughout the lifespan of a tree or any other plant, the net biogenic CO<sub>2</sub> emissions are zero: In the growth phase there is a removal of CO<sub>2</sub> from the atmosphere and this carbon is stored in the natural materials, while they are in use. However, the carbon is released again once the materials are decomposed or incinerated.

In this inventory, we have started to account for the biogenic CO<sub>2</sub> emissions within the organisational boundary, as required by the GHG Protocol. In this inventory we have focused on emissions relating to the wood that is utilized in our manufacturing processes. The inventory does not encompass other sources of biogenic carbon emissions, such as biomass combustion in district heating and electricity supply chains, or food waste composting.

Emissions relating to the wood that is utilized in Idealcombi's manufacturing processes stem from:

- Combustion of waste wood from the manufacturing processes, which is used for heating at Idealcombi's facilities
- Combustion of waste wood that is sold to external partners as a fuel for heating at their facilities
- Incineration and landfilling of wood from Idealcombi's products at the end-of-life stage

Combustion and incineration with energy recovery (waste-to-energy processes) at facilities other than Idealcombi's own, are not included within the organisational boundaries of the biogenic inventory (analogous to the methodology applied in the fossil carbon inventory). Instead, these emissions are included in the emission factors for the generated electricity or heat. For completeness of the biogenic inventory, we have nevertheless reported the biogenic CO<sub>2</sub> emissions associated with combustion or incineration of wood outside scopes.

Scopes and categories	Tons biogenic CO <sub>2</sub> emissions
Scope 1: Direct biogenic CO <sub>2</sub> emissions from combustion of waste wood	2.567
Scope 2: Indirect biogenic CO <sub>2</sub> emissions from the use of purchased electricity, steam, heating, and cooling	Not included
<i>Indirect biogenic CO<sub>2</sub> emissions - upstream scope 3</i>	
Category 1: Biogenic CO <sub>2</sub> stored in wood-based raw materials	- 5.494
Category 2: Biogenic CO <sub>2</sub> in connection with capital goods	Not included
Category 3: Biogenic CO <sub>2</sub> removal in connection with forestry for wood production, for the waste wood that is later combusted for local heating	- 2.567
Category 4: Biogenic CO <sub>2</sub> in connection with upstream transportation and distribution	Not included
Category 5: Biogenic CO <sub>2</sub> emissions from waste generated in operations	Not included, but waste wood for external combustion is reported outside scopes
Category 6: Biogenic CO <sub>2</sub> in connection with business travel	Not included
Category 7: Biogenic CO <sub>2</sub> in connection with employee commuting	Not included
<i>Indirect biogenic CO<sub>2</sub> emissions - downstream scope 3</i>	
Category 9: Biogenic CO <sub>2</sub> in connection with downstream transportation and distribution	Not included
Category 12: Biogenic CO <sub>2</sub> emissions from end-of-life landfilling of wood components in sold products	220
Category 13: Biogenic CO <sub>2</sub> in connection with downstream leased assets	Not included
<i>Biogenic CO<sub>2</sub> emissions – outside scopes</i>	
Biogenic CO <sub>2</sub> emissions from combustion of waste wood at external partners'	1.095
Biogenic CO <sub>2</sub> emissions from end-of-life incineration of sold products	4.180

Table 7. Selected sources of biogenic CO<sub>2</sub> removals and emissions

We have taken initial steps to create a more comprehensive picture of the biogenic carbon stock changes by considering biogenic removals in the forestry stage and subsequent storage in the product pool. To this end, we have accounted for:

- Biogenic carbon removal and storage in the wood that is used for Idealcombi's products
- Biogenic carbon removal in the forestry stage of the waste wood that is used as fuel for heating at Idealcombi

Table 7 provides an overview of the biogenic removals and emissions.

## Development

Historic CO<sub>2</sub>e emissions for all years between the base year and the reporting year are calculated in metric tons of CO<sub>2</sub>e. Absolute CO<sub>2</sub>e emissions relating to the reporting year are the ones also given in Table 4. Change in absolute CO<sub>2</sub>e emissions in % are the change from base year to reporting year.

Development in CO<sub>2</sub>e emissions relating to scopes 1, 2 and 3 can be found in Table 8.

Scopes and categories	Absolute CO <sub>2</sub> e emissions in 2021-22 (Tons)	Absolute CO <sub>2</sub> e emissions in 2022-23 (Tons)	Change in absolute emissions (%)
Scope 1: Direct emissions from operations	738	665	-10%
Scope 2: Indirect emissions from purchased electricity and district heating*	984	924	-6%
Scope 3: Indirect emissions upstream and downstream*	34.329	29.042	-15%
Upstream scope 3 emissions			
Category 1: Purchased goods and services	28.116	22.985	
Category 2: Capital goods	1.227	1.747	
Category 3: Fuel- and energy-related activities*	1.085	1.060	
Category 4: Upstream transportation and distribution	1.883	1.877	
Category 5: Waste generated in operations	66	60	
Category 6: Business travel	16	16	
Category 7: Employee commuting	1.232	513	
Downstream scope 3 emissions			
Category 9: Downstream transportation and distribution	405	541	
Category 12: End-of-life treatment of sold products	297	242	
Category 13: Downstream leased assets	2	2	
Total**	36.051	30.632	-15%

Table 8. Development in emissions per scope and category. \*Scope 2 and scope 3 category 3 emissions are location-based calculations. \*\*Total can deviate from summed subtotals due to rounding

Base year, 2021-22, have been recalculated due to minor corrections.

- Change in calculation methodology: Materials, goods and services for maintenance in our manufacturing facility are now calculated as one activity in monetary units, but include more suppliers than earlier, which improves activity data in scope 3 category 1

- Errors: An error in the emission factor for electricity in the UK in the location-based calculation is corrected in scope 2. Other minor errors in relation to water consumption, sale of waste wood and an emission factor for district heating at one location have been corrected

Location-based scope 2, market-based scope 2, scope 3 categories 1, 3, 5 and 12 are affected by the corrections. A minor increase of less than 0,2% of total base year emissions is the result of the base year recalculation. Please see Table 8 for CO<sub>2</sub>e emissions in relation to base year recalculation.

Absolute CO<sub>2</sub>e emissions relating to scope 1, scope 2 location-based and scope 3 have decreased from base year to reporting year.

Main reasons, for changes in emissions in reporting year, is a reduction in fuels for trucks due to replacements for some new trucks in scope 1; a reduced electricity consumption in scope 2; improved data quality of purchased goods in scope 3 category 1; and improved data quality of Employee commuting in scope 3 category 7. Emissions in scope 3 category 1, 'Purchased goods and services' are especially affected by the acquired emission factors from value chain partners, for most wood.

Decreased CO<sub>2</sub>e emissions are also affected by a lower activity level compared to base year.

## Findings and Next Steps

This inventory has provided an overview of emissions across scopes and activity categories for Idealcombi for the financial year 2022-23.

'Purchased goods and services' is, not surprisingly, the category with the largest emissions, and we will be examining this category closer and looking into ways of reducing the impact from this category in the coming years. In parallel, we will work to increase the data quality in this category, to ensure the best possible data foundation for decisions regarding reduction efforts.

Since 2016, we have implemented energy efficiency initiatives to reduce our energy consumption. In reporting year, we have as examples, replaced an old process equipment with a new one and we have insulated some skylight in the production. We have also reduced fuels for trucks due to replacements for some new fuel-efficient trucks. The recent initiatives have resulted in further heat and energy savings.

This means scope 1 and 2 emissions have been cut. We believe it is possible to reduce emissions further and will continue to explore these opportunities systematically. One area of focus will be to minimise our heat consumption and the electricity intensity in manufacturing (kWh per hour of manufacturing). Also, data quality in relation to emissions factors from value chain partners will be in focus.

In reporting year, we have also improved data quality of Employee commuting in scope 3 category 7 by a physical one-day counting, resulting in reduced emissions compared to base year.

In reporting year, we have also reduced emissions in relation to purchased goods and services. This is a result of improved data quality of purchased goods in scope 3 category 1, affected by the acquired emission factors from value chain partners, for most wood, as an example.

Decreased CO<sub>2</sub>e emissions are also affected by a lower activity level compared to base year.

We will be working towards CO<sub>2</sub> improvements in our supply chain. A key point in this, is the engagement of our suppliers, and we are in dialogue with our suppliers on this important subject.

Please find more information on earlier and upcoming initiatives in Idealcombi's CSR-reports. Reports in Danish are available via the link: <https://idealcombi.dk/om-idealcombi/miljoe/csr-rapport/> and reports in English via: <https://idealcombi.com/about-idealcombi/csr-corporate-social-responsibility/>

## References

DMU (2003) *Emissionsfaktorer og emissionsopgørelse for decentral kraftvarme Eltra PSO projekt 3141 Kortlægning af emissioner fra decentrale kraftvarmeværker, Delrapport 6.*

DS/EN 17213:2020 (n.d.). *PCR for Vinduer og døre – Miljøvaredeklarationer – Produktkategoriregler for vinduer og dørsæt*

Ecoinvent database, version 3.10, Allocation, cut-off, EN15804. More information available at: <https://ecoinvent.org>. Accessed on April 15, 2024

Energistyrelsen (2023). *Teknisk dokumentation af Klimakompassets emissionsfaktorer*

Exiobase database, version 3.4. More information available at: <https://www.exiobase.eu>. Accessed on April 15, 2024

European Commission (2021). Annexes 1 to 2. *Recommendation on the use of Environmental Footprint methods*, [online] Available at: [https://environment.ec.europa.eu/publications/recommendation-use-environmental-footprint-methods\\_en](https://environment.ec.europa.eu/publications/recommendation-use-environmental-footprint-methods_en) Accessed on January 7, 2026

Forster, P., Storelvmo, T., Armour, K., Collins, W., Dufresne, J.-L., Frame, D., Lunt, D. J., Mauritsen, T., Palmer, M. D., Watanabe, M., Wild, M., & Zhang, H. (2021). The Earth's Energy Budget, Climate Feedbacks, and Climate Sensitivity. In V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, & B. Zhou (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 923–1054). Cambridge University Press. <https://doi.org/10.1017/9781009157896.009>

Statistics Denmark (2021). *Affaldsregnskab*, [online] Available at: <https://www.dst.dk/da/Statistik/emner/miljoe-og-energi/groent-nationalregnskab/materiale-og-affaldsregnskaber>. Accessed on April 8, 2024

Energinet (2022). *Miljøredegørelse 2022*, [online] Available at: <https://energinet.dk/om-publikationer/publikationer/miljoredegorelse-2022/> Accessed on May 20, 2025

UK Government (2021). *UK Government GHG Conversion Factors for Company Reporting*. Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy.

UK Government (2022). *UK Government GHG Conversion Factors for Company Reporting*. Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy.

World Resources Institute (2015). *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard* (ISBN: 978-1-56973-850-4). [online] Available at: <https://ghgprotocol.org/scope-2-guidance> Accessed on December 5, 2025

World Resources Institute & World Business Council for Sustainable Development (2004). *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* [online] (ISBN 1-56973-568-9). Washington, DC: World Resources Institute. Available at: <https://ghgprotocol.org/corporate-standard> Accessed on December 5, 2025

World Resources Institute & World Business Council for Sustainable Development (2011). *GHG Protocol Scope 3 Guidance: Accounting and Reporting Standard*. [online] Available at: <https://ghgprotocol.org/corporate-value-chain-scope-3-standard> Accessed on December 5, 2025

World Resources Institute & World Business Council for Sustainable Development (2013). *Technical Guidance for Calculating Scope 3 Emissions: Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting*



*Standard*, version 1.0. [online] Available at: <https://ghgprotocol.org/scope-3-calculation-guidance-2> Accessed on December 5, 2025

World Resources Institute & World Business Council for Sustainable Development (2022a). *Land Sector and Removals Guidance, Part 1: Accounting and Reporting Requirements and Guidance. Draft for Pilot Testing and Review* [online] Available at: <https://ghgprotocol.org/sites/default/files/2022-12/Land-Sector-and-Removals-Guidance-Pilot-Testing-and-Review-Draft-Part-1.pdf> Accessed on December 5, 2025

World Resources Institute & World Business Council for Sustainable Development (2022b). *Land Sector and Removals Guidance, Part 2: Calculation Guidance. Draft for Pilot Testing and Review* [online] Available at: <https://ghgprotocol.org/sites/default/files/2022-12/Land-Sector-and-Removals-Guidance-Pilot-Testing-and-Review-Draft-Part-2.pdf> Accessed on December 5, 2025

## Appendix

### Qualitative Information About Emission Sources Not Quantified

#### Scope 3 category 1: Purchased goods and services

Most purchased goods and services, including key materials with high impact on the CO<sub>2</sub>e emission, are included in this category. Excluded from this category is a small fraction of purchased goods and services from maintenance in our manufacturing facility. This small fraction excluded, is estimated to less than 0,5% of our purchases.

#### Scope 3 category 9: Downstream transportation and distribution

Transportation of goods to Iceland and the Faroe Islands is included in this category. This transportation constitutes the most important downstream transportation and distribution activities.

Excluded from this category is transportation of goods from individual carpentry firms that choose to store Idealcombi's products in their own warehouse before transporting them on to the building site. This type of transportation setup is rare, and only seen in around 3% of our sales, and it is consequently omitted from category 9.

#### Scope 3 category 10: Processing of sold products

As described in the Methodology and data section, windows will occasionally be installed in finished building elements before these elements are transported to the building site.

It is not possible to extract information on the volume of this type of sales from Idealcombi's ERP system. However, discussions with the sales offices to determine the volume over this type of sales showed that just a few projects per year would fall into this category. Furthermore, typically only a small part of the elements included in these projects would be installed in finished building elements.

Overall, it is estimated that less than 1% of group turnover fall into this category and it is therefore omitted in the inventory.

#### Scope 3 category 11: Use of sold products

As described in the Methodology and data section, a small fraction of the sold windows is equipped with electric motor openers. This sale constitutes less than 2 % of group turnover. At the same time, the motor openers are small motors that consume very few watts during use, and are used sparingly during the lifetime of the windows.

The conclusion was that the impact from the use of the motor openers is negligible and category 11 is thus omitted.

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