2023 | 2024

#GROWWITHUS

GLOBAL CARBON FOOTPRINT REPORT

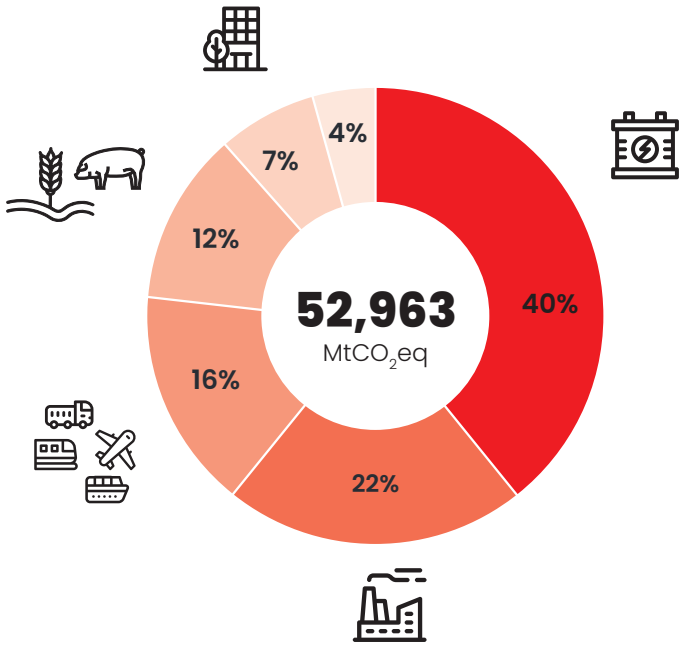
ALUK®

CONTENTS

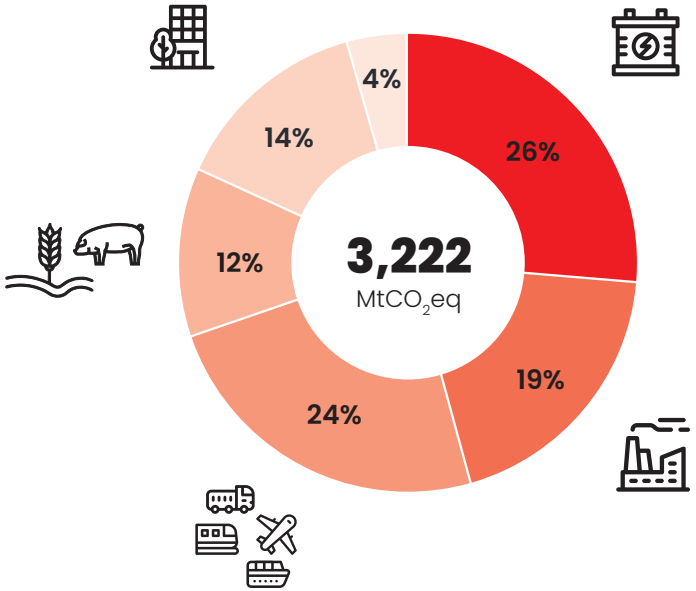
Breakdown of greenhouse gas emissions

by business sector

GLOBAL



EUROPE



Energy
Production, Transformation...

Industry
Process, combustion...

Transports

Agriculture
Silviculture

Buildings

Waste

Sources

European Commission, Joint Research Centre (JRC), EDGAR (Emissions Database for Global Atmospheric Research) Community GHG database (2024).

The data are based on 2023.

What is a Carbon Footprint?

CO_2 CH_4

HFC/PFC N_2O...

An inventory of **greenhouse gases emissions**, occurring **directly or indirectly** due to the activities of an **organization** over a **given time period**.

17 **Typically a year**

Organization

Administration

Project / Event

Territory

Scopes 1,2,3

Upstream: transport, purchases, fixed assets

Downstream: transport, product use, waste

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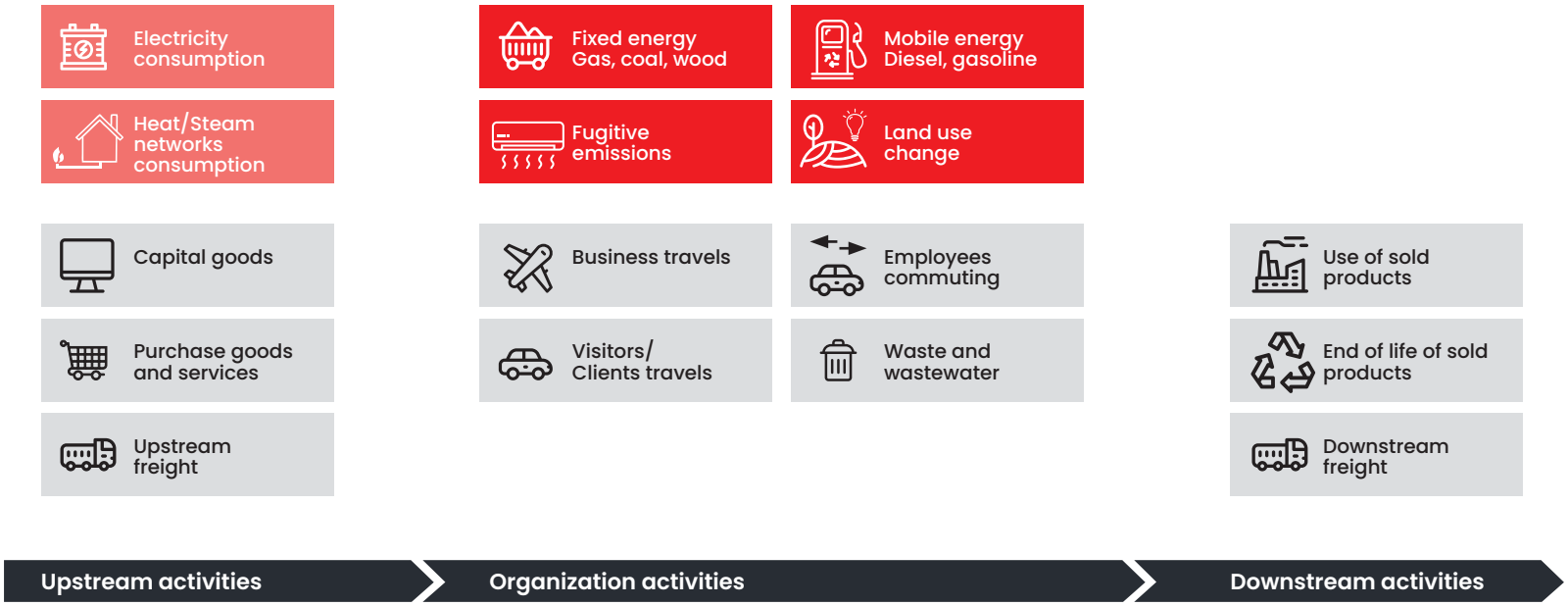
Carbon footprint perimeter: scopes 1, 2 and 3

Scope 1 & 2 >> emissions related to flows concerning activities controlled and operated by the company.

Scope 3 >> emissions related to flows concerning all other activities in the value chain (upstream, parallel, downstream).



Scope 1
Direct emissions controlled by the company

Scope 2
Indirect emissions controlled by the company

Scope 3
Indirect emissions not controlled by the company

How do we count emissions?

GHG emissions (kg CO_2 eq) = Activity data x Emission factor

Activity data

describes and quantifies all the company's activities that generate greenhouse gas emissions:

- Energy consumed
- Mass of materials purchased
- Distances travelled by employees
- Euros spent on services
- Etc.

Emissions factors

are used to convert activity data into the corresponding GHG emissions. Their unit must therefore correspond to a mass of GHG emitted (based on a unit common to all gases, the kgCO2e) per unit of activity data (e.g. kWh, kg, L, km, €, etc.).

CONTENTS

General presentation

As a designer of high-quality, reliable and high-performance aluminium profile systems, AluK provides expert solutions and personalised support.

The carbon footprint was carried out on the online platform Aktio. All activity data and results are available on the platform.

This report presents the results of the GHG Protocol assessment.

Perimeter of the Carbon Footprint

Reporting period
September 8, 2023 – August 31, 2024

Year of baseline report
September 8, 2020 – August 31, 2021

01 Operational scope

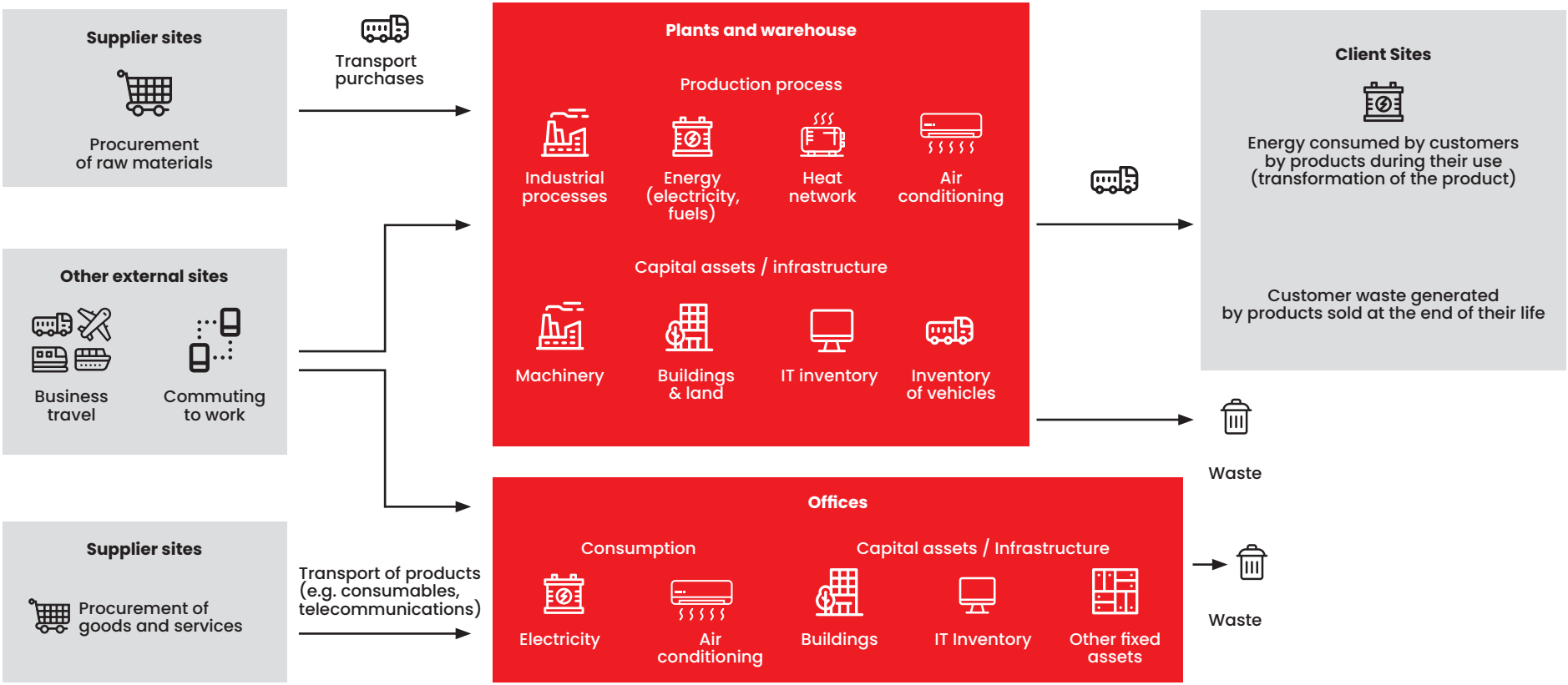
This footprint covers all of the company's direct emissions (sources controlled by the organisation) and indirect emissions (sources required for the organisation's activities) (default recommended option). Any exclusions, in particular due to a lack of data to date, are justified below.

02 Organisational scope

The control approach adopted is operational control (recommended default option). The organisation consolidates 100% of the emissions from the facilities it controls.

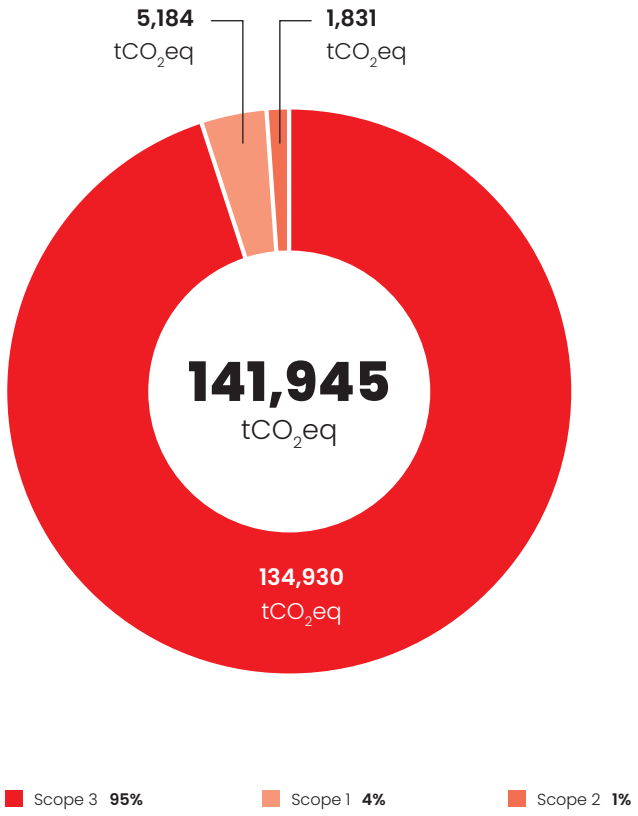
The carbon footprint therefore covers the 10 business units of the AluK group.

Flow map


Supplier sites
Procurement of raw materials
Transport purchases
Other external sites
Business travel
Commuting to work
Supplier sites
Procurement of goods and services
Transport of products (e.g. consumables, telecommunications)
Plants and warehouse
Production process
Industrial processes
Energy (electricity, fuels)
Heat network
Air conditioning
Capital assets / infrastructure
Machinery
Buildings & land
IT inventory
Inventory of vehicles
Offices
Consumption
Capital assets / Infrastructure
Electricity
Air conditioning
Buildings
IT Inventory
Other fixed assets
Client Sites
Energy consumed by customers by products during their use (transformation of the product)
Customer waste generated by products sold at the end of their life
Waste
Waste

Overview of results

Emissions by scope



SCOPE 1

represents fuel combustion emissions (**natural gas + fuel for vehicles**) and **gas leaks from air conditioning units**.

SCOPE 2

represents emissions related to **electricity** consumption

SCOPE 3

represents **all other** indirect emissions (purchases, transport, waste, etc.). This is why it commonly represents more than 90% of the emissions in a balance sheet.

Scope 3 accounts for the vast majority of the GHG emissions of Valfidus. Given that greenhouse gas emissions occur throughout the **aluminium's whole life cycle**, it is logical that the **scope 3 concentrates most of the GHG emissions**.

141,945 tCO_2eq,

what does that mean ?

Average carbon footprint of **10,919** Luxembourgish citizens[1]

19.6 millions meat-based meals[2]

278.3 millions plant-based meals[2]

0.75 millions Luxembourg-Trevenzuolo round trips by plane[2]

73 millions Luxembourg-Trevenzuolo round trips by train[2]

2.1 millions tons of glacier ice melted[3]

These indicators are internal and to be monitored over time at isoperimeter

786 $kgCO_2eq$ per k€ of turnover

175.9 $kgCO_2eq$ per employees

12.3 $kgCO_2eq$ per k€ ton of aluminium sold

Sources

[1] Carbone4

[2] ADEME

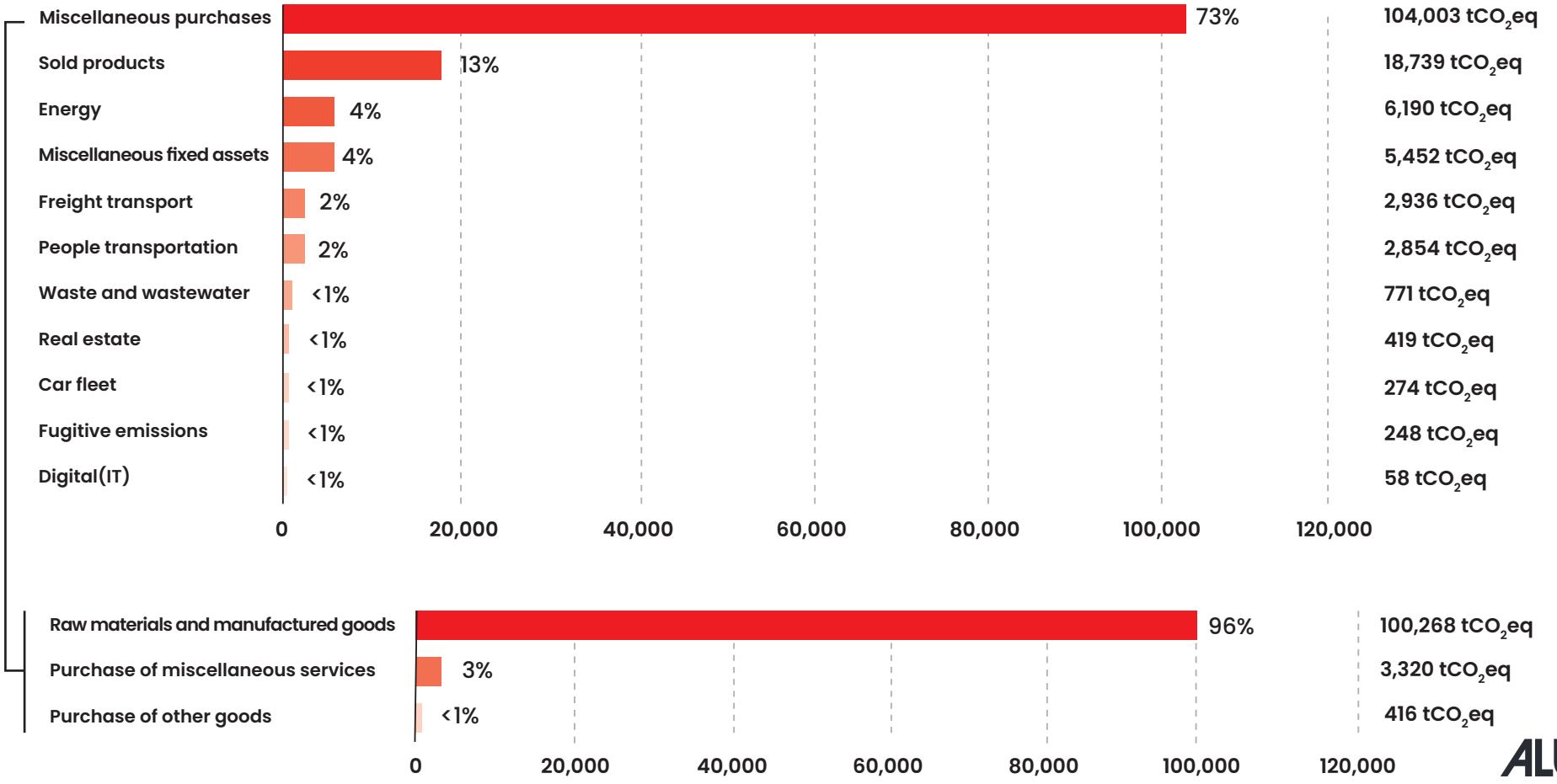
[3] Valérie Masson-Delmotte

Overview of results

Emissions per category

Purchases essentially correspond to the manufacture of the **aluminium**. It has been calculated with accurate weight and Environmental Product Declaration (EPD) or specific emission factor if EPD were not available.

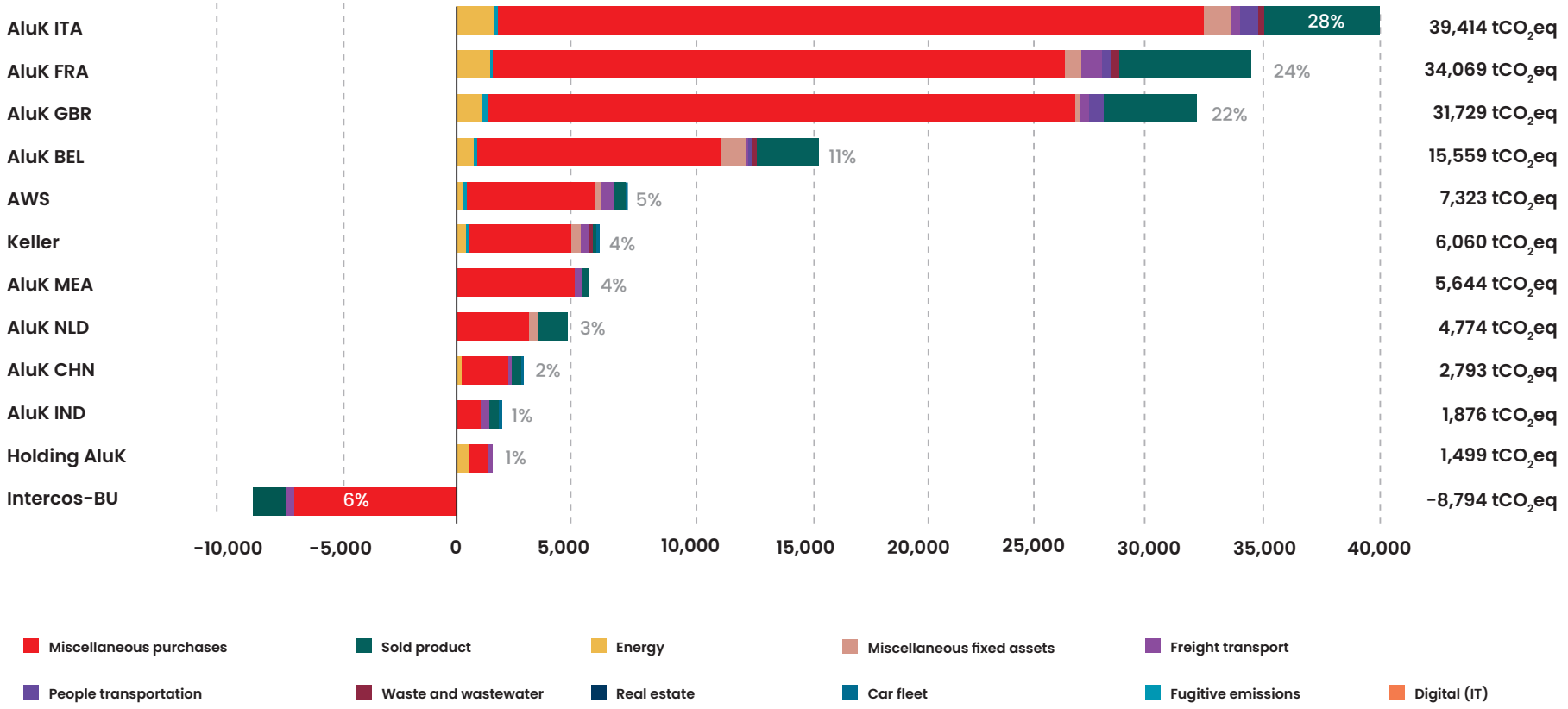
Sold products (13%) is the second source of emissions, linked to the transformation and end-of-life of the aluminium.



Overview of results

Emissions by breakdown

The emissions are mainly proportional to the **quantity of aluminium sold**, since aluminium is the main cause of AluK emissions. The negative emissions at the bottom of the graph correspond to the **interconnexions** to ensure that the emissions are correct at group level but also business unit level.



Allocation of emissions

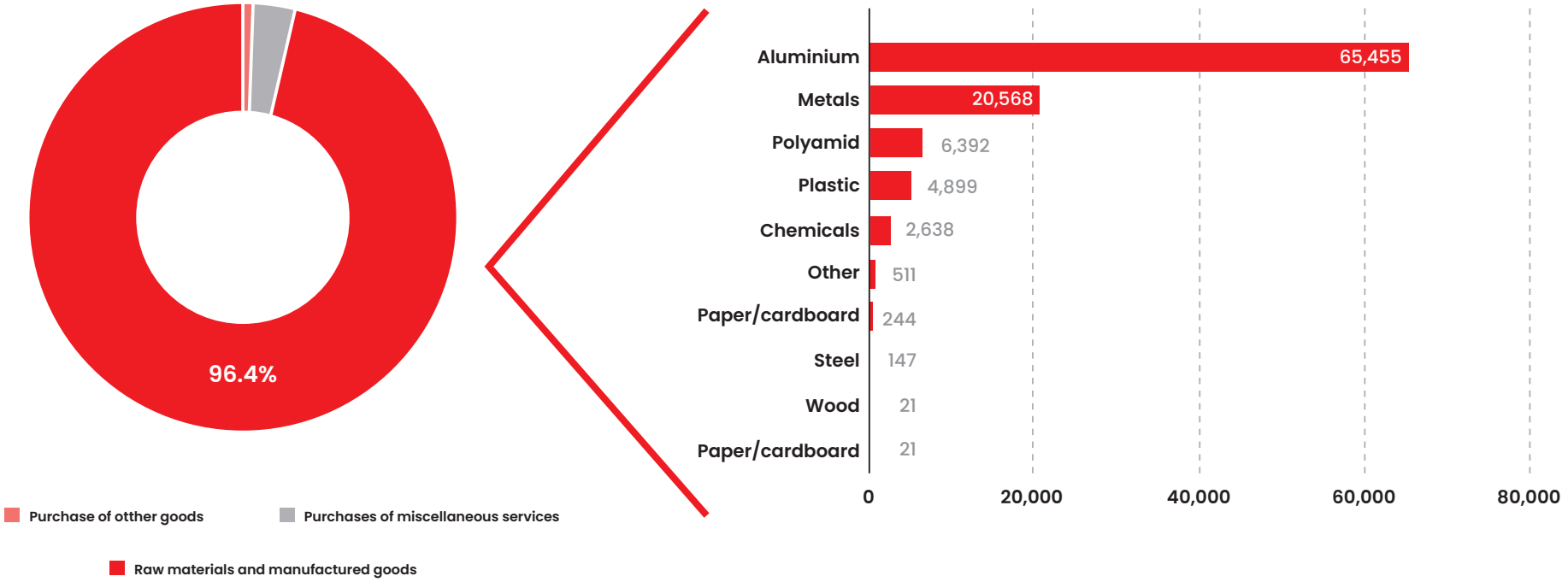
Purchases

Purchases

Global

73% of total emissions

The raw materials accounts for the vast majority of the purchases item: this is mainly due to the **production of these raw materials (94,9%).**



The typology of products in each material category is the following :

Aluminium = mainly profiles
Metals = mainly accessories
Polyamid = mainly thermal breaks
Plastic = mainly gaskets & accessories

Allocation of emissions

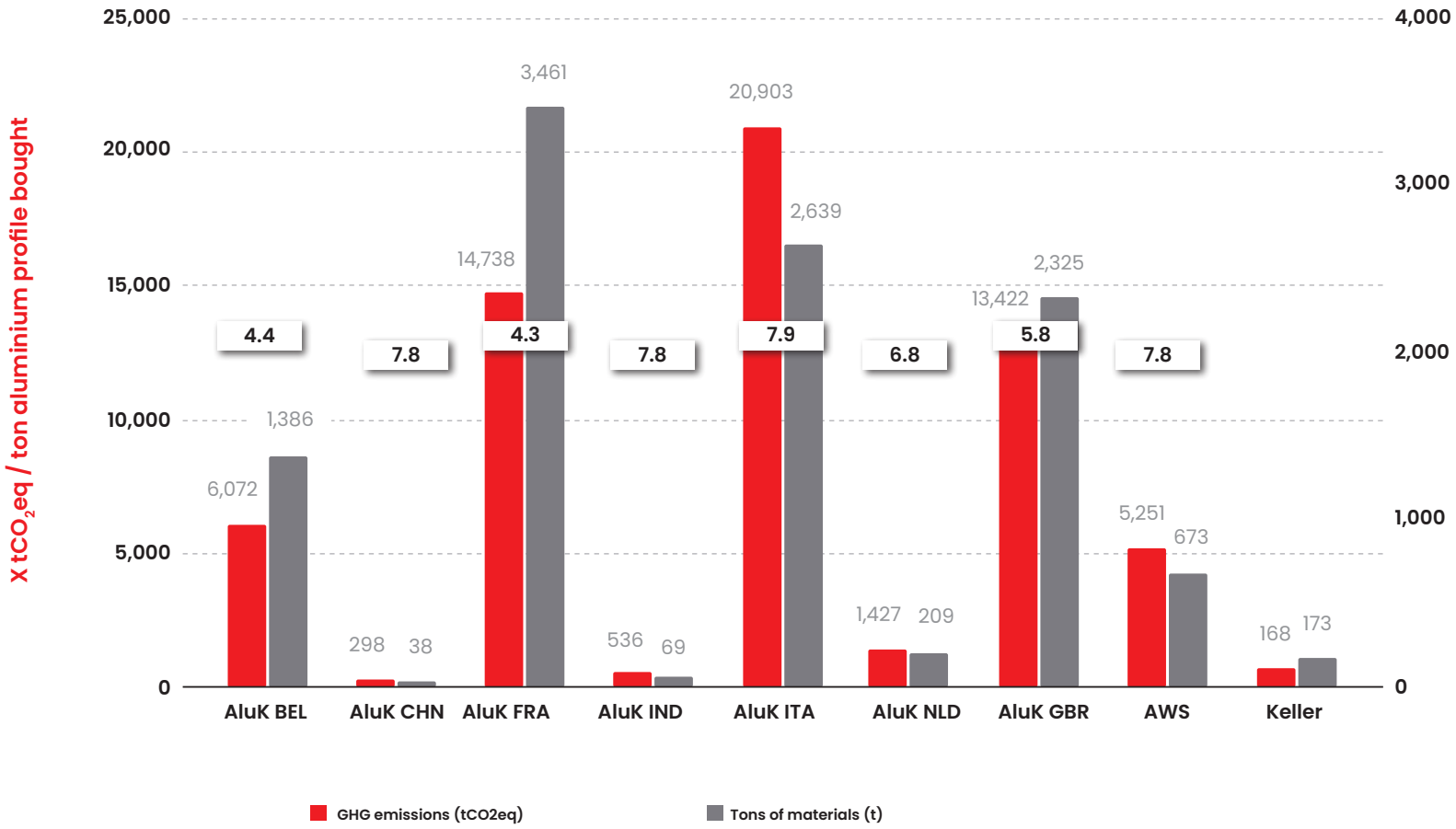
Purchases of raw materials Aluminium profiles

Purchases

Raw materials

71% of total emissions

Aluminium profiles emissions can vary depending on the **type of profile purchased** and the **specificity of the data collected**. Specific supplier data were collected mostly for the AluK group.



Allocation of emissions

Purchases – Services & goods purchased

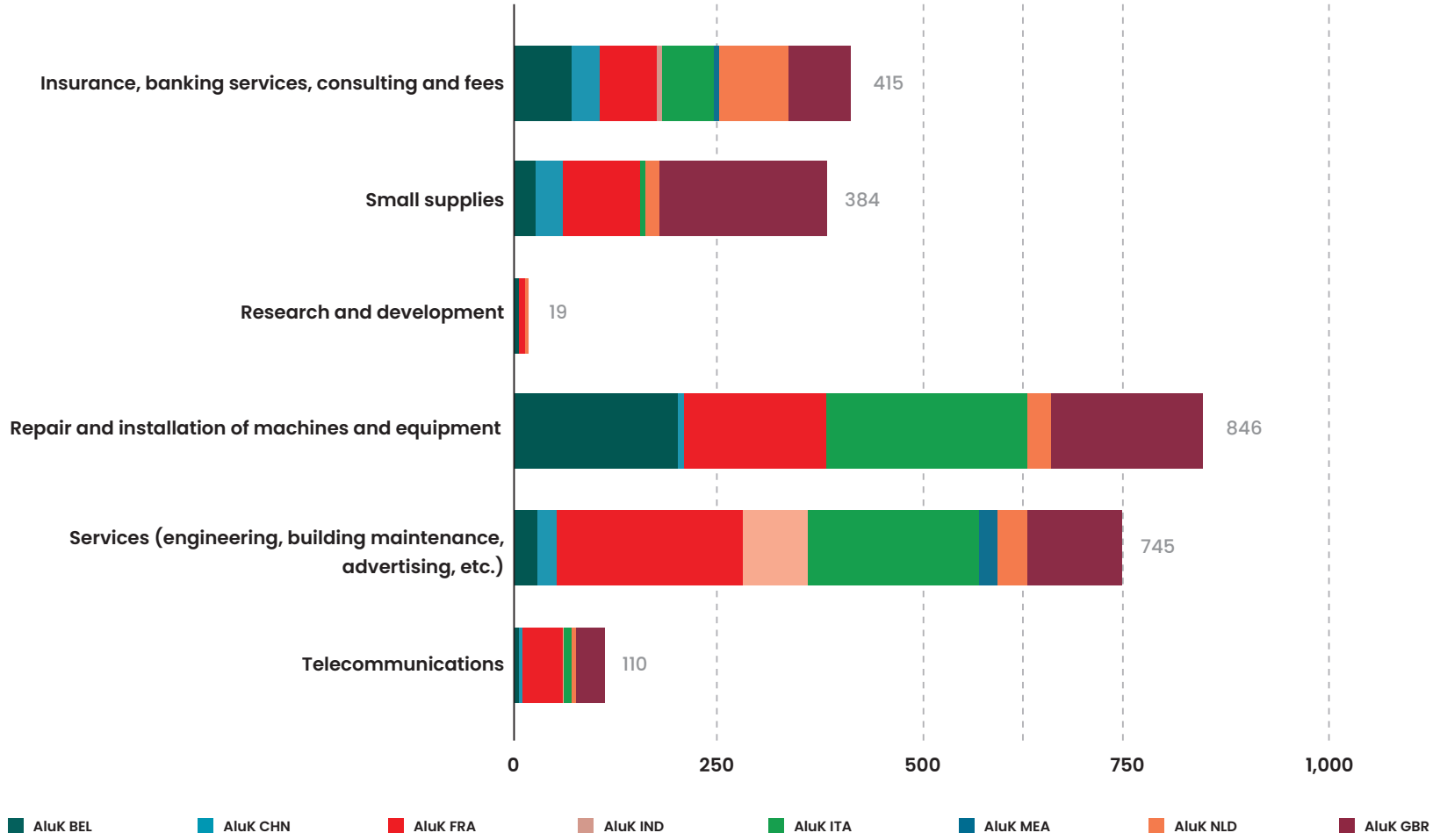
Purchases

Other purchases

2% of total emissions

The GHG emissions associated with purchases of services and goods account for only **2% of the company emissions.**

This item's emissions were calculated with **monetary ratios**. Engineering services, repair and installation of machine and banking/insurances services account for most of this item's emissions.



Allocation of emissions

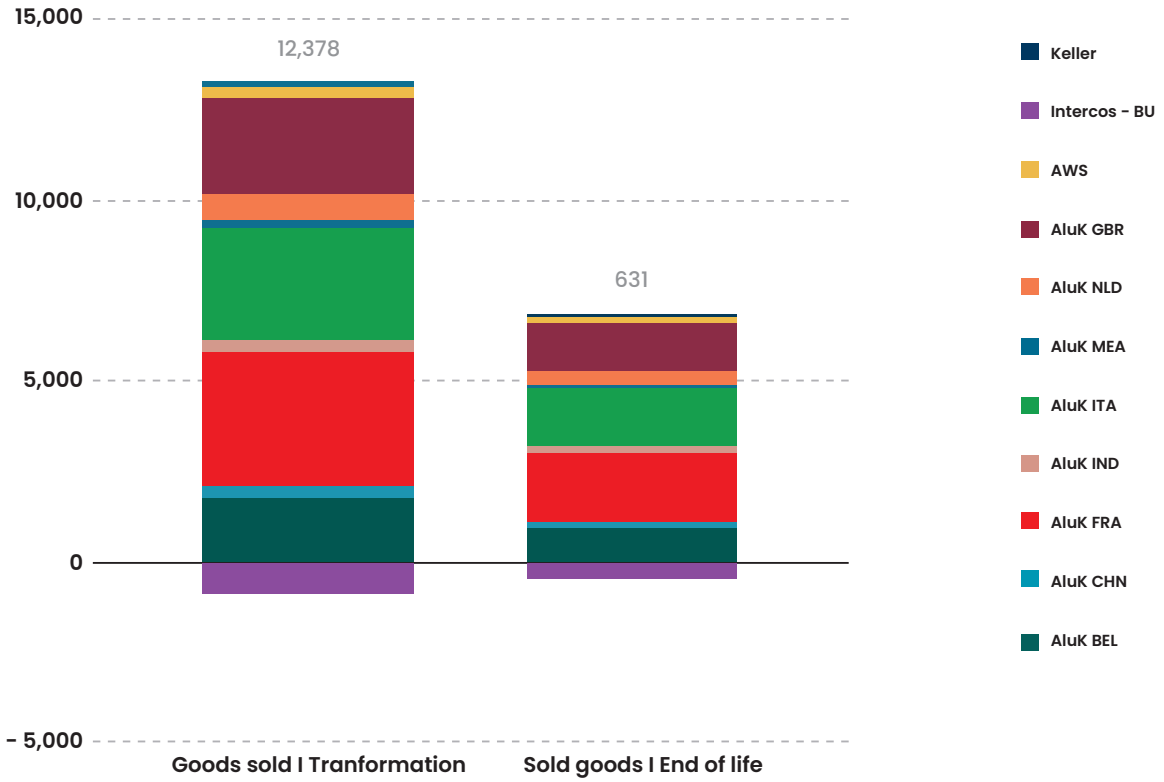
Sold products

Sold products

Global

13% of total emissions

A certain proportionality can be observed between end-of-life and processing:
the quantities of aluminium considered are the same.



The calculation of emissions associated with the end-of-life of products sold is based on a **material approach**: we have considered an **average end-of-life for aluminium**, for all the quantities of aluminium sold.

For the processing of goods sold, an emission factor from the **ecoinvent database was used** - *metal working, average for aluminium manufacturing*. Using an average emission factor allowed us **to ensure the consistency of the calculation method** for sold aluminium to AluK Group entities as well as external clients.

Allocation of emissions

Energy

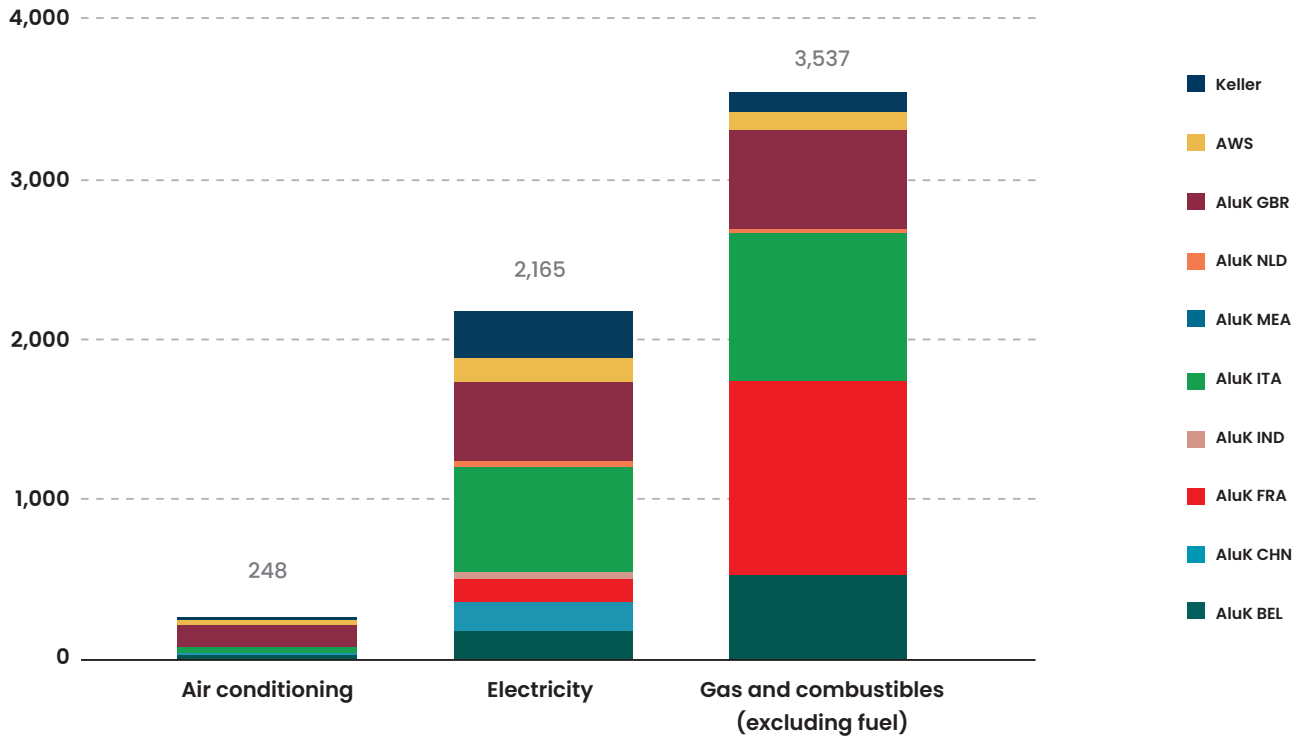
Energy

Global

<1% of total emissions

GHG emissions in this category are mainly associated **with electricity consumption** and the consumption of non-vehicle fuels (mainly **natural gas**).

For **air-conditioning emissions**, the values reported here correspond to **refrigerant leaks**, and not to the electricity consumed by these appliances (which is already included in electricity).



Allocation of emissions

Energy - Electricity

Energy

Global

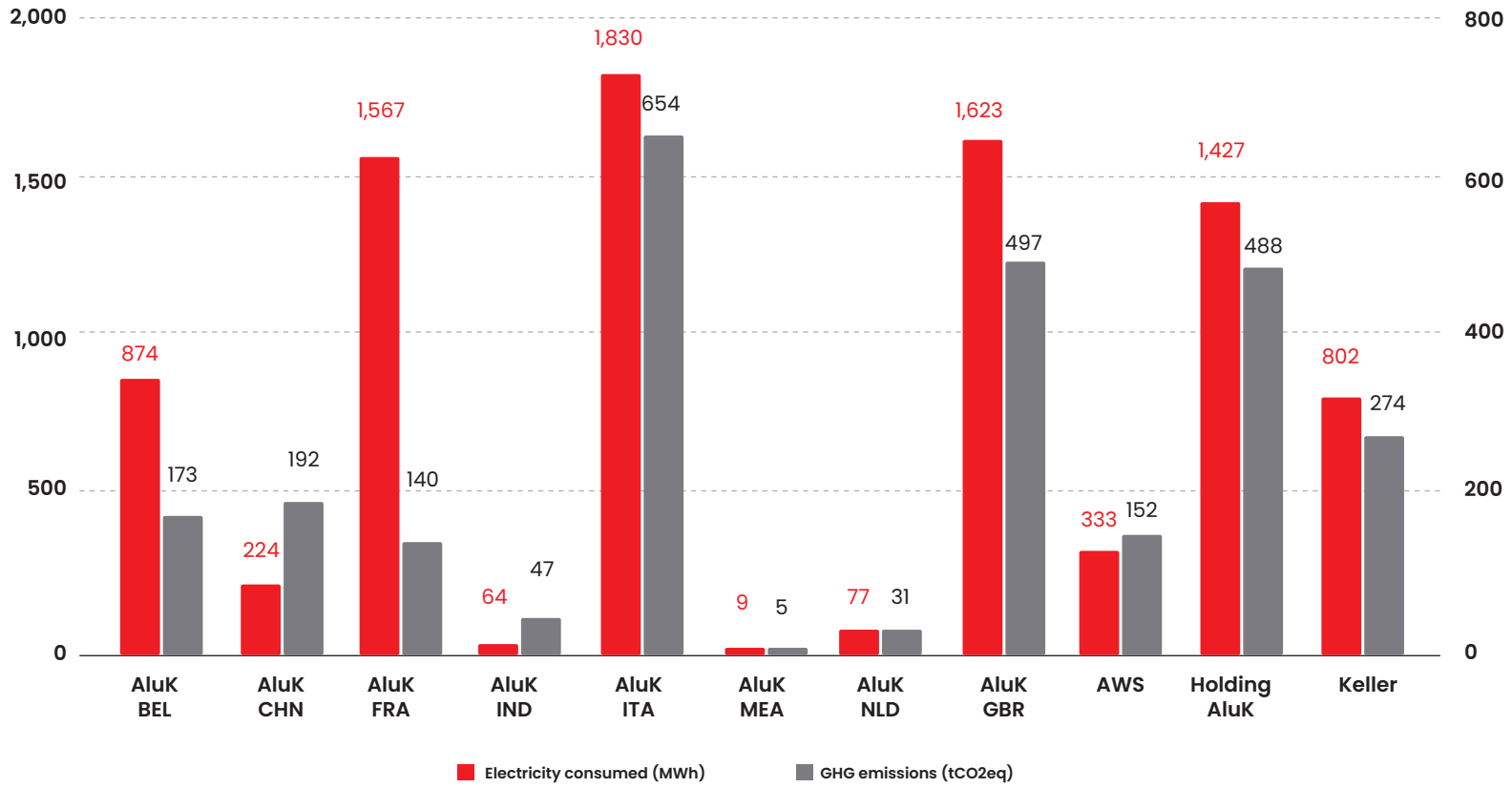
4% of total emissions

The variation in greenhouse gas emissions is not proportional to the variation in consumption.

In fact, **electricity generation generates more or less GHG emissions** depending on **how the electricity is produced**, which is linked to the country of production.

For instance, AluK France has a very **low carbon electricity production**, contrary to AluK China or AluK India.

Carbon intensity of electricity consumption per entity



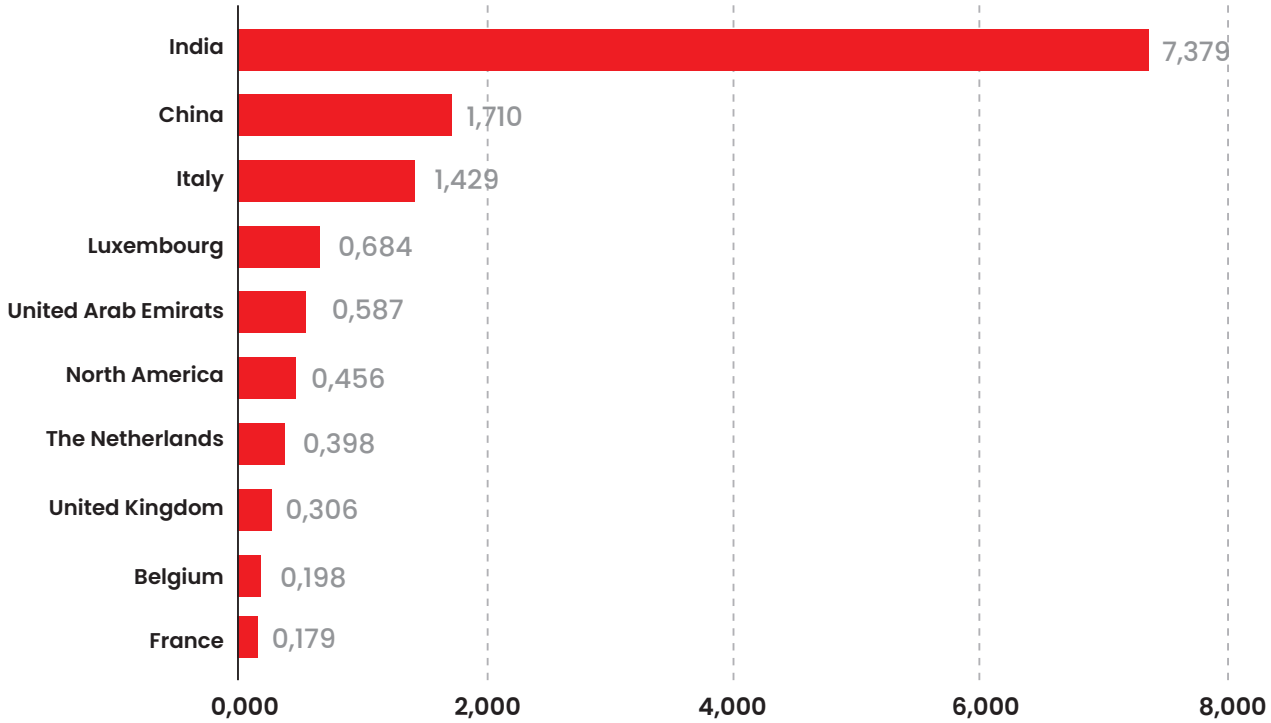
Allocation of emissions

Energy - Electricity Emissions Factors

Energy

Global

4% of total emissions



Allocation of emissions

Freight - By mode

Freight

Global

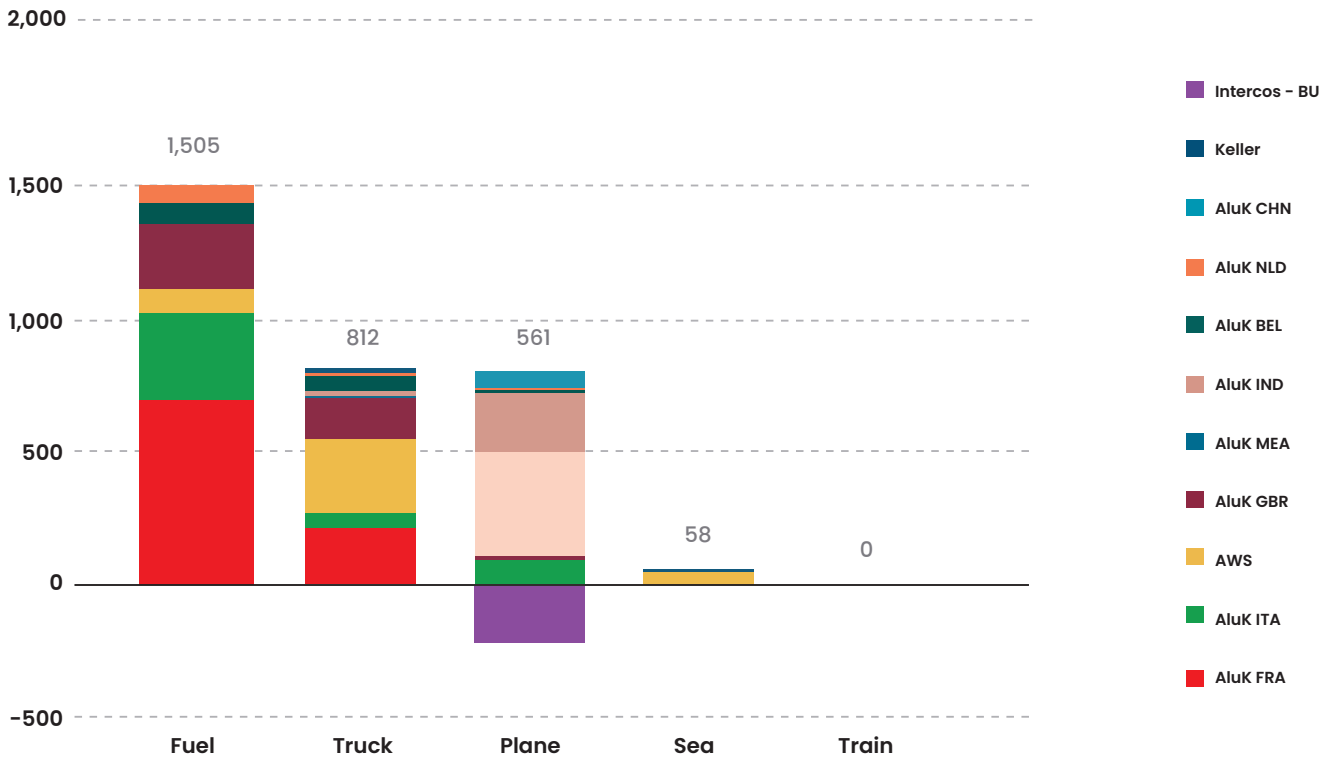
2% of total emissions

The freight can be **operated by AluK** (column Fuel) **or by a third-party** (truck, sea, plane and train).

The majority of the emissions comes from **operated fleet**, on which AluK can have a leverage more easily.

However, a **non-negligible part comes also from truck**, working with **sustainable trucks companies** will enable to reduce emissions.

Last, the different entities use very different modes of freight, meaning **each of them will face its own challenges** in reducing the freight emissions.



Allocation of emissions

People transportation

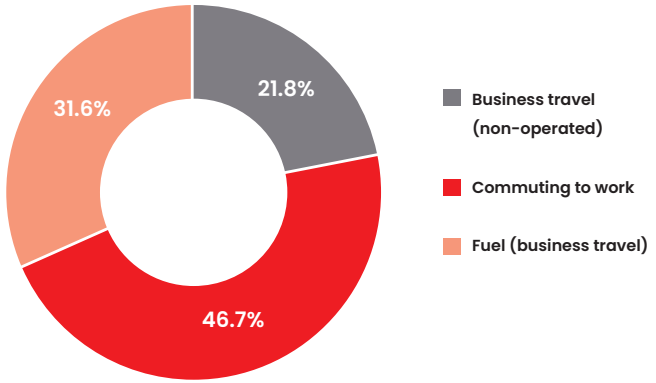
Ppl transportation

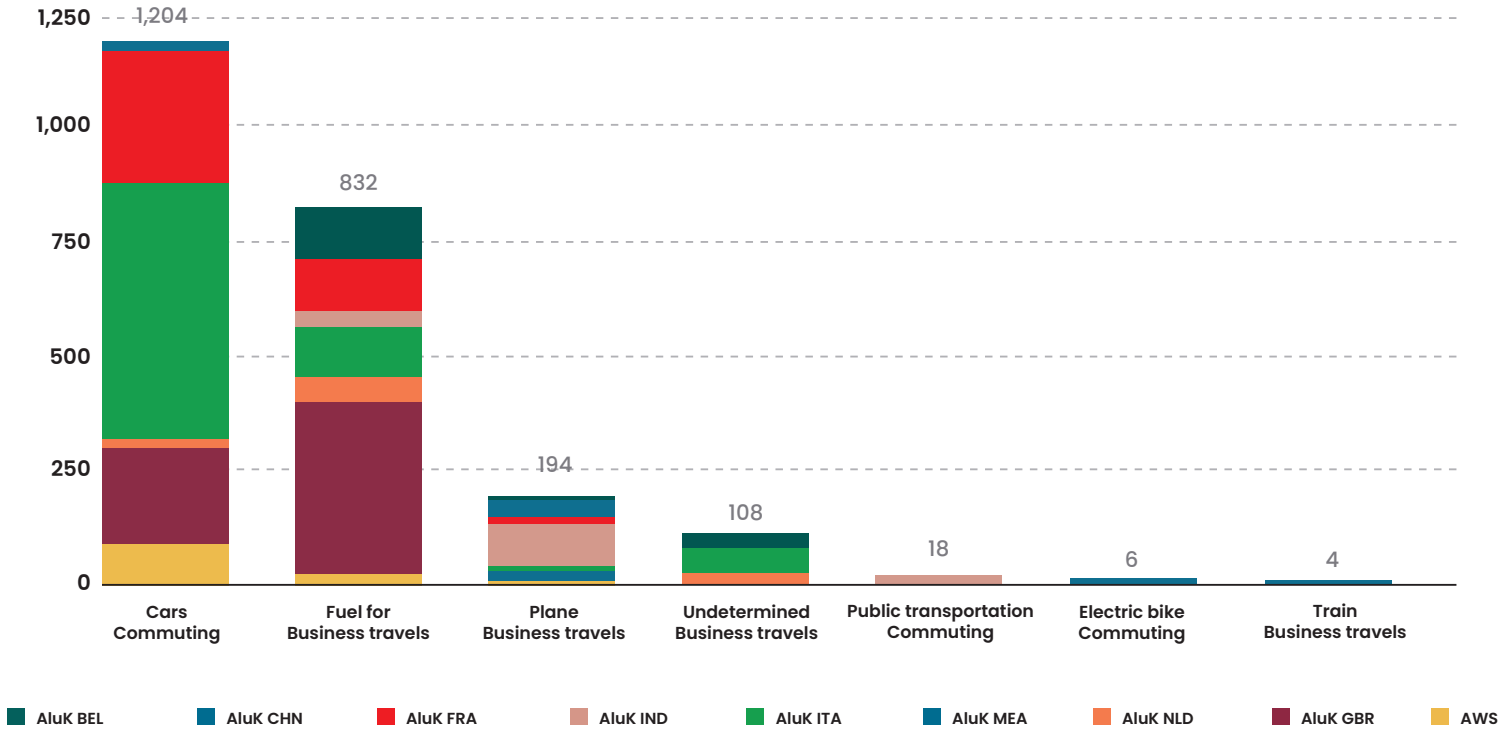
Global

2% of total emissions

These emissions are in some ways **proportional to the number of FTEs**.
2 main topics emerge:

- the **cars for the commuting**. Note however that these calculations comes mainly from the assumption that everyone use a thermal car, which is likely overestimating the emissions;
- the **fuel for the business travels fleet**, especially for AluK UK.





Allocation of emissions

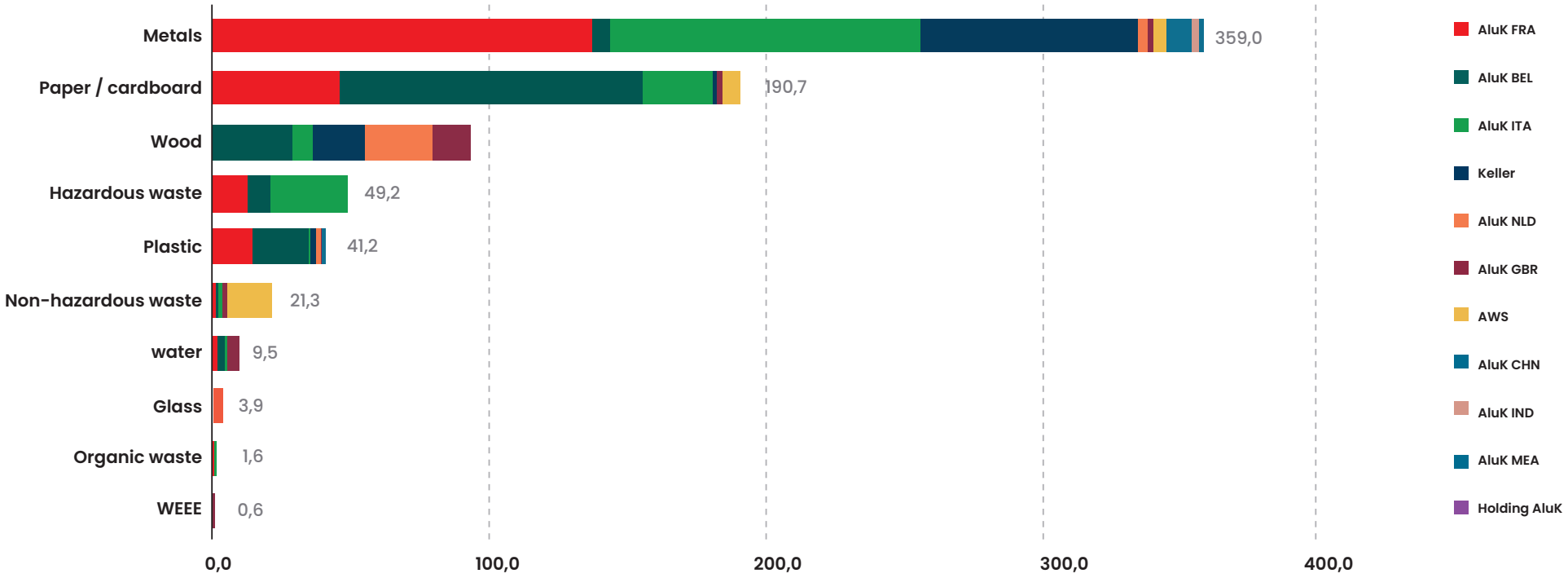
Wastes

Wastes

Wastes

<1% of total emissions

These emissions are generated by the **collection, transportation and treatment of the wastes**. Note that the emissions factors used are generic and does not reflect the reality of the waste handling (since the data is not accessible). These results are therefore only an order of magnitude to help in decision making: **scraps (metals) and packaging (paper/cardboard) are the main topics**.



Key lessons

01 Most emissions come from the purchase of **raw materials and manufactured goods**

The impact of raw materials purchases was calculated with different type of emission factors: supplier data and EPDs and average emission factors based on the region of production. **The use of supplier emission factors has significantly improved the quality of the carbon footprint**, thereby reducing the uncertainty of the main GHG emissions item.

Monetary ratios were used in order to calculate the GHG emissions associated to the purchase of most accessories and miscellaneous purchases and fixed assets. Nonetheless, the total emissions calculated with **monetary ratios** only represent **30% of AluK carbon footprint**.

02 Emissions related to **the processing and end-of-life of sold products**

Due to the large quantities of aluminium used throughout the value chain by the AluK various entities, emissions relating to **the processing and the end-of-life of sold products represent the second-largest source of GHG emissions.**

03 AluK direct operations (scopes 1 & 2) account for **very small proportion of emissions**

With 5% of total emissions, emissions from scopes 1 & 2 are marginal. However, **AluK has more direct leverage over these emissions**, and the associated reduction targets to be set must be ambitious (as part of an SBTi approach).

Principal areas for improvement & continuity in the Carbon Footprint

01 Maintain strong relationships with suppliers to ensure **qualitative data collection for raw materials purchases**

Regularly request potentially updated EPDs from suppliers.

Potentially improve **data collection for purchased accessories**, with the identification of sub-categories of accessories for which it would be possible to collect physical data (weight, material, etc.).

02 Collect **maintenance records**

Collect **air-conditioning** maintenance data for the all sites, **water** bills and **waste** data.

03 Monitor **employee travel**

Monitor **employee business travel** (operated and non operated - plane, train...).

Regularly monitor **home-to-work journeys** made by employees.

Thank you.

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