Carbon report

Explanations and functions

NETWORK MEMBER OF GEOPOST

Contents

1. Carbon Calculator in a nutshell

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What are business saying about climate change?

82%

of companies say climate action is very important for their business.

Voice of the industry: Sustainability survey, Jan 2022

67%

of regular e-shoppers consider that brands and companies today have to be environmentally responsible.

2022 Geopost E-shopper barometer

Did you know?

Most of your impacts lie in your value chain

Scope 1 – Direct

Emissions from sources (on site)

Scope 2 – Indirect

Emissions from energy and utilities

Scope 3 – Indirect

Emissions from the supply chain or service

75%

of companies' greenhouse gas emissions, on average, are Scope 3

World Resources Institute

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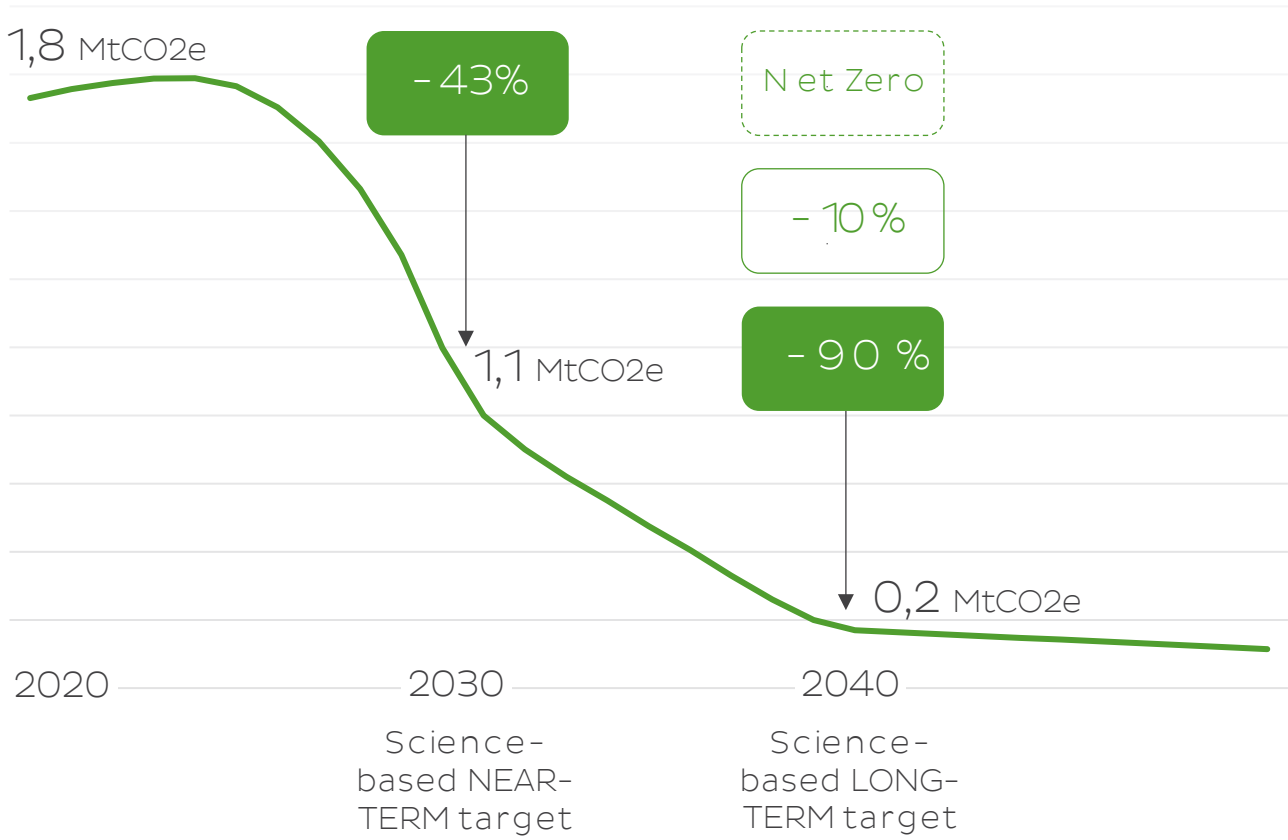
SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SBTi is a reliable, independent organization that champions ambitious, science-based climate action.

1. We have a 2040 Net-Zero ambition, approved by the SBTi
2. Reduce GHG emissions 43% by 2030 (vs 2020)
3. Reduce GHG emissions 90% by 2040 (vs 2020)
4. Compensate for 10% of residual emissions to achieve net zero in 2040

Geopost carbon trajectory



First global parceldelivery company with all scienc e-based targets endorsed

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The world is changing - significantly

Why a new Carbon Calculator?

Your needs and expectations are changing.

Today, you require more robust carbon emissions reporting from your suppliers.

1. Access reliable GHG emissions data for your corporate carbon accounting needs.
2. Track and understand your GHG emission trends over time.
3. Reap the benefits of working with a partner committed to sustainability.

The world is changing - significantly

How does it work?

Data inputs

Fleet management systems →

Shipping systems →

CRM systems →

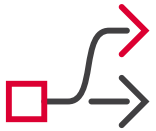
Transport fleet data

Parcel tracking data

Customer identification data

Data processing

Carbon footprint calculator



Algorithm compliant with latest carbon accounting standards (GLEC Framework, ISO 14083, EN 17837)

Near-real time carbon emission calculations

Carbon Report

Carbon dashboard

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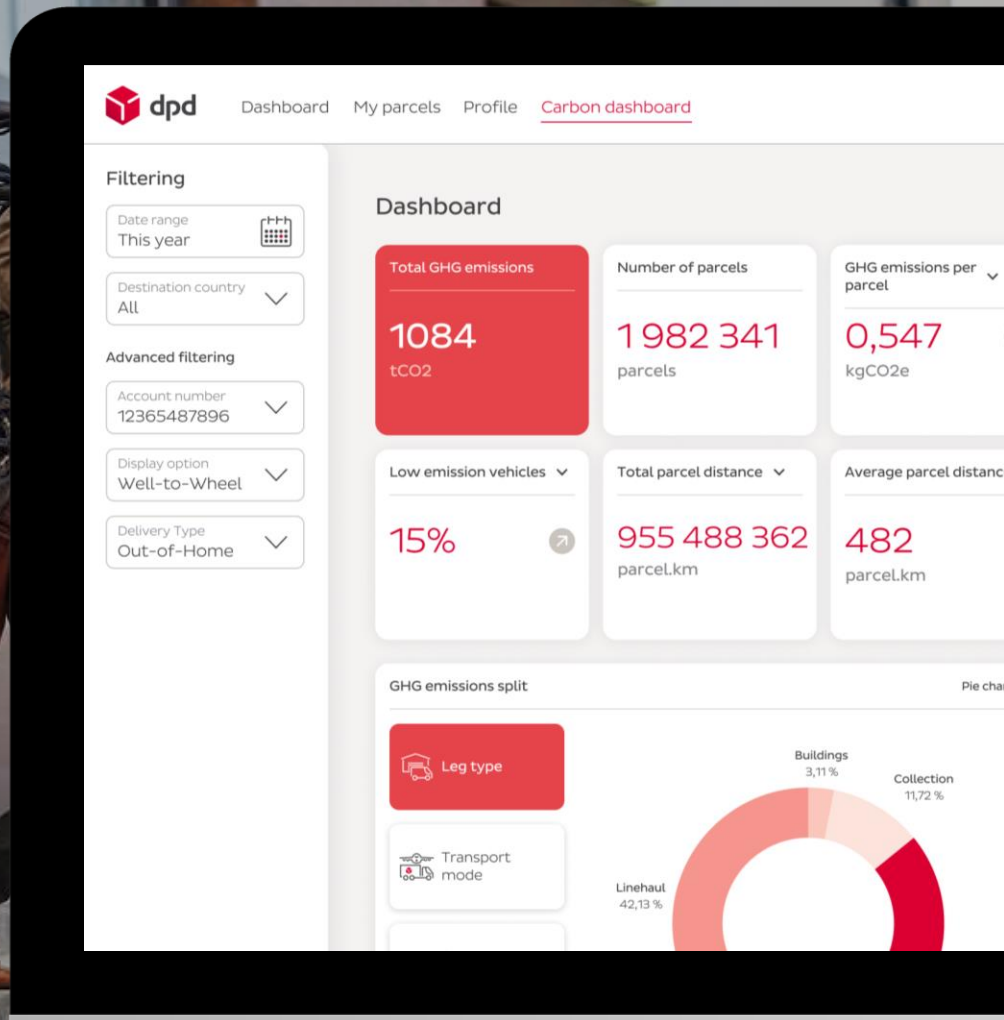
Carbon dashboard via myDPD for Business

What information will you have access to?

1. **All GHGs emissions**:
   Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride

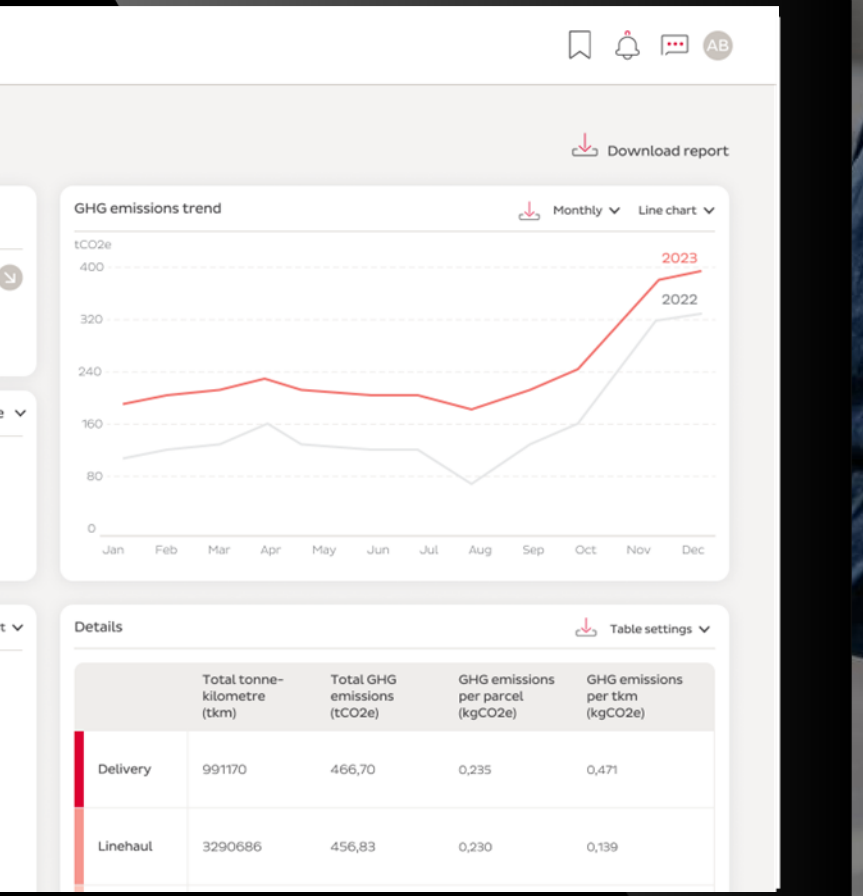
2. **Emissions split:**
   Scopes 1, 2, 3 (aggregated); Well-to-Wheel and Tank-to-Wheel emissions

3. **All legs managed by Geopost, end-to-end**:
   collection, delivery, linehaul, buildings



Carbon dashboard via myDPD for Business

What information will you have access to?



Aggregated GHG emissions data for Geopost shipments:

- Absolute emissions (kg CO2e)
- Emissions per **parcel** (kg CO2e), per **transport chain** element, or leg (kg CO2e/parcel) and transport **mode** (kg CO2e), per **destination** country (kg CO2e)
- Share of low emission vehicles (%)
- Logistics data including distance, weight, volume and tonne-kilometres (km, kg, L, tkm)

What are the benefits for you?

- Near real-time carbon emission calculations
- Progress tracking and emissions reporting
- Compliant with international standards
- Accredited by Smart Freight Centre
- Based on scan events to track each parcel
- Collaborative: in-house expertise & customer input
- Together, drive down carbon emissions

Smart Freight Centre

SMART FREIGHT CENTRE ACCREDITATION

GLEC GLOBAL LOGISTICS EMISSIONS COUNCIL

Smart Freight Centre is a renowned non-profit organisation working to decarbonise freight transport. Accredited by the Smart Freight Centre as being in conformance with GLEC Framework and ISO 14083

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“Our Carbon Dashboard is a pioneering tool, **built in line with international carbon accounting standards**, designed to help businesses meet the need for accurate, regular **CO_2 emissions reporting** – all while helping them make more sustainable decision making in the long-term.”

Jean-Claude Sonet
Executive Vice-President in charge of Marketing, Communications and Sustainability at Geopost

2. How are your GHG emissions calculated?

A 3-step process, compliant with EN 17837*

How does it work?

Parcel information

- Retrieval of information on each parcel (volume, mass, etc.)
- Current transport fleet status (vehicle type, energy, etc.)

Itinerary identification

- Analysis of parcel tracking event scans and parcel's itinerary production
- Definition of the transport mode for each stage by geolocation (road, air, etc.)

Footprint calculation

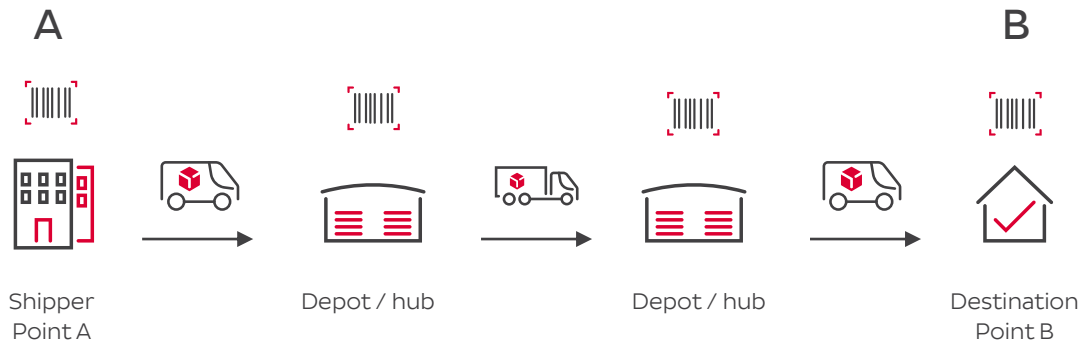
- GHG emission calculation for each individual leg of the itinerary
- Footprint is consolidated by adding carbon emission of depots and hubs the parcel has been transiting through

*More information on EN 17837 available in the Glossary

Monitoring at each stage of the delivery journey

Parcel information consolidation

Parcel information > Itinerary identification > Footprint calculation



- Parcels are picked-up on a point A and delivered at a point B, passing through several depots and hubs if needed.
- **Parcels are scanned at each step** of the delivery process.
- Parcel's weight and volume are followed all along.

- Within each country **current transport fleet status is known** and updated regularly.
- Fuel and vehicle type, energy consumption or type of electricity contract are some of the followed elements.

Delivery process identification

Parcel information > **Itinerary identification** > Footprint calculation

- Gathering all parcel scans during its journey within our transport network, the **collection leg, linehaul leg(s) and delivery tour(s)** are identified for every parcel.
- Our internal routing engine provides us with the **planned distance including empty running for Road, Sea and Rail linehaul legs**, as well as identifying the need for any additional legs related to a transport mode change (e.g. additional sea freight leg when delivering to an island).
- Air freight leg distances are retrieved using the harversine method to calculate the Great Circle Distance (GCD).
- Collection and delivery leg distances are retrieved using **modelled data** from our internal tour optimization systems.

- Each transport leg corresponds to a transport mode : **Road**, **Air**, **Sea**, **Rail**

Carbon footprint calculation for road freight legs

Parcel information > Itinerary identification > **Footprint calculation**

For each road transport leg, the **most granular country specific fleet information** is retrieved and associated to the leg (up to zipcode or tour level for last mile deliveries and route level for linehauls).

The energy consumption of each leg is calculated by adding the **base fuel consumption** (when the vehicle is empty) and a **supplementary consumption** (based on vehicle loading rate).

The base fuel consumption is allocated based on the below parameters while the supplementary fuel consumption is always allocated using **the parcel weight** (example on next slide).

For the pick-up step, energy consumption and GHG emissions are allocated per item (i.e. using **the number of parcels).**

For Road freight linehauls, energy consumption and GHG emissions are allocated per item using the **parcel volume.**

For last mile deliveries, energy consumption and GHG emissions are allocated per item using **the number of stops and grouping factor** (i.e. number of parcels delivered

For instance, if a linehaul leg is computed as being performed by a semi-trailer 60% of the time, a van 20% of the time and a rigid truck 20% of the time the carbon footprint will be calculated as followed: footprint (semi-trailer) * 0.6 + footprint (van) * 0.2 + footprint(rigid truck) * 0.2

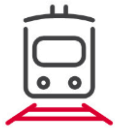
Calculation example: Road freight linehaul

Parcel information > Itinerary identification > **Footprint calculation**

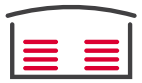
1	Base consumption (L/100km)	=	Base energy consumption (L/100km)	X	Parcel volume (L)	/	Total transported volume (L)			
2	Supplementary consumption (L/100km)	=	Supplementary energy consumption (L/100km/ton)	X	Parcel weight (kg)	/	1,000			
3	Total consumption (L/100km)	=	Base consumption (L/100km)	+	Supplementary energy consumption (L/100km)					
4	Carbon footprint (gCO_2e)	=	Total consumption (L/100km)	X	Leg distance (km)	/	100	X	Emission factor (gCO_2e/L)	

Carbon footprint consolidation

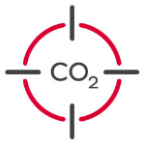
Parcel information > Itinerary identification > **Footprint calculation**



- For Air, Sea, Rail freight linehauls, GHG emissions are calculated based on item weight and travelled distance.



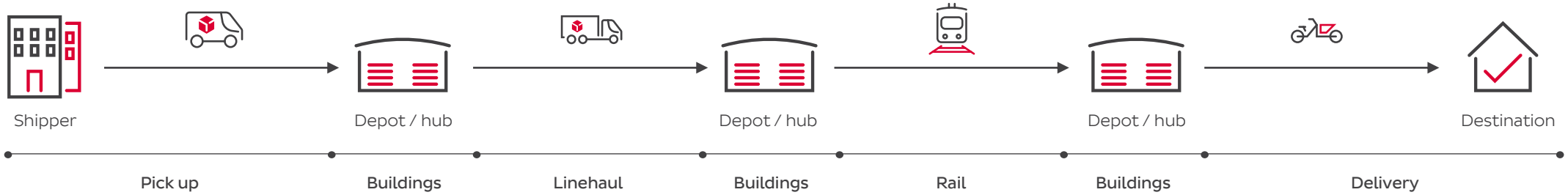
- For the Buildings impact, emissions per parcel are calculated based on the energy consumption of the site through which the parcel transits, averaged by the total number of parcels handled by each site.



- Finally, GHG emissions of all legs are consolidated to calculate the total carbon footprint of the parcel.
- The associated reporting tools then aggregate results at customer level (using account numbers) to provide you with relevant KPIs for your company.

Carbon footprint calculation example

Parcel itinerary



GHG emission calculation parameters

Pick up & Delivery
GHG Emissions

Vehicle energy consumption
Parcel's volume & weight
Number of parcels
transported Number of stops

Buildings
GHG Emissions

Site energy consumption
Number of parcels handled

Linehaul
GHG Emissions

Vehicle energy consumption
Parcel's volume & weight

Rail
GHG Emissions

Transportation distance
Parcel weight

Parcel GHG Emissions = Pick up & Delivery GHG Emissions + Buildings GHG Emissions + Linehaul GHG Emissions + Rail GHG Emissions

Type of data used has a direct influence on the accuracy of the result

Overview of data quality

4 types of input data are generally considered :

- **Primary data**: highly precise information, such as fuel receipt or annual spend.
- **Program data**: data from green freight program such as SmartWay or CCWG carrier data.
- **Modelled data**: data from tool that calculate emission from goods types, journey origin, destination, vehicles, etc.
- **Default data**: last resort data representative of average industry operating practices. (IEA, SFC, Base Carbone, etc.)

The Carbon Calculator mainly uses a **mix of primary, modelled and default data**:

Road freight emissions are calculated using a mix of aggregated **primary and modelled data.**

Air, Sea, Rail freight emissions are calculated using **default data.**

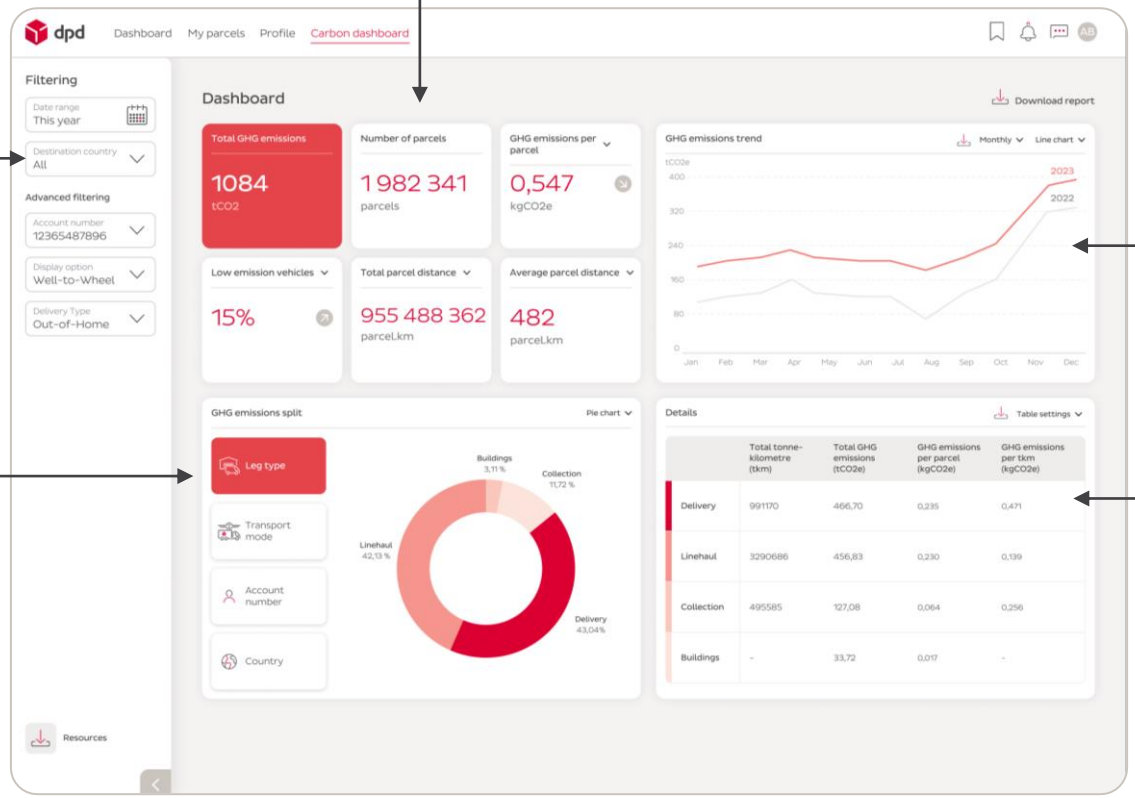
3. Getting started with the carbon dashboard

An interactive user interface

Carbon dashboard

Most relevant KPIs
Absolute emissions (kg CO2e), Emissions per parcel (kg CO2e/parcel), etc.

Filtering options
Dates, country, delivery type, etc.



Emissions split panel
By leg type, account number, transport mode, etc.

Understand the trend of
your most relevant KPIs

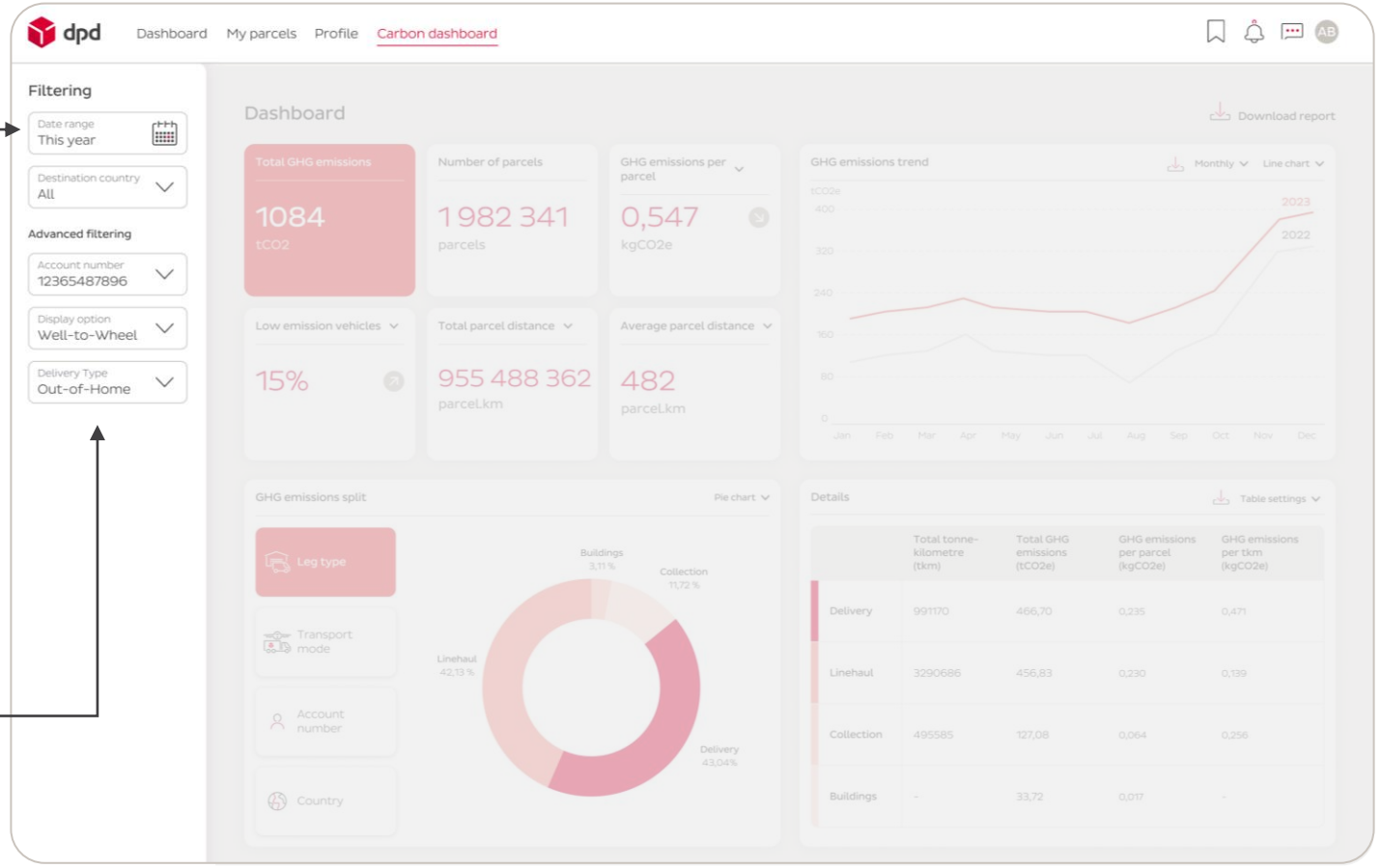
Additional details
including distance, weight, volume and tonne-kilometres (km, kg, L, tkm)

Filtering options

Month selection for data display

Report available for both TTW and WTW emissions

B2B/home or Out of Home delivery

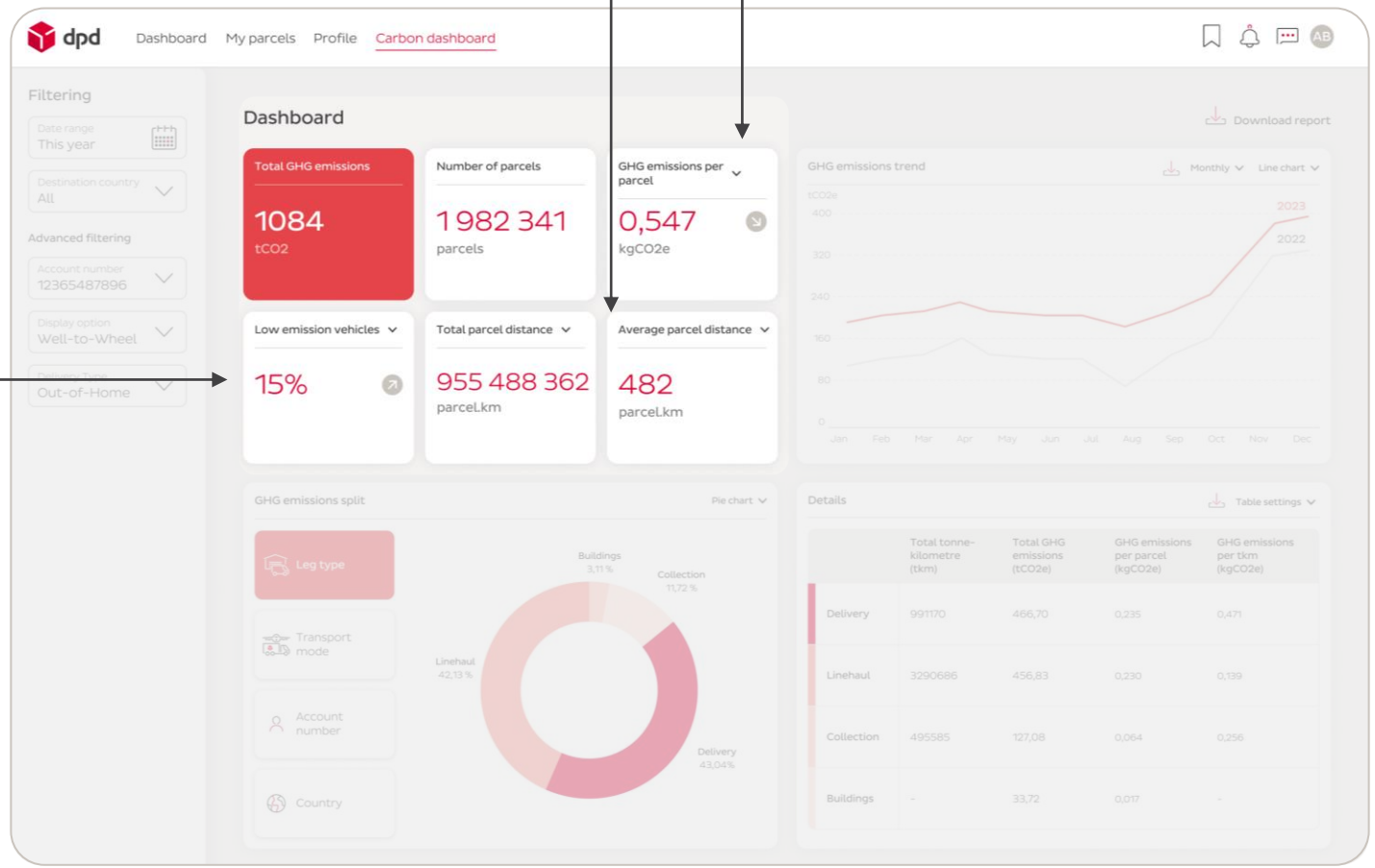


Main KPIs

KPIs available as distance, weight or volume

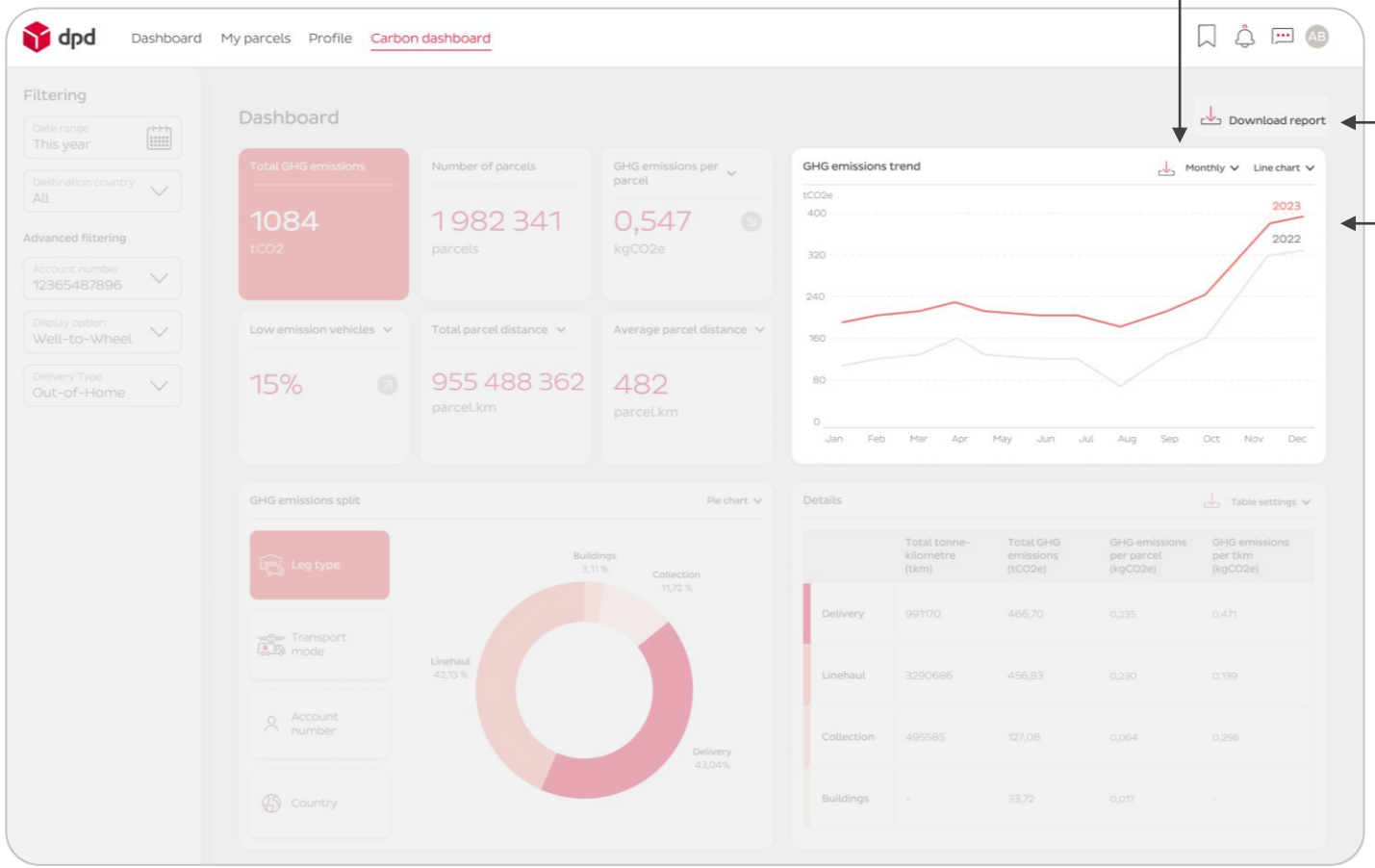
Data sorting by parcel, t*km or weight

Share of low emission vehicles or leg



GHG emissions trend

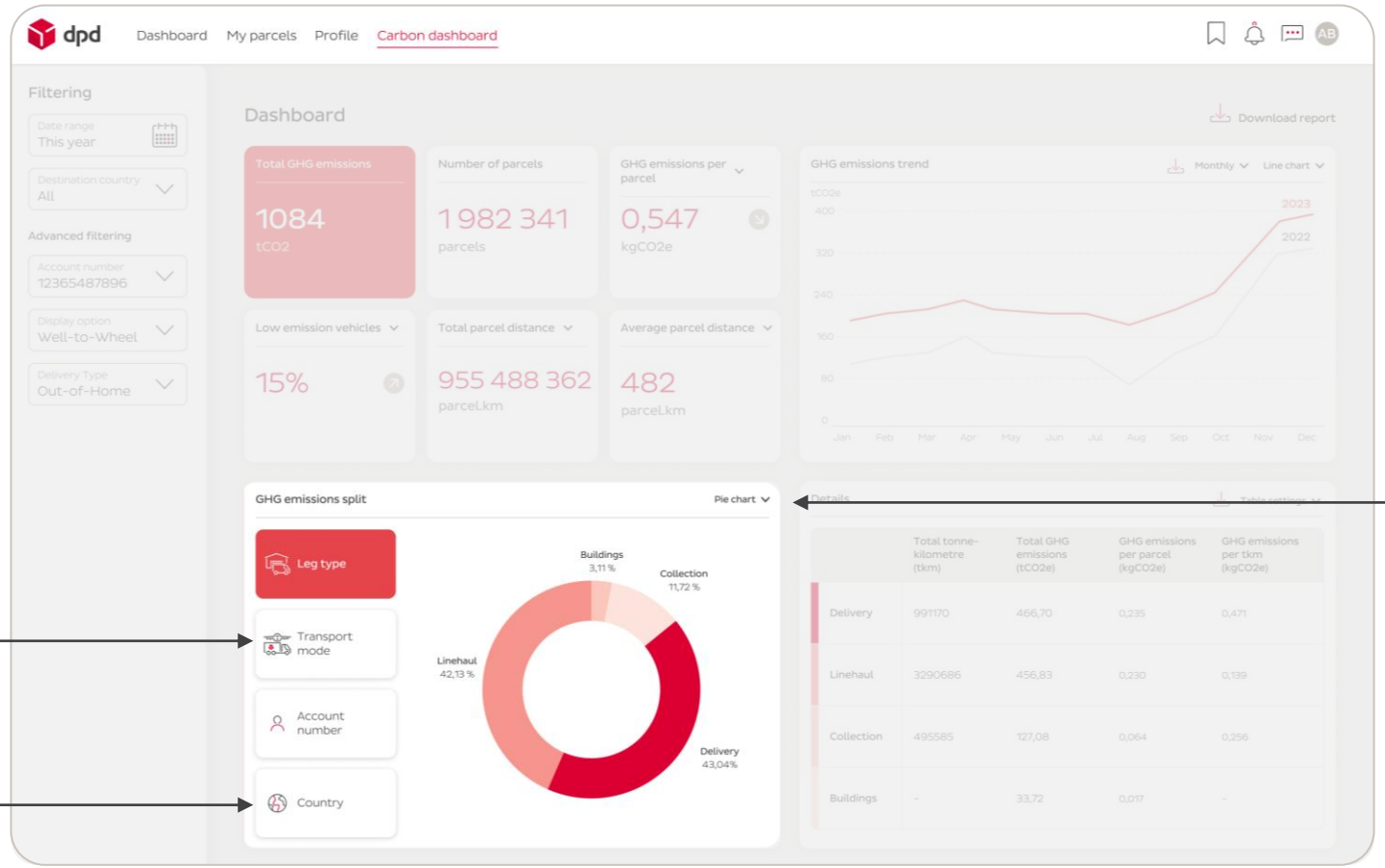
Graphs available for monthly and quarterly data



Export report to PDF or XLS

Available as line chart or bar chart

GHG emissions split

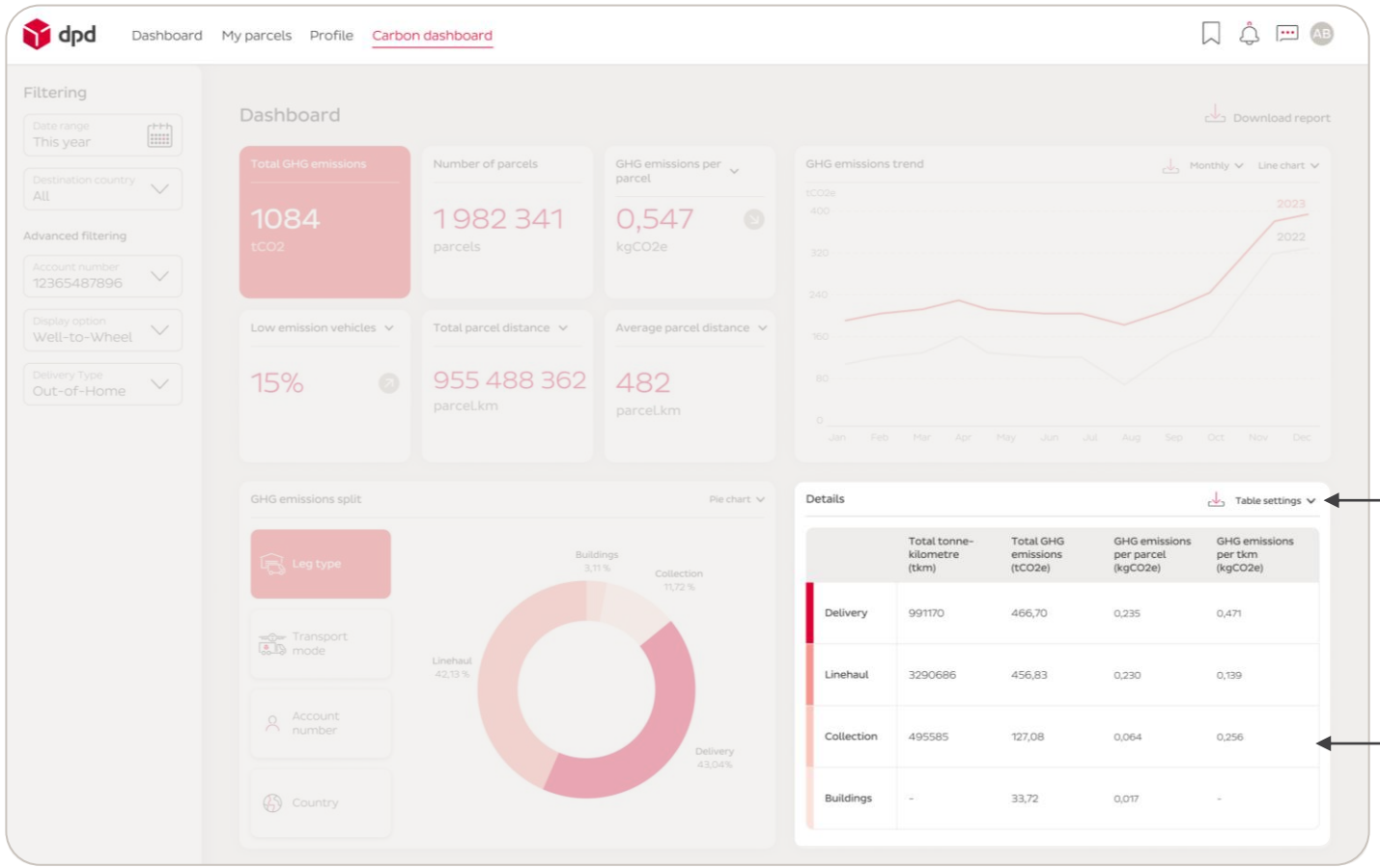


Air, sea, road and rail

Split of emissions per destination country

Chart type selection

Details



Hide/show information

Additional KPI provided for deep dive purposes

4. FAQ

Q/A

What is the Carbon Calculator ?

The Carbon Calculator is a purpose-built tool developed by Geopost in collaboration with a group of pilot customers. It provides customers with near real-time visibility on the GHG emissions of their own shipments through an online dashboard and GHG emissions reports.

What methodology is the Carbon Calculator based on?

The Carbon Calculator is based on the principles of international carbon accounting standards for freight transport. It is accredited by the **Smart Freight Centre**, which guarantees its conformance to the **GLEC Framework** and **ISO 14083** . In addition, the Carbon Calculator is built on the **EN 17837**, which outlines how to quantify, allocate and report on GHG emissions on a shipment (parcel) level.

What is the scope of the Carbon Calculator (GHG, lifecycle, etc.)?

- **All GHGs** are considered (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride).
- **Scopes 1, 2, 3** (aggregated).
- Well - to - Wheel and Tank - to - Wheel emissions are available (entire life cycle).
- **All legs** (collection, delivery, linehaul, buildings) managed by Geopost (end - to - end).
- The **emission factors** used are the ones advised by the European Standard EN 16258.

Q/A

What is the difference between the GLEC Framework, ISO 14083 and EN 17837?

- GLEC Framework, ISO 14083 and the EN 17837 share the same approach to quantifying GHG emissions from freight transport but differ in either their scope of application or their allocation methods.

- ISO 14083 is an international standard that covers emissions quantification and reporting for both goods and passenger transport whereas the GLEC Framework represents current industry best practice in quantifying and reporting emissions from goods transport.

- The EN17837 shares the same underlying methodological approaches with the previous frameworks but differs in that it provides more precise GHG emissions to customers because it allocates emissions to individual parcels based on each parcel's weight and volume.

5. Glossary

Glossary

GHG: Greenhouse Gases. The main gases responsible for the greenhouse effect, linked to human activities, are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and the fluorinated gases (HFC, PFC, SF6 and NF3).

CO2e: Human activity emits different kind of GHG. Their Global Warming Potential (GWP), a physical characteristic of a GHG, represents their impact on the greenhouse effect, and allows to convert 1 kg of GHG into X kg of CO2 equivalent, noted $CO2_e$. It allows emissions of different gases to be compared. Thus, CO2e is the same as GHG in that it covers all greenhouse emissions as opposed to CO2 which only refers to carbon dioxide.

Scope 1, 2, 3:

Scope 1 emissions are direct GHG emissions from company-owned and controlled resources.

Scope 2 emissions are indirect GHG emissions from the generation of purchased energy.

Scope 3 emissions are all indirect GHG emissions – not included in scope 2 – that occur in the value chain.

Emission factor: Coefficient which allows to convert activity data (vehicle fuel consumption, kWh of a given energy, etc.) into Greenhouse gas (GHG) emissions. It is the average emission rate of a given source, relative to units of activity or process/processes.

Glossary

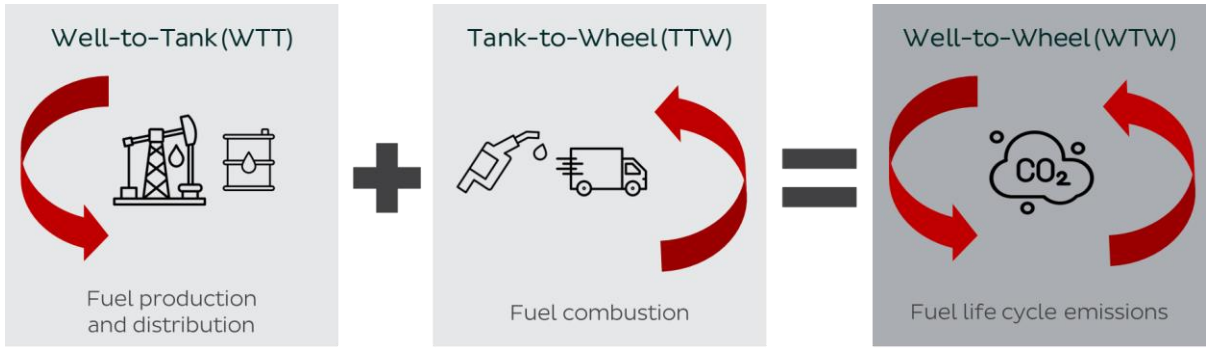
LEG: Transportation connection between two points. Leg types can be linehaul, air, sea, rail, pick up or delivery.

Ton.Km: Unit of measurement corresponding to the transport of one ton over one kilometer (e.g. Transporting 3 tons of goods over a distance of 150 kilometers corresponds to a transport activity of 3 x 150 = 450 t.km).

Parcel.km: Unit of measurement corresponding to the transport of one parcel over one kilometer (e.g. Transporting 1000 parcels over a distance of 150 kilometers corresponds to a transport activity of 1000 x 150 = 150 000 parcel.km).

Well-to-Wheel (WTW): GHG emissions are calculated over the entire value chain:

- Well-to-tank (WTT): Fuel production and distribution.
- Tank-to-Wheel (TTW): Fuel combustion.



Glossary

Smart Freight Centre: International non-profit organization focused on reducing greenhouse gas emission from freight transportation.

GLEC Framework: The global methodology for harmonised calculation and reporting of the logistics GHG footprint across the multi-modal supply chain. It can be implemented by shippers, carriers and logistics service providers. It is aligned to the GHG Protocol.

ISO 14083: It establishes a common methodology for the quantification and reporting of greenhouse gas (GHG) emissions arising from the operation of transport chains of passengers and freight.

EN 17837: Methodology for calculation and declaration of GHG emissions and Air pollutants of parcel logistics delivery services, it provides the principles and rules for the quantification, allocation and reporting of environmental impacts from parcel logistics delivery services. Also called Parcel Delivery Environmental Footprint (PDEF).

GHG Protocol: GHG Protocol establishes comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions.

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