

CORPORATE CARBON FOOTPRINT REPORT 2025

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Executive Summary

This Corporate Carbon Footprint (CCF) report details the greenhouse gas (GHG) emissions for Pac Team Europa (PTE) for the calendar year 2025, aligned with the methodology outlined in the **GHG Protocol Corporate Standard**. The perimeter of the Assessment was established following the Operational Control approach, accounting for 100% of the emissions (direct and indirect) from the operations over which PTE has operational control.

Building on the expanded inventory first reported in 2024, the 2025 assessment introduces **one additional GHG Protocol category: Scope 3 Category 2 (Capital Goods)**, previously excluded on materiality grounds. For 2025, office equipment purchases were quantified using a spend-based methodology. All other included categories (Scope 1; Scope 2; Scope 3 Categories 1, 3, 4, 6, 7, 9, 12) remain consistent in scope with the 2024 boundary. In addition, the end-of-life treatment methodology (Category 12) was upgraded in 2025 to use material-specific emission factors and destination-specific waste mixes (China, US, EU), including recycling pathways — an improvement over the 2024 approach, which relied on generic mixed-waste factors for landfill and incineration only.

PTE 2025 Carbon Footprint – Hierarchical Treemap

Area = share of 5,162 tCO₂e total. Color = scope grouping. Shade within group = rank (darker = larger).

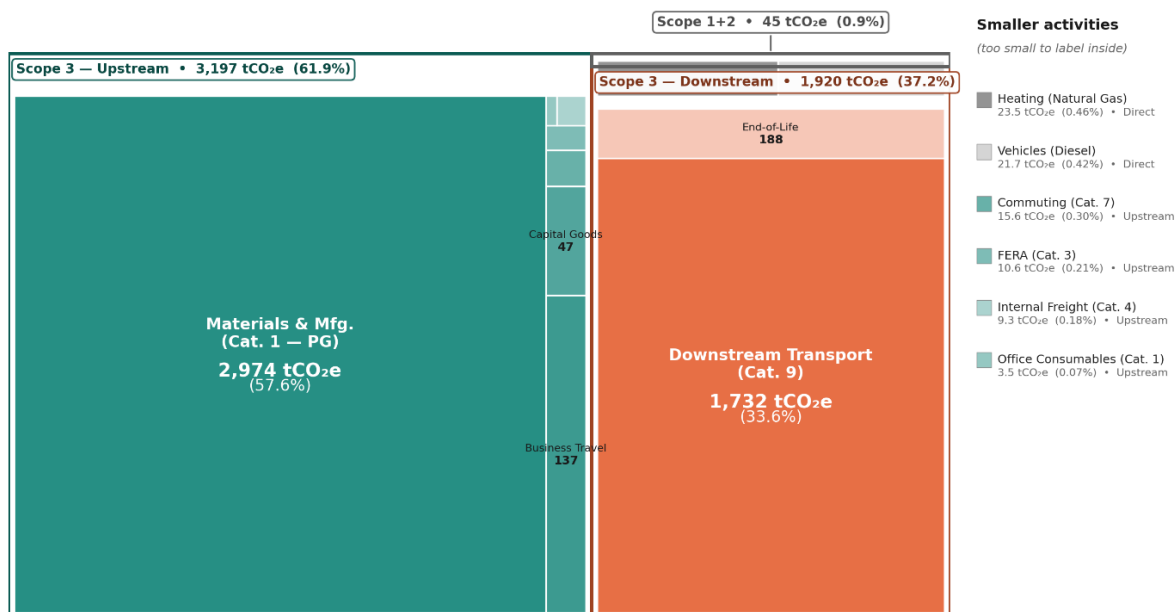


Figure 1: Pac Team Europa's Corporate Carbon Footprint in 2025

The total emissions footprint for 2025 was **5,162.27 tonnes of CO₂ equivalent (Tons CO₂e)**. The emissions are categorized across the three scopes defined by the GHG Protocol:

- **Scope 1 (Direct Emissions):** Accounted for 45.21 Tons CO₂e, resulting from direct operational activities such as fuel consumption in company vehicles and natural gas for heating.

- **Scope 2 (Indirect Emissions – Purchased Energy):** There were no Scope 2 emissions, reflecting PTE's continued procurement of 100% renewable electricity under a market-based accounting approach.
- **Scope 3 (Indirect Emissions – Value Chain):** Represented the vast majority of the footprint, totaling 5,117.06 Tons CO₂e (approximately 99% of the total). These emissions are further divided into:
 - **Upstream Emissions (3,197.27 Tons CO₂e):** Dominated by Category 1: Purchased goods and services (2,977.09 Tons CO₂e). Other upstream contributors include Capital Goods (47.28 Tons CO₂e, newly included in 2025), business travel (137.34 Tons CO₂e), employee commuting (15.64 Tons CO₂e), fuel- and energy-related activities (10.64 Tons CO₂e) and upstream transportation (9.28 Tons CO₂e).
 - **Downstream Emissions (1,919.79 Tons CO₂e):** Primarily driven by Category 9: Downstream transportation and distribution (1,732.24 Tons CO₂e), with Category 12: End-of-life treatment of sold products (187.55 Tons CO₂e) also contributing.

Table 1: Pac Team Europa's Corporate Carbon Footprint in 2025

GHG Protocol Scope	GHG Protocol Category	GHG Emissions (Tons CO ₂ e)
Scope 1	Direct Emissions (Fossil fuel consumption - heating and Company-owned vehicles)	45.21
	Scope 1 Total:	45.21
Scope 2	Indirect Emissions	0.00
	Scope 2 Total:	0.00
Scope 3 Upstream		
	Purchased Goods for Resale + Office Consumables (Cat. 1)	2,977.09
	Capital goods (Office Equipment) (Cat. 2)	47.28
	Fuel- and energy-related activities (Cat. 3)	10.64
	Upstream transportation and distribution (Cat. 4)	9.28
	Business travel (Cat. 6)	137.34
	Employee commuting (Cat. 7)	15.64
	Scope 3 Upstream Subtotal:	3,197.27
Scope 3 Downstream		

GHG Protocol Scope	GHG Protocol Category	GHG Emissions (Tons CO ₂ e)
	Downstream transportation and distribution (Cat. 9)	1,732.24
	End-of-life treatment of sold products (Cat. 12)	187.55
	Scope 3 Downstream Subtotal:	1,919.79
	Scope 3 Total:	5,117.06
	Overall Total:	5,162.27

Key Findings

The carbon footprint analysis of PTE reveals that the organization's environmental impact is overwhelmingly concentrated in Scope 3 emissions, which encompass value chain emissions. This insight underscores that PTE's most significant environmental impact lies not in its direct operations, but rather in the broader network of activities associated with its products and services.

A closer examination of the Scope 3 emissions reveals that the primary sources are:

- **Purchased goods and services:** This category, situated within Scope 3 Upstream, highlights the environmental impact embedded in the materials and services that PTE procures to support its operations. In 2025 it represents approximately 57.6% of total emissions.
- **Transportation and distribution of sold products:** This category, located within Scope 3 Downstream, emphasizes the environmental cost of transporting PTE's products to customers and end-users. In 2025 it represents approximately 33.4% of total emissions.

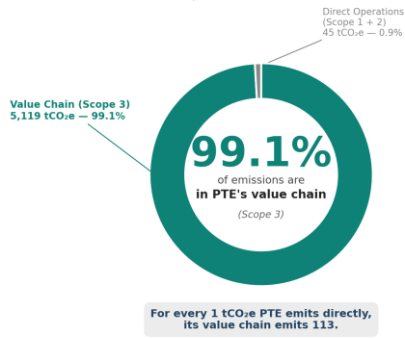
In contrast, Scope 1 emissions, which arise from PTE's direct operational activities, are relatively minor (~1 % of total emissions). Furthermore, PTE's continued commitment to renewable energy has successfully neutralized Scope 2 emissions, which are associated with purchased electricity.

These findings collectively highlight that PTE's future strategies for reducing its carbon footprint should prioritize engagement with its value chain. This entails working closely with suppliers to reduce the environmental impact of purchased goods and services, as well as working with customers and logistics partners to optimize transportation and distribution networks to minimize emissions associated with product delivery. Finally, it is recommended to explore strategies related to product design and end-of-life management to further reduce downstream emissions, potentially through designing for durability and recyclability.

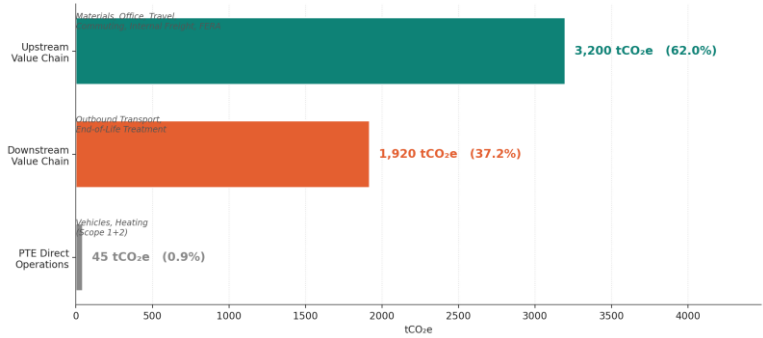
By focusing on these areas, PTE can effectively address the most significant sources of its carbon emissions and drive meaningful progress towards its sustainability goals.

Summary of Key Findings from Pac Team Europa's 2025 CCF Report

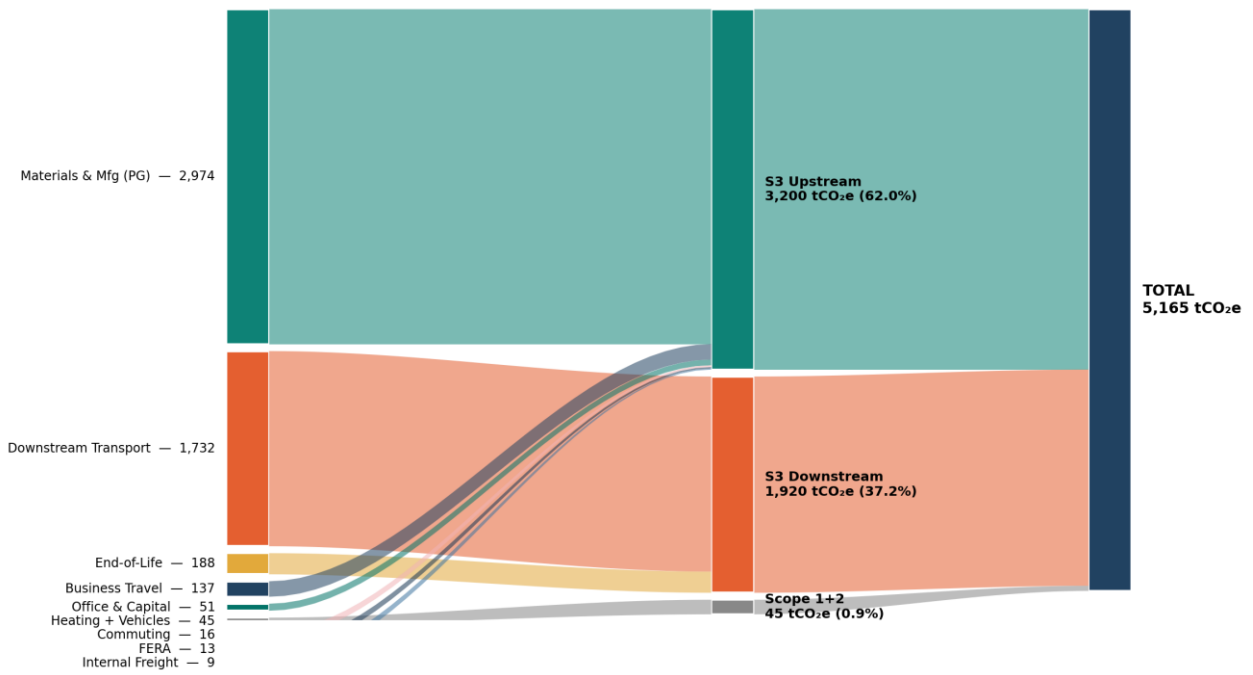
Direct vs Value-Chain Emissions, 2025

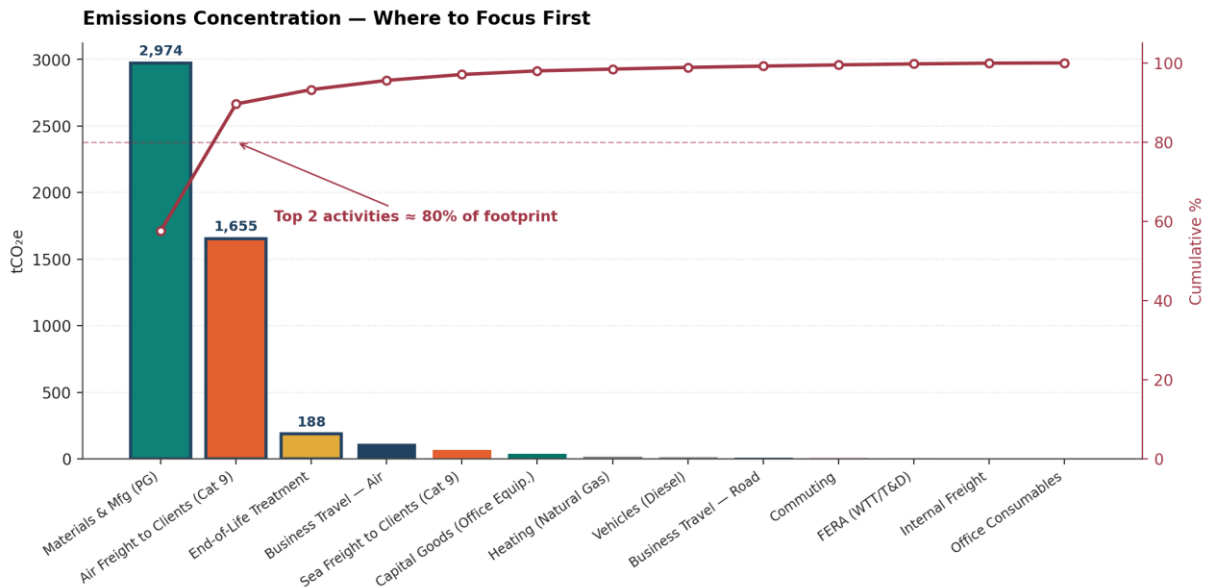


Value-Chain Burden — 2/3 Upstream, 1/3 Downstream, Almost Nothing Internal



Activities Flow into Scope Categories — Then into Total





1. Preliminary Notes

1.1 Introduction of Pac Team Europa

Pac Team Europa S.r.l. (PTE) is an Italian company founded in 1999, based in Nova Milanese (Monza-Brianza), Italy. PTE designs luxury packaging and retail display items for global brands in cosmetics, fashion and consumer goods, commissioning manufacturing primarily to suppliers in China and serving customers across Europe, the United States and Asia. PTE's premises comprise an approximately 500 sqm office and a 2,000 sqm warehouse. As of the 2025 reporting period, PTE employed 29 people.

1.2 Introduction of the Corporate Carbon Footprint Assessment

A Corporate Carbon Footprint (CCF) is the total amount of greenhouse gases (GHGs) emitted by an organization as a direct or indirect consequence of its activities. It is expressed in tonnes of CO₂-equivalent (tCO₂e), with the carbon dioxide-equivalence derived by weighting each gas by its Global Warming Potential (GWP) over a 100-year horizon, as defined by the Intergovernmental Panel on Climate Change (IPCC).

The obtained quantitative results are in line with reporting under the ISO 14069 and GHG-Protocol standards, dividing the accounted emissions into Scope 1, Scope 2 and Scope 3. To ensure the compatibility of the reported results with the most common carbon emissions disclosure programs, the Assessment results are reported directly under the GHG-Protocol standard and related Scopes. The perimeter of the Assessment was decided following the Operational Control approach, thus accounting for 100% of the emissions (direct and indirect) from the operations over which PTE has operational control.

Collected and estimated activity data was then coupled with the relative emission factor, provided by various sources outlined in Appendix A.1. An emission factor is a numerical value that represents

the amount of greenhouse gas (GHG) emissions released per unit of activity or product. It provides a standardized measure of emissions associated with a specific process, fuel, or activity.

Emission factors are typically expressed as the amount of CO₂-equivalent emissions per unit of activity, such as kilograms or metric tons of CO₂-equivalent emissions per kilowatt-hour of electricity generated, per litre of fuel burned, or per km travelled.

In this Assessment, as required by GHG-Protocol Standards, all emissions resulting by applying the chosen EF (Appendix A.1) were converted into CO₂e for the final reporting of the results. A breakdown of GHG gases is available upon request.

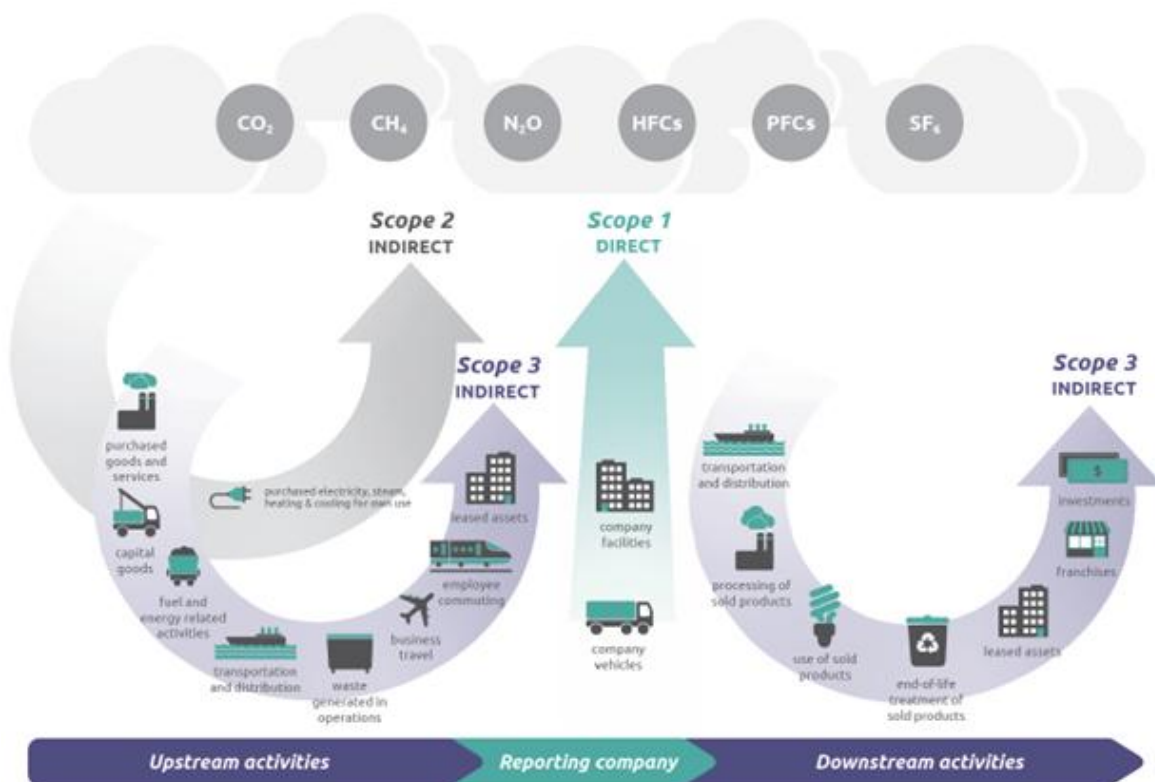


Figure 8: Overview of GHG Protocol Scopes and emissions across the value chain

1.3 Introduction of GHG Protocol Scopes

1.3.1 Scope 1

Scope 1 emissions are direct GHG emissions from sources that are owned or controlled by the reporting company. For PTE, Scope 1 includes fuel consumed by company-owned vehicles (diesel) and natural gas used for space heating at its premises in Nova Milanese.

1.3.2 Scope 2

Scope 2 emissions are indirect GHG emissions associated with the generation of purchased electricity, steam, heat or cooling consumed by the reporting company. For PTE, Scope 2 consists exclusively of purchased electricity. Under a market-based accounting approach and given PTE's

procurement of 100% certified renewable electricity for 2025, Scope 2 emissions are reported as 0.00 tCO₂e.

1.3.3 Scope 3

Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream activities. The GHG Protocol Corporate Value Chain (Scope 3) Standard defines fifteen distinct Scope 3 categories, eight of which are relevant to PTE's operations (see Section 2, Table 2).

2. Scopes and Activities Included in PTE's CCF Report 2025

Table 2 summarizes which GHG Protocol Scopes and Categories are included within the boundary of PTE's 2025 Corporate Carbon Footprint Assessment, together with the justification provided for any category excluded. The 2025 inventory newly includes Scope 3 Category 2 (Capital Goods), which had been excluded in 2024 on materiality grounds; data availability and the inclusion of office-equipment acquisitions in 2025 warranted its inclusion this year. All other category inclusions/exclusions remain consistent with the 2024 boundary.

Table 2: Summary of GHG Protocol Categories included and not included in this Assessment

Scope	Cat. #	Category Name	Included?	Justification for Exclusion (if applicable)
Scope 1	N/A	Direct Emissions (Company Vehicles, Heating)	Yes	Nil
Scope 2	N/A	Indirect Emissions from Purchased Energy (Electricity)	Yes	Nil
Scope 3	1	Purchased goods and services	Yes	Nil (Includes purchased goods for resale and office consumables.)
Scope 3	2	Capital goods	Yes	Newly included in 2025. Quantified for office equipment acquisitions via spend-based methodology
Scope 3	3	Fuel- and energy-related activities (not in Scope 1 or 2)	Yes	Nil
Scope 3	4	Upstream transportation and distribution	Yes	Nil (Includes internal freight.)
Scope 3	5	Waste generated in operations	No	Deemed not material. Waste generated in office operations is minimal; waste from manufacturing is included within Category 1 via suppliers.
Scope 3	6	Business travel	Yes	Nil
Scope 3	7	Employee commuting	Yes	Nil
Scope 3	8	Upstream leased assets	No	Deemed not applicable or material. PTE does not operate significant upstream assets via operating leases.

Scope	Cat. #	Category Name	Included?	Justification for Exclusion (if applicable)
Scope 3	9	Downstream transportation and distribution	Yes	Nil
Scope 3	10	Processing of sold products	No	Not applicable. PTE sells finished luxury packaging and display items that do not undergo further processing by downstream companies.
Scope 3	11	Use of sold products	No	Not applicable. PTE's products (luxury packaging/displays) are passive and do not consume energy or generate emissions during their use phase.
Scope 3	12	End-of-life treatment of sold products	Yes	Methodology upgraded in 2025 to use material-specific EFs and destination-specific waste mixes (China, US, EU) with recycling pathways.
Scope 3	13	Downstream leased assets	No	Not applicable. PTE does not own significant assets that are leased out to other entities under operating leases.
Scope 3	14	Franchises	No	Not applicable. PTE does not operate under a franchise model.
Scope 3	15	Investments	No	Deemed not applicable or material for an SME of this nature and size.

2.1 Additional Details on Scope 3 Emissions Calculation Methodology

2.1.1 Upstream — Purchased Goods and Services

Emissions associated with Purchased Goods and Services represent the most significant component of PTE's Scope 3 emissions and overall carbon footprint. These emissions primarily relate to the 'cradle-to-gate' impact of designing luxury packaging and display items in Italy and commissioning their manufacturing to suppliers in China. For 2025, Category 1 encompasses both purchased goods for resale and purchased office consumables, combined into a single line in the summary tables.

Given the challenge of obtaining detailed primary emissions data directly from all suppliers for every product line, a hybrid methodology was employed to estimate these emissions for the 2025 reporting year, aligning with estimation techniques outlined in the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

The process involved the following steps:

- **Product Carbon Footprint (PCF) Analysis:** A detailed PCF assessment was conducted on two representative orders covering PTE's two main product lines (Packaging and Displays). The sample orders accounted for approximately 4% of total 2025 revenues and comprised 2 main, distinct product lines. The PCF calculated the cradle-to-gate emissions associated with producing these specific items.

- **Development of a Product-Line-Specific Economic Emission Factor:** The total GHG emissions calculated from the PCF of each sample order were then divided by the revenue generated by that same order. This yielded product-line-specific economic emission intensity factors, expressed in tonnes of CO₂e per thousand Euros of revenue.
- **Extrapolation to Total Purchased Goods:** Each product-line intensity factor was subsequently multiplied by PTE's 2025 revenue for that product line to extrapolate and estimate the total emissions attributable to purchased goods for resale for the reporting year. For the Installations product line (which was not covered by a dedicated PCF in the sample), an average of the Packaging and Displays intensities was applied as a conservative proxy.

This methodology represents a hybrid approach that utilizes specific product-level data (from the PCF) to develop a tailored economic intensity factor, which is then applied across the company's total economic activity (revenue) related to these goods. While the GHG Protocol prioritizes supplier-specific data or comprehensive product-level data (based on mass or units) as higher tiers of data quality, it recognizes the necessity of estimation techniques when such data is unavailable or impractical to collect.

This approach is considered more accurate than relying on generic, industry-average spend-based emission factors, as the derived factor is based on an assessment of PTE's actual products. However, the overall accuracy of the final emissions estimate is inherently linked to the representativeness of the sample orders chosen for the PCF analysis. Variations in materials or manufacturing intensity across the full product range could influence the result.

Therefore, while this methodology provides a robust and justifiable estimate for 2025 based on available data and aligned with GHG Protocol guidance for estimation, PTE recognizes the opportunity for future refinement. Potential improvements include expanding PCF analysis to cover a larger proportion of purchased goods or engaging directly with key suppliers to gather more primary emissions data, thereby moving up the data quality hierarchy recommended by the GHG Protocol.

2.1.2 Downstream — Transport and Distribution of Sold Products and their End-of-Life Treatment

Scope 3 downstream emissions encompass indirect emissions occurring after products leave PTE's control. For the 2025 reporting year, the primary downstream categories included are Downstream Transportation and Distribution (Category 9) and End-of-Life Treatment of Sold Products (Category 12). An estimation methodology analogous to that used for Purchased Goods and Services, aligned with the principles of the GHG Protocol Corporate Value Chain (Scope 3) Standard, was employed for these categories. This involved analyzing representative samples of activity data to develop specific emission factors, which were then extrapolated.

Downstream Transportation and Distribution:

- **Sample Activity Analysis:** Data were collected for a representative sample of customer shipments, considering key factors such as transport distances, shipment weights/volumes, and transportation modes used (air, sea, and EXW pickup by customer). For 2025, the origin of finished goods is set at Dongguan (China), shipped via international ports/airports in Shenzhen / Hong Kong.
- **Emissions Calculation for Sample:** The GHG emissions associated with transporting this sample set of shipments were calculated using appropriate emission factors (UK Defra 2025) for the identified modes and distances. Destinations were weighted as EU ≈60%, US ≈20%,

China ≈20%. Modes were weighted Air 25%, Sea 40%, EXW 35% (EXW shipments are excluded as they are directly under customer control, which make related data collection impossible for PTE's means).

- **Development of Specific Emission Factor:** A specific emission factor representing the average emissions per tonne-km (or per Euro of associated revenue) was derived from the sample analysis.
- **Extrapolation:** This factor was then applied to the total relevant activity data for 2025 (total tonne-kms and total shipped revenue) to estimate the overall emissions for this category.

End-of-Life Treatment of Sold Products:

- **Disposal Scenario Analysis:** Destination-specific waste mixes were constructed for 2025 (China, US, EU). This is a methodological improvement over 2024, which used only a generic mixed-waste mix with landfill and incineration. The weighted-average mix across destinations for 2025 is: Landfill 23.4%, Incineration 35.2%, Recycling 37.8% (with a small residual share).
- **Material-specific Emission Factors:** Rather than applying a single mixed-waste EF, 2025 uses material-specific EoL EFs drawn from UK Defra 2025 (for landfill and recycling) and IPCC 2006 Vol. 5 (for incineration). This captures the differential EoL impact of metals, plastics, wood, paper & cardboard, textiles and packaging materials in PTE's product mix.
- **Sample Emissions Calculation and Extrapolation:** Based on the material composition/weight of a representative sample of products sold and the destination-specific waste mixes, potential end-of-life treatment emissions for that sample were calculated and then scaled to 2025 totals.

This methodology utilizes estimation techniques based on representative sampling and modeling, consistent with GHG Protocol guidance when complete primary data collection is impractical. By deriving specific factors based on analysis of PTE's actual shipment patterns, product characteristics and material composition, this approach aims for greater accuracy than relying solely on generic, industry-wide average data for downstream activities. However, the accuracy of these estimates depends significantly on the representativeness of the shipment samples analyzed and the validity of the assumptions made regarding end-of-life treatment scenarios. While providing a justifiable estimate for 2025, PTE acknowledges these limitations. Future refinements could involve collecting more detailed primary data from logistics providers or conducting more sophisticated modeling of product end-of-life pathways, thereby enhancing the robustness of the calculations as recommended by the GHG Protocol's data quality hierarchy.

3. Results

PTE's total carbon footprint for 2025 was **5,162.27 Tons CO₂e**. The overwhelming majority of this footprint — **5,117.06 Tons CO₂e, or approximately 99.1%** — falls under Scope 3, with Scope 1 contributing **45.21 Tons CO₂e (≈0.9%)** and Scope 2 contributing **zero** due to PTE's procurement of 100% renewable electricity (market-based).

Value-Chain Waterfall — How PTE's 5,165 tCO₂e Builds Up

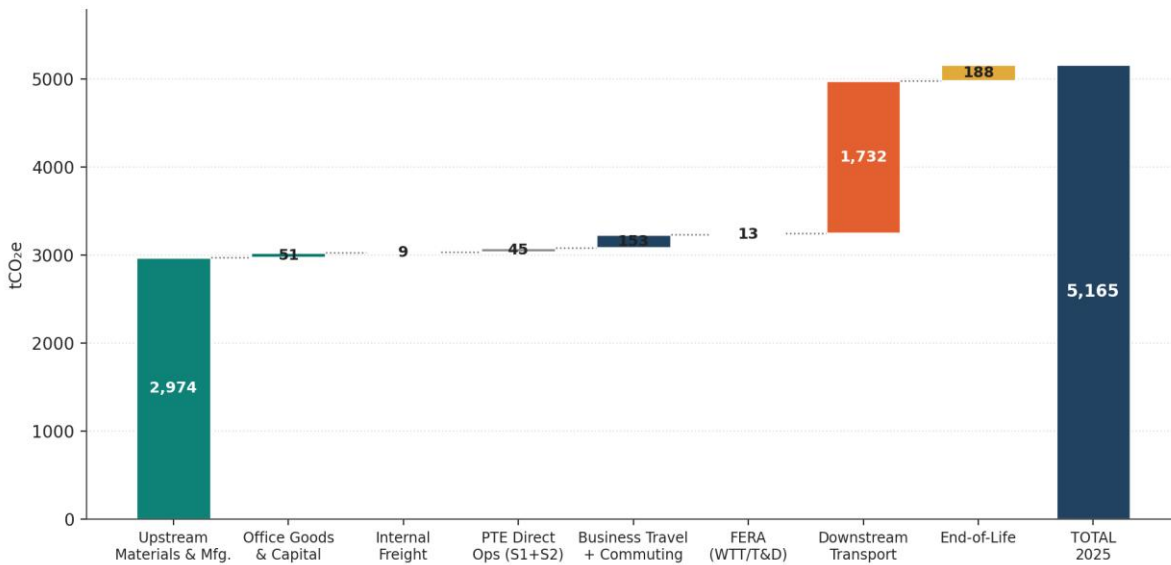


Figure 2: Build-up of PTE's CCF from the included activities

3.1 Scope 1

Scope 1 emissions for 2025 amounted to **45.21 Tons CO₂e** and arise from two sources: natural gas consumption for space heating (23.51 Tons CO₂e, from 11,378 Smc of methane gas consumed by boilers) and diesel consumption by company-owned vehicles (21.70 Tons CO₂e, from 8,443 litres of diesel consumed). Emission factors used are 2.066 kgCO₂e/smc for natural gas and 2.570 kgCO₂e/litre for diesel, both from UK Defra 2025.

Table 3: Scope 1 Emissions breakdown by source

Emissions Sources — Scope 1	Activity Data Quality	Activity Data Unit	GHG Emissions (Tons CO ₂ e)
Consumption of diesel by company-owned vehicles	Measured data	l/year	21.70
Heating (natural gas)	Measured data	kWh/year	23.51

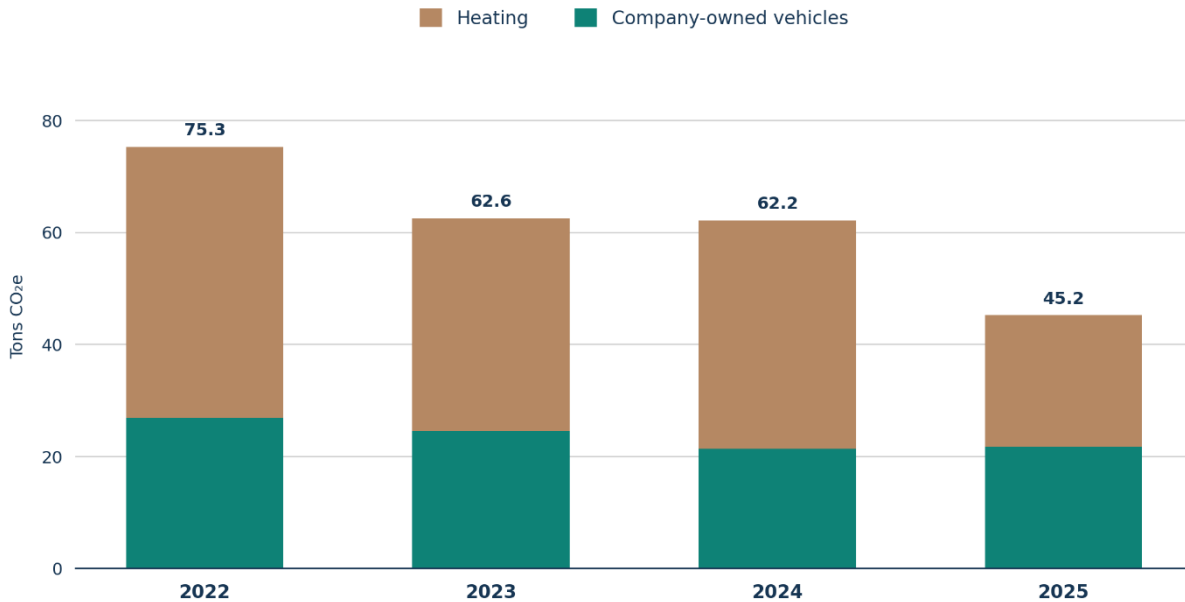


Figure 3: PTE's Scope 1 emissions show a decreasing trend from 2022 to 2025

3.2 Scope 2

PTE consumed 74,050 kWh of electricity during 2025. All electricity was procured under a 100% renewable supply contract, and under a market-based accounting approach Scope 2 emissions are therefore reported as **0.00 Tons CO₂e**. The associated upstream emissions (T&D losses, WTT generation and WTT T&D) are reported under Scope 3 Category 3 (see Section 3.3.1). For reference, applying a location-based Italian grid EF (0.2114 kgCO₂e/kWh) would yield approximately 15.65 Tons CO₂e — avoided through renewable procurement.

3.3 Scope 3

PTE's Scope 3 emissions for 2025 totaled **5,117.06 Tons CO₂e** — approximately **99.1%** of PTE's overall footprint. These are broken down into Upstream emissions and Downstream emissions, as detailed in the following sub-sections.

3.3.1 Upstream Emissions

Scope 3 Upstream emissions for 2025 amount to **3,197.27 Tons CO₂e**, dominated by Purchased goods and services (2,977.09 Tons CO₂e). The other contributors are Business travel (137.34), Capital goods (47.28, newly included in 2025), Employee commuting (15.64), Fuel- and energy-related activities (10.64) and Upstream transportation and distribution / internal freight (9.28).

Table 4: Scope 3 (Upstream) Emissions breakdown by source

Emissions Sources — Scope 3 Upstream	Activity Data Quality	Data Unit	GHG Emissions (Tons CO2e)
Purchased goods and services (Cat. 1, incl. office consumables)	Estimated	Ton, k-EUR	2,977.09
Capital goods (Cat. 2 – Office equipment)	Estimated	k-EUR	47.28
Fuel- and energy-related activities (Cat. 3)	Estimated	l, kWh	10.64
Upstream transportation and distribution (Cat. 4)	Measured	Ton·km	9.28
Business travel (Cat. 6)	Measured	Passenger·km	137.34
Employee commuting (Cat. 7)	Measured	Passenger·km	15.64

Within Category 1 (Purchased Goods and Services), the cradle-to-gate Materials Input stage represents the dominant share of emissions confirming the material-embedded nature of PTE's emissions profile.

Carbon Intensity per €1,000 Revenue — by PCF Stage

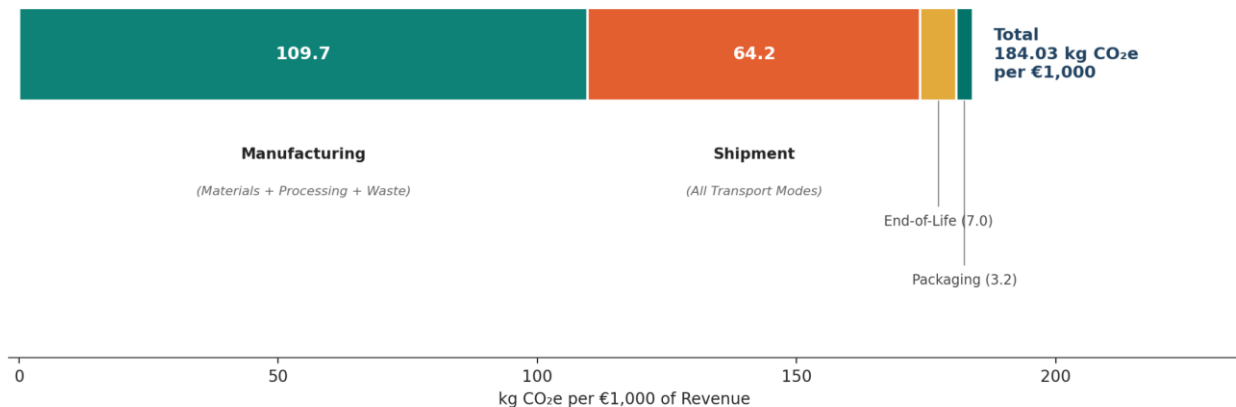


Figure 4: Carbon intensity of PTE's purchased goods for resale

Category 3 (Fuel- and energy-related activities, 10.64 tCO2e) includes the upstream 'well-to-tank' (WTT) emissions from diesel (5.16 tCO2e; 8,443 l × 0.611 kgCO2e/l) and natural gas (3.82 tCO2e; 126,296 kWh (Gross CV) × 0.03021 kgCO2e/kWh) consumed under Scope 1, as well as the Transmission & Distribution (T&D) losses on purchased electricity (1.37 tCO2e; 74,050 kWh × 0.01853 kgCO2e/kWh) and the WTT T&D share (0.29 tCO2e; 74,050 kWh × 0.00397 kgCO2e/kWh). The WTT generation component of purchased electricity is 0.00 because electricity is procured 100% renewable under a market-based approach. All factors are from UK Defra 2025.

Category 4 (Upstream transportation and distribution, 9.28 tCO₂e) covers PTE's internal freight activity, with 10,393 tonne-km moved, of which ~99% by air and ~1% by road. Category 6 (Business travel, 137.34 tCO₂e) covers flights and taxi/road trips of PTE employees, with air travel dominating. Category 7 (Employee commuting, 15.64 tCO₂e) reflects approximately 89,627 km of employee commuting, with private car use (diesel/gasoline) the dominant mode.

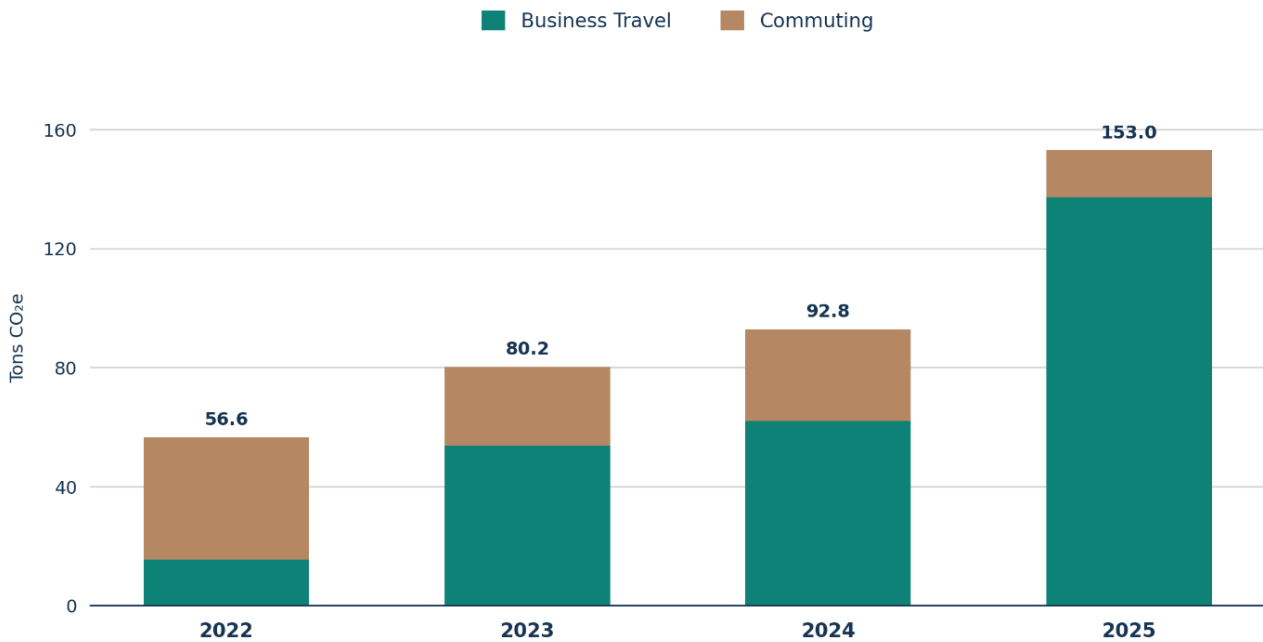


Figure 5: Increase in Scope 3 emissions related to transportation of people (Business Travel and Commuting)

3.3.2 Downstream Emissions

Scope 3 Downstream emissions for 2025 amount to **1,919.79 Tons CO₂e**, comprising Downstream transportation and distribution (Cat. 9) at 1,732.24 tCO₂e and End-of-life treatment of sold products (Cat. 12) at 187.55 tCO₂e.

Table 5: Scope 3 (Downstream) Emissions breakdown by source

Emissions Downstream	Sources — Scope 3	Activity Data Quality	Data Unit	GHG Emissions (Tons CO ₂ e)
Downstream transportation and distribution (Cat. 9)		Estimated	Ton, k-EUR	1,732.24
End-of-life treatment of sold products (Cat. 12)		Estimated	Ton, k-EUR	187.55

For Category 9 (Downstream transportation and distribution), the 2025 assessment reflects the dispatch origin Shenzhen / Hong Kong, consistent with PTE's operating model of having finished

goods shipped directly from contract manufacturers in China to customer destinations. Shipments were modelled from this origin to three destination regions — EU (~60%), US (~20%) and China (~20%) — using UK Defra 2025 factors (air freight 0.899 kgCO_{2e}/t·km; sea freight 0.016 kgCO_{2e}/t·km). The modal split was Air 25%, Sea 40% and EXW 35% (the EXW share, under customer control, is excluded from PTE's boundary).

For Category 12 (End-of-life treatment of sold products), the 2025 assessment applies a materially improved methodology relative to 2024. Waste-mix assumptions are now destination-specific (China, US, EU) and include recycling pathways alongside landfill and incineration; the weighted-average mix across destinations is Landfill 23.4%, Incineration 35.2%, Recycling 37.8%. Material-specific emission factors from UK Defra 2025 (landfill and recycling) and IPCC 2006 Vol. 5 (incineration) are applied to the material composition of PTE's product mix (metals, plastics, wood, paper & cardboard, textiles, packaging materials). The resulting total is 187.55 tCO_{2e}, corresponding to an intensity of approximately 0.00695 tCO_{2e}/kEUR of revenue.

Given that Scope 3 emissions constitute the vast majority of PTE's carbon footprint, focusing mitigation efforts on the value chain is paramount. Addressing the impacts associated with purchased goods and services and downstream logistics offers the most substantial opportunities for achieving meaningful emissions reductions in the future.

4. Identified Emissions Mitigation Opportunities

Based on the 2025 Corporate Carbon Footprint assessment, the following policies are proposed to systematically address the company's most significant greenhouse gas emission sources and drive reductions over time.

4.1 Procurement, Supply Chain & Product Design

(Addressing Scope 3: Purchased Goods & Services — ~57.6% of total emissions)

Sustainable Procurement Policy (Status: In development)

Objective: To prioritize suppliers and materials with lower environmental impacts.

Potential Elements:

- Integrate environmental criteria (e.g., supplier carbon footprint data, use of low-carbon materials, PCF data availability, ISO 14001 certification) into the evaluation and selection process for all suppliers, particularly manufacturing partners in China.
- Set targets for increasing the percentage of procurement spend allocated to suppliers meeting specific sustainability thresholds.
- Require environmental performance considerations in contract negotiations.

Supplier Code of Conduct - Climate Requirements (Status: In development)

Objective: To encourage and eventually require key manufacturing suppliers to manage and reduce their emissions.

Potential Elements:

- Establish minimum climate performance expectations for key suppliers (e.g., top 80% by spend).

- Phase in requirements for key suppliers to measure their Scope 1 & 2 emissions, set science-aligned reduction targets, and report progress annually.
- Provide resources or guidance to support suppliers in their decarbonization efforts where feasible.

Sustainable Product Design Policy (Status: In development)

Objective: To embed carbon reduction considerations into the product development process for luxury packaging and display items.

Potential Elements:

- Mandate the assessment of environmental impacts (including estimated PCF) for all new product designs.
- Prioritize the use of sustainable, low-carbon, recycled, and recyclable materials.
- Incorporate principles of material efficiency and design for disassembly/recyclability.

4.2 Logistics & Distribution (Status: In development)

(Addressing Scope 3: Downstream Transport & Distribution — ~33.4% of total emissions) **Low-Emission Logistics Policy**

Objective: To reduce the carbon footprint associated with transporting finished goods to customers.

Potential Elements:

- Set targets for reducing the average emissions intensity per shipment or per unit delivered.
- Mandate the evaluation of logistics providers based partly on their emissions performance, reporting capabilities, and use of low-emission fleets/fuels.
- Require justification for using air freight and prioritize lower-emission modes (e.g., sea, rail, efficient road freight) wherever feasible based on customer requirements and delivery times.
- Explore opportunities for shipment consolidation and route optimization, particularly from the Shenzhen / Hong Kong dispatch hub.

4.3 Direct Operations (Status: Implemented)

(Addressing Scope 1 — ~0.9% of total emissions)

Company Vehicle & Travel Policy

Objective: To minimize direct emissions from company vehicles and business travel.

Potential Elements:

- Set fuel efficiency standards for any company-owned/leased vehicles, prioritizing electric or hybrid options where practical.
- Implement an anti-idling guideline for company vehicles.
- Require rail travel instead of short-haul flights where feasible and promote virtual meetings to reduce overall travel needs (also impacts Scope 3 Business Travel).

Facility Energy Management Policy

Objective: To optimize energy use for heating and operations in office facilities.

Potential Elements:

- Establish thermostat setting guidelines for heating seasons.
- Mandate regular maintenance schedules for heating systems to ensure optimal efficiency.
- Require consideration of high-efficiency systems and improved insulation during any facility upgrades or refurbishments.

(Note: The specific emission mitigation potential associated with each policy outlined above shall be detailed and quantified in a subsequent assessment)

4.4 List of Recommended KPIs

The table below lists the KPIs in development for monitoring progress against the mitigation actions described in Sections 4.1–4.3. These KPIs have been retained unchanged from the 2024 reporting cycle to ensure year-on-year comparability, and are instrumental to ensure data quality for corporate carbon footprint reporting.

Scope	KPI	KPI Target	Units
1 – Company vehicles	1.A-i	Average fuel consumption for company vehicles	km/l
	1.A-ii	Number of separate trips per month	number
	1.A-iii	Average length of trips (monthly, yearly)	km
	1.A-iv	% of EVs in company-owned fleet	%
1 – Heating	1.B-i	Consumption of energy for heating purposes, yearly	kWh/yr
	1.B-ii	Annual energy consumption per person	kWh/person
	1.B-iii	Annual energy consumption per floor area	kWh/m ²
	1.B-iv	Difference between temperature maintained in PTE's premises (°C) and outside temperature (sampled 2 times per week, morning and afternoon) when heating system is on	°C
3 – Business Travel	3.A-i	% of trips done using emission-intensive transportation means (plane, car) over total number of trips, yearly	%
	3.A-ii	% of trips in the 300 km–1000 km distance interval by train over plane	%
	3.A-iii	Number of long-haul flights (>4000 km), yearly	number
	3.A-iv	Total number of business trips, detailed by means of transportation, number of participants and total km	mixed
3 – Commuting	3.B-i	% of employees regularly using public transport for commuting	%

Scope	KPI	KPI Target	Units
	3.B-ii	% of employees using EVs for commuting	%
	3.B-iii	Average employee commuting distance	km
3 – Internal Freight	3.C-i	Average weight of packaging	kg
	3.C-ii	Emission intensity per package unit	Kg CO2/unit
	3.C-iii	Percentage of deliveries done by using water/railway over total	%
3 – Purchased goods and services	3.D-i	Emissions Intensity of Purchased Goods	Kg CO2/€ Revenue
	3.D-ii	Percentage of Purchased Goods Spend Covered by Primary Data	%
	3.D-iii	Average PCF Intensity of New Products	Kg CO2/kg
3 – Downstream Transport & Distribution	3.E-i	Average Emissions per Shipment	Tons CO2/shipment
	3.E-ii	Percentage of Shipments via Lower-Emission Modes (e.g., Non-Air Freight)	%
3 – End of Life Treatment	3.F-iii	Percentage of Product Weight Designed for Recyclability	%
	3.F-iv	Estimated EoL Emissions per Unit Sold	Kg CO2/unit

Appendix A.1: Emission Factors Sources List

The table below lists the emission factors applied throughout the 2025 assessment.

Activities	Emission Factor	Unit	Reference
Consumption of diesel by company-owned vehicles	2.570	Kg CO2e/l	[1]
Heating (natural gas)	2.066	Kg CO2e/smc	[1]
Electricity consumption — Italian Grid (location-based, reference only)	0.2114	Kg CO2e/kWh	[2]
Electricity consumption — 100% renewable energy (market-based)	0.000	Kg CO2e/kWh	NA
Electricity — T&D losses	0.01853	Kg CO2e/kWh	[1]
Electricity — WTT T&D	0.00397	Kg CO2e/kWh	[1]
Business Travel — Air — Domestic flight (<500 km) – Economy Class	0.22928	Kg CO2e/psg·km	[1]

Activities	Emission Factor	Unit	Reference
Business Travel — Air — Short flight (500–1,200 km) – Economy Class	0.12576	Kg CO2e/psg·km	[1]
Business Travel — Air — International (>1,200 km) – Economy Class	0.10916	Kg CO2e/psg·km	[1]
Business Travel — Air — Short flight (500–1,200 km) – Business Class	0.18863	Kg CO2e/psg·km	[1]
Business Travel — Air — International (>1,200 km) – Business Class	0.31656	Kg CO2e/psg·km	[1]
Business Travel — Train	Cut off (< 1% of total distance travelled)		
Business Travel — Taxi/Uber	0.208	Kg CO2e/km	[1]
Employees Commuting — Diesel/Gasoline car	0.214	Kg CO2e/km	[1]
Employees Commuting — LPG/Methane car	0.12	Kg CO2e/km	[3]
Employees Commuting — Scooter	Cut off (< 1% of total distance travelled)		
Employees Commuting — Plug-in Hybrid	0.10	Kg CO2e/km	[4]
Employees Commuting — BEV	0.05	Kg CO2e/km	[4]
Employees Commuting – Car Sharing	0.17	Kg CO2e/km	[4]
Office Materials Input — Consumables	0.367	Kg CO2e/€	[5]
Office Materials Input — Office equipment & furniture (Capital Goods)	0.917	Kg CO2e/€	[5]
Upstream emissions from Diesel supply chain (WTT, not in Scope 1-2)	0.611	Kg CO2e/l	[1]
Upstream emissions from Natural Gas supply chain (WTT, not in Scope 1-2)	0.030	Kg CO2e/kWh	[1]
End-of-life treatment — Landfill (material-specific)	material-dep.	Kg CO2e/kg	[6], [7]
End-of-life treatment — Incineration (material-specific)	material-dep.	Kg CO2e/kg	[6], [7]
End-of-life treatment — Recycling (material-specific)	material-dep.	Kg CO2e/kg	[6], [7]
Downstream transportation and distribution — Air Freight	0.899	Kg CO2e/ton·km	[1]
Downstream transportation and distribution — Sea Freight	0.016	Kg CO2e/ton·km	[1]
Downstream transportation and distribution — Road Freight	0.823	Kg CO2e/ton·km	[1]

Activities	Emission Factor	Unit	Reference
Purchased Goods for Resale — Materials Input (average)	6.985	Kg CO2e/kg	[6]
Purchased Goods for Resale — Factory Processing by Supplier(s) (average)	0.325	Kg CO2e/kg	[6]
Purchased Goods for Resale — Packaging (average)	1.156	Kg CO2e/kg	[6]

Reference Sources:

Reference no.	Source
[1]	UK Department for Environment, Food & Rural Affairs (Defra) — Greenhouse gas reporting: conversion factors 2025 (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2025)
[2]	Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) — Rapporti 418/2025: Efficiency and decarbonization indicators in Italy and in the biggest European Countries, Edition 2025 (Table 2.7, Italy 2024 preliminary data) (https://www.isprambiente.gov.it/)
[3]	Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) — Fattori di emissione per il settore trasporti (https://fettransp.isprambiente.it/#/)
[4]	Calculated by PAC TEAM Europa, based on [1], [2] and [3] and [4]
[5]	ADEME Bilan Carbone Database
[6]	Calculated by PAC TEAM Europa, based on ECOINVENT LCA Database v3.11 — material and processing-specific emission factors for purchased goods
[7]	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 — Waste

Appendix A.2: Emission Intensity of Sample PTE Representative Products

The methodology employed to estimate emissions from Purchased Goods and Services, involving Product Carbon Footprint (PCF) assessments on representative orders covering approximately 4% of 2025 revenues, represents PTE's approach to quantifying this significant emissions source. The 2025 sample covers 2 representative orders across PTE's 2 main product lines (Packaging and Displays), whereas the 2024 assessment drew on a single broader sample order covering 8% of revenues and 47 product types. While the current sample covers a smaller share of revenue, it introduces product-line-specific intensity factors (rather than a single blended factor), allowing a more granular and structurally accurate extrapolation across PTE's product portfolio.

Quantifying these 'cradle-to-gate' emissions presents considerable challenges, primarily due to the current low availability of specific primary emissions data from the diverse base of manufacturing suppliers located in China. Consequently, the PCF assessment necessarily relied on estimations, established databases (UK Defra 2025; PTSA LCA Database) and literature values for many parameters, rather than comprehensive supplier-provided primary data. While this provides a valuable estimate aligned with GHG Protocol guidance, PTE recognizes the limitations imposed by data quality and continues to work with its Chinese suppliers to facilitate the automated provision of order-specific PCF data, aiming to transition towards higher-tier data quality and more precise emissions accounting in subsequent reporting cycles.

Representative Orders Analysed for 2025

Order	Total (kg)	Weight	Cradle-to-gate CF (tCO ₂ e)	Intensity (tCO ₂ e/1,000 EUR Revenue)
Packaging Product Line	27,308		36.27	0.1209
Displays Product Line	2,085		78.65	0.0874
Combined	29,393		114.92	—

For the Packaging Product Line's Representative Order, the cradle-to-gate emissions of 36.27 tCO₂e split into 34.70 tCO₂e from materials and 1.57 tCO₂e from processing. For the Displays Product Line, the cradle-to-gate emissions of 78.65 tCO₂e split into 77.06 tCO₂e from materials and 1.59 tCO₂e from processing. Materials therefore dominate in both product lines, consistent with PTE's earlier observation that Materials Input is the single largest stage of the purchased-goods PCF.

Table A.2-1: Full PCF — Average Carbon Intensity (kg CO₂/1,000 EUR Revenue)

Pac Team Europa Product Carbon Footprint (PCF) Stage	Average Carbon Intensity (kg CO ₂ /1,000 EUR Revenue)
Manufacturing (inc. Materials Input, Processing, Waste Treatment)	109.72

Pac Team Europa Product Carbon Footprint (PCF) Stage	Average Carbon Intensity (kg CO2/1,000 EUR Revenue)
Packaging	3.20
Shipment to Customer (all Transport Modalities)	64.16
End-of-Life Treatment (Landfill, Incineration, Recycling)	6.95
Total:	184.03

Table A.2-2: Input Materials — Average Carbon Emissions (kg CO2/kg), Pac Team LCA Database (based on Ecoinvent LCA Database v3.11)

Input Materials	Average Carbon Emissions (kg CO2/kg)
Metals (Steel, Aluminium, Iron)	4.01
Plastics	6.06
Wood (Medium Density Fibreboard)	1.10
Paper & Cardboard	1.09
Textile Fabrics	46.79
Packaging Materials	1.16

Table A.2-4: Downstream Transport — Average Carbon Emissions by Destination (kg CO2/ton, Shenzhen/HK origin)

Destination Region	Dominant Transport Modalities	Average Carbon Emissions (kg CO2/ton shipped)
European Union (average of main ports)	Sea Freight (primary), Air Freight	4,353
European Union (air only, for reference)	Air Freight	8,454
United States (average)	Air Freight (primary), Sea Freight	5,990
China (domestic re-distribution)	Air Freight	734

The reported average emissions are weighted across destinations within each region according to 2025 shipment volumes.

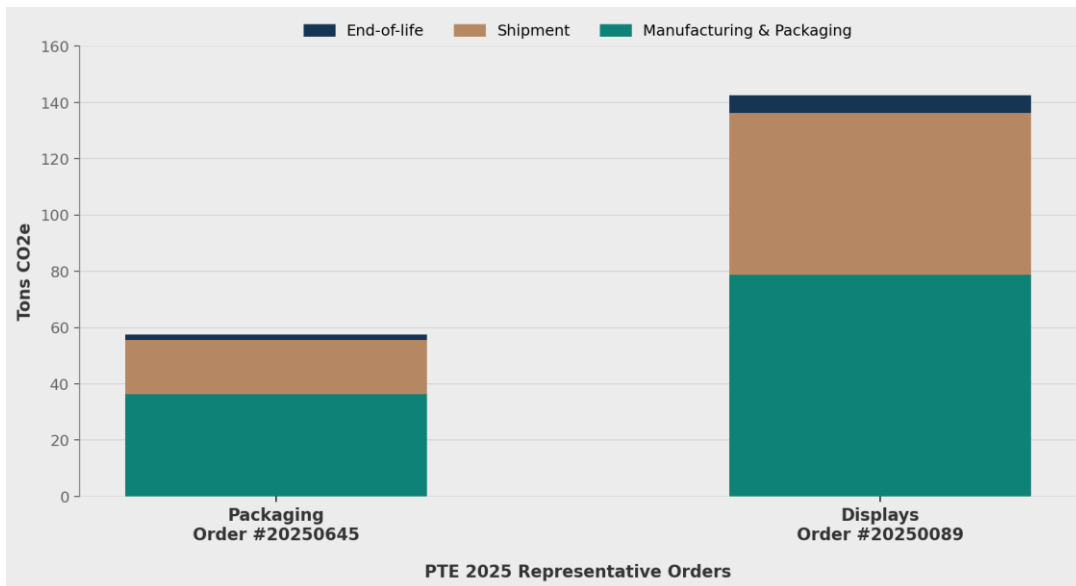


Figure A.1: Carbon Footprint of the representative orders analysed in 2025

The PCF assessment conducted across the two representative product-line orders in 2025 reveals significant variation in emission profiles and drivers between Packaging and Displays. Within the cradle-to-gate footprint, the Materials Input stage is the dominant driver for both product lines. Logistics (downstream transport) emerges as a very significant contributor at the whole-portfolio level once extrapolated, particularly for destinations served primarily by air freight. End-of-life treatment generally contributes a smaller fraction to the total footprint for most products in the sample. Overall, the analysis highlights that both production choices (materials, processes) and logistical arrangements (transport mode, distance) are critical emission drivers, with their relative importance varying considerably across the product portfolio.

PTE is actively working to establish procedures with its Chinese suppliers to facilitate the automated provision of order-specific PCF data, aiming to transition towards higher-tier data quality and more precise emissions accounting in subsequent reporting cycles.