Corporate Carbon Footprint Report 2024

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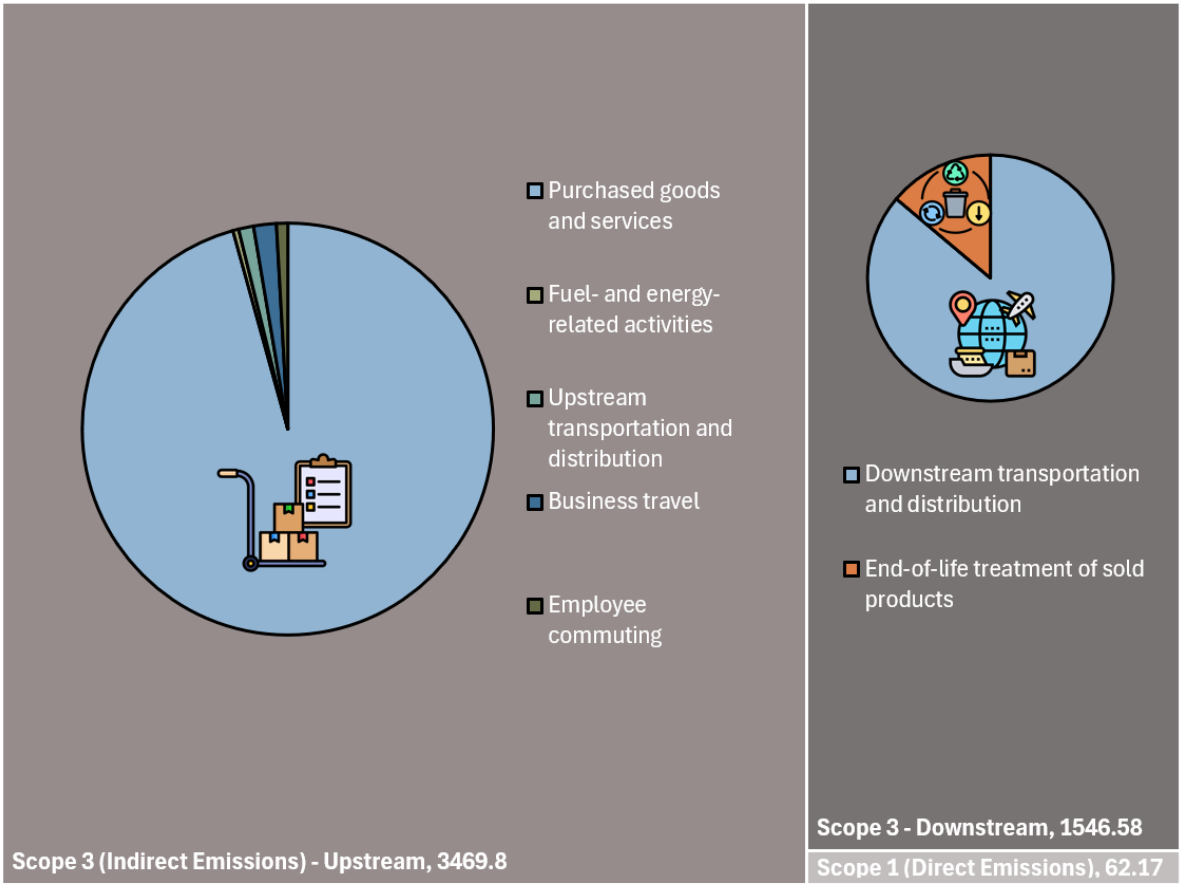
Contents:

Executive Summary

This Corporate Carbon Footprint (CCF) report details the greenhouse gas (GHG) emissions for Pacteam Europa (PTE) for the calendar year 2024, calculated following the methodology outlined in the **GHG Protocol Corporate Standard**[1].
It is important to note that the scope of the GHG inventory was significantly expanded for 2024 compared to previous years. Notably, Scope 3 emissions calculations now include **GHG Protocol's Scope 3 Category 9** (*Downstream transportation and distribution*) and **Category 12** (*End-of-life treatment of sold products*). Furthermore, **Category 1** (*Purchased goods and services*) has been broadened to encompass all purchased goods, including those acquired for resale. Due to these significant changes in scope and methodology, the 2024 CCF results are not directly comparable in absolute terms to those reported in prior years.

Figure 1: Pacteam Europa's Corporate Carbon Footprint in 2024 (Tons CO2e)



The total emissions footprint for 2024 was 5078.55 tonnes of CO2 equivalent (Tons CO2e). The emissions are categorized across the three scopes defined by the GHG Protocol:

[1] GHG Protocol Corporate Standard available at: https://ghgprotocol.org/corporate-standard

- **Scope 1 (Direct Emissions)**: Accounted for 62.17 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)**: Emissions were 0.00 Tons CO2e, reflecting the company's successful procurement of 100% renewable electricity.
- **Scope 3 (Indirect Emissions - Value Chain)**: Represented the vast majority of the footprint, totaling 5016.38 Tons CO2e (approximately 98.8% of the total). These emissions are further divided into:
    - **Upstream Emissions** (3469.80 Tons CO2e): Dominated by Category 1: Purchased goods and services (3320.40 Tons CO2e). Other upstream contributors include business travel, employee commuting, fuel- and energy-related activities, and upstream transportation.
    - **Downstream Emissions** (1546.58 Tons CO2e): Primarily driven by Category 9: Downstream transportation and distribution (1332.06 Tons CO2e), with Category 12: End-of-life treatment of sold products (214.52 Tons CO2e) also contributing.

Table 1: Pacteam Europa's Corporate Carbon Footprint in 2024

GHG Protocol Scope	GHG Protocol Category	GHG Emissions (Tons CO2e)
Scope 1	Direct Emissions	62.17
	Scope 1 Total:	62.17
Scope 2	Indirect Emissions	0.00
	Scope 2 Total:	0.00
Scope 3 Upstream		
	Purchased goods and services	3320.40
	Fuel- and energy-related activities	15.80
	Upstream transportation and distribution	40.79
	Business travel	62.02
	Employee commuting	30.79
	Scope 3 Upstream Subtotal:	3469.80
Scope 3 Downstream		
	Downstream transportation and distribution	1332.06
	End-of-life treatment of sold products	214.52
	Scope 3 Downstream Subtotal:	1546.58
	Scope 3 Total:	5016.38
	Overall Total:	5078.55

Key Findings

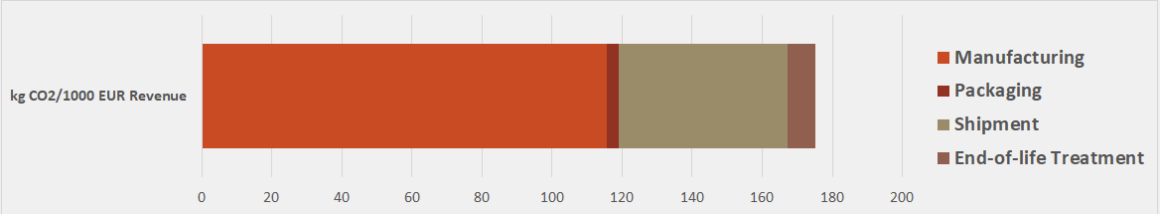
The carbon footprint analysis of PTE reveals that the organization's environmental impact is overwhelmingly concentrated in Scope 3 emissions, which encompass value chain emissions. This insight underscores that PTE's most significant environmental impact lies not in its direct operations, but rather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

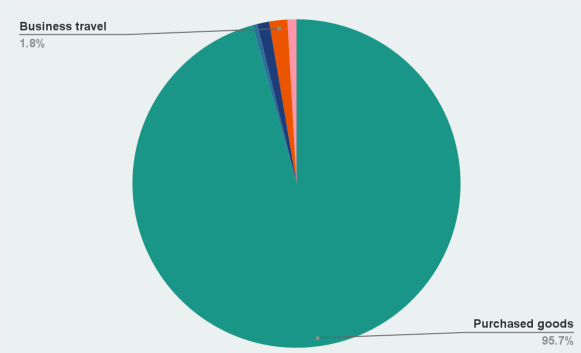
In contrast, Scope 1 emissions, which arise from PTE's direct operational activities, are relatively minor. Furthermore, PTE's commitment to renewable energy has successfully neutralized Scope 2 emissions, which are associated with purchased electricity.
These findings collectively highlight that PTE's 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 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 Pacteam Europa's 2024 CCF Report

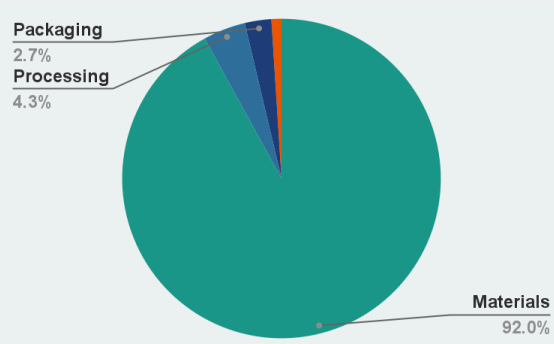
Life-cycle Carbon Emission Intensity (kg CO2/1000 EUR Revenues) of product sold by PTE in 2024:



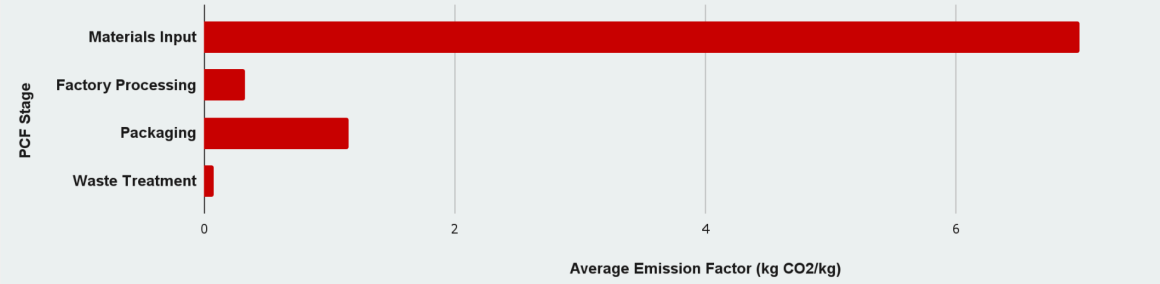
Scope 3 (Upstream) - Breakdown of Emissions Sources (% of total):



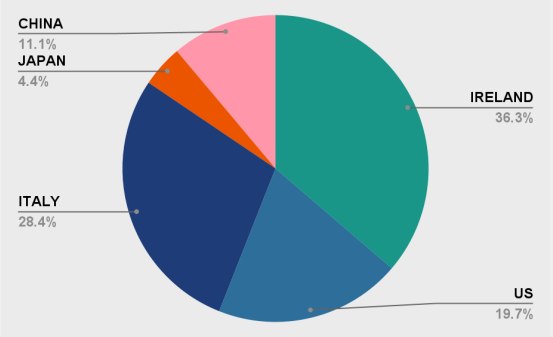
Scope 3 (Upstream) Purchased Goods - Breakdown of Emissions Sources:



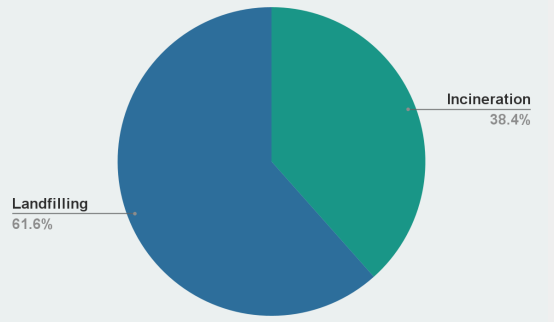
Scope 3 - Average Emission Intensity (kg CO2/kg) for Purchased Goods Product Carbon Footprint Stage:



Scope 3 - Breakdown of Emissions due to Downstream Transportation (by destination Country):



Scope 3 - End of life of sold products, % of emissions by waste treatment modality:



1. Preliminary notes

This Corporate Carbon Footprint Assessment was conducted to estimate CO2 emissions associated with the business activities of PACTEAM Europa (PTE) in the year 2024. Following a brief introduction of the concept of Corporate Carbon Footprint, the international standards followed, and the activities included during this Assessment.

1.1 Introduction of Pacteam Europa

PACTEAM Europa Srl (PTE) is based in Nova Milanese (Italy) since 1999 and is part of PACTEAM's global business (PACTEAM Group). While PACTEAM's products include luxury packaging, display furniture and alike, PTE is focused on creative design & product development, logistics & after sales in the European and Italian market. Manufacturing of the designed products is carried out by other entities in PACTEAM Group. Therefore, as it pertains to the scope of this Assessment, PTE 's activities are comparable to an office & warehouse setting. As of 2024, PTE's premises include a 500 sqm office and a 2,000 sqm warehouse, with a total of 29 employees.

1.2 Introduction of the Corporate Carbon Footprint Assessment

The concept of a Corporate Carbon Footprint Assessment involves evaluating the total greenhouse gas emissions produced by a company's various activities. This assessment encompasses the direct and indirect emissions resulting from operations, supply chains, and the use and disposal of products. By establishing and maintaining a comprehensive emissions inventory, businesses can achieve multiple objectives:

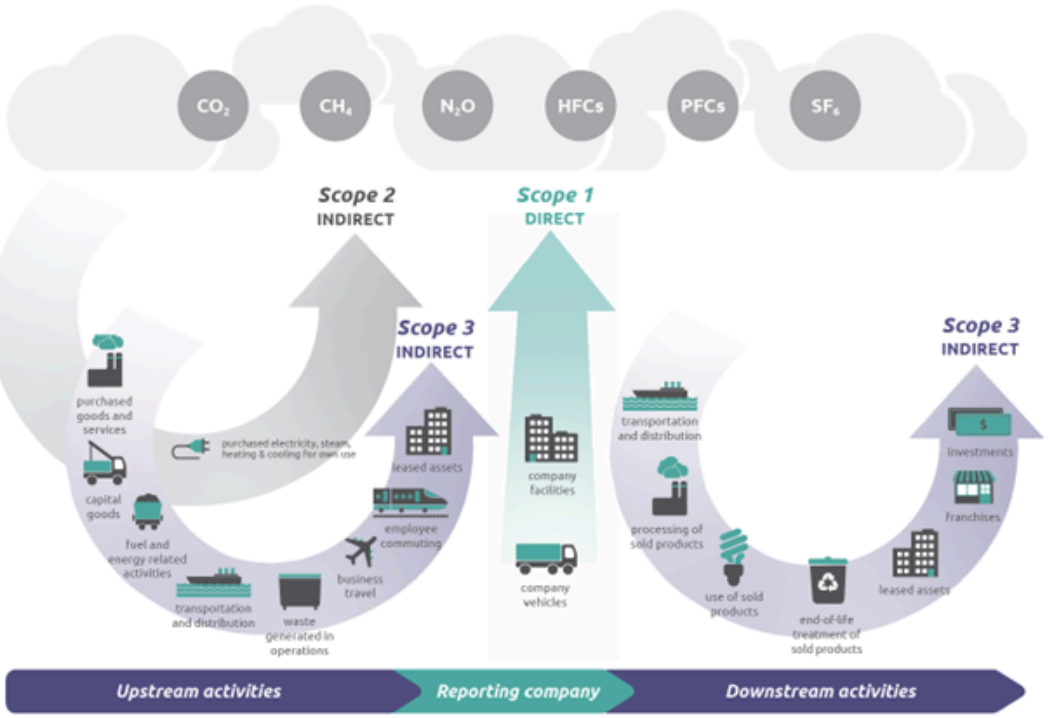
- **Risk Management and Emission Reduction:** A carbon footprint assessment allows companies to identify and manage risks associated with climate change and carbon emissions. By pinpointing emission sources and quantifying their impact, businesses can develop targeted strategies to reduce their carbon footprint and mitigate potential financial, regulatory, and reputational risks. This proactive approach can lead to cost savings through improved energy efficiency, resource optimization, and waste reduction.
- **Public Reporting and Voluntary Climate Programs:** Many companies choose to publicly report their carbon footprint as part of their commitment to sustainability and corporate social responsibility. Participation in voluntary climate programs and initiatives demonstrates environmental stewardship and can enhance brand reputation and stakeholder trust. These programs often provide frameworks for setting emission reduction targets, tracking progress, and sharing best practices.
- **Mandatory Reporting Programs:** In some jurisdictions, companies are required to measure and report their greenhouse gas emissions under mandatory reporting programs. These programs aim to increase transparency, promote emission reduction efforts, and support policy development.

Compliance with mandatory reporting requirements is essential to avoid legal and financial penalties.

- **Participation in Carbon Markets:** Carbon markets provide a mechanism for companies to trade carbon credits or offsets. By reducing their emissions below a set baseline, companies can generate carbon credits that can be sold to other entities that need to offset their emissions. Participation in carbon markets can create new revenue streams, incentivize emission reduction efforts, and support the development of low-carbon technologies.
- **Disclosure of Climate-Related Information to Stakeholders:** Investors, customers, employees, and other stakeholders are increasingly interested in companies' environmental performance and climate-related risks and opportunities. Disclosing climate-related information through sustainability reports, investor presentations, and other communication channels can enhance transparency, build trust, and attract environmentally conscious investors and customers.

The obtained quantitative results are also in line with reporting under the ISO 14069 and GHG-Protocol standards, dividing the accounted emissions in 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 operation over which PTE has operational control.

Figure 1: Overview of GHG Protocol Scopes and emissions across the value chain



1.3 Introduction Of GHG Protocol Scopes

1.3.1 Scope 1

In general, Scope 1 GHG emissions for an office refer to the direct greenhouse gas (GHG) emissions that occur from sources owned or controlled by the office itself. These emissions are generated from activities or processes that take place within the office premises or are directly under the office's operational control. Some common sources of Scope 1 GHG emissions in an office setting include:

- Combustion of fossil fuels: This includes emissions from burning natural gas, diesel, gasoline, or other fossil fuels for activities like heating, cooling, and operating equipment within the office.
- On-site power generation: If the office has its own power generation system, such as a diesel generator or a combined heat and power (CHP) unit, the emissions resulting from the combustion of fuel to produce electricity or heat fall under Scope 1.
- Company-owned or controlled vehicles: If the office operates a fleet of vehicles for business purposes, such as delivery trucks or company cars, the emissions from these vehicles are considered Scope 1 emissions. This includes both the fuel combustion emissions and any fugitive emissions from the vehicles.
- Process emissions: Certain office activities or processes might release GHGs as byproducts. For example, if the office has refrigeration or air conditioning systems that use hydrofluorocarbons (HFCs), which are potent greenhouse gases, the emissions from leaks or venting of these gases would be considered Scope 1 emissions.

Scope 1 emissions are considered direct because they are produced from sources that are owned or controlled by the office itself. It is important for offices to measure and track their Scope 1 emissions as part of their overall greenhouse gas accounting and climate change mitigation efforts. By understanding and managing these emissions, offices can identify opportunities for reduction, improve energy efficiency, explore alternative energy sources, and contribute to mitigating climate change.

1.3.2 Scope 2

Scope 2 GHG emissions for an office refer to the indirect greenhouse gas emissions that occur from the generation of purchased electricity, heat, or steam consumed by the office. These emissions are produced off-site at the facilities where the energy is generated but are associated with the office's energy consumption.
Key points about Scope 2 emissions:

- Electricity consumption: The most common source of Scope 2 emissions for an office is the electricity it consumes from the grid. When fossil fuels are burned at power plants to generate electricity, GHG emissions are released. These emissions are considered indirect because they occur outside the office's boundaries but are associated with its energy consumption.
- Heat and steam consumption: If an office relies on external sources for heating or steam, such as district heating systems, the emissions resulting from the production of that heat or steam would fall under Scope 2
- Emission factors: The calculation of Scope 2 emissions requires the use of

emission factors provided by the electricity or energy supplier. These factors represent the average emissions intensity associated with the energy generated. Emission factors can vary depending on the energy mix of the supplier, including the proportion of renewable and non-renewable sources.
- Renewable energy purchases: If an office procures renewable energy through power purchase agreements (PPAs) or renewable energy certificates (RECs), it can reduce its Scope 2 emissions. By offsetting its electricity consumption with renewable sources, the office effectively lowers its indirect emissions.
- Tracking and managing Scope 2 emissions allows an office to understand the environmental impact of its energy consumption. It also provides an opportunity to explore cleaner energy sources and actively support renewable energy projects. Offices can consider energy efficiency measures, on-site renewable energy generation, or the purchase of renewable energy credits to reduce their Scope 2 emissions and contribute to a more sustainable energy future.

1.3.3 Scope 3

Scope 3 GHG emissions refer to all indirect greenhouse gas emissions that occur as a result of an office's activities but are not classified under Scope 1 or Scope 2 emissions. These emissions occur along the entire value chain of the office's operations, both upstream and downstream. Scope 3 emissions are often the largest and most challenging category to measure and mitigate, as they encompass a wide range of activities and involve multiple stakeholders.
Key aspects of Scope 3 emissions:
- Supply chain emissions: Scope 3 emissions include the emissions associated with the extraction, production, and transportation of goods and services purchased by the office. This involves considering the emissions generated by suppliers, contractors, and other business partners. It includes raw material extraction, manufacturing processes, transportation of goods, and disposal of waste.
- Business travel: Emissions from employee travel, both domestic and international, fall under Scope 3. This includes air travel, road transportation, and rail travel. The emissions are calculated based on distance traveled and the type of transportation used.
- Employee commuting: Emissions resulting from employees' daily commute to and from the office are also considered Scope 3 emissions. This includes emissions from personal vehicles, public transportation, or other modes of transportation used by employees.
- Waste management: The emissions associated with waste generated by the office, including its disposal and treatment, are considered Scope 3 emissions. This encompasses activities such as landfilling, incineration, and recycling.
- Product use and end-of-life: If the office's products or services have a significant impact on GHG emissions during their use or after they are discarded, those emissions fall under Scope 3. For example, if an office manufactures electronic devices, the emissions resulting from the energy consumption of those devices during their lifetime and their disposal would be included in Scope 3.

Tracking and addressing Scope 3 emissions requires collaboration with suppliers,

customers, and other stakeholders throughout the value chain. While the office may have limited control over these emissions, understanding and managing them can help identify opportunities for sustainable procurement, efficient transportation, waste reduction, and product innovation. By taking action to reduce Scope 3 emissions, offices can enhance their sustainability performance and contribute to mitigating climate change across their entire operations.

2. Scopes and Activities Included in PTE's CCF Report 2024

Following a specific list of the activities included in the Carbon Footprint Assessment of PTE, divided in different Scopes, as defined by international standards (GHG Protocol):

- **Scope 1 (Direct emissions)**: Consumption of fossil fuels by company-owned vehicles, consumption of natural gas for heating purposes
- **Scope 2 (Indirect emissions for electricity consumption)**: Consumption of electricity (e.g., by office equipment, lighting). No heat/steam is purchased by PTE.
- **Scope 3 (Other indirect emissions)**: Business travel, employees commuting, office material inputs (i.e., office consumables and equipment), purchased goods for resale, internal freight (transportation of prototypes and samples between PTE and factories controlled by PACTEAM) and emissions related to fuels and energy (not included in Scope 1 and Scope 2), transport and distribution of sold products and their end of life treatment.

The above boundaries of the assessment were decided according to data availability and after a preliminary estimation of the significance of the GHG emissions resulting from the activities commonly included in Scope 1, Scope 2 and Scope 3 for entities sharing similar business operations with PTE.
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 liter of fuel burned, or per km traveled. Emission factors are used in GHG accounting and reporting to estimate emissions from various sources, including energy consumption, industrial processes, transportation, and waste management. They serve as a crucial component in calculating emissions inventories and assessing the environmental impact of specific activities. The values of emission factors are determined through scientific measurements, data analysis, and modeling techniques. They can vary depending on multiple factors, such as the type of fuel or energy source, the combustion efficiency, the technology used, and the geographical location.
Emission factors are often developed and updated by governmental agencies, international organizations, and research institutions based on the latest scientific knowledge and data. By applying emission factors to activity data (e.g., energy

consumption or fuel usage), organizations can calculate the total emissions associated with their operations. These calculations enable them to track and report their GHG emissions, set reduction targets, and identify opportunities for emission mitigation strategies. It's important to note that emission factors are not fixed values and can vary over time as technologies improve, energy sources change, or more accurate data becomes available. Therefore, using up-to-date and region-specific emission factors is crucial for accurate and reliable emission calculations.
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.

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

Scope	Category #	Category Name	Included?	Justification for Exclusion (if applicable)
Scope 1	N/A	Direct Emissions (Company Vehicles, Heating)	Yes	N/A
Scope 2	N/A	Indirect Emissions from Purchased Energy (Electricity)	Yes	N/A
Scope 3	1	Purchased goods and services	Yes	N/A (Includes purchased goods for resale and office materials)
Scope 3	2	Capital goods	No	Deemed not material for this reporting period. As an SME focused on design, capital goods acquisitions were minimal compared to purchased goods for resale. Data unavailable.
Scope 3	3	Fuel- and energy-related activities (not in Scope 1 or Scope 2)	Yes	N/A
Scope 3	4	Upstream transportation and distribution	Yes	N/A (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. Data unavailable.
Scope 3	6	Business travel	Yes	N/A
Scope 3	7	Employee commuting	Yes	N/A
Scope 3	8	Upstream leased assets	No	Deemed not applicable or material. PTE does not operate significant upstream assets via operating leases.
Scope 3	9	Downstream transportation and distribution	Yes	N/A
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	N/A
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.
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 2024 reporting year, aligning with estimation techniques outlined in the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.
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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 2024 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:

1. **Product Carbon Footprint (PCF) Analysis:** A detailed PCF assessment was conducted on a representative sample order. This sample order accounted for 8% of total 2024 revenues and comprised 22,400 individual items across 47 distinct product types, reflecting a cross-section of typical materials and manufacturing processes. The PCF calculated the cradle-to-gate emissions associated with producing these specific items.
2. **Development of a Specific Economic Emission Factor:** The total GHG emissions calculated from the PCF of this sample order were then divided by the revenue generated by that same order. This yielded a company-specific economic emission intensity factor, expressed in tonnes of CO2e per thousand Euros of revenue (Tons CO2e / €1000 revenue).
3. **Extrapolation to Total Purchased Goods:** This company-specific emission factor was subsequently multiplied by PTE's total revenue for 2024 to extrapolate and estimate the total emissions attributable to all purchased

goods and services for the reporting year.

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 order chosen for the initial PCF analysis. While the sample was selected to reflect the product mix, 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 2024 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 2024 reporting year, the primary downstream categories included are Downstream Transportation and Distribution, and End-of-Life Treatment of Sold Products. Similar to the approach for Purchased Goods and Services, obtaining comprehensive primary data for all downstream activities (e.g., tracking every customer shipment, verifying the final disposal method for every product) presents significant challenges. Therefore, an analogous estimation methodology, 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:

1. **Sample Activity Analysis:** Data was collected for a representative sample of customer shipments, considering key factors such as transport distances, shipment weights/volumes, and transportation modes used (e.g., road, air, sea).
2. **Emissions Calculation for Sample:** The GHG emissions associated with transporting this sample set of shipments were calculated using appropriate emission factors for the identified modes and distances.
3. **Development of Specific Emission Factor:** A specific emission factor representing the average emissions per unit shipped (or potentially per tonne-km or per Euro of associated revenue) was derived from the sample

analysis.
4. **Extrapolation:** This factor was then applied to the total relevant activity data for 2024 (e.g., total units shipped, total tonne-kms, or total revenue) to estimate the overall emissions for this category.

End-of-Life Treatment of Sold Products:

1. **Disposal Scenario Analysis:** Assumptions were made regarding the likely end-of-life disposal scenarios (e.g., landfill, incineration, recycling rates) for PTE's products, considering product materials and typical waste management practices in key markets.
2. **Sample Emissions Calculation:** Based on these scenarios and the material composition/weight of a representative sample of products sold, the potential end-of-life treatment emissions for that sample were calculated using appropriate waste treatment emission factors.
3. **Development of Specific Emission Factor:** An average emission factor per unit sold (or per tonne of product sold) was derived from this analysis.
4. **Extrapolation:** This factor was applied to the total number (or weight) of relevant products sold in 2024 to estimate the total emissions from end-of-life treatment.

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 and product characteristics (even if sampled or modeled), 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 2024, 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 2024 was calculated at 5078.55 Tons CO2e. The vast majority of these emissions (5016.38 Tons CO2e, or ~98.8%) fall under Scope 3 (Value Chain), while direct Scope 1 emissions contributed only 62.17 Tons CO2e (~1.2%), and Scope 2 emissions were zero due to the use of renewable electricity. The most significant drivers of the footprint are within Scope 3, specifically emissions associated with Purchased Goods and Services (upstream) and Downstream Transportation and Distribution of sold products.

3.1 Scope 1

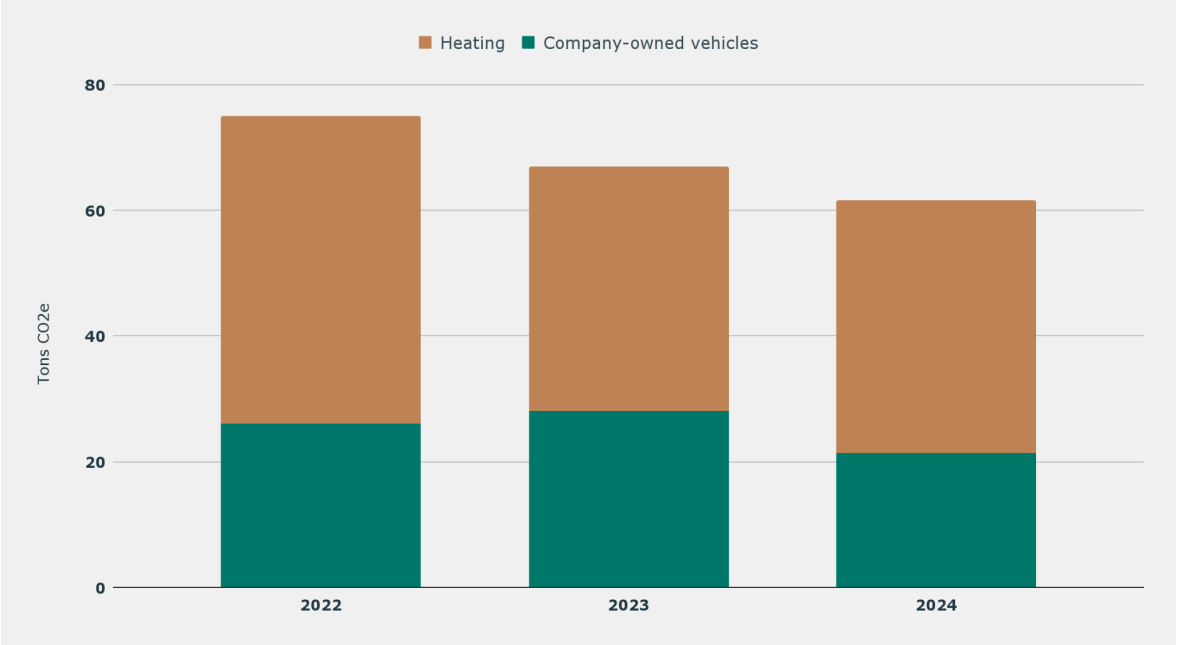
Scope 1 emissions, which result directly from sources owned or controlled by PTE, totaled **62.17** Tons CO2e in 2024. These emissions primarily originated from the

combustion of natural gas for heating facilities (**40.81** Tons CO2e) and the consumption of fossil fuels by company-owned vehicles (**21.36** Tons CO2e). Scope 1 emissions represent approximately **1.2%** of the company's total carbon footprint for the year, indicating a relatively small contribution compared to other scopes.

Table 3: Scope 1 Emissions breakdown by source

Emissions Sources - Scope 1	Activity Data Quality	Activity Data Unit	GHG Emissions (Tons CO2e)
Consumption of diesel by company-owned vehicles	Measured data	l/year	21.36
Heating (natural gas)	Measured data	kWh/year	40.81

Figure 2: Trend in Scope 1 emissions from 2022 to 2024



While Scope 1 emissions constitute a minor portion of the overall footprint, addressing these direct emissions is valuable for demonstrating environmental commitment and achieving tangible reductions. To address this emission source, PTE should consider implementing the following measures:

1. Company-Owned Vehicles (21.36 Tons CO2e):

- **Fleet Optimization**: Evaluate the efficiency of the company-owned vehicles and explore opportunities to optimize the fleet. This may involve replacing

older vehicles with more fuel-efficient models or electric vehicles where feasible.
- **Driver Training and Behavior**: Implement driver training programs focused on fuel-efficient driving techniques, such as reducing idling time, maintaining proper tire pressure, and practicing smooth acceleration and deceleration.
- **Alternative Fuel Option**s: Investigate the feasibility of transitioning company-owned vehicles to alternative fuels with lower emissions, such as biodiesel, renewable diesel, or compressed natural gas (CNG), considering infrastructure, cost, and environmental benefits.

2. Natural Gas Consumption for Heating (40.81 Tons CO2e):

- **Energy Efficiency Improvements**: Conduct an energy audit to identify opportunities for energy efficiency improvements within office facilities. This may include optimizing insulation, sealing air leaks, upgrading heating systems to more efficient models, and installing programmable thermostats.
- **Renewable Energy Integration**: Explore the feasibility of integrating renewable energy sources, such as solar thermal systems or geothermal heating, to supplement or replace natural gas for heating purposes, evaluating incentives and long-term benefits.
- **Behavioral Changes**: Promote energy-conscious behavior among employees, such as encouraging appropriate dress for the season, optimizing temperature settings, and educating staff on energy conservation.

Regular monitoring and tracking of Scope 1 emissions will allow PTE to evaluate the effectiveness of implemented measures, identify areas for further improvement, and demonstrate the company's commitment to reducing its environmental impact. By addressing GHG emissions from company-owned vehicles and natural gas consumption for heating, PTE can make progress in mitigating its Scope 1 emissions.

3.2 Scope 2

Notably, PTE's electricity consumption does not lead to any CO2e emissions since the company sources its electricity from a certified 100% renewable energy mix. The related certification can be made available upon request to PTE.
The sourcing of electricity from renewable sources is a commendable achievement for PTE. By relying entirely on renewable energy, the company has effectively eliminated the GHG emissions associated with its electricity consumption. This not only demonstrates a strong commitment to sustainability but also contributes to the reduction of carbon emissions and supports the transition to a clean energy future. By choosing renewable energy sources, PTE has helped to avoid the release of CO2 and other GHG emissions that would have occurred if electricity had been sourced from the Italian national grid without a commitment to 100% renewable energy mix. This action significantly reduces the overall carbon footprint of the office and showcases a positive environmental stewardship approach.
Maintaining zero Scope 2 emissions will require ongoing efforts to ensure that the company continues to procure electricity exclusively from renewable sources. PTE should regularly verify and document its renewable energy sourcing, ensuring transparency and accuracy in reporting its carbon footprint. While the absence of

Scope 2 emissions is an outstanding achievement, it is essential for PTE to continually monitor the electricity supply and stay informed about any changes in the renewable energy certificates (RECs) or power purchase agreements (PPAs) to ensure ongoing compliance with renewable sourcing.
It is crucial to document and communicate the company's zero Scope 2 emissions to stakeholders, clients, and employees to showcase the office's dedication to sustainability and encourage others to follow suit. This achievement should be highlighted in sustainability reports, company communications, and any relevant public platforms to inspire and promote sustainable practices within the industry and beyond.

3.3 Scope 3

Scope 3 emissions, encompassing indirect greenhouse gas emissions occurring in PTE's value chain (excluding purchased electricity), represent the most significant portion of the company's carbon footprint. In 2024, Scope 3 emissions totaled 5016.38 Tons CO2e, accounting for approximately 98.8% of the total emissions (5078.55 Tons CO2e). These emissions are divided into upstream and downstream activities.

3.3.1 Upstream Emissions

Activities occurring upstream in the value chain generated 3469.80 Tons CO2e. The overwhelming majority of these emissions fall under Purchased goods and services, contributing 3320.40 Tons CO2e. This dominant category includes the significant 'cradle-to-gate' emissions associated with producing goods purchased for resale, as well as those from office materials acquired during the year.
Other upstream contributions, while smaller, are also notable. Emissions from Business travel amounted to 62.02 Tons CO2e, followed by Upstream transportation and distribution (including internal freight) at 40.79 Tons CO2e.
Employee commuting added 30.79 Tons CO2e, and Fuel- and energy-related activities (covering emissions from energy production not included in Scopes 1 or 2) contributed 15.80 Tons CO2e.
Clearly, the production of purchased goods represents the primary focus area within upstream activities.

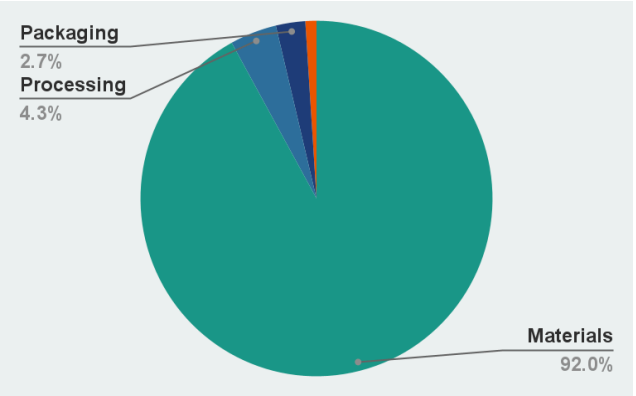
Table 3: Scope 4 (Upstream) Emissions breakdown by source

Emissions Sources - Scope 3 Upstream	Activity Data Quality	Data Unit	GHG Emissions (Tons CO2e)
Purchased goods and services	Estimated	Ton, k-EUR	3320.40
Fuel- and energy-related activities	Estimated	kWh	15.80
Upstream transportation and distribution	Measured	Ton*km	40.79
Business travel	Measured	Passenger*km	62.02
Employee commuting	Measured	Passenger*km	30.79

A breakdown of the average cradle-to-gate Product Carbon Footprint (PCF) assessment

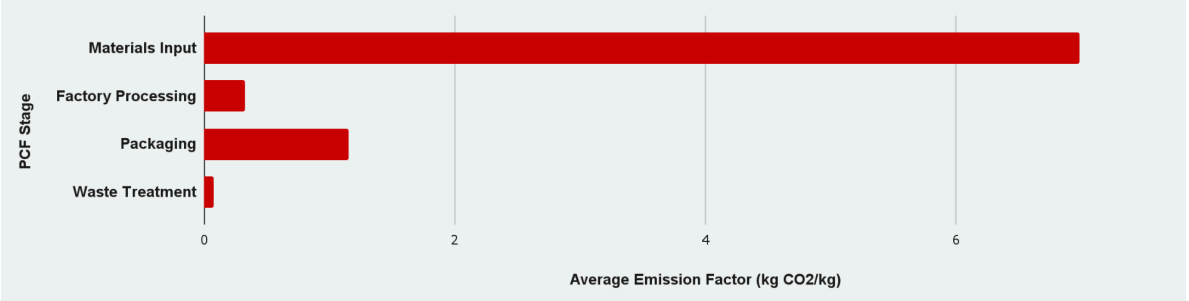
conducted on the representative sample of purchased goods reveals significant insights into the primary emission sources during production.
The analysis indicates that the Materials Input stage is overwhelmingly the most carbon-intensive phase, contributing an average estimated emission intensity of 6.985 kg CO2 per kg of product. This represents approximately 82% of the total calculated cradle-to-gate footprint for these items.

Figure 3: Scope 3 (Upstream) Purchased Goods - Breakdown of Emissions Sources (% of total)



The Packaging associated with the products is the next largest contributor, with an intensity of 1.156 kg CO2/kg (around 13.5%). In contrast, direct Factory Processing (0.325 kg CO2/kg, ~3.8%) and production Waste Treatment (0.077 kg CO2/kg, ~0.9%) have a considerably smaller impact on the overall PCF. These results strongly suggest that efforts to reduce the carbon footprint of purchased goods should prioritize the selection and sourcing of lower-impact raw materials, as this stage dominates the product's pre-purchase emissions profile.

Figure 4 : Scope 3 - Average Emission Intensity (kg CO2/kg) for Purchased Goods Product Carbon Footprint Stage



3.3.2 Downstream Emissions

Activities occurring downstream in the value chain contributed 1546.58 Tons CO2e. The largest portion of these emissions stems from Downstream transportation and distribution, which generated 1332.06 Tons CO2e primarily from the transport of sold products to customers.

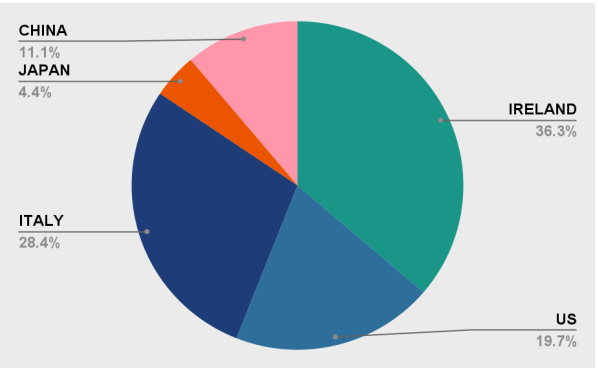
Additionally, End-of-life treatment of sold products resulted in 214.52 Tons CO2e. Therefore, downstream logistics represent the most significant downstream emission source and the second-largest category overall.
Given that Scope 3 emissions constitute the vast majority of PTE's carbon footprint, focusing 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.

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

Emissions Sources - Scope 3 Downstream	Activity Data Quality	Data Unit	GHG Emissions (Tons CO2e)
Downstream transportation and distribution	Estimated	Ton, k-EUR	1332.06
End-of-life treatment of sold products	Estimated	Ton, k-EUR	214.52

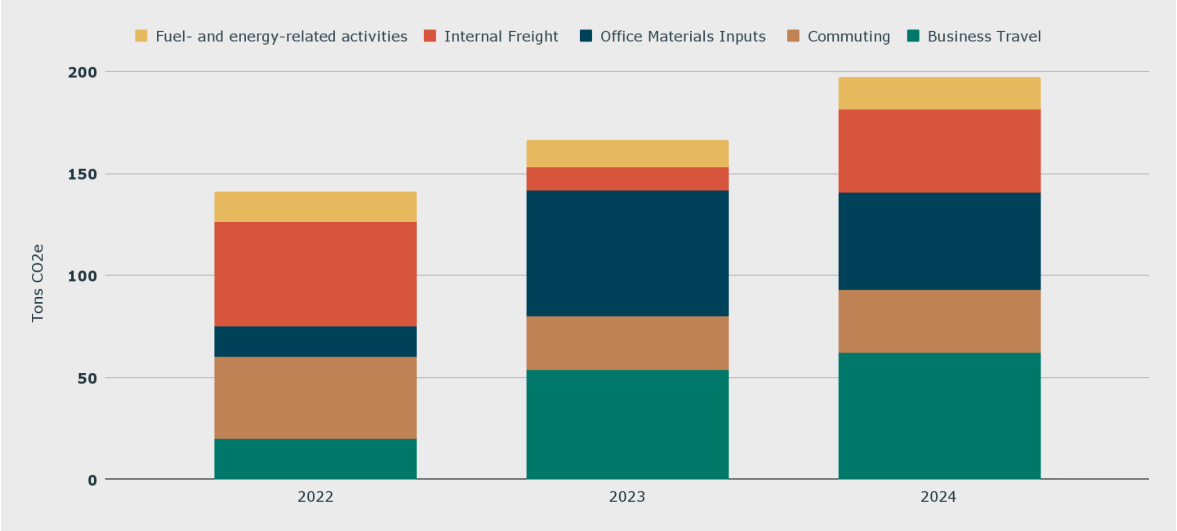
Emissions from Downstream Transportation and Distribution, representing the second largest category in PTE's overall carbon footprint, stem from the delivery of finished luxury packaging and display items from manufacturing sites to customers globally. The analysis of sample data indicates distinct emission profiles based on destination regions and transport modes chosen by the customer. The largest portion of these emissions, approximately 65%, is associated with shipments destined for Europe, which utilize a combination of sea and air freight.
Transport to the United States accounts for roughly 20% of the category's emissions and notably relies exclusively on air freight, indicating a high emission intensity for these routes. Deliveries within Asia (primarily China and Japan) constitute the remaining 15%, likely involving shorter distances and different modal mixes. These findings highlight that the customer's choice of transportation mode, particularly the significant use of air freight for European and US deliveries, is a key driver of emissions in this category. While PTE does not directly control these logistical decisions, understanding this emissions breakdown is crucial for accurate reporting and potentially for future customer dialogue regarding delivery options or exploring alternative frameworks where influence might be possible.

Figure 5 : Scope 3 - Emissions due to Downstream Transportation by destination Country (% of total)



Emissions from the End-of-Life (EoL) treatment of sold products arise from the disposal processes applied to components not recovered through established recycling channels, primarily plastics, wood, and textile elements within the luxury packaging and display items. The assessment estimates that landfilling is the predominant source of these emissions, accounting for approximately 61% of the EoL total, with incineration of non-recycled waste responsible for the remaining 39%.
It is recognized that the specific treatment pathways (incineration vs. landfill rates) vary significantly depending on the final market where the product is disposed (e.g., high incineration rates in Japan versus higher landfill rates in China and the US), factors outside PTE's direct control. However, PTE can significantly influence these emissions through strategic product design.
The current analysis considered only commercially established recycling routes (e.g., for cardboard and metals). Therefore, increasing the proportion of materials with readily available recycling pathways, while minimizing non-recyclable components, represents the primary lever for reducing this footprint category. Future exploration of novel or emerging recycling technologies for materials like plastics may offer additional mitigation opportunities.

Figure 6: Trends in Scope 3 emissions from 2022 to 2024 (Excluding new categories added in 2024)



4. Recommendations for Emissions Mitigation

Based on the 2024 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 - ~65% of total emissions)

Sustainable Procurement Policy:

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):

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:

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

(Addressing Scope 3: Downstream Transport & Distribution - ~26% 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.

4.3. Direct Operations

(Addressing Scope 1 - ~1.2% 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.

4.4 List of Recommended KPIs

To monitor the effectiveness of mitigation efforts and track progress over time, the following Key Performance Indicators (KPIs) are proposed across relevant emission scopes and categories:
(Note: The specific emission mitigation potential associated with each policy outlined above should be detailed and quantified in a subsequent assessment, following the definition of concrete mitigation objectives and KPI targets.)

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/m2
	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 (>4000km), 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	%
	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	3.D-i	Emissions Intensity of Purchased Goods	Kg CO2/€

and services			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 Transportation and 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

Activities	Emission Factor	Unit	Reference
Consumption of diesel by company-owned vehicles	2.511	Kg CO2e/l	[1]
Heating (natural gas)	0.205	Kg CO2e/kWh	[1]
Electricity consumption - Italian Grid	0.416	Kg CO2e/kWh	[2]
Electricity consumption – 100% renewable energy	0.000	Kg CO2e/kWh	[3]
Business Travel – Air – Domestic flight (<500km)	0.129	Kg CO2e/psg*km	[4]
Business Travel – Air – Short flight (500-1200 km)	0.080	Kg CO2e/psg*km	[4]
Business Travel – Air – Long flight (>1200km)	0.102	Kg CO2e/psg*km	[4]
Business Travel - Train	0.031	Kg CO2e/psg*km	[1]
Business Travel – Taxi/Uber	0.325	Kg CO2e/km	[1]
Employees Commuting – Diesel/Gasoline car	0.214	Kg CO2e/km	[1]
Employees Commuting – LPG/Methane car	1.86	Kg CO2e/l	[1]
Employees Commuting – Scooter	0.167	Kg CO2e/km	[1]
Employees Commuting – Plug-in Hybrid	0.121	Kg CO2e/km	[5]
Office Materials Input - Consumables	0.367	Kg CO2e/€	[1]
Office Materials Input – Office equipment & furniture	0.917	Kg CO2e/€	[1]
Upstream emissions from Diesel supply chain (not in Scope 1-2)	0.665	Kg CO2e/l	[1]
Upstream emissions from NGas supply chain (not in Scope 1-2)	0.039	Kg CO2e/kWh	[1]
End of life treatment - Incineration (mixed waste)	0.520	Kg CO2e/kg	[6]
End of life treatment - Landfilling (mixed waste)	0.613	Kg CO2e/kg	[6]
Downstream transportation and distribution - Air Freight	1.138	Kg CO2e/ton.km	[7]
Downstream transportation and distribution - Sea Freight	0.009	Kg CO2e/ton.km	[7]
Downstream transportation and distribution - Road Freight	0.823	Kg CO2e/ton.km	[7]
Purchased Goods for Resale - Materials Input	6.985	Kg CO2e/kg	[8]
Purchased Goods for Resale - Factory Processing by Supplier(s)	0.325	Kg CO2e/kg	[8]
Purchased Goods for Resale - Packaging	1.156	Kg CO2e/kg	[8]

Reference no.	Source
[1]	ADEME Base Carbone® V11.2 – Clim'Foot Tool (EU)
[2]	Calculated from: https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Europe/Italy_Europe_RE_SP.pdf
[3]	2006 IPCC Guidelines for National Greenhouse Gas Inventories
[4]	US EPA- https://www.epa.gov/climateleadership/ghg-emission-factors-hub
[5]	Calculated by Responsabilitas, based on [2] and [3]
[6]	Sima PRO LCA Software, Ecoinvent LCA Database V3
[7]	Gov.UK - Greenhouse gas reporting: conversion factors 2020 https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020
[8]	Calculated by Responsabilitas, based on [6] and supplier-specific data

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

The methodology employed to estimate emissions from Purchased Goods and Services, involving a Product Carbon Footprint (PCF) assessment on a representative product sample covering approximately 8% of 2024 revenues, represents PTE's initial approach to quantifying this significant emissions source. 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 heavily on estimations, established databases, and literature values for many parameters, rather than comprehensive supplier-provided primary data. While this provides a valuable first estimate aligned with GHG Protocol guidance for such situations, PTE recognizes the limitations imposed by data quality. Improving the accuracy and granularity of data for this category is therefore a key focus for future assessments. 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.

Pacteam Europa Product Carbon Footprint (PCF) Stage	Average Carbon Intensity (kg CO2/1000 EUR Revenue)
Manufacturing (inc. Materials Input, Processing, Waste Treat.)	115.71
Packaging	3.2
Shipment to Customer (all Transport Modalities)	48.41
End-of-Life Treatment (Landfill and/or Incineration)	7.8
Total:	**175.12**

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

Country/Region	Transport Modalities	Average Carbon Emissions (kg CO2/ton)
Ireland (Dublin)	Sea Freight	233
Ireland (Dublin)	Air Freight	11210
United States (New York)	Air Freight	14751
Italy	Air Freight	10635
Japan	Air Freight	3305
China (Shanghai, Beijing, Hong Kong)*	Road Freight	1003

**The reported emissions are averaged between the three different destinations taking into account shipment volumes in 2024*

The Product Carbon Footprint (PCF) assessment conducted across a diverse range of 47 representative product types revealed significant variation in emission profiles and drivers. For many items assessed, the manufacturing and packaging stages constitute a substantial portion of their overall footprint. However, a key finding is the critical impact of logistics; for a notable number of products, emissions associated with shipment significantly outweigh those from production, sometimes by a large margin, strongly suggesting the use of carbon-intensive transport modes for these particular items.
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.

Figure A.1: Carbon Footprint of 47 selected product types from Pacteam Europa in 2024