PMI'S
VALUE CHAIN CARBON FOOTPRINT: METHODOLOGY OVERVIEW

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Methodology Overview

Philip Morris International (PMI) is leading a transformation in the tobacco industry to create a smoke-free future and ultimately replace cigarettes with smoke-free products to the benefit of adults who would otherwise continue to smoke, society, the company, and its shareholders. Following this objective and the launch of (and continued research and development into) new smoke free products, PMI's value chain is evolving rapidly and becoming more complex. In 2020 PMI established more ambitious targets to drive their decarbonization journey with a reduction in absolute CO_2e emissions consistent with science-based targets for a 1.5-degree scenario. Science based targets will guide the achievement of net zero across their entire value chain (scope 1[1], 2[2] and 3) by 2040 as announced in 2021, 10 years earlier than the previous targeted timeline. In order to achieve these targets, PMI have worked with carbon experts to develop a full 'Value Chain' carbon footprint model, to help measure emission reductions. These emissions are reported publicly on an annual basis in PMI's integrated report, its website and used to respond to investor and other enquiries such as CDP Climate Change disclosure.

The Value Chain model calculates the carbon emissions for each relevant scope 3 category and combines these with the scope 1 & 2 results. The Value Chain model is calculated to align with the accepted international standard for Greenhouse Gas (GHG) value chain modelling 'Corporate Value Chain (scope 3) Accounting and Reporting Standard' published by the GHG Protocol. The model is built in line with PMI's reporting period which **is calendar year** and captures all activities with associated GHG emissions of PMI's owned and operated enterprises, as well as activities from PMI's licensees, franchises and joint ventures. Activities covered include the entire scope of PMI's operations: from purchased materials, including raw materials, production, distribution, consumption and disposal of PMI's products, as well as overhead activities such as marketing and business travel.

All scope 3 categories have been assessed for inclusion within the model, to understand what is important, applying a materially threshold defined as 10% of total scope 3 emissions, and in accordance with the 'Corporate Value Chain (scope 3) Accounting and Reporting Standard'.

Table 1 shows the scopes and categories which make up PMI's value chain footprint: The categories of the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, and calculations type are described in detail below.

Ref		Category	Calc Type
Scope 1		Direct emissions from fuel combustion, and direct emissions of greenhouse gasses	Direct Calc
Scope 2		Emissions relating to purchased electricity, heating and cooling.	Direct Calc
Upstream Scope 3	1a	Category 1a: Purchased Goods and Services – Product-Related	**Product related**
	1b	Category 1b: Purchased Goods and Services – Non-Product-Related	Direct Calc
	2	Category 2: Capital Goods	Direct Calc
	3	Category 3: Fuel and Energy related activities	Direct Calc

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[1] Scope 1 GHG emissions: direct GHG emissions that occur from sources that are owned or controlled by PMI, for example, emissions from combustion in owned or controlled boilers, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

[2] Scope 2 GHG emissions: indirect GHG emissions from the generation of purchased or acquired electricity, steam, heat, or cooling consumed by PMI.

	4	Category 4: Upstream Transportation & Distribution	Direct Calc
	5	Category 5: Waste Generated in Operations	Direct Calc
	6	Category 6: Business Travel	Direct Calc
	7	Category 7: Employee Commuting	Direct Calc
	8	Category 8: Upstream leased assets	Excluded
Downstream Scope 3	9	Category 9: Downstream Transportation & Distribution	Product related
	10	Category 10: Processing of sold products	Excluded
	11	Category 11: Use of Sold Products	Product related
	12	Category 12: End-of-life treatment of sold products	Product related
	13	Category 13: Downstream leased assets	Excluded
	14	Category 14: Franchises	Excluded
	15	Category 15: Investments	Excluded

Table 1 – value chain footprint scopes and categorisations

Direct Calc	Directly calculated categories have specific calculations to quantify emissions.
Product related	Product-related categories have been calculated by determining a small set of Representative Products (RePs), then calculating average product footprints for these products by life-cycle stages.
Excluded	Where categories can be excluded completely because there are no or immaterial emissions, a robust exclusion statement has been written for use in external reporting. These are reviewed each year to ensure they remain valid.

Purchased goods and services (category 1) is initially divided into product-related and non-product-related purchases. The product related purchased goods and services are distinguished into two major subcategories:

- Product related purchased goods and services:
    - tobacco, which is a key ingredient in PMI's products and accounts for the largest carbon footprint of all raw materials. For each kilogram of green tobacco purchased the value chain model calculates the emissions from all upstream associated emissions (e.g., agricultural practices, curing, processing in stemmeries, and upstream transport, etc.).
    - other product related materials, e.g., filter, paper and packaging materials. PMI engages with suppliers to gather their materials' cradle-to-gate emissions factors, and their plans for further reductions. Where this is not possible, industry average emission factors from public databases (Ecoinvent) are being used.
- Other non-product related emissions which cover categories 1b and 2 are calculated using environmental extended input-output (EEIO) analysis, and GHG emissions factors that convert spend into GHG emissions.

GHG emissions associated with the production of fuels and energy purchased and consumed by PMI (category 3), are calculated using the UK's Department for Business, Energy & Industrial Strategy (BEIS) emissions factors[3] and scope 1 & 2 activity data.

The upstream transport and distribution of goods (category 4) includes emissions from all purchased inbound and outbound logistics, transport between PMI facilities, and warehousing. Air and ocean transport emissions are mostly calculated by the carriers, based on their own consumption and itinerary data. Road and mixed transport emissions are calculated based on the volume of goods transported and the travelled distance where possible. When no other information is available, environmental extended input-output (EEIO) analysis is used, and GHG emissions factors that convert spend into GHG emissions.

GHG emissions from waste (category 5) includes all emissions from the third-party disposal and treatment of waste generated by PMI's owned or controlled operations, and are calculated based on the weight and type of waste and the treatment method, using the UK's Department for Business, Energy & Industrial Strategy (BEIS) emissions factors.

PMI's employee business travel (category 6) is split into flights (calculated using flight data), hotel stays (calculated from the number of night stays), taxis (calculated from distance), and train (calculated from number of trips). Other business travel (which is very minimal) is not directly collected by PMI and therefore emissions are calculated based upon an expert assumption on the size of the emissions relative to PMI's air travel.

PMI's employee commuting emissions (category 7) were calculated using headcount by country and commuting profiles related to each country's economic development and quality of public transport infrastructure. In this category, the optional impact of remote work is included.

The GHG emissions associated with the transportation and distribution of sold finished goods to retailers and end consumers that is not controlled and paid for by PMI (category 9) is calculated by defining profiles for a number of distribution channels (differing between transport mode, distances travelled, etc.) and allocating the percentage of distributed products between each of the distribution channels.

The associated impact of consumer use of PMI's products (category 11) primarily comes from the electricity used in charging PMI's smoke free products, devices and emissions from lighters to light the cigarette. The use phase emissions are calculated using the International Energy Agency's (IEA) emissions factors[4] for charging smoke free products devices in consumer countries / regions. In this category, the optional impact of indirect emissions from the use of lighters for combustible products like cigarettes, is being calculated based on sales values and emissions assumptions.

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[3] https://www.gov.uk/environment/energy-and-climate-change-evidence-and-analysis
[4] https://www.iea.org/subscribe-to-data-services/co2-emissions-statistics

For each product PMI sells, there are associated emissions in their end of life (category 12). Emission factors for the end of life treatment for combustible products and smoke-free products (consumables and devices) were taken from life cycle analyses (LCAs).

Emissions associated with investments (category 15) were estimated based on each of the investee organisations (full value chain), allocating the emissions to PMI based on ownership share, and eliminating any double counting if the emissions are already reported elsewhere. These emissions are currently excluded from the value chain inventory since their contribution to the PMI's scope 3 emissions is below the materiality threshold.

From 2018, the Value Chain GHG footprint has been verified to ISO 14064-3 standards by an independent third party. This includes verification of the underlying data used as well as the emission factors and calculations applied.