PHILIPS

Philips' Corporate Emission Accounting Methodology

Scope 3 — Category 9: Downstream transportation and distribution

At Philips, while we focus on our purpose to improve health and well-being, we acknowledge that the healthcare industry is a major contributor to climate change and waste. As such we are committed to pave the way for a low-emission future by reducing not only our scope 1 and 2 emissions, but also our indirect scope 3 emissions. This effort is supported and overseen by the Executive Committee, which seeks increased transparency for its stakeholders to ensure accountability.

We account for 100% of scope 1 and 2 emissions from operations over which Philips or one of its subsidiaries has operational control, but not for emissions from operations in which Philips owns an interest but does not have operational control. By contrast, scope 3 emissions are derived from indirect activities outside Philips control, meaning calculations also include non-operated assets.

Of the 15 scope 3 subcategories, we account for Philips' four most material categories, which together make up 95% of our scope 3 emissions. These are: purchased goods and services (category 1), business travel (category 6), downstream transportation and distribution (category 9), and use phase (category 11). The methodology for purchased goods and services will be published in 2023.

Each category is subject to its unique methodology that is elaborated on in its own document. All calculations are in line with the Greenhouse Gas Protocol; used for management purposes; in line with our Science Based Targets initiative submission; and subject to reasonable assurance by the external auditors of Philips.

Scope 3

Category 6
Business travel

Category 9
Downstream transportation and distribution

Category 11
Use phase

Scope 3 — Category 9: Downstream Transportation and Distribution

1) Introduction

Downstream transportation and distribution include all emissions generated by transporting components, products, or raw materials from one location to another via a mode owned by a third party. This can include transport via air, road, or sea. Rail transport is rarely used by Philips and therefore has a negligible influence on total emissions.

Upstream and downstream transportation paid by Philips are reported under the same category, because of our inability to distinguish between each trip. This has no influence on total emissions and merely simplifies the accounting process.

2) Methodology

For each mode of transport, we leverage a distance-based method that uses as main determinant the range (in kilometers) between the start and end locations. This is in line with the Greenhouse Gas Protocol and commonly used throughout markets and industries. It is therefore guaranteed that our reported emissions have high degrees of comparability. The sub-calculations and corresponding emission factors, however, are still dependent on the underlying mode of transport. Each is discussed in detail in the following sections.

2.1) Ocean freight

The two types are: less than container load transports (LCL) and full container load transports (FCL). Each type will be explored in more detail below.

Regardless of the type, the distance between the port of loading and port of discharge is determined using the same process (this corresponds to leg 2 of the entire journey). First, the longitudinal and latitudinal coordinates of the ports are mapped using their unique location codes (UN/LOCODE) from Aquaplot. Then, we use the same tool to determine the nautical miles between the two ports. These are converted to kilometers to ensure comparability with other transport modes.

In rare cases when no exact distances can be determined for the port-to-port route, a country-to-country distance calculation is used.

In each scenario, a distance factor is applied to include the distance from the factory to the start harbor (leg 1) and the distance from the target harbor to the end customer (leg 3). This factor is equal to 5% of the total distance traveled (2.5% for each leg).

2.1.1) Less than container load transport

An LCL shipment refers to freight that is not large enough to fill an entire container. In that case, Philips shares the available container space with one or more entities, ensuring the limited capacity of the cargo ship is utilized to the maximum. The formula below is then applied to determine the total amount of emissions.

$$\text{LCL emissions} = \sum_{i=1}^{\text{All shipments}} W_i \times D_i \times E_i + W_i \times D_i \times 0.05 \times A_i$$

- W_i = Chargeable weight (kg/1000) of shipment i
- D_i = Distance (km) between port of loading and port of discharge for shipment i
- E_i = Emission factor of cargo ship for shipment i (kg CO_2e/tonnes.km)
- A_i = Average emission factor of Heavy Goods Vehicles (HGV), inland containers and rail for shipment i (kg CO_2e/tonnes.km)

To calculate the corresponding emissions of LCL ocean freight, we compile the distance traveled and the corresponding weight of the shipment. This is multiplied with transport-specific emission factors to estimate emission generated. By introducing the 5% distance factor, we aim to overstate rather than understate emissions.

2.1.1.1) Emission factor

For LCL shipments, the emission factors of the UK Department for Business, Energy & Industrial Strategy (BEIS) are used. (The database was formerly managed by the Department for Environment, Food & Rural Affairs.) These are annually updated and provide a holistic overview of the emissions generated. The factor for the distance between the port of loading and the port of discharge is a generic cargo ship factor that does not consider the trade lane or carrier type.

For the distance from the factory to the harbor and the distance from the harbor to the end customer, we use an average emission factor from BEIS considering HGV, inland container, and rail transport.

2.1.2) Full container load transport

FCL refers to Philips-specific shipments that take up an entire container.

$$\text{FCL emissions} = \sum_{\substack{i=1 \\ j=1}}^{\substack{\text{All trade airlines} \\ \text{All carrier types}}} C_{ij} \times D_{ij} \times E_{ij} + W_i \times D_{ij} \times 0.05 \times A$$

- C_{ij} = Number of containers transported through trade lane i using carrier type j
- D_{ij} = Distance (km) between port of loading and port of discharge using trade lane i and carrier j
- E_{ij} = Emission factor of trade lane i and carrier j (kg CO_2e/TEU.km)
- W_{ij} = Chargeable weight (kg/1000) of all shipments transported through trade lane i using carrier type j
- A = Average emission factor of Heavy Goods Vehicles (HGV), inland containers and rail for shipment i (kg CO_2e/tonnes.km)

Distance remains the main element, but instead of considering the shipment's weight, we are interested in the number of containers traveling along the same trade lane with the same carrier. We do this because we apply 20-foot equivalent units' kilometers (TEU.km). This is then multiplied by transport- and trade-lane-specific emission factors. The distance factor (5%) is again used to include the distance between the factory and the port of loading, as well as the port of discharge and the end customer.

2.1.2.1) Emission factor

For LCL shipments, the carrier- and trade-lane-specific emission factors of the Clean Cargo collaboration are used. These are annually updated and more granular, compared with BEIS.

If both the carrier type and trade lane are known and available, that specific emission factor is applied. If only one is known, that specific emission factor is used. If neither variable is available or given, we use a cargo-ship-specific emission factor that is not linked to a specific trade route nor to a specific carrier.

Regarding leg 1 and leg 3 distance, we use an average emission factor of BEIS looking at HGV, inland container, and rail transport.

2.2) Road freight

Road freight is calculated using the road distance between the start and end locations, and the weight of the shipment.

$$\text{Road freight emissions} = \sum_{i=1}^{\text{All road transports}} W_i \times D_i \times E$$

- W_i = Chargeable weight (kg/1000) of transport i
- D_i = Road distance (km) between start and end locations for transport i
- E_i = Emission factor of cargo truck (kg CO_2e/tonnes.km)

Instead of calculating the direct distance between the start and end locations, we examine road distances. These are automatically calculated by our internal system, using the fastest route possible.

2.2.1) Emission factor

Transport-specific emission factors from BEIS are applied for road freight. To ensure a conservative approach is taken, it is assumed the entire distance is completed using HGV. This overstates emissions, as it is common to use more fuel-efficient city vans for the last mile. An average-laden emission factor (kg CO_2e/tonnes.km) is applied because of the inability to determine to what extent the truck's capacity is occupied by Philips freight.

2.3) Air freight

Emissions are calculated based on the direct distance between the start and end locations, and the freight's weight.

$$\text{Air freight emissions} = \sum_{i=1}^{\text{All transports}} W_i \times D_i \times E_i + W_i \times D_i \times A_i \, 0.05$$

- W_i = Chargeable weight of transport i
- D_i = Straight line distance (Km) between start and end locations of transport i
- E_i = Haul specific emission factor for transport i (kg CO_2e/tonnes.km)
- A_i = Average emission factor of HGV trucks for transport i (kg CO_2e/tonnes.km)

The distance between the departure airport and destination airport is calculated to determine the total kilometers traveled. Then, similar to ocean freight, a distance factor is applied to consider that an HGV truck is used for the distance from the factory to the airport and from the airport to the end customer. This factor corresponds to 5% of the distance traveled between the two airports. Furthermore, each flight is classified as short haul (less than 1,500 km), medium haul (between 1,500 and 4,000 km), or long haul (more than 4,000 km). Typically, airplanes require significantly more fuel during takeoff compared with the rest of the journey, which means fuel consumption is not linear. This is why we apply different emission factors depending on the haul type.

2.3.1) Emission factor

Haul-specific emission factors from BEIS are applied for air freight. Although these factors exclude the type of aircraft, class of service, and occupation rate, they are still deemed the most valid and reliable. Cross-sector usage and frequent updates ensure high degrees of comparability and accuracy.

Radiative forcing caused by airplanes is not considered because the science is overly complex and dependent on multiple natural and anthropogenic factors, so including it would greatly decrease reliability in our calculations. We have decided to focus on those factors that are certain and comparable with other market players.

For the journey between the factory and the departure airport, as well as the distance between the arrival airport and the end customer, we use the emission factors from BEIS for HGV.

2.4) Parcel delivery

Parcel delivery for single shipments can include a mix of different transportation modes, such as trucks and airplanes. Accounting for the corresponding emissions is therefore more complex and dependent on several assumptions.

$$\text{Parcel emissions} = \sum_{\substack{i=1 \\ j=1}}^{\substack{\text{All transports} \\ \text{All modes of transport}}} W_i \times ((D_i \times 0.95) \times E_{ij} + (D_i \times 0.05) \times E_{ij})$$

- W_i = Chargeable weight of transport i
- D_i = Distance (km) between start and end locations of transport i
- E_{ij} = Emission factor for transport i using mode j (kg CO_2e/kg km)

Again, the distance between the start and end locations is a key component to determine what mode of transport – and correspondingly what emission factor – is being used.

If the total amount of road kilometers between the start and end locations is less than 1,000 km, it is assumed that road transport is used to deliver the package. In this case, HGV emission factors are applied for 95% of the distance and city van emissions for 5% of the distance. It is highly unlikely that a truck is used to distribute a package to a customer's doorstep.

If the road distance is more than 1,000 km, it is assumed an airplane is used to deliver the package. In that case, we use the straight-line distance between the start and end locations. It is assumed that an airplane is used for 95% of the distance and an HGV for the remaining 5%. Again, this is done to account for the distance between the airport and the end customer. By applying the emission factors of an HGV instead of a city van, we ensure that the corresponding calculations are conservative.

2.4.1) Emission factor

We apply emission factors from BEIS for parcel delivery. These are updated annually and therefore remain reliable. Distinct factors are applied depending on the assumed mode of transport. For air freight, we apply haul-specific emission factors that acknowledge the nonlinear fuel consumption of airplanes. Radiative forcing is not considered.

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