

Methodology for calculating the

# Environmental Profit & Loss Account

# At Philips, our purpose is to improve people's health and well-being through meaningful innovation. Our goal is to improve the lives of 2.5 billion people a year by 2030.

We launched our ESG commitments, with ambitious targets to be achieved by the end of 2025, in 2020. Besides our social impact, focusing on SDG 3, we have an environmental impact through our global operations (including our supply chain), but even more so through our products and solutions. This is where we contribute to SDG 12 (Ensure sustainable consumption and production patterns) and SDG 13 (Take urgent action to combat climate change and its impacts).

The Philips Environmental Profit & Loss (EP&L) account reports our efforts on the ecological dimension. It is an economic valuation in EUR of the impact that Philips has on the environment, or in other words: an environmental footprint of Philips' complete value chain expressed in monetary terms.

Our EP&L account is based on Life-Cycle Assessment (LCA) methodology. Philips has been performing LCAs since 1990. The assessments are used to steer our EcoDesign efforts and to determine the Green Focal Areas (GFAs) of the Philips product portfolio. The GFAs are product characteristics like energy efficiency, weight and product lifetime that determine the environmental impact of our product portfolio. They form the basis of our steadily growing Green/EcoDesigned/EcoHero solutions portfolio.

The EP&L account is a logical next step to extend the scope from individual product value chains to Philips' complete value chain. It will support the direction of our sustainability strategy by providing insights into the main environmental hotspots from an overall business point of view and it will guide Philips in its efforts to deliver on its commitment to reduce its full value chain emissions in line with a 1.5-degree global warming scenario.

The current EP&L account only includes the hidden environmental costs that are associated with our activities and products. It does not include the benefits ('profit') to society that Philips generates by improving people's lives through our products and solutions, e.g. our healthcare solutions. We have a well-established methodology to calculate the number of lives we positively touch with our products and solutions. We aim to look into valuing these societal benefits in monetary terms in the future.

This document describes the methodology we used to calculate the 2022 EP&L account, including information on the scope, assumptions and data sources. The 'EP&L' metric is part of the assurance assignment of EY. EY's assurance report can be found here: chapter 13.6 of the Annual Report 2022.

## Scope

The scope of the EP&L account comprises three parts:

Philips Group

**Scope of Environmental Profit& Loss Account, 2022**

# 1

### Business activities

All business activities and markets are included in scope except software, hardware servicing during use phase (parts replacement), consumables and accessories

# 2

### Value chain

The scope of the EP&L account is 'cradle to grave'. It includes raw material and component production and processing. Philips' own operations (manufacturing, offices, business travel and logistics, usage of our products and disposal at the end of life.)

# 3

### Environmental impact

The choice of environmental impacts is related to the LCA methodology ReCiPe and the monetary valuation methodology that has been chosen. Further explanation is given under 'Methodology'.

## Business activities

For Personal Health, 96% of the product portfolio revenue is covered in the EP&L. Non covered products consist of accessories, spare parts and products with relatively low sales revenue. Consumables that are directly connected to consumer electronic products, such as brush heads for toothbrushes, have been included. Consumables not directly attached to the product (e.g. shaving gel or toothpaste) are not included.

For Precision Diagnosis, Connected Care and Image Guided Therapy, 72% of the revenue is included in scope when the sales from products described as "Not Assigned" and products with Material IDs that have "0" quantities are excluded from this calculation. All medical systems and most monitors are included in the calculation with the exception of Lumify, catheters, and product (spare) parts.

Consumables, accessories, and hardware upgrades are excluded from the scope with the exception of masks and selected cables. Reason for the exclusion of consumables (e.g. sensors, cuffs, ECG cables etc.) and accessories is that due to the large variety it is not yet possible to accurately determine the overall material composition and weight.

Hardware upgrades and parts replacement (repair) of medical equipment during the use phase of medical equipment are difficult to trace back to material composition and are thus not included yet in scope. However, the environmental impact of business travel of the service engineers is included in scope.

The Philips products subject to the Respironics recall were evaluated as part of the 2022 EP&L calculation. In accordance with the EP&L methodology, products replaced during the recall by new products with lifetime guarantees were included in the 2022 EP&L calculation for all life cycle stages. Refurbished products and repair kits were not included.

## Value chain

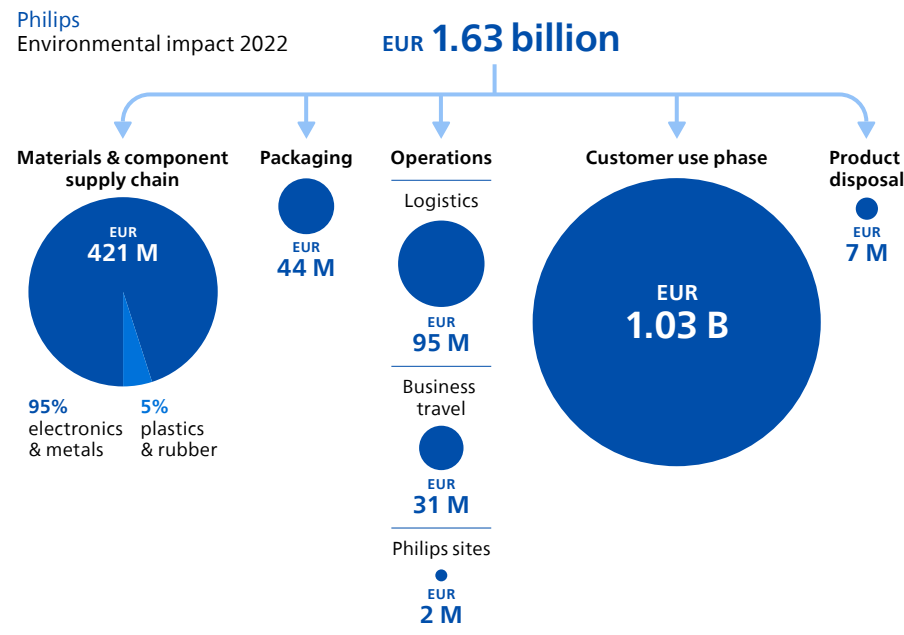
The scope of the EP&L addresses the key environmental contributors. For extraction and production of components (e.g. plastics and printed circuit boards), generic environmental impact data from the LCA database EcoInvent v3.8 have been used. EcoInvent references associated with Global (GLO) or Rest of World (ROW) values are used since the origin of the materials is not easily determined given the many intermediate suppliers. Forming of metal and plastic materials into parts, e.g. with metal extrusion or injection moulding, is excluded from scope.

Energy consumption of our products (> 60%) is by far dominating Philips' environmental impact. The energy consumption during the full lifetime of the products sold in 2022 is included. As shown in Table 2 below, lifetime for Personal Health products is based on Lives Improved data and lifetime for Health Systems products is based on guaranteed service lifetime.

For example, the environmental impact of electricity needed to use a Diamond Clean toothbrush during its full lifetime of an estimated five years, so until 2027, is included in the 2022 EP&L account. This is a significant overestimate of the 2022 impact, however as the life-cycle impact is 'generated' in 2022 it has been decided to account for this impact in the year that the products are sold. The only exception is Reference Products identified as rentals. The energy consumption of one year of rental and a one year allocation of materials are included in the 2022 EP&L calculation.

The use-case scenarios, defined by the power consumption, duration and frequency of use, has a significant impact on the result, especially for consumer products, which have large sales volumes, long lifetimes and frequently high energy consumption (e.g. haircare products).

As of 2022 we measure the impact of the electricity consumption of our products based on the specific energy mix of the country where the products are sold. For those countries without an emission factor, the market is first used and if the market is not available, then the world average is being used.



For all Healthcare diagnostic imaging equipment, we calculate the energy consumption according to the average use case. In 2023, we plan to calculate the energy consumption according to the COCIR standard. This standard describes how a measurement should be carried out and what use case scenario to apply as to number of hours per day in ready-to-scan, standby, off and scanning mode. In the current EP&L account, the worst case scenario is applied (e.g. 10 hours of scan mode instead of 10 hours of alternating between scan and ready to scan mode), which provides an overestimation of the impact.

The total energy impact is also determined by the number of days that a medical system is used per year and the total lifetime. For the use frequency we apply 250 to 365 days per week for diagnostic medical systems assuming usage during normal working hours only (5 days per week and including 2-week holiday) or usage every day of the year. Actual number of days that diagnostic equipment is being used will depend on patient schedules and emergency situations which will differ per hospital. In next year's EP&L calculation we will apply a harmonized use frequency across the diagnostic portfolio. As to lifetime, an average of 10 years is used for patient monitors, X-ray, CT-, MR- IGT- and Ultrasound equipment and between 5 and 10 years for S&RC equipment. The lifetime is based on our guaranteed service lifetime.

### Environmental impacts

The choice of environmental impacts is related to the LCA methodology (ReCiPe) and the monetary valuation method that has been chosen. Further explanation is found under 'Methodology'.

### Out of scope

Not included in the EP&L, besides the above mentioned out-of-scope business activities, are inputs- and outputs that are difficult to assess and have a relatively low contribution:

- Inbound transport of subassemblies
- Purchased materials that do not end up in final products (e.g. cutting wastes in our factories)
- Emissions to air and water, waste, consumption of water and process chemicals at Philips manufacturing sites
- Waste and water consumption of non-industrial Philips sites (e.g. offices and warehouses)

Philips uses mostly off the shelf components in its products which means that the net Bill of Materials (BOM) of products as used in the EP&L calculation will not deviate much (i.e. up to +/- 5% in terms of weight) from the gross purchased materials.

<sup>1</sup> For raw materials and components, the Ecoinvent 'market for' datasets are used which include all required logistics to make a material available on the market, where possible. However, the last mile transport from tier 1 suppliers to Philips is not included in our EP&L calculation.

<sup>2</sup> Goedkoop, M. et al., 2013. R. ReCiPe 2008, A life cycle impact assessment method which comprises harmonised category indicators at the midpoint and the endpoint level; First edition (version 1.08) Report I: Characterisation, Den Haag: Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (VROM).

### Methodology

The method used to calculate the EP&L account is the internationally recognized ReCiPe 2008 methodology, in combination with environmental pricing as provided by [CE Delft](#). The EP&L calculation uses the environmental impact per reference product multiplied by the quantities of products sold and then expressed in EUR. A "reference product" is defined as a product representative of part of the product portfolio sold by Philips. Reference products cover almost the entire Philips portfolio (see Business Activities section above). Data models are based on the Swiss national LCI database Ecoinvent v3.8, for background as well as foreground data.

#### Environmental impacts included in the assesment

- Climate change
- Ozone depletion
- Human toxicity
- Eutrophication (fresh/marine water)
- Photochemical oxidant formation
- Particulate matter formation
- Acidification
- Ionizing radiation
- Ecotoxicity (marine and freshwater/land)
- Land use

Figure 4: Environmental impact categories

The environmental pricing methodology of CE Delft is based on the ReCiPe 2008 methodology for LCA. The prices (see table 1) are so-called damage costs (as opposed to prevention or abatement costs) and represent the willingness of citizens to pay for not having to be exposed to an additional 1 kg of environmental pollution, expressed in EUR per 1 kg of emissions.

In next year's EP&L calculation we will use the ReCiPe 2016 methodology and the EcoInvent 3.9 dataset as well as applying the newest environmental prices from CE Delft (to be released in Q1 2023), which are based on the ReCiPe 2016 methodology.

As recommended by CE Delft, the environmental price for carbon was adjusted in 2022 with the yearly adjustment. The CE Delft pricing methodology does not yet include environmental prices for depletion of water, fossil fuels, and metals and natural land transformation and hence these environmental impacts are excluded from the scope. The explanation why these environmental prices are not available in the pricing methodology can be found in Chapter 5 of the [CE Delft Handbook](#).

The environmental prices have been calculated for Dutch territory only. Many environmental impacts like human toxicity and ecotoxicity are specific to the local context. This means that the environmental prices cannot be automatically extrapolated to other regions outside of the Netherlands.

CE Delft also has European environmental prices available. However, as that would also not represent Philips' global sales, it has been decided to continue using the (higher) Dutch environmental prices and await the publication of the global set of country specific prices.

Theme	Unit	External costs	Weighting factor
Climate change	EUR/kg CO <sub>2</sub> -eq	EUR 0.07	EUR 0.07
Ozone depletion	EUR/kg CFC-eq	EUR 30.40	EUR 123.00
Human toxicity	EUR/kg 1.4 DB-eq	EUR 0.16	EUR 0.16
Photochemical oxidant formation	EUR/kg NMVOC-eq	EUR 2.10	EUR 2.10
Particulate matter formation (chimney >100m)	EUR/kg PM <sub>10</sub> -eq	EUR 35.12	EUR 35.12
Ionizing radiation	EUR/kg kBq U235-eq	EUR 0.05	EUR 0.05
Acidification	EUR/kg SO <sub>2</sub> -eq	EUR 5.40	EUR 8.12
Freshwater eutrofication	EUR/kg P-eq	EUR 1.90	EUR 1.90
Marine eutrophication	EUR/kg N	EUR 3.11	EUR 3.11
Terrestrial ecotoxicity	EUR/kg 1.4 DB-eq	EUR 8.89	EUR 8.89
Freshwater ecotoxicity	EUR/kg 1.4 DB-eq	EUR 0.04	EUR 0.04
Marine toxicity	EUR/kg 1.4 DB-eq	EUR 0.01	EUR 0.01
Land use	EUR M <sup>2</sup> year	EUR 0.03	EUR 0.04

Table 1: Environmental prices of environmental impacts in the Netherlands

As can be derived from table 1, particulate matter formation (one of the top three contributors to results) has a relatively high weighting factor. This is due to the rather unique Dutch situation with relative low air quality and a high concentration of ammonia in the air. Ammonia is an important source of particulate matter formation. As mentioned, due to lack of environmental prices that are geographically differentiated, we used the Dutch data.

However, CE Delft does provide a differentiation in environmental price for particulate matter formation related to the source of emission. The environmental price for particulate matter formed via transportation exhaust gasses is higher than particulate matter formed via high chimneys of electricity generation plants. Given the fact that electricity consumption is the main contributing factor to the Philips EP&L 2022 (62%), with particulate matter formation and climate change as the main environmental impacts, we used an adapted environmental price of particulate matter formation as provided by CE Delft (35.12 EUR/kg PM10 eq).

### Data quality

Several factors are influencing the bandwidth of the final EP&L account results:

- Accuratness of generic datasets
- Scope of data included
- The choice of reference products as proxies to cover all product categories
- The pattern of use of products to derive the electricity consumption (e.g. time per day, number of days, and lifetime)
- Assumptions made and the quality of the data supporting these assumptions

Availability and quality of data is a challenge inherent to LCA and results in uncertainty of the EP&L outcome. Uncertainty also results from the LCA and monetary valuation methodology used, which is based on assumptions that will vary over time.

The figures reported are Philips' best possible estimate. As we gain new insights and retrieve more and better data, we may enhance the methodology and accuracy of results in the future. The inherent uncertainties relevant to the further development of the EP&L are expressed in the related disclosures in the annual report.

Data	Source	Remark
<b>Product specific data collection</b>		
Material composition and weight Philips products	Bill of materials (BOM) of reference products and product documentation Philips website	For each business, within the mentioned scope, representative reference products with high sales quantities were identified and the material composition of these products derived. These data were used as proxy for comparable other product categories Net BOM data have been used.
Packaging composition and weight Philips products	Bill of materials (BOM) of reference products, WEEE packaging documentation, and product documentation Philips website	For each business, within the mentioned scope, representative reference products with high sales quantities were identified and the packaging composition of these products derived. These data were used as proxy for comparable other product categories.
Production amounts	Sales data	
Use Phase	Based on power (W) and duration of usage per day. Lifetime for Personal Health products is based on Lives Improved data. Lifetime for Health Systems products is based on guaranteed service lifetime.	If data was not available, assumptions were made based on use cases of similar products. Geographical scope of EcoInvent datasets: country-specific datasets used for electricity generation when available; if not available, region-specific datasets were used.
Material extraction and processing upstream	Generic data from EcoInvent (LCA) database (industry averages)	No specific environmental data from suppliers have been collected. Geographical scope of EcoInvent datasets: Global (GLO) data for materials, unless country of origin is known, or if only European dataset (RER) is available.
<b>Company level data collection</b>		
Environmental data Philips sites	Energy consumption as registered in Credit360 software (used by Philips sites)	Waste, emissions to air and water, consumption of water, and process chemicals excluded. Geographical scope of EcoInvent datasets: country-specific datasets used for energy processes. For example, for China-based plants, the Chinese electricity mix is used.
Energy consumption office buildings	Invoices from our energy providers	Aggregated at Corporate level and automated into the EP&L calculations using EcoInvent emission factors.
Outbound transportation supplied and (semi)final goods	Invoices from our logistics providers	This includes transportation between Philips sites and from Philips sites to customers.
Business travel	Internal declaration system as used by Philips employees	Aggregated at Corporate level and automated into the EP&L calculations using EcoInvent emission factors.
Final disposal	WEEE disposal scenario in EcoInvent database.	Aggregated at Corporate level and automated into the EP&L calculations using EcoInvent emission factors. Includes the weight of products' materials and packaging. Assumes 30 km transportation by truck from disposal location (e.g. retailer or hospital) to waste treatment / recycling facility.

## Next steps

In next year's EP&L calculation we will:

- apply a harmonized use frequency across the medical diagnostic portfolio
- apply the COCIR methodology to energy use data for Health System products
- apply the ReCiPe 2016 methodology in conjunction with the EcoInvent 3.9 dataset and the updated environmental prices to be released from CE Delft in January 2023
- include environmental prices related to Natural Capital, including depletion of water, fossil fuels and metals

Furthermore, we will continue to closely follow (inter)national developments in the EP&L methodology.

