Carbon accounting manual

for the calculation of HP's fiscal year 2017 greenhouse gas emissions

Purpose of this document

The purpose of this document is to provide additional details on the calculation methodology for Scope 1, 2 and 3 Greenhouse Gas (GHG) emissions of HP Inc. (HP) as communicated in HP's Sustainable Impact Report.
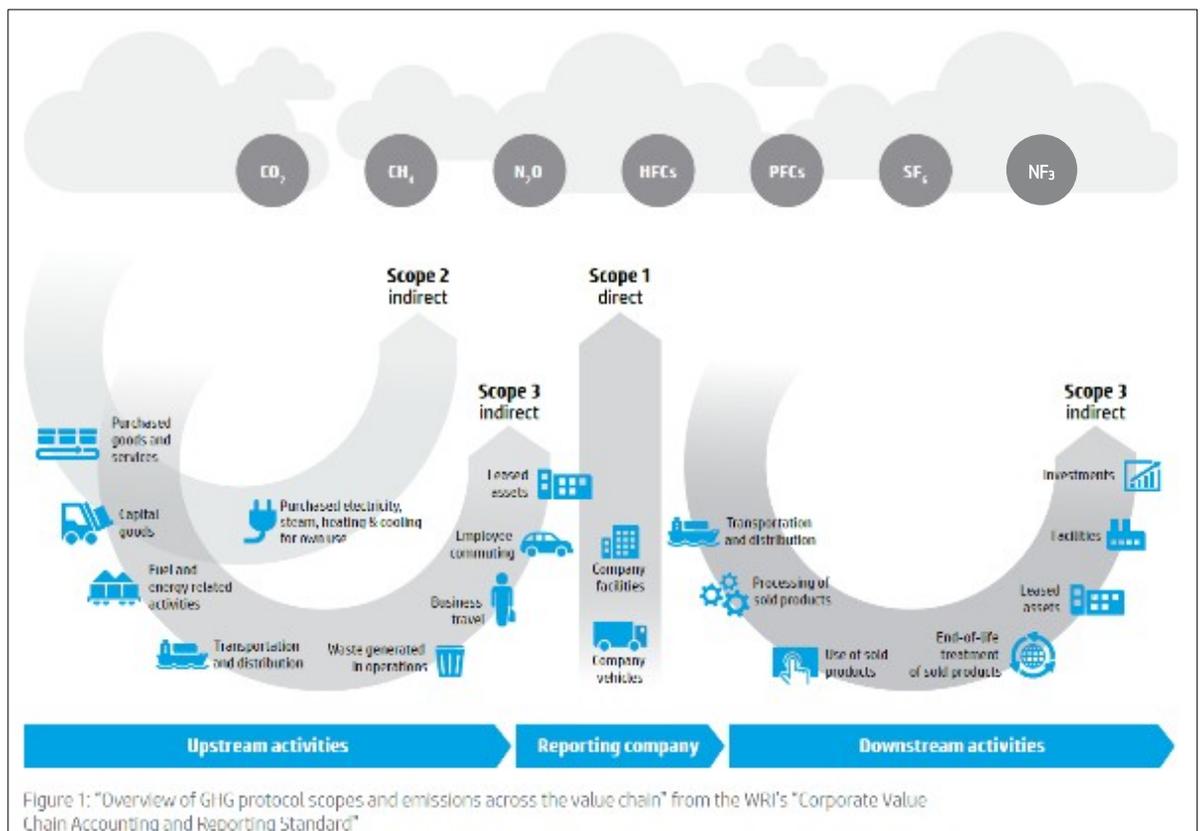
References to "the Company" in this document refer to HP Inc. as the operating entity during the November 1, 2016-October 31, 2017 (FY17) reporting period.

GHG reporting standards

Generally accepted GHG accounting principles exist to provide a standard basis for reporting a faithful, true and fair account of a company's GHG emissions. HP calculates its reported GHG emissions in accordance with the industry guidelines as developed by the World Resources Institute (WRI) GHG Protocol.

- For Scope 1 and 2 emissions reporting, HP utilizes The GHG Protocol Corporate Standard.

  o Scope 1 is defined as direct GHG emissions occurring from sources that are owned or controlled by HP.

  o Scope 2 Indirect GHG emissions result from the generation of electricity, heat or steam generated off site but purchased by HP.

- For Scope 3 emissions reporting, HP utilizes The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

  o Scope 3 includes indirect GHG emissions from sources not owned or directly controlled by HP but related to our activities such as product use, vendor supply chains, delivery services, outsourced activities, and employee travel and commuting (other than travel in the Company's transportation fleet). Scope 3 emissions are a consequence of the activities of HP, but occur from sources not owned or controlled by the Company.

While GHG accounting and reporting principles continue to evolve, HP uses principles derived in part from generally accepted financial accounting and reporting principles, including relevance, completeness, consistency, transparency and accuracy.

Figure 1: "Overview of GHG protocol scopes and emissions across the value chain" from the WRI's "Corporate Value Chain Accounting and Reporting Standard"

Organization boundaries

Scope 1 and 2 emissions are calculated for all sites within HP's operational control.[1] Emissions from the Company's owned and leased transportation is reported in Scope 1.

GHG emissions not within HP's operational control are accounted for in Scope 3 emissions; these emissions are related to our activities in the reporting year (that is, emissions related to products purchased or sold in the reporting year).

For Scope 3 categories, emissions are accounted for accordingly:

• For some categories, emissions occur simultaneously in the same year as HP's activities. For example, from combustion of energy.

• For some categories, emissions may have occurred in previous years but are reported in the current period because it directly affects an activity that occurred in the current period. For example, purchases of goods used to create a product sold.

• For other categories, emissions are expected to occur in future years because the activities in the reporting year have long-term emissions impacts. For example, the use of products sold. For these categories, reported emissions have not yet happened, but are expected to happen as a result of the waste generated, investments made and products sold in the reporting year. For these categories, the reported data should not be interpreted to mean that emissions have already occurred, but that emissions are expected to occur as a result of activities that occurred in the reporting year.

Fiscal year reporting

GHG emissions are reported using the fiscal year of HP, November 1t through October 31. For Scope 1, 2 and 3 emissions, the most recent fiscal year completed is reported in the following year's reporting.

Units

HP reports GHG emissions in metric tonnes of carbon dioxide equivalents ($mtCO_2e$).

Calculation methodology

Sources of emissions factors

Emissions factors are used to convert an activity (such as purchased electricity in kilowatt-hours) to GHG emissions (in metric tonnes CO_2e). HP utilizes the best available emissions factors where feasible given the scope being measured. For example, to represent the mix used to produce electricity in Scope 2 emissions, HP used 2016 U.S. Environmental Protection Agency eGRID emissions factors for its U.S. sites and 2015 International Energy Agency (IEA) CO_2 emission factors for its non-U.S. sites. Priority is given to supplier emissions factors in accordance with GHG Protocol Scope 2 Guidance. Regional factors for residual mix in Europe (RE-DISS) as well as regional grid factors provided by the U.S. Environmental Protection Agency (EPA), the U.S. Energy Information Administration (EIA) were utilized in preparing the inventory.

Exclusions

SF_6 and NF_3 are not captured for all HP's sites for Scope 1 given current limitations in data collection by HP's vendors. HFCs, PFCs, SF_6 and NF_3 are not captured for HP's fleet emissions for similar reasons. HP estimates

that these exclusions represent <1% of the Company's Scope 1 emissions and not considered material for car and aviation fleet emissions. SF_6 is included in our Corvallis site PFC inventory although emissions associated with these PFCs are not a material amount. Presence of NF_3 in HP-operated manufacturing operations are captured in the Scope 3 purchased goods and services emissions given the life cycle assessment (LCA) based methods for calculating these emissions.

Data collection and estimations

For HP Auto Fleet, we collected data from our Fleet Management Services providers.

For electricity, natural gas and refrigerant use, we collected data from all HP-owned manufacturing sites and our largest owned and leased office, warehouse and distribution sites. This accounted for the majority of our total floor space.

For the remaining sites where data is not tracked directly, we extrapolated data as available from comparable operations, primarily office space, for the remaining floor space, unless stated otherwise. Extrapolations are conducted on a quarterly basis, based on that quarter's square footage and intensity values. and these extrapolations are then allocated to a monthly value. This extrapolation process is based on available occupancy, space use, and facility area. HP used 2015 intensity factors for 2017 energy, water, and waste calculations which are consistent with the factors used in the prior year. HP directly tracked data from invoices and other documents representing 81% of total electricity use and 86% of total natural gas use,

We continue to refine the process by which we collect data and calculate trends and evaluate the appropriateness of these methods on a source by source basis. Although not considered material, emissions from vacant space is calculated using a factor from EIA CBECS (Commercial Buildings Energy Consumption Survey) 2012 data.

De minimis values

HP considers emissions values to be de minimis when they are less than 0.25% of total Scope 3 emissions. In addition to this quantitative reporting threshold, we also consider qualitative factors in regards to what data to report such as the ability to directly track data, level of influence over these emissions, contribution to risk and stakeholder expectations in this category.

Scope 1

Accounting for refrigerants

Refrigerants are generally used in air-conditioning units in HP's buildings and GHG emissions are linked to leakages in these systems. Leakage from these systems are generally very small, however the global warming potential of these chemicals is high. Numerous refrigerant types are used and reported from sites for which different emissions factors exist.

- HP tracks all refrigerant invoices company-wide, directly accounting for facilities' refrigerant leakage and use and eliminating the previous need for extrapolation., GHG emissions are calculated using the appropriate emissions factor for each type of refrigerant.

- Some sites may not report any refrigerants for a given year. If the sites have historically reported refrigerant use, these sites are assumed to have zero leakage in the year.

Auto fleet

The Company's auto fleet emissions are compiled based on different data acquisition systems worldwide. Auto fleet data is calculated using different methods for the different regions. The U.S., Canada, and EMEA fleet GHG emissions are calculated using direct fuel consumption data. Asia Pacific and Japan (APJ) emissions were calculated by applying average annual emissions per vehicle from EMEA to the number of vehicles used in APJ. Latin America emissions used a similar process, using U.S. average emissions per vehicle.

Scope 2

In 2017, HP reported Scope 2 emissions using both the Location-based and Market-based methods in accordance with WRI's GHG Protocol inclusive of the January 2015 Scope 2 Guidance. HP's overall electricity consumption reported in the Market-based method utilizes WRI's hierarchy of emission factor assignment: applying contractual instruments, supplier specific emission factors where provided by vendors, residual mixes for markets where available and lastly using regional or national grid factors for the balance of the portfolio. Under the Location-Based method, only regional and national grid mixes are utilized, and renewable energy has no effect or benefit to emission figures.

Residual Mix Note: For countries where a residual mix was not available, emissions were calculated using grid averages, which may result in double counting of voluntary purchases of renewable energy between electricity consumers.

HP's renewable electricity consists of three components: on-site generation, voluntary purchases of renewable energy and carbon neutral energy provided by utility suppliers. For on-site generation (such as solar), the renewable energy is metered separately and is included in our total consumption. This amount of consumption is considered to have zero Scope 1 and Scope 2 emissions. Voluntary purchases include the purchase of unbundled renewable energy credits (RECs), participation in utility green power programs and renewable energy contracted through energy providers. Carbon Neutral Energy is the default product provided to all customers served by a specific utility.

Scope 3

HP calculates its Scope 3 GHG emissions in accordance with the GHG Protocol, which defines 15 distinct categories of Scope 3 emissions and provides a systematic framework to organize, understand and report on Scope 3 activities within a corporate value chain.

HP uses LCA tools to calculate product-related impacts. An LCA evaluates all stages of a product's lifecycle using an inventory of relevant energy and material inputs and environmental releases. LCAs are designed to provide the total product carbon footprint (PCF) and a percentage breakdown of emissions among the four lifecycle stages: manufacturing, transport, use and end-of-service. HP completed a wide range of LCAs for products across its portfolio and which are representative of the high-volume products that the Company sells. HP uses different methods or models to calculate LCAs for the various types of products it sells.

Separate models that use HP-specific information have been created for the non-product related Scope 3 categories.

The following table provides additional details for each category:

Purchased goods and services **(Extraction to production)**	Emissions associated with the extraction, production and transportation of the products HP sells in each of its major business groups.	HP uses separate LCA methods to calculate GHG emissions that represent more than 99% of HP product units shipped each year associated with the following product categories:
		Personal systems, including HP desktops, notebooks, workstations, displays, digital signage thin clients, tablets/slates, mobile computing devices and all-in-one computers.
		Printing, including HP LaserJet, Inkjet, PageWide, DesignJet, Indigo, and Scitex printers, PageWide presses, scanners, and Jet Fusion 3D printers.
		Personal systems product carbon footprints (PCFs) are generated using the Product Attribute to Impact Algorithm (PAIA) model created by the Massachusetts Institute of Technology in conjunction with HP and other manufacturers. The inputs to the PAIA model include such things as product and component attributes, product energy use and transport information, many of which can be found on the product data sheets. To calculate its overall personal systems PCF, HP uses the PAIA model to conduct PCFs for more than 95% of its commercial systems products by sales. These results are extrapolated to the volumes of 99% of HP consumer and commercial personal systems products shipped during the reporting year. HP personal systems products comprising the PCF calculations include notebooks, desktops, displays, digital signage, all-in-ones, workstations, thin clients and tablets. Calculators, retail point-of-sale units, and personal systems accessories are not considered in the calculation due the availability of lifecycle information.
		Printer LCAs for Inkjet, PageWide, DesignJet, and LaserJet products are prepared in conformance with ISO14040/14044 by thinkstep (formerly PE International). The LCA for the HP

Jet Fusion 3D printer was prepared by EarthShift Global. The LCA for printer products includes the GHG emissions associated with all consumables, including paper and cartridges, over the lifetime of the product. Adjustments are made to the printer LCA outputs to account for use patterns and duplexing rates as understood by HP. We have prepared as many LCAs as possible to represent the mix of our products, and the results are applied across the shipped volume of Inkjet, LaserJet, PageWide, DesignJet, Indigo, Scitex printers, PageWide presses and scanner products, as well as HP's Jet Fusion 3D printers. These results represent 99% of HP printing products shipped during the reporting year Printer accessories are not considered in the calculation due to the availability of lifecycle information.

The calculation methodology for all LCAs encompasses the following Scope 3 categories: 1 Purchased Goods and Services; 4 and 9 for Upstream and Downstream Transportation and Distribution; 11 for Use of Sold Products; 12 for End-of-Life Treatment of Sold Products.

Recent reporting period changes

HP improved the accuracy of FY17 carbon footprint calculations in 2017 related to printers by incorporating HP Sprocket and Jet Fusion 3D printers along with more accurate data for LaserJet energy consumption patterns.

Capital goods	Emissions associated with the extraction, production and transportation of the capital goods purchased by HP.	Capital expenditures are identified on HP's balance sheet; generally, the goods identified in Property, Plant, and Equipment (PP&E) represents the annual investment in capital goods by HP. The upstream impact of these investments was estimated using the following category factors:
		Buildings — 589 mtCO$_2$e/\$1M
		Mechanical equipment — 567 mtCO$_2$e/\$1M

		Electronic equipment 454 mtCO$_2$e/\$1M
		Other 464 mtCO$_2$e/\$1M
Fuel- and energy related activities extraction and transportation of fuels.	All upstream emissions of purchased energy, including raw material extraction up to the point of combustion, as well as transportation and distribution losses (T+D).	This category accounts for all of the upstream emission associated with the energy purchased by HP (Scope 1) and electricity consumed by HP (Scope 2) for facilities under our operational control and as defined by the boundary for Scope 1 and 2 emissions. This category excludes emissions from the combustion of fuels or electricity consumed by the Company, since they are already included in Scope 1 or Scope 2. A total factor of 18% is applied to estimate the upstream impacts and is based on transportation and distribution losses. Plant use losses and Location-Based Methods emissions associated with Scope 2 emissions are used to calculate this category.
Upstream transportation and distribution	The upstream transportation and distribution of the products HP sells in each of its major business groups, including any retail and storage.	This category is calculated using the methods described for Category 1 (Purchased Goods and Services) and is considered together with Category 9 for upstream transportation.
Waste generated in operations	Disposal and treatment of nonhazardous waste generated in HP's facilities.	The total non-hazardous waste activity across HP is reported in the annual Sustainable Impact Report. An emissions factor determined by the U.S. Environmental Protection Agency's (EPA) Waste Reduction Model (WARM) is used to convert this to GHG emissions. A portion of non-hazardous waste is diverted from the waste stream and reused; emissions from this portion are not considered at this time which is considered a conservative approach. The emissions associated with processing hazardous waste is assumed to be negligible given the low relative volumes and comprehensive management practices HP has in place as described in HP's Sustainable Impact Report and Environment, Health and Safety Policy.

Business travel	Transportation of employees by commercial air and rail travel.	Using the UK Department of Energy, Food and Rural Affairs (DEFRA) methodology, for air travel, the estimation takes into account the type of aircraft, passenger load, cabin class and miles travelled for each ticketed purchase. For rail, the estimation takes into account the miles travelled and the rail supplier information, to apply the emissions factors for rail (Eurostar versus everyone else). HP includes emissions from commercial air and rail travel but excludes emissions relating to car rental and hotel stays since the data is currently not available. Emissions from transportation in vehicles owned or controlled by HP are accounted for in Scope 1 (for fuel use).
Employee commuting	Transportation of all worldwide employees between their homes and their worksites (in vehicles not owned and operations by HP), including teleworking.	Assumptions for commute distance, vehicle type and number of working days for categories of employees (office, teleworkers and mobile sales) were based on the latest U.S. National Household Travel Survey. Emissions factors for the conversion of gasoline and other fuel types to carbon dioxide equivalents are obtained from the EPA's Greenhouse Gas Equivalencies and the IPCC Mobile Consumption document. For teleworkers, the household emissions for an eight-hour work day are calculated by using the average U.S. household energy per day times the IEA worldwide electricity conversion factor of 519 grams of CO_2 per kWh.
Upstream leased assets	There are no known facilities that are excluded from Scope 1 and 2 at this time that would therefore require inclusion in this category.	Not applicable.
Downstream transportation and distribution	The downstream transportation and distribution of the products HP sells in each of its major business groups, including any retail and storage.	This category is calculated using the methods described for Category 1 (Purchased Goods and Services) and is considered together with Category 4 for upstream transportation.

Processing of sold products	HP does not currently have any major product lines that require additional processing, and the majority of products are accounted for in the product LCAs.	It is assumed that this category is negligible.
Use of sold products	The use-phase emissions associated with energy consumption of the products HP sells in each of its major business groups and includes the emissions associated with the paper and cartridges used during the lifetime of HP printer products.	This category is calculated using the methods described for Category 1 (Purchased Goods and Services).
End-of-life treatment of sold product	Emissions associated with the disposal and treatment of sold products.	This category is calculated using the methods described for Category 1 (Purchased Goods and Services).
Downstream leased assets	Emissions associated with the operation of assets leased to other entities (where HP is a landlord and the facilities is not accounted for in our Scope 1 and 2 emissions).	The Company calculates this category using square footage from buildings leased to third parties as reported in HP's annual report and assumes that these facilities are outside of its operational control and not included in HP's Scope 1 or 2 emissions. Only real estate assets are included in the calculation; product equipment leasing is accounted for in the shipped volume of each business group.
		The U.S. Department of Energy Commercial Building Energy Consumption Survey data for average office building emissions intensity and the worldwide average emissions factor intensity per the IEA are used. According to the survey, the average energy consumption of office buildings is 92,860 BTU per square foot, the emission factor of the worldwide average from IEA is 519 grams of CO_2 per kWh and the conversion rate of BTU to kilowatt hours is 1BTU - .000293071 kWh.
Franchises	HP's franchising activities are negligible.	Not applicable.

| Investments | This category includes all investments that HP makes as indicated in the annual report. | It is assumed that this category is negligible. Investments in the reporting year were predominately in HP Labs and certain business incubation projects where the associated GHG emissions are relatively low and considered negligible compared to product manufacturing and use. If the investments increase within HP, the Company will consider looking closer at each investment for possible inclusion in the Scope 3 GHG emission calculation. |

Data validation

Each year, HP compares the net revenue recorded in the Company's 10-K to the sources of Scope 3 emissions to verify that the key sources are included for each component of net revenue. This analysis especially considers the LCA portion of the calculation. HP performs a yearly analysis to consider the other Scope 3 categories for possible GHG emissions that should be included in the overall calculation.

[1] Operational control is defined as sites listed in HP's global real estate database that are owned or leased by HP. It does not include sites owned or leased by HP employees for telecommuting (e.g., residences for telecommuting employees, short-term leased office space (i.e. Regus Sites)). In a limited number of cases, HP leases space to another tenant (e.g. Hewlett Packard Enterprise or a third party). For scenarios where HP Inc. is in control of a site a site and Hewlett Packard Enterprise (HPE) and/or another party is our tenant, HP Inc. is claiming all of the electricity and natural gas at that site for both HP and HPE/other tenant(s) due to lack of available sub-metering data, leasing arrangements and other mitigating factors. With these scenarios accounting for less than 10% of total square footage of facilities space owned or leased by HP, the need to separate this electricity and natural gas consumption is not considered material.