Corporate Carbon Footprint 2020

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Executive Summary

In this project Planetly carried out a corporate carbon footprint analysis of Coffee Circle's emissions in 2020. The footprint analysis covers all internal activities of Coffee Circle and logistics for Scope 1, 2 & 3 according to the GHG Protocol Corporate Value Chain Standard. The supply chain, use phase and end-of-life emissions of the coffee beans are excluded, but these emissions are included for the packaging of the beans.

For 2020, including a forecast for the last two months of the year, **Coffee Circle's gross footprint amounts to 221.44 tons of carbon dioxide equivalents** (location-based approach). Due to **renewable electricity 16.90 tons can be deducted** (market-based approach) and another **35.02 tons are already covered by carbon neutral delivery and offsetting of flights**, which facilitates carbon offsetting. Therefore **Coffee Circle's net emissions amount to 169.52 tons of carbon dioxide equivalents in 2020**.

The results of this analysis will be used to provide Coffee Circle with transparency on its emissions and to enable the setup, implementation and tracking of specific reduction measures. It is planned to start **periodic reporting** and to implement reduction efforts like the **broad use of renewable electricity**. Coffee Circle also offsets all non-avoidable emissions with one high-quality carbon offsetting project for 2020.

The overall data quality is considered good and comprehensive, with common and statistically insignificant data quality issues (see Category 4). Appropriate and current emission factors are used in the calculation of the footprint. The data completeness was considered good by the team of Coffee Circle who provided the activity data to Planetly, and Planetly couldn't anticipate missing processes in the defined scope.

About Coffee Circle

Seit 10 Jahren setzt Coffee Circle neue Maßstäbe für fairen Konsum. Angetrieben von der Vision, die Wertschöpfungskette von Kaffee neu zu denken – vom Ursprung bis zur frisch gebrühten Tasse Kaffee. Die Berliner Specialty Coffee Rösterei beweist, wie sich außergewöhnliche Kaffeequalität, Innovation, Nachhaltigkeit und soziale Wirkung miteinander verbinden lassen.

Results Overview

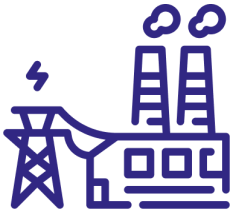
Overall result (2020)	
Scope 1	3,72 t CO2e
Scope 2	2,36 t CO2e
Scope 3	198.46 t CO2e
Total	**204.55 t CO2e**

What does the result mean?

The annual corporate carbon footprint is equivalent to…

... the annual carbon footprint of 42 people (world average).
[MUNTEAN2018]

… travelling 1.315.180 km with a plane in economy class.
[DEFRA2019]



… producing 593.550 kWh in the coal power plant.
[DEFRA2019]

… drinking 4.058.500 cups of Kenyan coffee.
[REINHARD2020]

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Boundaries and scope

This report contains all information and results for the corporate carbon footprint analysis for Coffee Circle in 2020, using all available data from that year until the 28th of september 2020 when the data collection was finalized and, based on that data, including a forecast and upscale for the last two months of the year. The organizational boundaries include the main office, the warehouse, the roastery and the cafe, which are all located in Berlin. For all the locations energy, waste, water, employee commuting and business trips, equipment (capital goods) and consumables have been included in the calculation. In addition the company's fleet and external service providers, cloud based servers, external logistics, the packaging of the coffee and the usage of webshop/website are included in the scope.

All relevant Scope 1&2 activities and Scope 3 categories have been considered. The Supply Chain, Processing, Use-Phase and End-Of-Life Phase of products are not included in Coffee Circle initial boundaries, but these emissions from the packaging. These emissions can be included at a later time. Downstream Leased Assets, Franchises and Investments are not part of Coffee Circle’s operations.

Biological CO2 sequestration is not relevant for the operation of Coffee Circle. In a few categories biological emissions have been included (e.g. 7% share of biogenic diesel in vehicle fuel consumption), but a differentiation is not useful in this report, as these factors are not influenced by Coffee Circle, but are a legislative standard.

Base year and recalculation policy

2020 has been selected as the base year, a recalculation will be considered if the real activity data for october until december 2020 is available and if significant methodological progress or an improved availability of emission factors.

Quality of Activity Data

Overall data quality was considered sufficient to calculate meaningful results for most activities. As previously mentioned, the real activity data that was only available until the end of september 2020 was upscaled to cover the last three months of the year. This includes the categories: Expenses on consumables and capital goods, on external servers and service providers as well as the inbound and outbound logistics and the amount of packaging.
It has to be noted that emissions haven’t been collected from suppliers. Due to the high uncertainty of spend-based calculations, the accuracy for purchased services can be improved greatly with supplier engagement.

Scope 1 & 2 Footprint

		CO2e	CO2	CH4	N2O	
Scope 1	Fleet	0.62	0.00	0.00	0.00	tons
	Heating	3.10	2.99	0.00	0.00	
Scope 2	Heating	2.36	2.12	0.01	0.00	tons
Scope 2 *(Location Based)*	Office Electricity	16.90	16.81	0.00	0.00	tons
Scope 2 (Market Based)	Office Electricity	0.00	0.00	0.00	0.00	tons

Scope 1 Emissions

The company uses diesel fuel for its company owned cars. The fuel consumption has been measured and emission factors have been used from [GLEC2019].
The warehouse is heated with gas which falls under Scope 1, all the other locations use district heating and therefore are accounted for in Scope 2 Emissions. As the data about heating consumption in the warehouse was not available, the consumption was estimated based on the area and [EC2002]. The emission factor has been used from [UBA2019].
Fugitive emissions from air-conditioning are not relevant in Coffee Circle's footprint, because no air-conditioning has been used. Without internal production no process emissions are relevant for Coffee Circle.

Scope 2 Emissions

Activity data on district heating consumption is available for all relevant locations. Emission factors for district heating have been used from [UBA2019].
Electricity consumption has been taken from electricity bills for all locations except the warehouse. The missing electricity consumption has been estimated with [PLANETLY2020-4]. For the Location-Based approach emission factors have been used from [IEA2019].
For the Market-Based approach supplier- and tariff-specific emission factors have been available for all locations. As they use a green electricity provider, the market-based emissions account to 0.

Scope 3 Footprint

Category	Activity	SUM (tCO2e)
01 Purchased Goods & Services	Consumables	4.58
01 Purchased Goods & Services	External Servers	8.74
01 Purchased Goods & Services	External Services	26.11
01 Purchased Goods & Services	Packaging	14.09
01 Purchased Goods & Services	Water	0.70
01 Purchased Goods & Services	**Total**	**54.22**
02 Capital Goods	Equipment	2.92
02 Capital Goods	**Total**	**2.92**
03 Fuel- & Energy related activities	Electricity Generation / T&D losses	0.73
03 Fuel- & Energy related activities	Fuel / Gas Production	0.69
03 Fuel- & Energy related activities	**Total**	**1.42**
04 Upstream Transport & Distribution	Inbound Transportation	78.75
04 Upstream Transport & Distribution	Outbound Transportation	34.40
04 Upstream Transport & Distribution	**Total**	**113.15**
05 Waste generated in Operations	Waste (Office)	0.17
05 Waste generated in Operations	Waste (Packaging)	0.23
05 Waste generated in Operations	Water Treatment	1.45

05 Waste generated in Operations	**Total**	**1.84**
06 Business Travel	Business Travel Flight	9.98
06 Business Travel	Business Travel Hotels	0.26
06 Business Travel	Business Travel Street	1.81
06 Business Travel	Business Travel Rail	0.24
06 Business Travel	**Total**	**12.29**
07 Employee Commuting	Commute	11.40
07 Employee Commuting	Tele-Working	0.14
07 Employee Commuting	**Total**	**11.53**
11 Use of sold Products	Online Interaction	1.09
11 Use of sold Products	**Total**	**1.09**
Scope 3	**Total**	**198.46**
	Thereof compensated by Suppliers (DPD)	35.03
	Remaining Scope 3 Emissions	**163.43**

Category 1 - Purchased Goods and Services

Consumables

Consumables are all items needed for operations that are not depreciated. These are commodities, food / beverages for events, print materials, etc.. Data has been collected for the purchases in 2020 and linearly extrapolated for october until december, which have then been assessed with spend-based emission factors from [EXIOBASE2018], which contain EEIO emission factors for most countries until 2011. As the emissions from consumables are relatively small compared to the main emission drivers, it is considered sufficient to take this approach.

External Servers

The energy consumption and infrastructure of cloud based servers is a relevant factor in overall worldwide emissions. A spend-based model to calculate cloud emissions based on different publicly available information like data center efficiency and electricity emission factors has been developed by Planetly. This model has a moderate degree of uncertainty because most data centers do not disclose detailed information on their emission performance. The calculation is

based on total server expenses, the extrapolation on the expenses for the whole year and [PLANETLY2020-2].

External Service Providers

Several external service providers have been contracted for different types of services, e.g. consulting, office cleaning, marketing, etc. The expenses for these service providers have been linearly extrapolated for the last three months and assessed with [EXIOBASE2018].

Packaging

The coffee beans that Coffee Circle sells, are sold to the customers in packaging. The calculation includes the packaging of the coffee and the transport packaging. The packaging materials have been calculated with emission factors from [DEFRA2019]. To cover the total amount of packaging for the year, also here the data has been extrapolated.

Water

Actual water consumption has been measured for all locations, For the calculation of the effects of the water supply and treatment [DEFRA2019] has been used.

Category 2 - Capital Goods

Equipment

All capital goods purchased in 2020 for all locations have been collected and assessed with [EXIOBASE2018]. To cater for the missing expenses of equipment, a model developed by Planetly has been used [PLANETLY2020]. Like the consumables, also these expenses have been upscaled.

Category 3 - Fuel & Energy related Activities

Electricity transmission & losses and fuels

Upstream emissions for electricity have been calculated based on the most up-to-date emission factors from [IEA 2019]. Fuel production has been calculated with [GLEC2019], for heating gas production [UBA2019] has been used.

Category 4 - Upstream Transport & Distribution

Inbound Transportation

Inbound transportation has been calculated based on available shipment information. This includes the production site and destination of the transport. The distances for the sea transport have been calculated with *Searates* and street distances with *Google Maps*. The

transport exists out of prehaul, transhipment, transport over sea, transhipment and onhaul. Appropriate emission factors from [GLEC2019] have been used in consideration of mode and location / sea trade-lane. As the logistic data was only available until the 28th of september, the available data was upscaled to cover the last 94 days of 2020. This also applies to the outbound logistics.

Outbound Transportation

Outbound transportation includes the transport from warehouses to end-customers. All transports include a transshipment operation in an unknown location, however both distances (warehouse to transshipment location and transhipment location to end-customer) have been considered. For the latter, the last-mile, it is assumed that it is equal to 30% of the main-haul. All distances have been calculated with *Here Maps*, and emission factors have been used from [GLEC2019]. Some of the destinations were outside the European Union (e.g. Japan) for these destinations the mode transport is per air freight. Since Coffee Circle sends their goods per DHL go green, the resulting emissions (excluding the emissions from air transport) can be deducted from the amount to offset.

Postage

Coffee circle sent 15 letters and 2 parcels within Germany by the reporting date. Again, this data was extrapolated until the end of december. These shipments have been calculated with average emission factors from [IPC2019].

Category 5 - Waste generated in Operations

Office, Warehouse, Café and Roastery

Information about the actual amount of waste for the office was not available. Therefore the amount of waste per employee was estimated based on [PLANETLY2020-3]. The emissions were then calculated with emission factors from [DEFRA2019] and scaled with the total number of employees.

Packaging Waste

For packaging waste it is assumed that the materials are collected and processed as municipal waste. Emissions factors are taken from [DEFRA2019].

Waste Water

Waste Water is based on the actual water consumption (see purchased goods and services). Emissions factors are taken from [DEFRA2019].

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Category 6 - Business Travel

Flights, Hotels, Rental Cars, Taxis & Trains

To account for Coffee Circle's business travels is important in the calculation of a corporate carbon footprint, because especially the mode of transport can be a main driver of carbon emissions.
All flights, train rides, rental cars as well as the hotel nights have been collected by Coffee Circle. To calculate the emissions, Coffee Circle provided us with the number of the total amount of train rides and flights for 2020, divided into the booking class and into the 3 categories short-, medium- and long-distance. For flights, the category "short" includes flights under 3 hours of flight time, "medium" 3-6h flight time and "long" includes flights with a travelled time of more than 6 hours. The categories for trains are divided by the distance travelled: "Medium" accounts for train rides between 100 and 300 km. Everything below or above then counts to the corresponding category "long" or "short".

For Rental Cars the distance driven and fuel consumption has been estimated based on costs and [KORDS2019]. Taxis have been calculated with a spend-based approach. The amount of money spent in each country was translated into distance travelled with data from [RANDELHOFF2011] and [WADE2017].
Emissions factors have been used from [DEFRA2019], [GLEC2019] and [UBA2020]. For hotels the number of nights per country was extracted from travel management systems. Emissions factors per hotel night were then used from [CORNELL2019].

Even though the delivered data also only covers the months January - September of 2020, we decided not to extrapolate the number of trips. We base this decision on the uncertain situation regarding the Covid 19 pandemic and the unlikelihood of business travel in the last quarter of the year, especially due to the renewed increase in case numbers.

A small part of the flights has already been compensated by Lufthansa. This value is deducted from the total compensation volume for Coffee Circle.

Category 7 - Employee Commuting

Commuting

Data for Commuting and Teleworking has been collected with an employee survey, which was answered by 34 of the employees. This survey asks for the number of workdays, home-office hours, and kilometres travelled each day per mode. With this information the total kilometres commuted per year and mode and the total hours spent in home-office are calculated. Commute emissions have then been calculated with [UBA2020]. For home-office the average energy consumption per hour of a standard laptop was used to derive total electricity consumption, which was then translated into emissions with [IEA2019].

Category 11 - Use of sold Products

Online interaction

By spending time in the Coffee Circle’s online shop and website, viewers use electrical energy with their end devices, which in turn generate emissions. Energy consumption emissions then have been estimated based on an average energy consumption of cell phone or laptop chargers and the electricity mix of the respective customers' countries taken from [IEA2019]. The exact consumption data, including the residence country, the number of sessions and the average session length, has been provided by the analytics tool of Coffee Circle’s website and app.

Offsetting Projects

With every kilogram of coffee sold, Coffee Circle is already helping people in the coffee-growing regions. Various projects are implemented together with the communities in the areas of health, education and coffee cultivation. To offset its own carbon footprint, it was therefore also important to Coffee Circle that the communities in the coffee-growing regions benefit here as well.

Coffee Circle is offsetting its emissions for the year 2020 with one high-quality offsetting project located in the DR Kongo. The project is certified by the VCS and CCB Standard and contributes to different Sustainable Development Goals. The offset volume reflects the carbon footprint, excluding the tons of CO2e already offset via Lufthansa and DHL go green including a safety margin of around 10%. The safety margin is added due to uncertainties regarding the extrapolation of the data to the full year 2020 and due to uncertainties about spend-based emission factors.

Project	**Compensation Volume (tCO2)**
REDD+ Forest Conservation Project Congo Basin, DR Congo	190
Total	**190.00**

REDD+ Forest Conservation Project Congo Basin

The Congo Basin rainforest is the second largest intact rainforest in the world and contains one of the most important wetlands. At the same time, the region is one of the poorest and least developed places on earth. This REDD+ project protects 300,000 hectares of bonobo and forest elephant habitat in the Congo Basin. With the help of CO2 certificates, the living conditions of 180,000 inhabitants are also improved through access to basic social services.

The project prevents the release of 5.6 million tons of CO2 equivalents into the atmosphere each year. The project region had previously been severely damaged by commercial logging, with nearly 250,000 hectares of rainforest threatened in the western part of the DRC. This resulted in the shrinking of already threatened wildlife populations and provided little to no economic benefit to local residents. The project ended logging and began reforestation of the deforested areas, leading to a recovery of biodiversity and wildlife populations.

The project includes agroforestry nurseries and has introduced agriculturally sustainable crops and techniques to further reduce deforestation by local people. The project has already built 3 schools (with 4 more under construction) and established a mobile medical clinic to treat

patients who previously had little or no access to medical care. During the 2019 measles outbreak, children were able to receive emergency vaccinations there.

The project is accredited to the Voluntary Carbon Standard (VCS) and the Climate, Community & Biodiversity Standard (CCB).

References

Reference	Author	Year	Title
CORNELL2019	Cornell	2019	Greenview - Cornell Hotel Sustainability Benchmarking Index
DEFRA2019	Defra	2019	Greenhouse gas reporting: conversion factors 2019 - full set
EC2002	European Communities	2002	European Communities
EXIOBASE2018	Exiobase 3.4 - Stadler K et. al.	2018	Exiobase 3.4
GLEC2019	Global Logistics Emissions Council	2019	Framework for Logistics Emissions Accounting and Reporting, version 2.0
IEA2019	International Energy Agency	2019	Emission Factors
IPC2019	International Post Corporation	2019	Delivery Efficiency
KORDS2019	Kords, Martin	2019	Durchschnittliche Preise für Mietwagen pro Tag in ausgewählten Ländern weltweit im Jahr 2018
MUNTEAN2018	Muntean, et. al.	2018	Fossil CO2 emissions of all world countries - 2018 Report, EUR 29433 EN, Publications Office of the European Union
PLANETLY2020	Planetly	2020	Modelled equipment basket for office employees
PLANETLY2020-2	Planetly	2020	Modelled spend-based emission factors for different cloud providers
PLANETLY2020-3	Planetly	2020	Modelled waste generation by average office employees
PLANETLY2020-4	Planetly	2020	Average consumption of electricity, water and heating, based on previous calculations
RANDELHOFF2011	Randelhoff, Martin	2011	Die wahren Kosten eines Kilometers Autofahrt
REINHARD2020	Reinhard, et. al.	2020	Ökologische Fußabdrücke von Lebensmitteln und Gerichten in Deutschland
UBA2019	Umweltbundesamt	2019	Emissionsbilanz erneuerbarer Energieträger
UBA2020	Umweltbundesamt	2020	Vergleich der durchschnittlichen Emissionen einzelner Verkehrsträger im Personenverkehr in Deutschland - Bezugsjahr 2018

WADE2017	Wade, Roger	2017	World taxi prices: What a 3-kilometer ride costs in 88 big cities

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About Planetly

Planetly is a technology start-up on a mission to help build a carbon neutral economy. Our Software helps you to introduce and automate carbon management, from data collection to reduction strategies and offsetting measures.

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