Climate Analysis 2018

In accordance with ISO 14067:2018
Completed: 2019-10-01

brid

zeromission ENABLING BETTER BUSINESS

Table of content

Introduction

Brid is a communications agency based in Stockholm that helps customers reach out to their target audiences. Brid helps its clients package their messages and stories and creates content that moves and engages its audience. The services supplied range from films, commercials and podcasts to infographics, webpages, copy and full scale content strategies. Brid has one office in Stockholm and has a team of 9 people. Brid stands for "Brilliant + ideas = Brid".

Together with ZeroMission, Brid has gathered and analysed their emissions from the 1st of January 2018 to the 31st of December 2018, with the aim to claim carbon neutrality according to PAS 2060. Furthermore, Brid also aims to be climate positive by offsetting 150% of their emissions.

In order to transparently show *what* has been calculated, and *how* the calculations were made, this report has been made publicly available by Brid. The report is aligned with the reporting principles set out in the ISO 14067:2018 standard.

The purpose of following this standard is to build a robust foundation, upon which environmental communication can be built. It is also a requirement for products attempting to register at CLIPOP (Climate Positive Products, https://www.clipop.org/), which is another purpose of this work.

General information

Table 1: General information about the assessment

Introductory information	
Individual responsible	Colm O'Callaghan
Entity making the declaration	Brid AB
Subject of the declaration	All emissions from Brid's services during one year (2018), declared as kg CO_2e/working hour.
Boundaries of the subject	All activities relevant and needed to deliver Brid's services are included. This includes upstream, core and certain downstream emissions. Capital goods are excluded, as well as the downstream impact of the service. Details of the scope are shown in "Table 4: Graphical representation of the subject scope"
Description of subject	Brid is a communications agency based in Stockholm.
Rationale for selection of the subject	The aim is to give an account of at least 95% of all relevant CO_2e-emissions related to Brid's services during one year. The subject is therefore defined using primarily the ISO 14025 PCR UN CPC 811 for *Research and experimental development services in natural sciences and engineering*, the basic module for UN CPC 81 for *Research activities and services*, as well as with input from the Greenhouse Gas

	protocol Corporate Standard / Scope 3 supply chain standard / Scope 2 guidance.
Assessment period	1st January 2018 – 31st December 2018
Standard for assessment of Greenhouse Gas Emissions	ISO 14067:2018 –CFP, GHG Protocol – Corporate Accounting and Reporting Standard, Corporate value Chain (Scope 3) Standard and Scope 2 Guidance
Confirmation	ZeroMission AB hereby confirm that the ISO 14067 product standard was applied in accordance with its provisions
Carbon footprint of Brid	Total emissions: 20,5 ton CO_2e. Emissions per worked hour: 1,25 kg CO_2e/hour.

Method

Calculations follow the ISO 14067:2018 Carbon Footprint of Products Standard. Emissions from all greenhouse gases (mainly CO_2, CH_4 and N_2O) have been converted into carbon dioxide equivalents (CO_2e), using IPCC AR4 100-year GWP conversion factors. As far as possible, up-to-date emission-factors including upstream activities (such as fuel production) have been applied.

Activity data has been collected by Brid (Colm O´Callaghan), by asking suppliers, co-workers, office-administrators and on certain occasions by estimations. This data has not been verified by a third party, however evidence of consumption (invoices, extracts from internal systems) were provided for core emission activities such as energy use. Much of the data was allocated to Brid based on number of employees or office space occupied.

Selection of standard and scope

In order to achieve conformity with PAS 2060, at least 95% of all emission related to the subject need to be included in the calculation. The calculation should also follow an accounting standard, either specified by the ISO standard for life-cycle assessments, or the GHG protocol.

Currently, there is a lack of standardisation regarding the scope that should be applied specifically for "consultancy/professional services" (i.e PCRs), when accounting for greenhouse gas emissions. Companies are instead encouraged to use updated methods for similar products, essentially drawing information from other available best-practices.

Therefore, this work has used the scope defined by relevant Product Category Rules (PCRs), including Basic Modules, as well as the GHG protocol Value Chain (Scope 3) Standard. The overall purpose is to capture all relevant emissions related to Brid's services, including upstream, core and downstream.

The ISO scope

The ISO system is built on a number of standards, narrowing down to specific instructions on how to draw the scope of certain products. These are called Product Category Rules.

The relevant PCR's that we have based these calculations on are:

PRODUCT CATEGORY RULES ACCORDING TO ISO 14025 PRODUCT GROUP CLASSIFICATION: UN CPC 811 *RESEARCH AND EXPERIMENTAL DEVELOPMENT SERVICES IN NATURAL SCIENCES AND ENGINEERING* (v.2.0, 2015-06-26)
PCR BASIC MODULE: UN CPC 81 *Research and development services* (Version 3.02, 2019-07-26)

Table 2: GAP Analysis ISO PCR 811 & Basic module 81

	Name	Included?	Exclusion reason?
Upstream	Extraction and production of raw materials used in the service	Yes	
	Production of fuels and heat used in the service	Yes	
	Transports needed for the upstream processes	Yes	
Core	External transportation to the core processes	Yes	
	Operation of the service	Yes	
	Heating/cooling buildings	Yes	
	Maintenance of buildings more frequent than 3 years.	Partial	Cleaning / maintenance included. Medium-large reconstruction assumed to be less than every 3 years.
	Business travel	Yes	
	Travel to and from work by personnel	Yes	
	Waste treatment of waste generated in the core processes	Yes	
	Impacts due to the electricity production	Yes	
Downstream	Not included	Partial	We include some downstream product use.

Greenhouse gas protocol scope

The greenhouse gas protocol has several guides and standards that help companies in their reporting of both their value chain, products and total corporate emissions. To a certain extent, the GHG protocol and the ISO standards overlap, and on many occasions the GHG protocol refers to ISO standards on Life-cycle assessments.

This work is primarily defined by the ISO 14067:2018 Carbon footprint of Products standard and relevant PCRs. However, The GHG protocol Corporate Value Chain (Scope 3) standard has been used as an additional framework to map Brid's annual activities and ensure that all relevant emissions are included.

Below is a list of the included emissions based on activities drawn up by the GHG protocol.

Table 3: GAP analysis GHG protocol Value Chain (Scope 3) standard

Cat	Name	Included?	Exclusion reason?
1	Purchased Goods and Services	Yes	
2	Capital Goods	No	No capital goods purchased
3	Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	Yes	
4	Upstream Transportation and Distribution	Yes	
5	Waste Generated in Operations	Yes	
6	Business Travel	Yes	
7	Employee Commuting	Yes	
8	Upstream Leased Assets	Yes	
9	Downstream Transportation and Distribution	Yes/partial	
10	Processing of Sold Products	No	Not relevant for their products
11	Use of Sold Products	Yes	
12	End-of-Life Treatment of Sold Products	No	Lack of data and not relevant for their products
13	Downstream Leased Assets	No	Doesn't exist
14	Franchises	No	Doesn't exist
15	Investments	No	Not required

Functional Unit

The functional unit is defined as the emissions, presented in CO_2e – carbon dioxide equivalents, from one working hour to deliver content to clients by Brid employees (kg CO_2e/hour).

System boundary in time

All activity data is collected for the period 1st January 2018 – 31st December 2018.

Allocation

Activities that are shared with other companies are allocated to Brid based on:
- Number of employees out of the total number of employees in the shared office
- Office area occupied by Brid (including shared areas such as conference rooms) out of the total building area.
  - A conservative approach was used when allocating floor area, by including all shared rooms such as conference rooms as Brid's.

System boundary

The subject of carbon neutrality is all of Brid's activities. The main business activity is communications services such as graphic design, making of short films and content strategies. Brid's customer base are companies from all sectors.

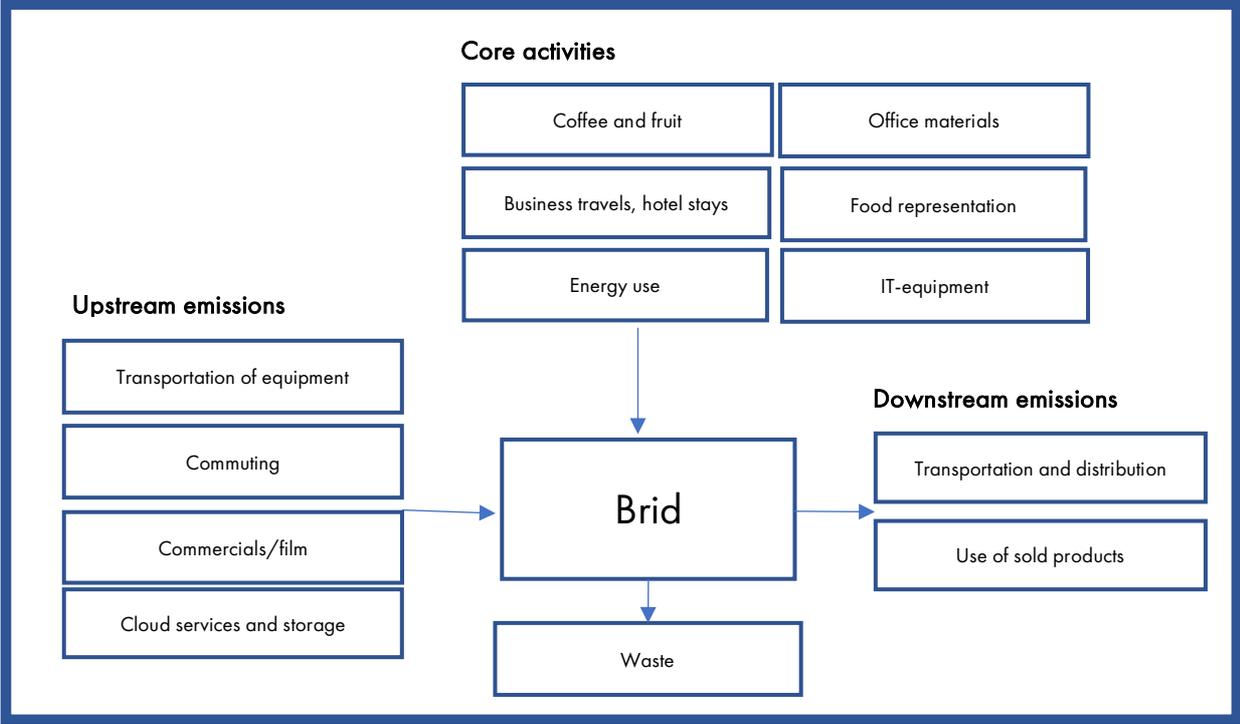*Table 4: Graphical representation of the subject scope*

Table 5: Activities included in the assessment, grouped by upstream, core and downstream

Category	Definition	Included activities
Core activities		
	Coffee and fruit	Coffee, sugar and fruit consumed at the office.
	Food representation	All meals covered by Brid at conferences, and internal/external events.
	Business travel and hotel stays	Staff travels by air, car, taxi, train, bus and hotel nights.
	Energy use	All energy use, including electricity use for consultants at clients offices.
	Office materials	Whiteboards, pens, paper shredder etc.
	IT-equipment	New computers, iPhones etc.
	Waste	Waste from different categories and waste transportation.
Upstream emissions		

	Cloud services and storage	Storage space for data outside of Brid's own premises, and transfer of data through the network.
	Transportation of equipment	Of materials used in commercials/film
	Employee commuting	Commuting by train
	Commercials/film	Energy use during filming
Downstream emissions		
	Transportation and distribution	Products and materials
	Use of sold products	Streaming of completed films and printed materials

Excluded processes and relevance

Based on the PCRs and GHG protocol scope (discussed above), the following processes have been excluded from the analysis.

Table 6: Activities excluded in the assessment

Excluded emissions categories	Comment
Capital goods	Excluded in PCR. Equipment with a life-time shorter than 10 years are included. Also, no capital goods were purchased in 2018 by Brid.
Processing of sold products	Not relevant to the service.
End-of-life treatment of sold products	Not relevant to the service. Downstream is excluded in the PCR UN CPC 811.
Downstream leased assets	Not relevant to the service.
Franchises	Not relevant to the service.
Investments	Not relevant to the service, nor required as per the GHG protocol.

Data and emission factor quality

All activity data has been collected by Brid, with both primary (verified) data and secondary (estimated) amounts, distances, volumes or other quantities. To a large extent the data is based on actual consumption (primary), especially for core activities such as energy and travels.

Emission-factors are sourced from a number of databases, LCA studies, national statistics, published articles or combinations of these. The ambition is always to match factors with activities, in terms of geography, technology, time, precision and completeness.

Drawing from recommendations from the Greenhouse Gas protocol Value Chain (Scope 3) Standard, a quantitative judgement of uncertainty should be carried out. All activities and emission-factors have therefore been scored in the five categories, ranging from "Very good" to "Poor", using the recommended pedigree matrix shown below.

Table 7: GHG protocol suggested uncertainties, the Pedigree matrix

Table [1] Suggested pedigree matrix for determining uncertainty scaling factors based on data quality ratings

Indicator score	Very good	Good	Fair	Poor
Precision	1.00	1.10	1.20	1.50
Completeness	1.00	1.05	1.10	1.20
Temporal representativeness	1.00	1.10	1.20	1.50
Geographical representativeness	1.00	1.02	1.05	1.10
Technological representativeness	1.00	1.20	1.50	2.00

The uncertainty of the activity data and the emission-factors was quantified, and the results are summarised in the table below. The overall uncertainty is fairly high. This is due to the estimations made, specifically regarding cloud services activities, details in vehicle data, and purchased goods and food.

The result of this quantification, applied to each activity and emission factor, is shown in its entirety in Annex 1: Uncertainty analysis.

	Activity	Emission factor	Total
Average uncertainty	30%	32%	62%
Standard deviation (sigma)	+/- 18%	+/- 25%	+/- 34%

Sensitivity and use of outcomes

In terms of sensitivity, the largest quantities consumed (mainly the large number of gigabytes stored in the cloud, coffee&fruit consumed and purchased IT-equipment) multiplied with emission-factors pose the largest risk of variation. In other words, if the emission factor varies a lot for these activities, this will have a large impact on the total footprint.

In order to avoid underestimation, all categories have been scored in the pedigree matrix with a conservative approach. In effect, purchased IT-equipment, coffee&fruit and cloud services are calculated with margins between 45% to 110%.

Specifically, regarding cloud services there are huge variations in the energy consumption of data-centers, transfer and end-users. There is also a large variation in the available literature on

this topic. Considering the large volumes stored by Brid, this activity can have emissions ranging between 2 to 11 ton CO_2e depending on type of electricity used, number of kWh consumed (studies varying with a factor of 5 in kWh/GB) ((Costenaro & Duer, 2012), (GHG Protocol, 2017)). The reported and offset value is 5 tons for Brid in 2018. More information about how this is calculated is given on page 11: "Cloud services and storage – 25%".
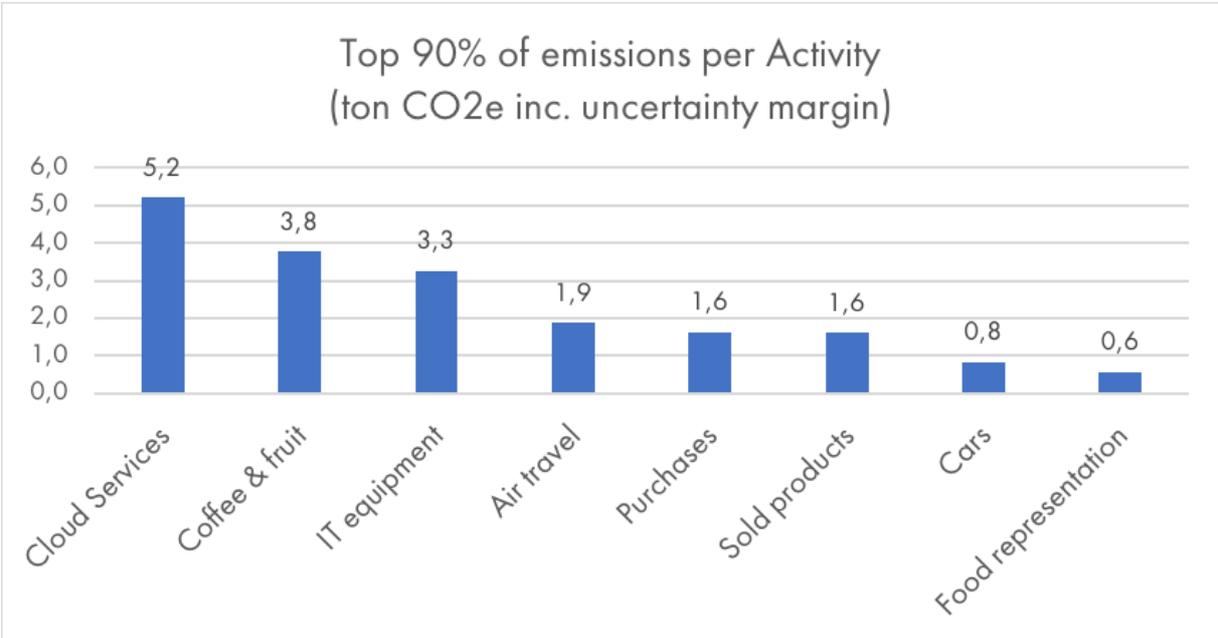
Overall, the sensitivity of the result is addressed by the quantification of uncertainties for each activity. The outcome is that, within the range of uncertainty, the results are likely to give a truthful and accurate account of Brid's emissions during 2018.

The results are not relevant for any other company, nor can they be used to make general statements about companies in this specific sector or of this specific size or make. They are applicable for Brid in 2018, and serve the purpose for communication during 2019.

Important processes

The following processes are important in the sense that they cover over 90% of Brid's carbon footprint. Here follows a deeper explanation of the emissions data from these categories and how it was conducted.

Table 8: Major sources of emissions, 90% of total footprint.

Top 90% of emissions per Activity
(ton CO2e inc. uncertainty margin)

Activity	ton CO2e
Cloud Services	5,2
Coffee & fruit	3,8
IT equipment	3,3
Air travel	1,9
Purchases	1,6
Sold products	1,6
Cars	0,8
Food representation	0,6

Fruit and coffee – 18%

Coffee is a loved beverage in all of Sweden, and the same goes for Brid. The total coffee consumption for the office building in which Brid are located was measured, based on consumption, during all of 2018. Then 9% of the total amount was estimated to be Brid's consumption, based on their use of office space and number of employees in relation to the other companies in the building. The same method of estimation was used for fruit-consumption. Due to

lack of information about the origin and value-chain of the coffee, a conservative emission factor was used to calculate these emissions. Two different emission factors were used based on the total amount of kilogram fruit consumed, one for mixed fruit and a specific for bananas. Emission factors were sourced from (Röös, 2014), and they do not take into account the land use (LU) or the land use change due (LUC) to food production.

Cloud services and storage – 25%

One of Brid's largest sources of emissions come from storing digital material in "the cloud". This is linked to the films and marketing materials that Brid produce, edit and share with clients. Calculations are based on the total amount of Gigabyte (GB) storage space occupied by Brid. Emissions were estimated using information about the server locations, and the suppliers announced energy-mix (g CO_2e/kWh). The amount of energy consumed for cloud services varies a lot, and as efficiency increases rapidly each year, any academic studies quickly get outdated. Most research points out data centers and end-users as the largest energy-consumers per GB, and transfer (i.e the network or "the internet") is only a small portion of the energy use per sent GB.

By combining research on "The megawatts behind your Megabytes" (Costenaro & Duer, 2012) giving certain kWh/GB for the three steps (data center, network, end-user) with more recent figures published in the "ICT Sector Guidance built on the GHG protocol Product Life Cycle Accounting and Reporting Standard" (GHG Protocol, 2017), a more updated energy per GB (kWh/GB) figure was calculated.

Ideally, in-depth knowledge about the data center servers, cores, specific time use, PUE, and purchased electricity is known, which is relevant information for future improvement in this reporting.

Air travel –8%

Brid works actively to reduce flying, as this is one of the largest contributors to emissions. However, in 2018 Brid conducted four flights. These are accounted for by estimating the distance between the known flight destinations. Distances are calculated using Great Circle Distances, giving the shortest distance between two airports. In order to cover for extra mileage due to route variations caused by weather, traffic control or waiting-loops (when landing) the distances have 95km added to them. This is in accordance with the European Standard DIN EN 16258 (2012). (Foundation myclimate, 2019).

Emission factors (ton CO_2e/passenger.km) are drawn from the "GHG Conversion Factors for Company Reporting" (BEIS, 2018), and emissions are calculated using a Radiative Forcing Index (RFI) factor of 2. This factor accounts for non-CO_2 aircraft emissions caused by NO_x and condensation trails.

Cars – 4%

The car-category includes travels with employee owned cars for duty travel, for particular events. Cars were assumed to be "Average diesel cars", and the calculation was made based on number

of kilometers traveled. Emission factors were sourced from the "GHG Conversion Factors for Company Reporting" (BEIS, 2018).

IT-equipment – 16%

Good IT-equipment are crucial for almost any kind of company today, and possibly even more so for a communications agency. During 2018 Brid purchased new MacBook Pro's, some hard drives, a couple of iPhones and a few new earphones. All in all, this accumulates into being one of the bigger emissions categories. Data regarding numbers of the new products were collected asking Brid, and actual emissions factors for each specific piece of equipment were derived from the particular maker of the product. For earphones and servers, an averaged emission-factor for similar IT-equipment was used.

Office materials – 8%

The same method was used for purchased office materials as for fruit and coffee. All purchases of office materials for the building in total were collected, i.e. articles like pens, whiteboards, post-its etc., and then given an emissions factor. 9% of the total amount of CO_2e were then allocated to Brid's carbon footprint. A conservative approach was used when selecting emission factors, in order to account for the complexity of some of the purchased materials (like a paper-shredder or whiteboards). Emission-factors were sourced primarily from EPDs of similar products or main materials.

Sold products – 9%

The impact of Brid's sold products go far beyond the carriers of the content, and is therefore excluded in this report. However, the carriers themselves, in this case the printed materials and the streaming of films via Youtube can be quantified. Data was collected based on number of views of a number of films on Youtube, the number of films published by Brid in 2018, and the weight of the published reports that were printed. Emission factors used were from Ecoinvent database v.3.6 (for offset prints), and the cloud services calculation explained above in combination with the Swedish Residual energy-mix factor 2019. It's assumed that most of the viewers of those films were Swedish and in Sweden.
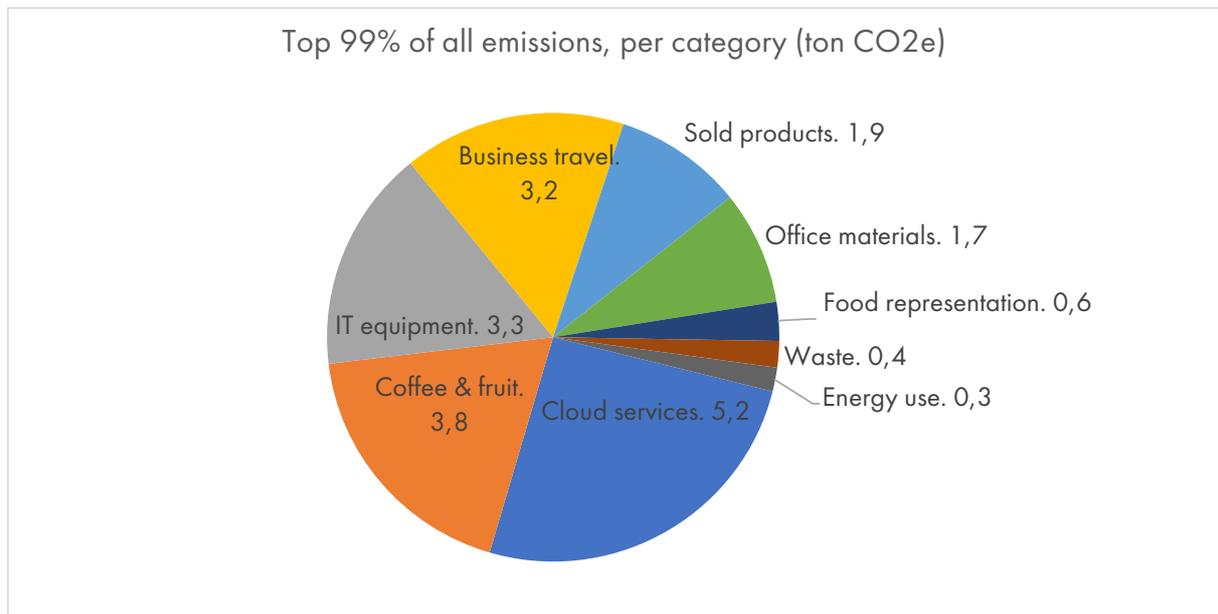
Food representation – 3%

This data is collected based on the number of individuals present at meals paid by Brid. This includes both internal and external representation, and estimations were made as to which type of food that was served (vegetarian or non-vegetarian). Emission factors are taken from "Mat-klimat-listan v.1.1. Rapport 077" (Röös, 2014), for ready-made meals. There are large uncertainties related to this calculation, mainly referring to what was served and the amounts. This can be improved for future calculations.

Results

The total emissions of greenhouse gases in 2018 amount to 20,5 ton CO_2e, including uncertainty margins. Per worked hour, this amount to 1,25 kg CO_2e/hour in 2018.

Table 9: Emissions 2018 per category, ton CO2e

Top 99% of all emissions, per category (ton CO2e)

Business travel. 3,2
Sold products. 1,9
Office materials. 1,7
Food representation. 0,6
Waste. 0,4
Energy use. 0,3
Cloud services. 5,2
Coffee & fruit. 3,8
IT equipment. 3,3

Results per GHG protocol scope

Table 10: : Emissions 2018 per GHG Protocol Scopes

Scope	Explanation	Ton CO_2e
Scope 1	Direct GHG emissions from vechicles/premises under control of Brid	0,0
Scope 2	Indirect GHG emissions arising from consumption of energy on premises owned or controlled by Brid (market-based reporting)	0,3
Scope 3	All other indirect GHG emissions	20,2
	Total 2018	20,5

Detailed results

The detailed results are summarised in the table below, per activity in 2018, with and without uncertainty margin.

Table 11: Total emissions during 2018, by activity.

ACTIVITY	TON CO$_2$E	INCLUDING MARGIN (TON CO$_2$E)
Cars	0,59	0,84
Electricity scope 2	0,00	0,00
Electricity scope 3	0,04	0,05
Air travel	1,05	1,63
Hotel stays	0,20	0,37
Purchases	0,76	1,61
IT equipment	1,95	3,26
Coffee & fruit	2,57	3,78
Conference meals	0,17	0,32
Food representation	0,29	0,57
Downstream transportation	0,01	0,01
Commuting	0,08	0,11
Sold products	0,89	1,88
Housekeeping services	0,03	0,05
Taxi travel	0,04	0,08
Train travel	0,00	0,00
Upstream transportation	0,00	0,00
Heating scope 2	0,14	0,19
Heating scope 3	0,01	0,02
Energy offsite	0,09	0,10
Commercial/film	0,01	0,01
Cloud services	2,52	5,21
Waste	0,27	0,39
TOTAL:	11,7	20,5

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Annex 1: Uncertainty analysis

Table 12: Resulting uncertainties after applying GHG pedigree matrix

Activity	Combined uncertainty			Comment
	Uncertainty Activity data	Uncertainty Emission Factor	Combined uncertainty	
Cars	10%	32%	42%	
Electricity scope 2	15%	0%	15%	
Electricity scope 3	15%	0%	15%	
Air travel	35%	20%	55%	
Hotel stays	5%	82%	87%	
Purchases	35%	77%	112%	Large variations in type of material purchased. EF's based on estimated similarity of material and type of product
IT equipment	15%	52%	67%	
Coffee & fruit	15%	32%	47%	
Conference meals	55%	30%	85%	
Food representation	65%	30%	95%	
Downstream transportation	60%	22%	82%	
Commuting	25%	20%	45%	
Sold products	50%	62%	112%	Major uncertainty regarding kWh/GB in cloud services.
Housekeeping services	45%	22%	67%	
Taxi travel	35%	52%	87%	
Train travel	15%	0%	15%	
Upstream transportation	60%	52%	112%	Unknown type of vehicle for transportation, and estimation of distances.
Heating scope 2	15%	22%	37%	
Heating scope 3	15%	22%	37%	
Energy offsite	15%	0%	15%	
Commercial/film	30%	10%	40%	
Cloud services	40%	67%	107%	Major uncertainty regarding kWh/GB in cloud services.
Waste	20%	22%	42%	