Carbonfuture

Climate Impact Report

2023

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A Letter From Our CEO

At Carbonfuture, we are deeply aware that the path to a sustainable future is a journey that requires not just innovative technology but also a collective commitment to transparency and accountability.

As a pioneer in carbon removal, we are positioned at the forefront of an industry that is key to the future of our planet and society. It is within this context that we measure our progress, not just by the milestones we achieve but by the standards we set for the industry and for ourselves.

In that spirit, we are proud to introduce Carbonfuture's Climate Impact Report, which is much more than just an inventory of emissions. It is a statement of purpose, representing our dedication to sustainable innovation and unwavering commitment to mitigating negative environmental impacts. It is the story of how we're working to reduce our emissions across our entire business, and how we're building the infrastructure to remove the rest.

Of course, we understand that our commitment to environmental stewardship and corporate responsibility will be more heavily scrutinized than others, due to the nature of the work we do. And as a leader in this industry, we recognize the imperative to accurately and transparently communicate our own climate impact. Trust is the foundation of everything we do, and this report is no exception.

From optimizing our supply chain to working on methods to reduce energy consumption, the Carbonfuture Climate Impact Report provides a data-driven look at the operations of an early-stage startup. It explores the key sectors and initiatives that have contributed to the whole of our carbon footprint, and provides a big-picture understanding of Carbonfuture's environmental impact. We hope that by sharing these insights and the lessons learned, we can spark productive conversations about how to shape a better, healthier future, and inspire industry peers, clients, and stakeholders to embrace openness and transparency about these often challenging topics.

In the spirit of accountability and innovation, we present this report as the cornerstone of our commitment to building a path to a more sustainable and resilient future. Together, let us navigate towards sustainable horizons, where business success and environmental responsibility come together for the benefit of our planet and future generations.

Hannes Junginger
CEO & Co-Founder, Carbonfuture

Guiding Framework

This report follows the guidelines outlined by the Greenhouse Gas (GHG) Protocol[1]. Recognized worldwide as a leading standard for greenhouse gas accounting, the GHG Protocol offers a robust framework that guarantees consistency, transparency, and reliability in the assessment and reporting of emissions. The GHG Protocol's guiding principles underpin our report, showcasing our commitment to methodological rigor, accuracy, completeness, transparency, and relevance.

1 Scientific

→ We rigorously adhere to scientifically sound methodologies as recommended by the GHG Protocol, ensuring meticulous measurement and calculation of emissions.

2 Accuracy

→ Our report prioritizes precise data collection, calculation, and reporting processes in line with GHG Protocol standards, guaranteeing accurate emission quantification.

3 Completeness

→ Embracing the GHG Protocol's comprehensive approach, we address a wide spectrum of emissions, including Scope 3, providing a holistic view of our environmental impact.

4 Consistency

→ Following GHG Protocol guidelines allows for meaningful comparisons over time and across entities, promoting reliable benchmarking and consistent emissions reporting practices.

5 Transparency

→ Upholding transparency, our report offers clear documentation of methodologies, data sources, and calculation processes, enabling clear understanding and scrutiny of our emission assessments.

6 Relevance

→ We prioritize emissions sources material to our operations, aligning with the GHG Protocol's emphasis on relevance in reporting practices.

Our Process

By considering the choice of calculation method, differences between industries, and the need for a comprehensive assessment, an organization can effectively measure and manage its carbon footprint. This is the approach that we took at Carbonfuture to examine and measure our climate impact.

When reaching a bigger size, Carbonfuture will look at publishing a proper sustainability report in line with additional frameworks including the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Carbon Disclosure Project (CDP). Ensuring compliance with these frameworks is crucial for comprehensive and transparent reporting.

1

Define Scope & Boundaries

→ A climate impact report focuses solely on greenhouse gas emissions, while a sustainability report encompasses a broader range of environmental, social, and economic impacts as well as governance aspects. In determining the scope and boundaries of the assessment, we had to decide which emissions sources and activities would be included in the calculation, as it's important to consider both direct emissions (Scope 1) and indirect emissions (Scope 2 and 3). Scope 1 includes emissions from owned or controlled sources like company vehicles and facilities. Scope 2 includes emissions from purchased electricity, heat, or steam. Scope 3 includes all other indirect emissions, such as those from business travel, supply chain activities, and employee commuting.

2

Collect Data

→ It was important to establish a sound data collection method early on in the process. While expenditure data can provide initial insights, process data—such as direct measurements of energy consumption and emissions—is often more precise. While going through the process, our team worked to ensure that our data collection methods were consistent, transparent, and capable of capturing relevant information across all aspects of Carbonfuture's operations.

→ The process involved gathering data on energy consumption, transportation, waste generation, and other relevant activities within the defined scope. This included examining utility bills, fuel consumption records, travel logs, and other operational data.

Our Process
(continued)

3

Choose Calculation Method

→ We then selected a calculation method that aligned with our company guidelines, resources and industry standards. Common methodologies include the GHG Protocol, ISO 14064 standards, or industry-specific protocols. Details of what was chosen and why can be found later in this document.

4

Account for Industry-Specific Factors

→ While creating this report, we tried to recognize the industry-specific nuances and emissions sources that could affect our carbon footprint calculation, as different industries have varying emission profiles and challenges. For example, manufacturing companies may have significant emissions from production processes and supply chain activities, while service-based companies may have higher emissions from office operations and business travel. Understanding these industry-specific factors is crucial for accurately assessing and managing an organization's carbon footprint.

5

Communicate Findings & Set Reduction Targets

→ Finally, when we had the data and had the chance to be properly evaluated, we took the opportunity to engage key stakeholders such as employees, suppliers, and customers in the carbon footprint assessment process. This enabled us to communicate findings transparently (such as the report you're reading now!) and solicit input on reduction strategies. From there, we are better able to set ambitious, yet achievable reduction targets based on the carbon footprint data, and establish clear timelines and action plans to track progress towards goals.

Which Activities Are Accounted For?

When determining an organization's full-scale GHG calculation, it is imperative to set appropriate boundaries to accurately and effectively define scope and responsibility. Carbonfuture begins by accounting for emissions within our operational boundaries. This encompasses internal sources such as gas heating systems, company vehicles, and other combustion activities. A complementary perspective, the consumption-based GHG balance, broadens the evaluation to include all goods and services consumed by the organization, attributing GHG emissions from their production and transport to the end consumer—Carbonfuture. The combination of these emissions forms our carbon footprint.

While the end consumer initially holds no direct responsibility for the emissions in the pre-chain, compelling questions arise about the extent to which private companies can be accountable for the social and ecological impacts associated with their procurement decisions and operational needs. This report considers not only the inventorying of GHG emissions, but also the responsibility that organizations like Carbonfuture may choose to assume, such as through 'green' procurement regulations, for various components of their CO_2 footprint.
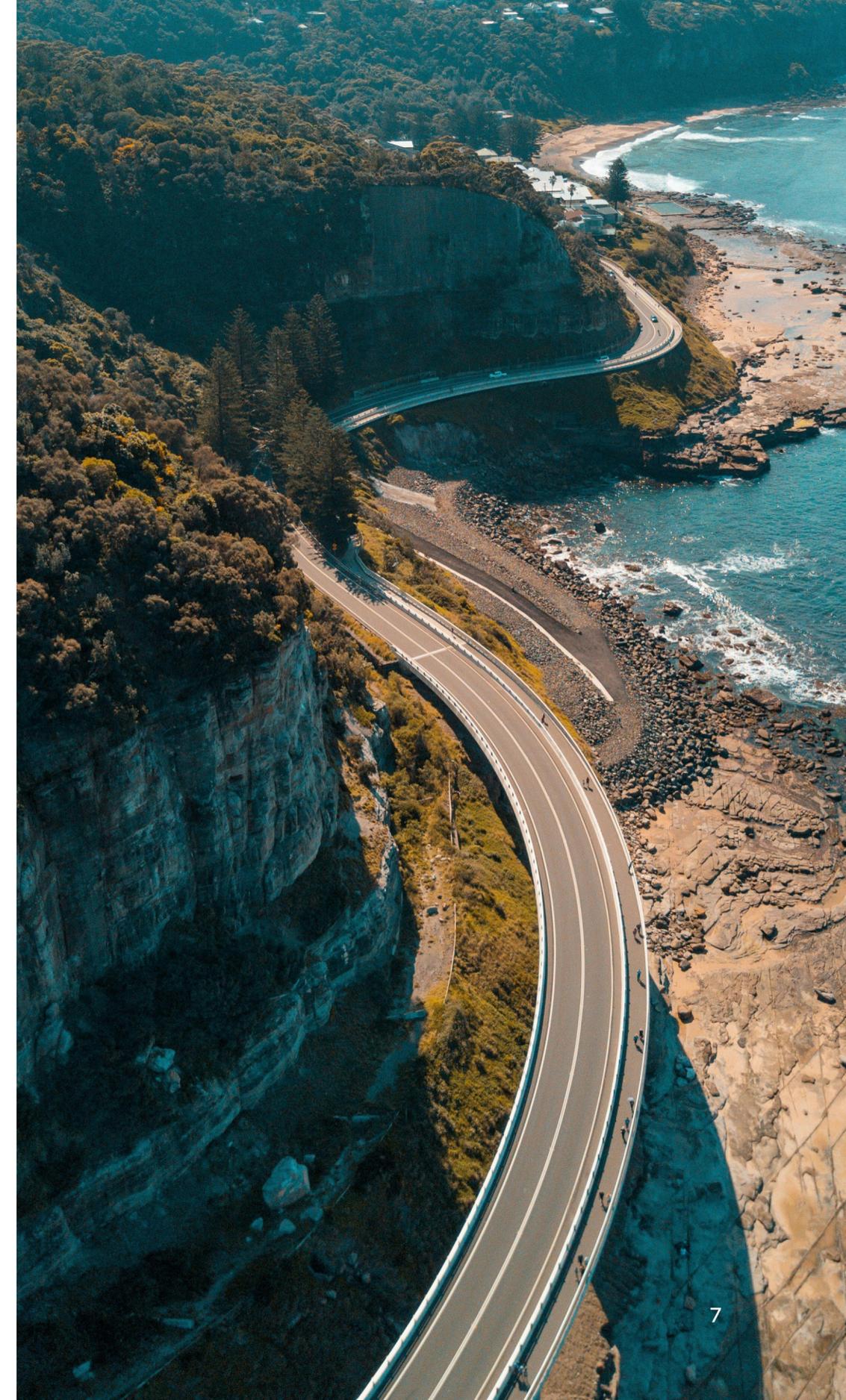
Defining the Scope of Emissions

To define the boundaries based on these beforementioned principles and to distinguish between direct and indirect emissions, we need to differentiate between Scope 1, 2 and 3 emissions:

Scope 1 Emissions

→ These are direct emissions from sources that are owned or controlled by Carbonfuture. They typically include emissions from combustion of fuels on-site, such as natural gas for heating, diesel for fleet vehicles, or gasoline for company-owned cars. Other examples may include emissions from on-site industrial processes or fugitive emissions, such as leaks from refrigeration systems.

Scope 2 Emissions

→ Scope 2 emissions cover indirect emissions associated with the generation of electricity, heating, or cooling purchased or consumed by Carbonfuture. These emissions occur off-site, but are associated with the organization's activities. They include emissions from the burning of fossil fuels in power plants to produce electricity that the organization consumes, as well as emissions from other energy sources like purchased steam or district heating.

Scope 3 Emissions

→ Scope 3 emissions are all indirect emissions that occur in Carbonfuture's value chain, including both upstream and downstream activities. These emissions are often the largest and most complex category, encompassing a wide range of sources such as purchased goods and services, transportation and distribution, employee commuting, business travel, waste generation, and disposal. Examples include emissions associated with the production and transportation of raw materials, manufacturing processes, and the use and disposal of products and services by customers.

What We Do

Carbonfuture is a company that facilitates access to buyers of carbon removal credits, offering a software solution that integrates our monitoring, reporting, and verification (MRV) processes for carbon removal projects. By providing access to carbon removal credit markets and delivering innovative software solutions for
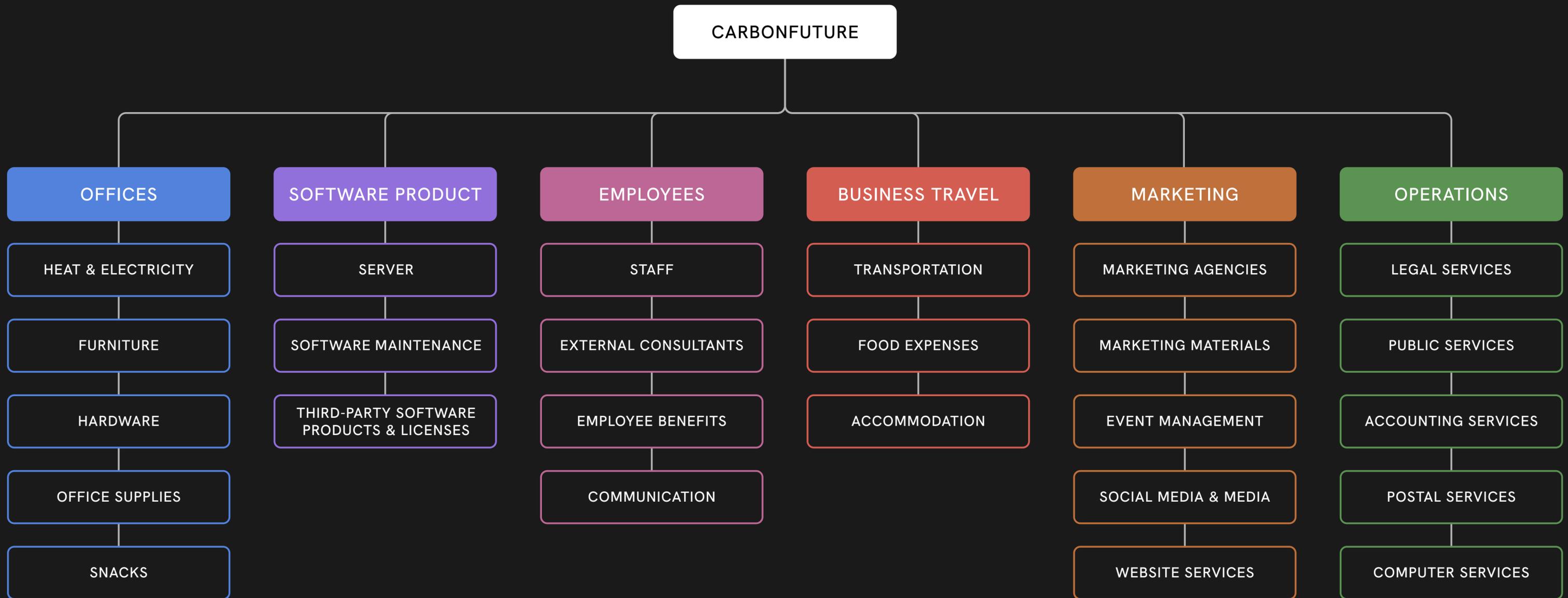
MRV, Carbonfuture supports global efforts to combat climate change while minimizing our environmental impact.

Notably, Carbonfuture does not engage in any direct combustion-related activities on its company grounds, nor does it operate its own

fleet of vehicles. Instead, our energy is entirely purchased from the grid and transportation activities are limited to the use of public transport and leased cars. Thus, these activities are categorized as Scope 3 emissions. Our commitment to sustainability is underscored by our avoidance of combustion-related activities and our conscientious use of public transport and leased vehicles, ensuring that no Scope 1 emissions occur as a result of our operations.

Generally, Scope 1 emissions only play a minor role for a company that develops a software product, with Scope 2 and 3 emissions typically holding greater relevance. Figure 1 shows an overview of relevant assets and activities that may cause direct or indirect emissions. Looking at Figure 1, it becomes evident that major emissions can be associated with purchased electricity and heat, transportation, and other upstream activities.

OVERVIEW OF COMPANY OPERATIONS

CARBONFUTURE

OFFICES	SOFTWARE PRODUCT	EMPLOYEES	BUSINESS TRAVEL	MARKETING	OPERATIONS
HEAT & ELECTRICITY	SERVER	STAFF	TRANSPORTATION	MARKETING AGENCIES	LEGAL SERVICES
FURNITURE	SOFTWARE MAINTENANCE	EXTERNAL CONSULTANTS	FOOD EXPENSES	MARKETING MATERIALS	PUBLIC SERVICES
HARDWARE	THIRD-PARTY SOFTWARE PRODUCTS & LICENSES	EMPLOYEE BENEFITS	ACCOMMODATION	EVENT MANAGEMENT	ACCOUNTING SERVICES
OFFICE SUPPLIES		COMMUNICATION		SOCIAL MEDIA & MEDIA	POSTAL SERVICES
SNACKS				WEBSITE SERVICES	COMPUTER SERVICES

Figure 1: Overview of Company Operations

Which Categories Are Included?

We meticulously analyzed all pertinent Scope 3 emission categories in accordance with the guidelines set forth by the GHG Protocol[2]. Through this process, tailored to our company's specific structure, we identified the following categories as particularly relevant to our operations:

CATEGORY	INCLUDED?	EXPLANATION
● Purchased Goods and Services	Yes	Included to assess all goods and services purchased in 2022 and 2023.
● Capital Goods	No	We do not own any large processing equipment. Hardware is accounted for under goods & services.
● Fuel- and Energy-Related Activities	No	No combustion-related activities besides those accounted for under business travel occurred.
● Upstream Transportation and Distribution	No	Carbonfuture's digital product does not require upstream transportation.
● Waste Generated in Operations	Yes	Waste generated in offices.
● Business Travel	Yes	Business travel for events and client visits.
● Employee Commuting	No	Employees work from home, or primarily use public transport and bicycles, causing no significant emissions.
● Upstream Leased Assets	Yes	Upstream leased assets are included in the form of carsharing.
● Downstream Transportation & Distribution	No	Carbonfuture's digital product does not require downstream transportation.
● Processing of Sold Products	No	Carbonfuture's product is purely digital and does not undergo post-production processing.
● Use of Sold Products	No	Carbonfuture's digital product does not generate emissions during its use.
● End-of-Life Treatment of Sold Products	No	Carbonfuture's product is purely digital, and no end-of-life treatment occurs.
● Downstream Leased Assets	No	Downstream leased assets do not directly contribute to Carbonfuture's operations.

Methodology & Calculation

Scope 2 emissions for our head office in Freiburg were calculated using physical consumption data and emission factors provided by the Umweltbundesamt[3], the environmental agency of the German government. Since the electricity and gas supply are directly covered via the rental contract, emission factors are based on the German average in 2022. By analyzing these process-level data points, we estimated the emissions linked to Scope 2 activities, factoring in the carbon intensity of the electricity grid and the emissions factors for gas combustion.

In instances where direct process data was unavailable, such as our Swiss office and additional co-working locations, we employed an alternative estimation approach based on the office's area in square meters (m2). This method facilitated a proportional allocation of emissions, yielding a reasonable estimate of Scope 2 emissions for these sites.

Methodology & Calculation (continued)

To assess our Scope 3 emissions, we utilized an Environmentally Extended Multi-Regional Input-Output (EEMRIO) analysis[4] and the EXIOBASE database from 2019[5], using our own purchasing data and adhering to the following steps:

1

Data Collection & Classification

→ We collected detailed data on all procurement, including purchases of goods & services.

→ Purchasing data was classified into different categories, based on types of goods and services as outlined by EXIOBASE.

→ 2023 consumer prices are converted into 2019 manufacturer prices by adjusting for inflation, as well as consumption taxes and retail margins.

2

Input-Output Analysis

→ The collected purchasing data was integrated into an input-output framework, which depicts the economic relationships between various sectors.

→ An environmentally extended input-output table was applied to incorporate climate impact data into the input-output tables, allowing us to trace the climate impact of our procurement activities throughout the supply chain.

3

EXIOBASE Database Integration

→ We utilized the EXIOBASE database from 2019 to supplement our input-output analysis with environmental impact data. The EXIOBASE provided detailed information on the environmental impacts associated with the production and consumption of goods and services across different sectors.

4

Environmental Impact

→ Using the integrated input-output framework and EXIOBASE data, we quantified the environmental impacts associated with our procurement activities. This involved estimating emissions linked to the production and consumption of the purchased goods and services.

15

Impact Assessment

→ By analyzing the environmental impacts associated with each category of purchased goods and services, we identified key areas contributing to our Scope 3 emissions.

Methodology & Calculation
(continued)

By leveraging EEIOA and the EXIOBASE database for our Scope 3 analysis of purchasing data, we gained a comprehensive understanding of the climate impacts across each element of our supply chain. This enabled us to make informed decisions and implement targeted strategies for emissions reduction and sustainability improvements across our procurement activities.

For our emissions calculations related to business travel, we opted for a more precise methodology: quantifying emissions based on the mode of transportation and kilometers traveled, rather than relying solely on EE MRIO analysis. While EE MRIO analysis provides valuable insights into the broader environmental footprint of economic activities, it lacks the precision required to accurately quantify emissions from individual travel events. Our approach offers a higher degree of accuracy and granularity in assessing the environmental impact of our travel activities. By considering the specific mode of transportation utilized, such as air travel, train, car, or other means, we were able to capture the varying emission intensities associated with each mode. Additionally, factoring in the distance traveled in kilometers allowed us to account for the varying lengths of business trips and their corresponding emissions.
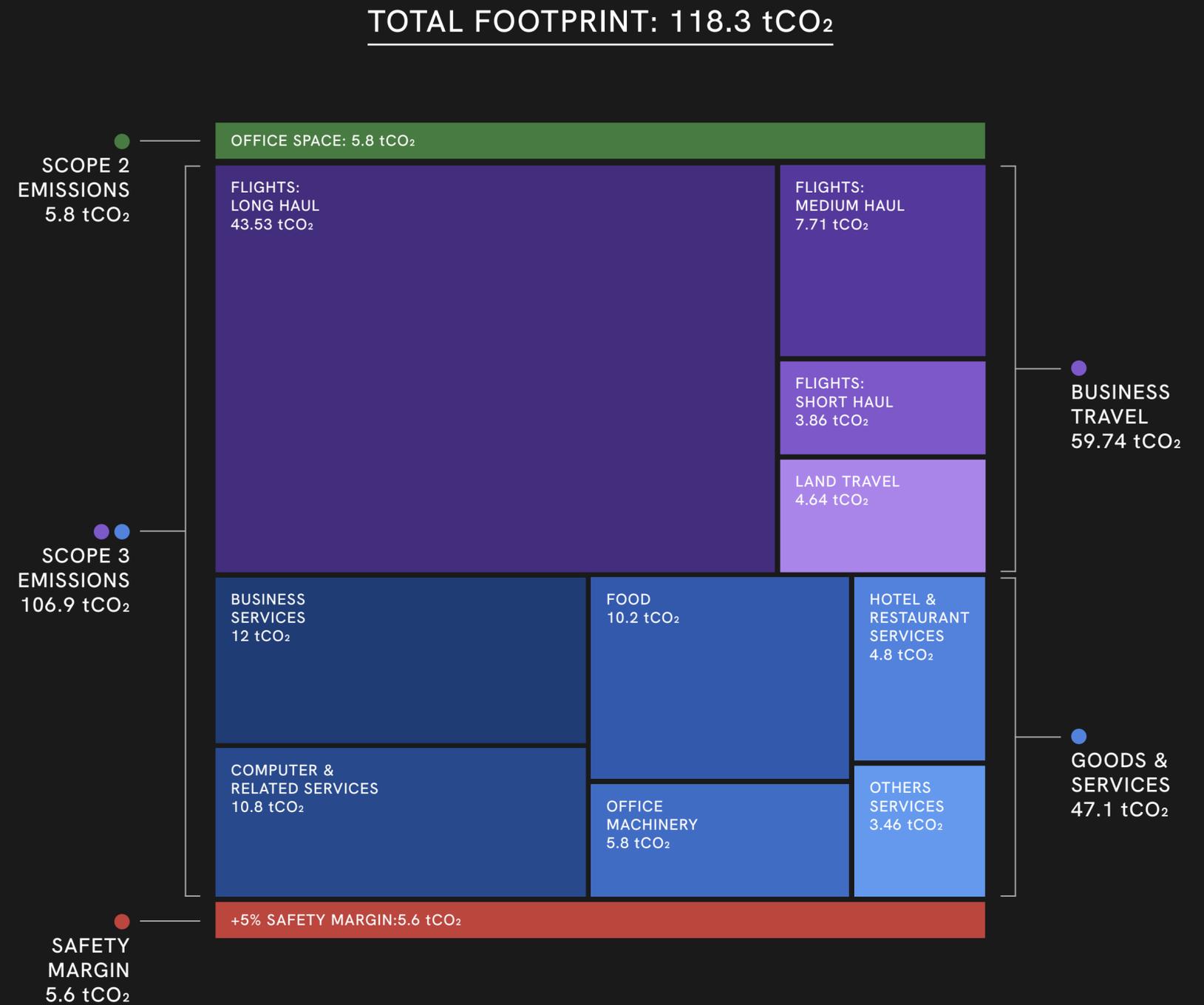
For our air travel emissions assessment, we utilized emission factors provided by the United Kingdom's Department for Environment, Food & Rural Affairs (DEFRA)[6]. These emission factors are widely recognized and trusted within the environmental sustainability field, ensuring the accuracy and reliability of our carbon footprint calculations for air travel.

For our assessment of emissions from land-based modes of transportation within Germany and as a proxy for land-based travel in other European countries, we relied on emission factors provided by the Umweltbundesamt (Federal Environment Agency)[7]. For land travel in the USA, we utilized emission factors provided by the Environmental Protection Agency (EPA)[8]. By using reputable sources such as Umweltbundesamt and EPA, we ensured the accuracy and reliability of our emissions calculations for various modes of transportation. This comprehensive approach allowed us to accurately quantify the carbon emissions associated with our transportation activities, facilitating informed decision-making and targeted strategies for reducing our organization's overall carbon footprint.

Results 2023

The total greenhouse gas (GHG) balance for Carbonfuture was estimated at 118.3 tonnes of CO_2 equivalents (Fig. 2). This total includes a 5% safety margin (5.6 tonnes). Approximately 95% of this is attributed to Scope 3 emissions, while 5% is attributed to energy-related Scope 2 emissions. Given that we counted 28 employees (FTE) on average in 2023, each employee is responsible for ca. 4 tonnes of CO_2 equivalents of greenhouse gas emissions in 2023. However, a significant portion of the total carbon footprint can be attributed to business travel, as will be illustrated in the subsequent chapters of the report.

TOTAL FOOTPRINT: 118.3 tCO₂

SCOPE 2 EMISSIONS 5.8 tCO₂

OFFICE SPACE: 5.8 tCO₂

FLIGHTS: LONG HAUL 43.53 tCO₂

FLIGHTS: MEDIUM HAUL 7.71 tCO₂

FLIGHTS: SHORT HAUL 3.86 tCO₂

LAND TRAVEL 4.64 tCO₂

BUSINESS TRAVEL 59.74 tCO₂

SCOPE 3 EMISSIONS 106.9 tCO₂

BUSINESS SERVICES 12 tCO₂

FOOD 10.2 tCO₂

HOTEL & RESTAURANT SERVICES 4.8 tCO₂

COMPUTER & RELATED SERVICES 10.8 tCO₂

OFFICE MACHINERY 5.8 tCO₂

OTHERS SERVICES 3.46 tCO₂

GOODS & SERVICES 47.1 tCO₂

+5% SAFETY MARGIN:5.6 tCO₂

SAFETY MARGIN 5.6 tCO₂

Figure 2: Carbonfuture Total Footprint

Scope 2

At the beginning of 2023, Carbonfuture resided in a co-working space in Freiburg for 83 days, utilizing approximately 22 square meters of the facility. To determine emissions for this period, we relied on average consumption figures provided by Grünhof, our co-working space provider. Grünhof furnished us with data indicating an average consumption of 55 kWh for heating and cooling, and 60 kWh for electricity per square meter.

Following our tenure in the co-working space, we moved into a new office space spanning 150 square meters. Despite its larger size, our new office exhibits notably lower gas consumption levels, approximately 70% below the average of other offices in the same building. For the remainder of the year, we utilized gas consumption data from 2022 as a reference for heating, while calculating electricity consumption based on our actual usage. This resulted in a total of 2.5t CO_2 eq for our Freiburg office. An emission factor corresponding to the German grid average was employed in our calculations.

In addition to our office in Freiburg, we also occupied a 50 square meter office space in Zurich as a subletter. Since specific consumption data for this office was unavailable at the time of reporting, we estimated its consumption based on the average energy usage for Swiss office spaces as provided by Energie Schweiz[9] and utilized the respective emission factors for the Swiss grid[10].
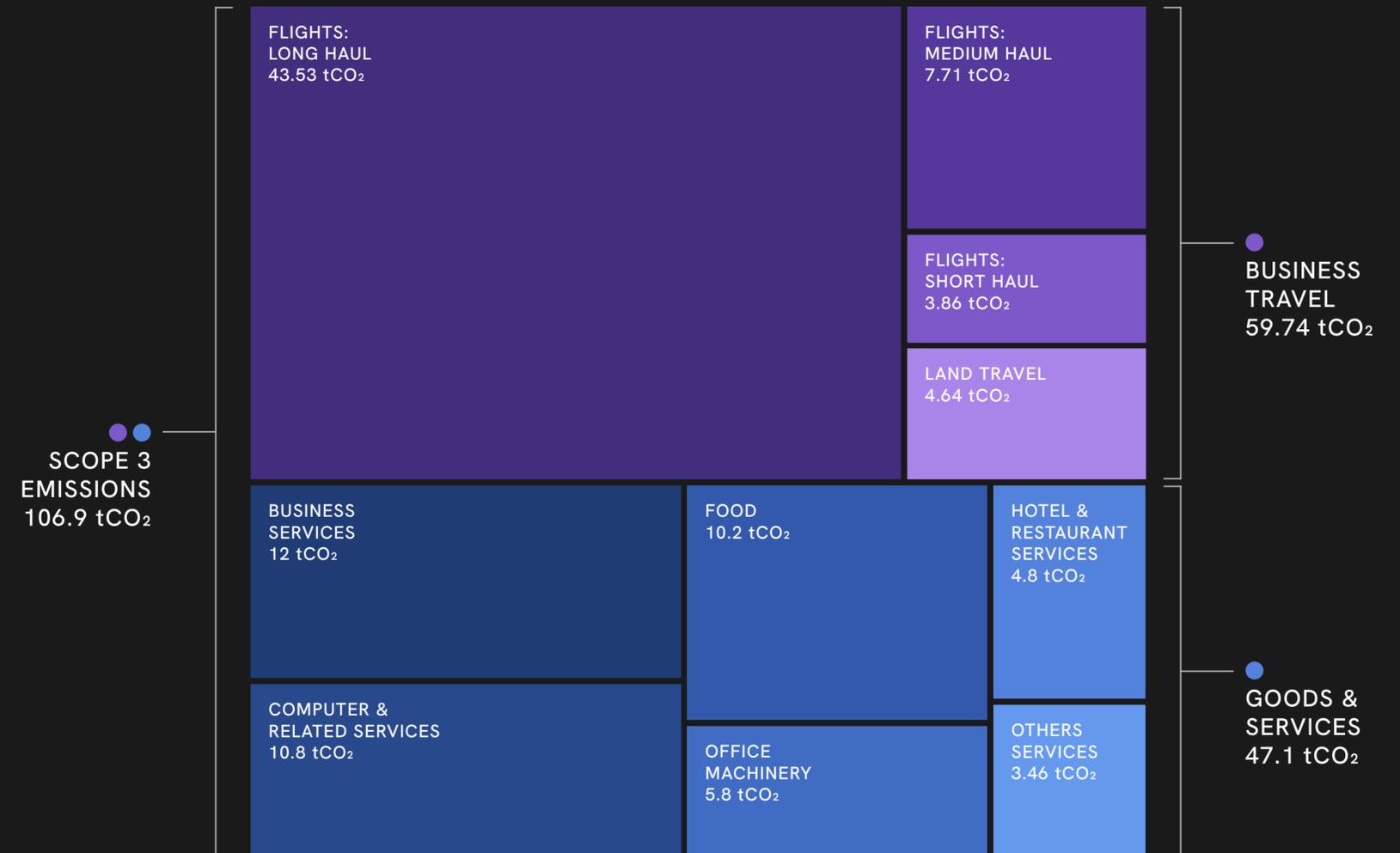
This estimation process allows us to approximate the greenhouse gas emissions associated with the electricity consumption of our Zurich office, taking into account the typical energy usage patterns of Swiss office spaces and the emissions intensity of the Swiss national grid. This estimation may not provide exact figures, but it offers an approximation of the office's climate impact, given that its size is actually smaller, and the impact of the Swiss electricity grid is significantly lower.

SCOPE 2 EMISSIONS: 5.8 tCO_2

ZURICH OFFICE
2.97 tCO_2

FREIBURG OFFICE
2.54 tCO_2

CO-WORKING SPACES: 0.29 tCO_2

Figure 3: Scope 2 Emissions

Scope 3

Our Scope 3 emissions at Carbonfuture are primarily dominated by business travel, alongside the procurement of goods and services. These two categories collectively account for the vast majority of our indirect emissions. Our business operations necessitate frequent travel to project sites, conferences and investor meetings, contributing significantly to our carbon footprint through emissions from air travel, ground transportation, and accommodation. Additionally, the procurement of goods and services involves various upstream activities across our supply chain, encompassing manufacturing, transportation, and distribution processes. While waste generation and the leasing of cars are also considered within our Scope 3 analysis, their contributions to our overall emissions remain insignificant.

SCOPE 3 EMISSIONS: 106.9 tCO$_2$

FLIGHTS: LONG HAUL 43.53 tCO$_2$

FLIGHTS: MEDIUM HAUL 7.71 tCO$_2$

FLIGHTS: SHORT HAUL 3.86 tCO$_2$

LAND TRAVEL 4.64 tCO$_2$

BUSINESS TRAVEL 59.74 tCO$_2$

BUSINESS SERVICES 12 tCO$_2$

FOOD 10.2 tCO$_2$

HOTEL & RESTAURANT SERVICES 4.8 tCO$_2$

COMPUTER & RELATED SERVICES 10.8 tCO$_2$

OFFICE MACHINERY 5.8 tCO$_2$

OTHERS SERVICES 3.46 tCO$_2$

SCOPE 3 EMISSIONS 106.9 tCO$_2$

GOODS & SERVICES 47.1 tCO$_2$

Figure 4: Scope 3 Emissions

Business Travel

In 2023, our employees collectively embarked on a total of 100 flights, covering a distance of approximately 332,486.6 kilometers. Additionally, land-based modes of transportation were utilized for 515 trips, accounting for a total distance of 96,110km. These figures underscore the significant role of transportation in our carbon footprint, with air travel resulting in 55.1 tonnes of CO_2 eq. This constitutes a substantial portion of our emissions, due to its high carbon intensity per kilometer traveled. In comparison, land-based travel accounted for only 4.644 tonnes of CO_2 eq.

Figure 4 illustrates the overall kilometer share of flights categorized as medium, short, and long haul, according to the definitions provided by DEFRA. These categories are based on flight distances and emission factors applied:

1. Short haul
→ This category encompasses flights with a distance of less than 785 kilometers. Short-haul flights often include domestic routes or travel within a regional area.

2. Medium haul
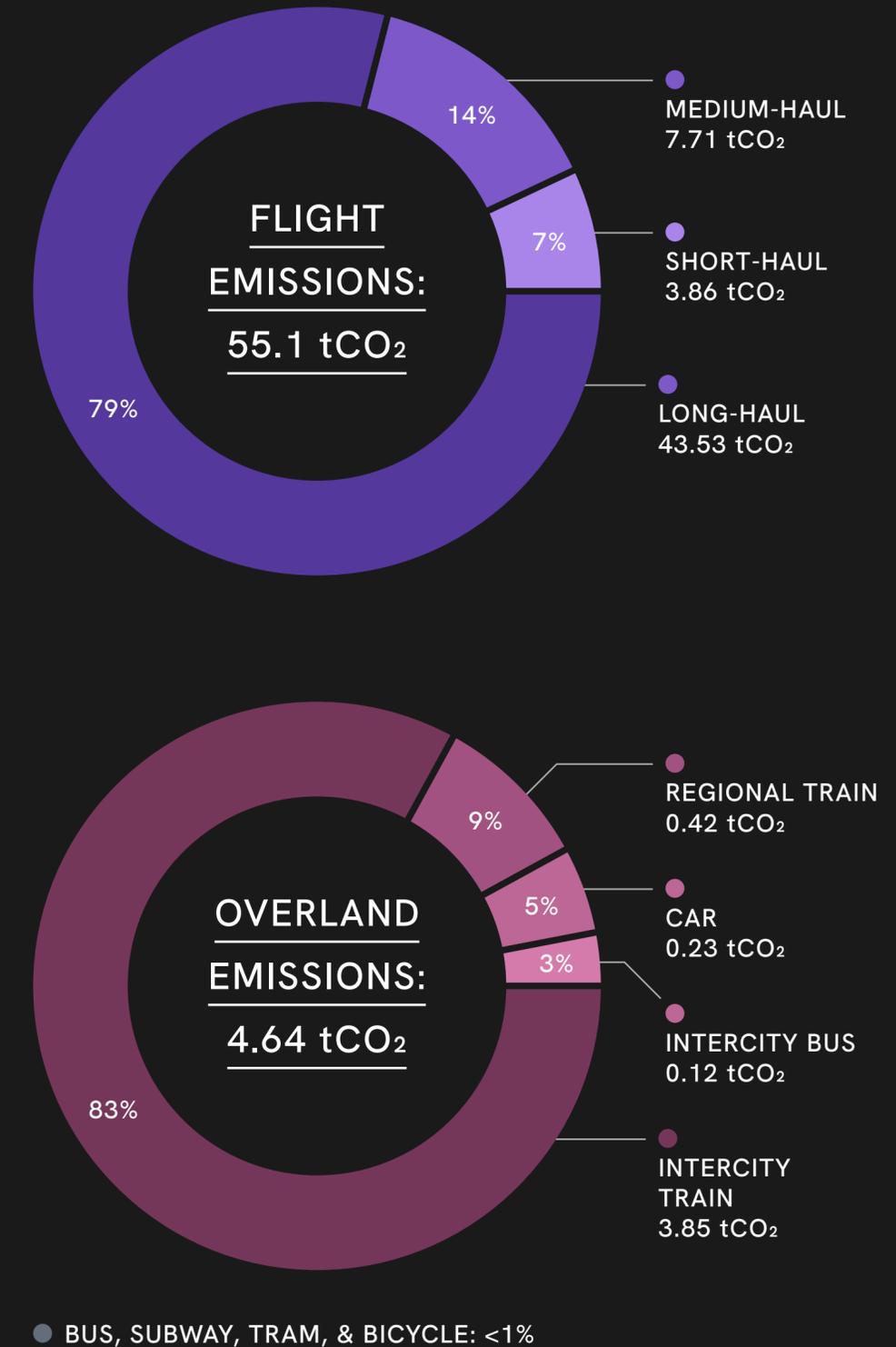→ Flights falling within the range of 785 to 3,699 kilometers are classified as medium haul. These flights typically involve travel between different regions or countries within a continent.

3. Long haul
→ Long-haul flights cover distances of 3,700 kilometers or greater. Long-haul flights commonly involve intercontinental travel between distant regions or countries.

We can see that the major share of flights and subsequent climate impact can be attributed to long haul flights, which is clearly reflected in our USA commitments and the fact that a part of our staff is based in the U.S.

91% of our land-based travel was conducted by train, a mode of transportation known for its low emissions intensity. This underscores our commitment to prioritizing sustainable travel options. Conversely, only 5% of land-based travel was done by car, reflecting a relatively minor contribution to our overall transportation emissions. Other modes of transportation, such as bus or bicycle, collectively accounted for less than 1% of total kilometers traveled.

FLIGHT EMISSIONS: 55.1 tCO₂

- 14% MEDIUM-HAUL 7.71 tCO₂
- 7% SHORT-HAUL 3.86 tCO₂
- 79% LONG-HAUL 43.53 tCO₂

OVERLAND EMISSIONS: 4.64 tCO₂

- 9% REGIONAL TRAIN 0.42 tCO₂
- 5% CAR 0.23 tCO₂
- 3% INTERCITY BUS 0.12 tCO₂
- 83% INTERCITY TRAIN 3.85 tCO₂
- ● BUS, SUBWAY, TRAM, & BICYCLE: <1%

Figure 5: Business Travel

Goods & Services

This category encompasses a diverse range of expenditures crucial to the functioning and equipping of our organization, with notable segments dedicated to running and outfitting our new office space.

A significant portion of these are allocated to various business services vital for operational efficiency. This includes expenditures related to banking services, legal consultations, and marketing agencies, among others, which are grouped under the category "Other Businesses." These services are essential for supporting our organizational infrastructure and facilitating smooth day-to-day operations.

Another substantial portion of our total expenditure is attributed to computer services, which encompass servers, our website, software and project management tools, and customer relationship management (CRM). These digital resources are indispensable for our MRV product, managing our operations, optimizing workflows, and enhancing collaboration among our team members.

Additionally, a notable chunk is allocated to food-related expenses. While categorizing these expenses, we differentiated between vegan, vegetarian, and non-vegetarian categories. It's important to note that due to the nature of certain expenses, such as business lunches, where clear categorization may be challenging, we classified them under the non-vegetarian category. As a result, this could lead to overestimating our footprint for food-related expenditures.

Office machinery is also a significant component of our total expenditure, particularly as we continue to expand our team rapidly. These are crucial for equipping our staff with the necessary hardware (i.e. laptops and monitors) and resources to support their day-to-day tasks effectively.

GOODS & SERVICES: 47.1 tCO$_2$

BUSINESS SERVICES
12 tCO$_2$

COMPUTER & RELATED SERVICES
10.8 tCO$_2$

FOOD
10.2 tCO$_2$

OFFICE MACHINERY
5.8 tCO$_2$

HOTEL & RESTAURANT SERVICES
4.8 tCO$_2$

FURNITURE
1 tCO$_2$

TEXTILES: 0.8 tCO$_2$

PRINTED MATTER: 0.5 tCO$_2$

POST & TELECOM: 0.4 tCO$_2$

METAL PRODUCTS: 0.3 tCO$_2$

REFURBISHED OFFICE MACHINERY: 0.2 tCO$_2$

RUBBER & PLASTIC PRODUCTS: 0.2 tCO$_2$

ELECTRICAL MACHINERY: 0.05 tCO$_2$

WASTEWATER: 0.01 tCO$_2$

Figure 6: Goods & Services

Safety Margin

For our compensation efforts, we added a safety margin of 5% leading to an overall result of 118.3t CO_2 eq. We did this for three reasons:

1

Emission Data Collection Uncertainty

→ The process of collecting emission data can be complex, involving multiple sources of uncertainty such as measurement inaccuracies, estimation methodologies, and variations in data precision. To mitigate these uncertainties, incorporating a safety margin into our calculations ensures that the emissions we report are more likely to be accurate and not underestimated.

2

Risk Management

→ Overestimating emissions can be less detrimental than underestimating them. Underestimating emissions could lead to a loss of trust from our stakeholders. Including a safety margin can help mitigate the risk of underreporting emissions and the associated negative consequences.

3

Accounting for Future Changes

→ Emission levels can fluctuate due to various factors such as changes in production processes, energy sources, or business activities. This safety margin allows Carbonfuture to account for potential future changes and ensure that their reported emissions remain within acceptable limits, even in fluctuating conditions.

CALCULATED EMISSIONS
112.7 tCO_2

SAFETY MARGIN:
5.6 tCO_2

+5% SAFETY MARGIN
5.6 tCO_2

Figure 7: Safety Margin

OVERALL EMISSIONS

2022
74.9 $_{tCO_2}$ → 2023
118.3 $_{tCO_2}$

TOTAL EMPLOYEES

2022
15 → 2023
28

EMISSIONS PER EMPLOYEE

2022
5.0 $_{tCO_2}$ → 2023
4.2 $_{tCO_2}$

Comparison with 2022

Our carbon footprint for 2022 encompassed a total of 74.9 t of CO_2 eq. Overall, the comparison reveals significant increases across all categories compared to 2023. These changes highlight areas where our climate impact has intensified and areas where we may need to focus efforts on reducing emissions and implementing more sustainable practices in the future.

1. Scope 2 (purchased Energy)

→ Scope two emissions have risen by more than 500% from 1.1 tonnes to 5.8. Given the increase in overall office space, this comes as no surprise.

2. Business Travel

→ Flight emissions experienced a significant increase from 2022, rising by approximately 150% compared to the previous reporting period, which can be mainly attributed to an increased number of long-haul flights. In addition, short-haul flights that had contributed less than 0.2 tonnes in the previous reporting period have grown to more than 7 tonnes CO_2 eq.

3. Goods and Services

→ While emissions for most goods remained relatively stable, with office machinery even showing a decrease compared to the previous period, it's notable that our expenditure on services, particularly in the realm of computer services, hotel and restaurant services have risen by 155% from ca. 9 tonnes to 23.

→ Food expenditures have also risen from 7 to 10 tonnes due to the increased staff size and respective number of business-related events hosted by Carbonfuture.

Given that the average number of employees (FTE) increased by almost 100% from 15 in 2022 to 28 in 2023, these increases are fitting. Overall, we successfully managed to decrease the emissions per employee from approximately 5 t to 4.2 t CO_2 eq.

Implications & Recommendations

Our per-employee emissions reduction has been the result of several initiatives aimed at reducing our environmental footprint and promoting eco-friendly practices that are already reflected in this report. These initiatives demonstrate our proactive approach to sustainability and our commitment to reducing our environmental impact across various aspects of our operations. These include, but are not limited to, the following:

Encourage Train Travel

→ We actively encourage train travel among our employees by providing bonus cards such as the Bahncard in Germany, offering incentives and discounts to promote the use of train transportation, which has lower emissions compared to other modes of travel.

Choose Sustainable Partners

→ We have partnered with WeTell, a sustainable telephone provider that offsets its entire emissions with Carbonfuture. By choosing WeTell as our provider, we not only support environmentally responsible practices, but have also reduced our overall carbon footprint by 0.23t of CO_2 eq.

Use Refurbished Hardware

→ We prioritize the use of refurbished hardware to minimize our environmental impact, extending the lifespan of devices and reducing the need for new manufacturing, thereby saving emissions associated with the production process. The emissions related to our refurbed hardware relate to approximately 0.2 tonnes of CO_2 eq, which is assumed to be 80% lower than newly-manufactured hardware.[11]

Encourage Cycling

→ In terms of commuting, we encourage sustainable practices like cycling by providing access to Jobrad, a leasing provider for high-quality bicycles.

Limit Conference Attendance

→ To minimize unnecessary travel and reduce emissions from business trips, we have implemented a maximum of two people per conference rule. This policy encourages efficiency in attendance and promotes virtual meetings as an alternative whenever feasible, thereby reducing the need for travel.

Guiding Principles for Emission Reduction in a Service-Oriented Company

As we continue to improve, the following guiding principles will be established to further reduce our footprint, both on an individual and at an organizational level. With these Guiding Principles we aim to lower our footprint to 3t per employee in 2024.

1

INDIVIDUAL

Prioritize Eco-Friendly Accommodations

→ Carbonfuture employees will choose eco-friendly hotels that are certified for their sustainability practices, such as energy-efficient operations, waste reduction, and use of renewable resources. By selecting green accommodations, we can significantly lower our carbon footprint associated with business travel and lodging. If no green accommodation is available, we choose a 3-star hotel as these are generally considered as most climate efficient.

2

INDIVIDUAL

Encourage Plant-Based Meals

→ Employees will encourage the adoption of vegetarian and vegan meal options in company events and catering services. Plant-based diets have a significantly lower carbon footprint compared to meat-based diets, requiring fewer resources and producing fewer greenhouse gas emissions. By promoting vegetarian and vegan choices, we can reduce emissions associated with food production and consumption.

3

INDIVIDUAL

Adopt Refurbished Hardware

→ Whenever possible, Carbonfuture employees will utilize refurbished hardware for office equipment and technology needs. Refurbished devices undergo thorough testing and restoration, extending their lifecycle and reducing the demand for new electronics production. By opting for refurbished hardware, we can minimize emissions associated with manufacturing and disposal of electronic products.

4

INDIVIDUAL

Utilize Low-Emission Travel

→ Carbonfuture employees will limit unnecessary air travel (e.g., short haul flights if the effort for sustainable commuting is reasonable) and utilize land-based modes of transportation whenever possible. Air travel is a significant contributor to our carbon emissions, and reducing flights can lead to substantial emission savings. By minimizing air travel, we can mitigate emissions from aviation fuel consumption and aircraft operations.

5

INDIVIDUAL

Optimize Conference Attendance

→ To reduce our carbon footprint associated with business travel, we will ensure that attendance at conferences is limited to those colleagues whose physical presence is essential. We will also strive for a maximum of two in-person attendees per event and encourage the use of virtual meetings and debriefs instead.

6

COMPANY

Transition to a Green Providers / Partners

→ We will transition to a green electricity provider that generates energy from renewable sources such as wind, solar, and hydro-electric power. Renewable energy sources produce minimal greenhouse gas emissions compared to fossil fuels. The company will choose sustain-able partners, whenever possible.

7

COMPANY

Implement Energy Efficiency Measures

→ Energy efficiency initia-tives can significantly lower our energy consumption and associated emis-sions. Carbonfuture will implement energy-saving measures in our office facilities, such as installing energy-efficient lighting, optimizing heating and cooling systems, and upgrading insulation.

8

COMPANY

Promote Sustainable Commuting

→ Carbonfuture will promote sustainable travel by providing low-emission travel support (e.g. the Bahncard in Germany) and provide clear guidance on the trade-off between time, climate impact and expen-diture (e.g. for short haul flights).

9

COMPANY

Improve Sustainability at Team Gatherings

→ As a global, remote-first company, we enjoy the limited time we get to spend together in-person. Still, we are committed to fighting climate change, and as such, Carbonfuture will limit our global team days to once per year and support local gatherings that can be conducted with a significantly lower footprint.

10

COMPANY

Ask Contractors to Offset Their CO_2 Footprint

→ Carbonfuture will request that all third-party contractors commit to offsetting their CO_2 footprint (with us). This requirement aims to extend our sustainability efforts beyond our immediate operations, and encourage our entire supply chain to take actionable steps towards environmental responsibility.

Offsetting Our Footprint

We are compensating our residual emissions with a portfolio of durable carbon removal credits only. While emissions reductions remain our primary focus, offsetting our historical and hard-to-abate emissions with durable removals allows us to have a neutral climate impact in the short term, while also supporting our supplier partners.

Lessons Learned & Data Gaps

In reflecting on the compilation of our emissions report, it's imperative to recognize the challenges posed by data gaps and limitations encountered during the process. Despite our best efforts, there were instances where certain expenditures were not clearly categorized, leading to ambiguities in our analysis. One area of uncertainty arose from the difficulty in discerning between different food choices, which necessitated us to make assumptions, notably assuming a non-vegetarian diet, to address this gap. Additionally, our assessment could have been further refined had we possessed more accurate information regarding the star ratings of the hotels we utilized.

These data gaps underscore the importance of comprehensive data collection and the necessity of refining our categorization methods to ensure greater precision in future emissions assessments. Moving forward, prioritizing enhanced data collection mechanisms and refining our categorization processes will be pivotal in improving the accuracy and reliability of our emission reports. Making estimations based on office space may lead to significant inaccuracies. As such, our findings should be interpreted within the context of these methodological considerations, recognizing the potential for variations in actual emissions levels. Nonetheless, this approach represents a practical means of assessing and reporting Scope 2 emissions, enabling us to monitor our progress in reducing greenhouse gas emissions associated with energy consumption.

Appendix

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