



B a l a n c e | 2020

LNG Publishing Company, Inc.

**FOKUS
ZUKUNFT**



This balance sheet indicates the greenhouse gas emissions in 2020 of the following company:

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1. PROJECT OBJECTIVES

Fokus Zukunft was commissioned to prepare this greenhouse gas balance. The aim is to indicate greenhouse gas emissions according to their origin in order to identify possible drivers and reduction potentials. This is the basis for an operational climate protection strategy. Based on these results, fields of action in the area of climate protection and sustainability can be defined and implemented.

For this purpose, the survey period as well as the organizational and operational system boundaries were determined with the client. **The present greenhouse gas balance shows those emissions that arise in direct connection with the company's own value creation.** A detailed list of the emission sources taken into account can be found under 3. system boundaries and data quality / operational boundary.

The present emission report is in accordance with the **guidelines of the Greenhouse Gas Protocol** Corporate Standard (GHG Protocol).

The client provided Fokus Zukunft with the necessary company data.

A check of the data was not carried out by Fokus Zukunft and was not part of the service.

2. BASICS OF GREENHOUSE GAS BALANCING

The **Greenhouse Gas Protocol (GHG)** is the most widely used and recognized international standard for accounting for greenhouse gas emissions of companies. It was developed by the World Resources Institute (WRI) and the World Business Council on Sustainable Development (WBCSD). The GHG defines the **basic principles of relevance, completeness, consistency, transparency and accuracy** and is based on the principles of financial accounting.

The Greenhouse Gas Protocol also defines rules for the organizational delimitation of a greenhouse gas balance and for operational delimitation. The **division of emissions into three so-called "scopes"** is particularly relevant here: While **Scope 1** includes all emissions generated directly by combustion of the company's activity, **Scope 2** emissions are associated with purchased energy (e.g. electricity, district heating). **Scope 3** in turn encompasses emissions from services and third-party services.

The **Kyoto Protocol lists seven greenhouse gases**: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) as well as fluorinated greenhouse gases (F-gases): hydrogen-containing fluorocarbons (HFCs), perfluorinated hydrocarbons (PFCs), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). In order to reduce the complexity, the effects of the **different gases are converted into CO₂ equivalents (CO₂e) depending on their damaging climate impact.**

The result of the emissions balance is therefore not to be understood as a direct carbon dioxide emission, but as a conversion into comparative values based on the most important anthropogenic greenhouse gas, carbon dioxide. The emission factors are taken from the data basis for emission inventories of DEFRA (Department for Environment, Food and Rural Affairs), the GEMIS database (Global Emissions Model of Integrated Systems, published by the International Institute for Sustainability Analysis and Strategies), the Ecoinvent Database, the database of the Federal Environment Agency (UBA) and the IPCC (Intergovernmental Panel on Climate Change). The emission factors used are listed in the appendix.

3. SYSTEM BOUNDARIES AND DATA QUALITY

The system boundaries determine the temporal, organizational and operational framework for the preparation of the greenhouse gas balance. They are individually coordinated and defined with the customer.

>> Time frame:

Reference period: from: January 2020
to: December 2020

>> Organizational boundaries:

Corporations / locations included: 1
Number of employees in the reference year: 20

>> Operational boundaries:

The emissions categories included are assigned to Scopes 1 to 3 on the basis of the Greenhouse Gas Protocol.

Scope	Emissions Category	Data Quality
Scope 1	Heat consumption	Estimated values
Scope 1	Fuel consumption	Real values
Scope 1	Gas leakages	Real values
Scope 2	Electricity consumption	Real values
Scope 2	District heating / cooling / Steam	Real values
Scope 3	Upstream energy-related emissions	Calculated based on consumption data
Scope 3	Business travel and hotel accommodation	Real values
Scope 3	Employees commuting	Estimated values
Scope 3	Water / Wastewater	Estimated values
Scope 3	Waste accumulation in operations	Estimated values
Scope 3	Paper consumption	Estimated values



4. PRESENTATION OF TOTAL RESULTS

Results		
Overall, the company emitted in the reporting year	106	tons CO ₂ e
Emissions per employee	5,30	tons CO ₂ e
Partial result: Scope 1 and 2	74,23	tons CO ₂ e
Partial Result: Scope 3	31,52	tons CO ₂ e

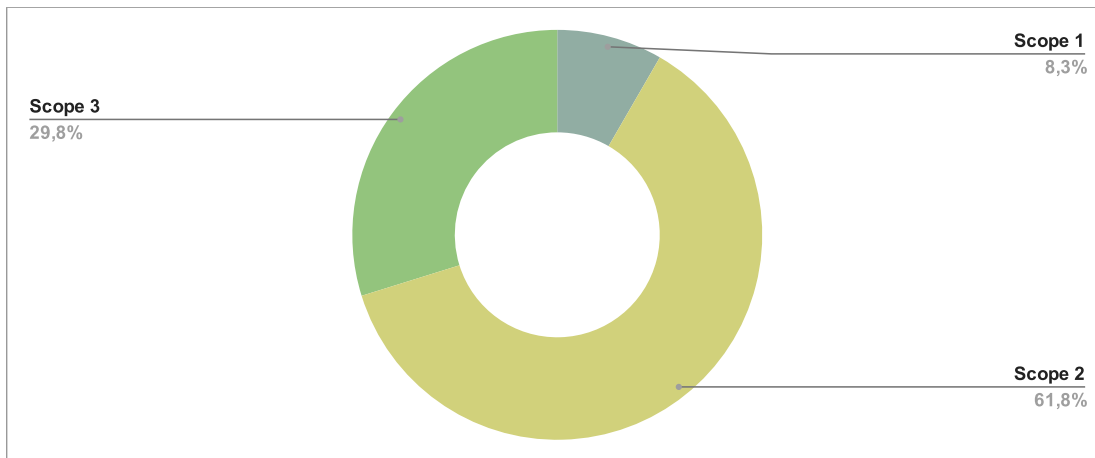
Compared to other companies of the size and branch, the emission value per employee is in the middle range.

Overview table of results

Classification	Emissions by category	[t CO ₂ e]	%-Share
Scope 1	Heat consumption	8,83	8%
	Fuel consumption	0,00	0%
	Gas leakages	0,00	0%
	Sum	8,83	8%
Scope 2	Electricity consumption	65,41	62%
	District heating / cooling / Steam	0,00	0%
	Sum	65,41	62%
Scope 3	Upstream energy-related emissions	5,06	5%
	Business travel and hotel accommodation	5,39	5%
	Employees commuting	20,00	19%
	Wastewater / Waste accumulation in operations	0,69	1%
	Paper consumption	0,39	0%
	Hardware	0,00	0%
	Production consumables	0,00	0%
	Exchange logistics by third party	0,00	0%
Sum	31,52	30%	
Total		105,76	100%

The overview of the results of the carbon footprint reveal that in particular the emission categories electricity consumption and employees commuting have a large share in the overall balance.

Distribution of emissions on the overall balance



Comparison of the footprint

<p>12</p>  <p>people in cause roughly the same amount of emissions each year as your company.</p>	<p>41</p>  <p>trees bind the calculated CO₂ emissions of your company over their entire life cycle.</p>
<p>503.605</p>  <p>kilometres can be driven by car to generate as much CO₂ as your company.</p>	<p>15</p>  <p>times one person flies around the world and emits as much CO₂ as your company causes.</p>

5. REDUCTION TARGETS ACCORDING TO THE SCIENCE BASED TARGETS

What are the Science Based Targets?

The Science Based Targets (SBTs) are **reduction targets for relevant greenhouse gas emissions** that are calculated on a scientific basis. They were created in mid-2015 by the Science Based Targets Initiative as a result of a merger of the organizations CDP (Carbon Disclosure Project), WRI (World Resources Institute), WWF (World Wide Fund for Nature) and UNGC (United Nations Global Compact).

The Science Based Targets are **in line with the 2°C target of the Paris climate agreement** of 2015. Accordingly, the 195 signatory states have agreed to reduce global warming to below 2°C by 2050 (**if possible 1.5°C**) compared to pre-industrial times.

Since governments have limited influence, the Science Based Targets initiative can be a trend-setting element for achieving the climate goal in the future. Since companies in particular emit large amounts of greenhouse gases, these can make a decisive contribution to (global) climate protection with the help of an ambitious and structured objective. The overall goal of the Science Based Target initiative is to achieve a low-emission economy in the long term despite the steadily increasing population growth.

Based on the available greenhouse gas balance, the following absolute reduction scenarios can be derived for a period of 5 years.

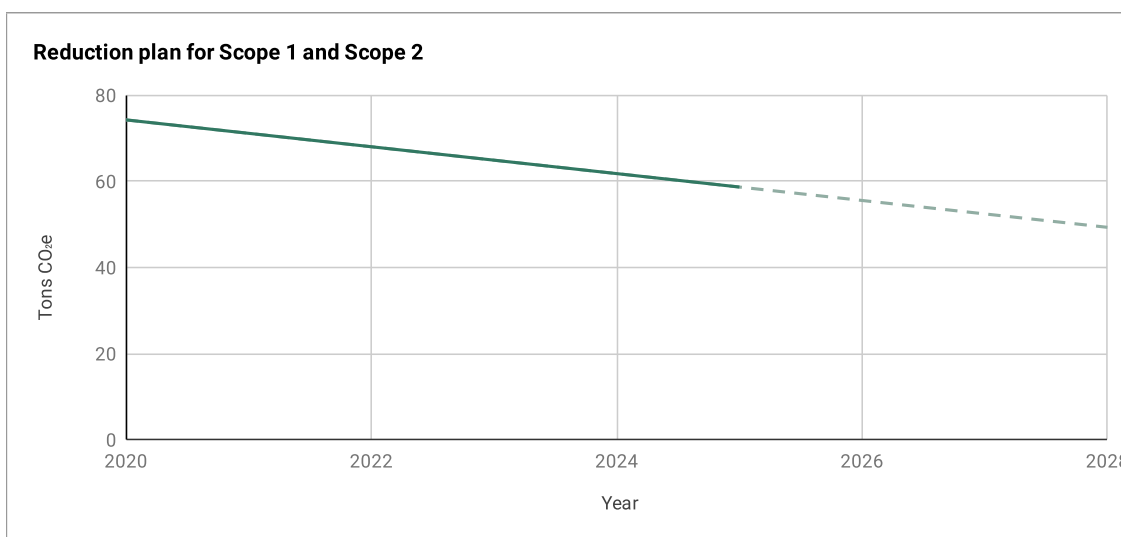


Reduction targets

Target below 1.5°C

<i>Example for 5-year time horizon</i>	Base year 2020	Target year 2025	% Reduction
Scope 1 Emissions (Tons CO ₂ e)	74	59	21 %
Scope 2 Emissions (Tons CO ₂ e)			

According to the Science Based Target Initiative, a period of 5 to a maximum of 15 years must be selected; in the present case, an example period of 5 years was chosen. A linear reduction for the 1.5 degree target for Scope 1 and 2 emissions of 4.2 % per year results in a total reduction of 21 % for the reference period of 5 years. A reduction target for Scope 3 emissions requires individual consideration. We will be happy to support you in your individual climate strategy with emission reduction targets and suitable measures.



6. GENERAL SAVING POTENTIALS AND RECOMMENDATIONS

In order to achieve the potential reduction targets, effective savings measures should be derived. We recommend to elaborate a reduction plan with concrete saving measures that can measurably reduce the impact on the climate and establish a long-term corporate climate strategy. In addition to implementing saving measures, the emission balance can be offset with high-quality climate protection certificates.

Providers of climate-neutral products and services can be found in the appendix.

The following table discloses the essential reduction potentials and savings measures through which the operational greenhouse gas emissions can be reduced. These are general suggestions that must be examined individually by each company. We would be happy to discuss your savings measures in more detail with you in the course of a climate strategy following a further offer.



Emission category	Saving measures
Scope 1	
Stationary systems	<p>Short-term measures:</p> <ul style="list-style-type: none"> - Changeover to climate-neutral energy sources (e.g. climate-neutral natural gas) - Time switches for heating in the office and commercial premises <p>Medium to long-term measures:</p> <ul style="list-style-type: none"> - Acquisition of a new condensing boiler - Software for controlling energy management in buildings - Efficiency consulting possibly in connection with a certification of energy management according to ISO 50001 and DIN 16247 - Employee awareness for the use of the heating - Heat generation from renewable and biogenic energy sources
Fuel consumption	<p>Short-term measures:</p> <ul style="list-style-type: none"> - Fuel saving training for employees can reduce fuel consumption up to 10% <p>Medium to long-term measures:</p> <ul style="list-style-type: none"> - Vehicle directive: Specification of a certain limit (g CO_{2e} / km) when purchasing company cars - Successive conversion of the fleet to lower-consumption vehicles or vehicles with alternative powertrains (e.g. electric cars) - Conversion of in-house road transport to e-trucks and e-forklifts
Gas leakage (refrigerants)	<p>Short to medium term measures:</p> <ul style="list-style-type: none"> - Check for gas leakages in the pipes: prevention of gas emissions and increased efficiency - If possible, switch to more climate-friendly refrigerant
Scope 2	
Purchased electricity	<p>Short to medium term measures:</p> <ul style="list-style-type: none"> - Total conversion to electricity from 100% renewable energies (recommendations in further links) - Automatic light shutdown after business hours or power strips with on / off function - Employee awareness regarding the consequent switching off of electrical devices <p>Long-term measures:</p> <ul style="list-style-type: none"> - Efficiency consulting possibly in connection with a certification of energy management according to ISO 50001 and DIN 16247 - Increase share of self-generated electricity
Scope 3	
Business trips	<p>Short to medium term measures:</p> <ul style="list-style-type: none"> - Replacement of short distance flights by rail - Increased use of video conferencing - Offsetting emissions from unavoidable flights: option for unavoidable business trips - Travel guidelines / recommendation e.g. short distance flights below 800 km should be avoided <p>Medium to long-term measures:</p> <ul style="list-style-type: none"> - Incentives to create carpools can be, for example, the creation of carpool parking spaces on attractive parking spaces on the company's premises - Job tickets for the use of public transport - Offer of e-bikes and bicycles for commuting - Introduction of the job bike model
Commuting to work	
Sewage / waste	<p>Short to medium term measures:</p> <ul style="list-style-type: none"> - Separation system for waste on all floors - Reduction of waste by integrating recycling processes

Regularly repeating the balancing process is an effective way to verify a constant reduction of greenhouse gas emissions. This makes it possible to monitor the efficiency of savings measures and the degree of achievement of corporate climate targets.



7. DETAILED RESULTS ACCORDING TO SCOPES

7.1 Scope 1 - Direct emissions of the company

Total CO₂e(t): 8,8

Stationary systems

Source	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Natural gas	43.582 kWh	0,20	8,83
Sum CO₂e(t): Stationary systems			8,83

Fuel consumption in the company

Note:

The company does not have any company cars in use.

Sum CO₂e(t): Fuel consumption in the company 0,00

Gas leakage (refrigerants)

In the reference year, no refrigerants had to be refilled

7.2 Scope 2 - Indirect emissions from purchased energy

Total CO₂e(t): 65,4

Purchased electricity

Source	Consumption Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Conventional electricity	194.118 kWh	0,337	65,41
Sum CO₂e(t): Purchased electricity			65,41

Note:

For the calculation of indirect energy emissions the Location Based Approach was used.

The location-based approach takes into account the most recent country-specific emission factor for calculating the emissions generated by purchased energy, depending on the type of energy. The market-based approach takes into account the energy supplier-specific emission factor and is to be understood independently of the development of national emission factors.

**District heating / cooling / Steam**

No district heating was purchased in the reference year.

No district cooling was purchased in the reference year.

No steam was obtained in the reference year.

7.3 Scope 3 - Other indirect emissions from upstream processes

Total CO₂e(t):	31,5
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Upstream energy-related emissions

Source	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Natural gas	4.358 cubic metres	0,269	1,17
Conventional electricity	194.118 kWh	0,020	3,88
Sum CO₂e(t): Upstream energy-related emissions			5,06

Note:

These emissions relate to the upstream chain of energy supply that arises from the production and transportation of the fuels. The balance sheet item is reduced in parallel with saving measures in Scope 1 and Scope 2.

Business travel and hotel accommodation

Transportation	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Air travel, long distance	28.588 kilometres	0,182	5,20
Taxi rides / rental vehicles / private cars	617 kilometres	0,145	0,09
Sum CO₂e(t): Business travel			5,29

Hotel accommodation	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
3 stars hotel	6 accommodations	16,9	0,10
Sum CO₂e(t): Hotel accommodation			0,10

Sum CO₂e(t): Business travel and hotel accommodation	5,39
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Note:

The calculated emissions from air travel are multiplied by the Radiative Forcing Index (RFI) of 1.9 to reflect the increased impact of air traffic emissions in the atmosphere (cf. DEFRA, 2012 and Ministry of Environment New Zealand, 2019).

**Employees commuting to and from work****Note:**

Due to little information on the employee commuting we estimate 1 ton of emissions caused by each employee in the reference period. This value is based on the Fokus Zukunft database.

Sum CO₂e(t): Employees commuting	20,00
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Waste and wastewater

Source	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Fresh water	110 cubic metre	0,344	0,04
Waste water	110 cubic metre	0,490	0,05
Sum CO₂e(t): Wastewater			0,09

Source (waste category)	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Paper / cardboard / cardboard packaging	14.404 litres	0,01	0,11
Light packaging / plastic	5.720 litres	0,03	0,19
Waste glass	2.808 litres	0,005	0,01
Residual waste	5.720 litres	0,04	0,21
Biological waste / green waste	1.440 litres	0,05	0,08
Sum CO₂e(t): Waste			0,60

Sum CO₂e(t): Waste and wastewater	0,69
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Office consumables

Office consumables (paper)	Amount Unit	Emission factor (kg CO ₂ e/ Unit)	CO ₂ e(t)
Paper, fresh fibre	263 kilogram	0,919	0,24
<i>Emissions from printing (cartridge and ink) on the office paper:</i>			<i>0,15</i>
Sum CO₂e(t): Office consumables (paper)			0,39

Note:

Toner and cartridge consumption is estimated on the basis of the paper consumed and then calculated using corresponding emission factors. An average life expectancy of 5,000 sheets was assumed for the cartridge with an ink consumption of 260 grams. Usual paper consumption is calculated based on black/white toners, other print jobs are calculated with color toners.



APPENDIX

CO₂e Emission factors

Below it is indicated an overview of the current emission factors, which have been taken into account for this emission balance..

Designation	Factor	Unit CO ₂ e	Source
Energy (combustion in scope 1)			
Heating oil	2,671	kg/l	GEMIS 5.0
Heating oil	0,269	kg/kWh	GEMIS 5.0
Heating oil	3,180	kg/kg	GEMIS 5.0
Natural gas	2,028	kg/m ³	GEMIS 5.0
Natural gas	0,203	kg/kWh	GEMIS 5.0
Biogas	0,004	kg/kWh	GEMIS 5.0
Biogas	0,041	kg/m ³	GEMIS 5.0/ own calculation
Liquid gas	1,571	kg/l	GEMIS 5.0
Liquid gas	0,239	kg/kWh	GEMIS 5.0
Liquid gas	3,142	kg/kg	GEMIS 5.0/ own calculation
Wood pellets	0,000	kg/kg	GEMIS 5.0
Wood pellets	0,000	kg/t	GEMIS 5.0
Wood pellets	0,000	kg/srm	GEMIS 5.0
Wood chips	0,000	kg/kg	GEMIS 5.0
Wood chips	0,000	kg/t	GEMIS 5.0
Wood chips	0,000	kg/srm	GEMIS 5.0
Split logs	0,008	kg/kWh	GEMIS 5.0
Split logs	18,099	kg/kbm	GEMIS 5.0/ own calculation
Diesel	2,670	kg/l	DIN EN 16258:2013
Bio diesel	0	kg/l	DIN EN 16258:2013
Petrol	2,420	kg/l	DIN EN 16258:2013
CNG	2,680	kg/kg	DIN EN 16258:2013
LPG	1,700	kg/l	DIN EN 16258:2013
Energy (pre-chain in scope 3)			
Heating oil-WTT (l)	0,457	kg/l	GEMIS 5.0
Heating oil-WTT (kWh)	0,046	kg/ kWh	GEMIS 5.0
Heating oil-WTT (kg)	0,544	kg/kg	GEMIS 5.0
Natural gas-WTT	0,269	kg/m ³	GEMIS 5.0
Natural gas-WTT	0,027	kg/kWh	GEMIS 5.0
Liquid gas-WTT	0,237	kg/l	GEMIS 5.0
Liquid gas-WTT	0,036	kg/kWh	GEMIS 5.0
Liquid gas-WTT	0,474	kg/kg	GEMIS 5.0/ own calculation
Wood pellets-WTT	0,014	kg/kWh	GEMIS 5.0
Wood chips-WTT	0,005	kg/kWh	GEMIS 5.0
Split logs-WTT	0,005	kg/kWh	GEMIS 5.0
Split logs-WTT	11,455	kg/kbm	GEMIS 5.0/ own calculation
Diesel	0,570	kg/l	DIN EN 16258:2013
Bio diesel	1,920	kg/l	DIN EN 16258:2013
Petrol	0,460	kg/l	DIN EN 16258:2013
CNG	0,390	kg/kg	DIN EN 16258:2013
LPG	0,200	kg/l	DIN EN 16258:2013
Energy (provided scope 2)			
Domestic electricity consumption in Germany -	0,421	kg/kWh	UBA 2019
Electricity mix Austria - direct	0,205	kg/kWh	GEMIS 5.0



District heating direct	0,271 kg/kWh	UBA 2017/2018
District heating direct (wood)	0,065 kg/kWh	GEMIS 5.0
Conventional electricity - indirect	0,079 kg/kWh	GEMIS 4.9
Green electricity - indirect	0,045 kg/kWh	GEMIS 4.9
Electricity mix green electricity - indirect	0,020 kg/kWh	UBA Österreich 2019
District heating - indirect	0,044 kg/kWh	UBA 2017/2018
Steam	0,173 kg/kWh	Defra 2020
Electricity (electric mobility)	0,044 kg/kWh	GEMIS 5.0
Transportation and consumer goods (Scope 3)		
Air travel, long distance	0,182 kg/pkm	Defra 2020
Air travel, medium-haul	0,191 kg/pkm	Defra 2020
Air travel, short distance	0,244 kg/pkm	Defra 2020
Train rides	0,013 kg/pkm	DB 2017
Bus rides	0,120 kg/pkm	Defra 2020
Taxi rides	0,145 kg/pkm	Defra 2020
Car, subcompact	0,137 kg/km	Defra 2020
Car, medium-sized vehicle	0,166 kg/km	Defra 2020
Car, luxury class	0,204 kg/km	Defra 2020
Motorcycle	0,113 kg/km	Defra 2020
Electric vehicle	0,007 kg/km	GEMIS 5.0/ own calculation
Hybrid vehicle	0,093 kg/km	GEMIS 5.0
3 stars hotel	16,9 kg/overnight stay	DEHOGA 2016
4 stars hotel	21,0 kg/overnight stay	DEHOGA 2016
5 stars hotel	47,6 kg/overnight stay	DEHOGA 2016
Water	0,344 kg/m3	Ecoinvent 3.6
Waste water	0,490 kg/m3	Ecoinvent 3.6
Paper - fresh fibre	0,919 kg/kg	Defra 2020
Paper - recycling	0,739 kg/kg	Defra 2020
Sanitary paper	1,327 kg/kg	Ecoinvent 3.6
Wood waste	0,015 kg/kg	Ecoinvent 3.7
Paper waste / cardboard	0,079 kg/kg	Ecoinvent 3.7
Light packaging / plastic	1,312 kg/kg	Ecoinvent 3.7
Residual waste	0,330 kg/kg	Ecoinvent 3.7
Glass	0,016 kg/kg	Ecoinvent 3.7
Biowaste / green waste	0,268 kg/kg	Ecoinvent 3.7
Construction waste	0,005 kg/kg	Ecoinvent 3.7
Electronic waste	1,529 kg/kg	Ecoinvent 3.7
Trash metal	0,034 kg/kg	Ecoinvent 3.7
Hazardous waste	2,419 kg/kg	Ecoinvent 3.7
Printer cartridge / cartridge	12,240 kg/unit	Ecoinvent 3.6
Printer ink (black / white)	6,780 kg/kg	Ecoinvent 3.6
Printer ink (color)	7,060 kg/kg	Ecoinvent 3.6
Laptop(s)	174,11 kg/piece	Ecoinvent 3.7
Smartphone(s)	57,00 kg/piece	Malmodin et al. 2016
Tablet(s)	86,00 kg/piece	Apple 2020
Screen(s)	375,15 kg/piece	Ecoinvent 3.7
Printer / Scanner	60,92 kg/piece	Ecoinvent 3.7
Computer(s)	237,02 kg/piece	Ecoinvent 3.7
Headset(s)	41,00 kg/piece	Defra 2014 Input/Output Model
Lubricating greases/oils	1,220 kg/kg	Ecoinvent 3.7
Cleaning agents	3,301 kg/kg	Ecoinvent 3.7
Transport truck	0,100 kg/TKm	GLEC 2.0
Transport train	0,028 kg/TKm	GLEC 2.0

Transport ship	0,007 kg/TKm	GLEC 2.0
Transport plane	0,710 kg/TKm	GLEC 2.0
Transport transporter	0,680 kg/TKm	GLEC 2.0