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CO2 footprint 2019

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Name	*Position*	*Initials*	*Date*
J.M. Cornet	**SHE&Q Manager**		**10/04/2020**

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1 Directors' statement

A safe, healthy, and sustainable world of steel

Hollandia is a socially conscious company that wants to play an active role in building a better world. This is what drives Hollandia to actively contribute to a sustainable future. Short-term and long-term interests are carefully weighed, and business decisions are made based on economic, environmental, and societal considerations. Hollandia aims to strike the right balance between people, planet, and profit for the continuity of our company and the wellbeing of our people and future generations.

We put people first in everything we do. We need to be alert to the depletion of resources and the impact that has on climate change. After all, we only have one Earth to work with. Care for our living environment is increasingly shifting from cost efficiency to social responsibility. As mindset and behaviour are becoming increasingly important, it is our duty, both towards society and from a business and environmental perspective, to target our policy accordingly.

"A sustainable society is impossible without sustainable construction"

The Carbon Footprint Analysis (CFA) ties in perfectly with the subject of sustainability. Sustainability is more than just words; it is also actions. And so, we must make sure that our work helps create a responsible living environment. After all, a sustainable society is impossible without sustainable construction. We keep developing as a company, further reducing our carbon emissions and developing services and concepts for our partners and customers.

"Sustainability is more than just words, it' is also actions"

The CFA is also part of our certification for the Dutch CO_2 performance ladder. Our CO_2 performance ladder certification shows our local area and stakeholders that we are serious about reducing our carbon footprint and that our efforts in this area are audited by an independent and accredited certifying body. It also helps in terms of sending a message to our staff. We do this by being transparent about our energy consumption, emissions from our vehicle fleet, and our waste streams. This stimulates us all to take extra steps to minimise our consumption and travel fewer kilometres by taking a different approach to transport and off-site meetings and visits, because every step starts with yourself.

Hollandia is an industry-leading company when it comes to designing, manufacturing, assembling, installing, maintaining, and repairing mechanical and steel engineering structures and systems in the Offshore, Infrastructure, Industry, and Utilities domains.

Hollandia deploys its technical know-how to make a real difference in reducing carbon emissions. We are relentless in looking for ways and applications to excel as a reliable partner in improving the performance of our and our customers' systems.

Steven Lubbers
Chairman of the board
Hollandia B.V.

2 Organisation

Reporting organisation

Hollandia is one of the Netherlands' largest steel and mechanical engineering companies. Ever since the company was founded in 1928, it has been pioneering important technological developments. Through the years, Hollandia has built major expertise in the area of steel and mechanical engineering applications in the market segments of Infrastructure, Offshore, Utilities, and Industry.

"Hollandia has been pioneering important steel and mechanical engineering developments since 1928"

Hollandia has built a profile as a reliable, solid engineering service provider that offers high-quality solutions to ambitious customers in the private sector and the non-profit sector. Hollandia takes on both simple and challenging, groundbreaking projects. Through its services, Hollandia contributes to the effective, sustainable, and cost-efficient functioning of organisations, buildings, ships, and infrastructural and industrial systems. From design to operation and maintenance.

2.1 Person responsible

The person responsible for the reporting organisation under the articles of association is the Chairman of the Board Mr S. Lubbers.

2.2 Organisational boundaries

In the context of Hollandia's carbon footprint, the organisational boundaries of Hollandia and its participating interests have been determined based on the principle of operational control of the company for which certification is sought. This is what the GHG protocol refers to as 'operational boundary.' In practice, it means that Hollandia takes responsibility for carbon emissions from operations that come under its control, i.e. where operations are clearly under the management of the Hollandia organisation.

The organisational boundaries for this assessment encompass Hollandia and the following subsidiaries:

- Hollandia UK;

The relevant operations are run from the following sites:

Krimpen aan den IJssel	Infrastructure
	Services
	Systems
Heijningen	Structures
	Industrials

The following companies are not included within the boundaries,

- Hollandia UK, London, United Kingdom
- Construction consortiums

No projects were acquired through an awarding advantage.

A gift to the city of Copenhagen

The new bicycle and pedestrian bridge was built as part of a large area development project in the centre of Copenhagen. The Lille Langebro bridge is a gift to the city of Copenhagen. The new bicycle and pedestrian bridge runs parallel to the Langebro bridge for other traffic, which is an important and busy artery in Copenhagen. This explains the name 'Lille Langebro' for the new bicycle bridge, which translates as 'small long bridge.'

Lille Langebro creates a comfortable and quiet connection for pedestrians and cyclists, and it brings the city and the port area closer together. With an estimated 10,500 users every day, the new Lille Langebro bridge will ease traffic on the Langebro bridge, which is currently used by over 40,000 cyclists every day.

3 Carbon Footprint Analysis

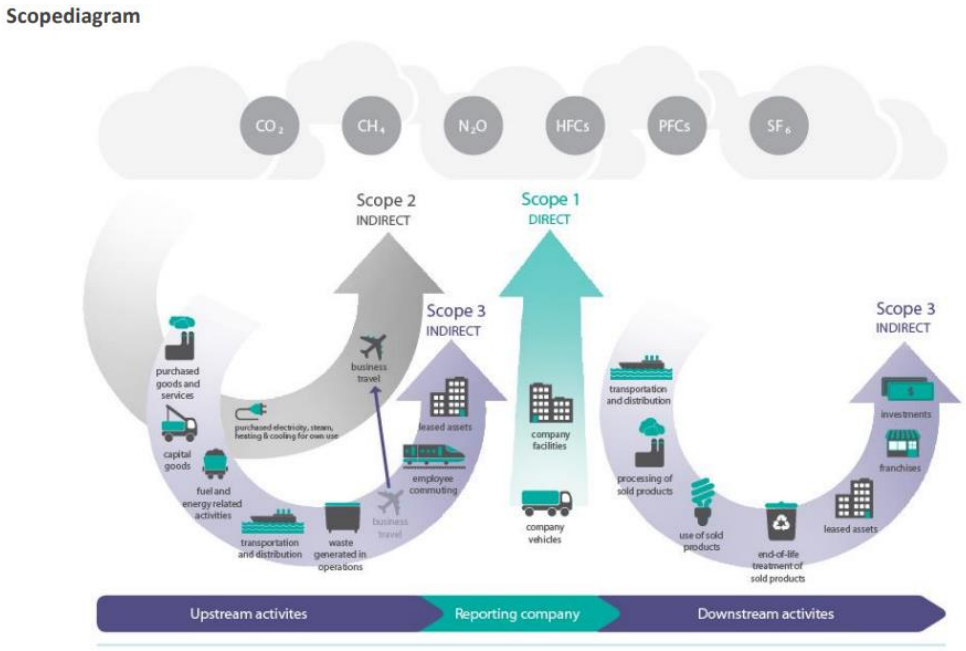
3.1 Basis of the analysis

Based on the operational boundaries established, we have identified carbon emissions and absorptions that are due to the organisation's operations. In identifying emissions, we go by the Greenhouse Gas (GHG) Protocol to differentiate between three emission sources, which are called 'scopes', in two categories: direct emissions and indirect emissions.

- Scope 1
  covers direct emissions from sources operated or controlled by the organisation. Examples include the burning of fossil fuels in stationary machines, business travel using vehicles owned or leased by the reporting organisation, and emissions from cooling equipment and air conditioning systems;
- Scope 2
  covers indirect emissions from the generation of electricity, steam, or heat purchased by the organisation;
- Scope 3
  covers other indirect emissions from sources such as commuting, production of materials procured, and outsourced activities such as freight transport.

This Carbon Footprint Analysis encompasses Hollandia's carbon emissions (one of the six greenhouse gases) in scopes 1, 2 and 3 in the 2019 financial year.

The carbon emissions have been analysed based on the Dutch CO_2 performance ladder, as shown below in Figure 5.1



Figuur 5.1. CO_2-Prestatieladder scopediagram. Gebaseerd op scopediagram van GHG Protocol Scope 3 Standard. Let op! De CO_2-Prestatieladder rekent 'Business Travel'/'Personenvervoer onder werktijd' tot scope 2

[10] SKAO rekent Business Travel tot scope 2
[11] Hieronder vallen ook ZZP'ers die in het kader van een opdracht kosten declareren voor transport

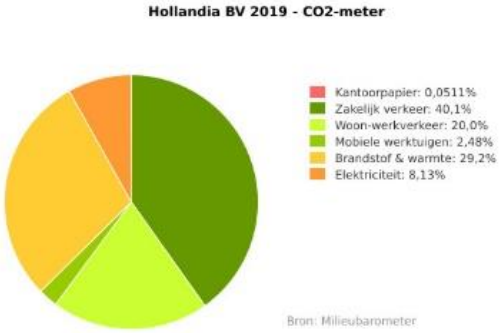
4 Measurement results and explanatory notes

4.1 Reporting period

The reporting period is the 2019 financial year. Hollandia's financial year runs from 1 January to 31 December.

Carbon offset

Hollandia does not engage in carbon offsetting. The available funds are used to upgrade proprietary machinery so as to improve business assets' carbon performance.



Explanation of carbon sources or sinks left out

All carbon sources and sinks identified are accounted for in the report. Given that Hollandia does not engage in carbon binding, there are no carbon sinks.

Carbon emissions from biomass burning

Hollandia has not burnt any biomass.

4.2 Scope 1: Direct carbon emissions

Direct carbon emissions in scope 1 have been measured and came in at 2,511 tonnes

CO_2 scope 1	Thema		CO_2-parameter	CO_2-equivalent
Aardgas voor verwarming	Brandstof & warmte	583.191 m3	1,89 kg CO2 / m3	1.102 ton CO2
Propaan	Brandstof & warmte	2.380 liter	1,73 kg CO2 / liter	4,11 ton CO2
Koudemiddel - R410a	Emissies	0 kg	2.088 kg CO2 / kg	0 ton CO2
Diesel	Mobiele werktuigen	6.239 liter	3,23 kg CO2 / liter	20,2 ton CO2
LPG	Mobiele werktuigen	22.430 kg	3,29 kg CO2 / kg	73,7 ton CO2
Personenwagen (in liters) benzine	Zakelijk verkeer	265.318 liter	2,74 kg CO2 / liter	727 ton CO2
Personenwagen (in liters) diesel	Zakelijk verkeer	180.776 liter	3,23 kg CO2 / liter	584 ton CO2
Weldap 20_80% AR/20% CO_2	Overige CO2 bronnen	4.310 KG	0 kg CO2 / KG	0 ton CO2
Weldap 8_92% AR/8% CO_2	Overige CO2 bronnen	0 KG	0 kg CO2 / KG	0 ton CO2
Weldap 2_98% AR/2% CO_2	Overige CO2 bronnen	0 KG	0 kg CO2 / KG	0 ton CO2
			Subtotaal	*2.511 ton CO2*

Figure 2: Scope 1, 2019

Fuel consumption by our own vehicle fleet

Fuel consumption by the use of our fleet of vehicles accounts for 1,211 tonnes of CO_2 emitted. In 2019, Hollandia's vehicle fleet consisted of an average of 140 passenger vehicles, 18 of which were vans/buses. Of the passenger vehicles, 9 were hybrids and 1 was an electric vehicle. There were 0 electric vehicles among the vans.

Stationary combustion units

A total of 1,102 tonnes of CO_2 is produced by the use of stationary combustion units. This is almost completely related to the heating of Hollandia's business premises.

Refrigerant gas leaks

In 2019, 0 (zero) kilogrammes of refrigerant was added to air conditioning units.

4.3 Scope 2: Indirect carbon emissions

Indirect carbon emissions in scope 2 have been measured and came in at 516 tonnes

CO_2 scope 2				
Ingekochte elektriciteit	Elektriciteit	4.012.137 kWh	0,649 kg CO2 / kWh	2.604 ton CO2
Waarvan groene stroom uit biomassa	Elektriciteit	4.000.000 kWh	-0,574 kg CO2 / kWh	-2.296 ton CO2
Waarvan groene stroom uit windkracht	Elektriciteit	0 kWh	-0,649 kg CO2 / kWh	0 ton CO2
Gedeclareerde km privé auto's	Zakelijk verkeer	363.307 km	0,220 kg CO2 / km	79,8 ton CO2
Vliegtuig regionaal (<700 km)	Zakelijk verkeer	287.178 personen km	0,297 kg CO2 / personen km	85,3 ton CO2
Vliegtuig Europa (700-2500 km)	Zakelijk verkeer	213.631 personen km	0,200 kg CO2 / personen km	42,7 ton CO2
Vliegtuig mondiaal (>2500 km)	Zakelijk verkeer	0 personen km	0,147 kg CO2 / personen km	0 ton CO2
			Subtotaal	*516 ton CO2*

Figure 3: Scope 2, 2019

Electricity consumption

Power from biomass purchased in 2019 accounts for 308 tonnes of CO_2 in this scope. Of all power consumed by Hollandia, over 88% comes from renewable sources (wind or hydro).

Business air travel

Air travel for business purposes accounts for 128 tonnes of CO_2 emitted.

Private vehicles used for business purposes

The remaining 79.5 tonnes of CO_2 emitted is produced by the use of private vehicles for business purposes.

4.4 Impact of measurement inaccuracies

The above shows that the vast majority of Hollandia's carbon emissions come from business travel and fuels & heating. It is, therefore, important to document these emissions in detail.

Scope 1:
Measurement data for fuel consumption by our own vehicle fleet was provided by the leasing company. They obtained the data from fuel card transactions. Every vehicle in the fleet has a fuel card that lets the user purchase fuel for that vehicle only. Data on rented vehicles was obtained through the fuel cards for the rented vehicles. We have opted not to look at mileage, as this is a less accurate indicator. Not every employee is equally meticulous in logging the mileage of their vehicle every time they fill up the tank.
Measurement data for fuel consumption by stationary combustion units used for heating purposes comes from gas meter readings submitted by the supplier. These readings are assumed to be sufficiently reliable.

Scope 2:
Measurement data on business travel by air/water was provided by the travel agency and double-checked by the accounts department. Any known waypoints and stopovers were included in the processing.
Measurement data on power consumption was gathered using telemetry data or meter readings. Telemetry measurements take precedence over the photo and are considered fact.
Measurement data on fuel consumption by private vehicles was collected based on expense claims submitted by employees for business travel using their private vehicles.

4.5 Scope 3: Indirect other carbon emissions

Indirect carbon emissions in scope 3 have been measured and came in at 758 tonnes. This is the second year that Scope 3 data has been included in the carbon footprint report in full. The reliability of the measurement data has increased, which explains the 180% increase in carbon emissions compared to 2018.

CO_2 scope 3				
Openbaar vervoer mix	Woon-werkverkeer	3.012 personenkm	0,0360 kg CO2 / personenkm	0,108 ton CO2
Fiets en lopen	Woon-werkverkeer	24.840 km	0 kg CO2 / km	0 ton CO2
Personenwagen	Woon-werkverkeer	3.444.244 km	0,220 kg CO2 / km	756 ton CO2
Papier met milieukeurmerk	Kantoorpapier	1.600 kg	1,21 kg CO2 / kg	1,93 ton CO2
			Subtotaal	*758 ton CO2*

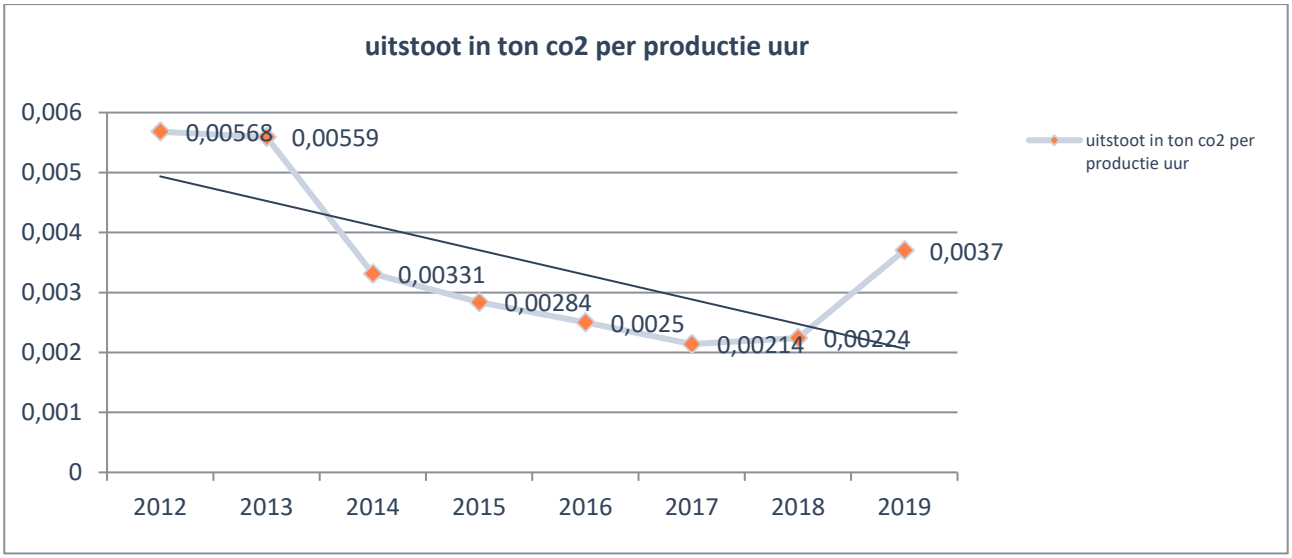
5 Reduction target and progress

5.1 Historic base year

This carbon footprint measurement is the eleventh as part of the ISO 14064 standard.

Measurement normalisation

The extent of the carbon emissions shows a clear correlation with the scope of Hollandia's operations. Therefore, to enable comparison of the emissions in the reference year to those during the reporting period, we have selected a yardstick for the normalisation of measurement results. The scope of Hollandia's business operations can be measured based on project hours utilised. The reported measurement results were normalised based on project hours.
In 2019, the positive downward trend in emissions per productive hour did not continue.
This was due to the fact that from 2018 the level of accuracy with which Scope 3 emissions are reflected in Hollandia's footprint has increased, as well as because not all power has a 'green' label. (2019 ex scope 3: 0.0029)



5.2 Carbon reduction target

Energy policy

For quite some time now, Hollandia has been looking into ways to reduce energy consumption. On the one hand, this is driven by the company's social responsibility to limit the harmful global environmental impact of the use of energy. On the other hand, we are driven by economic motives, as reducing energy usage is also a way to reduce direct costs.

Information about current energy consumption

The data shows that natural gas consumption is the biggest source of carbon emissions. The current conversion factors make that power consumption is no longer the biggest source of emissions. Over the past years, various measures were taken to reduce emissions from both these energy streams.

Carbon reduction target and measures

Hollandia has set itself the target of reducing carbon emissions by 20% in 2020 compared to 2013. Aside from that, Hollandia set out in 2018 to reduce carbon emissions across the applied steel supply chain by 3% and emissions from commuting by 5% across the supply chain. To hit these targets, Hollandia has taken a large number of measures, including replacing lights and the heating system. The greening of our power and raising awareness among our employees when it comes to commuting to and from work. In our engineering practices, methods have been developed to enable more slim-line construction, which requires less steel and therefore involves less carbon emissions.

- The target has been achieved

Progress / Trend

Over the past years, considerable investment has gone into replacing old lighting with LED lighting (including at all Infrastructure units) and the conventional air heating systems that use convective heat to heat the entire space have been replaced with IR heaters that use thermal radiation. The advantage of the latter kind of heating is that it heats only the places where people actually work, and not the entire space.
The downward trend in carbon emissions is still visible.

Individual contribution

Employees were asked to do their bit on a personal level to reduce carbon emissions.
We are joining forces with our people to hit our decarbonisation target.

Carbon emissions from our steel beam operations total 480kg of CO2 per tonne of steel produced. These are emissions from the processing of raw materials for production, transport to the construction site, installation in the building, demolition, and waste processing.

These carbon emissions are the emissions that relate to material energy. Besides material energy, there is usage energy. Usage energy is the energy consumed in the building for heating, lighting, systems, etc. Roughly speaking, material energy accounts for about 10%-20% of the total emissions over the full life span, while usage energy accounts for 80%-90%.

6 Supply chain analysis

The relevant Scope 3 categories were identified using the below table, which is based on the 'Scope 3 standard' specified in the Dutch CO_2 performance ladder.

6.1 Reduction plan following supply chain analysis

Besides reducing carbon emissions from its own operations, Hollandia has also set out to reduce carbon emissions across the supply chain. Two supply chain analyses were performed to identify consumption in the supply chains and explore decarbonisation options. The focus points for these supply chain analyses were selected based on the qualitative scope 3 analysis.
Hollandia is a medium-sized company and has performed 2 supply chain analyses.

- Steel supply chain analysis
- Commuting supply chain analysis

Reduction targets and the action plan for reduction were included in the supply chain analyses.

6.2 Measures following the steel supply chain analysis

- Steel production is the biggest source of emissions. Here, too, reductions are possible by reducing the amount of steel procured.
- The second biggest source of emissions in the supply chain is Hollandia's processing of intermediate goods. This source of emissions is reduced through the targets set for scopes 1 and 2, and will consequently decrease.
- The third biggest source of emissions is usage throughout the life span. The electrical system was not made by Hollandia. In order to reduce emissions from the electrical system, Hollandia will in upcoming projects engage with the installer to jointly pursue carbon reduction.
- One possible reduction measure would be to use means of transport that offer better fuel economy. The impact of this measure has not been calculated because it is unknown by how much fuel economy could potentially improve. This will require further investigation in partnership with supply chain partners.

Steel is not consumed, it's used

"Scrap can be turned into steel of all the usual grades again. This would not be downcycling, as the new steel retains its properties and continues to be suited for high-grade applications. Also in case of galvanised steel, the zinc coating is separated from the steel first and then used to make new zinc. Building using steel is a material-efficient way to build. The amount of material used for each building component is based on the function of that building component, so that the amount of material used never exceeds what is necessary. The use of stronger types of steel enables further reduction of the amount of material used per building component."
At present, for example, over 80% of Hollandia Structures' steel beams are made from recycled scrap.

6.3 Measures following the commuting supply chain analysis

- Encouraging carpooling
- Encouraging employees living within a 10km radius of the company premises to cycle to work, if possible.
- Making our vehicle fleet more fuel efficient and cleaner.
- Promoting the use of public transport.

7 Initiatives

7.1 Participation in initiatives

Samenwerkende Nederlandse Staalbouw (Association of Dutch Steel Construction Companies)

Hollandia is a member of the Association of Dutch Steel Construction Companies, where Hollandia board member Mr N. Hoogendijk sits on the governing board. Being a member of this association helps Hollandia stay informed on the latest developments in the industry and supply chain initiatives.

Carbon reduction in the construction industry

Hollandia also participates in the National CO_2 database, carbon reduction in the construction industry, by periodically publishing its carbon emission performance and targets. This database was set up to relieve companies of the administrative burden and to create uniformity in the information provision. In addition, it is a central source for retrieving information on suppliers, subcontractors, and other parties.

WaardZaam

A regional initiative in Hollandia's local area, WaardZaam is a network of companies and local authorities in the Krimpenerwaard region to promote knowledge sharing and joint efforts in the area of energy reduction. Knowledge sharing accelerates parties' efforts in this area. Hollandia shares its energy data with other participating parties through the Environment Barometer, as well as by taking active part in knowledge sessions with other participants aimed at sharing knowledge and insights.

8 Calculation models

8.1 Quantification methods

Resources were quantified to carbon emission values by using the registered volume units of the fuels used. The conversion from volume to emission values is consistent and enables the most reliable comparison.

In situations where no fuel volume units were available, the most reliable available information was used. When it comes to vehicle kilometres travelled, kilometres or tonne-kilometres in the relevant weight class of the vehicles were used.

Power and gas consumption was measured using calibrated meters and/or equivalent portal data provided by the energy supplier. Due to current legislation, this is the most reliable source of information available.

9 Overall summary

9.1 Summary for each scope

CO2-footprint (naar scope)

	Thema		CO_2-parameter	CO_2-equivalent
CO_2 scope 1				
Aardgas voor verwarming	Brandstof & warmte	583.191 m3	1,89 kg CO2 / m3	1.102 ton CO2
Propaan	Brandstof & warmte	2.380 liter	1,73 kg CO2 / liter	4,11 ton CO2
Koudemiddel - R410a	Emissies	0 kg	2.088 kg CO2 / kg	0 ton CO2
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Personenwagen (in liters) benzine	Zakelijk verkeer	265.318 liter	2,74 kg CO2 / liter	727 ton CO2
Personenwagen (in liters) diesel	Zakelijk verkeer	180.776 liter	3,23 kg CO2 / liter	584 ton CO2
Weldap 20_80% AR/20% CO_2	Overige CO2 bronnen	4.310 KG	0 kg CO2 / KG	0 ton CO2
Weldap 8_92% AR/8% CO_2	Overige CO2 bronnen	0 KG	0 kg CO2 / KG	0 ton CO2
Weldap 2_98% AR/2% CO_2	Overige CO2 bronnen	0 KG	0 kg CO2 / KG	0 ton CO2
			Subtotaal	*2.511 ton CO2*
CO_2 scope 2				
Ingekochte elektriciteit	Elektriciteit	4.012.137 kWh	0,649 kg CO2 / kWh	2.604 ton CO2
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Papier met milieukeurmerk	Kantoorpapier	1.600 kg	1,21 kg CO2 / kg	1,93 ton CO2
			Subtotaal	*758 ton CO2*
			CO_2-uitstoot	**3.785 ton CO2**
CO_2 Compensatie				
CO2-compensatie	CO2-compensatie	22,8 ton CO2	-1.000 kg CO2 / ton CO2	-22,8 ton CO2
CO2-compensatie via inkoop 'groen gas'	CO2-compensatie	0 m3 gas	-1,89 kg CO2 / m3 gas	0 ton CO2
Rijngas	CO2-compensatie	22.430 kg CO2	-1,00 kg CO2 / kg CO2	-22,4 ton CO2
			Subtotaal	*-45,2 ton CO2*
			Netto CO_2-uitstoot	**3.740 ton CO2**