

# DEME Energy Performance Booklet 2020



CO<sub>2</sub>-PRESTATIELADDER®

Niveau 5



TABLE OF CONTENT			Rep. Freq.	Ext/Int
<b>General</b>		<b>ISO14064-1 §9.3.1</b>		Ext
01.	Description of DEME organization	a		Ext
02.	Report responsibilities and reporting period	b, c, r		Ext
03.	Organizational boundaries and reporting boundaries	d, e		Ext
04.	Quantification methodology, base year and base year changes	k, l, m, n		Ext
05.	Exclusion of CO2 emission sources	g, i		Ext
06.	Assessing and reducing uncertainties	p, q		Ext
07.	Inventory verification and GWP values	s, t		Ext
<b>Progress and carbon footprint report BeNe</b> [CO2-PL] [3.B.1] [4.B.2] [5.B.2] [3.C.1]		j	S-A	Ext
08.	DEME scope 1 and 2 emissions overview			Ext
09.	Evolution scope 1 emissions			Ext
10.	Evolution scope 2 emissions			Ext
11.	Reduction targets scope 1 and 2 emissions			Ext
12.	Scope 1 target progress			Ext
13.	Scope 2 target progress			Ext

TABLE OF CONTENT		Rep. Freq.	Ext/Int
14.	Scope 3 target progress		Int
15.	Energy action plan		Ext
16.	Emissions and reductions – Project level		Ext
17.	DEME level carbon footprint scope 1 and 2 (BeNe)		Ext
<b>References to external documents</b>		3 yearly	Ext
18.	Scope 3 emissions [CO2PL] [4.A.1]		Ext
19.	Participation and Chain initiatives [CO2PL] [5.C.1] [3.D.1]		Ext
20.	Life cycle assessment [CO2PL] [3.D.1]		Ext

S-A= Semi-Annually

# GENERAL

## 01. Description of DEME organization

DEME is a world leader in the highly specialized fields of dredging, solutions for the offshore energy industry and infrastructure and environmental works. The company has more than 140 years of knowledge and experience and throughout its history as a leader in innovation and new technologies has always taken a pioneering approach.

DEME's vision is to work towards a sustainable future by offering solutions to global challenges: rising sea levels, a growing population, reduction of CO2 emissions, polluted rivers and soils and the scarcity of minerals. DEME has its roots in Belgium but has a strong presence on all seas and continents of the world and is active in more than 90 countries. The company can count on 5,200 highly skilled professionals around the world. With a versatile and modern fleet of more than 100 ships, backed by a wide range of auxiliary equipment, the company can provide solutions for even the most complex projects.

DEME achieved a turnover of 2.20 billion euros in 2020.

## 02. Report responsibilities and reporting period

The carbon footprint described in this report is intended for the use within the CO2 Performance ladder boundary. The CO2 inventory is compiled under the responsibility of the DEME Corporate QHSE-S Manager and in accordance with the ISO 14064 principles (relevance, completeness, consistency, accuracy and transparency).

The reporting period that is covered can always be found in a tag near the chart or table. This tag also contains the geographical scope and the location of the source data.

General example:

Scope: Geographical scope

Period: Reporting period that is covered

Source: The location of the source data

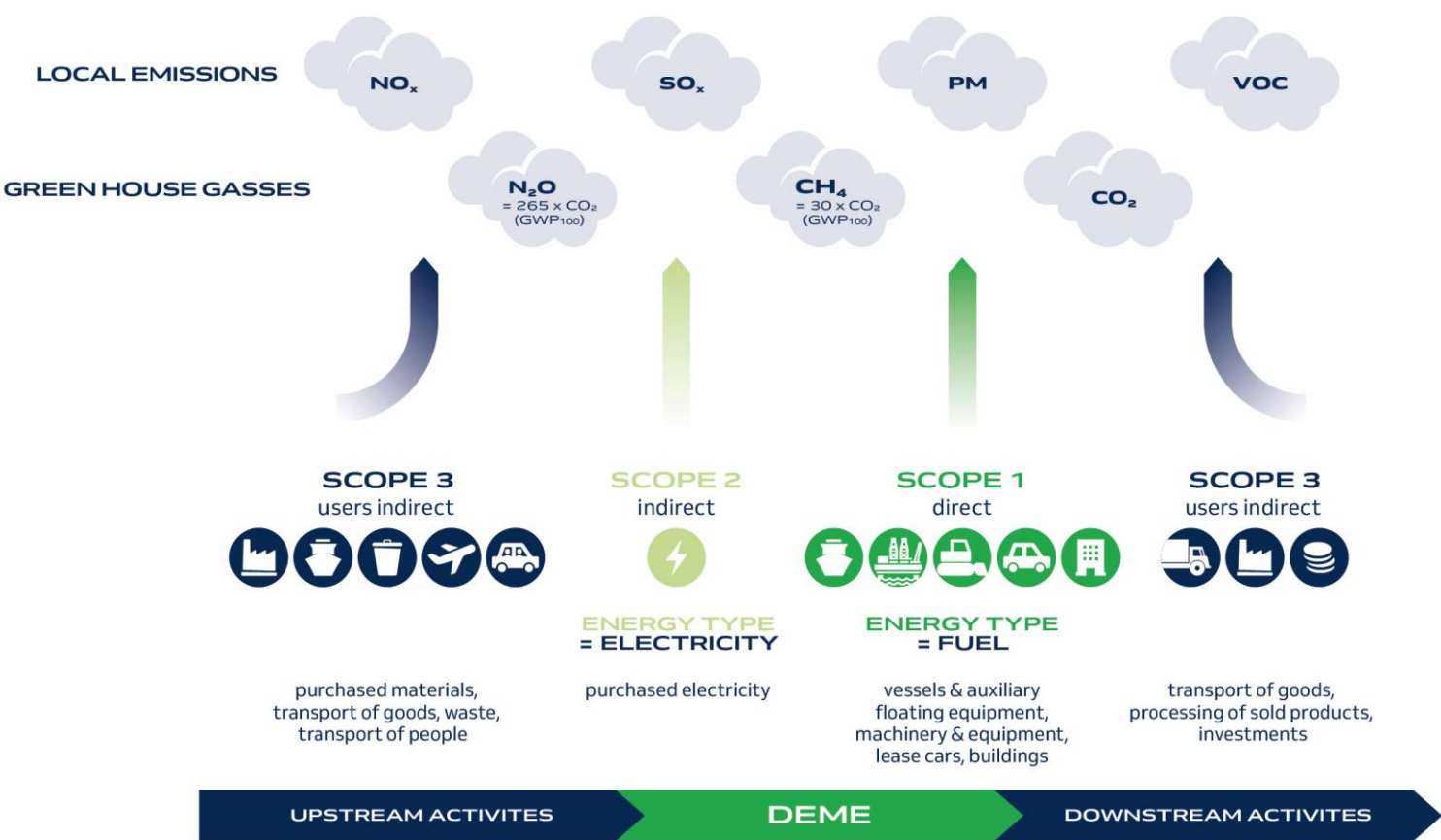
Action	Name	Function	
Preparation	Lennert Oostvogels	QHSE-S Engineer	19/3/2021
Revision	Nick Deboever	QHSE-S Engineer	12/4/2021

# GENERAL

## 03. Organizational boundaries and reporting boundaries

To define the operational boundaries, the CO2 emissions are categorized in different scopes as determined by the GHG Protocol:

- **Scope 1:** contains all direct emissions. Direct emissions occur from sources that are owned or controlled by the company, such as the consumption of fuel and natural gas.
- **Scope 2:** covers indirect emissions from the consumption of purchased electricity. Scope 2 emissions physically occur at the facility where electricity is generated.
- **Scope 3:** is a reporting category that includes all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company. This includes air travel and subcontractor's equipment for example.



Note: this visual is based on the GHG Protocol Scope 3 Standard and focuses on the most important aspects relevant to DEME

The companies included in this report are as following:

- DEME N.V. (BE)
- Baggerwerken Decloedt en Zoon N.V. (BE)
- DEME Building Materials N.V. (BE)
- DEME Building Materials B.V. (NL)
- Dredging International N.V. (BE)
- DEME Infra Marine Contractors N.V. (BE)
- DEME Infra Marine Contractors B.V. (BE)
- DEME Offshore Holding N.V. (BE)
- DEME Offshore Holding B.V. (NL)
- DEME Blue Energy (BE)
- DEME Environmental Contractors N.V. (BE)
- De Vries & Van de Wiel B.V. (NL)
- Ecoterres N.V. (BE)

The boundary determination is based on the GHG protocol method – operational control. A company has operational control over an operation if the company (or one of its subsidiaries) has the full authority to introduce and implement its operating policies at the operation. Under the operational control approach, 100% of scope 1 (direct emissions) and scope 2 company emissions from operations over which the company has operational control are accounted for.

To eliminate double counting and allow cross verifications with the operational parameters of DEME’s fleet under its control, joint operations (mainly joint venture projects) require a specific approach. A difference is made between emissions due to mutually operated equipment and emissions due to separate equipment.

If DEME has operational control over an entity; all the mutual emissions are taken up into DEME’s carbon footprint, in addition to the emissions from DEME equipment used. If DEME has no operational control only emissions from DEME equipment are taken up in the DEME inventory.

# GENERAL

## 04. Quantification methodology, base year and base year changes

The identification of CO2 sources provides the basis for the quantification of carbon dioxide. Multiplying the data from the emission sources each with their relevant CO2 emission factor results in the carbon footprint.

The base year for the DEME organization is set at the year 2011. Targets, objectives and goals are always considered in relation to this year, unless explicitly stated otherwise.

Changes in the quantification methodology or base year will be conducted considering quality improvement to the reported data, transparent towards the intended users.

The emission inventory or base year will only be recalculated in case of changes to operational boundaries or fixed emissions factors.

## 05. Exclusion of CO2 emission sources

According to ISO 14064-1; direct or indirect GHG sources whose contribution to GHG emissions or removals is not material or whose quantification would not be technically feasible or cost effective, may be excluded from quantification.

The following CO2 sources were excluded from the DEME carbon footprint.

- a) **Cutting & welding gases:** Gases such as acetylene and oxygen are occasionally used on worksites and on ships for cutting and welding purposes when repairing equipment. The research on the significance of cutting and welding gases indicates that the data collection would not be proportional with the significance in the carbon footprint report at this time.
- b) **Lubricants:** Various sorts of lubricants are used in normal conditions i.e., to protect internal combustion engines and reduce friction between moving surfaces. Waste oil is processed according to IMO MARPOL requirements. Lubricants are not included in the CO2 emission inventory at this time.
- c) **Air condition refrigerants:** Air conditioning refrigerants are purchased on an ad hoc basis; their consumption can be found in offices and on-board ship's logs; however, the leakage of these gases is minimal and not material.
- d) **Scope 3 emissions:** Not all scope 3 emissions are reported by DEME. Only the most essential emissions that can be monitored and for which reduction measures can be taken, are considered. For more details see Document [DEME-QHSE-DOC-002].

The combustion of biomass is also not applicable. Biogenic emissions are therefore not present in our emission inventory. GHG sinks and removals are also not applicable.



GENERAL

06. Assessing and reducing uncertainties

The qualitative influences of uncertainty on the DEME GHG emission inventory (or in this case CO2 - carbon footprint) are the following:

- 1. Source data consists of invoices and delivery records. If the source data on purchased quantities is not available, actual or estimated energy consumption data is used. Estimations are always conservative. It may occur that fuel supply to third (non-DEME) equipment is not separately registered when the fuel is included in the invoice/delivery record of the DEME equipment or DEME project reported figure.
- 2. Vessels in co-ownership are considered as subcontracted, however accounted for in scope 1 when their consumption could not be separately identified.
- 3. Energy supplied to third equipment is not registered separately when shared fuel tanks are used on site.
- 4. The quantity of gas consumed is reported in GCV (higher or gross calorific value), not NCV (lower or net calorific value).
- 5. For each flight, the total of air miles is provided by the travel agency.
- 6. The fuel consumption of cars is based on the data provided by the fuel supplier (invoices). Here, all invoices from the fuel supplier are considered (i.e., including use of the car for private purposes).
- 7. The use of private cars for business purposes is compiled from the reimbursed expenses for employees.
- 8. The fuel consumption for the ships of DEME Building Materials includes the total energy consumption of all their activities throughout Europe.
- 9. Except for the emissions for maritime & fluvial transport and chartered vessels all the scope 3 emissions are calculated based on the total cost of sales and by applying average CO2 emission conversion factors [DEME- QHSES-DOC-002].

07. Inventory verification and global warming potential values

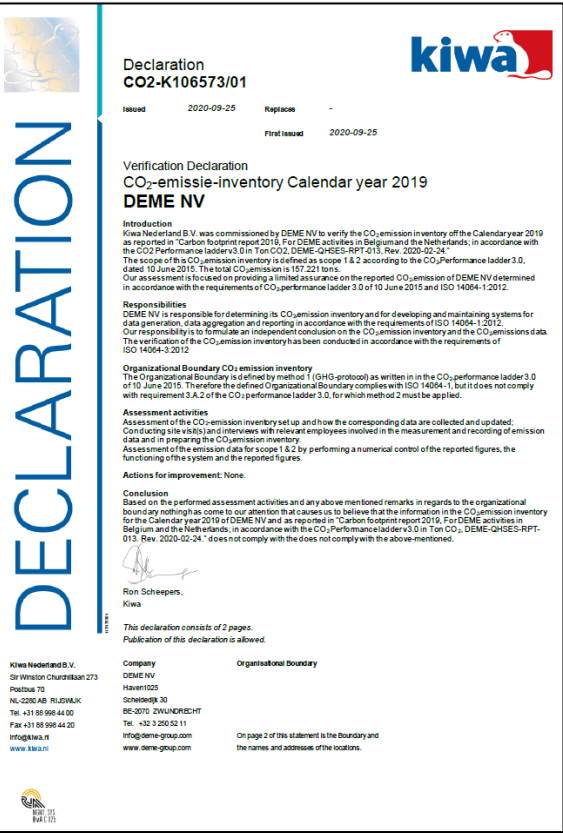
Most of the CO2 emissions are calculated based on the CO2 emission factors listed on the website [www.CO2emissiefactoren.nl](http://www.CO2emissiefactoren.nl) as prescribed by the CO2 Performance ladder handbook 3.1.

For activities which are not listed on the website, different sources are consulted. The table below gives an overview of the other sources.

Activity	CO2 emission factor	Source reference
Procurement of steel	2100 kg CO2/ton steel	Study cradle to gate Tata Steel
Procurement of concrete	54 kg CO2/ton concrete	SBK database
Residual waste processing	1,83 kg CO2/ton waste.	Chain analysis GDF Suez Netherlands

To guarantee the quality of the CO2 emission inventory, internal routine checks are performed in combination with external verification assessments (2019).

To identify significant emissions, DEME uses the ranking method as described in section §4.A.1 of the CO2 Performance ladder.



# **Progress and carbon footprint report BeNe 2020**



# PROGRESS REPORT

## Introduction

This report describes the progress and the energy reduction initiatives within DEME for 2020, in accordance with the requirements of the CO2-performance ladder.

Emphasis is placed on the DEME activities of relevant DEME companies (offices and projects) within Belgium and the Netherlands; known as the DEME CO2 Performance Ladder boundary.

## 08. DEME scope 1 and 2 emissions overview

The CO2 emissions for DEME activities in Belgium and the Netherlands (CO2 Performance Ladder boundary) for the year 2020 are stated in the table below.

### Emission amounts

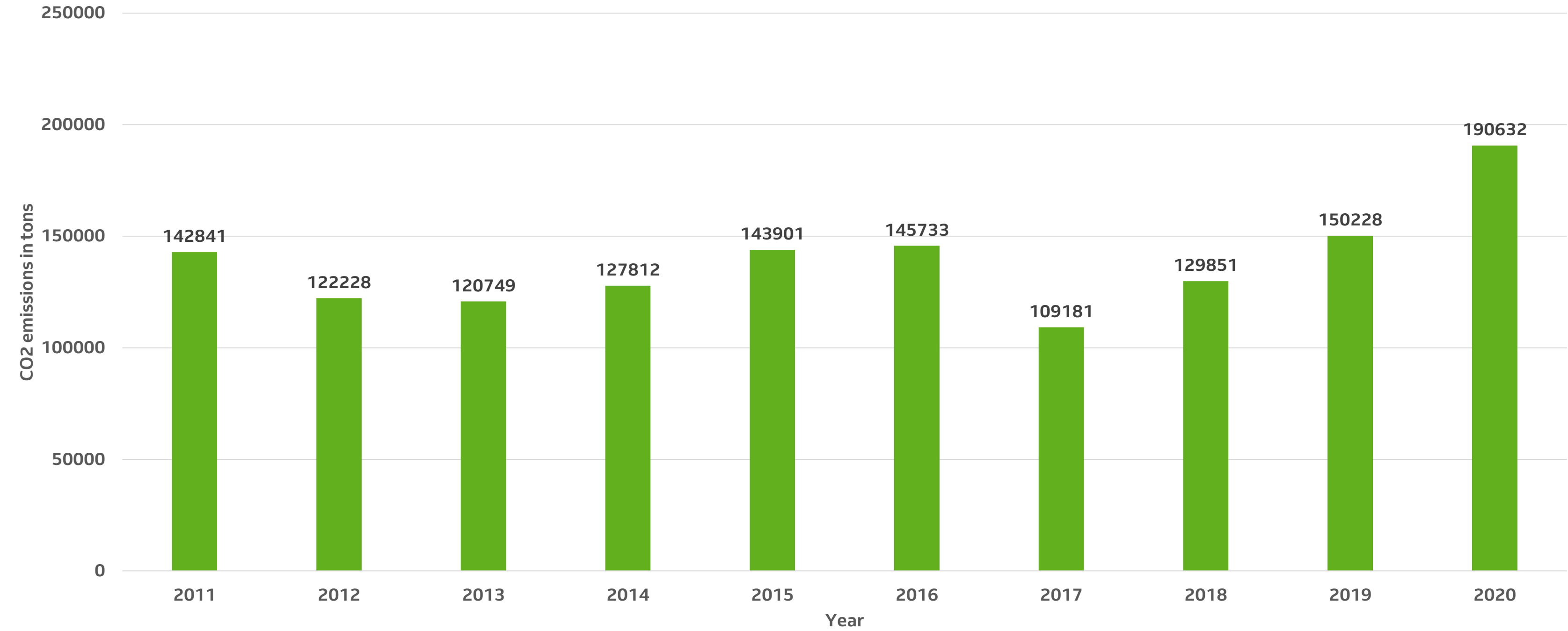
Energy Type	Emissions Amount	Emissions Unit
<div><div></div>Fuel</div>	190,632,123	kg CO2
Marine Gas Oil (average density: 0,89 ton...	116,809,966	kg CO2
Marine Diesel Oil	57,321,125	kg CO2
Diesel (EUR)	14,363,583	kg CO2
Petrol (E95, average biofuel blend)	1,351,765	kg CO2
Diesel for heating	711,620	kg CO2
LNG (average density: 0,43 ton/m³)	73,904	kg CO2
Heavy Fuel Oil (average density: 0,991 ton...	160	kg CO2
CNG (EUR)		kg CO2
Natural gas		kg CO2
<div><div></div>Electricity</div>	2,197,923	kg CO2
Purchased electricity - Grey	1,890,571	kg CO2
Purchased electricity - Unknown source	307,352	kg CO2
Purchased electricity - Green - Mix	0	kg CO2
Purchased electricity - Green - Wind	0	kg CO2
Purchased electricity - Green - Solar	0	kg CO2
Self produced electricity - Green - Solar	0	kg CO2
Self produced electricity - Green - Wind	0	kg CO2
Total	192,830,047	kg CO2

Scope: BE/NL  
Reporting period: 2020  
Source: PowerBI

# PROGRESS REPORT

## 09. Evolution scope 1 emissions

Evolution of scope 1 CO2-emissions

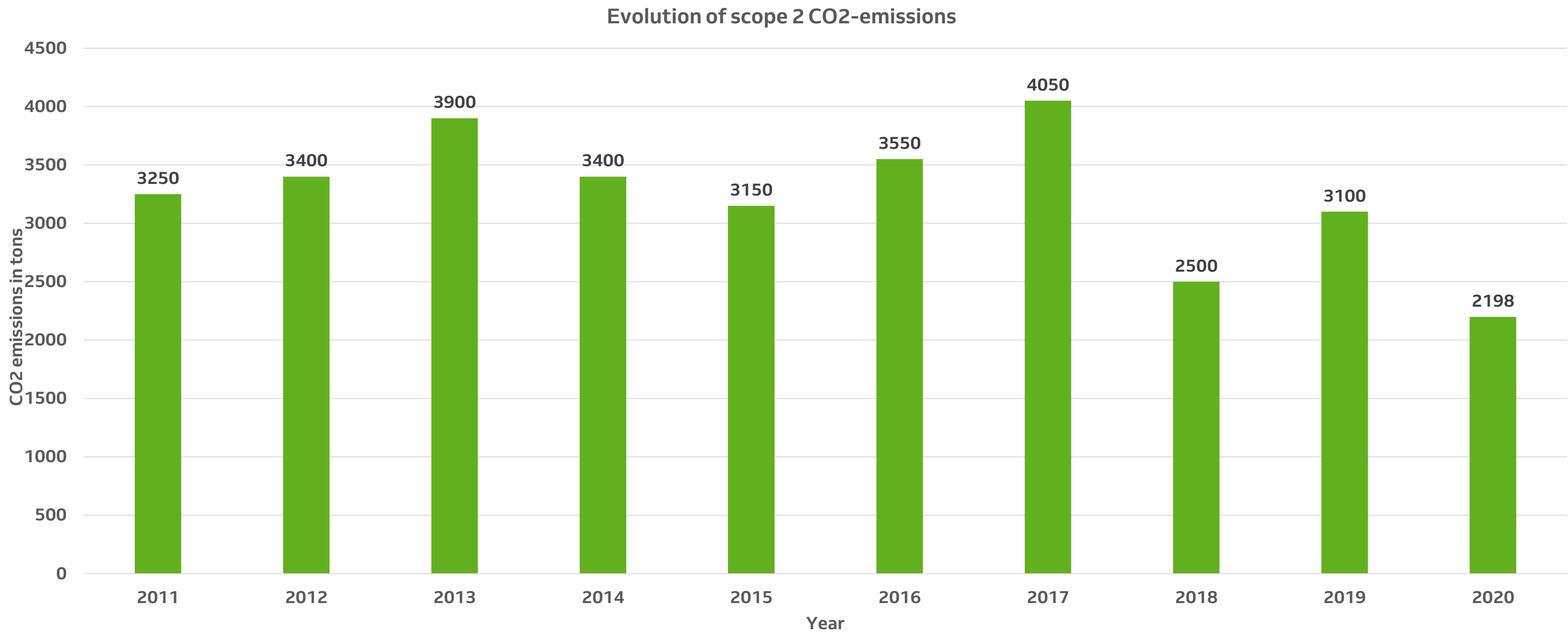


Scope: BE/NL  
Reporting period: 2011-2020  
Source: PowerBI



# PROGRESS REPORT

## 10. Evolution scope 2 emissions



Scope: BE/NL  
Reporting period: 2011-2020  
Source: PowerBI

# PROGRESS REPORT

## 11. Reduction targets scope 1, 2 and 3 emissions

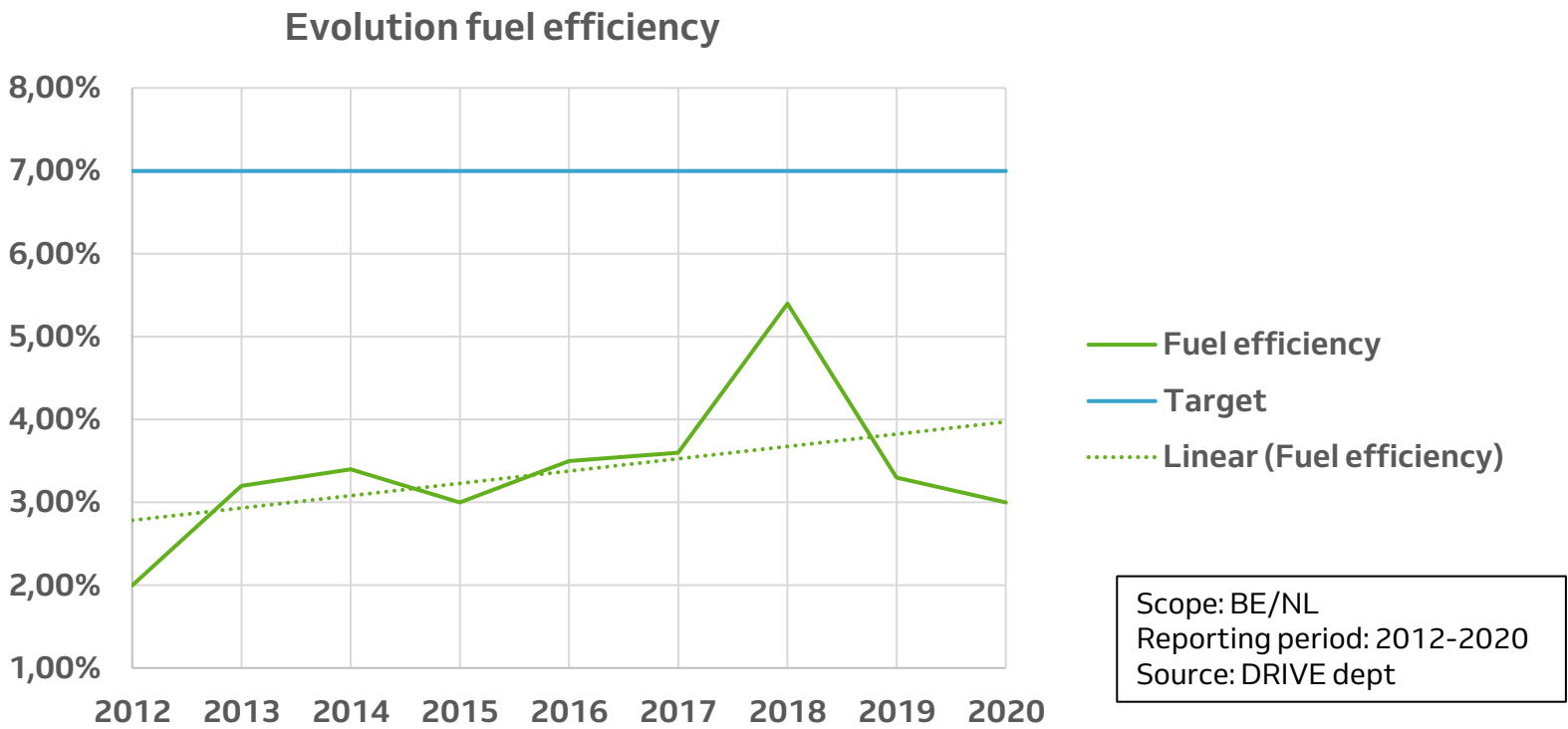
Scope 1		
Fuel efficiency DRIVE exercises	7% efficiency improvement by 2022	Worldwide
Lease cars	95 grams CO2/kilometer by 2022	NL-BE
Scope 2		
Electricity HQ Zwijndrecht	Head office CO2 neutrality by 2025	BE
Electricity on sites	15% renewable energy by 2022	NL-BE
Scope 3		
Target related to LCA Rentel	TBD	TBD
Target related to LCA BAAK	TBD	TBD

Scope: BE/NL  
Reporting period: 2012-2020  
Source: Energy management action plan

## 12. Scope 1 target progress – Fuel efficiency of DRIVE exercises

Year	Avoided emissions scope 1 (in tonnes)	Progress energy efficiency yearly (%)
2012	11 368	2.0%
2013	18 306	3.2%
2014	19 677	3.4%
2015	17 195	3.0%
2016	20 335	3.5%
2017	20 677	3.6%
2018	30 951	5.4%
2019	18 845	3.3%
2020	17 000*	3.0%

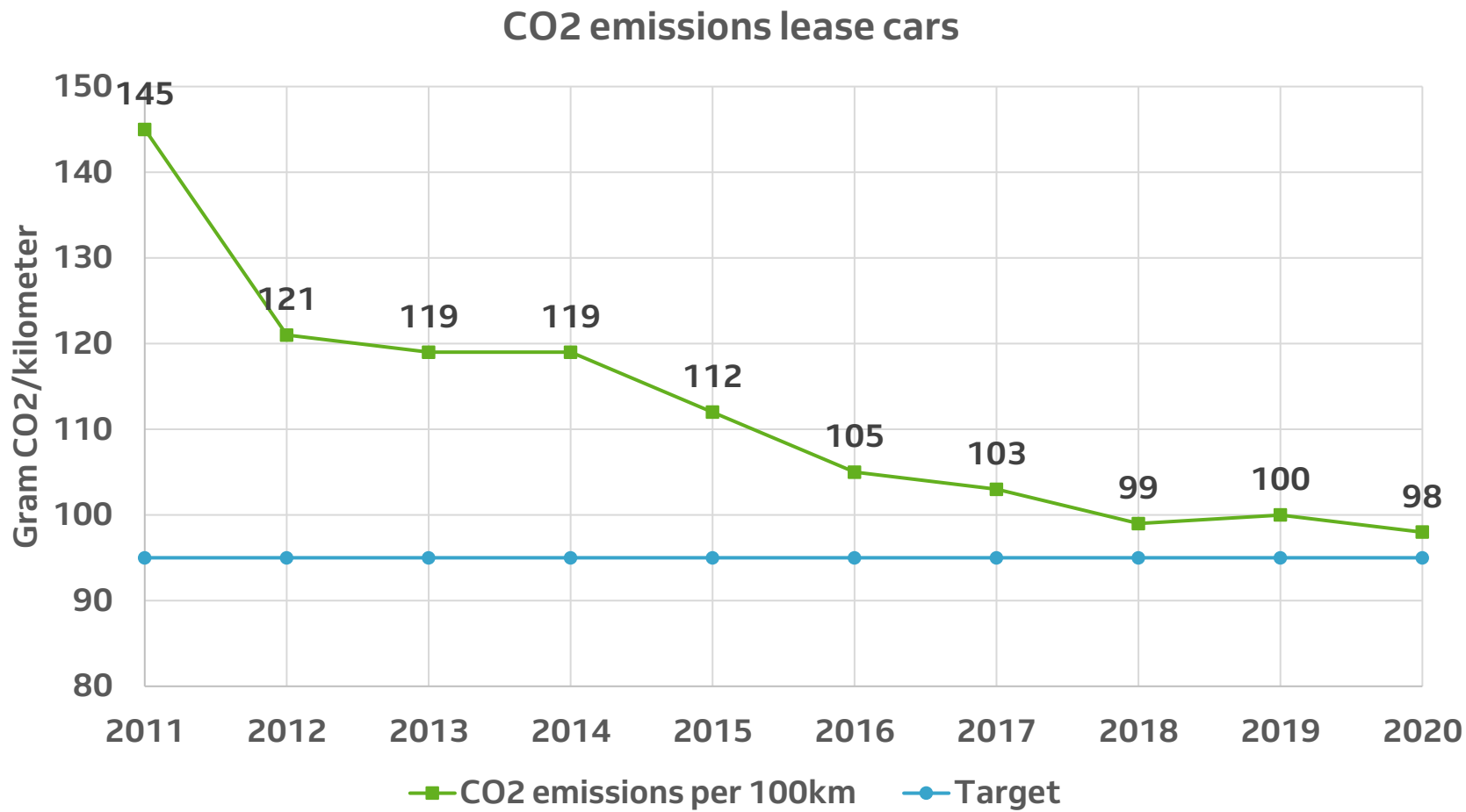
\*Extrapolated data



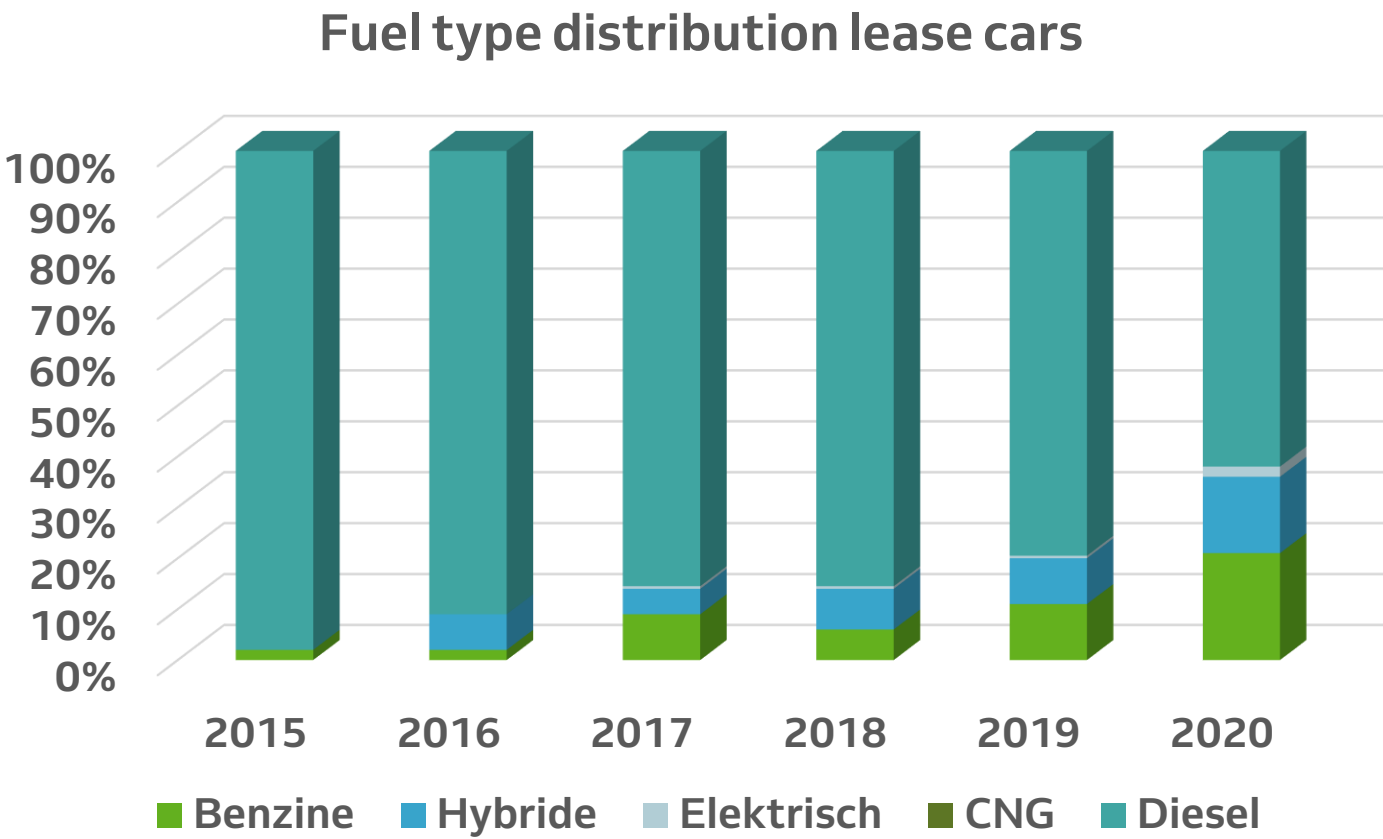


# PROGRESS REPORT

## 12. Scope 1 target progress – Lease cars



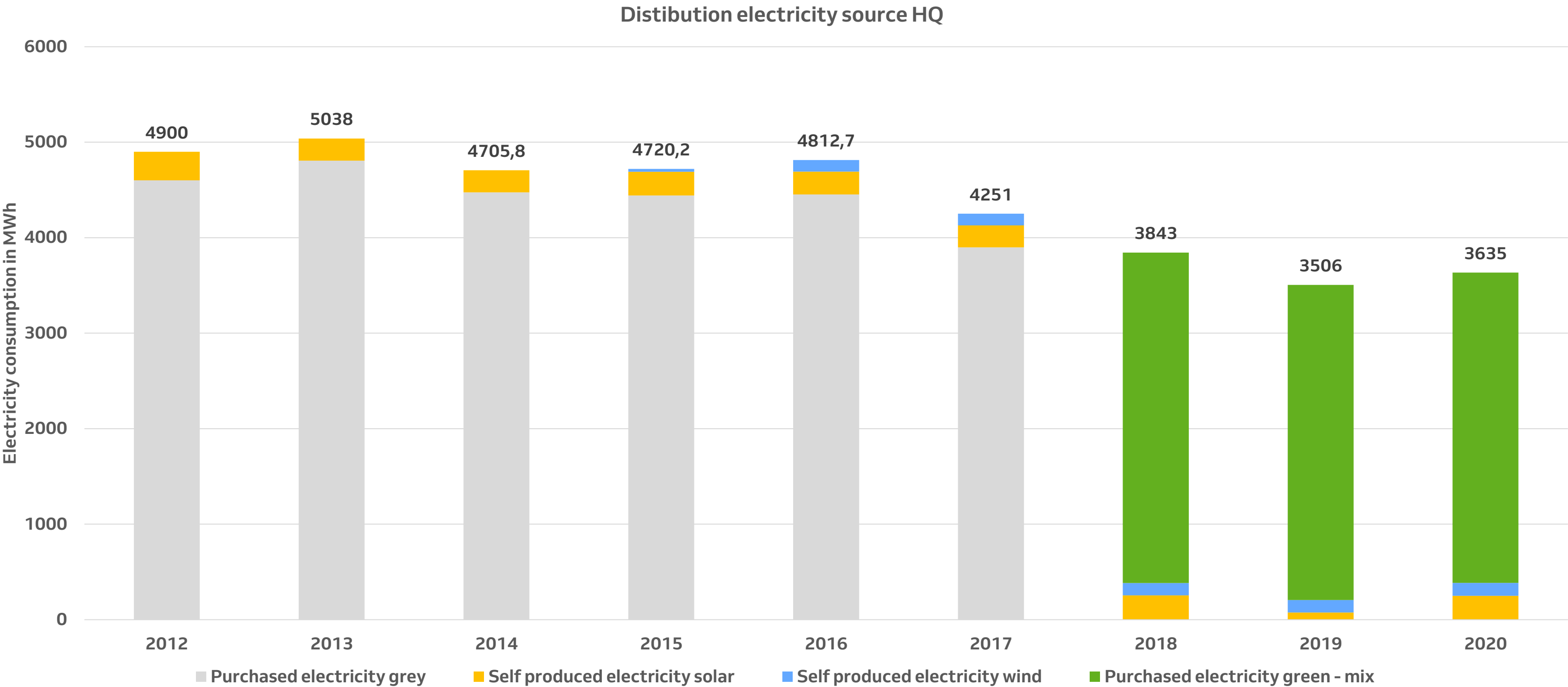
Scope: BE/NL  
Reporting period: 2011-2020  
Source: Carfleet



Scope: BE/NL  
Reporting period: 2015-2020  
Source: Carfleet

# PROGRESS REPORT

## 13. Scope 2 target progress – Electricity use head office

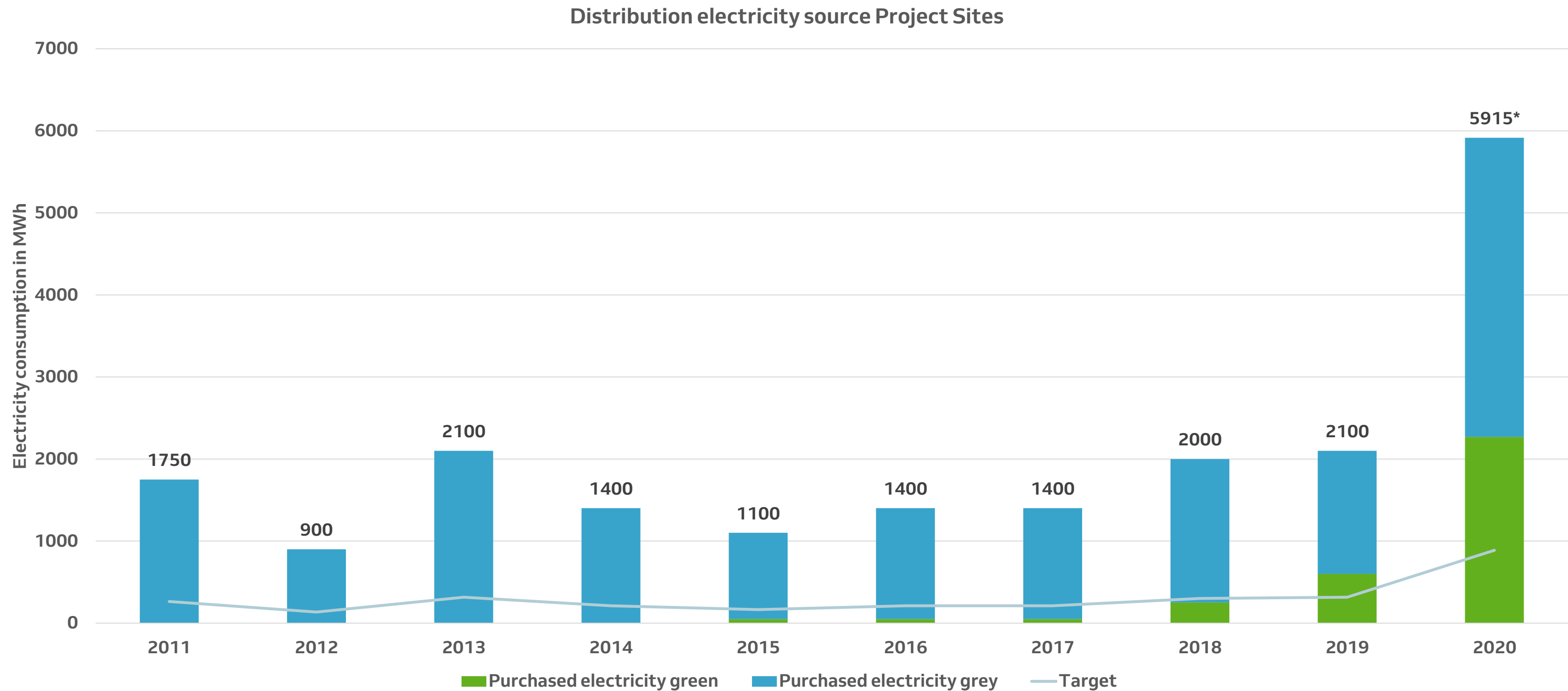


Scope: BE/NL  
Reporting period: 2012-2020  
Source: PowerBI



# PROGRESS REPORT

## 13. Scope 2 target progress – Electricity use sites in BE/NL



Scope: BE/NL  
Reporting period: 2012-2020  
Source: PowerBI

\*Due to, among other things, the expansion of the number of projects in our scope, the total amount of energy has increased

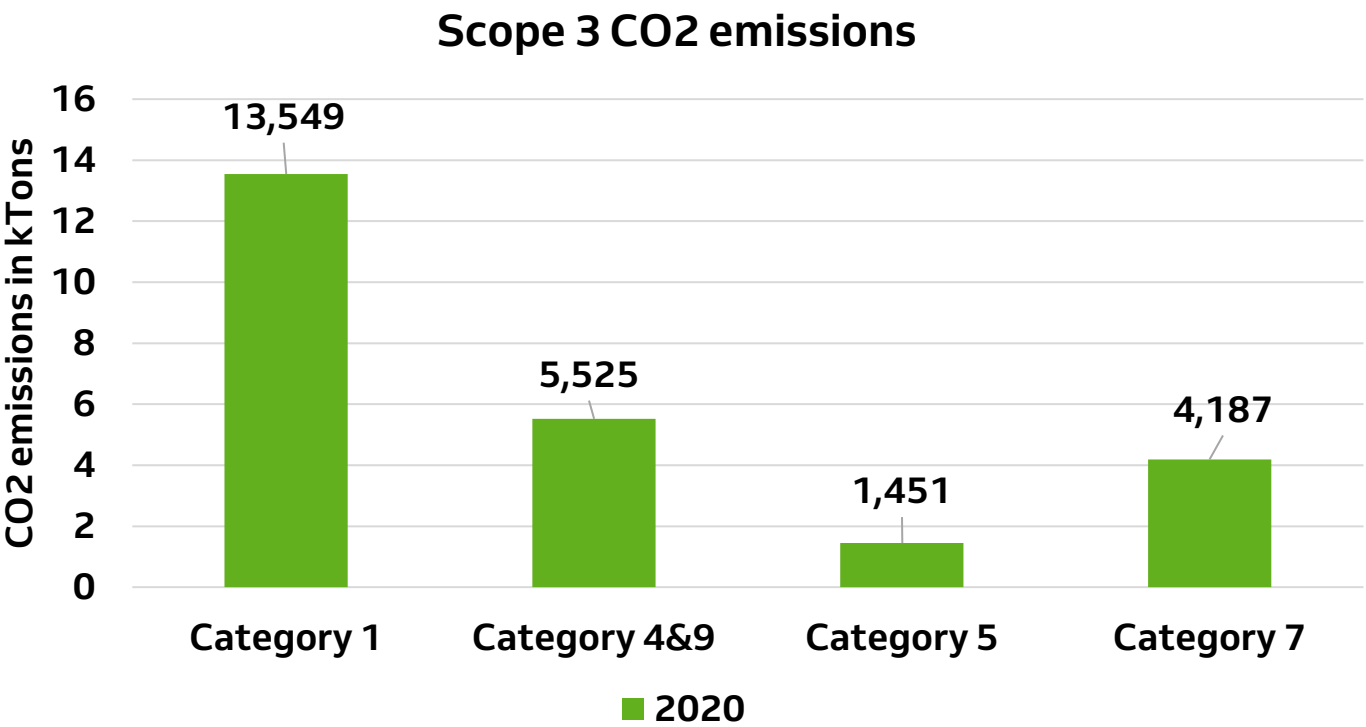
# PROGRESS REPORT

## 14. Scope 3 target progress

DEME has analyzed its scope 3 emissions and decided to monitor only 4 emission categories (see table 5.1 GHG Protocol Scope 3 Standard in the 'Handreiking Aanbesteden Versie 3.0') for which the amounts are measurable and reducible; e.g.:

- Cat 1: purchase of goods & services (concrete, steel, fuel consumption of hired equipment);
- Cat 4 & 9: transport;
- Cat 5: generated waste;
- Cat 7: commuter travel.

The scope 3 emissions for 2020 are shown in the graph below.

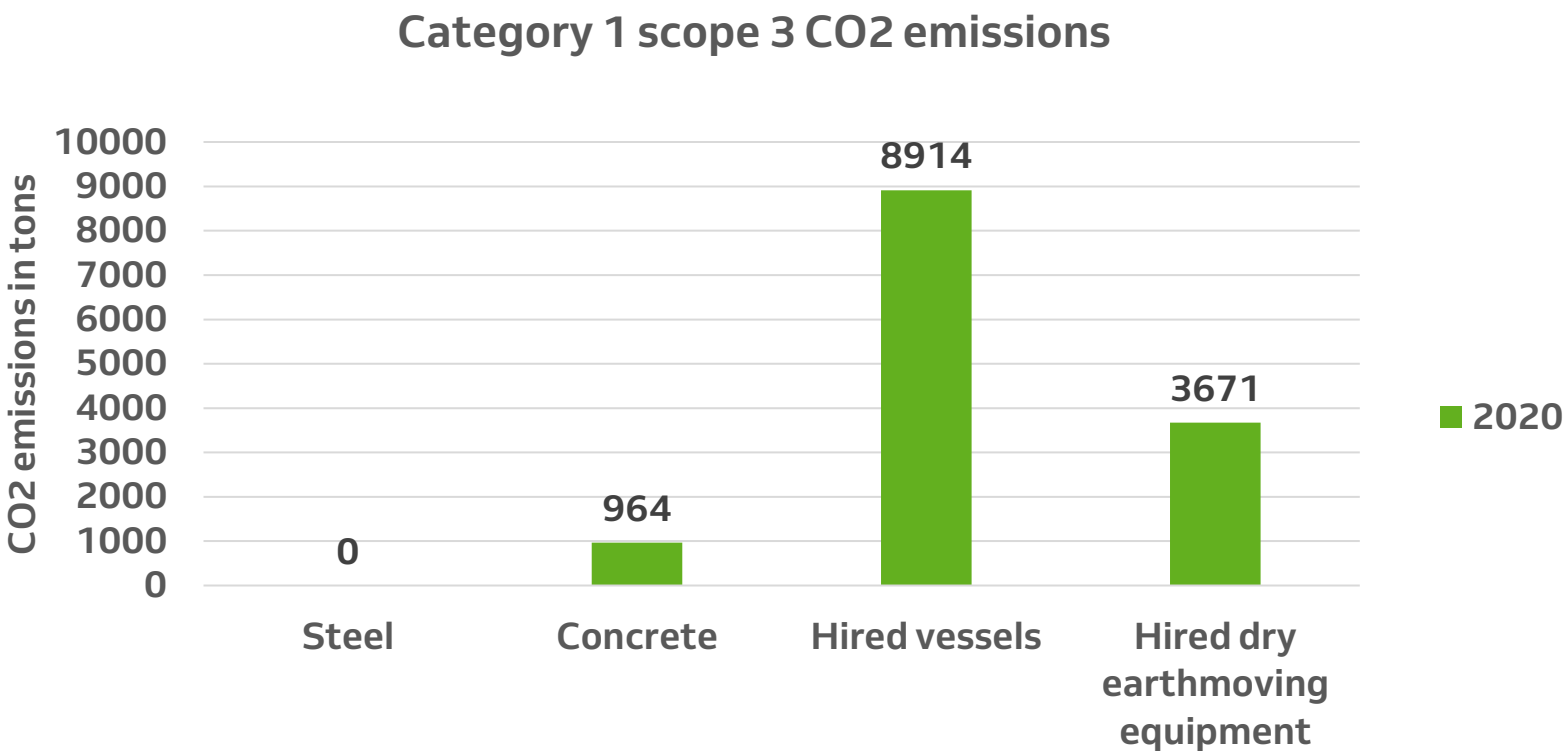


Scope: BE/NL  
Reporting period: 2020  
Source: Diverse

Not all the scope 3 emissions are calculated based on real data, some emissions are calculated by CO2 conversion factors retrieved from literature. The reliability of the scope 3 emissions is indicated in the table below.

Emission category	% based on product carbon footprints or real data
Category 1	95%
Category 4&9	94%
Category 5	0%
Category 7	0%

The category 1 scope 3 emissions consist of several subcategories: concrete, steel & fuel consumption for hired equipment.



Scope: BE/NL  
Reporting period: 2020  
Source: Diverse



# PROGRESS REPORT

## 14. Scope 3 target progress – Chain emissions

To get more insight in its chain emissions, chain analysis were conducted:

### **Construction of windfarm “Rentel Project”**

- In 2019 we started a new chain study on the Rentel Wind Turbine project. Depending on this outcome of this study and the review by an independent recognized consultancy, we will be able to formulate new objectives.

### **Maritime & fluvial marine aggregates transport**

- DBM analyzed its activities for processing and supplying marine aggregates. The major contribution of its scope 3 emissions is due to external transport activities. Therefore, DBM established a reduction policy for its maritime & fluvial transport. The policy aims for a 6 % reduction in CO2 emissions per ton km, starting from 2015 till 2022.

### **Infrastructural works “Blankenburgverbinding”**

- In the beginning of 2020, a chain study was carried out for project Blankenburgverbinding. Based on the results of this study, new targets will be set.

# PROGRESS REPORT

## 15. Energy action plan

DEME’s energy reduction program is evaluated and assessed by means of an energy management action plan. Ref. document DEME-QHSES-DOC-031.

Actions accomplished on 31st of December 2020.

Description	Scope	CO2 reduction	Responsible	Period
Turning exercise on engines (skip fire)	1	Monitor the exercise and see what reduction occurs	Head of technical department	2016-2019
Monitoring emissions from LNG dual fuel ships	1	Methane slip, CO2, SOx, NOx, particulate matter	Head of new building department	2017-2019

### Scope 3

Commuter travel

Description	Scope	CO2 reduction	Responsible	Period
Home office, satellite offices	3	HRD department	Sustainable manager	2019
Flex offices	3	HRD/QHSE-S	Sustainable manager	2019

Waste management

Description	Scope	CO2 reduction	Responsible	Period
Monitoring of waste quantities and reduce the residual waste in cooperation with EcoSmart	3	QHSE-S	Environmental manager	2019

## 16. Emissions and reductions – Project level

Emissions and reductions related to projects with a specific award advantage on the CO2 Performance Ladder are separately reported.

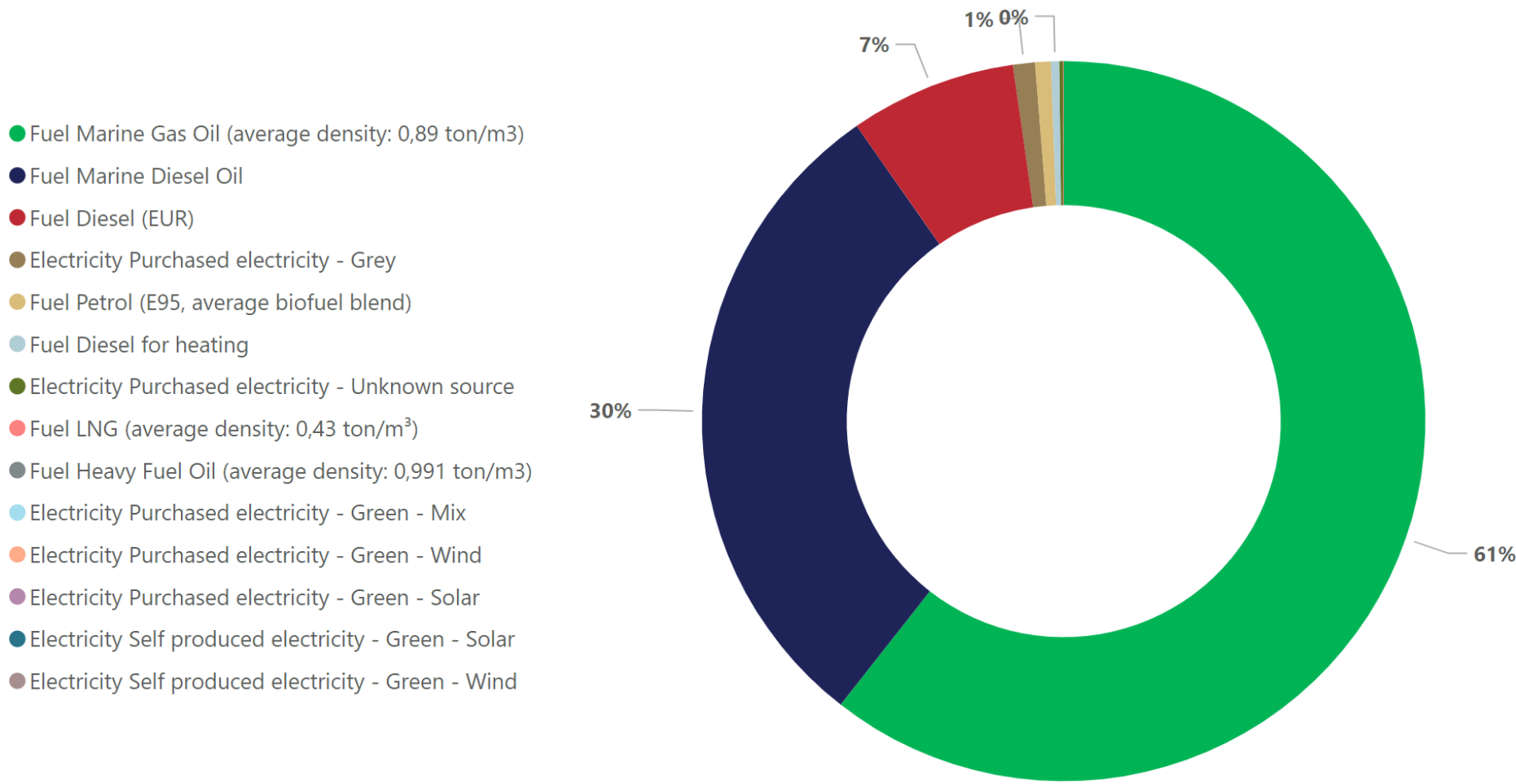
An overview of these projects is given in the table below.

Further information about the projects can be found at DEME’s corporate website.

Project budget nb.	Project description	Status project
5589	Land make middle island IJburg	Finished
5264	Maintenance dredging of rivers NL	On-going since 2016
5547-5453	Blankenburgverbinding	On-going in 2020
5447-5453	Rijnlandroute	On-going since 2017
5509-5512-5513	Lock Terneuzen	On-going in 2020
5820	Maintenance dredging of rivers NL	Start-up in 2020
5871-5892	COTU - The Scheldt tunnel	Start-up in 2020

# CARBON FOOTPRINT REPORT

## 17. DEME level carbon footprint scope 1 and 2 (BeNe)



### Emission amounts

Energy Type	Emissions Amount	Emissions Unit
<div>Fuel</div>	190,632,123	kg CO2
Marine Gas Oil (average density: 0,89 ton/...	116,809,966	kg CO2
Marine Diesel Oil	57,321,125	kg CO2
Diesel (EUR)	14,363,583	kg CO2
Petrol (E95, average biofuel blend)	1,351,765	kg CO2
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LNG (average density: 0,43 ton/m³)	73,904	kg CO2
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Purchased electricity - Green - Mix	0	kg CO2
Purchased electricity - Green - Wind	0	kg CO2
Purchased electricity - Green - Solar	0	kg CO2
Self produced electricity - Green - Solar	0	kg CO2
Self produced electricity - Green - Wind	0	kg CO2
Total	192,830,047	kg CO2



## REFERENCES TO EXTERNAL DOCUMENTS

### **18. Scope 3 emissions [CO2PL] [4.A.1]**

This document can be found here: <https://www.deme-group.com/co2-prestatieladder>

### **19. Participation and Chain initiatives [CO2PL] [5.C.1] [3.D.1]**

This document can be found here: <https://www.deme-group.com/co2-prestatieladder>

### **20. Life cycle assessment [CO2PL] [3.D.1]**

This document can be found here: <https://www.deme-group.com/co2-prestatieladder>