# DEME Energy Performance Booklet 2022 Q1+Q2





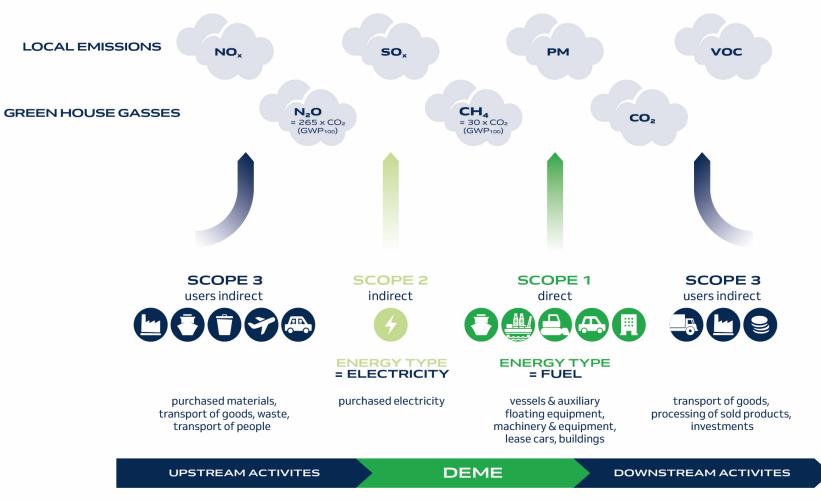
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#### WHAT ARE SCOPE 1, 2 AND 3 EMISSIONS?

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

Scope 1 emissions are direct emissions from DEME managed or controlled sources

Scope 2 emissions are indirect emissions from the generation of purchased electricity from a utility company

Scope 3 emissions are indirect emissions from sources managed or controlled by DEME

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01 COMPANY PROFILE

02 REPORT RESPONSIBILITIES AND REPORTING PERIOD

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### **GENERAL** 01. COMPANY PROFILE

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 2.50 billion euros in 2021.





03. REDUCTION TARGETS SCOPE 1, 2 AND 3 EMISSIONS

### **DEME'S GLOBAL AMBITION**

As stated in our Energy and GHG Policy, the following ambitions and goals are set on DEME worldwide level.

We want to continuously challenge ourselves to develop more sustainable solutions within our portfolio and at the same time excel in our operations. This twodimensional approach is anchored in our sustainability strategy, which is also aiming to help to achieve the United Nations' 17 Sustainable Development Goals.

In order to achieve these ambitions DEME has set long-term goals to:

- strive for a climate-neutral organisation by 2050 and to reduce GHG emissions in the project value chains
- minimize the environmental impact of our operations
- strive for a net positive impact on biodiversity and ecosystems

When it comes to  $CO_2$  and GHGs we have chosen to take IMO's current strategy into account and to even go above and beyond its requirements. More specifically we aim to:

- keep improving the energy efficiency in our operations;
- work towards climate neutral operations by 2050 (scope 1 & scope 2)
- reduce the GHG emissions generated by our operational fleet by 40% by 2030 in relation to 2008 per unit of work (scope 1 & scope 2)
- reduce the GHG emissions in our project value chains (scope 3)



### **02. POLICIES AND STATEMENTS**

DEME's core values reflect our unshakable belief in the quest to deliver excellence. They serve as a compass that guides the way we work with our business partners, within communities, and with each other. Detailed information regarding our core values (STRIVE) is expressed in DEME's mission, vision and values statement.

As part of this belief, DEME has developed an Energy & Green House Gas emissions policy.

This policy describes:

- what we aim for
- how we will do it
- how we will measure it
- what we have to do

To describe how we will achieve our predetermined goals, we developed an annual action plan that follows our energy user structure.



### 02. REPORT RESPONSIBILITIES AND REPORTING PERIOD

The Energy and carbon footprint described in this report is intended for the use within the ISO 50001 and CO<sub>2</sub> Performance ladder boundary. The Energy and GHG inventory is compiled under the responsibility of the DEME Corporate QHSE-S Manager and in accordance with the ISO 14064 principles.

The source of the data can always be found in a tag near the chart or table.

REVIEW TABLE						
ACTION	RESPONSIBLE	FUNCTION	DATE			
PREPARATION	NICK DEBOEVER	QHSE-SENGINEER	1/09/2022			
REVISION 1	MAGALI BRUGGEMAN	ENERGY DIRECTOR	9/09/2022			
FINAL REVISION	KAREL HUYBRECHTS	DEME QHSE-S MANAGER	13/09/2022			

### **Our DEME Reporting Principles**

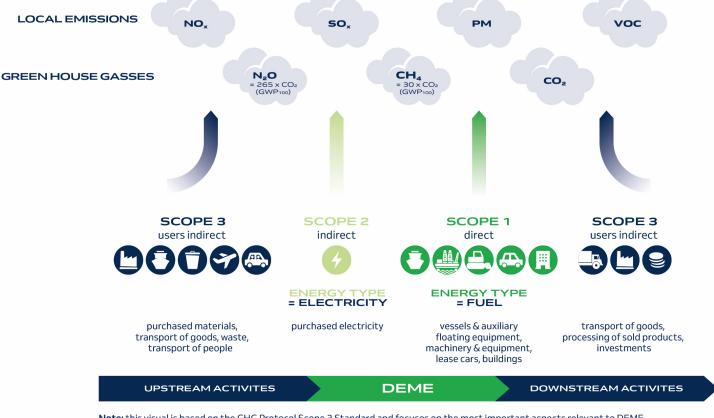




### 03. ORGANIZATIONAL BOUNDARIES AND REPORTING BOUNDARIES

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



### 03. ORGANIZATIONAL BOUNDARIES AND REPORTING BOUNDARIES

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.



### 04. QUANTIFICATION METHODOLOGY, BASE YEAR AND BASE YEAR CHANGES

The identification of GHG sources and energy users provides the basis for the quantification of the emitted GHGs. Multiplying the data from the emission sources and energy consumers, each with their relevant emission factor, results in the carbon footprint.

The base year for the DEME organisation is set at the year 2008. 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.

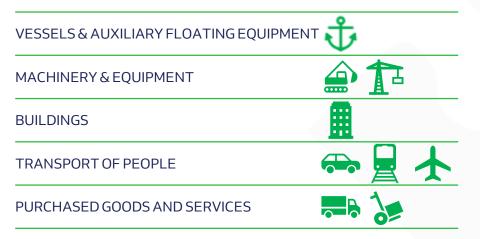
The emission inventory or base year will only be recalculated in case of changes to operational boundaries or fixed emissions factors.



### 05. ENERGY MANAGEMENT APPROACH

To give structure to our strategy, we set up an energy card and defined 5 significant energy users:

#### ASSET TYPE



The energy card contains emission factors that are linked to these asset types. For each of those energy users, we have defined objectives, targets and specific action plans.



### 06. 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 GHG 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 GHG 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].



### 07. ASSESSING AND REDUCING UNCERTAINTIES

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

- 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].



### 08. INVENTORY VERIFICATION AND GLOBAL WARMING POTENTIAL VALUES

Depending on our reporting purposes, we use different emission factors.

Most of the GHG emissions are calculated based on the GHG emission factors listed on the website www.CO2emissiefactoren.nl as prescribed by the CO<sub>2</sub> 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 CONCRET	E SBK DATABASE
RESIDUAL WASTE PROCESSING	21.28 KG CO2/TON WASTE	RESIDUAL WASTE-COMBUSTION(UK DEFRA)

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.



### 09. WHAT IS ENERGY?

Energy comes in many forms and is literally everywere. In this report, energy (E) is either expressed in Joules (J) or Kilowatt Hours (kWh). A common mistake is using the unit Watt (W) to express energy. Watt is however the unit of power (P), and power is an amount of energy used during a certain time period.

There is a fixed relationship between the above units that can be expressed as follows:

$$P = 1 W = 1 \frac{J}{s}$$
$$E = 1 kWh = 1000 \frac{J}{s} * 3 600 s = 3 600 000 J$$

Note that 1J is a very small amount of energy. That is why we often talk about Giga Joules (GJ) or Terra Joules (TJ). Burning 1m<sup>3</sup> of Marine Diesel Oil, releases 36 GJ of energy. If this amount of fuel is burned in 1 hour, the average power that is released during that hour is 10 MW.

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	21.28 KG CO2/TON WASTE	RESIDUAL WASTE-COMBUSTION(UK DEFRA)

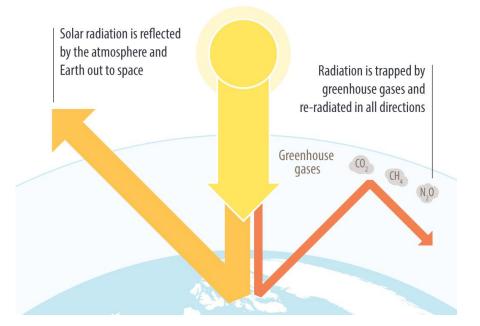
Energy sources can be categorised as renewable or non renewable. Renewable energy sources can easily be replenished, while non renewable cannot.

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### 10. WHAT IS $CO_2$ ?

Carbon dioxide is a gas consisting of one part carbon and two parts oxygen. It is one of the most important gases on the earth because plants use it to produce carbohydrates in a process called photosynthesis. It is however also a Greenhouse Gas (GHG). This means that it contributes to climate change by trapping solar radiation in our atmosphere, together with other GHGs like Nitrous Oxide  $(N_2O)$  and Methane  $(CH_4)$  which are the most common ones<sup>1</sup>.

In this report, the unit 'kTon  $CO_2$ ' and 'kTon  $CO_2eq$ ' are used. 'kTon' is the combination of 'kilo' (thousand) and 'ton' (thousand kg). Multiplying those two terms, results in 'Million kg' or 'kTon'.



The difference between  $CO_2$  and  $CO_2$ eq is that  $CO_2$ eq (where eq stands for equivalents) also includes the Global Warming Potential (GWP) of N<sub>2</sub>O and CH<sub>4</sub>. The effect of these GHGs is calculated in terms of amount of  $CO_2$ . The GHG effect of 1kg N<sub>2</sub>O is the same as 265 kg  $CO_2$ , while for 1 kg CH<sub>4</sub> this translates to 30 kg  $CO_2$ . This might seem like a lot, but it is important to note that most of our DEME GHG emissions (>90%) are  $CO_2$ .

<sup>1</sup>Except for water vapour



#### 00 SCOPE OF ENTITIES

-

- 01 EVOLUTION SCOPE 1 EMISSIONS
- 02 EVOLUTION SCOPE 2 EMISSIONS
- 03 REDUCTION TARGETS SCOPE 1 AND 2 EMISSIONS
- 04 SCOPE 1 TARGET PROGRESS
- 05 SCOPE 2 TARGET PROGRESS
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- 08 EMISSIONS AND REDUCTIONS PROJECT LEVEL
- 09 SCOPE 1 AND 2 CARBON FOOTPRINT
- 10 REFERENCES CO2 PERFORMANCE LADDER

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#### 00. SCOPE OF ENTITIES

# The scope of the Progress and Carbon Footprint Report limits to the entities of $CO_2$ Performance ladder.

Entity	Expiry date	Expiry status	Entity	Expiry date	Expiry status
AANNEMINGSMAATSCHAPPIJ DE VRIES & VAN D			DREDGING, ENVIRONMENTAL & MARINE ENGINE		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
BAGGERWERKEN DECLOEDT & ZOON NV (BDC)			ECOTERRES SA		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
DE VRIES & VAN DE WIEL BEHEER BV			GRC ZOLDER NV		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
DE VRIES & VAN DE WIEL KUST- EN OEVERWERKE			GROND RECYCLAGE CENTRUM NV (GRC)		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
DEME BLUE ENERGY NV (DBE)			MILIEUTECHNIEK DE VRIES & VAN DE WIEL B.V		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
DEME BUILDING MATERIALS BV			ZANDEXPLOITATIEMAATSCHAPPIJ DE VRIES & VA		
CO2 prestatieladder	13/03/2024	Certificate valid	CO2 prestatieladder	13/03/2024	Certificate valid
DEME BUILDING MATERIALS NV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME ENVIRONMENTAL NV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME INFRA NL					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME INFRA NV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME OFFSHORE BE NV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME OFFSHORE HOLDING NV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME OFFSHORE NL BV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DEME OFFSHORE PROCUREMENT & SHIPPING LU					
CO2 prestatieladder	13/03/2024	Certificate valid			
DREDGING INTERNATIONAL NETHERLANDS BV					
CO2 prestatieladder	13/03/2024	Certificate valid			
DREDGING INTERNATIONAL NV					
CO2 prestatieladder	13/03/2024	Certificate valid			





#### **01. EVOLUTION OF SCOPE 1 EMISSIONS**



#### EVOLUTION OF SCOPE 1 CO<sub>2</sub>-EMISSIONS

During Q1+Q2 2022, **52 kTon** 

of scope 1 CO<sub>2</sub> emissions were emitted in Belgium,in Luxembourg and The Netherlands as a result of our activities.



#### 02. EVOLUTION OF SCOPE 2 EMISSIONS

#### SOURCE: POWERBI 4,5 4,05 3,90 4 3,55 3,40 3,40 3,5 3,25 CO2 EMISSIONS IN KTONS 3,15 3,10 3 2,50 2,5 2,20 2 1,5 0,83 0,68 0,5 0 2011 2012 2021 2022 2013 2014 2015 2016 2017 2018 2019 2020 Q1+Q2

#### EVOLUTION OF SCOPE 2 CO<sub>2</sub>-EMISSIONS

During Q1+Q2 2022, **0,83 kTon** 

of scope 2 CO<sub>2</sub> emissions were emitted in Belgium, in Luxembourg and The Netherlands as a result of our activities.





03. REDUCTION TARGETS SCOPE 1, 2 AND 3 EMISSIONS

### DEME'S AMBITION BELGIUM AND THE NETHERLANDS

TARGET	TARGET YEAR	SCOPE
HQ ZWIJNDRECHT OFFICES – CLIMATE NEUTRAL	2025	1, 2
OFFICES IN BENELUX 100% GREEN ELECTRICITY	2025	2
PROJECT SITES IN BENELUX 100% GREEN ELECTRICITY	2025	2
CLIMATE NEUTRAL IN OPERATIONS WITH MACHINERY & EQUIPMENT (BENELUX)	2030	1, 2
65 GRAMS CO2/KILOMETER FOR LEASE CARS	2025	1
ENSURE A GRADUAL FUEL SHIFT FROM DIESEL OIL TO LOW-CARBON AND (NET- ZERO) CARBON FUELS(TARGET 5% OF LOW-CARBON FUEL TO THE TOTAL)	2022	1





# PROGRESS AND CARBON FOOTPRINT REPORT (BENELUX)

04. SCOPE 1 TARGET PROGRESS

SOURCE: CARFLEET **GRAM CO2 EMISSIONS PER KILOMETER** 2022 02202402

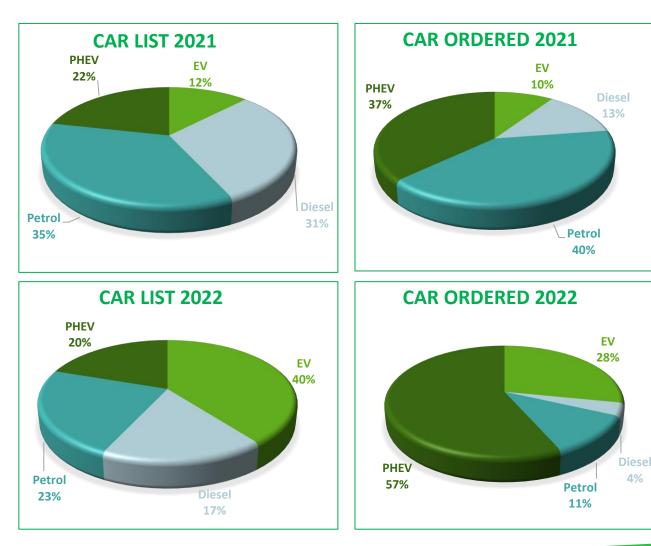
—TARGET 2025 —CURRENT LEVEL

During Q1+Q2 2022, the average  $CO_2$  emissions of our fleet was **93 g/km.** 

#### **CO2 EMISSIONS LEASE CARS**

# **TRANSPORT OF PEOPLE - CARS**

#### DEME CAR FLEET



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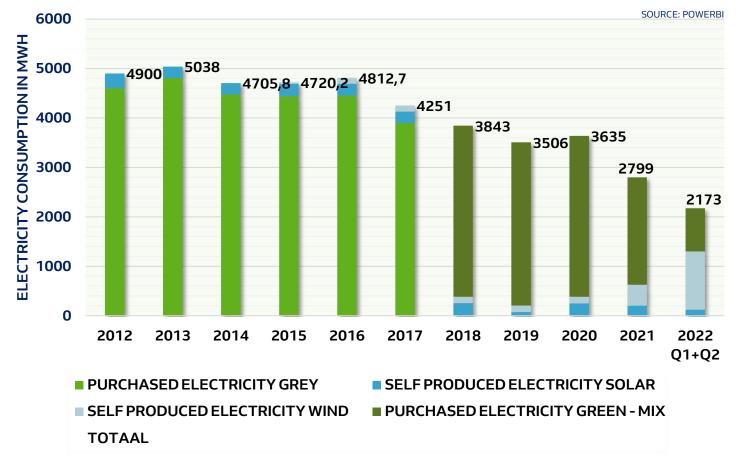


### 04. SCOPE 2 TARGET PROGRESS

During Q1+Q2 2022, the total electricity consumption was **2173 MWh** at HQ Campus Zwijndrecht.

This is a increase of **12%** with respect to Q1+Q2 2021.

All the electricity that was consumed at HQ, came from renewable energy sources.



#### DISTRIBUTION ELECTRICITY SOURCE HQ

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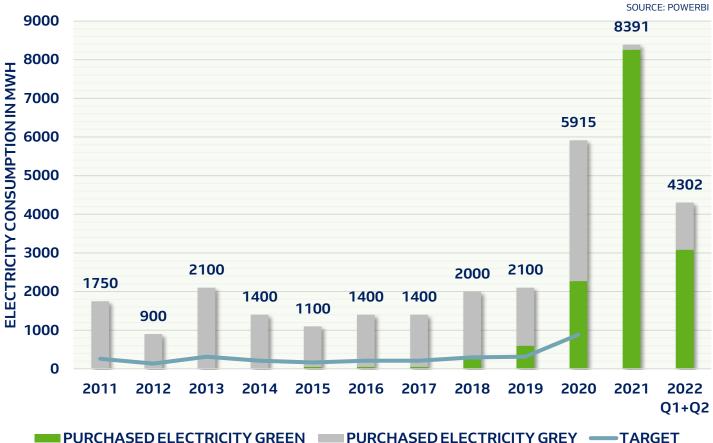
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## **PROGRESS AND CARBON FOOTPRINT REPORT (BENELUX)**

### 04. SCOPE 2 TARGET PROGRESS

During Q1+Q2 2022, the total electricity consumption at our project sites was **4302 MWh** at our project sites in BeNeLux. This is a decrease of **5%**<sup>1</sup> with respect of Q1+Q2 2021.

72% of electricity that was consumed at our project sites, came from renewable energy sources.



DISTRIBUTION ELECTRICITY SOURCE PROJECT SITES

<sup>1</sup>This increase is caused by expanding our scope of projects

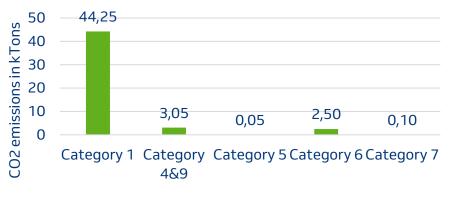


DEME has analysed its scope 3 emissions and decided to monitor only 4 emission categories (see table 5.1 GHG Protocol Scope 3 Standard in the 'Handreiking Aanbesteden Versie 3.0') for which the amounts are measurable and reducible; e.g.:

- Cat 1: purchase of goods & services (concrete, steel, fuel consumption of hired equipment);
- Cat 4 & 9: transport;
- Cat 5: generated waste;
- Cat 6: air travel;
- · Cat 7: commuter travel.

The scope 3 emissions for 2022 are shown in the graph below compared with 2021 ones.

Scope 3 CO2 emissions



Q1+Q2 2022

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	70 %
Category 4&9	75%
Category 5	50%
Category 7	70%

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



#### Category 1 scope 3 CO2 emissions

Q1+Q2 2022



#### Extern

## **PROGRESS AND CARBON FOOTPRINT REPORT (BENELUX)**

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 analysed 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.



#### Extern

## **PROGRESS AND CARBON FOOTPRINT REPORT (BENELUX)**

DEME's energy reduction program is evaluated and assessed by means of an energy management action plan. Ref. document DEME-QHSES-PRE-012. This action plan is linked to the Sustainability Programs on Climate & Energy. Reference is also made to our Year Action Plan on Energy & GHG emissions (DEME-GHG-YAP).

#### 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.

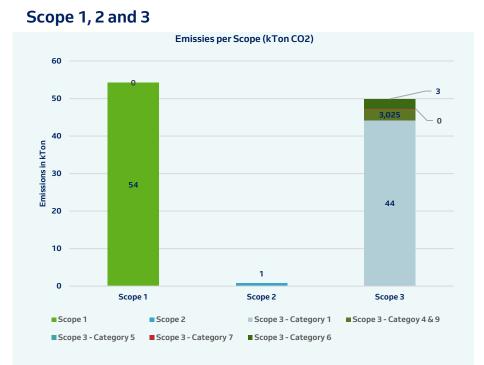
Project budget nb.	Project description	Status project
5264	Maintenance dredging of rivers NL	On-going since 2016
5447 - 5453	Rijnlandroute	On-going in 2020
5547 -5548	Blankenburgverbinding	On-going since 2017
5509 - 5513	Lock Terneuzen	On-going in 2020
5568	ROCO - Oosterweelverbinding	Start-up in 2021
5666	Maintenance dredging work coastal marinas	On-going since 2019
5820	Maintenance dredging of rivers NL	Start-up in 2020
5834	DVVW – Sterke Lekdijk	Start-up in 2021
5871-5892	COTU - The Scheldt tunnel	Start-up in 2021



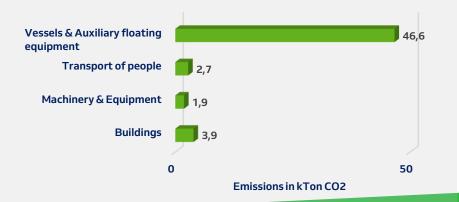
### ► CO2 EMISSIONS DASHBOARD (BENELUX)

CO2 COMMUNICATIC

Extern



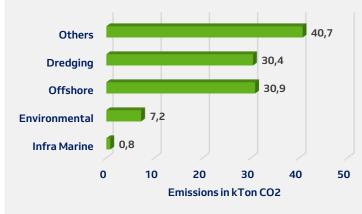
#### Emissions by Asset type (kTon CO2)



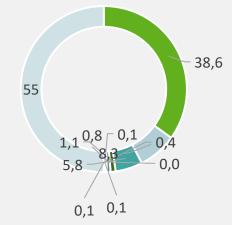


Scope 1 and 2

#### Emissions by Activity line (kTon CO2)



#### Emissions by Energy subtype (kTon CO2)



- Marine Distillate Fuel with Sulphur <0.1%=38,6</p>
- Marine Distillate Fuel with Sulphur <0.5%=8,3</p>
- Diesel EN 590=11,6
- Petrol E95=1,1
- Purchased Electricity Source Unknown=0,8
- LNG=0,4
- Natural Gas=0,1
- Bio Diesel FAME <50%=0,1
- Bio Diesel FAME 100%=0,1
- Purchased Electricity Grey=0,1

