Daiwa House
Modular Europe

Table of Contents

1. Introduction and justification

In this report, we report progress against the goals for our company. This full-year report provides an incentive to continuously work towards achieving the CO2 reduction targets for scope 1,2 and 3. Given DHME's strong growth ambitions, combined with the high demand for housing, it is within expectations that emissions will increase in absolute terms in the coming years. Therefore, the reduction targets are presented relative to the company's produced and refurbished square meters. This metric is calculated as follows:

$$\text{CO}_2 \text{ Intensity (kg CO}_2\text{/m}^2) = \frac{\text{Absolute CO}_2 \text{ Emissions kg CO}_2}{(\text{Produced}*0{,}7) + (\text{refurbished}*0{,}3)\ \text{m}^2}$$

2. Progress reduction targets

In this document, scope 1, 2 and 3 CO2 reduction objectives are presented. For each target, the business activity is presented with target, emissions, responsibility, improvement methods and status.

Scope 1:

Scope 1	
Company activity	Gas usage for heating, fuel usage for transportation, generator and equipment
CO_2-emission per kg/ m²	63 kg-CO_2/m²
Goal	25% reduction (target value: 68,25 kg/ m² in 2025 vs 2019)
Responsible	Board
Measure	► making fleet more sustainable; ► managing driving behavior; ► monitor fuel consumption; ► replace gas-fired heaters; ► apply hybrid generators; ► purchase electric loading crane; ► purchase electric/hydrogen-powered truck;

Analysis status 2024 :

General

- Goal scope 1: 25% reduction in 2025 towards 2019 (20% of total)
  - Duration of 6 years: 25/6= 4.17% per year
  - CO_2-emission 2019: 91 kg-CO_2/m² in CO_2 intensity
  - CO_2-emission 2024: 63 kg-CO_2/m² in CO_2 intensity
  - Decrease of 30%

- 2023: 65 T-CO_2/ 2024: 63 T-CO_2 (reduction of 3%)

CO_2-emissions	T-CO_2	CO_2 intensity
2019	5260	91
2020	5486	114
2021	7074	82
2022	4073	49
2023	4939	65
2024	5063	63

Specific

Topic	T-CO_2 2019	T- CO_2 2024	CO_2-intensity 2019	CO_2-intensity 2024	% gain or loss
Natural gas business premises	303	827	5,32	10,25	93%
Diesel project sites	495	1837	8,55	22,77	166%
Petrol business travel	65	535	1,12	6,63	83 %
Diesel business travel	657	909	11,35	11,92	5%
Diesel transportation trucks	3741	939	64,61	11,41	-99%

Notable here is that the first four items all increased. This is mainly explained by growth in production and business travel. Overall, comparing the emissions in relation to the square meters produced scope 1 decreased 30% between 2024 and 2019. This is due to the large effect of the sale of the transport division, this partially offsets the growth of the company.

Natural gas business premises

This item continues to grow and accelerated this year with 30% growth compared to 2023. This can be explained by the commissioning of the German product location in Fürstenwalde. Fürstenwalde is heated by natural gas and due to its large size, energy-saving actions are not yet in line with the production halls in the Netherlands. In 2023, the SPIE project's recommendation resulted in 3 options for different style heat pumps in combination with batteries to use more solar energy generated by the collection of PV-systems available. This is currently under review to implement.

Gas consumption varies a lot per production site. In Montfoort, consumption is down 5% compared to 2023. Partly due to the sustainable installations such as the current heat pumps and solar panels and good insulation. In Eemshaven, gas consumption has fallen by 3%. On the other hand, in Hulst consumption has increased by 1766% compared to the full year 2023. This increase is unprecedently large, however compared to 2022 this is only 43%. As per the data Hulst only had production active from Januari to April in 2023. This explains the large difference for this location. If Germany is not included in the total gas consumption of the production sites in 2024, we see a decrease of 25% compared to 2023.

Planned actions:

- The new factory in Germany has a high gas consumption.
- Start internal analysis what causes the gas consumption in Fürstenwalde such as insulation, heating systems, welding activities etc.
- Together with Green Deal Montfoort DHME and other entrepreneurs will investigate the option of an energy hub and share the Stedin Contract. Taking another step towards a zero gas production site.

Diesel project sites

Earthquake-resistant housing in Groningen (NCG projects) accounts for much of the diesel increase at project sites. Because the homes are built in a hurry and a grid connection cannot usually be realized, they must be powered by hybrid generators.

DHME JS continues to rely on customers on these projects to reduce diesel usage on NCG projects. Another proposal was presented to the customer to use HVO100. Unfortunatly, due to the price of HVO100 the proposal was still not accepted. With this, DHME has made every effort to reduce CO2 on residential sites.

Diesel is also used on our construction sites. For this, a study is underway to apply batteries that will significantly reduce diesel consumption. The ultimate goal for 2030 is an emission-free construction site.

Planned activities:

- Expectations are a natural turnover in take down of NCG projects.
- Decrease of projects using generators because of permanent power connection.
- Keep updated and try to convince the client for using alternative fuels like HVO100.

Gasoline and Diesel business travel

Gasoline and Diesel business travel is rising steadily. This is due to the rapid growth of the company and the increase in the number of employees and lease cars this entails.

This year a difference can be observed between Diesel and Gasoline use for business driving. Gasoline has decreased 3% and Diesel has increased by 15% compared to 2023. This can be explained by a 10% decrease in gasoline vehicles and a 6% growth in diesel vehicles.

These increases are the reflection of a growth in business travel between The Netherlands and Germany due to the new production facility in Fürstenwalde. As well as, hiring more employees who received company cars growing the lease fleet by 8%.

The share of electric cars has increased significantly, which could explain the overall decrease of fuel consumption for business travel.

Company policy is for new employees to receive an electric vehicle (EV's), unless there is a reason for a fuel car. Stimulation for EV's resulted in a 63% growth of the EV fleet in comparison to 2023 and a little over 1/5th part of the total business vehicle fleet in 2024 was electric at 22%.

Planned actions:

- Apply research HVO / Premium fuel for passenger cars and commercial buses.
- Run a company campaign to stimulate public transportation and/or taking the bicycle to work-days.

Trucks: diesel transportation

As of November 2023, there were 13 trucks in the transportation fleet that transport the units to project sites. The size of the fleet was stable in 2024. Due to a lower number in unit transport movements in the Netherlands the Diesel consumption decreased 12% in 2024.

Planned activities:

- Apply research HVO or Ad Blue for trucks where possible

- Apply research for alternative fueled trucks (non-diesel)

Scope 2:

Scope 2 + Business travel	
Company activity	Non-direct emissions: electricity generation and air travel
CO_2-emission per kg/ m2	1,99 kg-CO_2/m²
Goal	80% reduction (target value : 2,73 kg-CO_2/m²) in 2025 vs 2019
Responsible	Board
Measure	▶ travelling by train as an alternative to short flight; ▶ install PV systems on (new) halls; ▶ continue to buy 100% Dutch green electricity; ▶ continue to investigate possibility of charging electric cars with green electricity, off-site.

Analysis status 2024:

General

- Goal scope 2: 80% reduction in 2025 towards 2019
  - 2019= 19 kg-CO_2/m² in CO_2 intensity
  - 2024= 1,99 kg-CO_2/m² in CO_2 intensity
  - Decrease of 90%
- 2023: 1,71 kg-CO_2/m² compared to 2024: 1,99 kg-CO_2/m² resulted in a gain of 16%.

CO_2-emissions	**T-CO_2**	**CO_2-intensity**
2019	1100	19
2020	511	11
2021	17	0,19
2022	36	0,43
2023	131	1,71
2024	161	1,99

Specific

Topic	T-CO_2 2019	T-CO_2 2024	CO_2–intensity 2019	CO_2–intensity 2024	% gain
Electricity	556	0	13,33	0	-100%
Charging on the road	0	27	0	0,31	n.v.t.
Air travel	25	134	0,31	1,66	436%

Electricity

Because all the electricity DHME buys is green, the current calculation method dictates that no CO_2 impact should be calculated for this. Electricity consumption is expected to continue to rise in the coming years. This is due to the electrification of existing properties, building and renting new halls/offices and electrifying the vehicle fleet.

Planned actions:

- The Montfoort Green Deal has been collecting energy profiles of 6 to 7 companies who could participate in an energy hub. The collaboration could lead to sharing space in fellow energy contracts in order to have more electricity available amongst the group as there will be congestion on the electricity grid until 2030 at minimum.
- To stay within the electricity contract of Stedin the location in Hulst will install LED lighting.

Charging on the road

In 2021, the emission post 'charging on the road' was added. The percentage of electric vehicles in the business travel fleet is growing and they charge outside the production sites. In doing so, there is no control over the origin of the electricity. It is therefore assumed that this is grey electricity and emits CO_2. This can be seen as a positive development, as electricity is prefered over petrol or diesel.
Consultations have been held with the supplier of the charging cards, however, it remains impossible to charge with green electricity. As soon as a solution to this is found, DHME will be contacted.

Planned actions:

- Look into HBEs (hernieuwbare brandstofeenheden) to see if they can offset EV-charging off the production site.

Air travel

There is strong international growth at the moment which means that air travel continues to increase. Due in part to the addition of the Fürstenwalde, Germany production site, air travel increased greatly to start up the plant and make it ready for production for the new project near Berlin. In addition to European flights, managers and experts within the DHME team fly to Boston to lend their skills to the project there. From 2023 to 2024 flights under 700 km grew 28%, medium distance flights between 700-2500 km increased 444% and long distance flights over 2500 km grew 9%.

During the period when factories and departments are being set up, a lot of consultation and explanation is needed. Initially, this is done as much as possible through MS Teams, however, especially in the primary process, this cannot be done remotely.
In addition, the data collection has been improved, resulting in more flights being identified.

Planned actions:

- The Company Policy states that trips under 700 km will be made by train, provided this can be done in a realistic timeframe.
- New campaigns to bring attention to train comfort and company policy are planned for 2025.

Scope 3:

Supply chain analysis has not changed compared to last year and therefore the same dominance is maintained (materials and waste). Should business operations change to such an extent that changes can be expected here, the dominance analysis will be carried out again.

Scope 3 - Materials	
Company activity	Emissions in the supply chain by use of materials
CO_2-emission per kg/ m2	172 CO_2/m^2
Goal	20% reduction (target value : 128 kg-CO_2/m^2) in 2026 vs 2021
Responsible	Board
Measure	► explore and deploy alternative materials to replace high-impact (top 3) materials. ► continue development of new floor and heated mold.

Analysis status 2024 :

- Goal: 20% reduction in 2026 vs 2021
  - 2023: 168,8 kg-CO_2/m^2 in CO_2 intensity
  - 2024: 172 kg-CO_2/m^2 in CO_2 intensity
- Gain of 7%

CO_2-emissions	T-CO_2	CO_2-intensity

2019	9929	171,5
2020	6289	131,6
2021	13883	160
2022	12865	153,8
2023	12909	168,8
2024	13870	172

The R&D department is looking at possible applications of Biobased Materials to reduce material bound emissions from the units. The National Milieu Database (NMD) is currently adapting the MPG calculation methods. This will influence their actions to achieve a good score. Phasing out or replacing the top 3 high impact materials remains challenging. This is in part because a buildings must meet certain quality requirements for fire safety, as well as energy needs of future users and acoustic use values.

For example, adding wood in the cement floor is being looked at, but so far the acoustic values and insulation values cannot be met. The floor is still in full development. In addition, the heated mold is still undergoing testing and new mixtures of a lower CO_2 emissions cement mixture are being investigated with Concrify cement partner. In the project Strandeiland the gallery and stairs are wooden, increasing the percentage of biobased materials in this project.

Scope 3 - Waste	
Company activity	Waste emissions in supply chain
CO_2-emission per kg-CO_2/m²	84 kg-CO_2/m²
Goal	10% reduction, (target value: 63 kg-CO_2/m² in 2026) vs 2021
Responsible	Board
Measure	► Further subdivide waste streams into mono streams, identify processors to optimally process streams and initiate processes to ensure proper waste sorting.

Analysis status 2024 :
Goal: 10% reduction, meaning 7 kg-CO_2/m² lower compared to 2021
Goal: 80% mono-streams in 2030

- 2023: 84 kg-CO_2/m² in CO_2 intensity
- 2024: 93 kg-CO_2/m² in CO_2 intensity

- Gain of 10,7 %

CO_2-emissions	**T-CO_2**	**CO_2-intensity**
2019	4239	73
2020	2881	60
2021	6095	70

2022	5690	68
2023	6395	84
2024	7503	93

Specific

Topic	T-CO_2 2021	T-CO_2 2024	CO_2-intensity 2021	CO_2-intensity 2024	% gain
Mono	2329	3826	26,8	47	75%
Mixed	3759	3656	43	45	4,6%
KCA	17	21	0,19	0,26	36,8%

2024 was a challenging year regarding waste management. Due to the new production hall in Germany the total amount of waste grew 17% compared to 2023. On production sites issues emerged showing waste separation is not held to a high enough standard and action is required in 2025 to grow towards our goals to increase mono-streams.

Compared to the 2021 base year the mono-streams increased by 75%, however, from the total waste produced mono-streams take up just over half with 51%. Steps have been taken, such as new signs and a manual for production managers to inform them om proper procedures. Adding the new production location Fürstenwalde had influenced all 3 scopes. Actions are required to continue improving on set goals.

3. Measures

For H1 2024 the following measures were planned:

Own initiative

SPIE Project investigating options towards disconnecting the gas and go 100% electric (6/2024)
Implement new waste separation signs to improve mono-streams (6/2024)

For H2 2024 the following measures were planned:

Selection of SKAO list of measures:

Between 5% and 25% of electricity use is covered by own generation of renewable electricity (via own investment or lease) (01/2024) Only achieved for main production site. Further solar installments will be suggested in the project together with SPIE (7/2024)
At least 5% of the electricity consumption of all business premises is covered by own generation of renewable electricity (via own investment or lease) (07/2023) Not achieved due to the commissioning of the new factory in Germany

The company can demonstrate that it operates at least one mobile tool based on zero CO2 emission technology. (03/2024) Aerial platform in Montfoort is zero emission and the Automated Guided Vehicles (AGV) in hall 17.
At least 100% electricity for consumption at work (construction site) is green electricity and/or covered by national GVOs. (11/2024) Postponed due to capacity
In projects where the company as main contractor provides fuel on the construction site, the company ensures that at least 10% of the total fuel refueled on the construction sites is demonstrably renewable fuel. (11/2024) Postponed due to capacity

Own initiative

Waste management manual for hall managers (9/2024)
Change concrete mixture from De Goudse Beton Centrale for a CO2 negative mixture by Concrify (11/2024) Tests with cement unsatisfactory
Develop heated mold to lower CO2-emissions while drying cement floor (11/2024) Combination with cement mix unsatisfactory, under revision.
Investigate LED lighting for location Hulst (12/2024) Business cases for viewing in 2025

Own initiative (following year):

Look into business cases to implement the SPIE plan to make production sites more sustainable, such as batteries. (01/2025)
Phase out NCG projects (natural attrition) (1/2025)
Apply research HVO / Premium fuel for passenger cars and company buses (04/2025)
Apply research HVO for trucks (04/2025)
Public Transport Initiative to increase awareness on company policy (05/2025)
Continue new floor development process (5/2025) new cement mix is under revision
Further subdivide waste streams into mono streams, identify buyers to optimally process streams and initiate processes to ensure proper splitting. (ongoing)
Change lights at location Hulst to LED lights (7/2025)
Investigate Energy Hub with Green Deal Montfoort entrepreneur group to step towards zero gas on production site Montfoort (4/2025)
Investigate switching out Rockwool insulation for a biobased material (8/2025)

4. Progress uncertainties and estimates

The results presented should be seen as the best estimate of the actual values. Virtually all data used to calculate the carbon footprint are based on invoices, data from insight portals or supplied by the supplier. As a result, the margin of uncertainty is small.

An uncertainty lies in the possible human errors that can be made. First, the supplier may, for example, transmit the wrong time period, which will quickly be noticed because certain months will remain blank, for example.
Secondly, typos can be made in copying the data, however, this chance is small as DHME works with a 4-eye principle. Copied data and references are (randomly) checked by another employee than the one copying the data.

Forecast
For 2025, there are a number of expectations that could impact carbon emissions:

- Commissioning of the production site in Germany will continue to affect natural gas and electricity consumption.
- The German production site will grow their number of units produced and an increase in material bound carbon emissions is to be expected.
- To reduce transportation Diesel emissions, HVO100 will be selected where possible. However, price will play a large role in the decision when and where to implement this.
- Problems with Netcongestion will continue and influence sustainability actions regarding the disconnection from gas supply.