

# CO2 prestatieladder

CO2 Rapportage 2024

Reference: CO2\_Rapportage\_2024

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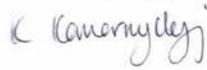

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# 1. Introduction

At Arup we aim to contribute towards a more sustainable future. Arup in the Netherlands has adopted the CO<sub>2</sub>-performance ladder as a tool to map and reduce CO<sub>2</sub>-emissions. The aims of the CO<sub>2</sub> Performance Ladder are in line with:

- Arup's Global Net Zero GHG Emission Statement;
- Arup's Global Net Zero Carbon Strategy; and
- Arup's Europe Region GHG Emissions Reduction Plan.

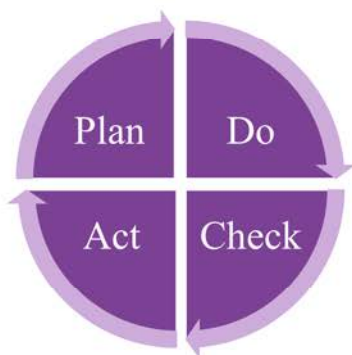
The Energy Management Plan combines our global company aims and strategies to reduce CO<sub>2</sub>-emissions and the local CO<sub>2</sub> performance ladder aims. Reduction targets and measures are set-up for emissions of scopes 1, 2 and 3 on the basis of the insight gained through the documents: GHG-inventory report, analysis of downstream scope 3 emissions and the chain analysis.

When reading this report it should be noted that, for most of 2020 and 2021, the Arup Amsterdam office was closed with the exception of business-critical activities or open with limited capacity to enable physical distancing to be implemented. This resulted in very limited staff office presence. Reception services continued during this period and regular lighting and heating in the office was provided. In 2022 the situation improved and office activities increased with staff aiming to spend at least 50% of their time in the office. By 2023 the office and operations have resumed to business as usual with the Work Unbound Policy in place, allowing us to compare the improvements made and helped by the new way of working in the past years. It should be noted that before 2019, working at the office was the norm, this results in higher numbers until the pandemic hit.

The ER Net Zero reduction plan is set for the period from 2020 to 2030, with an annual update by the end of 2023. The plan is written in accordance with ISO 50001.

The energy management planning is intended to be a process of continuous improvement, on the basis of a Plan, Do, Check and Act system:

- Plan:** Set energy management targets and measures
- Do:** Implement the CO<sub>2</sub> strategy.
- Check:** Measure and monitor performance
- Act:** Analyse the variances, recommend improvements



As per 2023 the reporting will be combined into a singular report. In section 1.1 and 1.2 the compliance to ISO 50001 and ISO 14064-1 will be described, followed by section 1.3 describing our organizational and operational boundaries and section 1.4 describing the responsibilities that will be valid for the entirety of the report.

## 1.1 Reader's guide

This report is built up in the following manner:

- Chapter 1 is the introduction, providing background on
  - the compliance of the EMP to the ISO standards
  - the compliance of the GHG to the ISO standards
  - Organizational boundaries
  - Overview of the responsibilities
- Chapter 2 Energy Management Plan
- Chapter 3 GHG report
- Chapter 4 Project Reporting
- Chapter 5 Communication plan
- Chapter 6 Participation plan

## 1.2 Compliance to ISO 50001

The Energy Management Plan (Section 2) is written in accordance with NEN-ISO 50001 as shown in Table 1.

**Table 1: Compliance with ISO 50001 2011 vs 2018**

ISO 50001:2011 <sup>1</sup>	ISO 50001:2018 <sup>2</sup>	Topic
§4.4.3	§6.3	Energy review
§4.4.4	§6.5	Energy baseline
§4.4.5	§6.4	Energy performance indicators
§4.4.6	§6.2	Objectives, energy targets and planning to achieve them
§4.6.1	§6.6 & §9.1.1	Planning for collection of energy data
§4.6.4	§10.1	Nonconformity and corrective action

**Table 2: Compliance with ISO 50001:2018**

§6.2 Objectives, energy targets and planning to achieve them	
§6.2.1 The organisation shall establish objectives at relevant functions and level. The organisation shall establish energy targets.	Section 2.1
§6.2.2 The objective and energy targets shall:	-
a) Be consistent with the energy policy	Section 2.1
b) Be measurable (if practicable)	Section 2.1
c) Take into account applicable requirements	Section 2.1

<sup>1</sup> Clauses referred to in CO2 Performance Ladder Handbook

<sup>2</sup> Latest version of the standard

d) Consider Significant Energy Uses (SEUs)	Section 2.1 and Strategies described in Section 1
e) Take into account opportunities to improve energy performance	Section 2.7
f) Be monitored	Section 2.4
g) Be communicated	Section 2.4
h) Be updated as appropriate	Section 2.8
The organization shall retain documented information on the objectives and energy targets	Section 2.1
§6.2.2 When planning how to achieve its objectives and energy targets, the organization shall establish and maintain action plans that include:	Table 23
- What shall be done;	Table 23
- What resources will be required;	Table 23
- Who will be responsible;	Table 23
- When it will be completed;	Table 23
- How the results will be evaluated, including the method(s) used to verify energy performance improvement.	Table 23
The organization shall consider how the actions to achieve its objectives and energy targets can be integrated into the organization's business processes. The organization shall retain documented information on action plans.	Section 2.6
<b>§6.3 Energy Review – To develop the energy review, the organisation shall:</b>	
a) Analyse energy use and consumption based on measure and other data, i.e.: 1. Identify current types of energy; 2. Evaluate past and current energy uses(s) and consumption	Section 2.4
b) Based on the analysis, identify SEUs (significant energy use)	Section 2.1 and Section 2.4
c) For each SEU: 1. Determine relevant variables; 2. Determine current energy performance; 3. Identify person(s) doing work under its control that influence or affect the SEUs	Section 1.4, Section 2.4 and Section 2.7
d) Determine and prioritise opportunities for improving energy performance	Section 2.7
e) Estimate future energy use(s) and energy consumption	Section 2.8
The energy review shall be updated at define intervals, as well as in response to major changes in facilities, equipment, systems or energy-using processes.	Updated annually
The organisation shall maintain as documented information the methods and criteria used to developed the energy review, and shall retain documented information of its results.	Data retained within office electronic filing locations
<b>§6.4 Energy Performance Indicators – The organisation shall determine EnPIs that:</b>	
a) Are appropriate for measuring and monitoring its energy performance	Section 2.1
b) Enable the organisation to demonstrate energy performance improvement	Section 2.7
The method for determining and updating the ENPI(s) shall be maintained as documented information.	Section 2.4
Where the organisation has data indicating that relevant variables significantly affect the energy performance, the organisation shall consider such data to establish appropriate EnPI(s).	Not applicable.

ENPI value(s) shall be reviewed and compared to their respective ENB(s), as appropriate. The organisation shall retain documented information of ENPI values.	Section 2.3 shows energy baseline
<b>§6.5 Energy baseline</b>	
The organization shall establish (an) EnB(s) using the information from the energy review(s) taking into account a suitable period of time.	Section 2.3 shows energy baseline
Where the organisation has data indicating that relevant variable significantly affect energy performance, the organisation shall carry out normalisation of the EnPI value(s) and corresponding EnB(s).	Not applicable.
EnB(s) shall be revised in the case of one or more of the following:	Not applicable.
a) EnPI(s) no longer reflect the organisation' s energy performance	-
b) There have been major changes to the static factors	-
c) According to a pre-determined method	-
The organisation shall maintain information of EnB(s), relevant variable data and modifications to EnB(s) as documented information.	Section 2.3 shows energy baseline
<b>§6.6 Planning for collection of energy data</b>	
The organization shall ensure that key characteristics of its operations affecting energy performance are identified, measured, monitored and analysed at planned intervals. The organisation shall define and implement an energy data collection plan appropriate to its size, its complexity, its resources and its measurement and monitoring equipment. The plan shall specify the data necessary to monitor the key characteristics and state how and at what frequency the data shall be collected and retained.	Section 2 and 3
Data to be collected (or acquired by measurement as applicable) and retained documented information shall include:	Section 2 and 3
a) The relevant variables for SEUs	-
b) Energy consumption related to SEUs and to the organisation	-
c) Operational criteria related to SEUs	-
d) Static factor, if applicable	-
e) Data specified in action plans	-
The energy data collection plan shall be reviewed at defined intervals and updated as appropriate.	Section 2 and 3
The organization shall ensure that the equipment used for measurement of key characteristics provides data which are accurate and repeatable. The organisation shall retain documented information on measurement, monitoring and other means of establishing accuracy and repeatability.	Section 2 and 3
<b>§9 Performance evaluation – §9.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS - §9.1.1 General</b>	
The organisation shall determine for energy performance and the EnMS:	
a) What needs to be monitored and measure, including at a minimum the following key characteristics: <ol style="list-style-type: none"> <li>1. The effectiveness of the action plans in achieving the objective and energy targets</li> <li>2. EnPI(s)</li> <li>3. Operation of SEUs</li> <li>4. Actual versus expected energy consumption</li> </ol>	Section 2.4



b) The methods for monitoring, measurement, analysis and evaluation, as appropriate, to ensure valid results	Section 2
c) When the monitoring and measurement shall be performed	Section 3
d) When the results from monitoring and measurement shall be analysed and evaluated	Section 2.7
The organisation shall evaluate its energy performance and the effectiveness of the EnMS	Sections 2.4 and 2.7
Improvement in energy performance shall be evaluated by comparing EnPI value(s) against the corresponding EnB(s)	Section 2.6
The organisation shall investigate and respond to significant deviations to energy performance. The organisation shall retain documented information on the results of the investigation and response.	Noted
The organisation shall retain appropriate documented information on the results from monitoring and measurement.	Noted.
<b>§10.1 Nonconformity and corrective action</b>	
When a nonconformity is identified, the organization shall:	
a) React to the nonconformity and, as applicable: <ol style="list-style-type: none"> <li>1. Take action to control and correct it;</li> <li>2. Deal with the consequences</li> </ol>	See CAPA register
b) Evaluate the need for action to eliminate the cause(s) of the non-conformity, in order that it does not recur or occur elsewhere, by: <ol style="list-style-type: none"> <li>1. Reviewing the nonconformity</li> <li>2. Determining the causes of the nonconformity</li> <li>3. Determining if similar nonconformities exist, or can potentially occur</li> </ol>	See CAPA register
c) Implement any action needed	See CAPA register
d) Review the effectiveness of any corrective action taken	See CAPA register
e) Make changes to the EnMS, if necessary	Noted
Corrective actions shall be appropriate to the effects of the encountered nonconformities.	See CAPA register
The organization shall retain documented information of: <ul style="list-style-type: none"> <li>- the nature of the nonconformities and subsequent actions taken;</li> <li>- The results of any corrective action</li> </ul>	See CAPA register

### 1.3 Compliance to ISO 14064-1

The GHG Inventory report (section 3) is written in accordance with ISO 14064-1 as shown in Table 3.

**Table 3: Compliance with ISO 14064-1**

<b>§9.3.1 GHG report content shall include the following:</b>	
a) description of the reporting organization;	Section 1.3
b) person or entity responsible for the report;	Document Verification table
c) reporting period covered;	Section 3.1
d) documentation of organizational boundaries ;	Section 1.3
e) documentation of reporting boundaries, including criteria determined by the organization to define significant emissions;	Section 3.2



f) direct GHG emissions, quantified separately for CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NF <sub>3</sub> , SF <sub>6</sub> and other appropriate GHG groups (HFCs, PFCs, etc.) in tonnes of CO <sub>2</sub> e;	Currently only tracking CO <sub>2</sub> (equivalent) emissions. Reported in Section 3.
g) a description of how biogenic CO <sub>2</sub> emissions and removals are treated in the GHG inventory and the relevant biogenic CO <sub>2</sub> emissions and removals quantified separately in tonnes of CO <sub>2</sub> e;	Not applicable.
h) if quantified, direct GHG removals, in tonnes of CO <sub>2</sub> e;	Not applicable.
i) explanation of the exclusion of any significant GHG sources or sinks from the quantification;	Not applicable.
j) quantified indirect GHG emissions separated by category in tonnes of CO <sub>2</sub> e;	Not applicable.
k) the historical base year selected and the base-year GHG inventory;	Section 2 and Section 3.1
l) explanation of any change to the base year or other historical GHG data or categorization and any recalculation of the base year or other historical GHG inventory, and documentation of any limitations to comparability resulting from such recalculation;	Not applicable
m) reference to, or description of, quantification approaches, including reasons for their selection;	Section 3.2.2 and 3.2.3
n) explanation of any change to quantification approaches previously used;	Not applicable
o) reference to, or documentation of, GHG emission or removal factors used;	Section 3.2.3
p) description of the impact of uncertainties on the accuracy of the GHG emissions and removals data per category;	Section 3.2.4
q) uncertainty assessment description and results;	Section 3.2.4
s) a disclosure describing whether the GHG inventory, report or statement has been verified, including the type of verification and level of assurance achieved;	Not externally verified, internal verification only
t) the GWP values used in the calculation, as well as their source. If the GWP values are not taken from the latest IPCC report, include the emissions factors or the database reference used in the calculation, as well as their source.	Not applicable only CO <sub>2</sub> taken into account  Emissions factors from <a href="https://www.co2emissiefactoren.nl">https://www.co2emissiefactoren.nl</a> have been used
<b>9.3.2 Recommended information</b>	
The organization should consider including in the GHG report:	
a) description of the organization's GHG policies, strategies or programmes;	Available on <a href="http://www.arup.com">www.arup.com</a> Section 3.1
b) if appropriate, description of GHG reduction initiatives and how they contribute to GHG emission or removal differences, including those occurring outside organizational boundaries, quantified in tonnes of CO <sub>2</sub> e;	Section 6
c) if appropriate, purchased or developed GHG emission reductions and removal enhancements from GHG emission reduction and removal enhancement projects, quantified in tonnes of CO <sub>2</sub> e;	Not applicable
d) as appropriate, description of applicable GHG programme requirements;	Not applicable
e) GHG emissions or removals disaggregated by the facility;	Section 3.2.1
f) total quantified indirect GHG emissions;	Section 2

g) description and presentation of additional indicators, such as efficiency or GHG emission intensity (emissions per unit of production) ratios;	Two measures proposed: kg CO <sub>2</sub> e/FTE and kg CO <sub>2</sub> e/€ turnover.
h) assessment of performance against appropriate internal and/or external benchmarks;	Section 2
i) description of GHG information management and monitoring procedures;	Section 3.2.2
j) GHG emissions and removals from the previous reporting period;	Section 2
k) if appropriate, explanation of GHG emissions differences between the present inventory and the previous one. The organization may aggregate direct emissions and direct removals.	Section 2
<b>9.3.3 Optional information and associated requirements</b>	
The organization may report optional information separately from the required information and the recommended information. Each type of optional information described below should be reported separately from the others.	-
The organization may report the results of contractual instruments for GHG attributes (market based approach), expressed in GHG emissions (tCO <sub>2</sub> e) as well as in the unit of transfer (e.g. kWh). The organization may report the amount purchased compared to the amount consumed.	-
The organization may report offsets or other types of carbon credits. If so, the organization:	
– shall disclose the GHG scheme under which they were generated;	Not applicable
– may add offsets or other types of carbon credits together if they originate from the same GHG scheme and are of appropriate vintage;	Not applicable
– shall not add or subtract offsets or other types of carbon credits from the organization's inventory of its direct or indirect emissions.	Not applicable
The organization may report GHGs stored in GHG reservoirs.	Not applicable

## 1.4 Organisational boundaries

The CO<sub>2</sub> Performance Ladder certification will be applicable to the firm Arup BV in the Netherlands. In 2023, Arup BV has one permanent office in Amsterdam. Prior to 2022, there was also a small office in Groningen but that office is no longer used as an Arup office. The firm operates as a consultant for the planning, design, management and research of architectural and engineering related projects, primarily in the building and infrastructure sector. There are no sub-companies operating under the control of Arup BV.

In 2023 Arup BV produced a total amount of 120 069 kg CO<sub>2</sub> emissions in Scope 1 and 2, classifying it as a small company according to the CO<sub>2</sub> Performance Ladder. The size classification determines the specific set of CO<sub>2</sub>-ladder certification requirements.

**Table 4: 2023 CO<sub>2</sub> Emissions for Arup B.V.**

Scope	2023 CO <sub>2</sub> emissions in kg
Total Scope 1	9 805
Total Scope 2	110 264
Total Scope 3 <sup>3</sup>	870 552
<b>Grand total</b>	<b>989 602</b>

### 1.4.1 Operational boundaries

Arup B.V. is responsible for the carbon emission related to all activities and projects that fall under its direct **operational control**. In 2023, Arup B.V. leased one office facility as described in Table 5.

**Table 5: Arup B.V. Locations**

Location	Consolidation	Operational control
Amsterdam office (permanent leased facility)	Equity share	Arup B.V. rents a floor area of 3040m <sup>2</sup> out of a building with a total floor area of 6080m <sup>2</sup> . The building also has a communal atrium which is shared with the other building tenants.  Energy and district heating suppliers not chosen by Arup B.V.  Energy/climate is controlled centrally for the whole building, not falling under control of Arup B.V.  Furniture, lighting and all operational devices such as computers and printers are property of Arup B.V.

<sup>3</sup> This now includes Scope 3 categories 1 & 2 and 5. See Supplier Emissions Analysis for details on category 1 & 2.

## 1.5 Responsibilities

The energy management team and organizational framework is introduced in the tables below. The team is also responsible for the yearly document maintenance.

**Table 6: Sustainable Development Roles**

Role	Name	Tasks & Responsibilities
Group Leader and Europe Region Sustainable Development Director (SDD)	REDACTED	Sets priorities and goals for the next 3 years Reviews governance policies Discusses with management team for approval of plans and implementation policies Audits if new projects meet the goals set by European board Yearly evaluates the goals
Europe Region Net Zero Manager	REDACTED	Provides oversight and support in data collection and reporting both Regionally and on a Group Level Manages organisation of emissions reporting and systems Reports to SDD
CO2 PL Manager (with input from supported by Q&E Officer, Facilities and Finance.)	REDACTED	Researches future scenarios Coordinates if goals meet CO2-prestatieladder Manages implementation of plans Checks governance with sustainability objectives Measures and monitors the effect of plans Analyses measurements Assists PM' s of projects won with CO2-prestatieladder

The responsible collaborators for project specific targets are:

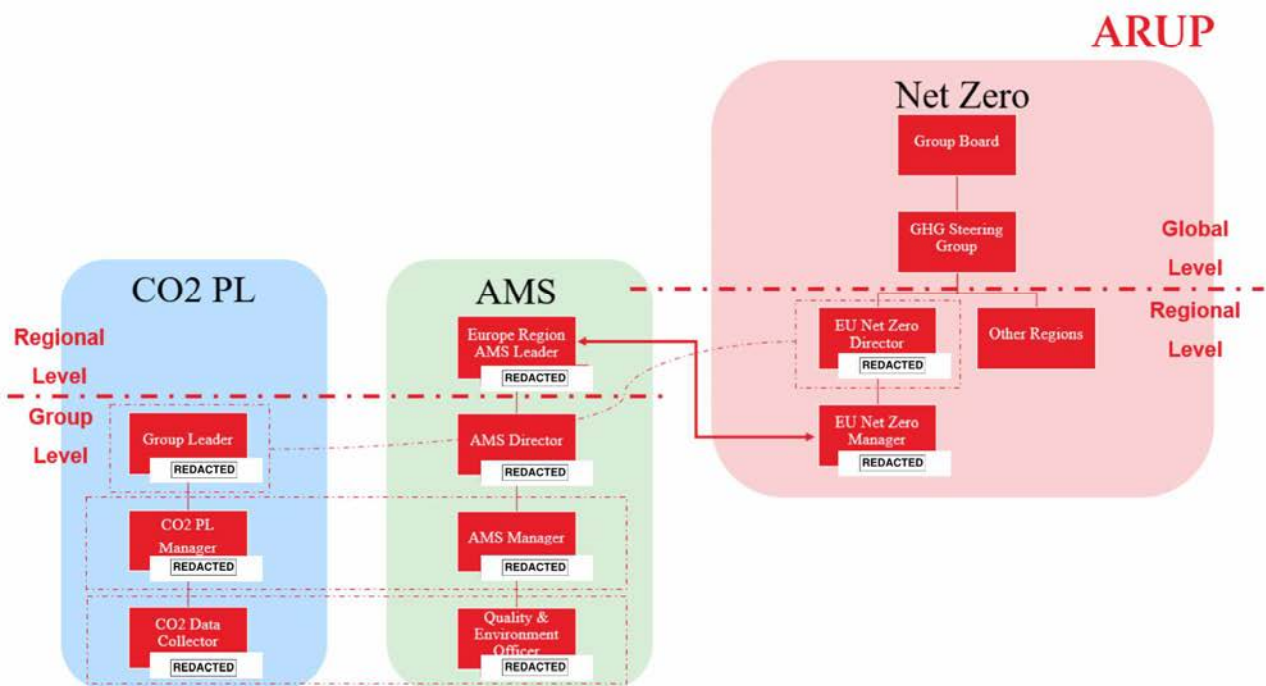
**Table 7: Project Roles**

Role	Tasks & Responsibilities
Project Director (PD)	Includes EC review of the sustainability objectives Monitors progress on the sustainability objectives
Project Manager (PM)	Implementation of project sustainability objectives Measures and monitors project CO <sub>2</sub> -footprint Measures and monitors the project objectives Analyses non-conformances and advises PD Update of sector initiatives relevant for the project

Additional collaborators within the office are:

**Table 8: Additional Collaborators**

Role	Name	Tasks & Responsibilities
Quality & Environment Officer	REDACTED	CO2 Performance Ladder Data Collection Organisation of audits Drafting of CO2 reporting
Human Resources	REDACTED	Mobility plan, input for Environmental reporting
Marketing / Com.	REDACTED	Communication strategy
Facility manager	REDACTED	Facility management
Finance	REDACTED	Input for Environmental reporting



**Figure 1: Environmental Management Structure**



## 2. Energy Management Plan

In this section, the reduction strategy is outlined for emission categories associated with the operational activities of our own organization (scope 1 + scope 2 + upstream scope 3).

### 2.1 Reduction Targets

#### 2.1.1 Global and Regional Targets

Arup's reduction targets are set out in the Global Net Zero Carbon Strategy and reiterated in the Europe Region GHG Emissions Reduction Plan. A summary of these targets is provided in Table 9. The reference number provided in the table of for ease of reference to the targets within this EMP.

**Table 9: Arup Reduction Targets**

Ref. No.	Source	Arup Area	Target	Reduction Area
G1	Global Net Zero Carbon Strategy	Global	We will reduce purchases such as catering, stationery and events by 50% (compared to 2018 baseline)	Scope 3 Category 1 – Purchases goods and services
G2	Global Net Zero Carbon Strategy	Global	Maintain at least an 75% reduction in commuting emissions compared to 2018 baseline emissions.	Scope 3 Category 7 – Employee Commuting
G3	Global Net Zero Carbon Strategy	Global	Maintain at least a 50% reduction in business travel emissions compared to 2018 baseline emissions.	Scope 3 Category 6 – Business Travel
G4	Global Net Zero Carbon Strategy	Global	Only electric cars will be used for business travel as far as practically possible.	Scope 1 – Company Vehicles Scope 3 Category 6 – Business Travel
G5	Global Net Zero Carbon Strategy	Global	We are aiming to procure electricity in our offices from 100% renewable sources by 2023.	Scope 2 – Purchased electricity, steam, heating and cooling for own use
G6	Global Net Zero Carbon Strategy	Global	Reduce the emissions of goods from our top 20 suppliers by 20%.	Scope 3 Category 1 – Purchases goods and services

#### 2.1.2 Netherlands Group Targets

Group targets are set at country level and should be at least in line with the Group and Regional targets. For the Netherlands group several targets are more strict as we want to continuously improve our CO2 emissions compared to the previous years.

### 2.2 Mobility Policy

The Group Mobility Policy for Arup BV dated 2019 has the following CO2 emission reducing objectives:

#### 2.2.1 Discourage the use of cars;

Reduce and maintain CO2-emissions regarding mobility (commuting and business trips) in 2023 by over 35% compared to the 2018 baseline.

For the sake of reporting in this EMP, these targets are considered to be superseded by the Global and Regional targets which are more measurable, more ambitious and have the same intention.

### 2.2.2 Remote Working

During the pandemic, commuting and business travel dropped significantly due to Covid travel restrictions and office presence of staff was restricted and employees started to work from home. A key lesson from pandemic was the apparent effectiveness of remote working and the development of a range of online working methods. This has continued to influence travel patterns post-pandemic as online conferencing and remote working has become more accepted. However it is not realistic to think all work can be productively done online and an increase in travel and commuting post pandemic should be expected and taken into account in reduction targets. In 2023 we see an increase in national and international travel as all restrictions had been lifted, we however estimate that the travel will not return to the pre-pandemic travel.

### 2.2.3 Group Reduction Targets for 2023

Table 10 shows the reduction targets which were made in 2022 to be achieved in 2023.

**Table 10: Group Reduction Targets for 2023**

Ref. No.	Source	Arup Area	Target	Reduction Area
G8	Energy Management Plan dated 12 July 2022	Netherlands Group	Air travel to Arup meetings and Arup internal conferences to maintain 70% reduction compared to 2018 due to availability of online alternatives.	Scope 3 Category 6 – Business Travel
G9	Management review dated 20 October 2023	Netherlands Group	Measure CO2 emissions from waste	Scope 3 Category 5 Waste in operations
G10	Management review dated 20 October 2023	Netherlands Group	From 2023/4, all new company vehicles will be fully electric	Scope 1 Company Vehicles

## 2.3 Baseline

Europe Region has taken 2018 as the base year for the reduction targets. The Arup BV energy data for 2018 is reported in Table 11.

**Table 11: 2018 Baseline**

Scope	Category	2018 CO2 Emissions (kg CO2)
Scope 1	Company facilities	113 728
Scope 1	Company vehicles	82 080
Scope 2	Purchased electricity, steam, heating and cooling for own use	30 874 for Groningen office 0 for Amsterdam office (100% green energy)
Scope 3	Category 1 – Purchased goods and services	836 425
Scope 3	Category 2 – Capital goods	49 702
Scope 3	Category 5 – Waste generated in operations	Unknown. Not reported in 2018.
Scope 3	Category 6 – Business travel	362 649
Scope 3	Category 7 – Employee commuting	308 863

Scope	Category	2018 CO2 Emissions (kg CO2)
Total		1 781 569

## 2.4 Evaluation of Emissions and Reduction Targets

### 2.4.1 Scope 1

#### *Emissions from Company Facilities*

This category includes direct emissions from own installations such as own gas use (e.g. boilers, heating systems, ovens etc).

#### *Refrigerant Losses*

Refrigerant losses are reported for the first time in 2022. The Landlord, AroundTown has informed us that there were no refrigerant losses from the cooling equipment in the building. This is supported by maintenance reports in 2022 and 2023.

Refrigerant losses from Arup owned equipment have been reported to be zero. In 2023, we've established the cooling agent and fill weight associated with this equipment.

Location (under Arup control)	Product manufacturer Name / Model Number	Refrigerant Type	Kg Refrigerant (/Charge)
Server Room 3rd floor Unit 1	REDACTED	R32	3,2 KG
Server Room 3rd floor Unit 2	REDACTED	R32	3,2 KG
Server Room 1st floor Unit 1	REDACTED	R32	2,0 KG
Server Room 1st floor Unit 2	REDACTED	R410A	2,2 KG

#### *Emissions from (Non-Electric) Company Vehicles*

Company Vehicles are used by employees for commuting, business travel and personal use. Scope 1 reduction is linked to Reduction Target G4 and G10 via reduction of the number of lease vehicles and the electrification of the lease fleet. Steps towards electrification of the lease fleet began in early 2019. And should be completed by end of FY23/24.

In 2020 the number of lease companies used was reduced from 6 to 3. With fewer lease companies to manage, it should be easier to acquire reliable information.

The number of non-electric lease cars is continuing to decrease. In 2015 there were no electric vehicles in the fleet and in 2022 there were 10 electric and just 2 non-electric vehicles. In 2023 we can report that we only have 2 non-electric vehicles (1 diesel, 1 gasoline), in 2024 when the lease has expired they will be replaced by electric vehicles. This is supported by section 7 of the Mobility Policy.

Annual CO2 emissions from non-electric company vehicles is shown in Table 12. Since mid-2020, a flexible working agreement has been in place, so we expect numbers to remain lower than the baseline year of 2018 as more staff work from home. In 2023, CO2 emissions reported in Scope 1 from company vehicles has reduced by 89% compared to the baseline year of 2018. This reflects the target for the coming years is a full electrification of the lease vehicles. With the last two remaining non-electric lease vehicles expected to be removed from the fleet in early 2024.



**Table 12: CO2 Emissions from Scope 1 (non-electric) Company Vehicles**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Lease cars petrol	49 106	41 538	11 500	6 991	6 286	2 098
Lease cars diesel	31 866	9 110	3 696	5 549	5 816	7 707
Total Scope 1	80 972	50 648	15 196	14 255	12 102	9 805
% reduction compared to baseline year 2018	-	37%	81%	83%	85%	88%

**Summary**

An overview of all Scope 1 CO2 emissions is given in Table 13. It can be seen that overall, the 2023 Scope 1 CO2 emissions have reduced by 89% since 2018. Provided the refrigerant losses remain at nil and the ambition to have a fully electric vehicle fleet is seen, our Scope 1 emissions are forecast to be 0 by 2024. See section 2.8 for further forecasting details.

**Table 13: Overall Scope 1 CO2 Emissions**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Refrigerant Losses	0	0	0	0	0	0
Non-Electric Company Vehicles	80 972	50 648	15 196	14 255	12 102	9 805
Total	80 972	50 648	15 196	14 255	12 102	9 805
% reduction compared to baseline year 2018	-	37%	81%	82%	85%	88%

**Scope 2**

Emissions from purchased electricity, steam, heating and cooling for own use.

Scope 2 emissions for Arup BV consists of:

Emissions from generation of energy and heating used in the Amsterdam office, and

Emissions from electricity generated to power the electric lease vehicles.

**Electricity**

Between September 2017 and July 2020, the leased Amsterdam office used 100% wind energy. However, in 2020 the building was sold to a new landlord, [REDACTED], which resulted in a change to the electricity supplier. Since then, the building has been using grey electricity which is an average mix of fuels of electricity on the Dutch market. As part of the negotiations for Arup BV to resign the lease agreement in July 2021, the Arup has requested 100% green energy backed up by certification. At a meeting on 8th February 2023, [REDACTED] explained that they purchase certificates to “offset” the non-green energy they use. To date further details or evidence of this has not been provided although Arup BV has requested it. Therefore for reporting purposes the electricity in the Amsterdam office has been classified as “grey” electricity for the whole of 2023.

Table 14 shows a significant increase in CO2 emissions since the baseline year of 2018 due to the aforementioned switch from green to grey electricity. Arup is continuing to request the landlord to switch to a 100% green energy contract. In 2018 the Scope 2 electricity related CO2 emissions were entirely from the

Groningen office location which has been terminated since 2022.. Despite terminating the Groningen office, CO2 emissions have increased by 261% since 2018 in this category.

However, it should be noted that a global Arup Renewable Energy Certificate procurement has been completed until 2026 whereby the emissions associated with the Amsterdam Office (and all other Arup offices) will be backed by third-party (RECs) - this is to align with goal G5 “to procure electricity in our offices from 100% renewable sources by 2023”. Despite our efforts, renewable energy will not be available until at least 2026 due to procurement issues by the landlord. However offset certificates have been obtained by Arup and for 2024 until 2026 by the landlord,. Given the source of Italy indicated on the certificate covering 2023, we cannot report it as green energy so this reporting continues to calculate grey energy emissions for 2023.

**Table 14: CO2 Emissions from Electricity**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021 <sup>4</sup>	2022 <sup>5</sup>	2023
Electricity – Amsterdam	0 (100% wind)	0 (100% wind)	80 066	111 958 <sup>4</sup>	79 423 <sup>5</sup>	80 696
Electricity - Groningen	30 874	23 112	12 300	6 024	0	0
Total	30 874	23 112	92 266	117 652	79 423	80 696
% reduction compared to baseline year 2018	-	25%	-199% (increase)	-281% (increase)	-157% (increase)	-261% (increase)

### Heating

The Amsterdam office building is heated by the AEB incinerator which provide district heating to the whole western harbour area. No other supplier of heating is possible.

Historically, heating emissions of the Groningen office appear out of line with benchmarks, presumably due to mistakes in reporting. Figures in the past seem overstated by a factor 3. Most probably connected to a correction factor linked to the floor space used. In 2022, the 2018-2020 data was reviewed and updated to more accurately reflect the floor area used by Arup. For 2021 an average calculation based on 2 credible sources (CBS & Milieubarometer) was made, since no information was received from the landlord at the time of the audit. The Groningen office was closed on 31 December 2021 and will not be reported on after 2021.

Table 15 shows the CO2 emissions from heating. Whilst closing the Groningen office in 2021, which historically accounted for the majority of the emissions due to heating, has led to a 51% increase in overall heating emissions in 2022, when looking only at the emissions of the Amsterdam office, the emissions have increased 303% since 2018. The reason for this is unclear however one hypothesis is poor building management by the landlord, leading to increased heating usage. For example, one of the main doors was broken for a longer period of time which inevitably would have lead to increased heat loss. An improvement in data collection has been that we take monthly readings of the meter and no longer rely on the information given to us by the landlord on annual statements.

**Table 15: CO2 Emissions from Heating**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
District Heating - Amsterdam	8 061	10 511	10 281	20 424	32 476	14 006

<sup>4</sup> 2021 electricity usage figures were estimated

<sup>5</sup> Electricity usage for 2022 is calculated from meter readings taken in October 2021 and December 2022, so the emissions are for 14 months rather than one calendar year.



CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Heating - Groningen	13 474	7 002	17 498	15 184	0	0
Total	21 535	17 513	27 780	35 608	32 476	14 006
% reduction compared to baseline year 2018	-	19%	-29% (increase)	-65% (increase)	-51% (increase)	35%

### **Electricity to Power Lease Vehicles**

Arup's Scope 2 emissions also includes emissions from electricity generated to power electric lease vehicles. As discussed in section 2.7, these emissions are linked to reduction targets G4 and G10 and the aim of making the lease vehicle fleet 100% electric.

Currently grey energy is assumed for charging of electric vehicles as the energy source is not currently known and cannot be accurately tracked at this time.

In 2015 there were no electric vehicles in the fleet and in 2022 there were 10 electric and just 2 non-electric vehicles. The remaining two non-electric vehicles are planned to be replaced with electric vehicles when their leases expire, the latest of which is 2024. This is visible in the emissions reporting where the CO2 emissions due to electricity of electric lease vehicles is increasing. However, Table 17 shows that the combined CO2 emissions from lease vehicles has reduced by 70% since 2018 through a combination of reduced travel and conversion from fossil fuel to electric vehicles.

**Table 16: CO2 Emissions from Electricity to power Electric Lease Vehicles**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Lease cars fully electric	1 108	1 640	12 787	13 448	22 970	15 562
Total	1 108	1 640	12 787	13 448	22 970	15 562
% reduction compared to baseline year 2018	-	-48%	-1054% (increase)	-1114% (increase)	-1973% (increase)	-1404% (increase)

**Table 17: Overall CO2 Emissions from Lease Vehicles (Scope 1 and 2)**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Lease cars petrol	49 106	41 538	11 500	6 991	6 286	2 098
Lease cars diesel	31 866	9 110	3 696	5 549	5 816	7 707
Lease cars fully electric	1 108	1 640	12 787	13 448	22 970	15 562
Total	82 080	52 288	27 983	25 988	35 072	25 368
% reduction compared to baseline year 2018	-	36%	66%	68%	57%	70%

### **Summary**

An overview of all Scope 2 CO2 emissions is given in Table 18. It can be seen that overall the 2022 Scope 2 CO2 emissions have increased by 206% since 2018.

**Table 18: Overall Scope 2 CO2 Emissions**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Electricity (Office)	30 874	23 112	92 266	117 652	79 423	80 696
Heating	21 535	17 513	27 780	35 608	32 476	14 006
Electricity (Lease Vehicles)	1 108	1 640	12 787	13 448	22 970	15 562
Total	53 517	42 265	132 833	166 708	134 869	110 264
% reduction compared to baseline year 2018	-	21%	-148% (increase)	-212% (increase)	-152% (increase)	-206% (increase)

## 2.4.2 Scope 3

### Category 1 & 2 – Purchased goods, services and capital goods

In 2023, a large investigation was carried out to gain insight into purchased goods, services and capital goods. This research can be found in the supplier chain analysis with document reference: 074764-96-SAP24 dated 31<sup>st</sup> Januari 2024. The summary of the results can be found in Table 19 and have been added retrospectively into our data calculations also for the previous years, incl. the 2018 baseline.

**Table 19: Yearly CO2 emissions for scope 3 Category 1 and 2**

	2018	2021	2022	2023
Purchased Services	723.851	999.699	681.271	579.951
Purchased Goods	112.574	37.391	11.269	77.145
Capital Goods	49.702	0	48.007	23.909
Total	886.127	1.037.090	740.547	681.006
Change compared to 2018 baseline	100%	+17%	-16%	-23%

### Category 5 – Waste generated in operations

The landlord, [REDACTED], has provided us access to the waste portal of [REDACTED], which shows the building tenants produced a total of 21 791 kg of Waste. Arup leases half of the building so estimated waste attributed to Arup BV operations is 10 896 kg. A breakdown of types of waste is shown in Figure 2. In 2023 the waste produced in our building has been made into 6 938 kg raw material, 5 596 kg into green energy, 5 862 kg into grey energy and 3 395 kg residual waste. Making 84% of the waste recycled.

Afvalstromen Top-5



Filter op Gewicht

Afvalstroom	Gewicht
Afval/Restafval	14.603 kg
Papier/Karton	3.646 kg
Glas	2.344 kg
PMD	1.198 kg

Afval

## Afvalprestatie



**Figure 2: Waste report provided by landlord for whole building in 2023**

As mentioned before, 2023 was the first year that we're able to report on waste. In the CO2 emission factors, no factors have yet been established to report on waste. To report on this we will however use the European emission factors for this as shown in Table 20.

**Table 20: European Emission factors waste disposal**

Disposal Method	kgCO2e/kg
Composted	0.00891
Landfill	0.4462
Recycled	0.02128
Reused (direct re-use not processed and reused – that's recycled)	0
Waste to Energy	0.02128

Calculating with the above numbers, the KG CO2 per waste stream for 2023 is as shown in Table 21.

**Table 21: CO2 emissions per waste stream after waste disposal processes**

Waste stream	2023 kgCO2
Recycled	4.433
Green Energy	3.474
Grey Energy	3.639
Landfill	2.107

### Category 6 – Business travel

Table 22 shows the CO2 emissions from business travel since the baseline year of 2018. Overall, business travel has reduced by 68% in 2023 compared to 2018. The pandemic was a contributing factor as both government and company guidelines restricted the ability to travel. During this time the business developed improved ways of remote working which can continue to be implemented post-pandemic to maintain a lower level of emissions from business travel. From 2022 onwards however it is expected that levels of business travel will increase compared to the 2020/21 levels as travel is now possible. The data in 2023 shows this hypothesis to be correct, our expectation for the coming years is that it remains around the 2023 levels. This

is reflected in the data in Table 22. The business mobility plan encourages use of public transport, electric vehicles and international train travel in place of air travel where possible in the aim to maintain, or further reduce, lower CO2 emissions.

**Table 22: CO2 Emissions from Business Travel**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Business travel with private car	42 966	117 891	27 243	14 203	26 684	20 775
Gasoline	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Diesel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Hybrid	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Fully electric	Unknown	Unknown	Unknown	Unknown	Unknown	792
Business travel with public transport	3 984	4 395	1 270	255	1 139	1 048
Bus	Unknown	1105	356	145	298	255
Metro	Unknown	584	188	0	0	0
Tram	Unknown	2	2	0	0	0
National train	Unknown	2249	724	0	0	0
International train	Unknown	456	Unknown	110	841	793
Business travel airplane	362 649	286 773	55 369	17 156	91 727	109 914
distance <700 km	101 908	79 194	15 825	2 458	15 576	15 290
2500< distance >700	115 130	104 602	16 839	5 127	24 152	43 421
distance >2500 km	145 611	102 978	22 705	9 571	51 999	51 203
Total	409 599	409 061	83 882	31 614	119 550	132 529
% reduction compared to baseline year 2018	-	0%	80%	92%	71%	68%
% reduction in private car emissions compared to baseline year 2018	-	-174% (increase)	37%	67%	38%	52%
% reduction in public transport emissions compared to baseline year 2018	-	-10% (increase)	68%	94%	71%	74%
% reduction in air travel emission compared to baseline year 2018	-	21%	85%	95%	75%	70%

### Business travel with private car

Business travel using private cars is down 52% since 2018. It is not currently possible to report the fuel type of these private cars so an emission factor of 0.193 kg CO2/km of “unknown weight and fuel” has been used. This is close to the emission factor for petrol vehicles so if personnel are using hybrid or electric vehicles the emissions will be considerably lower at 0.125 or 0.104 kg CO2/km.



### **Business travel with public transport**

The public transport numbers are strongly influenced by the energy sources of the public transport companies. Since 2021, intercity trains<sup>6</sup>, metro, train and local trains have also used 100% green electricity. This means travel on these forms of public transport result in zero CO2 emissions in Well to Wheels (WtW) analysis. Only bus travel produces a limited amount of CO2 emissions but even this has reduced from 2021 onwards. This is reflected in the falling CO2 emissions, with a 74% reduction in emissions since 2018. It should be noted that the 95% reduction in emissions in 2021 is a result of home working and reduced travel due to the pandemic and an increase in emissions in 2022 and compared to 2021 was to be expected as travel in general increased post-pandemic. In 2023 we see an increase in travel, we expect 2024 onwards to be around the same levels as 2023.

### **Business travel by air**

Air travel has historically had the largest contribution to business travel CO2 emissions, in 2018 the contribution was 89%. Air travel contributed 38% to overall reported CO2 emission in 2018.

Training is mainly held on-line. To that effect Arup University has made great strides in transforming training resource material to on-line variants. We see that projects remain to collaborate online and some business travel to sites have returned, therefore we see an increase in business travel by air.

The business mobility plan Section 3.4 states that travel between the Netherlands and Belgium, Germany, France and England will preferably be made by train.

### ***Category 7 – Employee Commuting***

Table 23 shows the CO2 emissions from commuting since the baseline year of 2018. Overall, emissions from commuting was reduced by 86% since 2018. The pandemic was a contributing factor as both government and company guidelines restricted the ability to work in the office. During this time the business developed improved ways of remote working including implementing a hybrid working policy. Hybrid working has continued post-pandemic which contributes to maintaining a lower level of emissions from commuting. From 2022 onwards however it is noticeable that levels of commuting are increased compared to the 2020/1 levels as business is settled back to non-restrictive. In 2023 we see an increase in travel, we expect 2024 onwards to be around the same levels as 2023. This is reflected in the data in Table 23. The business mobility plan encourages use of public transport where possible with the aim of maintaining, or further reducing, lower CO2 emissions.

For the commuting by public transport there is little to be gained in limiting carbon emissions, since most means of public transport (tram, train and metro) are now run on 100% green energy. Only commuting with bus contributes to CO2 emissions.

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<sup>6</sup> Intercity trains have used 100% green electricity since 2017 and therefore have had zero CO2 emissions, but it has not been possible to differentiate between intercity and local train travel so emissions were conservatively calculated for all train travel between 2017 and 2021.

**Table 23: CO2 Emissions from Commuting**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Commuting by private car	308 863	88 798	25 352	9 723	41 932	52 647
Gasoline	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Diesel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Hybrid	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Fully electric	Unknown	Unknown	Unknown	Unknown	Unknown	1 649
Commuting by public transport	3 984	14 179	4 566	152	861	1 536
Bus	3984	3978	1281	152	861	1 536
Metro	Unknown	2103	677	0	0	0
Tram	Unknown	0	0	0	0	0
National train	Unknown	8098	2608	0	0	0
Total	312 847	102 977	29 918	9 875	42 793	55 832
% reduction compared to baseline year 2018	-	67%	90%	97%	86%	82%
% reduction in private car emissions compared to baseline year 2018	-	71%	92%	97%	86%	82%
% reduction in public transport emissions compared to baseline year 2018	-	-256%	-15%	96%	78%	61%

## 2.5 Overall CO2 Emissions

The overall annual CO2 emissions since baseline year 2018 are shown in Table 24.

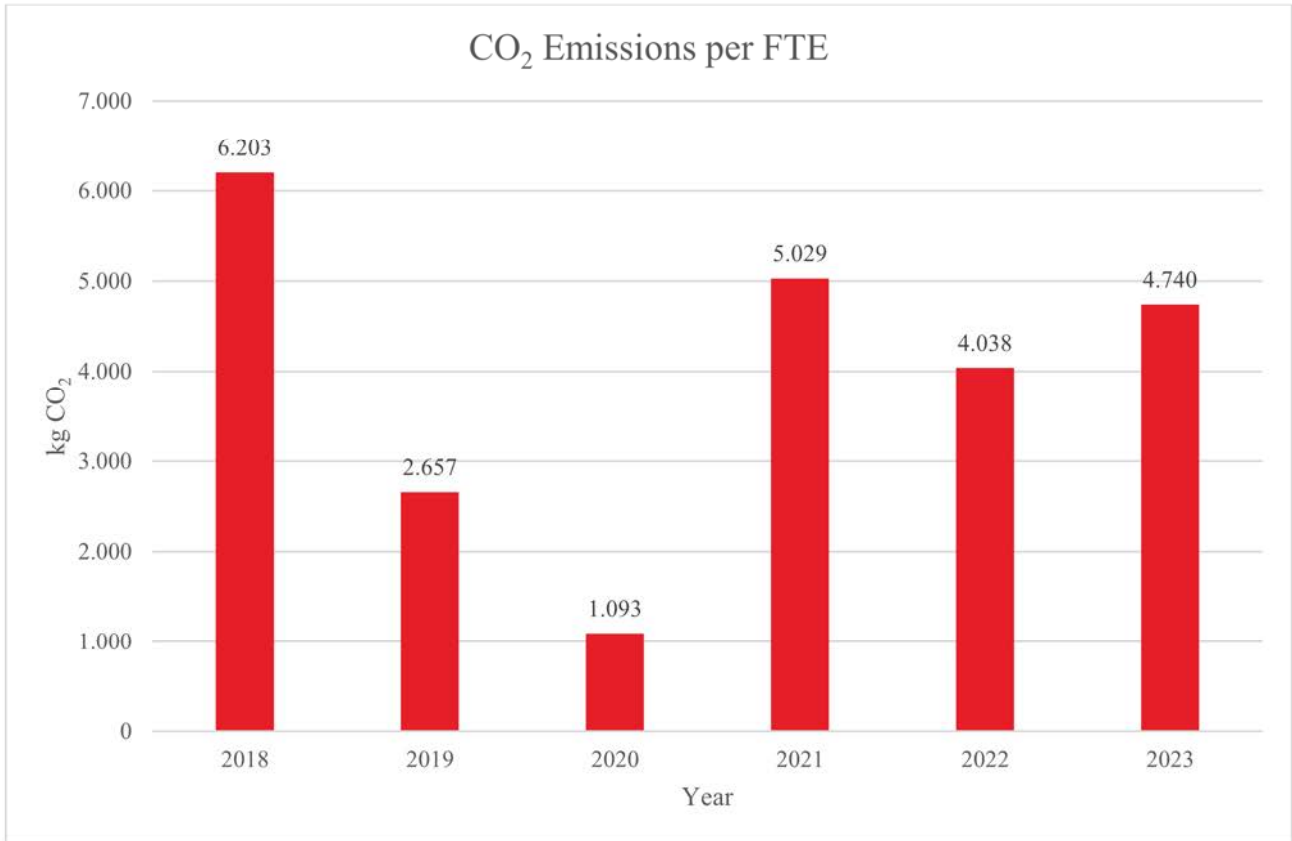
It should be noted that some items have moved scope, for example business travel was reported under Scope 1 until 2021 when it was moved to Scope 3.

The large overall reduction is due to several factors including:

- Reduced business travel, particularly by air, resulting from the pandemic and continued efforts to utilise remote working thereafter,
- Transformation of the company lease vehicles to be almost all electric, and
- Transformation of the public transport via train, tram and metro in the Netherlands to operate on 100% green energy.

**Table 24: Overall Annual CO2 Emissions**

CO2 Emissions (kg of CO2)	2018	2019	2020	2021	2022	2023
Scope 1	82 080	52 289	27 982	14 255	12 102	9 805
Scope 2	462 008	449 684	204 028	167 038	134 869	110 264
Scope 3	312 847	103 432	29 918	41 378	162 344	186 712
Total	856 935	605 405	261 929	22 781	309 316	306 781
Total % reduction compared to baseline year 2018	-	29%	69%	74%	64%	64%



**Figure 3: Annual carbon emissions per FTE**

## 2.6 Performance Against Reduction Targets

Table 25 summarises performance against the reduction targets in 2022 compared to the baseline year 2018. Whilst section 2.5 shows that in 2022 overall CO<sub>2</sub> emissions reduced by 70% compared to 2018, this is not directly reflected in performance against reduction targets.

Targets G2, G3, G7 and G8 have been met, in fact the emissions have been reduced by more than the targeted amounts. The pandemic played a significant role in achieving this so these areas should continued to be monitored in the coming years to ensure that the reduced emissions are maintained and, if possible, further reduced.

The scope 1 aspect of target G4 is close to being met with almost all lease vehicles now being electric and the remaining two non-electric vehicles will be recommissioned or exchanged for electric vehicles when their leases expire in the coming two years. As for the Scope 3 category 6 aspect of this target, further definition of the target is required. There is no baseline data from 2018 regarding the proportion of emissions from electric vs non-electric cars used for business travel. It is still not possible to report fuel type of private cars used for business travel. Furthermore, the current mobility policy does not restrict use of non-electric private vehicles for business travel.

Target G5 has been set globally, but in the Netherlands the energy for the office is purchased by the landlord. Whilst Arup has requested 100% green energy the landlord is not delivering this. Emissions are 224% higher in 2022 than 2018 as a result of this but Arup cannot influence it. Arup is in regular discussions with the landlord on this topic but to no avail. Within Arup at a global level, a Renewable Energy Certificate procurement is underway, whereby the emissions associated with the Amsterdam Office (and all other Arup offices) will be backed by third-party (RECs) - this is to align with goal G5 “to procure electricity in our offices from 100% renewable sources by 2023”. At the time of this report being written, that procurement planning is that the building will be supplied by green energy in 2026. In the meantime certificates are bought to offset the current usage.



**Table 25: Performance Against Reduction Targets in 2023 compared to 2018**

Ref. No.	Target	Reduction Area	2023 Performance vs 2018
G1	We will reduce purchases such as catering, stationery and events by 50% (compared to 2018 baseline)	Scope 3 Category 1 – Purchases goods and services	A comparison is made against the baseline in 2018, this is explained in the Chain analysis. For 2023 a reduction of 23% was achieved.
G2	Maintain at least an 75% reduction in commuting emissions compared to 2018 baseline emissions.	Scope 3 Category 7 – Employee Commuting	83% reduction
G3	Maintain at least a 50% reduction in business travel emissions compared to 2018 baseline emissions.	Scope 3 Category 6 – Business Travel	68% reduction
G4	Only electric cars will be used for business travel as far as practically possible.	Scope 1 – Company Vehicles Scope 3 Category 6 – Business Travel	Scope 1 - Emissions from company cars has reduced 89%. Scope 3 Category 6 – Target needs further definition. Currently it is not possible to measure fuel type of private vehicles used for business travel, the only distinction currently made in the system is whether the car is fully electric. Also, the current company mobility policy does not prevent employees from using non-electrical private vehicles for business travel. We will be seeking to lease only new electric vehicles from 2024 once the final lease ends.
G5	We are aiming to procure electricity in our offices from 100% renewable sources by 2023.	Scope 2 – Purchased electricity, steam, heating and cooling for own use	206% increase. The energy contract for the Amsterdam office is no longer for 100% green energy. The target to have green energy for the office in 2023 was not met. Current negotiations with the landlord, who purchases electricity for the building, show a timeline for 2026.
G6	Reduce the emissions of goods from our top 20 suppliers by 20%.	Scope 3 Category 1 – Purchases goods and services	A comparison is made against the baseline in 2018, this is explained in the Chain analysis. For 2023 a reduction of 23% was achieved.
G8	Air travel to Arup meetings and Arup internal conferences to maintain 70% reduction compared to 2018 due to availability of online alternatives.	Scope 3 Category 6 – Business Travel	70% reduction.
G9	Measure CO2 emissions from waste	Scope 3 Category 5 – Waste in operations	This is a new target introduced in 2022-2023, we didn't have any data before this on our Waste in operations. Since we've monitored our Waste in operations for a full year, establishing a baseline to work with.
G10	From 2023/24, all new company vehicles will be fully electric	Scope 1 Company Vehicles	From 2023/24, all new company vehicles will be fully electric

## 2.7 Future Plan

### Future Reduction Strategy

The reduction targets described in section 2.1 remain going forward as Arup continues to improve in these areas. Improvement is planned in three ways; further reduction in energy use and emissions, improvements to data collection and further definition of targets to make them more SMART<sup>7</sup>. Details are given in Table 26

**Table 26: Action Plan for Reduction Targets**

Ref. No.	Target	Reduction Area	Updates and Improvements Needed	Proposed Action	Action Owner	Other Resources	Evaluation Method	Due By
G1	We will continue to aim for a reduction of at least 50% for purchases such as catering, stationery and events.	Scope 3 Category 1 – Purchases goods and services	Arup (Global and Europe Region) are currently in the process of altering this initial target for the financial year 2023/24.  Nevertheless, the largest impact of this category is emissions associated with events. As part of our improved approach to manage business travel (see below) - this is contributing to a reduction in emissions for events.  A 2018 baseline has been measured against other years in the Chain analysis.  Within our office, we will propose to only use suppliers for office goods with a positive impact on the world, this can either be because they're a more sustainable option or because they are using staff with a disadvantage in the labor market.	G11 is added to give a more direct approach to investigate suppliers and subconsultants in 2024.	CO2PL Manager Facilities Manager Group Leader	Finance to provide list of suppliers and invoiced amounts from 2018 onwards.	Success is production of a preferred supplier list with vendors for office goods that are sustainable	Ongoing

<sup>7</sup> SMART = Specific, Measurable, Achievable, Relevant, and Time-Bound

Ref. No.	Target	Reduction Area	Updates and Improvements Needed	Proposed Action	Action Owner	Other Resources	Evaluation Method	Due By
G2	Maintain at least an 75% reduction in commuting emissions compared to 2018 baseline emissions.	Scope 3 Category 7 – Employee Commuting	Through the work-unbound policy we are seeing more staff spend less time in our offices. Due to pandemic years between the baseline and to date we are only starting to establish data on working patterns. Collection and analysis of data on working patterns will continue.	Request <u>REDACTED</u> to report on vehicle type and bike type (electric, paddle only) to improve data collection. Electric vehicle is now available in <u>REDACTED</u> , a choice for e-bike is not yet present in <u>REDACTED</u> .	CO2PL Manager	HR to coordinate with <u>REDACTED</u>	Success is positive response from <u>REDACTED</u> to add e-bikes to the choice menu.	ongoing
G3	Maintain at least a 50% reduction in business travel emissions compared to 2018 baseline emissions.	Scope 3 Category 6 – Business Travel	Arup is currently looking to onboard a single travel agent in the Region and a new booking process. This process will allow for the approver, ER travel team and Net Zero colleagues to have oversight as to the emissions for specific sub-categories of business travel. For example, our goal is to be able to delineate between travelling for a specific client purpose or a number of internal purposes.  In addition, we are working to enhance our business travel policy which provides a 'suggested' mode of travel between certain office locations – accounting for more sustainable travel	Introduce policy whereby all international travel must be booked through a centralised booking system. Update the travel policy to make certain routes only re-imbursable by Arup if public transport is used.	Europe Region Net Zero Manager	-	Success is introduction of centralised travel booking system. Updated policy to make certain routes only re-imbursable if public transport is used.	ongoing

Ref. No.	Target	Reduction Area	Updates and Improvements Needed	Proposed Action	Action Owner	Other Resources	Evaluation Method	Due By
G4	Only electric cars will be used for business travel as far as practically possible.	Scope 1 – Company Vehicles – Scope 3 Category 6 – Business Travel	Currently it is not possible to measure fuel type of private vehicles used for business travel. Arup are investigating whether it is possible to collect this data via the <b>[REDACTED]</b> system.  We will be seeking to lease only new electric vehicles from 2023/4 once the final lease ends. Currently only 2 vehicles in NL are non-electric.  Per 01-04-2024 all company and project cars are electric.	-				Goal to be achieved per 12-03-2024.
G5	We are aiming to procure electricity in our offices from 100% renewable sources by 2023.	Scope 2 – Purchased electricity, steam, heating and cooling for own use	Arup has purchased Energy Attribute Certificate for our office whereby we are not provided with Renewable Energy supply by our landlord. These certificates will cover the Netherlands group, and on the target of 100% renewable globally from 2023 to 2026.  An office refurbishment is planned which will target “good” Energy Use Intensity Values which will contribute to reducing energy use in the Amsterdam office.	Engage with the global Arup Renewable Energy Certificate procurement which is underway.	Europe Region Net Zero Manager	Landlord	Certification of 100% renewable electricity in the Amsterdam office	Target failed, achievable per 2026.
G6	2024 target: Engage with Top 10 of re-occurring suppliers subcontractants to receive their	Scope 3 Category 1 – Purchases goods and services	At a Regional level, Arup is currently going through a programme of supply chain engagement with our Top 20 suppliers in the Europe	Purchased goods to use in the office should be reduced by 20% and bought from	CO2PL Manager	Finance to provide list of suppliers and invoiced	Success is production of a list of preferred suppliers.	Dec 2024



Ref. No.	Target	Reduction Area	Updates and Improvements Needed	Proposed Action	Action Owner	Other Resources	Evaluation Method	Due By
	emissions reduction plan.  Old target: Reduce the emissions of goods from our top 20 suppliers by 20%.		Region by spend. Based on spend, the majority of the top 20 are service providers. However we are seeking to investigate which goods suppliers are our priority for engagement over the coming year.  In the chain Analysis a comparison has been made comparing the goods data.	sustainable suppliers or those that hire staff with a disadvantage in the labor market.		amounts from 2018.		
G8	Air travel to Arup meetings and Arup internal conferences to maintain 70% reduction compared to 2018 due to availability of online alternatives.	Scope 3 Category 6 – Business Travel	None	Update the travel policy to make certain routes only re-imbursable by Arup if public transport is used.	Europe Region Net Zero Manager  Group Leader	-	-	July 2024
G9	Continue to measure CO2 emissions from waste and develop improvement plan	Scope 3 Category 5 – Waste in operations	Access has been granted to (monthly) waste reporting from the landlord.  Obtain emissions data for the waste transportation and final disposal/recycle/reuse from landlord' s waste disposal contractor.	Obtain emissions data for the waste transportation and final disposal/recycle/reuse from landlord' s waste disposal contractor	CO2 PL Manager	Landlord	Success is: influence of waste strategy	December 2024
G10	From 2023/24, all new company vehicles will be fully electric	Scope 1 Company Vehicles	Update target: only electric vehicles part can be part of the Fleet	-	Group Leader Facilities Manager		Success is: zero non-electric vehicles	ongoing
G11	Engage with Top 10 of subcontractants on projects to receive their emissions reduction plan, and	Scope 3 – Cat. 1 Purchased goods and services	This is a new target set in 2024.		Group Leader Business Development Co-ordinator		Success is: receiving atleast 5 CO2 reduction plans	July 2024

Ref. No.	Target	Reduction Area	Updates and Improvements Needed	Proposed Action	Action Owner	Other Resources	Evaluation Method	Due By
	develop procedure for to assess sustainability performance of subconsultants.				Environmental Officer for select support			
G12	Implement an <i>energy efficiency project</i> to identify possible energy savings for our office (in relation to any refurbishment of the office).	Scope 2 – usage of electricity	This is a new target set in 2024.	All new equipment used for the canteen & coffee machines and lighting have an energy reduction component as well.  Investigate onsite renewables for owned by Arup and Arup use only	Group Leader for alignment [REDACTED] (PM) with [REDACTED] Facilities Manager		Success is: a detailed approach for refitting of the office	December 2024
G13	Start carrying out an annual benchmark of energy consumption against similar premises and business operations (other offices e.g. Germany, Copenhagen)	Scope 2 – usage of electricity	This is a new target set in 2024.	Incorporate in next CO2 report for CO2 performance ladder	Environmental Manager Environmental Officer		Success is: Inclusion of comparison to 2 other Arup offices in next report	March 2025

### 2.7.1 Follow-up items:

Scope 2 – Electricity: At the time of writing, the target to have 100% renewably sourced electricity on our office by 2023 (G5) has not been met. The new target date is set to 2026 by the landlord. In the meantime offset certificates have been bought to offset the non-renewable electricity used.

Scope 2 - Heating: In the last year we've measured the meter for heating on a monthly basis. The new number is more in line with the other years, therefore we believe that 2022 has been an incident. We expect this to no longer be an issue in the future.

Scope 3 Category 6 – Business Travel: We aim to maintain a reduction of 50% for business travel against the 2018 baseline. In the next 1-2 years a new travel booking system will be implemented at a European Region level to better control and measure data on business travel as well allow us to see how and why people are travelling for business. Furthermore, the Europe Regions intends to provide recommended travel modes between our offices in region, to guide our non-client related travel.

Scope 3 Category 6 – Business Travel & Category 7 – Employee Commuting: It is currently possible to distinguish the fuel type of private vehicles used by staff for business travel and commuting. Journeys are recorded in the [REDACTED] app. An improvement measure is to ask [REDACTED] whether it's possible to adjust this for bikes as well, making a distinction between peddle and electric bikes.

## 2.8 Future Usage

Our forecasted CO2 emissions from 2023 to 2030 is shown in Figure 5. This forecast is based on the following assumptions:

Scope 1 – Emissions from (Non-Electric) Company Vehicles: the last two remaining non-electric lease vehicles are expected to be removed from the fleet in March 2024. From April 2024 onwards these emissions are forecast to be 0kgCO2 as there should no longer be non-electric vehicles in the company fleet.

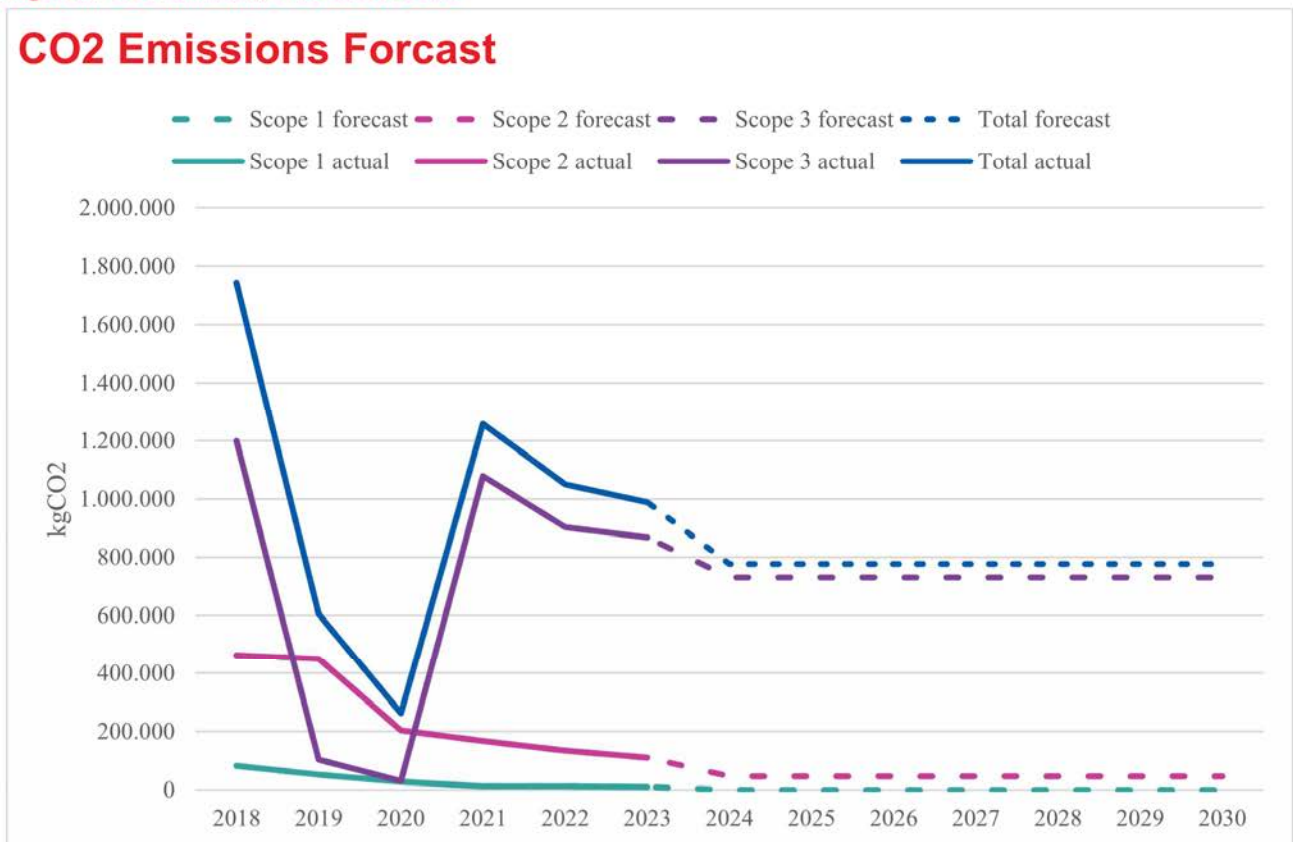
Scope 2 – Electricity: At the time of writing, the Global and Europe Region target G5 to procure electricity in our offices from 100% renewable sources by 2023 has not been met. The new estimation for this is by 2026, in the meantime offset certificates will be purchased.

Scope 2 – Heating: It is assumed that the average energy usage will be maintained going forward. We believe 2022 to be an exception as the 2023 figures are more in line with the earlier years.

Scope 3 – Commuting: We aim to maintain at least a 75% reduction in commuting emissions compared to 2018 baseline emissions. The REDACTED app makes recording the mode of travel easy and user friendly, this results in better data to forecast with.

Scope 3 – Business travel: We aim to maintain at least a 50% reduction in business travel emissions compared to 2018 baseline emissions. In calculating the emissions for specific transport types, it is assumed that the kilometres travelled by air in 2023 for journeys under 700km would be made by international train going forward once the new travel agent has been appointed by the region.

Figure 4: CO2 Emissions Forecast to 2030



Note: for 2019 and 2020 no information on Scope 3 Category 1 and 2 is available, this explains the drop in Figure 5.



# 3. GHG rapport

## 3.1 Introduction

At Arup we aim to contribute towards a more sustainable future. Arup in the Netherlands has adopted the CO<sub>2</sub> Performance Ladder as a tool to map and reduce CO<sub>2</sub> emissions. The aims of the CO<sub>2</sub> Performance Ladder are in line with:

Arup's Global Net Zero GHG Emission Statement;

Arup's Global Net Zero Carbon Strategy; and

Arup's Europe Region GHG Emissions Reduction Plan.

The targets in these documents are set until 2030 with a reference year of 2018.

Reporting within Arup is unusually based on the Arup Financial year which runs April to March. For the sake of CO<sub>2</sub> reporting, the data is reported on a standard calendar year. In this way the data collection is more aligned with standard practice of reporting in energy and mobility. The reporting period for this report is January 2023 until December 2023.

Measuring and reporting of the carbon footprint of our organisation is a fundamental first step in our action cycle. Our footprint is reported every year in accordance with the GHG-protocol and ISO 14064-1, as to comply with our CO<sub>2</sub> Performance ladder certification.

## 3.2 Method, Scope & Assumptions

### 3.2.1 CO<sub>2</sub> Emissions Scopes

The inventory reports its CO<sub>2</sub>-emissions for direct and indirect emissions as described in Table 27.

**Table 27: CO<sub>2</sub> Emissions per Category**

Scope	Category	Activities	Reporting
Scope 1	Company facilities	Direct emissions from own installations such as own gas use (e.g. boilers, heating systems, ovens etc)	Refrigerant losses were reported for the first time in 2022. See 2.4.1 of the Energy Management Plan.
Scope 1	Company vehicles	Emissions from non-electric company cars (lease vehicles)	Reported in section 2.
Scope 2	Purchased electricity, steam, heating and cooling for own use	Emissions from generation of energy and district heating used by the Arup B.V. office.  Emissions from electricity generated to power the electric lease vehicles.	Reported in Section 2.
Scope 3	Category 1 – Purchased goods and services	Emissions from goods and services purchase by Arup B.V. Goods include for example office supplies, paper etc. Services include catering, subconsultants, events etc.	Reported in Supplier Emissions Analysis.
Scope 3	Category 2 – Capital goods	Emissions from purchase of capital goods including computers, plotter and other electronic equipment, lease vehicles (excluding emissions from fuel), office furniture	Reported in Supplier Emissions Analysis.

Scope	Category	Activities	Reporting
Scope 3	Category 3 - Fuels and energy related activities (not included in scope 1 or 2)	Emissions related to the production of fuels and energy purchased and consumed that are not included in scope 1 or scope 2.	Not reported. Arup B.V. does not these types of emissions.
Scope 3	Category 4 - Upstream transport and distribution	Emissions from transportation of purchased goods and capital goods from tier 1 supplier to Arup B.V. E.g. catering deliveries, postal deliveries, delivery of gifts to staff etc	Not currently reported. The emissions from goods purchased by Arup (and therefore transport emissions of these goods) is comparatively low compared to emissions in other areas. Therefore this has not been a focus area to date.
Scope 3	Category 5 - Waste generated in operations	Emissions from office waste and recycling.	Waste disposal by a third party is managed by the landlord for the whole building. Volume of waste produced has been estimated (see section 2.4.3 of the Energy Management Plan) but insufficient information has been provided by the landlord to determine the associated emissions.
Scope 3	Category 6 - Business travel	Emissions from business travel including air, private car, nation and international rail and other forms of public transport.	Reported in Section 2.
Scope 3	Category 7 - Employee commuting	Emissions from commuting travel via car and public transport.	Reported in Section 2.
Scope 3	Category 8 - Upstream leased assets	Emissions from leased assets such as coffee machines, printers etc.	Not Applicable. Energy from this equipment is already included in Scope 2 emissions.
Scope 3	Category 9 - Downstream transportation and distribution	Emissions from sold products.	Not reported. Arup B.V. does not produce products which require transportation. Arup B.V. primarily delivers services which can involve digital products such as documentation of software however there are no transportation emissions associated with these products.
Scope 3	Category 10 - Processing of sold products	Emissions from processing of sold intermediate products by third parties (e.g., manufacturers) subsequent to sale by the reporting company.	Not reported. Arup B.V. does not process sold products.
Scope 3	Category 11 - Use of sold products	Emissions from the use of goods and services sold by the reporting company in the reporting year.	Not reported. Arup B.V. does not produce physical products.
Scope 3	Category 12 - End-of-life treatment of sold products	Emissions from the waste disposal and treatment of products sold by the reporting company at the end of their life.	Not reported. Arup B.V. does not sell products.
Scope 3	Category 13 - Downstream leased assets	Emissions from the operation of assets that are owned by the reporting company (acting as lessor) and leased to other entities	Not reported. Arup B.V. does not lease assets.
Scope 3	Category 14 - Franchises	Emissions from the operation of franchises not included in scope 1 or scope 2	Not reported. Arup B.V. does not operate franchises.
Scope 3	Category 15 - Investments	Emissions associated with investments. This category is	Not reported. Arup B.V. is not an investor and does not provide financial services.

Scope	Category	Activities	Reporting
		applicable to investors and companies that provide financial services.	

### 3.2.2 Data Sources

The main sources of data used to calculate the CO<sub>2</sub> emissions are:

**Table 28: Sources for data collection**

Aspect	Data	Source
Total surface facility [m <sup>2</sup> ]	The office facility is part of a building leased from and managed by the landlord [REDACTED]. The area occupied by Arup B.V. is based on the rent contract, plus a portion of the shared space.	Landlord, [REDACTED]
Number of FTEs	Full -time equivalent for direct employment contracts as well as under secondment conditions, both full- and part-time and free-lancers.	Arup HR (Ovaview system)
Scope 1		
Non-Electric Lease Cars [litres or km]	Up to 2019 the fuel consumption is tracked through the lease company records. Starting in 2020, the records state the mileage during the year from the lease company data (verified during exchange of tires from winter to summer tires and vice versa). Quality of data expected to improve due to reduction of lease companies from 6 to 3.	Arup Facilities (Lease companies)
Scope 2		
Facility heating [Gjoules]	Heating is centrally measured and then paid for through the service costs based on square meters used. Arup leases 3040 m <sup>2</sup> of office space in a building of 6080m <sup>2</sup> (50%) with an additional 0,8% for the communal hallway.	Landlord, [REDACTED]
Facility electricity [kWh]	Measurement devices are linked to each rented space unit. Electricity meters are located in the hallways, but up to 2021 no records kept.	Building Owner
Electric Lease cars [kWh]	Up to 2019 the fuel consumption is tracked through the lease company refuelling records. Starting in 2020 the records state the mileage during the year from the lease company data (verified during exchange of tires from winter to summer tires and vice versa). Quality of data expected to improve due to reduction of lease companies from 6 to 3.	Lease companies
Scope 3		
Capital good and purchased goods and services	Since 2022 invoices provided by the finance team have been provided for analysis.	Finance
Commuting travel [km] %	As per January 1 <sup>st</sup> , 2020, commuting distances per transport mode for the employees that have accepted the mobility plan, are recorded in [REDACTED].  Commuting distances for employees that have not accepted the mobility plan, are calculated as described in Table 27.	HR ([REDACTED])  Calculated
Business air travel [km]	Flight distances are tracked for the categories <700 km, <2500 and >2500 km.	External travel agency
Business travel by private cars [km]	Mileage for business travel for the employees that have accepted the new mobility plan, effective as per January 01, 2019, is recorded through [REDACTED].	HR ([REDACTED])

Aspect	Data	Source
	<p>Mileage for business travel for employees that have not accepted the new mobility plan, effective as per January 1, 2019: declared mileage for business travel.</p> <p>The calculation is based on the 'Car fuel and weight unknown' factors in the Emissiefactoren.</p>	<p>HR</p> <p>Finance</p>
Business travel by public transport [km]	<p>As per January 1<sup>st</sup>, 2019</p> <p>Mileage for national business travel per transport mode for the employees that have accepted the new mobility plan, effective as per January 01, 2019, are recorded through REDACTED</p> <p>Mileage for national business travel for employees that have not accepted the new mobility plan (21 employees), effective as per January 1, 2019: declared mileage for business travel.</p> <p>Travel destinations are tracked for international business travel by train.</p>	<p>HR (REDACTED)</p> <p>Finance</p> <p>External travel agency</p>
Waste [kg]	<p>As per January 1<sup>st</sup> 2023</p> <p>Waste disposal by a third party is managed by the landlord for the whole building.</p> <p>Volume of waste produced has been estimated (see section 2.4.3 of the Energy Management Plan) but insufficient information has been provided by the landlord to determine the associated emissions.</p>	<p>REDACTED portal</p>

### 3.2.3 Calculation methods

The calculation methods used for reporting the emissions factors are described in Table 29. For calculation of emissions from purchased (capital) goods and services the calculation method is described in the separate Supply Chain CO2 Emissions Analysis report.

**Table 29: Calculation Methods**

GHG emission	Quantification method
Facility energy consumption (electricity/heating) [kWh/Gj]	<p>= Total measured energy consumption (Gj) x % Arup floor space x conversion factor.</p> <p>= Total measured electricity consumption to calculate common space use (elevator etc), based on area in use. Metered consumption for each floor added to this. Total amount used. Close to half the use of the total building.</p>
Business air travel [km]	= Total Mileage per category distance ( $\leq 700$ km, $> 2500$ km, etc.) x conversion factor
Business travel by private cars [km]	= Total (declared) mileage x Average Conversion factor for cars of unknown weight and fuel type.
Business travel by public transport [km]	= Mileage / transport mode (TM) x conversion factor TM
Business travel by lease cars [km]	= Total km reported x Conversion factor per fuel type for km travelled
Commuting [km]	= Total amount of reported commuting km per mode (public transport and private car) x Conversion factor per mode.
Waste [kg]	= Total kgs x conversion factor



### 3.2.4 Uncertainties

There are a number of uncertainties associated with the data collection and reporting as described in Table 30.

**Table 30: Uncertainties**

Aspect	Uncertainty/ influence
Lease car	The data delivered by the lease company will include private usage as well as commuting and business usage.
Electricity Amsterdam office	Consumption is measured for the whole building; Arup consumption is derived from % rented office space. For electricity it is a mixed system. Metered on each floor with a occupied space % applied to the common use (elevator, cooling, air ventilation).  Actual consumption is said by the landlord to be annually checked through the service costs. Attempts to verify this were difficult as the energy costs were not separated from the rest.
Business air travel	Included are all flights booked through the designated travel agency. This also includes staff that sit in our office but are part of the Europe Region. Any self-booked flights that are declared through expenses or other means of flights booked are not included. Note that these instances should be anomalies.
Business travel by private cars	There are now two ways to declare travel miles: through [REDACTED] and through Finance.
Business travel by public transport	Up to 31 <sup>st</sup> December 2018, an assumption was made for the distances travelled for business by public transport. This assumption involved large uncertainties.  From 2020 onwards [REDACTED] also reports on business trips by public transport.
Commuting travel	As per January 1 <sup>st</sup> , 2020  Number of people not on [REDACTED]: Calculation made:  1. Average commuting distance and mode for all [REDACTED] users, 2. then applying this average distance and mode to all 21 non-[REDACTED] users.
Waste	Waste disposal by a third party is managed by the landlord for the whole building. As we rent 50% of building area the assumption is made that we produce 50% of the waste.

## 4. Project report

In this chapter an overview will be given on the CO2 reduction initiatives in our projects. Arup have made a number of commitments and schemes relating to CO2 reduction in projects.

Whole Life Carbon buildings commitment - From 2022, Arup have committed to undertake Whole Life Carbon Assessments (WLCA) for all buildings projects, both new and retrofit. Adopting these assessments is a crucial step that will allow the global buildings sector to progress towards a 50% carbon emissions reduction by 2030.

### 4.1 CO2 Reduction in Projects

#### 4.1.1 Milieu Kost Indicator calculations

Milieu Kost Indicator (MKI) Calculations – The Sustainable Cities & Transport team are carrying out MKI calculations for all live infrastructure projects. This will give us a set of reference data which can be applied to client projects. Currently MKI calculations have been carried out for the following projects:

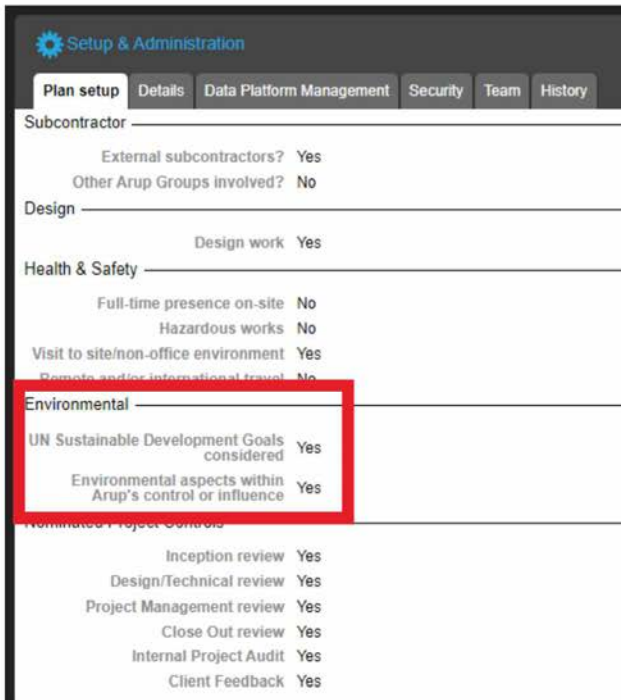
**REDACTED**

In 2023, no new projects were won where an MKI calculation was made.

#### 4.1.2 Tools

The following tools are available within Arup to monitor, report and reduce CO2-emissions on projects:

Internal Project Plan (IPP) – IPP is mandatory for all projects. Managed by the PM and PD, it is where all project information is recorded. For projects with a fee over €150k, IPP records consideration of the UN Sustainable Development Goals (SDGs) in relation to the project and whether the environmental aspects of the project fall within Arup's influence. Environmental reviews are also recorded where applicable.

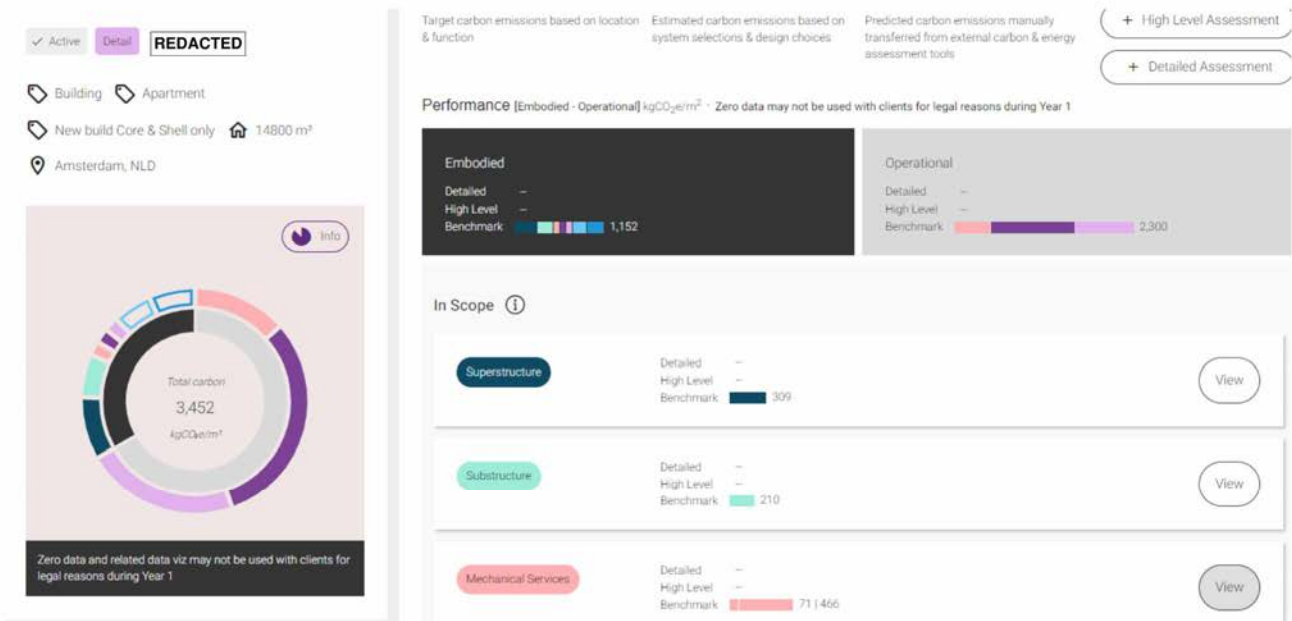


**Figure 5: Screenshot of IPP**

**CRM – CRM is mandatory for all projects. Managed by the PM and PD, it is where all leads and opportunities are recorded. At the bidding stage, consideration is given to aspects of Sustainable Development relating to the project.**

**Sustainability Overview Dashboard – As part of the Business Management dashboard, there is a Sustainability Overview which reports on environmental aspects from IPP. This gives Management an overview of the Sustainability aspects of all the projects carried out by Arup B.V.**

**Zero - Zero is a digital platform designed to collect or estimate whole life carbon assessments for buildings projects. Whole Life carbon is a way of accounting for embodied carbon emissions arising from construction and replacement materials, and operational emissions associated with the energy and water used to run the building. Arup is currently working on developing Zero to include Infrastructure projects.**



**Figure 6: Screenshot from Zero showing embodied and operation CO2 emissions**

**Circular Buildings Toolkit - CBT has been developed in partnership with the Ellen MacArthur Foundation to support designers, developers, construction firms as well as asset owners and operators make the transition to**

circular design. By enabling these groups to optimise their building(s) for circularity, it facilitates rapid, large-scale reductions in built environment greenhouse gas emissions.

Circular Economy (CE) tool – the CE dashboard is a tool to compute and visualise the material impact of design variations on the environment. The tool is based on the methodology of the platform CB23. It has two usage cases, firstly it can be applied at a project level to assess different variations within the design process. It can also be used for a project without design variations to identify areas of the project that have the largest material impact. It was originally developed in 2021 and was greatly improved in 2022. For example, originally the dashboard was only applicable for new build projects but now it can be used for renovation projects too. The tool is primarily for use on infrastructure projects although it could be applied to other types of projects with a significant material impact.

## **4.2 Projects Won with CO2 Performance Ladder**

### **4.2.1 Projects won with CO2 Award Advantage**

Currently, none of our projects have been won with a CO2 Award Advantage.

### **4.2.2 Projects won without CO2 Award Advantage**

A number of our projects require a minimum CO2 Performance Certificate Level 3, however there was no CO2 Award Advantage for these projects:

**REDACTED**

## **4.3 CO2 Emissions on Projects**

Table 29 provides an overview of the CO2 emissions per project. The Energy Management Plan reports that in 2022, Arup B.V. produced 889 kgCO<sub>2</sub> per FTE in 2023 from Scope 1, 2 and 3 emissions (excluding category 1 and 2 to prevent double calculations as per method for Chain Analysis). This can be converted



into an hourly CO2 emission production of 0.47kgCO<sub>2</sub>/hr<sup>8</sup>. Multiplying the project hours by this value gives the CO2 emissions per project.

In total Arup B.V. produced 120 210 kgCO<sub>2</sub> through project work in 2023.

It should be noted that this methodology makes the following assumptions or exclusions:

- Project specific travel – commuting and business travel is not allocated per project but spread evenly across all projects. This is not realistic but is a limitation of our current reporting methods.
- Business services – emissions relating to business services and other non-project specific hours are not allocated to projects.
- Overtime – if overtime hours have not been booked in the timesheet system then emissions as a result of staff overtime are not included in these figures.

**Table 31: Overview of CO2 emissions per project based on total number of project hours worked in 2023**

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO <sub>2</sub> )
			11307
			10089
			6098
			4645
			4192
			3760
<b>REDACTED</b>			3498
<b>REDACTED</b>			3043
			2891
			2848
			2833
			2734
			2635
			2633
			2185

8 Annual hours worked by 1FTE = (40 hrs per week x 52 weeks) - 192 hrs of annual leave (taken from ovacode)

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			1868
			1849
			1843
			1760
			1757
			1706
			1636
			1624
			1370
			1364
<b>REDACTED</b>			1318
<b>REDACTED</b>			1301
			1301
			1276
			1222
			1178
			1108
			1068
			974
			925
			842
			837
			825

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			817
			798
			779
			776
			747
			626
			598
			564
			551
			534
			525
			510
			508
			458
			458
			422
			421
			416
			405
			396
			385
			381
			372
			363
			345

**REDACTED**

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			330
			310
			295
			271
			269
			259
			258
			257
			254
			238
			219
			217
			213
			211
			210
			200
			187
			185
			184
			181
			181
			170
			166

**REDACTED**



Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			166
			163
			150
			143
			133
			132
			129
			126
			119
			118
			115
			111
			109
			107
			105
			101
			98
			94
			91
			87
			86
			85
			84
			83

**REDACTED**

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			75
			74
			74
			74
			72
			72
			67
			65
			64
			63
			63
			61
			60
			60
			59
			55
			54
			52
			52
			51
			50
			49
			48

**REDACTED**

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			48
			47
			47
			43
			43
			42
			42
			35
			35
			35
			34
			33
			33
			32
			31
			31
			30
			30
			28
			27
			26
			25
			25
			24

**REDACTED**

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			21
			21
			20
			20
			19
			19
			19
			18
			16
			16
			15
			13
			13
			13
			12
			12
			11
			11
			11
			9
			9
			8
			8

**REDACTED**



Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			8
			7
			7
			7
			7
			6
			6
			6
			6
			5
			5
			4
			4
			4
			4
			4
			4
			4
			4
			4
			3
			3
			3
			3
			3

REDACTED

Project Number	Project Title	Sum of Total Hours	CO2 Emissions in 2023 (kgCO2)
			3
			3
			2
			2
			2
<b>REDACTED</b>			2
<b>REDACTED</b>			2
			1
			1
			1
			1
			1
			1
			1
			1
			0
			0
Grand Total			120210

## 5. Communication plan

Arup uses both internal and external channels to communicate the implementation of the CO2 Performance Ladder. Each channel contains content targeted to a specific group or audience.

### 5.1 Target Groups and Communication Content

Table 32 shows the internal and external target groups identified for communications related to CO2 reduction.

**Table 32: Target Groups**

Target Group	
Internal	Employees Project managers and Directors Business and Service Leaders Management Executive and Operational Executive Wider Arup firm (regional and global)
External	Clients: public and private sector Sector / network associations and knowledge exchange platforms: SKAO “Stichting Klimaatvriendelijk Aanbesteden en Ondernemen: Project partners such as contractors, architects, developers, investors and other engineering and consultancy firms Students and potential new hires

Table 33 describes the content of communications applicable to the target groups.

**Table 33: Content of communication for each target group**

Target group	Content of communication	Frequency target
General	Reduction target and progress of Arup B.V. in meeting these targets	Once a year
Internal	Actual footprint, reduction goals and measures to be taken to reduce emissions (All internal target groups) Measured progress in reducing emissions (All internal target groups) Expected / measured environmental performance of projects using Power BI dashboard (Project Managers, Business Unit Leaders & Management team) Environmental audits on projects (Project Managers, Business Unit Leaders & Management team)	Twice a year
Arup Global and Arup companies	Progress of Arup Netherlands in complying with Arup Regional and Global sustainability strategy and plans. Progress of Arup B.V. in meeting reduction goals	Once a year
Clients, Sector and knowledge exchange platform	Carbon footprint, reduction targets and measures (to be) taken. Progress in meeting reduction targets Our measures and visions about a collaborative progress towards more sustainable designs	Twice a year
SKAO	Documents and links required according to certified level requirements of CO2-performance ladder Valid certificates	Once a year

Target group	Content of communication	Frequency target
Partners and clients	Continuous reporting on design propositions, feasibility studies and decisions to increase the sustainability outcome of a project	Continuous

## 5.2 Internal Communication Channels

Multiple channels are used to convey our message around our CO2 performance we provide information and reasoning around CO2 reduction internally with all employees. These channels are described in this section.

### 5.2.1 Arup Intranet

The Arup intranet is a constant source of information regarding sustainability and CO2 reduction in Arup at a Global, European and Group (local) level. The following intranet sites should be the starting point for any Arupian looking for information on sustainability and CO2 reduction:

Global Sustainability Page – this page contains links to Global Sustainability Policy and Strategy, Global Sustainability Reports and Global KPIs.

Europe Sustainable Development site – this page contains links to the Europe Region Plan 2020-2030 and other applicable commitments, networks and strategies.

Netherlands Sustainable Development site – this page contains country specific information including the Netherlands Group Sustainable Development Plan 2021-2023 which translates the Group and Regional Strategies into a local plan. At the moment of writing this report, no new Group Sustainable Development Plan is published.

Global Newsroom – the Global newsroom reports on Arup news throughout the company. It is possible to search by topic and there is a Sustainable Development topical page.

Europe Newsroom - the Europe newsroom reports on Arup news throughout the company.

### 5.2.2 Training

Through training we communicate the importance of sustainability and CO2 reduction to employees, equipping them with the skills necessary to implement this on projects. In our employee induction our CO2 reduction goals are communicated for the first time, during the year employees can attend Show & Tells or dedicated learning paths.

Sustainable development is at the heart of everything we do and is laid out in our global strategic plan. It is our purpose. It is how we shape a better world. We train our people to equip them with the right skills set to help deliver complex projects for our clients. The way we train our people is based on four pillars:

**Act:** Deliver projects, products, services and solutions that create shared value and drive innovation.

**Influence:** Use our knowledge and networks to lead the way and shape the markets in which we work.

**Learn:** Build capability and deep expertise through research, learning, knowledge management and communications.

**Enable:** Integrate sustainable development in our operations and business practices.

Specific learning paths include:

Sustainable Development Learning paths - All staff members can enroll through our internal training system Moodle on to this learning path.

External trainings are provided on the following topics, and are available to employees who work in this area:

BREEAM-nl



## GPR gebouw

## LEED

Dubocalc - to link up with the standard sustainability measurement tool used by **REDACTED**, one of our key clients. We offer all staff members a training course, on a subscription basis.

UNSDG's

### 5.2.3 Group Meetings

The primary channel for internal communication is the Group Meeting. These meetings are recorded and widely shared with all staff in the Netherlands. These meetings provide an opportunity for discussion and questions. Table 34 records examples of discussion of our sustainability topics during Group Meetings in 2023.

The Group Meeting MS Teams Chat is also regularly used as a communication channel for informal messages for the whole Netherlands Group.

**Table 34: Examples of Sustainability Topics covered during Group Meetings in 2023**

Date	Topic	Link
19/01/2023	DC Clients & Sustainability Forum	<a href="#">Group meeting 19 January 2023.pdf</a>
25/04/2023	CO2 Performance Ladder	<a href="#">Group meeting 25 April 2023.pptx</a>
22/08/2023	Research – EU Carbon Legislation Impacts	<a href="#">Group meeting 22 August 2023.pdf</a>
28/09/2023	CO2 Performance Ladder	<a href="#">Group meeting 28 September 2023.pdf</a>

### 5.2.4 Emails

Email is key communication channel for communicating with internal Arup staff. Table 35 records examples of the sustainability related email communications in 2023.

**Table 35: Examples of Sustainability communications via email in 2023**

Date	Topic	Link
25/05/2023	Circular design in real estate: turning ambition into action	-
01/11/2023	Sustainable Forces – Podcast series	<a href="https://www.arup.com/sustainable-forces-podcast?utm_medium=intranet&amp;utm_source=intranet&amp;utm_campaign=sustainable_forces_s2&amp;utm_content=australasia">https://www.arup.com/sustainable-forces-podcast?utm_medium=intranet&amp;utm_source=intranet&amp;utm_campaign=sustainable_forces_s2&amp;utm_content=australasia</a>

### 5.2.5 **REDACTED**

In December 2021 **REDACTED** was made available to all staff, to evaluate their personal carbon footprint one step at a time. **REDACTED** is an app which provides you with your own personal path to reach zero carbon emissions based on several factors such as food choices and travel habits. With our hybrid working policy the boundaries between work and home have become less clear, this app allows people to improve their personal carbon footprints along the improving of our corporate carbon footprint. Use of this app has been continued indefinitely.

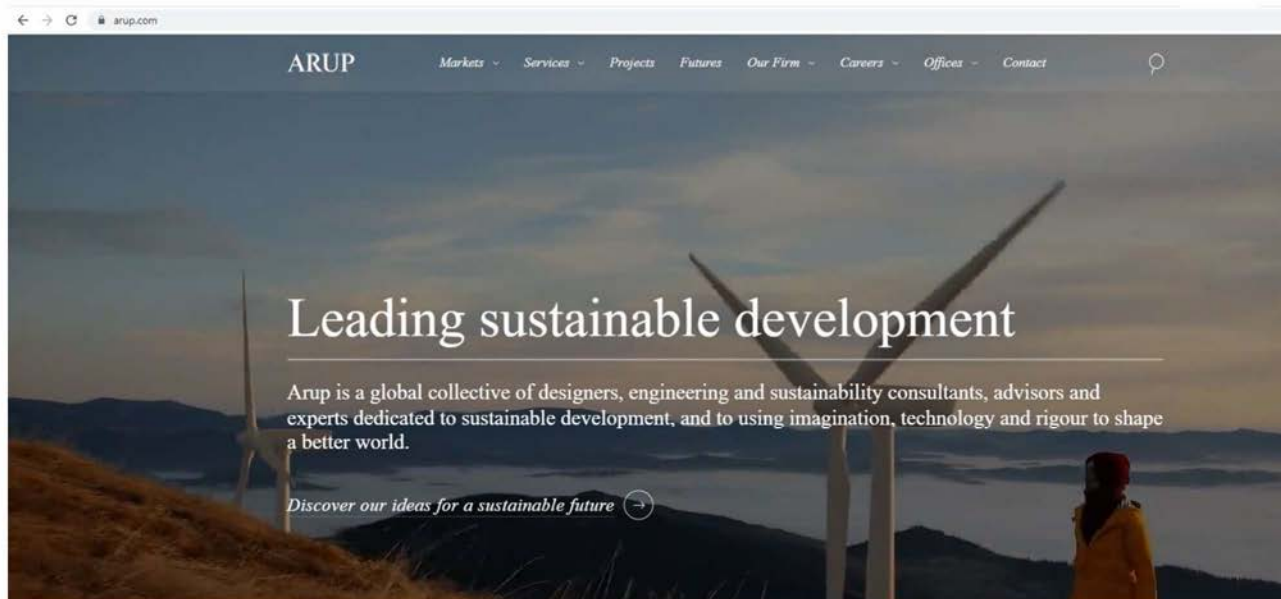
## 5.3 External Communication Channels

Our work and our solutions are communicated externally in various ways.

### 5.3.1 Arup website

The website is Arup’s primary method of communication with external parties. As can be seen in Figure 8, the landing page focuses on sustainable development. Our sustainability offering, including decarbonisation, is communicated through our [Climate & Sustainability Services page](#).

Arup also communicates its participation in the CO2 Performance Ladder through the [website](#).



**Figure 7: Arup.com landing page promotes sustainable development (date 15/03/2023)**

The Annual Report which focuses on Creating Sustainable Futures is also communicated via the [website](#).

### 5.3.2 External News Platforms

Through national media and trade platforms/ magazines we convey our vision and our inventive approach to achieve sustainable outcomes for our clients or to inspire the public to change their ways to help achieve a more sustainable future.

**Table 36: Examples of external news articles relating to Arup and CO2 reduction in 2023**

Date	Topic	Link
03/01/2023	Arup, Lendlease, Climate-KIC and Built by Nature host ‘Perception of Timber’ exhibition at MIND, Milan’s innovation district	<a href="https://www.arup.com/news-and-events/arup-lendlease-and-climate-kic-host-perception-of-timber-exhibition-at-mind">https://www.arup.com/news-and-events/arup-lendlease-and-climate-kic-host-perception-of-timber-exhibition-at-mind</a>
09/02/2023	Carbon Neutral Cities Alliance selects Arup to develop City Handbook for Carbon Neutral Buildings	<a href="https://www.arup.com/news-and-events/carbon-neutral-cities-alliance-appoints-arup-to-develop-city-handbook-for-carbon-neutral-buildings">https://www.arup.com/news-and-events/carbon-neutral-cities-alliance-appoints-arup-to-develop-city-handbook-for-carbon-neutral-buildings</a>
13/02/2023	C40 and Arup announce new support for innovative climate action in cities	<a href="https://www.arup.com/news-and-events/c40-and-arup-announce-new-support-for-innovative-climate-action-in-cities">https://www.arup.com/news-and-events/c40-and-arup-announce-new-support-for-innovative-climate-action-in-cities</a>
13/02/2023	Arup provides ESG and commercial advisory for EIG in 500 million euro funding	<a href="https://www.arup.com/news-and-events/arup-provides-esg-and-commercial-advisory-for-eig-in-500-million-euro-funding">https://www.arup.com/news-and-events/arup-provides-esg-and-commercial-advisory-for-eig-in-500-million-euro-funding</a>
28/02/2023	Arup paves way for Auckland’s zero waste targets	<a href="https://www.arup.com/news-and-events/arup-paves-way-for-auckland-zero-waste-targets">https://www.arup.com/news-and-events/arup-paves-way-for-auckland-zero-waste-targets</a>
16/03/2023	Embodied building emissions can be reduced by 50% - WBCSD & Arup to tell property developers at MIPIM	<a href="https://www.arup.com/news-and-events/embodied-building-emissions-can-be-reduced-by-half">https://www.arup.com/news-and-events/embodied-building-emissions-can-be-reduced-by-half</a>

Date	Topic	Link
20/03/2023	Arup appointed to research energy system “digital spine” feasibility	<a href="https://www.arup.com/news-and-events/arup-appointed-to-research-energy-system-digital-spine-feasibility">https://www.arup.com/news-and-events/arup-appointed-to-research-energy-system-digital-spine-feasibility</a>
19/04/2023	PAS 2080 – a framework to decarbonise the built environment	<a href="https://www.arup.com/news-and-events/pas-2080-a-new-standard-for-decarbonisation-of-the-built-environment">https://www.arup.com/news-and-events/pas-2080-a-new-standard-for-decarbonisation-of-the-built-environment</a>
21/06/2023	Arup attains its CO2 performance ladder certificate level 5	<a href="https://www.arup.com/news-and-events/arup-attains-its-co2-ladder-certificate-level-5">https://www.arup.com/news-and-events/arup-attains-its-co2-ladder-certificate-level-5</a>
30/06/2023	Arup recognised for nurturing the next generation of sustainability champions	<a href="https://www.arup.com/news-and-events/arup-recognised-for-nurturing-the-next-generation-of-sustainability-champions">https://www.arup.com/news-and-events/arup-recognised-for-nurturing-the-next-generation-of-sustainability-champions</a>
30/06/2023	Arup at the heart of London Climate Action Week	<a href="https://www.arup.com/news-and-events/arup-at-the-heart-of-london-climate-action-week">https://www.arup.com/news-and-events/arup-at-the-heart-of-london-climate-action-week</a>
14/07/2023	Maximising high-value opportunities within the UK CCS supply chain	<a href="https://www.arup.com/news-and-events/maximising-high-value-opportunities-within-the-uk-ccs-supply-chain">https://www.arup.com/news-and-events/maximising-high-value-opportunities-within-the-uk-ccs-supply-chain</a>
09/11/2023	Arup in the Netherlands CO2 Performance Ladder update 2023	<a href="https://www.arup.com/news-and-events/our-commitment-and-progress-co2-performance-ladder-update-2023">https://www.arup.com/news-and-events/our-commitment-and-progress-co2-performance-ladder-update-2023</a>
21/11/2023	Arup’s Pre-COP28 ‘Race to Transition’ Asia event series calls for accelerated collective climate action	<a href="https://www.arup.com/news-and-events/arups-pre-cop28-race-to-transition-asia-event-series-calls-for-accelerated-collective-climate-action">https://www.arup.com/news-and-events/arups-pre-cop28-race-to-transition-asia-event-series-calls-for-accelerated-collective-climate-action</a>
28/11/2023	Urgent action needed on net zero buildings, warn WBCSD and Arup ahead of COP28	<a href="https://www.arup.com/news-and-events/urgent-action-needed-on-net-zero-buildings-warn-wbcsd-and-arup-ahead-of-cop28">https://www.arup.com/news-and-events/urgent-action-needed-on-net-zero-buildings-warn-wbcsd-and-arup-ahead-of-cop28</a>

## LinkedIn

Arup is active on the social media platform LinkedIn. This allows us to reach colleagues and peers within the industry as well as a range of clients and potential clients.

**Table 37: Examples of LinkedIn posts relating to CO2 reduction in 2023**

Topic	Link
How can we manage our carbon budget?	<a href="https://www.linkedin.com/posts/arup_how-can-we-manage-our-carbon-budget-activity-7046769994277216256-MK3F?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_how-can-we-manage-our-carbon-budget-activity-7046769994277216256-MK3F?utm_source=share&amp;utm_medium=member_desktop</a>
How whole life carbon emissions assessments will reshape data centres	<a href="https://www.linkedin.com/posts/arup_sustainability-datacentre-digital-activity-7049757770098634752-EeU?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_sustainability-datacentre-digital-activity-7049757770098634752-EeU?utm_source=share&amp;utm_medium=member_desktop</a>
How can we reduce the carbon emissions and waste of the global built environment? How can we reduce the carbon emissions and waste of the global built environment?	<a href="https://www.linkedin.com/posts/arup_annual-report-adpt-activity-7052558695456542720--yOs?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_annual-report-adpt-activity-7052558695456542720--yOs?utm_source=share&amp;utm_medium=member_desktop</a>
Form Follows Sustainability – Paneldiscussie	<a href="https://www.linkedin.com/posts/activity-7072952490802962432-1xX1?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/activity-7072952490802962432-1xX1?utm_source=share&amp;utm_medium=member_desktop</a>



Topic	Link
Parametrisch design - van verschillende comfortcriteria en energieprestatie, tot materiaalgebruik en natuurinclusiviteit	<a href="https://www.linkedin.com/posts/arup_computationaldesign-parametricdesign-technologie-activity-7090235630131056640-Y1el?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_computationaldesign-parametricdesign-technologie-activity-7090235630131056640-Y1el?utm_source=share&amp;utm_medium=member_desktop</a>
Integrated Ground Model and Geotechnical Interpretative Report for the offshore Nederwiek (zuid) Wind Farm Zone	<a href="https://www.linkedin.com/posts/arup_offshorewind-netherlands-contracts-activity-7095776436870938624-osXe?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_offshorewind-netherlands-contracts-activity-7095776436870938624-osXe?utm_source=share&amp;utm_medium=member_desktop</a>
Habitat Royale – designing a nature positive residential building	<a href="https://www.linkedin.com/posts/arup_habitat-royale-activity-7102930516005326848-f2vA?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_habitat-royale-activity-7102930516005326848-f2vA?utm_source=share&amp;utm_medium=member_desktop</a>
HAUT – innovating with timber	<a href="https://www.linkedin.com/posts/arup_arup-journal-haut-activity-7104380220903706624-S22e?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_arup-journal-haut-activity-7104380220903706624-S22e?utm_source=share&amp;utm_medium=member_desktop</a>
Dutch Government Ambitions to achieve offshore wind power	<a href="https://www.linkedin.com/posts/arup_nederwiek-offshore-wind-farm-activity-7108102347918069761-OohD?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_nederwiek-offshore-wind-farm-activity-7108102347918069761-OohD?utm_source=share&amp;utm_medium=member_desktop</a>
HAUT - BREEAM-NL Certificaat duurzaamheidsscore 88%	<a href="https://www.linkedin.com/posts/arup_houtbouw-esg-biobased-activity-7113432256630648833-YFqB?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_houtbouw-esg-biobased-activity-7113432256630648833-YFqB?utm_source=share&amp;utm_medium=member_desktop</a>
HAUT – BREEAM-NL Award	<a href="https://www.linkedin.com/posts/arup_haut-awarded-breeam-nl-outstanding-certificate-activity-7114865444074704897-fCR2?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_haut-awarded-breeam-nl-outstanding-certificate-activity-7114865444074704897-fCR2?utm_source=share&amp;utm_medium=member_desktop</a>
Dutch Green Building Week	<a href="https://www.linkedin.com/posts/arup_wearearup-hart010-parametrischontwerp-activity-7115240402026147840-R3iO?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_wearearup-hart010-parametrischontwerp-activity-7115240402026147840-R3iO?utm_source=share&amp;utm_medium=member_desktop</a>
HAUT – structural award 2023	<a href="https://www.linkedin.com/posts/arup_wearearup-timber-structuralawards-activity-7132397310679871489-KChz?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_wearearup-timber-structuralawards-activity-7132397310679871489-KChz?utm_source=share&amp;utm_medium=member_desktop</a>
Hibi - integral advies over duurzaamheid en constructie	<a href="https://www.linkedin.com/posts/arup_hibi-kavel-10b-amstelkwartier-activity-7153322407334699009-EOnQ?utm_source=share&amp;utm_medium=member_desktop">https://www.linkedin.com/posts/arup_hibi-kavel-10b-amstelkwartier-activity-7153322407334699009-EOnQ?utm_source=share&amp;utm_medium=member_desktop</a>
Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente	<a href="https://www.linkedin.com/feed/update/urn:li:activity:7138083656236969984/">https://www.linkedin.com/feed/update/urn:li:activity:7138083656236969984/</a>

### 5.3.3 SKAO

Arup B.V. reports information applicable to the CO2 Performance Ladder on the [SKAO website](#). The information stays available on the website for at least 2 years. Arup is listed on the website of SKAO as a level 5 certified company.

### 5.3.4 Client Relationships

Arup nurtures client relationships, including understanding client’s sustainability and CO2 reduction needs. This is managed on a client specific basis.

One example is our relationship with **REDACTED**, annually we discuss sustainability issues in our annual suppliers meeting also known as ‘Leveranciersgesprek’. Part of the Samenwerkingsovereenkomst 4 with **REDACTED** collaboration on sustainability.

### 5.3.5 Events

Throughout the year we organize various events, lectures, and meetings with and for clients to inspire, update and motivate. Together we are responsible for delivering a more sustainable future. In sharing our knowledge, learnings and delivered projects we lead the way.

**Table 38: Examples of events relating to CO2 reduction in 2023**

Date	Topic	Link
10/02/2023	EWB-Arup Circular summit	Circular Summit 2023 - EWB NL
15/03/2023	Digital Horizons: Promoting climate resilience   Amsterdam	<a href="https://info.arup.com/Digital-Horizons-2077-Registration-Online.html">https://info.arup.com/Digital-Horizons-2077-Registration-Online.html</a>
06/11/2023	Sustainable development is everything Show & Tell session	Office, Social Space, 3rd floor



## 6. Participation plan

Sustainable development is at the heart of everything we do and laid out in the Arup Strategy. It is our purpose. It is how we shape a better world. For us 'better' is all about creating a more sustainable future and delivering on our commitment to meaningfully contribute to the 17 UN Sustainability Development Goals (UNSDGs).

Arup B.V. is committed to actively participate in initiatives in the field of sustainability in general and CO<sub>2</sub>-reduction in particular. This entails both performing in-house research and establishing partnerships with academic and industry partners.

This report is produced in 2024 and covers the actions that were carried out in 2023. Section 6.3 looks ahead to planned measures for 2024.

### 6.1 Internal Initiatives

Arup works with a range of internal initiatives outside of projects. These include Research, Invest in Arup and Digital Tools.

#### 6.1.1 Completed research

In 2023, no Arup specific sustainability research was carried out through Invest in Arup. See section 6.1.2.

#### 6.1.2 Invest in Arup

The following Invest in Arup projects had been funded over the last years:

**REDACTED**

### 6.2 External Initiatives

Arup B.V. participates in a number of external initiatives aiming to reduce CO<sub>2</sub>-emissions.

#### 6.2.1 Green Business Club Amsterdam Sloterdijken

Arup is a founding membership of a Green Business Club Amsterdam Sloterdijken, aiming to help the local business deploy sustainable development initiatives. Since 2022 Arup sits in the Board and facilitates with developing achievements in the coming years.

In 2023, Arup (with participants) have worked on energy scans for buildings. These scans will help buildings in the neighborhood become more energy efficient and improve their energy consumption. The next project will be focus around waste.

#### 6.2.2 REDACTED

See 5.2.5 for more information on REDACTED and its uses.

#### 6.2.3 Memberships

Arup is a member of the Sustainability Committee TC1 of the Dutch Steel Association (Bouwen met Staal)

Arup is a Member of Madaster, the circularity initiative for building materials

Staalakkoord - As Arup we want to push and support the initiative to make the use of steel in construction more sustainable. Therefore we signed in 2022 the 'Bouwakkoord Staal' and are one of the front runners for this initiative. As frontrunner in sustainability we agreed to share our knowledge, experiences, insights and ideas for the ambitions and activities of the agreement and making the application of steel in the construction and civil sector even more sustainable. We have a position in the steering committee, Director Sabine Delrue represents Arup. This committee is responsible for the strategy and the realization of the points from the agreement. We share our knowledge and experiences in one of the action teams, in team 'design'. For 2023 the transition from starting to acting phase is foreseen.

Arup is a member of NL Ingenieurs

Arup is a member of VN Constructeurs

#### 6.2.4 Sector Initiatives

Arup is a Knowledge Partner of the Ellen MacArthur Foundation. Whilst most of the effort is geared towards Arup global, there have been a number of calls for input from Arup in Amsterdam.

Arup was a participant in the RWS initiative Roadmap naar klimaatneutrale en circulaire kunstwerken in 2030. In 2022 we participated in two RWS workshops regarding climate neutral and circular structures. No new workshops on this were held in 2023.

Presented a VNConstructeurs Webinar regarding Sustainable Design in Infrastructure on the topics of circular design and extending the life of existing steel bridges.

As part of the Week of Circularity, Arup held a Circularity Workshop in partnership with Engineers without Borders.

In 2023 Arup joined the Dutch Green Building Council (DGBC)

### 6.3 Future Plans

In 2024, Arup plans to:

- Continue funding internal initiatives
- Renew membership with NL Ingenieurs – We believe that by working intensively with our partners through NL Ingenieurs, we can help the Netherlands achieve its climate goals
- Continue the Dutch Green Building Council (DGBC) venture
- Renew membership with VN Constructeurs
- Hold a workshop as part of Circularity 2024
- Look for community engagement projects that have sustainability impacts
- Continue to make local impact through the Green Business Club Sloterdijken