CO_2 Management plan 2025

Based on 2024 data

VenhoevenCS

architecture+urbanism

March 2025

Table of content

1. Introduction

VenhoevenCS is an office for architecture and urban planning. In architecture, we design projects for sports & leisure, culture & education, health, mixed use, residential, office & utility, transformation, interior, and products. In infrastructure, we design mobility hubs, stations, bridges, tunnels, and bicycle parks. On a larger scale, we design plans for urban development, station areas, and spatial strategies.

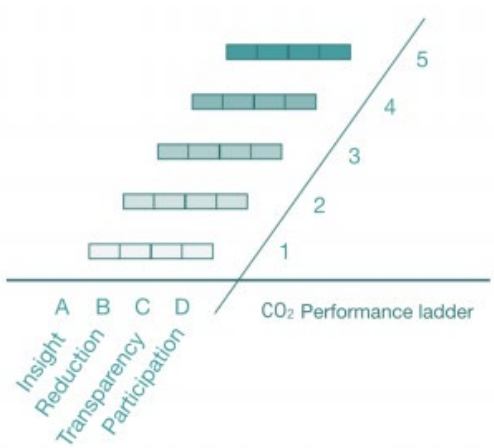
VenhoevenCS is a forward thinking practice. We do a lot of research, either in commission (e.g. for the national government), or as a partner in the New European Bauhaus community. Sometimes we initiate research ourselves.

We believe in the power of architecture and planning as tools to create a better and more sustainable world. Sustainability has been in VenhoevenCS' DNA since its foundation in 1998. In 2009 we started with making our ambitions quantifiable and measurable by a/o calculating our carbon footprint. In 2016 VenhoevenCS received the CO_2 Performance Ladder certificate level 3 and in 2017 we upgraded to level 5.

Today we still make our clients and project partners aware of a wide range of sustainable solutions, such as re-use, circularity, bio-based materials, low-shadow cost buildings, water management, adaptive and nature-inclusive design. The reduction of GHG emissions is a distinct part of our design strategy.

The CO_2 Performance Ladder is based on four pillars:

A. **Insight**
   Drawing up an undisputable CO_2 footprint in accordance with the ISO 14064-1 norm to provide insight in the CO_2 emissions of the company.
B. **CO_2 reduction**
   The ambition of the company to reduce the CO_2 emissions.
C. **Transparency**
   The way a company communicates about their CO_2 footprint and reduction measures, both internally and externally.
D. **Participation**
   (in sector and/or value chain initiatives) to reduce CO_2 emissions.



Every pillar of the CO_2 Performance Ladder has five levels, ascending from 1 to 5.

The activities are being assessed by an authorised certifying organization to determine the level on the CO2 Performance Ladder.

To achieve a certain level, actions have to be taken on every pillar of the ladder. In order to do so, steps have to be made on every pillar of the ladder.

This document contains the energy management program in chapter 2, the steering cycle in chapter 3 and the communication plan in chapter 4. Chapter 5 contains the participation in sector- and branch initiatives and the appendix on initiatives.

This management plan has been composed in agreement with and approved by the management team and the board of VenhoevenCS.

1.1 Reading guide

This document serves as evidence for the requirements for the CO_2 Performance Ladder. In each chapter, some of the requirements are met. Underneath you will find a reading guide.

Chapter in this document	**Requirement of the CO_2 Performance Ladder**
Chapter 2: Energy management program	2.C.2, 3.B.2 and 4.A.2
Chapter 3: Steering cycle	2.C.2
Chapter 4: Communication plan	2.C.3
Chapter 5: Participation in sector- and branch initiatives	3.D.1 and 3.D.2
Appendix A: CO_2 emissions 2017-2022	2.C.2, 3.B.2 and 4.A.2
Appendix B: Emission flows 2019-2022	2.C.2, 3.B.2 and 4.A.2
Appendix C: Inventory of projects by theme 2021-2022	3.D.1 and 3.D.2
Appendix D: List of research projects since 2016	3.D.1 and 3.D.2
Appendix E: Participation and research budget 2023	3.D.1 and 3.D.2

This Management Plan is the 5th update of the original *Algemeen Energie Management Plan* (2015).

2. Energy management program

This chapter outlines the quality management plan (requirement 4.A2) and the energy management plan (requirement 3.B.2) for VenhoevenCS.

2.1 Quality management plan

The quality management plan deals with guaranteeing and improving the quality of the CO_2 footprint. The overall purpose of the quality management plan is to provide continuous improvement of efficiency and effectiveness in relation to energy and CO_2 reduction in business activities.

Additionally, the quality management plan provides insight into the procedures, the measurement and reporting on the CO_2 footprint. The quality management plan guarantees a complete, trustworthy and topical consolidation of the energy performance of VenhoevenCS.

It provides overall insights in the energy performance of the business activities and the comprehensive CO_2 emissions as a result of this. By using the quality management plan as a tool, VenhoevenCS aims to guarantee the quality of the data used and improve the performance.

2.2 Energy management plan

The NEN-EN-ISO 50001 serves as a guideline for setting up the energy management action plan. Introducing the energy management system into our business guarantees a complete, trustworthy and topical consolidation of the energy performance of VenhoevenCS.

Continuous evaluation of the activities and deviations lies at the core of the energy and quality management plan to ensure that improvements can be made according to the Plan-Do-Check-Act cycle as follows from the NEN-EN-ISO 50001.

2.3 Energy policy and targets

Since 2009 we strive for continuous improvement of the emission reduction policy and a growing consciousness of the employees for reducing emissions in our business activities. This applies not only to our projects, but also to our operations.

The general purpose of the energy management system is to continuously improve the energy-efficiency and reduce the CO_2 emissions of the business activities. It has to be taken into account that the amount of work and the type of activities are subject to fluctuation: our business is very cyclical sensitive. As a result, the absolute energy consumption can be higher, even though the relative consumption is lower.

2.4 Emission flows

The first step is providing insight in the energy consumption of the business. Based on these insights a conclusion can be drawn on which aspects of the business most effectively can be targeted to reduce CO_2 emissions. This insight can be found in the CO_2 footprint. Periodically this list is being evaluated and tested on actual energy sources.

2.5 Reference year and calculation method

The CO_2 emissions are calculated in accordance with the provisions in this document. The reliability is being checked through an internal audit. Based on the CO_2 footprint in the reference year, measures and objectives have been formulated to reduce CO_2 emissions. Every year an evaluation of the reference year is performed, to establish that the set measures and objectives are still appropriate. Management evaluates the progress of these measures and objectives yearly.

Note

In the past 6 years, we have used the CO_2 footprint of 2015 as reference year. In 2023 we decided to evaluate all calculations. The reasons for the evaluation:

a. The Corona pandemic lockdowns from March 2020 to February 2022.
b. The acquisition of additional office space in September 2020.
c. The renovation of the new space from January 2021 to September 2022.
d. The installation of mechanical ventilation with heat recovery in 2022.
e. Unprecedented growth in 2020 and 2021.
f. The late opening of China from the corona lockdown
g. New conversion factors in 2021
h. High inflation since 2022

All these factors together made the calculations of 2020, 2021 and 2022 difficult to compare, and frankly, meaningless.

We have decided to use different reference years for various energy aspects. We have also decided to change the emission per unit for various energy aspects.

See Appendix E for an overview of CO_2 emission between 2017-2022.

Scope 1 en 2 totals

Our scope 1 emissions only consist of gas use. Our scope 2 emissions only consist of business travels: because we have a 100% certified Dutch wind energy contract, the emissions from electricity use is zero.

Historically, the scope 2 emissions comprise the largest part of the total scope 1 and 2 emissions (around 95%). We see a strong reduction in percentage in the lock-down / travel restriction years.

	2019	2020	2021	2022
Scope 1	4,86%	10,98%	47,06%	41,65%
Scope 2	95,14%	89,02%	52,94%	58,35%

As expected, (and predicted in 2023) our scope 2 emissions have risen again. Because business travel is such a large part of the footprint, we pay extra attention to where the emissions come from exactly. See for more details below under *Business travel: Operations* and *Business travel: Projects*

Scope 1 Gas

See Appendix B for data 2019-2022.

	Before	New
Reference year	2015	2022
Emission/unit	CO_2 per FTE	CO_2 per m2

Uncertainties

At the moment (august 2023) VenhoevenCS does not have a smart meter, which means a meter reading on a specific reference date is not possible. A request for a smart meter has already been submitted 7 months ago, but there is still no prospect of an installation date. Until that time, we calculate the gas use proportionally: the difference between the current meter reading and the last meter reading divided with the number of months in between the readings x 12.

The gas infrastructure at the VenhoeveCS office is complicated. Seven units, divided over 2 floors, serviced by two gas meters (and not 1 meter per floor). Every now and then a unit is rented out while the gas use for that unit cannot be calculated separately. This means that in that case floor space is not used by VenhoevenCS, but the gas use is part of the VenhoevenCS emissions.

It is impossible to separate the gas use of one unit from another. Since the unit is mostly used by similar organisations (office work), we expect the gas use not to be very different from that of VenhoevenCS. Therefore, we keep both the m^2 and the gas use within the domain of VenhoevenCS.

Example calculations can be found in the 2015 Management Plan.

Update 2024

A smart meter was installed at the beginning of 2024. We now have insight in our monthly gas use. This means the calculation method will change as per 1 January 2024.

Scope 2 Electricity

VenhoevenCS has a 100% certified Dutch wind energy contract since 2017, meaning our CO_2 emissions for electricity use is zero. Therefor we will exclude it from our energy assessment and CO_2 reductions goals.

However, we will start with reduction goals of our energy use as of 2023 in kWh/m_2. This will be part of our more encompassing sustainability goals.

See Appendix B for data 2019-2022.

Uncertainties

For electricity use calculations we face the same issues as with gas regarding smart meters. Calculation is done in the same way as gas use: the difference between the current meter reading and the last meter reading divided with the number of months in between the readings x 12.

Regarding renting out units: it is impossible to separate the electricity use of one unit from another. Since the unit is mostly used by similar organisations (office work), we expect the electricity use not to be very different from that of VenhoevenCS. Therefore, we keep both the m^2 and the electricity use within the domain of VenhoevenCS.

Example calculations can be found in the 2015 Management Plan.

Update 2025

A smart meter was finally installed at the beginning of 2025. We now have insight in our monthly electricity use. This means the calculation method will change as per 1 January 2025.

Scope 2 Business travel: Operations

Employees at VenhoevenCS travel not only for commuting (see below) or for projects (see below). Occasionally travel is necessary for business development or PR, for training or excursions.

Depending on the destination, employees take a

1. Bicycle. If not possible, then
2. Public transportation, in combination with walking, (OV) bicycle or shared car. If not possible, then
3. Shared electric car. If not possible, then
4. Shared non-electric car. If not possible, then
5. Own electric car. If not possible, then
6. Own car

For international travel, the policy is: take

1. International train. If not possible, then
2. Direct flight.

See Appendix B for data 2019-2022.

	Before	New
Reference year	2015	2022
Emission/unit	CO_2 per FTE	CO_2 per FTE

We have decided to use 2022 as the new reference year. Because of the lockdowns, 2020 and 2021 are not representative.

We choose CO_2 per FTE because it is the best representation for operations.

Car

VenhoevenCS has provided rental cars (shared car systems) for its employees since 2003. The invoices of our shared car supplier state the type of car used (electric, small, large) and the total amount of kilometres driven.

If employees use their own private car, they can claim the expense against a standard rate per kilometres (€0.21 in 2023). At the financial administration it is known who drives electric, and who doesn't, and how electric cars are charged.

Public transport

Converting costs (in euros) for public transport reimbursed to employees into kilometres is not officially standardized. Since so much public transport is used, it is impossible to figure out the actual kilometres per use. Since 2016 we convert a lump sum of costs into kilometres with a standard average unit rate set by the Dutch Railway (NS) in 2015: €0,138604 per kilometre. Since then, the NS has not published any new unit rates, so we still use this conversion factor. Considering inflation, we probably report more kilometres than actually ridden. But since the trains are electric, and the conversion factor is zero, it does not really matter. The same goes for the other public transport used (tram and metro).

The bus is the only public transport in the Netherlands that can have a conversion factor higher than zero. But the bus is rarely taken by employees. These instances are so rare, that we do not extract the bus rides from the overall public transport kilometres: it would be a lot of bureaucracy for very little impact.

Since travel by public transport in NL has zero CO_2 emissions, we exclude it from our reduction goals. International train travel does produce emissions, but we also exclude it from our reduction goals, because in theory, you want international train travel to increase as a substitute for flights.

We will keep calculating the CO_2 emissions for (international) public transport for our total scope 2 emissions.

Flights

There are many variables influencing the emissions. Doing business in China (or other countries more than 2500 km away) has the most impact: because our employees travel so much by public transport and electric (shared) car, the impact of a long-haul flight on our total emissions is very high. In 2019 long-haul flights to China accounted for 70% of all scope 2 business travel for operations. Most shorter flights are part of a stopover on the way to an intercontinental destination (e.g. a flight to Guangzhou via Paris). This is the reason why already in 2016 it was decided to exclude flights from our reduction goals.

We will keep calculating the CO_2 emissions for flights for our total scope 2 emissions.

Uncertainties

The reimbursements send in by employees for kilometres driven by private car, are based on the kilometre calculation via route.net with the starting point and end point. It is possible that the employee has driven more kilometres, e.g. when a road is blocked and a detour had to be taken. However, the amount of extra emissions for this type of incidents is negligible.

The uncertainty regarding public transport is mentioned above.

Scope 2 Business travel: projects

VenhoevenCS introduced working with TEAMS in 2019 to provide remote meetings. Remote meetings got a boost during the corona pandemic. However, in our line of work, meeting in person is often better. Therefore travelling to clients, project partners and construction sites is still necessary.

The policy is the same as for business travel for operations.

See Appendix B for data 2019-2022.

	Before	New
Reference year	2015	2022
Emission/unit	CO_2 per FTE	CO_2 per FTE

We have decided to use 2022 as the new reference year. Because of the lockdowns, 2020 and 2021 are not representative.

We choose CO_2 per FTE because it is the best representation for operations.

Exclusions

For our reduction goals we will exclude the same energy aspects as under Scope 2 Business travel: Operations:

- Public transport
- Flights

We will keep calculating the CO_2 emissions for flights and public transport for our total scope 2 emissions.

Uncertainties

The uncertainties for business travel for projects are exactly the same as for business travel for operations.

Scope 3 Commuting

VenhoevenCS does not have a car fleet or a lease plan; for more than 10 years the policy is to promote commute by bicycle or public transport. Since we are located in the centre of Amsterdam, coming by car is difficult, due to lack of parking. This means all employees commute by bicycle or public transport (train).

Since the CO_2 emissions for commuting are zero, we do not have a target or reference year for this energy aspect.

We do check yearly whether changes in modes of transportation have taken place as part of the Quantitative Scope 3 Analysis. This means we will set the commuting standard to zero, unless a change has taken place.

Uncertainties

Sporadically employees come to the office by private car. E.g. when they need their car to go to a meeting but first stop over at the office. The kilometres are then included in the reimbursement for business travel. Therefore the total emissions are the same albeit in a different scope.

Scope 3 Suppliers (Operations) and Subcontractors (Projects)

Since 2015 we have calculated the emissions of our suppliers and subcontractors as part of our total footprint.

These calculations have been very complex and laborious: we calculated the kilometers of the most likely place from where the supplier / subcontractor travelled to our office x an estimate of the numbers of times the supplier visited our office. We tried to track down the mode of transportation (bicycle, public transport, car, etc.) of every supplier / subcontractor. Then we used a general conversion factor to convert the km into CO_2 emissions. Needless to say, this method of calculation is based on rather general assumptions and therefore hardly accurate.

With the growth of our company, the number of suppliers has grown accordingly. In 2022 there were more than 350 creditors. It is impossible to keep up.

Considering the inaccuracy of the calculation and the sheer number of creditors, we have decided to stop the calculation of emissions of our suppliers and subcontractors as part of our total footprint.

We will however continue to annually calculate the emissions of our suppliers and subcontractors as part of our quantitative scope 3 emissions, with a small tweak of the calculation method: we will use the Scope 3 Conversion factors provided by *De Duurzame Adviseurs* (which is based on the GHG) to allow for inflation corrections.

1. We will make an inventory of 80% of costs by suppliers and subcontractors: this will result in a list of suppliers and subcontractors with their respective revenue at VenhoevenCS
2. We will convert the euros to kg CO_2 emissions by using the Scope 3 Conversion factors provided by *De Duurzame Adviseurs* (which is based on the GHG)
3. We will evaluate the list, and make a qualitative choice of 1 supplier and/or subcontractor, to engage with them on their and our GHG emissions.

Selection criteria

The criteria for selecting suppliers and subcontractors for engagement are, but not limited to:

1. Supplier/ subcontractor has not been selected in the past 5 years
2. Supplier/ subcontractor is approachable: it is difficult to engage with large multinationals or companies located abroad
3. It concerns a regular supplier/ subcontractor (not a one-off contract)
4. An appreciation of the potential impact in the footprint of the supplier/ subcontractor

Uncertainties

We state above that we “make a qualitative choice” of 1 supplier and/or subcontractor. The reason is that the conversion factors do not allow for individual measures that our suppliers and/or subcontractors have already taken. For instance, the cleaning personnel we hire, come to our office by bicycle, but this is not reflected in the conversion factor: whether we have hired a cleaning company that arrives by a diesel van, or a cleaning company that arrives by bicycle, the kg emissions will be the same. Therefore we make a qualitative choice.

The reason why we only choose 1 supplier and/or subcontractor is that the number of suppliers and subcontractors that we can engage with is fairly small.

Scope 3: Paper use

See Appendix B for data.

The percentage of emissions through the use / purchase of paper in relation to our total CO_2 emissions has been consistently low for the past 6 years.

Even though we did not have a reduction target for the emissions through use / purchase of paper, we did calculate the amount every year. We have decided to exclude emissions through use / purchase of paper in our calculations as of 2023.

The purchasing of paper is part of our *VenhoevenCS Procurement Policy* that states selection criteria for suppliers, products and services. Suppliers (and their products/services) are evaluated yearly on these criteria.

Scope 3: Waste

See Appendix B for data.

Since 2019 we calculate our emissions through waste as part of the Quantitative Scope 3 Analysis. This is calculated by adding the purchasing amount of waste collection services.

Waste is consistently below 5% of the total Upstream Scope 3 Emission and therefore not very relevant.

As of 2023 we will exclude Waste from the Upstream Scope 3 Emission.

Waste management is part of the our *VenhoevenCS Procurement Policy* that states selection criteria for suppliers, products and services. Suppliers (and their products/services) are evaluated yearly on these criteria.

Behaviour by employees regarding waste (e.g. low print policy) is part of the code of conduct and is regularly discussed during plenary office meetings.

2.6 Reduction measures

The overall reduction objective is formulated for a period of 6 years until 2028. Based on this objective, a number of actions have been formulated and set out in time. These CO_2 reduction actions are included in the general QHSE action (Excel) list, that also includes other measures (e.g. for electricity use reduction).

2.7 Data collection

In 2009 VenhoevenCS started to structurally map the CO_2 emissions. This led to the introduction of a CO_2 reduction system in accordance with the CO_2 Performance Ladder.

The team responsible for collecting data has changed over the years. Since 2021 a QHSE team has been set up, responsible for collecting data, internal audits, reviews, improvement suggestions to management and tips to colleagues.

Collecting and processing information in the CO_2 footprint is done by the members of the QHSE team with a function in financial administration and facilities: Sam de Bruin and Marijke van Putten. The QHSE manager is responsible for the planning and the quality of the data collection.

Emission flow	Unit	Source	Scope	Responsible	When
Gas - Office	m^3	Gas meter and invoices	1	QHSE- team	Feb/Mar & Aug/Sep
Electricity - Office	kWh	Electricity meter and invoices	2	QHSE- team	Feb/Mar & Aug/Sep
Business kilometres, incl. air travel	km	Invoices, receipts and reimbursements	2	QHSE- team	Feb/Mar & Aug/Sep
Suppliers & Subcontractors	€	Invoices, receipts and reimbursements	3	QHSE- team	Feb/Mar & Aug/Sep

Quantitative Scope 3 analysis

Emission flow	Unit	Source	Type	Responsible	When
Goods & Services	€	Invoices, receipts and reimbursements	UP	QHSE- team	Feb/Mar
Commuting	€	Reimbursements	UP	QHSE- team	Feb/Mar
End-of-life cycle of sold products	%	Project folder: Environmental Impact Tool	DO	QHSE- team & Project leaders	Feb/Mar
Excluded:					
Waste			UP		

Engagement

Type	Source	Responsible	When
Sustainability in projects	Project list AFAS	QHSE- team & Project leaders	Feb/Mar
Research projects	Project list AFAS	QHSE- team	Feb/Mar
Lectures, debates, articles, etc.	Outlook calendar	PR- team & employees	Feb/Mar

2.8 Energy consumption

Twice a year (every 6 months) VenhoevenCS draws up her energy consumption. This assessment is done in line with the ISO 14064-1 regulations, the GHG Protocol for scope 1 and 2, and potential requirements of the CO_2 Performance Ladder. The organisational boundary is also reassessed to assure it is up to date.

The QHSE manager bears operational responsibility for establishing, implementing and monitoring (and therefore functioning) the quality management system. A datasheet is being used that contains all relevant conversion factors. The sources of information are being collected and stored on SharePoint. A quality check is performed on the data after the assessment has been made. This includes the organisational boundary, the use of scopes and the use of conversion factors.

2.9 Energy reduction opportunities

Everybody within VenhoevenCS can present ideas for energy/CO_2 reduction through e-mails, text messages and informal discussions. Alongside this, plenary office meetings on the topic of CO_2 reduction (and other sustainability goals) are held twice a year, during which suggestions are often made. The ideas are being valued on effectiveness and when they seem effective, they will be added to the energy audit report.

2.10 Monitoring and evaluating

Twice a year, the progress of the reduction objective and the corresponding measures are being gauged. The QHSE manager reports these results in the CO_2 discussions with the management team. This report at least includes:

- ✓ An overview of the energy use and the CO_2 emissions per scope
- ✓ A comparison of the energy use to the reference year
- ✓ An analysis of striking reductions or increases in the energy use and/or CO_2 emissions
- ✓ The progress and prognosis for reaching the reduction targets and potential recommendations for preventive or corrective measures.
- ✓ The status of previous preventive or corrective measures
- ✓ General developments

Based on this report the management team concludes whether or not adjustments to the objective and/or the measures are necessary.

2.11 TRA Matrix

	Task-Responsibility-Authorise	Frequency	*Management Team*	*QHSE Manager*	*QHSE Team*	*BD-PR Team*	*Employees*
Insight							
Collect data on emission inventory	t	Half-yearly			X		
Approve emission inventory	a	Yearly		X			
Draw up emission inventory report	t	Yearly			X		
Evaluate: energy-assessment	t+r	Yearly		X			
Reduction							
Conduct research on energy reduction	t+r	Half-yearly		X	X		
Determine CO_2-reduction measures	t	Half-yearly		X	X		
Determine CO_2-reduction goals	t	Yearly		X			
Approve CO_2-reduction goals	a	Yearly	X				
Realise CO_2-reduction goals	r	Continuous	X	X	X	X	X
Monitor & evaluate progress CO_2-reduction	t+r	Half-yearly	X	X	X		X
Communication							
Provide information for news messages	t	Half-yearly	X	X	X	X	X
Update website	t+a	Half-yearly				X	
Update page SKAO website	t+a				X		
Maintain internal communication	t+a	Half-yearly		X	X	X	
Approve internal communication	a	Half-yearly		X			
Maintain external communication	t	Half-yearly		X	X	X	
Approve external communication	a	Half-yearly	X	X			
Participation							
List interesting initiatives	t	Yearly		X	X	X	X
Choose the fitting initiatives	a	Yearly	X	X	X		
Participate in the initiatives	r	Continuous	X	X	X	X	X
Miscellaneous							
Final check CO_2-report	r	Continuous		X			
Check all CO_2 Performance Ladder requirements	r	Continuous		X			
Conduct Internal Audit CO_2-reduction system	t	Half-yearly			X		
Report to the management	a	Half-yearly		X	X		
Decision-making on CO_2-reduction policy	r	Half-yearly	X	X			

2.12 Securing the quality- and energy management plan

Internal audits

Every year an internal audit is being conducted. These audits are focussed on checking the effectiveness and implementation of the energy policy. Alongside this it serves the purpose of improving the quality of the CO_2 footprint and providing a reliable view on the progress of the measures. The internal audit focusses on the way that data is being collected and processed. The R&D Group CORE (which includes the audit team) draws up a report with the findings from the internal audit. Emphasis is being laid on the following matters:

- ✓ Can the CO_2 emission inventory be verified with a certain level of certainty?
- ✓ Does the assessment comply with the requirements set out in ISO14064-1?
- ✓ Has the right data been used in drawing up the CO_2 footprint (conduct a sample to compare invoices and usage data)?
- ✓ Which level of the CO_2 Performance Ladder has been reached?

Recommendations from the audits need to be included in the yearly plan to improve the system.

External audits

Every year an external auditor checks whether VenhoevenCS adheres to requirements of the CO_2 Performance Ladder for the level in which VenhoevenCS is certified.

Management review

Every year the management reviews the quality management system on fit, suitability and efficiency. A report is then drawn up on the basis of these findings, which serves as quality registration. What follows from the management review is a year plan with goals and improvements for the next year.

Feedback

Based on the input of the previous phases of evaluation and the evaluation report of management, the goals, if necessary, can be adjusted and follow-up actions can be drawn up to realize improvements. This is necessary to guarantee improvement of the quality management system. The feedback on the outcomes is being reported both verbally and in written form to the concerned parties. They are responsible for executing the corrective/preventive measures within their own departments.

3. Steering cycle

The CO_2 policy operates in semi-annual cycles, for which the following components have to be assessed:

- ✓ The data for the CO_2 footprint has to be collected;
- ✓ A judgement has to be made about whether the emissions factors are topical;
- ✓ Whether there are significant changes in the company which can impact the footprint;
- ✓ A judgement has to be made whether the emissions from last year have to be re-calculated because of above changes;
- ✓ The progress of the CO_2 reduction has to be stated and new goals have to be made.

Subsequently it is being assessed whether extra attention should be paid to certain goals and measures. If it becomes clear that certain goals will be (too) easily achieved, they might be raised. Or if certain goals seem far from being accomplished, new measures have to be taken to reach them. These changes will then be communicated both internally and externally. Alongside this, the useful participation in sector initiatives from the past period will be evaluated. Below one can find a PDCA-cycle, in which the different phases of the CO_2 reduction policy are depicted.

4. Communication

This section of the report deals with the moments of communication about the CO_2 reduction system of VenhoevenCS.

4.1 Internal stakeholders

Internal stakeholders are the employees (including freelancers and interns) and the board of VenhoevenCS. They will be updated about the progress through plenary meetings, the VenhoevenCS Intranet and the website. The board and the management team will be engaged with the decision-making about the reduction measures, the progress of the CO_2 reduction and other key features of the CO_2 reduction policy.

4.2 Internal communication strategy

Message	Executers	Means	Frequency	Planning	Goals
CO_2 footprint scope 1 and 2	QHSE Team	Plenary meetings*, Intranet and website	Half-yearly	March September	Creating awareness of the CO_2 footprint internally
CO_2 reduction objective and measures scope 1 and 2	QHSE team	Plenary meetings*, Intranet and website	Half-yearly	March September	Creating awareness of the goals and measures among employees
Progress in CO_2 reduction scope 1 and 2	QHSE Team	Plenary meetings*, Intranet and website	Half-yearly	March September	Creating awareness on steps (to be) taken, encouraging engagement
Progress in CO_2 reduction scope 3, chain analysis and quantitative scope 3 analysis	QHSE Team	Plenary meetings*, Intranet and website	Yearly	March	Creating awareness on steps (to be) taken, encouraging engagement
CO_2 reduction tips, current energy consumption and trends	QHSE Team	Plenary meetings*, Intranet and website	Half-yearly	March September	Encouraging engagement of employees and involving them in CO_2 reduction
General information about CO_2 performance ladder and reduction goals	HR	Welcome to VenhoevenCS Onboarding protocol	1 x per candidate	When needed	Creating awareness on CO_2 reduction ambitions
Project specific CO_2 reduction goals	PL	Primary process, Intranet, AFAS	Phase start-ups, end evaluation and feedback	Start and end of project	Creating awareness on CO_2 reduction in project team

* Progress of our CO_2 reduction targets are included In the Plenary Quality Meeting, held twice a year. Attendance of the Plenary Quality Meeting is required for all employees. Presentations (and sometimes recordings of the meetings) are made available on the server afterwards.

4.3 External Stakeholders

Below is a list of external stakeholders. These parties benefit from a reduction of energy consumption and most CO_2 emissions. Simultaneously they are potential partners to collaborate with on CO_2 reduction. Communication with the external stakeholders happens through the website of VenhoevenCS, through social media and through various standardized documents (such as contracts and terms of delivery).

Through our *Environmental Impact Tool* (part of our chain analysis on shadow pricing) clients are provided with clear data which building elements will have the least CO_2 impact.

External stakeholders	Importance of CO_2 policy & knowledge about it
Clients	The clients can be seen as an external interested party. It may happen that clients use the ladder in a tender. The CO_2 performance ladder can provide benefits to clients.
Governments	VenhoevenCS often has governments as clients. Research done by VenhoevenCS can help change spatial policies, which can have a positive impact on CO_2-reduction.
End-users	Everyone in the area benefits from CO_2-reduction, including end-users of our projects. The performance ladder can provide (financial) benefits, such as lower energy costs.
Project partners & suppliers & freelancers	By becoming aware of the CO_2 performance ladder, project partners may decide to start he certification process. Because VenhoevenCS has a level 5 certificate, it must also engage with their supplier on sustainability
Research partners, students, writers, etc.	VenhoevenCS aims to contribute to the environmental discourse regarding the built environment through collaboration in research and PR.
SKAO	SKAO is the founder of the CO_2-performance ladder. VenhoevenCS must be a member of SKAO to obtain and maintain their certificate.

4.4 External communication strategy

Message	Executers	Means	Frequency	Planning	Goals
CO_2 footprint scope 1 and 2	PR Team	VenhoevenCS Website	Half-yearly	March September	Creating awareness of the CO_2 footprint externally
CO_2 reduction objective and measures scope 1 and 2	PR Team	VenhoevenCS Website	Half-yearly	March September	Creating awareness of the goals and measures among external stakeholders.
Progress in CO_2 reduction scope 1 and 2	PR Team	VenhoevenCS Website	Half-yearly	March September	Creating awareness on steps (to be) taken, encouraging engagement

Chain analysis and quantitative scope 3 analysis	PR Team	VenhoevenCS and SKAO Website	When relevant and opportune	March And other times if desirable	Encouraging engagement of external stakeholders.
Partnerships (Initiatives)	PR Team	VenhoevenCS and SKAO Website	Yearly	March	Collaboration, knowledge development and sharing
Publication requirement SKAO	PR Team	Website SKAO	Yearly	March	Publishing the required documents and updating the list of measures

4.5 Tenders with award advantage

Communication about the CO_2 policy of VenhoevenCS does not only deal with the company as a whole but also with the policy towards tenders taken with award advantage. For these projects there should be specific mentions about the CO_2 emissions of the project as well as the progress and goals. This communication will predominantly be done through the same communication channels as the general communication. Where necessary, more information regarding the project will be shared in the project meetings.

VenhoevenCS does not conduct any projects that were given with award advantage. Since 2016 only 1 European tender has had a CO_2 performance ladder criterium for architects: it gave the candidate 1 point extra out of 100. This cannot be considered an *award advantage* since it had no bearing on the outcome of the competition.

4.6 Website

The website of VenhoevenCS includes a section on CO_2 reduction measures. This page presents the necessary information on the CO_2 policy and the newest versions of the documents.

https://venhoevencs.nl/csr/sustainability/

Textual information

The page dedicated to the CO_2 Performance Ladder should provide up-to-date information about:

- ✓ The CO_2 reduction policy;
- ✓ The CO_2 footprint;
- ✓ The CO_2 reduction goals (and their progress);
- ✓ The CO_2 reduction sub-goals (and their progress);
- ✓ The CO_2 reduction measures;
- ✓ Actions and initiatives in which VenhoevenCS participates or runs;
- ✓ A reference to the business page on the website of SKAO.

The progress will be described through the publication of half-yearly messages. To be truly transparent about the progress, these messages have to be visible on the website for at least two years.

Shared documents

The most recent versions of the below documents should be presented on the website at all times (available to be downloaded in PDF).

- ✓ Progress Report (requirement 3.C.1)
- ✓ The CO_2 Reduction plan (incl energy assessment) (requirement 3.B.1 & 3.D.1)
- ✓ The CO_2 Management plan (incl communications plan) (requirement 2.C.3 & 3.B.2)
- ✓ Certificate CO_2 Performance Ladder

Website SKAO

The website of SKAO should provide the most recent versions of the documents below:

- ✓ Active participation in chain initiatives (requirement 3.D.1)
- ✓ Most recent Quantitative Scope 3 analysis
- ✓ Filled out list of measures

Every document on the website of SKAO should be in PDF format with a reference of the version number, it should include a signature of the responsible manager and the authorisation date.

5. Engagement

The CO_2 Performance Ladder requires companies to participate in sector- or branch initiatives. The company should thus be aware of the initiatives within the industry.

5.1 Identification sector and branch initiatives

To assess which sector and branch initiatives could be relevant to VenhoevenCS, the website of SKAO has been consulted (*https://www.co2-prestatieladder.nl/nl/initiatieven-en-programmas*). This page contains a comprehensive list of all initiatives and reduction programs. Possible suitable initiatives are regularly discussed and evaluated with the QHSE and management team.

VenhoevenCS is currently partner of the Dutch Green Building Council (since 2018)**.**

Own initiative

VenhoevenCS also has a partnership with IMd Consulting Engineers for developing the Environmental Impact Tool. This tool is getting some publicity in the Netherlands.

https://www.dearchitect.nl/289955/10-co2-rekentools-als-antwoord-op-de-milieuprestatie-gebouwen

https://www.dgbc.nl/nieuws/meten-en-sturen-op-materiaalgebonden-emissies-6850

Update 2025

Our initiative has been picked up Stichting MRPI and is now officially the *MPG Schetsontwerptool*. Its development is partly subsidized by *MOOI- Circulaire Klimaatinstallaties*. VenhoevenCS and IMd have partnered with LBP Sight B.V., Develop Inc B.V. and Packhunt B.V. Together we are developing an MPG Draft Design Tool that allows users to make an environmental cost assessment at the building level during the initial design phase. The tool focuses on the structure, facades, and building services, as these elements together account for more than 80% of the MPG score.

5.2 Active participation

VenhoevenCS actively contributes to the development of knowledge about sustainability in several ways, for example:

- ✓ Collaboration is a core value at VenhoevenCS. VenhoevenCS endorses SDG 17: we collaborate with many other (international) parties: the issues our societies face are too complex for a single person or organization to solve.
- ✓ We continually speak to clients, project partners, subcontractors and suppliers about their responsibility ambitions (or their lack of ambitions).
- ✓ We exchange knowledge with various knowledge institutes, such as TU Delft, AMS, TNO and international universities and institutes within the NEB-LAB research programme.
- ✓ We organize workshops (abroad) in the field of sustainable urban development, mobility and climate adaptive design.
- ✓ We give lectures and feature in conferences in the Netherlands and abroad. These are not only done by the partner-directors of VenhoevenCS, but also by senior level employees.
- ✓ The partner-directors of VenhoevenCS and senior level employees are regularly interviewed on topics of sustainability, including Carbon reduction in the construction industry.
- ✓ In the VenhoevenCS Academy guest lectures (by academic researchers, innovative product developers, etc) and excursions are organized, mostly about sustainable urban development and mobility.
- ✓ In the VenhoevenCS Academy we discuss sustainability ambitions and goals through in project presentations. Tips, tricks and best practices are shared. Input comes from all levels of our organisation, including interns.
- ✓ Sharing our experiences through social media and other PR means.

We have decided to take a more active role in our sector and promote the 'practice what you preach' principle. Practically all architectural firms design sustainable projects, but hardly any actually look at the impact of their own operations.

We also feel that creating visually more attractive documents (management plan, reduction goals, progress report) will help in spreading awareness.

5.3 Themes in projects

Every year VenhoevenCS makes an inventory of its projects: which project contributed to a certain theme. The contribution has to be significantly more than what is expected through laws and regulations.

The themes since 2019 have been:

1. Climate
   Including climate action, climate adaptive design, biobased material use, CO_2 reduction
2. Nature-Inclusive design
   Including measures to strengthen biodiversity and create resilient ecosystems
3. Green Mobility
   Including walkable city, transit-oriented development and hubs
4. Microcity
   Including strengthening communities, inclusive design and affordable housing
5. Circular economy
   Reuse, material mapping

These themes are under review in order to align with the European Sustainability Reporting Standards (ESRS).

See Appendix C for an inventory of sustainable themes in our projects.

Update 2024

In the management review of 2024, an evaluation took place of this project inventory. As a result, is has been decided not to continue this inventory. VenhoevenCS wants to:

1. Move towards more steering at the beginning of the projects and implement evaluations instead of inventories
2. Bring all tools and instruments in line with CSRD requirements

During 2024 VenhoevenCS will, with input by an external consultant, development new tools and instruments.

Update 2025

VenhoevenCS is now allocating all its CO_2 reduction budget to the development of the MPG Draft Design Tool. See above.

5.4 Research projects

We regularly conduct research by design in the field of sustainable urban development and mobility. Sometimes research is done in commission e.g. at the request of the national government. Sometimes VenhoevenCS is part of a large research consortium (e.g. for the EU research programmes).

VenhoevenCS also initiates research, e.g. to develop knowledge on specific sustainable solutions. Sometimes we find partners to collaborate, sometimes we apply for a subsidy to cover part of the costs.

See Appendix D Appendix D: List of research projects since 2016 for a list of research projects

5.5 Annual participation & research budget

Budget is allocated annually for partnerships, sustainable initiatives, research and R-Fund.

The R-Fund is an internal fund that can be used for research projects, or to add to a project hours budget e.g. for innovation, exploring additional sustainable solutions, etc.,

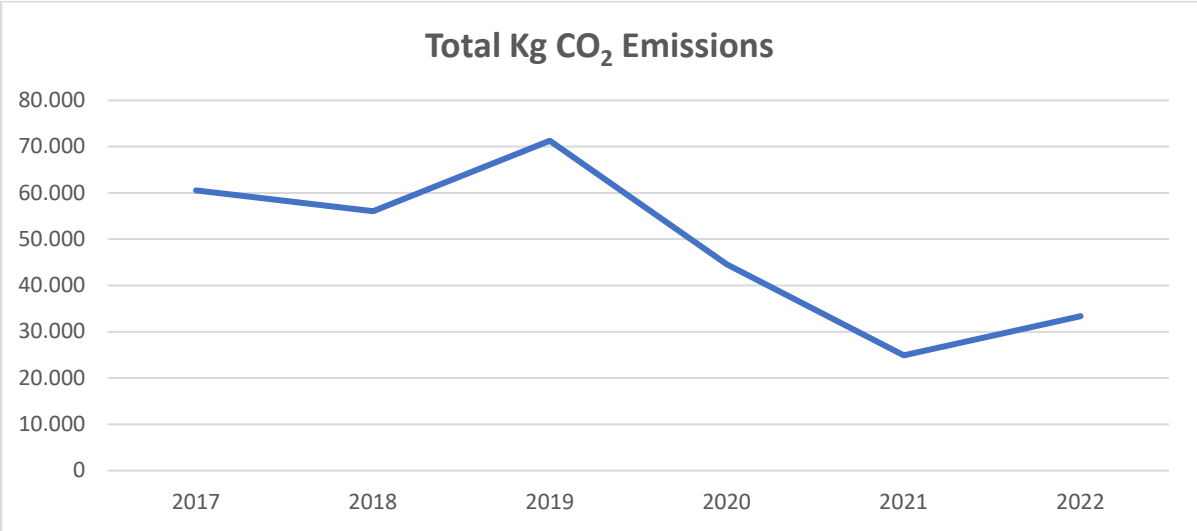
See Appendix E for the latest annual budget.

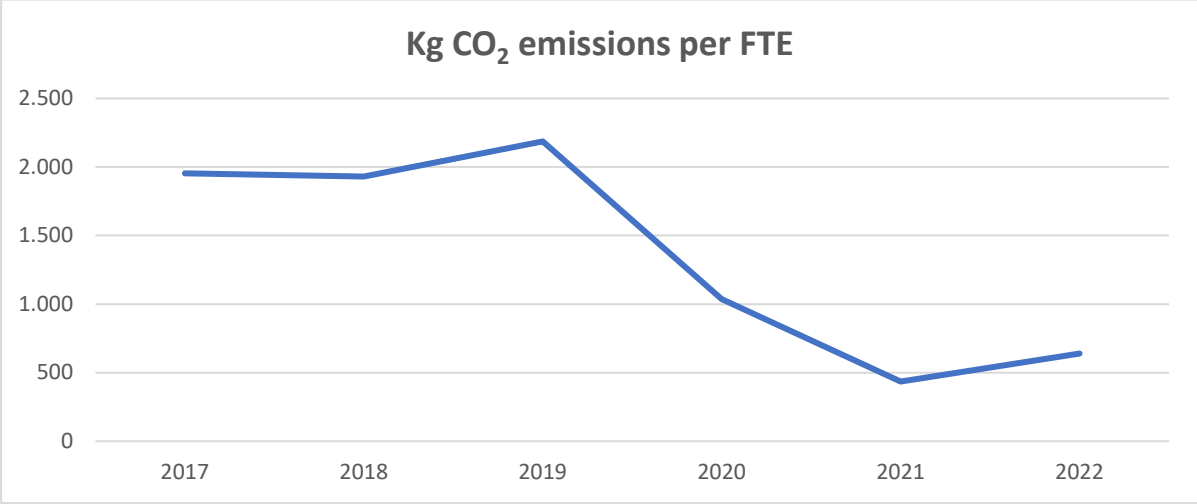
Update 2025
At the end of 2024 we evaluated our R&D policy. This has led to a change in the way we approach our research and development. We now have 3 categories of R&D:

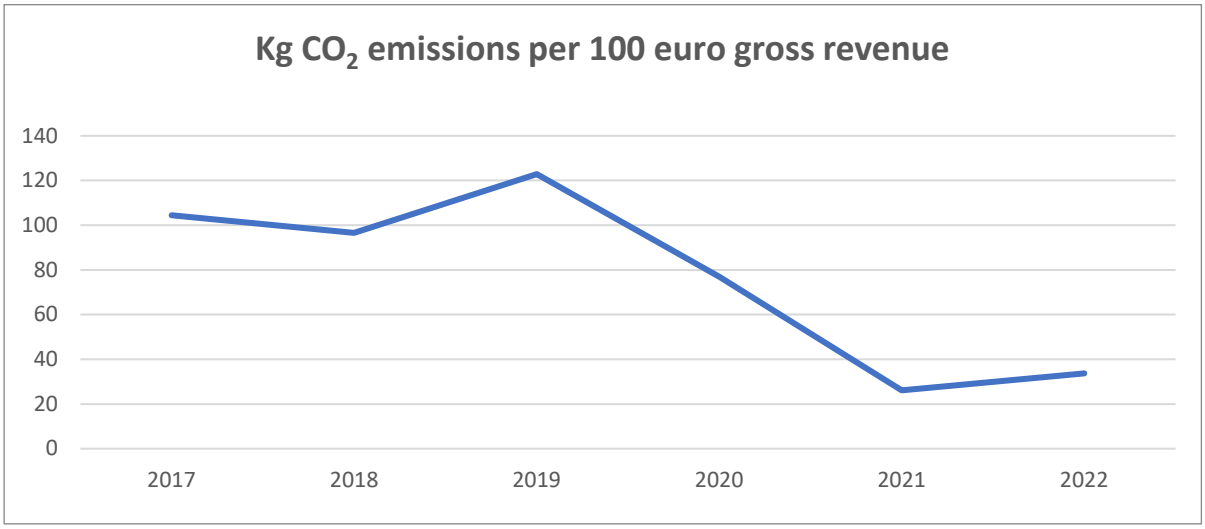
- Operational
- Tactical
- Strategical

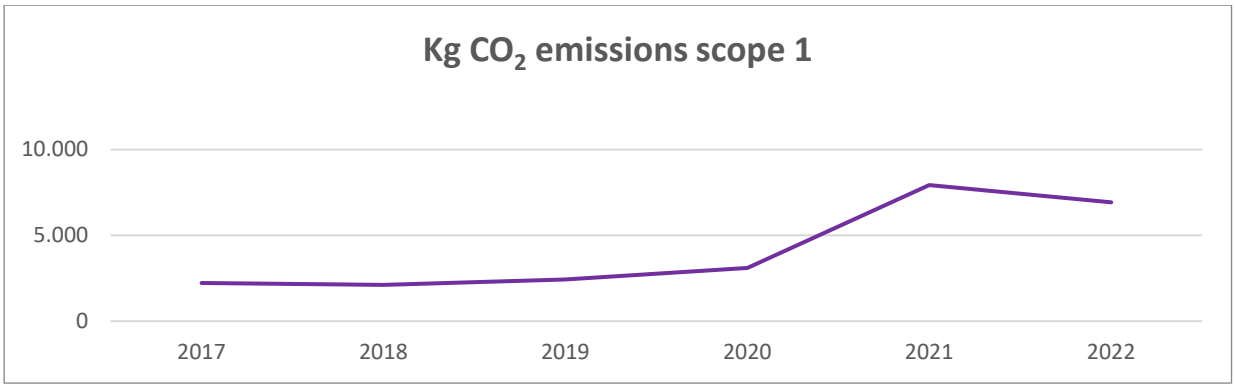
Special projects are defined and budgeted for each of these categories. In total 215.000 euro has been allocated to R&D projects in 2025.

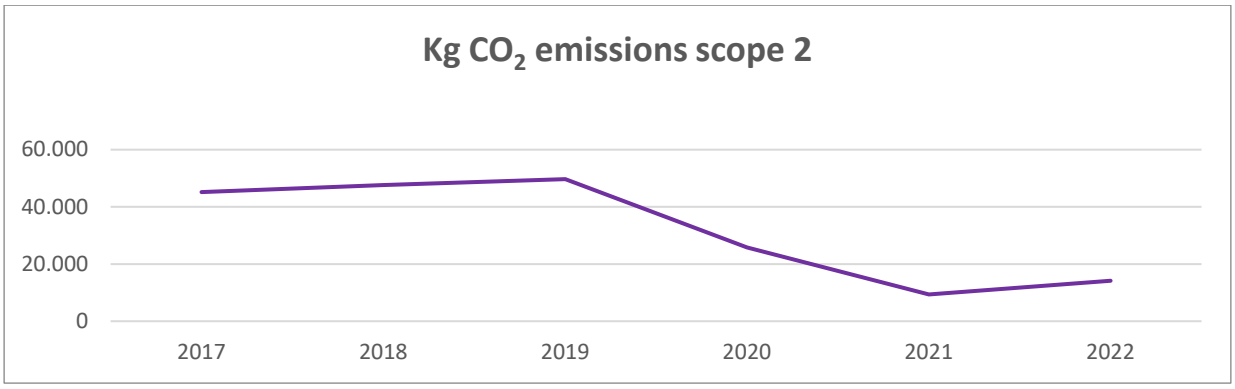
Appendix A: Historical CO_2 emissions 2017-2022

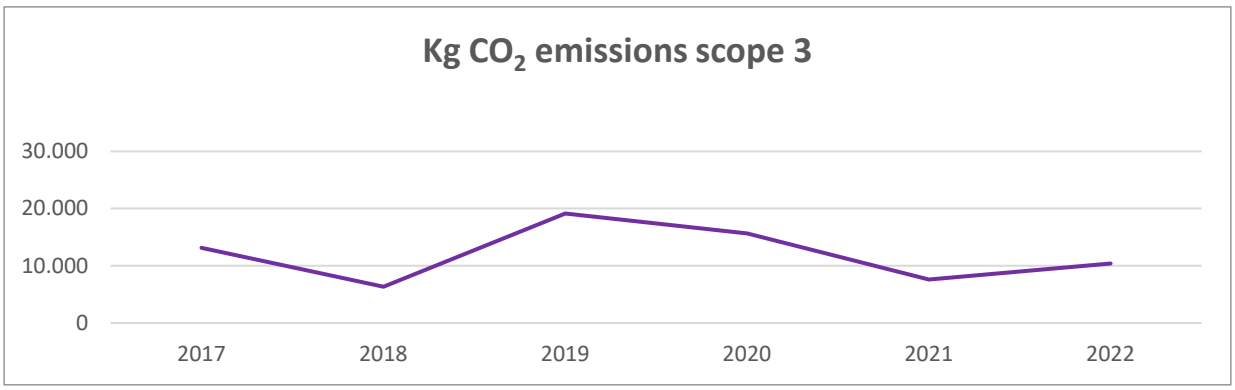







Kg CO2 emissions scope 1
10.000
5.000
0
2017
2018
2019
2020
2021
2022


Kg CO2 emissions scope 2
60.000
40.000
20.000
0
2017
2018
2019
2020
2021
2022

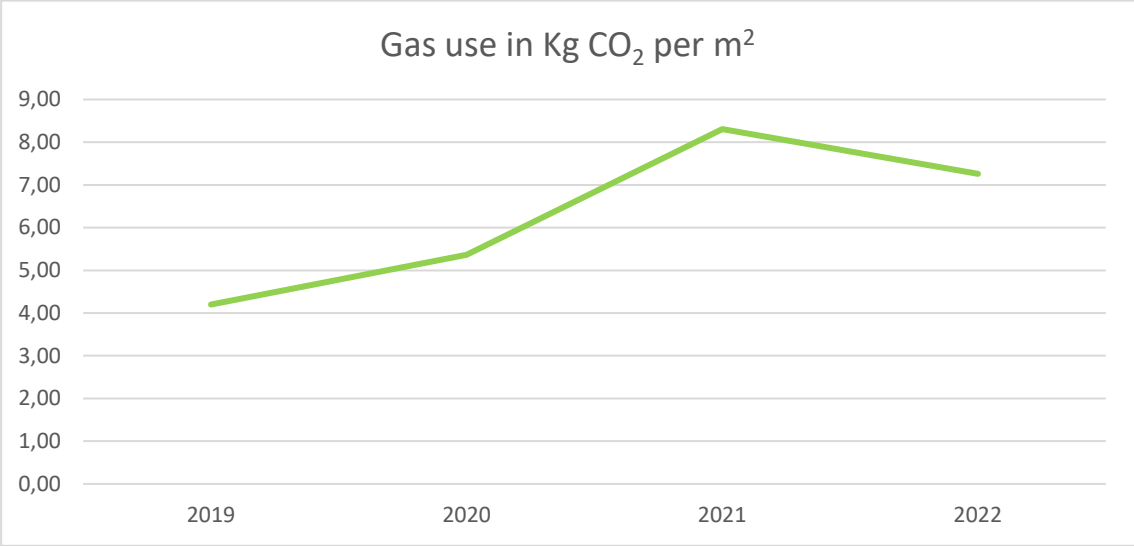

Kg CO2 emissions scope 3
30.000
20.000
10.000
0
2017
2018
2019
2020
2021
2022

Appendix B: Emission Flows 2019-2022

Scope 1 Gas

	2019	2020	2021	2022
Usage in m^3	1293	1652	3805	3325
Conversion factor	1,884	1,884	2,085	2,085
Kg CO_2 emission	2436	3112	7933	6935
Surface m^2	580	580	955	955
Kg Emission per m^2	4,20	5,37	8,31	7,26

NB gas use m^3 in 2022 was corrected in October 2023



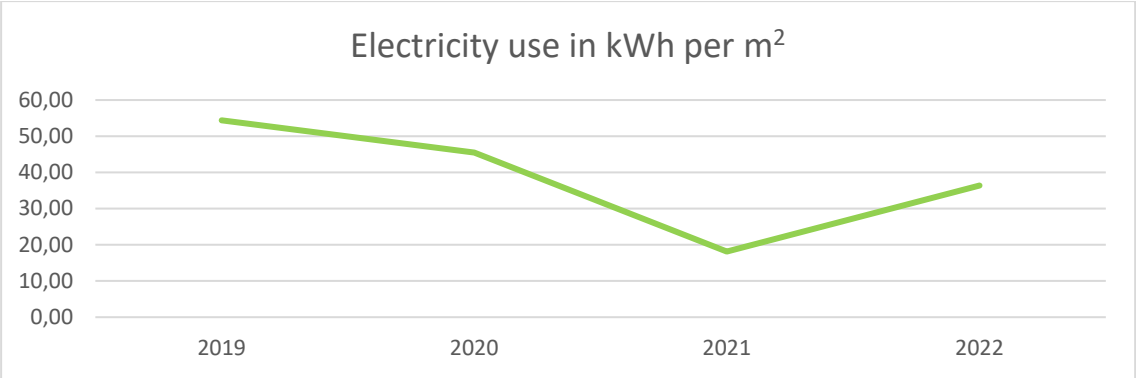
2019: last pre-corona year

2021: new conversion factor

2022: new office space including and installations in use

Scope 2 Electricity

	2019	2020	2021	2022
Usage in kWh	31549	26400	17320	34748
Conversion factor	0	0	0	0
Kg CO_2 emission	0	0	0	0
Surface m^2	580	580	955	955
Kg Emission per m^2	0	0	0	0
Usage kWh/ m^2	54,39	45,52	17,14	36,39



2019: last pre-corona year

2022: new office space including and installations in use

Scope 3: Paper use

	2019	2020	2021	2022
Purchase in kg	303	304	337	321
Conversion factor	1,1	1,1	1,1	1,1
Kg CO_2 emission	333	334	371	353
Total Kg emissions	71269	44577	24902	33370
% Paper purchase	0,47%	0,75%	1,49%	1,06%

The increase of percentage in 2021 and 2022 is not so much due to the increase in paper use, but due to the decline in total emissions. Paper use is a very small percentage of emissions.

Scope 3 Waste

	2019	2020	2021	2022
Ton Kg CO_2	2,54	1,67	2,18	3,15
Total Upstream Scope 3 Emissions	157,16	196,56	288,13	93,64
% of waste	1,62%	0.85%	0.75%	3,36%

Waste is a very small percentage of the total upstream scope 3 emissions.

Scope 2 Business Travel Operations

	2019			2020			2021			2022		
	km	**CF**	**CO_2**	**km**	**CF**	**CO_2**	**km**	**CF**	**CO_2**	**km**	**CF**	**CO_2**
P car	4838	0.22	1064	323	0.193	62	2886	0.193	557	6539	0.193	1262
P E-car	0	0.092	0	0	0.092	0	1875	0.092	173	6940	0.104	722
S car	2271	0.177	402	522	0.174	91	985	0.174	171	596	0.174	104
S E-car	0	0.107	0	0	0.092	0	0	0.092	0	677	0.104	70
Train	15666	0.0006	9	18998	0	0	17140	0	0	12664	0	0
PT	3001	0.036	108	11710	0	0	pm	pm	pm	pm	pm	pm
Train INT	7044	0.026	183	1227	0.026	32	13998	0.026	364	15694	0.026	408
F<700	2133	0.297	633	936	0.297	278	936	0.234	219	2648	0.234	620
F<2500	17076	0.2	3415	1050	0.2	210	1050	0.172	181	3888	0.172	669
F>2500	92553	0.147	13605	0	0.147	0	0	0.157	0	0	0.157	0
Total			**19421**			**673**			**1664**			**3854**
FTE			33			43			57			52
CO_2/FTE			**596**			**16**			**29**			**74**
Total B			1767			185			1265			2566
CO_2/FTE			54			4			22			49

P Car	private car
P E-car	private electric car (we take the 'grey' conversion factor because we don't know whether the car is charged with green energy)
S car	shared car (small)
S E-car	shared electric car (grey)
Train	train travel within the Netherlands
PT	public transport other than train (as of 2021 no distinction in calculating train and PT, because of identical conversion factors
Train INT	train travel within Europe
F < 700	flights with shorter distance than 700 km. These are usually stopover flights on the way to an interconnected destination, e.g. a flight to Beijing via Paris.
F<2500	flights with shorter distance than 2500 km
F>2500	flights with longer distance than 2500 km
Total B	Emissions excluding flights

2019: last pre-corona year, with business development in China

2021: business development and PR in Belgium and France starting up

2022: business with China still not possible, but has started up again in 2023

Scope 2 Business Travel Projects

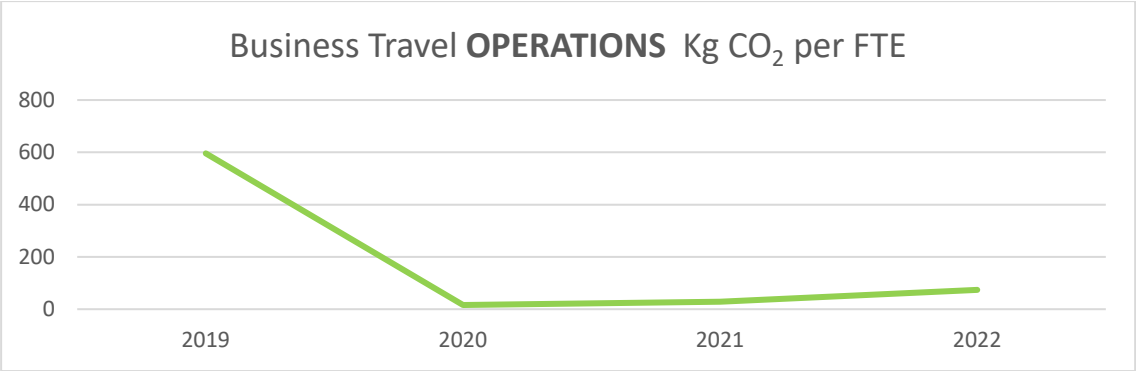
	2019			2020			2021			2022		
	km	**CF**	**CO_2**	**km**	**CF**	**CO_2**	**km**	**CF**	**CO_2**	**km**	**CF**	**CO_2**
Pcar	46875	0.22	9047	84937	0.193	16393	11633	0.193	2245	11271	0.193	2175
PE-car	559	0.092	60	0	0.092	0	6444	0.092	593	15618	0.104	1624
Scar	24924	0.177	4337	13753	0.174	2393	14489	0.174	2521	6459	0.174	1124
SE-car	0	0.107	0	0	0.092	0	0	0.092	0	5396	0.104	561
Train	23452	0.006	141	12637	0	0	20147	0	0	23492	0	0
PT	5217	0.036	188	1709	0	0	pm	pm	pm	pm	pm	pm
Train INT	80520	0.026	2094	31321	0.026	814	48626	0.026	1264	70996	0.026	1846
F<700	2560	0.297	599	408	0.297	95	0	0.234	0	0	0.234	0
F<2500	12995	0.172	2235	9593	0.172	1650	1944	0.172	334	1739	0.172	299
F>2500	65018	0.147	9558	21911	0.147	3221	0	0.157	0	0	0.157	0
Total			**28257**			**24567**			**7259**			**8553**
FTE			33			43			57			52
CO_2/FTE			**856**			**571**			**127**			**164**
Total B			15866			19600			6925			8254
CO_2/FTE			481			456			121			159

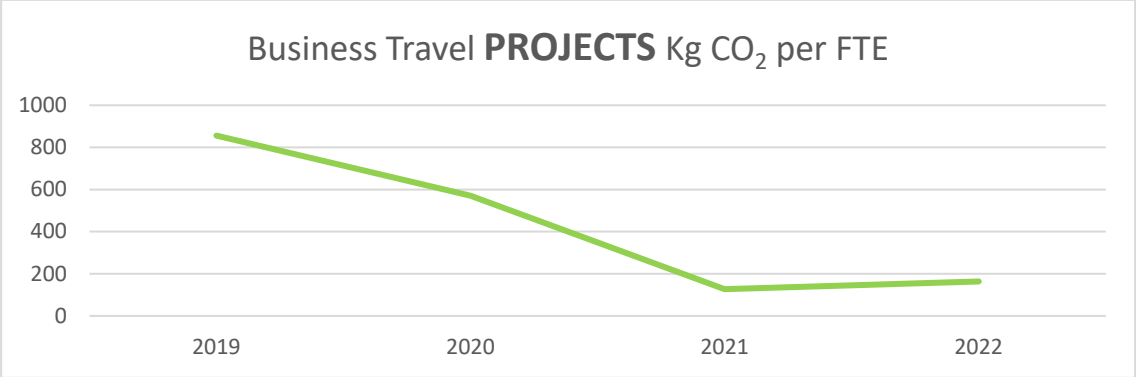
P Car	private car
P E-car	private electric car (we take the 'grey' conversion factor because we don't know whether the car is charged with green energy)
S car	shared car (small)
S E-car	shared electric car (grey)
Train	train travel within the Netherlands
PT	public transport other than train (as of 2021 no distinction in calculating train and PT, because of identical conversion factors
Train INT	train travel within Europe
F < 700	flights with shorter distance than 700 km. These are usually stopover flights on the way to an interconnected destination, e.g. a flight to Beijing via Paris.
F<2500	flights with shorter distance than 2500 km
F>2500	flights with longer distance than 2500 km
Total B	Emissions excluding flights

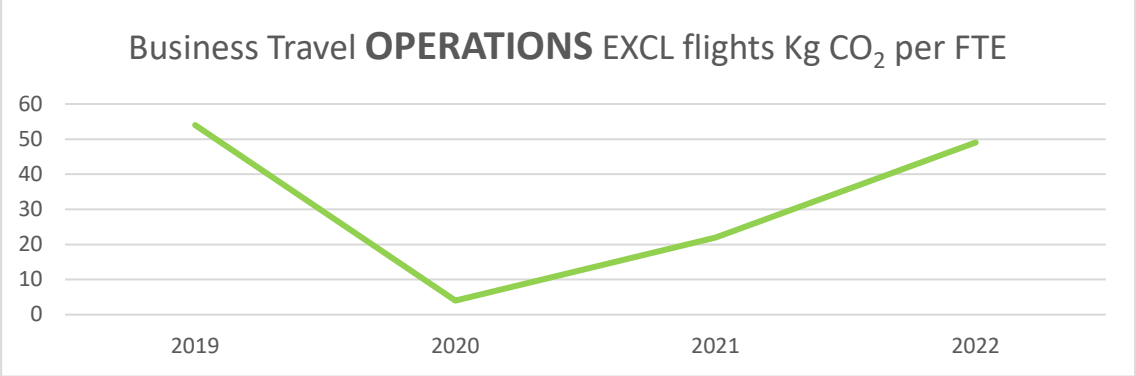
2019: last pre-corona year, with business development in China

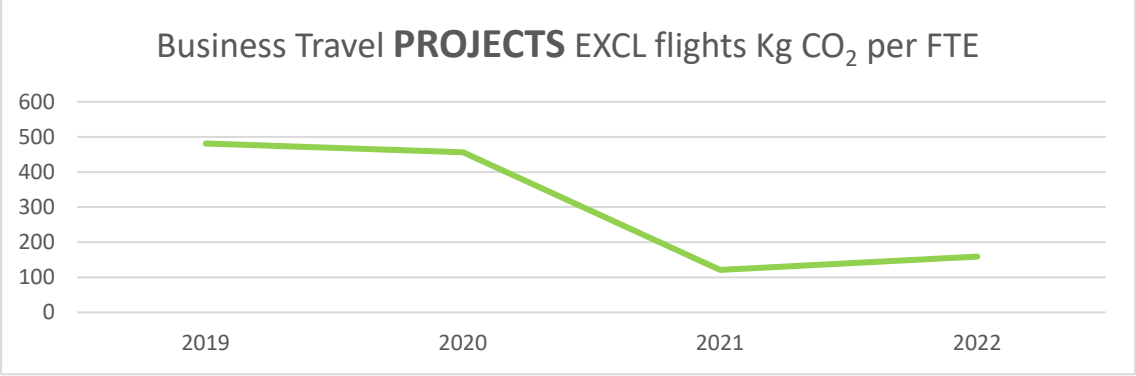
2021: business development and PR in Belgium and France starting up

2022: business with China still not possible, but has started up again in 2023









There was a trip to China for a project in January 2020. It was impossible to travel to China from March 2020-January 2023.

Appendix C: Inventory of projects 2021-2022

		Climate Action, climate adaptive design, CO_2 reduction	Nature-inclusive design, biodiversity, resilient ecosystems	Green mobility framework, walkable city, TOD, hubs	Microcity, community, inclusive design, affordable housing	Circular economy, re-use
2021	number of projects	46	44	35	34	28
	% of total revenue	90,01%	83,14%	42,54%	71,27%	54,34%
2022	number of projects	58	49	46	49	36
	% of total revenue	87,23%	75.16%	47,87%	74,04%	54,61%
2023	number of projects	37	45	27	39	35
	% of total revenue	75,16%	87,23%	54,61	74,04	47,87%

NB After evaluation this inventory has been discontinued in 2024.

Appendix D: List of research projects since 2016

Projects in commission – (partially) externally funded

Project	Type	Client / partners	Duration	Status
MPG Draft Design Tool	CO_2 reduction	Stichting MRPI, IMd, LBP Sight, Develop Inc and Packhunt	2024-now	Ongoing
A12 and rail	Spatial and governance guidelines for development	Vereniging Deltametropool	2023-2025	Completed
OER A1 A6 and rail	Spatial vision for renewable energy	Ministry of Infrastructure & Environment	2023-2025	Completed
Bovag	Spatial future vision for Bovag members	Bovag	2023-2025	Completed
MooiNL	Toolbox node development	Ministry of Internal Affairs	2023-2025	Completed
BNA Value Cases	Impact calculations	BNA	2022-2024	Completed
Novex	Liveable cities and regions	Min IenW	2022-2023	Completed
NEB-LAB	Carbon neutral schools	EU, 11 partners from 8 European countries	2022-2026	Ongoing
Building a healthy Lifestyle	Healthy design (incl walkability)	Creative Industry Fund NL, ErasmusMC, Amsterdam UMC	2022-2024	Completed
City x Space: Marconiplein	Sustainable Mobility	COB, TU Delft, BVR	2021-2022	Completed
The Butterfly Effect	Energy Transition	Kunstloc Brabant, DS Landschapsarchitecten and Solarix	2021	Completed
De Staart	Integrated Climate Adaptive Design	Municipality of Dordrecht / IABR	2020-2021	Completed
Multimodal Hubs	Sustainable Mobility	RWS	2019-2020	Completed
The Breathing City: Proximity as a Principle	Integrated Climate Adaptive Design	BNA, BVR, Sweco, WYNE,Tijs van den Boomen, and many more	2018-2019	Completed
PetaPlan	Energy Transition	Board of Government Advisors.	2017-2018	Completed
Accessible Cities	Sustainable Mobility	Creative Industry Fund NL, Sweco, The Cloud Collective and René Kuiken.	2016-2017	Completed
Challenge NL 2070	Integrated Climate Adaptive Design	The Council for the Environment and Infrastructure, BoschSlabbers Landscape Architects	2016-2017	Completed
Highway & City	Sustainable Mobility	BNA, Tu Delft	2016-2017	Completed

Not included: research and consultancy for various international government organisations and the World Bank.

The results of all our sustainability research are made public through presentations and publications for larger audiences. See also https://venhoevencs.nl/research/

Projects own initiative (no external funding)

Project	Type	Phase	Period	Status
Greenblue roof database	Climate adaptation		2025-now	Ongoing
Sustainable concrete databse	CO_2 reduction		2025-now	Ongoing
Wooden facade design guidelines	Biobased building		2025-now	Ongoing
Digital twin in urbanism	Keeping track of developments		2025-now	Ongoing
AI	Keeping track of developments	Launch new R&D group	2024-now	Ongoing
Enviromental Impact Tool*)	Integrated Sustainable Design	Launch 1st version May 2022	2020- now	Continued in different format
Sustainability Matrix	Integrated Sustainable Design	Game development	2017- now	Ongoing
Microcity	Integrated Sustainable Design		2004-now	Ongoing
Building Biobased	Reference book of biobased options	Evaluation in 2024	2022- 2024	Continued in different format
Digital Twin	Keeping track of developments	Evaluation in 2024	2022-2024	Continued in different format
Stad maken in de Stad	Topping up existing housing		2022-2024	Completed

*) This project is continued as the MPG Draft Design Tool. See above

Appendix E: Participation & Research Budget 2025

Description		Budget 2025
DGBC	Partnership costs	€ 3.200
ARCAM	Partnership costs	€ 3.000
BREEAM training	Hours and costs	€ 1.500
Archikidz	Partnership costs	€ 750
Internal research fund allocated to projects	hours	€ 50.000
R&D projects operational	Hours and costs	€ 79.000
R&D projects tactical	Hours and costs	€ 50.000
Knowledge sharing & coordination R&D	Hours and costs	€ 36.000
Participation in conferences, education, exhibitions (with sustainability theme) by VenhoevenCS (part of PR costs)	Hours and costs	€ 10.000
VenhoevenCS Academy (workshops, lectures and excursions with sustainability theme)	Hours and costs	€ 10.000
Total budget		**€ 243.450**

Colophon

Author	Helga Lasschuijt – QHSE manager VenhoevenCS
Date	10-04-2025
Label	CO_2 Management plan
Responsible manager	Helga Lasschuijt – QHSE manager VenhoevenCS
Responsible directors	Danny Esselman and Ton Venhoeven