Evaluation CO_2 Performance Ladder

Existing literature and data review

CE Delft

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Executive summary

The IKEA Foundation requested CE Delft to perform an evaluation of the impact of the CO_2 Performance Ladder (CO_2 PL), managed by the Foundation for Climate Friendly Procurement and Business (SKAO).

The evaluation is separated into two phases: a literature and data review (Phase 1) and the impact evaluation (Phase 2). For Phase 1, the IKEA Foundation and SKAO would like to strengthen the evidence base around factors influencing adoption of the CO_2 PL, as well as its impacts. This report for Phase 1 is the result of a literature review, interviews, assessing existing data and an overview of planned research. This summary is based on existing studies rather than new research.

The CO_2 PL is a voluntary instrument for Green Public Procurement, owned and managed by SKAO since 2011. It is designed to help government bodies and companies in the Netherlands manage and reduce CO_2 emissions. Based on their level of ambition, bidders can obtain a fictive discount on the tender price, which gives them a competitive advantage. The CO_2 PL is used for one in ten European tenders in the Netherlands (SKAO, 2020a) and over 200 commissioning parties are using it for tendering processes as a green procurement instrument. Over 1,200 certificates in the Netherlands have already been issued on the CO_2 PL as a carbon management system (SKAO, 2020a). Ten European tenders in the Netherlands (SKAO, 2020b) and over 200 commissioning parties are using it for tendering processes as a green procurement instrument. Over 1,200 certificates in the Netherlands have already been issued on the CO_2 PL as a carbon management system (SKAO, 2020b). Several versions of the CO_2 PL Handbook have been released in recent years. SKAO aims to publish version 4.0 in 2023.

Literature review

For the literature review nineteen studies which examine the CO_2 PL and its impact have been reviewed. Most studies are based on interviews, with literature analysis and case studies.
Some qualitative studies give insights into the pull and push factors and companies' experiences with the tool. For example, the competitive advantage and climate change were, for the majority of the companies, the main reasons to get certified. Wanting to become a leader, positioning the business as a green company, pressure from peers and pressure from consortium partners are more secondary reasons for certification.

Literature shows a quick uptake of the CO_2 PL directly after the introduction. The most important quantitative studies about the effect of the CO_2 PL are from Dr Rietbergen (2015, 2016, 2017). These studies conclude that the CO_2 PL had a positive effect on adopting carbon management systems in the construction and infrastructure sector, mainly driven by the competitive advantage in the tendering process. The potential effect of the CO_2 PL in reducing Scope 1 and 2 CO_2 emissions is estimated between 0.8%/year and 1.5%/year, with most likely a value of 1.3%/year (Rietbergen, M., 2015). In the period 2010-2013 the annual CO_2 emission reduction rate in the construction and engineering sector due to energy efficiency improvement and fuel switching was 3.2% per year. In a first estimation, the study shows that about 1.0-1.6%/year of this reduction can be attributed to the CO_2 PL (Rietbergen, Martijn G. et al., 2016). Furthermore, the CO_2 footprint of a large proportion of companies in the water construction sector decreased by 7.8%/year in the period 2010-

2015 (Scope 1 and 2) (Rietbergen, M.G., 2017). In 2022 CE Delft looked into the effects of the CO_2 PL on municipalities. The study shows that the examined municipalities reduced their CO_2 emissions by 23.9% in the period 2018-2020 (mostly Scope 1). In this study, it was not possible to determine the additional effect of the CO_2 PL.
Quantitative analysis shows that participants define above average targets, take additional measures and make additional Scope 1 and 2 emissions reductions. This conclusion was confirmed by CE Delft (2016), which shows that participants' electricity product choice is influenced by the CO_2 PL.

No quantitative studies on Scope 1 and 2 reductions by companies were published after 2017. Recent agreements on CO_2 reduction, such as the Paris Agreement (December 2015) and the National Climate Agreement in the Netherlands (2019), could influence the effectiveness of the CO_2 PL. On the one hand, they could increase the uptake of the CO_2 PL due to raised awareness. On the other hand, more stringent climate policies could reduce additionality. Therefore, new research on Scope 1 and 2 emissions would be valuable. There are insufficient quantitative studies available on Scope 3 emissions to draw conclusions on the effect of the CO_2 PL on Scope 3 emissions. Measuring the effect of the CO_2 PL as the specific driver for measures/ambition is difficult to assess, because there are other overlapping ambitions from legislation.

Available data

Data on CO_2 emissions provided by the companies and collected up until now by SKAO is not adequate to investigate evidence-based impacts of the CO_2 PL. SKAO has data about the type (size, sector) and number of companies using the CO_2 PL, but this data does not provide the information required to assess its effectiveness. For a quantitative analysis, the following should be included:

- annual CO_2 emissions per scope per company following a fixed method adopted by the sector and/or;
- measures taken to reduce CO_2 emissions;
- targets set per year.

The SmartTrackers database includes emission data for 80 companies. We conclude that statistic analysis with significant results will be difficult, and the added value will be limited. Last but not least, certificate holders publish a number of data and (progress) reports, such as the material emissions report and Life Cycle Assessment (LCA) report. However, inconsistencies between methods, yearly reporting, categories, structure of reporting and organisational boundaries make it hard to gather information on CO_2 reduction over time. The data can be used for company-specific analysis but is not suitable for database building.

Based on all available data, we conclude that company data might be useful to answer some questions on a micro level but not on a sector level. For more analytical questions, this data should be combined with other evidence, such as interviews. For more qualitative questions there is no data available. Datasets should be created through using surveys, for example.

Recommendations

This paragraph focuses on recommendations for further research. Following the literature analysis we recommend an update on Scope 1 and 2 emissions for more recent years.
The update will, however, be time-consuming and might show similar information on the effectiveness of the CO_2 PL (Rietbergen, M., 2015).

To attribute CO_2 emission reduction to the effect of the CO_2 PL, a distinction needs to be made between the effects of other initiatives and policies and that of the CO_2 PL. In part, this can be done by comparing companies within a sector. To distinguish between companies within the same sector who applied the CO_2 PL and those who did not, we recommend making case studies of companies within one sector of comparable size and/or distributing a survey.

The indirect impacts of the CO_2 PL, for example on procurement policies and instruments or on other initiatives, could not be identified from literature or data. To investigate this, new research – such as interviews or a survey - would be required.

The effect of the CO_2 PL on supply chain cooperation and carbon reduction is not described in literature. To assess this effect, new research, proposed in the form of interviews and a survey, is required. No consistent published data is currently available on Scope 3 emissions. We recommend standardising the method of emission data production, collection and reporting. This data can then be used to study the effectiveness of the CO_2 PL in the future. Research on Scope 3 emissions can now be done with case studies.

Content

1 Introduction

1.1 Introduction

The IKEA Foundation recently made a grant to the Foundation for Climate Friendly Procurement and Business (SKAO)[1] to disseminate the CO_2 Performance Ladder (CO_2 PL) in Europe. In parallel to this grant, the Foundation would like to strengthen the evidence-based impacts of the CO_2 PL.

The IKEA Foundation requested CE Delft to perform an independent and critical evaluation of the impact of the CO_2 PL as an instrument for Green Public Procurement (GPP) and to manage CO_2 emission reduction for government and companies in the Netherlands.
The evaluation is separated into two phases: a literature and data review (Phase 1) and the impact evaluation (Phase 2). This report is the result of Phase 1.

1.2 Goal of the project

For Phase 1, IKEA Foundation and SKAO would like to strengthen the evidence base around factors influencing adoption of the CO_2 PL, as well as its impacts. Phase 2 will consist of an impact evaluation assessing the effectiveness and utility of the tool itself.

Key questions are outlined below (to be modified based on the results of Phase 1):

1. What are the impacts (qualitative and quantitative) at company level relating to:
   - Scope 1, 2 and 3 emissions[2], including an estimate (with justification) of CO_2 emissions reduction;
   - carbon intensity (per FTE, turnover and other relevant metrics);
   - sector/size of the companies included;
   - corporate carbon management strategies and other relevant policies/strategies?[3]
2. What differences exist between companies (within the same sector) who applied the CO_2 Performance Ladder tool and companies who did not?
3. What are the indirect impacts of the CO_2 PL as a GPP instrument and a CO_2 management system, since it was developed in 2015, in terms of:
   - sector: overall emissions of sector, GPP policies of the sector and/or country;
   - tendering party (tendering parties use the CO_2 PL also as a carbon management system);
   - did the CO_2 PL pave the way for other GPP policies and instruments (e.g. other performance ladders and Life Cycle Costing approaches)?
4. To what extent did the CO_2 PL strengthen/start supply chain cooperation and carbon reduction? (What is the cost-effectiveness of the instrument?)
5. What is the utility of the tool and what are users' experiences with the tool? What factors drive or hinder adoption?
6. What are recommendations for SKAO to improve and maximise tool adoption in the Netherlands and in Europe?

The goal of this first phase is to gain insights into the available data sources and identify areas lacking information. Results from this phase will be used in the impact evaluation.

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1 In Dutch: Stichting Klimaatvriendelijk Aanbesteden en Ondernemen, aka SKAO.

2 Note: Not all levels of the CO_2 PL require data on Scope 3 emissions.

3 For example: corporate sustainability strategies and supply chain strategies.

1.3 Scope

This project will focus on the CO_2 PL as a CO_2 management system for companies and governments and GPP instrument for governments. However, SKAO also manages the CO_2 PL for governments that helps (local) government organisations to reduce emissions. CE Delft was asked by SKAO to evaluate the scheme for municipalities in a separate project. The results are included in this report.

1.4 Project execution

In Phase 1 we will conduct a literature review, carry out interviews, assess the existing data and make an overview of planned research and scope of inquiries. The findings will be presented in this interim report. Phase 1 ends with a detailed proposal for Phase 2.

Literature review

We will conduct a review of existing literature on the performance of the CO_2 PL. We will review Dutch and international literature, systematically answering the following questions:

- What is the scope of the study (sector, country, GPP or management system, year, type of emissions)?
- What are the research questions?
- Which methods are used (interviews, survey, data analysis, literature review)?
- What is the quality of the methods?
- What are the main conclusions?
- What is concluded about the factors influencing the uptake of the CO_2 PL?
- What is concluded about the impact of the CO_2 PL?

For this literature review we use all relevant academic and grey literature, including studies from SKAO, universities and the extensive work of Dr M. Rietbergen.

Interviews

For a better understanding of the CO_2 PL, we will carry out interviews with the following parties:

1. SKAO (understanding of the CO_2 PL, data availability).
2. Dr M Rietbergen (insights in evaluation).
3. Rijkswaterstaat (important procuring party).
4. SmartTrackers (emissions database).

Data gathering and understanding

We will analyse the available data on the CO_2 PL and other procurement and CO_2 management systems, for the purpose of understanding the CO_2 PL and the usefulness for the further evaluation. The data gathering includes:

- Data provided by SKAO on the type (size, sector) and number of companies using the CO_2 PL.
- Data provided by SKAO on the CO_2 performance and measures taken by the different participants. Monitoring is an important aspect of the CO_2 PL, and we expect that SKAO can provide extensive monitoring information.
- Other relevant data.

1.5 Structure of the report

Chapter 2 provides a description of the CO_2 PL and the theory of change. Chapter 3 shows the results of the literature analysis and the interviews. Chapter 4 analyses the available data on the CO_2 PL. Chapter 5 contains the conclusions and gives an overview of the findings and recommendations.

2 CO_2 Performance Ladder

2.1 Introduction

This chapter provides a description of the CO_2 PL. It describes the instrument, theory of change and the mechanisms of the CO_2 management system and procurement instrument.

2.2 History of CO_2 PL

The CO_2 PL is an instrument which helps organisations to reduce their carbon emissions within the organisation, in projects and in the business sector. The instrument can be used as a CO_2 management system as well as a procurement tool (see Section 2.3).

The CO_2 PL was developed by ProRail in 2009. The idea for the CO_2 PL originated from a round-table session of clients and industry. Several companies had developed social responsibility and sustainability policies and felt that this effort was not being properly rewarded in tendering procedures. In fact, they even argued that their investments in these societal issues put them at a competitive disadvantage in public sector procurement relative to less responsible contractors (Dorée et al., 2011).

At first, ProRail was the only organisation that used the CO_2 PL as a procurement instrument. However, in 2010 Rijkswaterstaat became interested in using the CO_2 PL. They wanted to use the tool under two conditions:
- the tool must be managed by an independent organisation;
- the procurement system must be in line with European legislation.

In 2011 the Foundation for Climate Friendly Procurement and Business (SKAO) was founded as the owner and manager of the CO_2 PL. SKAO is an independent and not-for-profit foundation. It is responsible for the development, management and dissemination of the CO_2 PL as a carbon management system and procurement instrument, stakeholder management research, and providing information and a helpdesk (SKAO, 2020b). SKAO published the CO_2 PL Handbook 2.0 in 2011. This version was in line with the European procurement regulations. Since then, several updated handbooks have been published, with improvements based on research.

When SKAO and the CO_2 PL were accredited in 2012[4], Handbook 2.2 was published. Handbook 3.0 was quite a big change. The management system became more important, and all tender texts were removed and placed in a separate procurement guide. Handbook 3.1 was published to emphasise what needs to be done in projects. In Handbook 3.1 a project dossier was introduced, to make it clearer what projects have done.

Currently SKAO is developing Handbook 4.0, which focusses on more ambition. They aim to publish this version in 2023.

[4] The CO_2 Performance Ladder has been accepted by the Accreditation Council (RvA) as an accredited certification system in accordance with NEN-EN-ISO-IES 17021, certification of management systems. The Accreditation Council accredits conformity certifying bodies. The RvA guarantees expert, impartial and independent supervision of the assessment of the certifying bodies. Conformity certifying bodies that meet the standard (CO_2 Performance Ladder) receive formal accreditation. This means that they may use the accreditation mark.

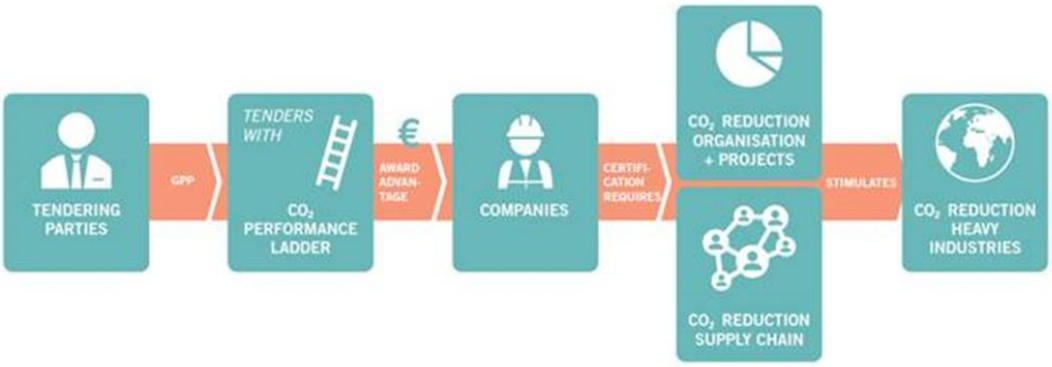
2.3 Theory of change

Figure 1 shows the theory of change of the CO_2 PL, as developed by SKAO. The theory of change is based on the power of Green Public Procurement, which can result in a green revolution among organisations and their supply chains. The CO_2 PL can harness the power of procurement and drive change by using award advantage in tenders to stimulate structural CO_2 reduction through the implementation of an effective CO_2 management system. The theory of change is that decarbonisation and innovation of companies, their projects, the supply chain and heavy industries is stimulated (with financial advantage in tenders) and accelerated because procuring parties use the CO_2 PL as a GPP tool.

Due to the 200+ public tendering parties in the Netherlands, over 4,000 organisations in the Netherlands are certified on the CO_2 Performance Ladder. The CO_2 PL drives collaboration and innovation in supply chains, which also influences industry sectors including steel, concrete, asphalt and fuel.

By introducing the CO_2 PL in their tenders, contracting authorities can encourage climate-friendly and energy-efficient performance by their suppliers (procurement instrument). This is not necessarily a linear or top-down process. By also involving the market and experts, contracting authorities are stimulated to get started. SKAO involves not only clients, but also companies and other relevant stakeholders in all activities.

Figure 1 - Theory of change



Source: SKAO, (2021a).

2.3.1 Procurement instrument

The CO_2 PL can be used as a procurement instrument in tenders. Commissioning parties using the CO_2 PL as a Green Public Procurement (GPP) instrument give advantage to sustainable tenders. The greater the company's level of sustainability ambition, the greater the advantage they receive. If a consortium bids for a tender, the lowest certificate level of one company in the consortium applies. The amount of the award advantage is determined by the contracting authority (SKAO, 2020b).

SKAO has written a Procurement Guide 3.1, which describes how to use the CO_2 PL as a GPP instrument. The Guide focusses on contracting authorities who want to pay attention to sustainable procurement and consider applying criteria for the CO_2 PL in tenders (SKAO, 2021b).

The CO_2 PL is used for one in ten European tenders in the Netherlands (SKAO, 2020b), over 200 commissioning parties are using the CO_2 PL for tendering processes as a green procurement instrument (> 1,000 projects). This includes the administrators of the Dutch water, road and rail infrastructure Rijkswaterstaat, ProRail and various regional government bodies. The CO_2 PL started in the GWW sector[5], but is now used in other sectors (for example agriculture and waste).

Most tenders with award advantage are public tenders. However, a large number of contractors also implement a certificate in their purchasing conditions. This is because it is a requirement for all Level 4 and 5 organisations to have Scope 3 reduction strategies. If the subcontractors also have a certificate, it is easier for the contractor to collect the data (this is important for Level 4 and 5 where Scope 3 emissions are also examined).

At the time of tendering, the company does not have to fulfil the CO_2 PL Most Economically Advantageous Tender (MEAT) criterion. However, they must comply with the criterion (in one of two ways) within one year after the award of the tender, and then annually during the project duration. Compliance with the MEAT criterion can either be demonstrated at the project-specific level via a project statement, or via a CO_2 awareness certification, proving certification based on the CO_2 PL Handbook.

When bidding, companies select the implementation level (Levels 1-5, equivalent to the five levels of the CO_2 PL, see Section 2.3.2) at which they wish to bid. Based on their level of ambition, bidders can obtain a fictive discount on the tender price. This discount gives them a comparative advantage and a higher change to win the tender. When the tender is awarded, the ambition level is converted into a performance requirement. The company is then obliged to obtain the certificate within a certain period (usually one year). If this is not achieved, it is recommended to the procuring party that a penalty of 1.5 times the award advantage is applied.
Companies must indicate for which projects they have received an award advantage.
There are two ways to demonstrate that a company meets the performance requirement:

- CO_2 aware certificate (CO_2 PL).
- Project statement: This is a certificate for that specific project, where the requirements only apply to the project for which award advantage has been obtained. This option does not occur often and is mainly a theoretical route from the European tender rules.

2.3.2 CO_2 management system

The CO_2 PL is a CO_2 management system. This means that the CO_2 PL requires continuous improvement of insight, further CO_2 reduction measures, communication and operational management cooperation, not only in the execution of projects, but also in the value chain. The management system is a consistent ecosystem of arrangements and methods and an organisational structure for methodical and systematic management and improvement of business processes to realise the objectives (SKAO, 2020a).

Handbook 3.1 is the normative document that contains all requirements for achieving, implementing, maintaining and improving a CO_2 management system in accordance with the CO_2 PL.

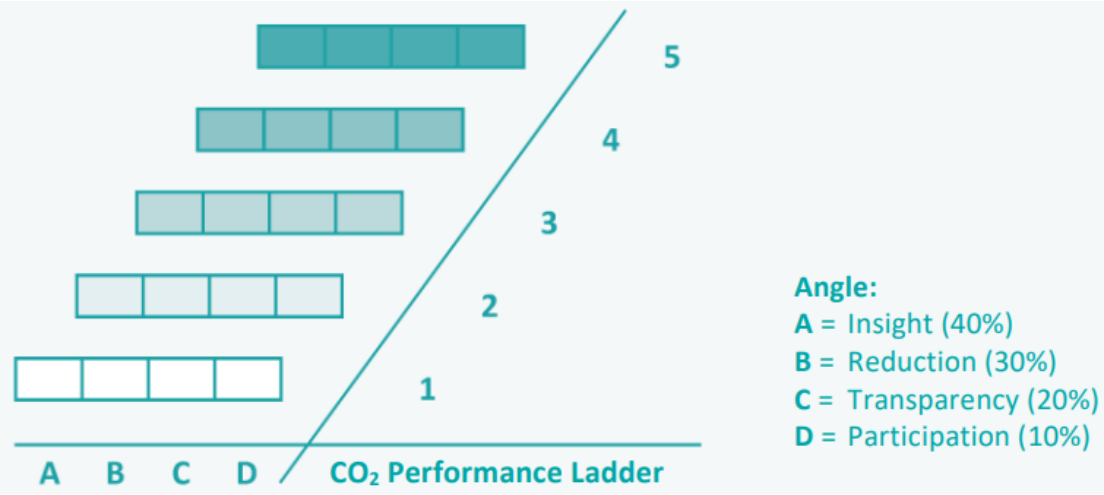
[5] Ground, road and water engineering.

Requirements

An organisation certified on the CO_2 PL adheres to the requirements of the CO_2 PL. The CO_2 PL consists of five levels and four angles. Up to Level 3, an organisation that obtains a certificate on the Ladder reduces its own carbon emissions within its own organisation and projects (Scope 1 and 2 emissions). From Level 4 and 5, the organisation also aims to reduce CO_2 emissions from the business chain and sector (Scope 3 emissions). The requirements for every level are based on the four angles:

a Insight: to determine different streams of energy and the carbon footprint of the organisation.
b Reduction: to develop ambitious goals for the reduction of CO_2 emissions.
c Transparency: to structurally communicate about organisation's policies of CO_2 reduction.
d Participation: to take part in business sector initiatives to reduce carbon emissions.

Figure 2 - CO_2 PL



Source: SKAO, (2020a).

For each level a fixed set of requirements has been defined. These requirements originate from the four angles, each with its own weighting factor. The position of an organisation on the CO_2 PL is determined by the highest level at which the organisations meet all the requirements. Each higher level also includes the requirements of the lower levels.

An organisation meets the requirements of a particular level if:

1. The general requirements of the CO_2 PL are met (one of these requirements is a CO_2 management system).
2. The minimum requirements for A, B, C and D of the relevant level (20 points) and the requirements of all lower levels are fulfilled.
3. The sum of the weighted scores per level is at least 90% (22.5 points) of the maximum score (25 points). This means that the organisation must remain active on all aspects at the underlying levels.

More information about the general certification requirement for key process (A-D) for different certificate levels (1-5) and scoring can be found in Appendix A.

Example of an angle: Participation
Angle D of the CO_2 PL is 'participation'. Through participation, an organisation demonstrates that it is investing in collaboration, in sharing its knowledge and, where possible, using the knowledge that was developed elsewhere. The organisation realises continuous improvement in selecting useful initiatives and applying the knowledge in the organisation. For Level 3 and above, active participation in at least one sector or value chain initiative aimed at reducing CO_2 is required. For Level 5, an organisation must be involved in setting up a sector-wide CO_2 emissions programme in collaboration with the government and/or an NGO.

List of Measures

Part of the certification (requirement 3B) is the use of the list of measures (Maatregelen-lijst). This is a tool that provides an overview of the possible measures within a particular sector. The measures are described at a general level (e.g. use of bio-based materials), but no further specific options are given (e.g. which type of material). Within the list of measures, a distinction is made between three different levels of ambition. Every year SKAO lists the measures over the three ambition levels. A measure is 'standard' when more than 50% of the companies apply this measure. The list is primarily a source of inspiration. Filling in the list is compulsory, but there is no obligation to reach a particular measure level. The list only serves as support to compare a company with other companies in the sector, the proposed/planned measures and the degree of ambition.

Certifying institutions and Accreditation bodies

SKAO is **not** the party which awards the certificates to the companies. These are the authorised (accredited) Certifying Institutions (CIs). SKAO takes care of the content of the Handbook, the process of assessment, both for quality and uniformity of the process of assessment and defines all terms.

CIs are supervised by National Accreditation Bodies (NAB). These are governmental institutions that attest to the competence and impartiality of conformity assessment bodies. Each EU country has such an accreditation body. Accredited CIs are either supervised by the Dutch NAB, the Dutch Accreditation Council (Raad voor Accreditatie) or by the Belgian NAB BELAC. CIs are subjected to annual reviews to ensure the quality of their assessment set out in the Handbook, IS-17021-1 and other mandatory documents and guidelines.

For the issue of certification, the auditors go through all the requirements in accordance with the Handbook. The CIs annually evaluate the ambitions and initiatives to reduce carbon emissions, and continuous improvement. There is a sample at the project level, but all requirements are checked at the project level. The audit checklist consists of:
- for each angle (A-D) a table of requirements to be met;
- objective per requirement;
- scoring guideline;
- explanation of the requirement;
- minimum criteria for the ladder assessment;
- the guidelines for the working method of the ladder CI for the ladder assessment.

A non-conformity in the application for certification means that one or more requirements are not met. If these are minor deficiencies, the auditor shows the company the non-conformity and agrees that the company should have it sorted out by the next audit. If important requirements are not met, the company has three months to solve this non-conformity. After this period the company will be audited again. If the non-conformity still exists, the company loses the certificate or moves one level lower. If a company has a clear story to why something was not achieved, certification can still occur. The CO_2 PL is therefore not a binary system (sufficient or insufficient), but a comply-or-explain principle.

Current situation

Any type of organisation can obtain a certificate on the CO_2 PL[6]. The certification indicates the justified trust that the management system for CO_2 aware actions of an organisation meets the requirements for the level of the CO_2 PL mentioned on the certificate.

The VNG (association of municipalities) has mapped out the required capacity and investments for a certification for municipalities. If the municipality is already working with the methodology of the CO_2 PL (such as mapping the footprint) the certification costs are significantly lower. Also, the capacity and investment depend on the size of the organisation.

Table 1 - Capacity and investments for certification

Category	Type	Hours/Costs
Capacity	One-time capacity for implementation	335-445 hours
	Annual maintenance CO_2 reduction	60-80 hours/year
	Annual effort for monitoring and communication	60-80 hours/year
	Participation in sector initiative	40-100 hours/year
Investment	Annual contribution to SKAO	€ 2,500
	Annual audit (CIs)	€ 6,000-7,000
	If a consulting firm is called in	€ 10,000-15,000

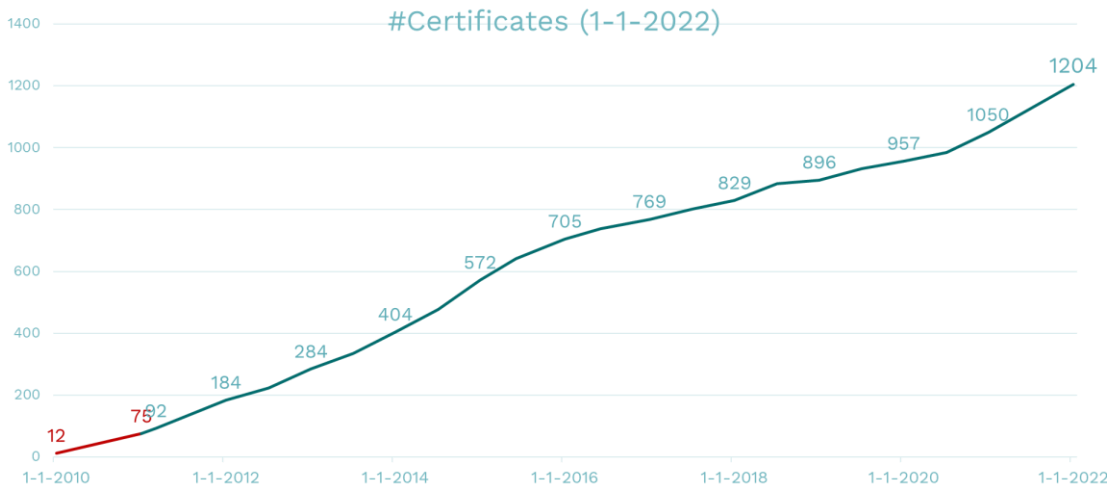
Source: Vng, (ongoing).

Over 1,200 certificates in the Netherlands have already been issued on the CO_2 PL as a carbon management system (SKAO, 2020b). One certificate can cover multiple companies within a holding. A company must define the scope when they apply for the certificate. It is possible to apply for only one business, or all companies. SKAO estimates that approximately 4,000 companies have a certificate, 75% are SMEs.

Most companies apply for a certificate for the advantage on the tender. However, there are also other reasons (such as climate awareness). There are around 50 certificate holders every year who quit the certification. The most important reason is that they are no longer applying for tenders. Other reasons are bankruptcy or company take-overs.

6 Since Handbook 3.1 SKAO communicates that organisations can get certified. Prior to that they mentioned companies.

Figure 3 - Number of certificates per year, 2009-2022



Source: SKAO, (2020b).

The distribution levels of the certified organisations are shown in Figure 4. The CO_2 PL classifies organisations as small, medium or large. This categorisation is based on the CO_2 emissions (Scope 1 and 2 emissions within the boundary of the organisation).

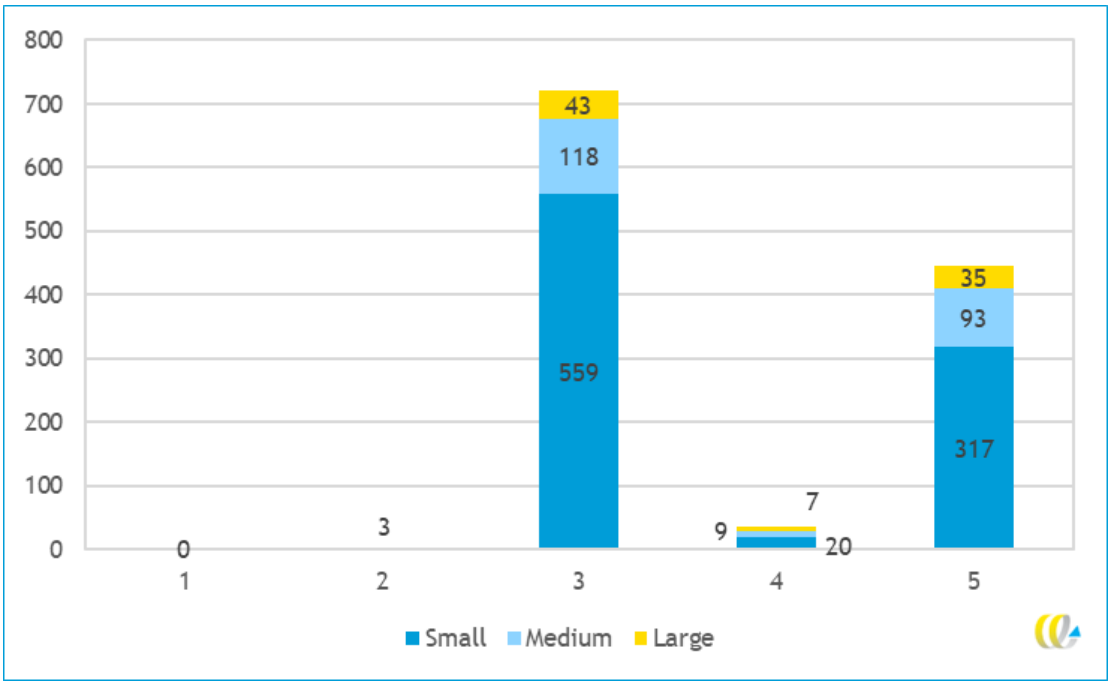
Table 2 - Size categories CO_2 PL

Organisation	Services	Working/supplying
Small organisation	Total CO_2 emissions amount to no more than 500 tonnes per year	Total CO_2 emissions of the offices and industrial premises amount to no more than (≤) 500 tonnes per year, and the total CO_2 emissions of all building sites and production locations amount to no more than (≤) 2,000 tonnes per year.
Medium organisation	Total CO_2 emissions amount to no more than 2,500 tonnes per year	Total CO_2 emissions of the offices and industrial premises amount to no more than (≤) 2,500 tonnes per year, and the total CO_2 emissions of all building sites and production locations amount to no more than (≤) 10,000 tonnes per year.
Large organisation	Total CO_2 emissions amount more than 2,500 tonnes per year	Other.

Source: SKAO, (2020a).

We see that small companies more often obtain a Level 3 certificate, whilst bigger companies prefer the Level 5 certificate. Most companies are small, which means that even Level 5 certificates are mostly obtained by small companies. We see that 37% of the certificates are Level 5 and 60% are level three. In the beginning, three-quarters of the certificates were Level 3. So we see a gradual development towards more ambitious levels.

Figure 4 - Distribution levels of the certified organisations (01-01-2022)



Source: SKAO.

3 Literature analysis

3.1 Introduction

This chapter shows the findings of the literature analysis. When reviewing the literature, we systematically answered the following questions:

- What is the scope of the study?
- What are the research questions?
- Which methods are used (interviews, surveys, data analysis, literature review)?
- What is the quality of the methods?
- What are the main conclusions?
- What is concluded about the factors influencing the uptake of the CO_2 PL?
- What is concluded about the impact of the CO_2 PL?

3.2 Overview literature

Table 3 provides an overview of the assessed literature sources. This result is an overview of the existing evidence and of what information is lacking for answering the questions mentioned in Section 1.2 (Goal of the project). For every study, we checked if it covers effect, measures and methods.

Table 3 - Literature overview

	Author(s)	Title	Research question/goal of the study	Year	Institute	Type of document
1	(ARUP, 2018)	CO_2 Performance Ladder feasibility study	How can local governments and companies put sustainable procurement into practice?	2018	Arup	Report
2	Assem, (2019)	Developing insights into the environmental performance of organisations: Testing a tool that provides insights into the results of environmental management systems of companies with the ISO 14001:2015-certificate	What are key characteristics of a well-operating environmental performance measurement instrument and to what extent does the environmental performance system (EPS) meet those criteria?	2019	Radboud University	Master Thesis
3	Blois et al., (2018)	Op weg naar een klimaatneutrale infrasector in Nederland	The aim of this study is to stimulate innovation and chain cooperation to achieve a climate-neutral infrastructure sector by investigating which scenarios and transition paths are realistic, creating support for this within the sector and translating the results into concrete measures. And translate the results into practical tools for companies and	2018	TUD and SKAO	Report

	Author(s)	Title	Research question/goal of the study	Year	Institute	Type of document
			clients in the infra practical within the system of the CO_2 PL system.			
4	Braaksma, (2020)	Measures to reduce CO_2 of Plegt Vos based on CO_2 PL	Which CO_2 reducing measures can be used to achieve the reduction goal stated by Plegt-Vos Infra&Milieu; to reduce -10.5% CO_2 emissions in Scope 3 at the end of 2020?	2020	Plegt-Vos Infra& Milieu and University of Twente	Bachelor Thesis
5	CE Delft, (2016)	Effect van de CO_2-Prestatieladder op de GvO-markt	The purpose of the study is to provide an estimate of the effect that the CO_2 PL has on the market for Gos (green electricity).	2016	CE Delft and SKAO	Report
6	Dorée et al., (2011)	Client leadership in sustainability: How the Dutch railway agency created CO_2 awareness in the industry	While the national development of guidelines was slow and sparked debate and confusion, the CO_2 PL was adopted remarkably quickly. Its rapid diffusion has surprised many in the industry. What is behind this success? Is it the attractiveness of the instrument? Was it the way ProRail introduced the CO_2 PL? Or was it a fortunate combination of characteristics and circumstances?	2011	University of Twente	Scientific paper
7	Goes, (2017)	Value maintenance or value creation?	How do firms respond to meet the requirements 4D and 5D of the CO_2 PL in the Netherlands?	2017	UU and SKAO	Master Thesis
8	Arcadis, (2020)	Onderzoek vergelijking MJA3 – CO_2-Prestatieladder	To which extent is the CO_2 PL suitable as a successor to the MJA3?	2020	Arcadis	Report
9	Heath et al., (2021)	Does Socially Responsible Investing Change Firm Behaviour?	Do socially responsible investment funds change real-world behaviour?	2021	ECGI	Report
10	Oecd, (2015)	Going Green: Best Practices for Sustainable Procurement	Compendium of good practices on how to integrate environmental considerations in public procurement in a transparent and cost-effective manner.	2015	OECD	Report
11	Phair, (2018)	Analysing the stimulation of the circular economy from the CO_2 Performance Ladder	How do users of the CO_2 PL manage and measure the circular economy and CO_2? Do users of the CO_2 PL believe it stimulates or hinders circular economy activities?	2018	UU and SKAO	Master Thesis
12	Rietbergen, M., (2015)	Targeting Energy Management – Analysing targets, outcomes and impacts of corporate energy and greenhouse gas management programmes	What is the impact of energy and greenhouse gas management programmes on improving corporate energy management practices, accelerating energy efficiency and CO_2 emission reduction?	2015	UU	Scientific paper (part of PhD research)

	Author(s)	Title	Research question/goal of the study	Year	Institute	Type of document
13	Rietbergen, M.G., (2017)	Inzichten boven water halen: De CO_2-Prestatie-ladder in de Waterbouwsector	The following six research questions were prepared: 1. How has the CO_2 footprint (Scope 1 and Scope 2) of the hydraulic engineers participating in the CO_2 PL developed in the period 2010-2015? 2. What are the quantitative CO_2 emission reduction targets for the most material emissions (type, ambition level, duration) of the hydraulic engineers participating in the CO_2 PL in Scope 1 and 2? 3. To what extent have these reduction targets been achieved/are the companies 'on track' to achieve targets? Objectives? 4. What are in scope (qualitative, where possible quantitative) the most relevant emission sources in Scope 3 both upstream and downstream and how is the influence of the company on these emission sources? 5. What are the annual costs for certification and maintenance of the CO_2 PL for the participating companies? 6. According to the hydraulic engineering companies, what are the main criticisms and added value of requirements at Levels 4 and 5 in the CO_2 PL?	2017	Hogeschool Utrecht	Report (not publicly available)
14	Rietbergen, Martijn G. et al., (2016)	Improving energy and carbon management in construction and civil engineering companies through green procurement – evaluating the impacts of the CO_2 Performance Ladder	What is the impact of the CO_2 PL on improving energy and carbon management and reducing CO_2 emissions in construction and civil engineering firms?	2016	UU and TUD	Scientific paper (part of PhD research)
15	(Rivm et al., 2020)	Effect meten van circulair inkopen: definities, methode en test voor de nationale circulaire-economierapportage	Development of a method to research the effectiveness of circular purchasing.	2020	RIVM, TNO and CE Delft	Report

	Author(s)	Title	Research question/goal of the study	Year	Institute	Type of document
16	(SKAO, 2019)	Methode voor het bepalen van de steekproefomvang voor het beoordelen van de implementatie en effectiviteit van het CO_2-Prestatieladdermanage-mentsysteem in verschillende locaties binnen de boundaries	Method for determining the sample size for assessing the implementation and effectiveness of the CO_2 PL management system in different locations within the boundary.	2019	SKAO	Method description
17	(Significant et al., 2017)	Monitor aanbestedingen en opdrachtgevers CO_2-Prestatieladder 2016	Determine a method for conducting a baseline measurement of the use of the CO_2 PL and perform the baseline measurement.	2017	Significant, Bright Cape and SKAO	Presentation
18	(SQ Consult, 2021)	Resultaten Maatregellijst 2020 (and previous years)	Overview of measurements taken by companies.	2021	SQ Consult	Report
19	CE Delft, (2022)	Effecten CO_2-Prestatie-ladder bij gemeenten	What are the quantitative and qualitative effects of the implementation of the CO_2 PL in municipalities?	2022	CE Delft	Report

3.3 Literature analysis

3.3.1 Methods

Table 4 shows the methods which are used in the studies. Most of them use interviews as one of the methods, followed by a scientific literature analysis.

Table 4 - Methods per study

Title	Methods					Based on
	Interviews	Survey	Data analysis	Literature review	Others	Handbook version
CO_2 Performance Ladder: feasibility study	X		X		Workshops with councils	N/A
Developing insights in the environmental performance of organisations: testing a tool that provides insights in the results of environmental management systems of companies with the ISO 14001:2015-certificate	X	X, survey before participants applied the EPS, applying the EPS, and a survey after they applied the EPS, 25 in total		X		N/A
Op weg naar een klimaatneutrale infrasector in Nederland	X				Scenario studies	3.0
Measures to reduce CO_2 of Plegt Vos based on CO_2 PL	X			X	CO_2 reduction calculations	3.0

Title	Methods					Based on
Effect van de CO_2-Prestatieladder op de GvO-markt		X, 316 companies who use the CO_2 PL		X		3.0
Value maintenance or value creation?	X			X	Multiple case study	N/A
Client leadership in sustainability: How the Dutch railway agency created CO_2 awareness in the industry			X	X		2.0
Onderzoek vergelijking MJA3 – CO_2-Prestatieladder	X			X		3.1
Does Socially Responsible Investing Change Firm Behaviour?			X			N/A
Going Green: Best Practices for Sustainable Procurement					Case study	N/A
Analysing the stimulation of the circular economy from the CO_2 Performance Ladder	X			X		3.0
Targeting Energy Management – Analysing targets, outcomes and impacts of corporate energy and greenhouse gas management programmes	X		X	X		2.2
Inzichten boven water halen: De CO_2-Prestatieladder in de Waterbouwsector		X, 27 companies	X	X		3.0
Improving energy and carbon management in construction and civil engineering companies through green procurement – evaluating the impacts of the CO_2 Performance Ladder	X		X		Descriptive analysis of energy efficiency and CO_2 emission reduction measures	2.2
Effect meten van circulair inkopen: definities, methode en test voor de nationale CE Rapportage	x		x		E-procurement platforms (TenderNed, Negometrix, CTM Solutions)	N/A
Methode voor het bepalen van de steekproefomvang voor het beoordelen van de implementatie en effectiviteit van het CO_2-Prestatieladdermanagementsysteem in verschillende locaties binnen de boundaries					Method based on sample size: in addition to ISF MD1	3.0
Monitor aanbestedingen en opdrachtgevers CO_2-Prestatieladder 2016			X		Websearch (TenderNed)	3.0
Resultaten Maatregelenlijst 2020			X		Companies give an overview of	N/A

Title	Methods					Based on
					measures (not a survey, but an annual report)	
Effecten CO_2-Prestatieladder bij gemeenten	X			X		3.1

3.3.2 Factors influencing the uptake of the CO_2 PL

There are different reasons why organisations get certified. Some benefits for companies are:

- financial motive: award advantage and efficiency savings;
- competitive advantage in tenders;
- reinforcement of their market position as a sustainable supplier;
- improvement of products and services through innovation;
- contribution to carbon and circular economy policies and directives, such as sustainable development goals (7, 9, 12 and 13), Fit for 55 and the Energy Efficiency Directive;
- impact loan: lower interest rates at Rabobank.

Studies show that the CO_2 PL has been increasingly adopted by firms as a response to climate change (Rietbergen, M., 2015) and driven by the potential competitive advantage of the CO_2 PL in awarding contracts (Rietbergen, Martijn G. et al., 2016). Most companies were driven by the competitive advantage. Wanting to become a leader, positioning the business as a green company, pressure from peers and pressure from consortium partners are more secondary reasons for certification (Rietbergen, M.G., 2017).

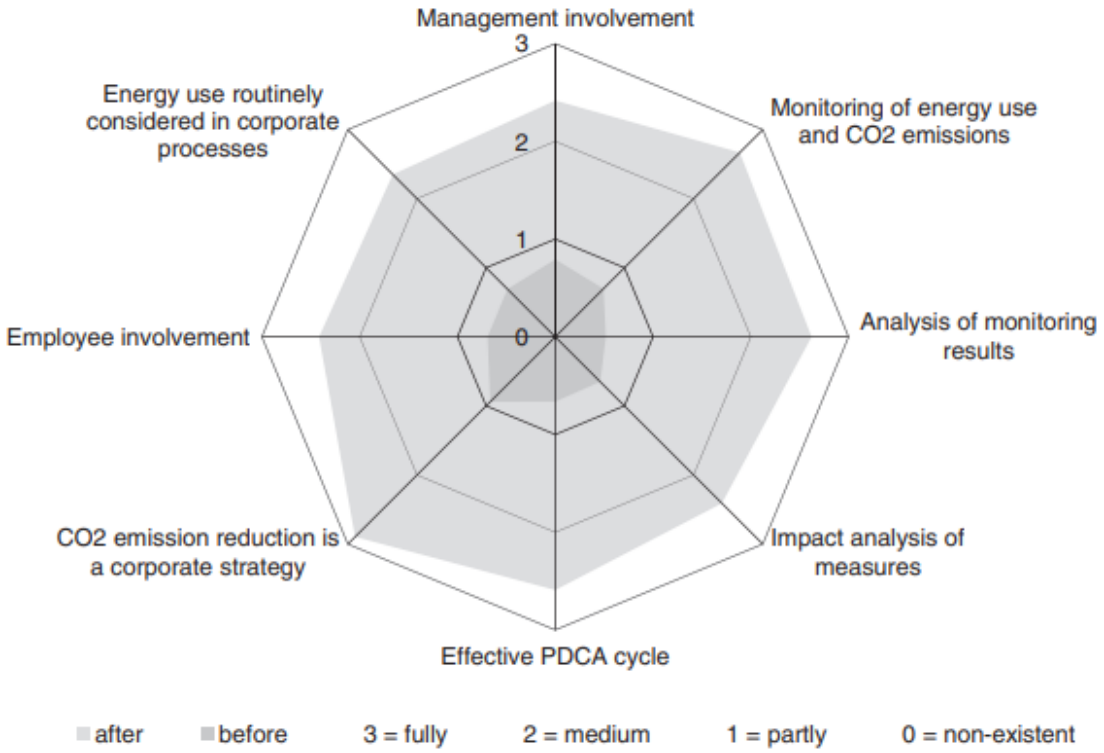
3.3.3 Effect of the CO_2 PL

Uptake of the CO_2 PL

Carbon management system

In a 2016 study, Rietbergen, Opstelten and Blok looked into the impact of the CO_2 PL on improving energy management practices in construction and civil engineering companies (Rietbergen, Martijn G. et al., 2016). They asked interviewees to rate on a 0-3-point scale the state of various energy management practices both at the time of the interview and one to two years prior to the introduction of the CO_2 PL. Figure 5 shows that after the introduction of the CO_2 PL, energy management practices improved significantly. The CO_2 PL has been responsible for a strong shift towards more mature energy management and enhancing CO_2 emission reduction among construction and civil engineering firms that most likely would not have been achieved by other contextual drivers alone.

Figure 5 - Participant group self-reported comparison of energy management practices, before and after the implementation of CO_2 PL



Source: Rietbergen, Martijn G. et al., (2016).

Another study shows an overview of the response of firms to the requirements of the 4D and 5D participation requirements of the CO_2 PL (Goes, 2017). A literature analysis, qualitative content analysis method, multiple case studies and interviews have led to a framework of different combinations of strategies that firms deploy for the CO_2 PL.

Green Public Procurement (GPP) instrument

Several studies show the uptake of the CO_2 PL as a GPP instrument. ProRail started with the CO_2 PL. The first tendering procedures in which the supplier submitted CO_2 PL certificates were in 2009; six out of fifteen projects were tendered with the CO_2 PL. At the end of 2009, twelve contractors had certificates and a year later the number issued had passed 100. In March 2011, 138 certificates had been issued, of which 50 were upgraded. 88 certificates were authorised and active. Most of them were for Level 3 or above. Three-quarters of the firms applying for the first certificate assessed themselves as Level 3. The incentives for firms to embrace the scheme were sufficient. The tendering process which was awarded to a CO_2 PL certificate holder covered 92% of the tendered work (Dorée et al., 2011).

In 2016 the CO_2 PL was used in 9.3% of the tenders in TenderNed. 75 different commissioning parties deployed the CO_2 PL in tenders (Significant et al., 2017).

In some market segments, nearly all companies have a performance certificate on the highest level. When talking about the use of the CO_2 PL as a GPP tool only, in such a situation the certificate is more of a prerequisite than an instrument that gives you an advantage in the tendering process (Everaars, 2022).

Qualitative and quantitative CO_2 effects

In 2015 Martijn Rietbergen looked into multi-year agreements for energy-efficiency improvement in the Netherlands and the CO_2 PL as a programme for energy and greenhouse gas emission management (Rietbergen, M., 2015). The study concludes that the CO_2 PL (Handbook 2.2) has mainly improved energy management practices at an administrative level. The CO_2 PL has been responsible for a shift towards more mature energy management among construction and civil engineering firms that otherwise would not have occurred. The potential effect of the CO_2 PL in reducing Scope 1 and 2 CO_2 emissions, based on an ex ante impact assessment, is estimated at between 0.8%/year and 1.5%/year, with most likely a value of 1.3%/year.

In 2016, a study (Rietbergen, Martijn G. et al., 2016) evaluated the impact of the CO_2 PL (Handbook 2.2) on improving energy and carbon management and CO_2 emission reduction in construction and civil engineering companies (ex post). This study concludes, based on interviews, descriptive analysis of energy efficiency and CO_2 emission reduction measures and quantitative analysis of CO_2 emission reductions, that the CO_2 PL particularly stimulated green electricity purchasing and the adoption of various behavioural measures. However, most measures only affected the supporting business processes instead of the core processes. The study shows that about 30-50% of the measures are identified as additional (Scope 1 and 2). In the period 2010-2013 the annual CO_2 emission reduction rate due to energy efficiency improvement and fuel switching was 3.2% per year. In a first estimation, the study shows that about 1.0-1.6%/year of this reduction can be attributed to the CO_2 PL.

Dr M Rietbergen also carried out a study about the effect of CO_2 PL (Handbook 3.0) in the water construction sector (Rietbergen, M.G., 2017). He concluded that the CO_2 footprint of a large part of the companies within this sector decreased by 7.8%/year in the period 2010-2015 (Scope 1 and 2). The CO_2 intensity of these companies, expressed as the ratio of emissions per euro or turnover, decreased by 3.5%/year in 2010-2015. The long-term improvement of the CO_2 intensity of the whole Dutch economy was 2.1%/year. The annual costs for the certification and maintenance of CO_2 PL are between 0.08%-0.14% of the company turnover. The annual staff hours are the highest costs (about 50% of the annual costs). The study also shows that all interviewed companies indicate that the supply chain initiatives would have been done even if the CO_2 PL didn't exist. The reason for this is that cost savings and other quality aspects in the projects already constituted a sufficient driving force. However, obtaining quantitative insights into the chain emissions is, for the most companies, the most important added value of the CO_2 PL (Rietbergen, M.G., 2017). This conclusion is confirmed by Simon Goes (2017). He shows that most initiatives for the 4D and 5D angle were motivated by factors other than the CO_2 PL.

A recent study (Braaksma, 2020) looked into the possibilities for reduction of CO_2 emissions in the construction sector with respect to the CO_2 PL. Interviews and a literature review showed that the best overall approach consists of a combination of technical, behavioural and procedural methods.

In 2022 CE Delft looked into the quantitative and qualitative effects of the implementation of the CO_2 PL in municipalities. The study shows that the examined municipalities reduced

their CO_2 emissions by 23.9% in the period 2018-2020 (12.8%/year). Most reductions took place in Scope 1. In this study it was not possible to investigate the additional effect of the CO_2 PL. However, many municipalities saw a sharp reduction in CO_2 emissions in the year of certification or the following year.

Different versions of the Handbook
There have been different versions of the Handbook (e.g. 2.2, 3.0 and 3.1). SKAO is in the midst of developing Handbook 4.0 at the moment. The handbook has improved each time. SKAO used the conclusions and recommendations of the research conducted to improve the Handbook. Therefore, some conclusions are not representative of the current Handbook.

Table 4 shows an overview of the literature, including the version of the Handbook on which the conclusions and recommendations are based.

Other effects

Besides energy efficiency, there are studies on other effects of the CO_2 PL. For example, one study (Phair, 2018) looks at whether the CO_2 PL stimulates the circular economy. Interviews and literature analysis have shown that most companies perceive CO_2 and circular economy management as two separate fields. CO_2 management is more mature than circular economy management. The companies noted that themes from CO_2 PL are useful and can encourage circular economy. However, many interviewees described the relationship as indirect and did not perceive a strong stimulation effect. A 2020 study (Rivm et al., 2020) shows that the uptake of the CO_2 PL in the programme of requirements sometimes results in a product more circular in nature than the market standard.

CE Delft carried out research into the effect of the CO_2 PL on the Guarantees of Origin (GvO) market[7] (CE Delft, 2016). These Guarantees of Origin are digital certificates which indicate the origin of a unit of energy. The most commonly uses GvOs are for renewable electricity. The certificate serves to:
- prove that the supplied energy has actually been generated from renewable sources;
- carry out the electricity labelling correctly.

The study concludes that the CO_2 PL has a measurable effect on the choice of the power product. 83% of survey respondents state that the CO_2 PL influenced their choice for an electricity product. In total, about 1,600 GWh of electricity is purchased by the companies on the CO_2 PL. Of this, more than 1,000 GWh is green electricity and 780 GWh comes from the Netherlands and Belgium. The majority of electricity from the Netherlands comes from wind (570 GWh). Most companies on CO_2 PL which do not yet purchase green electricity (approximately 600 GWh) want to switch to green electricity. The CO_2 PL companies have a relatively large share in the purchase of wind energy from the Netherlands (almost 8%). However, the total electricity purchased by CO_2 PL companies is too small to draw quantitative conclusions about the effect on the market prices of the various types of GvOs (CE Delft, 2016).

According to the study by CE Delft (2022), the most important effects of the CO_2 PL for municipalities are:
- Because municipalities certify themselves to the CO_2 PL, they set goals for CO_2 reduction. All municipalities are on track to meet their goals.

[7] GvO = Garanties van Oorsprong (Guarantees of Origin).

- The certification gives municipalities insight into their CO_2 reduction. As a result, they are better able to discuss targets and to identify measures.
- The Plan-Do-Check-Act cycle of the CO_2 PL ensures firm reduction objectives and monitoring within the municipal organisation. This ensures a focus on CO_2 reduction in the long term.
- Some municipalities find the CO_2 PL complex or the administrative burden high. Nevertheless, in general the municipalities stated that the CO_2 PL has added value for their organisation.

Furthermore, SQ Consultants annually publish a report about the list of measures. They research the effect of these measures. The report contains an analysis of the use of measurements in a certain year and a comparison with previous years in different sectors:

- officers;
- passenger mobility;
- equipment;
- logistics and transport;
- organisational policy (general);
- subcontractors and suppliers;
- warehouses and land;
- construction site;
- advice;
- material use/Scope 3;
- business processes;
- waste;
- tenders;
- hydraulic engineering ships;
- green maintenance;
- emissions avoided by third parties;
- ICT.

3.3.4 Validation

Rietbergen analysed the validity of the tool, i.e. the effect of certifying agents on the ambition level of the reduction targets (Rietbergen, M., 2015). He used a dataset and some statistical tests. The tests showed that CO_2 emission reduction targets differed between certifying agents only in the case of reduction targets measured against turnover. SKAO updated the Handbook to Version 3.0 in 2015. One of the points they took into account was this research.

3.4 Upcoming literature

At the time of writing, Rijkswaterstaat and TNO are performing a relevant study. They will analyse the effect of MKI/CO_2 PL on project level and compare actual proposals with initial requirements to see if the proposals are more ambitious than expected. The study will be published in 2022.

3.5 Conclusion

The table below shows an overview of the key research questions about the CO_2 PL from the terms of reference, linked to the available knowledge about each subject in the literature. The colour of the column information available indicates to what extent existing literature can answer the questions from Section 1.2.

White:	data sufficient to answer research question.
Light grey:	data available, but unclear if we can answer research question.
Dark grey:	no data available, or data available but insufficient to answer research question.

Table 5 - Available knowledge in literature

Research question		Information available?	Conclusion/findings
1. What are the impacts (qualitative and quantitative) at company level relating to:	Scope 1, 2 and 3 emissions including an estimate (with justification) of CO_2 emission reduction	– (CE Delft, 2016): effects on GvO market – Studies Rietbergen on aggregate level, Scope 1 and 2 (Rietbergen, M.G., 2017) (Rietbergen, Martijn G. et al., 2016) (Rietbergen, M., 2015) – (Braaksma, 2020) effects Scope 3 ambition for one company – Maatregellijst researches	Rietbergen: see Question 2. CE Delft: 83% of participants were influenced by the CO_2 PL to buy green electricity (GvO). Braaksma: If the company uses the CO_2 aware certification as a criterion, they **should be able** to reduce around 3.2% of CO_2 emissions in Scope 3 every year. This is twice the average of the reduction in the Netherlands (1.6%). (Rietbergen, M.G., 2017): Emissions in water sector reduced by 7.8% between 2010-2015, but no additionality analysis.
	Carbon intensity (per FTE, turnover and other relevant metrics)	Yes, Rietbergen, M., (2015) about targets (Scope 1 and 2).	Rietbergen, M., (2015) shows a Histogram of CO_2 emission reduction targets measured against FTE and turnover on an aggregated level. Companies that have formulated CO_2 emission reduction targets measured against turnover aim to reduce their CO_2 emissions by 2.0%/yr per € turnover on average. The average ambition level of CO_2 emission reduction targets measured against full time equivalents or hours (worked) was 2.8%/yr.
	Sector/size of the companies included	No information available related to size/sector.	N/A
	Corporate carbon management strategies and other relevant policies/strategies	Yes, two studies: Rietbergen, Martijn G. et al., (2016) and Goes, (2017).	The study Rietbergen, Martijn G. et al., (2016) shows that the CO_2 PL has been responsible for a strong shift towards more mature energy management and enhancing CO_2 emission reduction among construction and civil engineering firms that most likely would not have been achieved by other contextual drivers solely. Also Goes, (2017) shows a framework of different combinations of strategies firm deploy for the CO_2 PL.
2. What differences exist between companies (within the same sector) who applied the CO_2 PL tool and companies who did not?		Yes, (Rietbergen, M., 2015, Rietbergen, Martijn G. et al., 2016) (CE Delft, 2016).	Rietbergen, M., (2015): The potential effect of the CO_2 PL in reducing Scope 1 and 2 CO_2 emissions, based on an ex ante impact assessment, is estimated between 0.8%/year and 1.5%/year, with most likely a value of 1.3%/year.

Research question		Information available?	Conclusion/findings
			The study shows that about 30-50% of the measures are identified (by themselves) as additional. In the period 2010-2013 the annual CO_2 emission reduction rate due to energy efficiency improvement and fuel switching was 3.2% per year. In a first estimation the study shows that about 1.0-1.6%/year of these reduction can be attributed to the CO_2 PL. Furthermore, the study CE Delft, (2016) provides information about the behavioural change of the companies with a certificate, focussed on green electricity.
3. What are the indirect impacts of the CO_2 PL as a GPP instrument and a CO_2 management system, in terms of:	Sector: overall emissions of sector, GPP policies of the sector and/or country	Rietbergen, M.G., (2017) shows absolute emission reduction for water sector, no additionality analysis.	Emissions of certified companies in sector were 547 kton in 2014. Cumulatively avoided emissions are 471 kton.
	Tendering party (tendering parties using the CO_2 PL also as a carbon management system)	A descriptive study about the impact of the CO_2 PL for the tenders of ProRail and TenderNed., no analytical studies.	ProRail: in 2011, 92% of the tendered work was awarded to CO_2 certificate holders. TenderNed: in 2016 the CO_2 PL was used in 9.3% of the tenders in TenderNed.
	Did the CO_2 PL pave the way for other GPP policies and instruments? (e.g. other performance ladders and Life Cycle Costing approaches)?	No explicit studies about effect on other policies.	No explicit studies.
4. To what extent did the CO_2 PL strengthen/start supply chain cooperation and carbon reduction? (What is the cost-effectiveness of the instrument?)		No information about the supply chain cooperation and cost-effectiveness. Rietbergen and Goes look at sector initiatives.	CO_2 PL Level 4 and 5 require joining a sector initiative. Studies conclude that the CO_2 PL is not always main driver to join such an initiative.
5. What is the utility of the tool and what are users' experiences with the tool? Also, what factors drive or hinder adoption?		There is information about the factors that drive adoption. Some studies about users' experiences (costs).	Rietbergen, M., (2015): The CO_2 PL has been increasingly adopted by firms as a response to climate change and driven by the potential competitive advantage of the CO_2 PL in contract awarding. Rietbergen, M.G., (2017): Study about costs for water workers. Costs for certifying are 0.08-0.14% of turnover. Dorée et al., (2011): adoption is high, due to favourable characteristics of the tool, including discount for procurement and clearness of the tool.

Research question	Information available?	Conclusion/findings
6. What are the recommendations for SKAO to improve and maximise tool adoption in the Netherlands and in Europe?	Several studies about the uncertainties of the CO_2 PL.	– Several certification requirements for setting CO_2 reduction targets were not very well defined. – The targets are not very ambitious. – Final assessment whether target levels are sufficiently ambitious were not well-defined.

Based on this table we conclude the following:

- For the literature review we reviewed nineteen studies about the CO_2 PL and its impact.
- Most studies are based on interviews combined with literature analysis and case studies.
- Not all studies are about the CO_2 PL and not all studies are about the effect of the CO_2 PL.
- Studies show a high uptake of the instrument in the construction and infrastructure (GWW) sector, mainly driven by the competitive advantage in the tendering process.
- The most important quantitative studies about the effect of the CO_2 PL are by Rietbergen (2015) (2016). These studies conclude that the CO_2 PL had a positive effect on adopting carbon management systems in the construction sector. Quantitative analysis shows that participants define above average targets, take additional measures and reduce additional Scope 1 and 2 emissions. This conclusion is confirmed by CE Delft (2016) that shows that participants' electricity product choice is influenced by the CO_2 PL.
- Quantitative studies are not focussed on effect on Scope 3 emissions, so the effect on Scope 3 is unknown. This emission category is more difficult to measure and there is no specific protocol on it. Measuring the effect of the CO_2 PL as the specific driver for measures/ambition is difficult to assess, because there can be other overlapping ambitions from other legislation.
- Quantitative studies on Scope 1 and 2 emissions are published in 2015, 2016, 2017, so most research took place before the Paris Agreement and the Dutch Climate Agreement.
- Other instruments like the MKI score and SBTi came up. The number of certificates doubled since 2015 and the adoption rate of Level 5 certificates increased. Sectors other than the construction sector became increasingly interested. This implies that new research on Scope 1 and 2 emissions can be valuable to show more actual insights into the effectiveness of the instrument.
- Rietbergen, M., (2015) tested the validity of the tool. After his research the Handbook was updated several times. SKAO updated the Handbook to Version 3.0 in 2015. One of the points they took into account was this research.
- From the studies, some qualitative information about push and pull factors and experiences with the tool can be deduced. There is no overarching study that answers those research questions.

In Chapter 5 we use the information from this analysis for recommendations for further research.

4 Inventory of available data

4.1 Introduction

In this chapter we provide an overview of the available data on the CO_2 PL for the purpose of understanding the CO_2 PL and look at its usefulness for further evaluation. This includes data provided by SKAO and other relevant data.

4.2 Description of the data

Data SKAO

SKAO descriptive data

SKAO can provide data about the type (size, sector) and number of companies using the CO_2 PL. The dataset contains an overview of the participants, NACE codes and type of certificate. This dataset is available from the year 2015. Data from previous years is also available, but not complete. This data is **not** linked to the CO_2 performance of the participants. SKAO does not have this data, as this was negotiated by the industry organisations (*branche-organisaties)*. The data can be used to get an overview of the number and level of certificates, related to the size and sector of the company. This can be used to analyse the development of certificates over levels and sectors, and to answer questions like: Is there is a difference between small and large companies? Is there a development in levels over time?

SKAO lists of measures

Each year, SKAO conducts research into the use of the list of measures based on (anonymous) data from all certified organisations. Based on this data, every year SKAO conducts a new update of the distribution among the three ambition levels (standard, advanced and ambitious measures). Raw data can be used to get more insights in the development of measures taken and the ambition level. In this research, companies are also asked to report their Scope 1, 2 and 3 emissions. According to SKAO this data is not reliable enough for statistical analysis and is difficult to draw conclusions from (e.g. due to reporting errors by respondents (kg instead of tonnes) or lack of consistency on scope (sometimes Scope 1 and 2 and other times Scope 3)).

SKAO dropouts

Furthermore, SKAO knows which companies drop out and has (limited) information about the reasons why they drop out. This data is relevant because it gives insights into the reasons why companies join and drop out.

Data SmartTrackers

SKAO received a dataset from SmartTrackers which contains data from around 100 (anonymous) companies in the period 2009-present. The dataset focusses on Scope 1 and 2 emissions and contains the data that the companies use for audits.

CE Delft, SKAO and SmartTrackers discussed the possibilities of analysing this dataset. CE Delft's impression is that it is possible to use the dataset for statistical analysis, but the number of companies is low and therefore it is difficult to get significant results and the added value of the results will be limited.

Data provided by companies (SKAO and company websites)

Certificate holders publish a number of data and (progress) reports including, depending on the level, carbon emissions inventories, energy management action plans, life cycle analysis and initiatives. Some of these must be published on the certificate holder's website, some on the SKAO website, according to the CO_2 PL requirements. At this time, there is no set publication format for the documents for certified organisation, as long as they meet the requirement.

For companies that hold a Level 5 certificate, publications include results on life cycle analysis, initiatives, material emissions and, in some cases, CO_2 emission reduction programmes. To get insight into the usability of the companies' publications for answering the research questions we took a random sample of six companies, of which five hold certificate Level 5. We analysed the publications in terms of presence and quality of quantitative data, realisation of plans/actions, mention of measures and their emission reduction.

All companies publish information on the highest emissions and their possible impact. Level 4 companies show qualitative impact analyses based on product-market combinations (e.g. Renewi). Level 5 companies report numbers on material emissions. Here we focus on Level 5 companies.

The most 'usable' reports are the **material emissions**. The material emissions state the Scope 3 emissions for Level 5 companies. The quality and the amount of the provided data differs between the companies. Some companies only report material emissions (Scope 3 emissions) from the last year. Other companies report material emissions for each year, either in one report (Alliander), or in a separate report per year (Dura Vermeer for example). Also, the types of categories calculated can differ over the years. In the event of a merger or other companies joining a business group, emissions can rise. For example, Alliander reported higher emissions in 2015 after adding a category. The reporting on turnover or FTE is not common, though some do mention revenue (e.g. Dura Vermeer).

The LCA reports describe the emissions per category. From these we found that the **method of calculation** differs between the companies. Some use their own tools such as CO_2 tool rail (e.g. Arcadis), some DuboCalc, others SimaPro and Ecochain (DuraVermeer). The use of different methods between the companies, or over the years, brings uncertainty to the data.

All analysed companies mention **initiatives**. These are networks, roadmaps or agreements with other companies within the sector to reduce CO_2 emissions. There can be overlap between the goals in the initiatives and the company's goals. The question then arises where to allocate CO_2 emission reduction to: the CO_2 PL, a large initiative or a combination. Information on timing of the initiatives and the different levels of the ladder can be of use for this.

The **measures** taken and the accompanying CO_2 reduction are mostly described and often not quantified. Though described actions and their status are reported, the impact is difficult to measure from the description. For example, Arcadis mentions "*monitoring CO_2 emissions of projects*" and "*talk to ProRail to look over contracts*" as actions.

The inconsistence between methods, yearly reporting, categories and structure of reporting makes it hard to gather information on CO_2 reduction over time. The material emissions reports in combination with the initiatives can be of value for the question of allocation, provided the emissions are reported yearly. We conclude that data can be used for company-specific analysis, but that it is not suitable for database building.

Statistical data

Statistical data (CBS) on energy use, emissions, FTE and turnover is only available on NACE 1 digit. For the construction sector this means that data is only available on aggregate level (NACE Code F), so not on sub level (F41. construction of buildings, F42. civil engineering, F43. specialised construction activities). Times series can be used as a reference scenario.

4.3 Conclusion

Table 6 shows an overview of the key questions of the research about the CO_2 PL and the available knowledge about these subjects in the available data.

White:	data sufficient to answer research question.
Light grey:	data available, but unclear if we can answer research question.
Dark grey:	no data available, or data available but insufficient to answer research question.

We distinguish between aggregate level and company level. Aggregate level is about answering questions for a sector or all participants and can be used for quantitative analysis. Company level is about answering the research question for a single company. This can give (qualitative) insights into behaviour of single companies, but cannot be used for (quantitative) data analysis.

Table 6 - Available knowledge in data

Research questions		Information available?	Aggregate level	Company level
1. What are the impacts (qualitative and quantitative) at company level relating to:	Scope 1, 2 and 3 emissions including an estimate (with justification) of CO_2 emission reduction	SmartTrackers Company data.	Maybe with SmartTrackers	Yes, no additionality
	Carbon intensity (per FTE, turnover and other relevant metrics)	Maybe SmartTrackers Company data.	Maybe with SmartTrackers	Yes, for a few companies, no additionality
	Sector/size of the companies included	Sector and size available in SKAO descriptive data, but not related to emissions.	No	No
	Corporate carbon management strategies and	Company data.	No	Yes, but not for all companies

Research questions		Information available?	Aggregate level	Company level
	other relevant policies/strategies			
2. What differences exist between companies (within the same sector) who applied the CO_2 PL tool and companies who did not?		No dataset available. SmartTrackers + statistical data (NACE 1).	Maybe with SmartTrackers	No
3. What are the indirect impacts of the CO_2 PL as a GPP instrument and a CO_2 management system, since it was developed in 2015, in terms of:	Sector: overall emissions of sector, GPP policies of the sector and/or country	Statistics on NACE 1 digit, no effect of CO_2 PL no dataset on GPP policies. SmartTrackers not sector-wide.	No	Yes, but not for all companies
	Tendering party (tendering parties using the CO_2 PL also as a carbon management system)	No datasets available.	No	No
	Did the CO_2 PL pave the way for other GPP policies and instruments? (e.g. other performance ladders and Life Cycle Costing approaches)?	No datasets available.	No	No
4. To what extent did the CO_2 PL strengthen/ start supply chain cooperation and carbon reduction? (What is the cost-effectiveness of the instrument?)		No data available.	No	No
5. What is the utility of the tool and what are users' experiences with the tool? Also, what factors drive or hinder adoption?		'Klanttevredenheids-onderzoeken' of SKAO.'Klanttevredenheids-onderzoeken' of SKAO	No	Maybe, depends on the results of SKAO
6. What are the recommendations for SKAO to improve and maximise tool adoption in the NL and in Europe?		No data available.	No	No

We conclude that company data might be useful to answer some questions on a micro level, but not on a sector level. For more analytical questions, this data should be combined with interviews. For more qualitative questions no data is available, so datasets should be created, for example with surveys.

The SmartTrackers dataset might be useful for statistical analysis on macro level, but it will be difficult to get significant results due to the low number of companies included.

5 Conclusion and recommendations

In Table 7 we show our conclusion about data and literature availability. It is a merger of Table 5 and Table 6. The final column shows conclusions and suggestions for further research in Phase 2. The underlying analysis for this table can be found in Chapters 3 and 4.

Conclusions are input for the discussion about the research plan for Phase 2. For this next phase we have the following recommendations:

- Some quantitative research on the effect of the CO_2 PL on Scope 1 and 2 emissions is available, but this research is outdated due to the quick developments in this field and the growing uptake of the CO_2 PL. However, this research is at least relevant and still representative. Good insights into the effect on Scope 1 and 2 emissions is relevant for the international ambitions of the CO_2 PL, because previous research shows that the instrument contributed significantly to the uptake of carbon management systems and Scope 1 and 2 measures. We recommend including Scope 1 and 2 emissions in the analysis for Phase 2, and that the research questions distinguish between the size and sector of the company, as we expect that effects can differ between small and large companies and between sectors. We recommend using a survey.

- Quantitative research on the effect of the ladder on Scope 3 emissions is not available, but very relevant for the further development of the CO_2 PL, since a third of companies have Level 5 certificates now. We recommend focusing on methods to get insight into Scope 3 emissions and to compare those to a reference group. We recommend using case studies and to research standardisation for Scope 3 data gathering and reporting.

- It is important to get more insights into other factors that influence the carbon emissions of companies, e.g. MKI, SBTi, covenants and other reporting standards. We recommend using case studies and a survey to answer this question.

- Some more qualitative questions are not fully answered in existing literature, for instance about users' experiences and supply chain cooperation. We recommend asking a few questions in a survey and using some case studies to get deeper insights.

- Literature and interviews gave the impression that the CO_2 PL gives insufficient incentives to realise very ambitious reductions (it's easy to gain a certificate, targets are not too ambitious, other instruments are more relevant for Scope 3 reductions) (Rietbergen, M., 2015) (Assem, 2019). We think it's relevant to test this hypothesis by interviewing certifying agents and companies.

- Data provided by companies (reduction plans, material emissions reports, LCA reports) is valuable as a starting point for case studies. Scope and quality of the data is too diverse to be used for database building. We recommend using this data for case studies.

Table 7 - Conclusion about data and literature availability

Key questions		Literature available	Data available at aggregate level	Data available at company level	Conclusion/suggestion for Phase 2
1. What are the impacts (qualitative and quantitative) at company level relating to:	Scope 1, 2 and 3 emissions including an estimate (with justification) of CO_2 emission reduction.	— CE Delft, (2016): effects on GvO market — Studies Rietbergen on aggregate level, Scope 1 and 2 (Rietbergen, M.G., 2017, Rietbergen, Martijn G. et al., 2016) (Rietbergen, M., 2015) — Braaksma, (2020)effects Scope 3 ambition for one company	Maybe with SmartTrackers	Yes, no additionality	Conclusion: — Quantitative estimations for scope 1 and 2 available — Scope 3 only ambition level for one company — Aggregate dataset may be available (SmartTrackers) Recommendation: — Update on Scope 1 and 2 — Research Scope 3 requires standardisation in data reporting, and data gathering from for example SmartTrackers or survey
	Carbon intensity (per FTE, turnover and other relevant metrics).	— (Rietbergen, M., 2015) about targets (Scope 1 and 2)	Maybe with SmartTrackers	Yes, for a few companies, no addtionality	As above
	Sector/size of the companies included.	— No information available related to size/sector	No	No	— No data and no literature available — New research needed (survey + interviews)
	Corporate carbon management strategies and other relevant policies/ strategies.	— (Rietbergen, Martijn G. et al., 2016) — (Goes, 2017)	No	Yes, but not for all companies	— Literature available — For an update new research is needed (survey + interviews)
2. What differences exist between companies (within the same sector) who applied the CO_2 PL tool and companies who did not?		— (Rietbergen, M., 2015) (Rietbergen, Martijn G. et al., 2016) — (CE Delft, 2016)	Maybe with Smarttrackers	No	See question 1
3. What are the indirect impacts of the CO_2 PL as a GPP instrument and a CO_2 management system,	Sector: overall emissions of sector, GPP policies of the sector and/or country.	— Rietbergen, M.G., (2017) shows absolute emission reduction for the water sector; no additionality analysis.	No	Yes, but not for all companies	— Only literature for water sector and data on company level — New research + data (survey) needed. Focus on construction sector
	Tendering party (as tendering parties use the	— A descriptive study about the impact of the CO_2 PL for the	No	No	— Study upcoming about CO_2 PL in municipalities can be used to answer this question.

Key questions		Literature available	Data available at aggregate level	Data available at company level	Conclusion/suggestion for Phase 2
since it was developed in 2015, in terms of:	CO_2 PL also as a carbon management system).	tenders of ProRail and TenderNed. No analytical studies. — Study by CE Delft about the effect of the use of the CO_2 PL at municipalities.			— No additional research suggested.
	Did the CO_2 PL pave the way for other GPP policies and instruments? (e.g. other performance ladders and Life Cycle Costing approaches)?	— No explicit studies about effect on other policies.	No	No	— No literature and data available. — New research (interviews) needed.
4. To what extent did the CO_2 PL strengthen/start supply chain cooperation and carbon reduction? (What is the cost-effectiveness of the instrument?)		— (Rietbergen, M.G., 2017)and (Goes, 2017) look at sector initiatives. — No information about the supply chain cooperation and cost-effectiveness.	No	No	— Some literature available about sector initiatives. — New research about supply chain cooperation needed (survey + interviews).
5. What is the utility of the tool and what are users' experiences with the tool? Also, what factors drive or hinder adoption?		— There is information about the factors that drive adoption. Some studies about user's experiences (costs).	No	Maybe, depends on the data of SKAO	— Some literature available. — Relevant to update and to analyse if the tool is future proof. — Data of de 'tevredenheidsonderzoeken' of SKAO.
6. What are the recommendations for SKAO to improve and maximise tool adoption in the NL and in Europe?		— Several studies about the uncertainties of the CO_2 PL, not focussed on adoption in Europe.	No	No	— Additional research needed (interviews, survey).

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A List of interviews

Table 8 - List of interviews

Affiliation	Name(s)	Date
SKAO	Maud Vastbinder, Gijs Termeer	15 February 2022
HU	Martijn Rietbergen	25 February 2022
Rijkswaterstaat	Christine Everaars	15 March 2022
Smarttrackers + SKAO	Leo Smit, Maud Vastbinder, Annemiek Lauwerijssen, Gijs Termeer	17 March 2022

B Audit check list

B.1 Angle: Insight

Requirement	S/M/L	Aspect	Requirements	Max. score
1A	All	The organisation has partial insight into energy consumption.	1.A.1. Identification and analysis of energy flows of the organisation and the projects for which a CO_2-related award advantage has been obtained have taken place.	10
			1.A.2. All energy flows of the organisation and the projects for which a CO_2-related award advantage has been obtained have been demonstrably recorded.	10
			1.A.3. This list is regularly followed up and kept up to date.	5
		Objective: The organisation knows which types of energy are used.		
2A	All	The organisation has insight into its energy consumption	2.A.1. All energy flows of the organisation and the projects for which a CO_2-related award advantage has been obtained have been quantitatively identified.	10
			2.A.2. The list is complete, and is regularly - and demonstrably - followed up and kept up to date.	5
			2.A.3. The organisation has an up-to-date energy assessment for the organisation and the projects for which a CO_2-related award advantage has been obtained.	10
		Objective: The organisation knows how much energy is used per type, classified according to the organisation's various activities.		
3A	All	The organisation has converted its own energy consumption into CO_2 emission(s).	3.A.1. The organisation has a detailed and up-to-date emission inventory for its scope 1 & 2 CO_2 emissions and business travel in accordance with ISO 14064-1 for the organisation and the projects for which a CO_2-related award advantage has been obtained.	15
			3.A.2. The 3.A.1 emissions inventory has been verified by a certifying organisation to at least a limited degree of certainty.	10
		Objective: The organisation has a CO_2 administration where there is no discussion about the amounts and the calculation method. The organisation has insight into the main basic principles for a reduction approach.		
4A	All *	The organisation reports its CO_2 footprint for scope 1, 2 & 3.	4.A.1. The organisation has a demonstrable insight into the most material emissions from scope 3, and can present at least two analyses of these scope 3 emissions of GHG-generating (chains of) activities.	15
	All		4.A.2. The organisation has a quality management plan for the inventory.	5
	All		4.A.3. At least one of the analyses from 4.A.1 (scope 3) has been professionally endorsed or commented on by a recognised professional and independent knowledge institute.	5
		Objective: Apart from scope 1 and 2, the organisation has determined the relative extent of scope 3 emissions. The management is aware of the influence of the organisation in the various value chains, upstream and downstream, in which it performs. On the basis of this knowledge, the organisation identifies promising energy and CO_2 reduction measures in the value chains and potential value chain partners for its approach.		
5A	All*	The organisation has a portfolio-wide understanding of scope 3.	5.A.1. The organisation has insight into the material scope 3 emissions of the organisation and the most relevant parties in the value chain that are involved in this.	10
	All*		5.A.2-1. The organisation has a portfolio-wide, substantiated analysis of its options to influence material scope 3 emissions.	5
	M/L		5.A.2-2. The organisation has insight into possible strategies to reduce these material emissions.	5
	M/L		5.A.3. The organisation must know the specific emission data of direct (and potential) value chain partners that are relevant to execution of the scope 3 strategy.	5
		Objective: The organisation broadens and deepens its understanding of scope 3 and how the organisation can reduce emissions in scope 3.		

B.2 Angle: Reduction

Requirement	S/M/L	Aspect	Requirements	Max. score
1B	All	The organisation investigates opportunities for energy reduction.	1.B.1. The organisation demonstrably investigates the opportunities for reducing the energy consumption of the organisation and the projects for which a CO_2-related award advantage has been obtained.	20
			1.B.2. The organisation has an up-to-date report from an independent internal audit of the organisation and the projects for which a CO_2-related award advantage has been obtained.	5
		Objective: The organisation knows what can be saved per energy flow. There is insight per savings model on which activity of the organisation this concerns.		
2B	All	The organisation has an energy reduction target, described in qualitative terms.	2.B.1. The organisation has an objective described in qualitative terms for reducing energy and has proposed measures for the projects.	10
			2.B.2. The organisation has a specified objective for the use of alternative fuels and/or the use of green energy and has proposed measures for the projects.	10
			2.B.3. The energy and reduction objective and related measures have been documented, implemented and communicated to every employee.	3
			2.B.4. The reduction objective has been endorsed by higher-tier management.	2
		Objective: The objectives are cost effective and ambitious at the same time, and clear information is provided about this. The objectives are concrete. The measures (particularly for the projects) are assigned to those involved in the implementation, required to implement the measure, and are communicated broadly within relevant parts of the organisation.		
3B	All	The organisation has quantitative CO_2 reduction objectives for its own organisation.	3.B.1. The organisation has drawn up a quantitative reduction objective for scope 1 & 2 emissions and business travel for the organisation and its projects, expressed in absolute values or percentages in relation to a reference year and within a fixed period of time, and has drawn up an accompanying action plan, including the measures to be taken on the projects.	15
			3.B.2. The organisation has drawn up an energy management action plan (in accordance with ISO 50001 or equivalent), which has been endorsed by higher-tier management, communicated (internally and externally), and implemented within the organisation and on the projects for which a CO_2-related award advantage has been obtained.	10
		Objective: The organisation formulates an ambitious, substantiated objective for energy and CO_2 emission reduction (scope 1 and 2), where account has been taken of the relative position with respect to organisations with similar activities involving the current CO_2 performance and/or reduction measures. Innovative developments are also taken into account.		
4B	All *	The organisation has quantitative CO_2 reduction objectives for scope 1, 2 & 3 CO_2 emissions.	4.B.1. The organisation has formulated CO_2 reduction objectives for scope 3 based on the 2 analyses in 4.A.1. Or, the organisation has formulated CO_2 reduction objectives for scope 3 based on 2 material GHG-generating (chains of) activities. A related action plan has been drawn up, including the measures to be taken. Objectives are expressed in absolute values or percentages in relation to a reference year and within a fixed period of time.	15
	All*		4.B.2. The organisation reports at least every six months (internally and externally), on its progress in relation to the objectives for the organisation and the projects for which a CO_2-related award advantage has been obtained.	10
		Objective: The organisation formulates an ambitious, substantiated objective for energy and CO_2 emission reduction in the value chain, where account must be taken of the influence of the organisation in the value chain, its relative position with respect to organisations with similar activities and with other initiatives in the value chain and/or sector. Innovative developments are also taken into account.		
5B	All*	The organisation reports, on a structural and quantitative basis, the results of the CO_2 reduction objectives for scope 1, 2 & 3.	5.B.1. The organisation has formulated a strategy and CO_2 reduction objectives for scope 3, based on the analyses in 5.A.2. A related action plan has been drawn up, including the measures to be taken. Objectives are expressed in absolute values or percentages in relation to a reference year and within a fixed period of time.	9
	All*		5.B.2. At least twice a year, the organisation reports (internally and externally) on its emission inventory scope 1, 2 & 3-related CO_2 emissions, as well as its progress in terms of the reduction objectives, for the organisation and its projects.	8
	All		5.B.3. The organisation succeeds in meeting its reduction objectives.	8

B.3 Angle: Transparency

Requirement	S/M/L	Aspect	Requirements	Max. score
1C	All	The organisation communicates on an ad hoc basis about its energy reduction policy.	1.C.1. The organisation demonstrably communicates internally, on an ad hoc basis, its energy reduction policy for the organisation and the projects for which a CO_2-related award advantage has been obtained.	20
			1.C.2. The organisation demonstrably communicates externally, on an ad hoc basis, its energy reduction policy for the organisation and the projects for which a CO_2-related award advantage has been obtained.	5
		Objective: The organisation involves all employees in the development of an energy or CO_2 reduction policy and clearly communicates where the main challenges lie for the organisation and its own activities.		
2C	All	The organisation communicates its energy policy internally – to a minimal degree – and possibly externally.	2.C.1. The organisation communicates its energy policy, internally and structurally, for the organisation and its projects. The communication includes at least the energy policy and reduction objectives of the organisation and the measures in the projects for which a CO_2-related award advantage has been obtained.	10
			2.C.2. With regard to CO_2 reduction, the organisation has an effective steering cycle with assigned responsibilities for the organisation and the projects for which a CO_2-related award advantage has been obtained.	10
			2.C.3. The organisation has identified the external stakeholders for the organisation and the projects for which a CO_2-related award advantage has been obtained.	5
		Objective: The organisation works on building a base of support within the organisation to look for more effective energy and CO_2 reduction measures. The organisation encourages its own employees to come up with proposals for improvement and gives feedback on what is happening with these proposals. The organisation knows which external stakeholders may have an interest in energy and CO_2 reduction in the organisation. The organisation's employees who can provide a relevant contribution know what is expected of them.		
3C	All	The organisation communicates internally and externally on its CO_2 footprint and reduction objective(s).	3.C.1. The organisation communicates, internally and externally, and on a structural basis, about its CO_2 footprint (scope 1 & 2 emissions) and the quantitative reduction objectives of the organisation and the measures in projects for which a CO_2-related award advantage has been obtained. The communication minimally contains the energy policy and reduction objectives of the organisation and the aforementioned measures, opportunities for individual contributions, information concerning current levels of energy consumption and trends in the organisation and on the projects.	20
			3.C.2. The organisation has an internal and external communication plan with documented tasks, responsibilities and methods of communication for the organisation and the projects for which a CO_2-related award advantage has been obtained.	5
		Objective: Through communication, the organisation enables external relevant experts to form a critical opinion about the organisation's efforts, also with respect to other organisations.		
4C	L	The organisation maintains a dialogue with parties within government bodies and NGOs about its CO_2 reduction objectives and strategy.	4.C.1. The organisation can demonstrate that it maintains regular dialogue (at least twice a year) with stakeholders in government and NGOs (at least two) about its CO_2 reduction objectives and strategy for the organisation and the projects.	20
			4.C.2. The organisation can demonstrate that the areas of concern about the organisation or projects expressed by the government bodies and/or NGOs have been identified and addressed.	5
		Objective: The objective of the dialogue is to assess whether the organisation's management deems that the subject is a priority and to make suggestions for improvement and taking on new matters.		
5C	M/L	The organisation is publicly committed to a government or NGO CO_2 emission reduction programme.	5.C.1. The organisation can demonstrate that it is publicly committed to a government or NGO CO_2 emission reduction programme for both itself and its projects.	10
			5.C.2. (see 5.C.1) more than one.	5
			5.C.3. The organisation communicates internally and externally, on a structural basis (at least twice a year), about its CO_2 footprint (scope 1, 2 & 3) and the quantitative reduction objectives for the organisation and the measures in projects for which a CO_2-related award advantage has been obtained. The communication minimally contains the energy policy and reduction objectives of the organisation and the aforementioned measures, opportunities for individual contributions, information concerning current levels of energy consumption and trends in the organisation and on the projects.	10
		Objective: The organisation takes on a commitment of a contractual nature to realise specific energy or CO_2 reduction objectives and communicates about this and implements said objectives. Objectives that are part of this commitment are at least in line with national and/or sectorial reduction objectives and clearly go beyond legal obligations. The organisation communicates about its objectives and results regarding energy and CO_2 reduction in the value chain.		

B.4 Angle: Participation

Requirement	S/M/L	Aspect	Requirements	Max. score
1D	All	The organisation is aware of sector and/or value chain initiatives.	1.D.1. The organisation is demonstrably aware of sector and/or value chain initiatives for CO_2 reduction that are closely related to its project portfolio.	15
			1.D.2. Sector and value chain initiatives, and their relationship with the company operations and project portfolio, are discussed in management consultations.	10
		Objective: The organisation knows which development initiatives can potentially lead to measures that are relevant to the organisation. The management has made statements about possible participation in these initiatives.		
2D	All	The organisation is a passive participant in initiatives aimed at reducing CO_2 within or outside the sector.	2.D.1. The organisation is a passive participant in at least one (sector or value chain) initiative that is closely related to its project portfolio, by signing up to it or paying a contribution and/or sponsorship fee.	20
			2.D.2. The organisation plays a (limited) active part in a sector or value chain initiative that is closely related to its project portfolio.	5
		Objective: The organisation knows what information can be of use for its projects (linked to 2.B and 2.C) and takes part in an initiative that meets its own knowledge requirements.		
3D	All	The organisation is an active participant in initiatives aimed at reducing CO_2 in or outside the sector.	3.D.1. Active participation in at least one sector or value chain initiative aimed at reducing CO_2 in its project portfolio, through demonstrable participation in working groups, publicly advocating the initiative and/or providing information for the initiative.	20
			3.D.2. The organisation has allocated a specific budget for this purpose.	5
		Objective: The organisation contributes to and makes use of the development of new knowledge, in collaboration with others, geared towards potentially effective reduction measures.		
4D	L	The organisation initiates development projects that facilitate reductions in CO_2 in the sector.	4.D.1. The organisation can demonstrate that it has initiated development projects that make it easier for the sector to reduce CO_2 by carrying out projects, by linking its name to the initiatives through publications and the affirmation of co-initiators.	20
			4.D.2. The organisation has allocated a specific budget for this purpose.	5
		Objective: The organisation takes on a leading role in the development and announcement of new measures for far-reaching energy or CO_2 emission reduction in the sector.		
5D	L	The organisation takes an active part in setting up a sector-wide CO_2 emissions reduction programme in collaboration with the government or NGO.	5.D.1. The organisation can demonstrate that it is actively involved in setting up a sector-wide CO_2 emissions reduction programme in collaboration with the government and/or an NGO and that it makes a relevant contribution to it in the execution of projects.	20
			5.D.2. The organisation has allocated a specific budget for this purpose.	5
		Objective: The organisation succeeds in or has made an effort for a specific period and in different ways to urge other organisations in the sector to implement promising energy or CO_2 reduction measures.		