



CO₂-Performance Ladder

The quality and usage of the obligated
management documents

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Title: CO₂ Performance Ladder: The quality and usage of the obligated management documents
Project: Master Thesis – Final Document
Date: 2 April 2013

University: Utrecht University
Place: Utrecht
Study: Energy Science, Faculty of Geoscience

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Universiteit Utrecht



Preface

This document is the final thesis of the Master Energy Science at Utrecht University. The research for this thesis has been conducted at Royal Haskoning DHV under guidance of Henriette Former and Martijn Rietbergen of Utrecht University whom I thank for their advice and constructive feedback.

In addition to their guidance, this study was not possible without the interviews which I conducted at seven companies in the construction sector. Because a number of organizations wanted to participate anonymously all the output of the interviews is anonymous. I would like to thank these seven companies for their cooperation.

Finally I like to thank my friends and family for reviewing this document.

Thijs Boersen

Amersfoort, April 2013

Summary

In 2009 ProRail (Dutch railway) established a certification scheme, the so called CO₂-Performance Ladder (CO₂PL). The CO₂PL provides a financial bonus in some tenders of (semi)governmental organisations like ProRail. The height of the financial bonus depends on the level of the certification which can vary from 1 till 5. Companies can obtain such a certificate when specific requirements are met.

Within this master thesis the use of two requirements set by the CO₂PL: the Energy Management Program (EMP) and the Communication Plan (CP) is investigated. More specific, this research focuses on the extent to which companies make use of these plans to actually improve their CO₂ management. This is researched because the CO₂PL only states that these documents should be in place and applied in practice. To what extent the documents are used in practise and the role of the different subjects are however unclear.

A case study on seven companies consisting of an evaluation of the EMP, the CP and an interview is used to answer this question. The case study shows: to what extent the EMP and CP match the obligations of the CO₂PL, to what extent the management systems used by the companies match the EMP and CP and how the management documents are used in practice. In addition, a literature review on CSR is used to asses which obligations of the EMP and CP are important and why this is the case.

All companies stipulate the importance of the EMP and CP. Two of the seven companies only use the documents to obtain the certificate however. They don't use the CO₂PL required documentation throughout their organization. The remaining five organisations integrate the CO₂PL documents in their procedures to some extent. In two cases the documents are used by many employees. For these two companies the management system is larger (employee wise) than for the other organisations. This could imply that a larger management system per organisation is required to integrate the CO₂PL in practice.

The case study shows that 58% of the obligations of the CO₂PL are included in the EMPs of companies and 71% of the obligations are included in the CPs. However, in practice actually 79% of the obligations of the EMP and 95% of the obligations of the CP are met in practice. This shows that companies do not strictly follow the requirements of the CO₂PL within their own documents but more (approximately 20%) of the requirements are met in practice.

The three obligations of the CO₂PL which are most often not met in practice are:

- The resources (money, time and people) by which targets are to be completed are not always included;
- The EMP is not always internally and externally communicated;
- The measure to ensure the CO₂ reduction are not always specified per project.

During the case studies three reasons have been identified why organisations do not meet the requirements set by the CO₂PL:

- Even though organisations are certified they are unaware of certain obligations set by the CO₂PL;
- Some obligations are in practice actually not useful, they do not add any value, for the organisation;
- Certain outcomes of the CO₂PL are actually common practice for the companies due to which these are not part of the CO₂PL management system of organisations.

The results shown above show that the companies do not follow the obligations of the handbook strictly. The interviews suggests that the companies use their own standards to fill the gaps of the

CO₂PL handbook and sometime even overrule the obligations. This is confirmed by the fact that some companies only use the documents as proof. As their standard is different from that of the CO₂PL they rather not use the EMP or CP in practice in order to reach the goals. Another result that strengthens this statement is that some obligations are not met because the companies do not think the obligations are useful. It doesn't necessarily mean that the effect is less when companies use their own standards. The CO₂PL is even based on minimum obstruction of the company. A management system and documents which are specially designed for the company are more likely to be efficient. However it will be harder for the ladder CI's to assess whether the goals of the CO₂PL are reached. Therefore the CO₂PL could be adapted to ensure that companies can use their own preferences but the ladder CI can also verify that the goals are reached.

As a result of this research it can be concluded that the use of the EMP, CP and the effectiveness of the CO₂PL management system in practice can be improved. The case studies show that requirements set by the CO₂PL should be clarified and specific requirements could potentially be removed since these do not add value or are already common practice within the organisation.

Samenvatting

In 2009 heeft ProRail een certificatieschema opgezet, de zogenaamde CO₂-Prestatieladder (CO₂PL). Bedrijven kunnen een certificaat verkrijgen wanneer aan een aantal specifieke eisen m.b.t. CO₂-reductie en CO₂-management voldaan wordt. Een bedrijf in het bezit van een CO₂PL certificaat krijgt een financiële bonus bij aanbestedingen van een aantal (semi)overheidsinstellingen. De hoogte van de financiële bonus is afhankelijk van het niveau van het certificaat wat kan variëren van 1 tot 5.

Binnen deze master thesis is het gebruik van twee eisen van de CO₂PL onderzocht: het Energie Management Programma (EMP) en het Communicatie Plan (CP). Specifieker gezegd, het onderzoek richt zich op de mate waarin bedrijven gebruik maken van deze management documenten voor het verbeteren van hun CO₂-management systeem. Dit wordt onderzocht aangezien de CO₂PL alleen stelt dat deze documenten moeten worden geschreven en in de praktijk worden toegepast. Het is echter onduidelijk in welke mate de documenten ook daadwerkelijk in de praktijk worden gebruikt en welke rol de verschillende onderdelen spelen.

Deze vraag wordt beantwoord d.m.v. een case study bij zeven bedrijven, die bestaat uit een evaluatie van het EMP, het CP en een interview. De case study laat zien in welke mate de EMP en CP overeenkomen met de verplichtingen van de CO₂PL, in welke mate het CO₂PL management systeem van de bedrijven overeenkomt met het EMP en CP en hoe de management documenten in de praktijk worden gebruikt. Daarnaast is een literatuurstudie naar MVO gebruikt om te beoordelen welke verplichtingen van de EMP en CP belangrijk zijn en waarom.

Alle bedrijven onderschrijven het belang van het EMP en CP. Twee van de zeven ondernemingen gebruiken de documenten echter alleen voor het behalen van een certificaat. Ze maken binnen hun organisatie geen gebruik van de het EMP en CP. De overige vijf organisaties integreren CO₂PL documenten enigszins in hun procedures. Slechts in twee gevallen worden de documenten daadwerkelijk door veel medewerkers gebruikt. Het management systeem van deze twee bedrijven is groter (in werknemers aantal) dan van de andere bedrijven. Dit kan betekenen dat een groter management systeem nodig is voor een uitgebreide implementatie.

De case study toont aan dat 58% van de verplichtingen van de CO₂PL zijn opgenomen in de EMP's van bedrijven en 71% van de verplichtingen zijn opgenomen in de CP's. Echter, in de praktijk wordt aan 79% van de verplichtingen van de EMP (21% verschil ten opzichte van het document) en 95% van de verplichtingen van de CP (24% verschil ten opzichte van het document) voldaan. Hieruit blijkt dat bedrijven enerzijds niet strikt omgaan met de verplichtingen van de CO₂PL in hun documenten, maar anderzijds in de praktijk wel aan meer verplichtingen (ongeveer 20%) voldoen.

De drie verplichtingen van de CO₂PL waar in de praktijk vaak niet aan wordt voldaan zijn:

- De middelen (geld, tijd en mensen) waarmee doelen moeten worden behaald zijn niet altijd opgenomen;
- Het EMP is niet altijd intern en extern gecommuniceerd;
- De CO₂-reductie maatregelen worden niet altijd per project gespecificeerd.

Tijdens de case study zijn drie redenen voor het niet voldoen aan de verplichtingen geïdentificeerd:

- Hoewel organisaties gecertificeerd zijn, zijn ze zich niet bewust van bepaalde verplichtingen van de CO₂PL;
- Sommige eisen zijn in de praktijk niet nuttig omdat ze geen toegevoegde waarde hebben binnen het management systeem wat bedrijven gebruiken;

- Bepaalde uitkomsten van de CO₂PL zijn voor de bedrijven algemeen bekend in de praktijk met als gevolg dat deze geen deel uitmaken van het CO₂PL management systeem van organisaties.

De hierboven getoonde resultaten laten zien dat de bedrijven de verplichtingen van het handboek niet strikt op te volgen. De interviews suggereren dat de bedrijven hun eigen standaarden gebruiken om de witte vlekken in het CO₂PL handboek in te vullen en soms zelfs de verplichtingen overstemmen. Dit wordt bevestigd door het feit dat sommige bedrijven de documenten alleen als bewijs gebruiken. Hun standaard verschilt van de CO₂PL waardoor zij het EMP of CP in de praktijk niet gebruiken om de doelen te bereiken. Een ander gevolg welke deze uitspraak onderbouwd is dat sommige aan verplichtingen niet wordt voldaan omdat de bedrijven de verplichtingen niet nuttig vinden. Het gebruik van eigen standaarden hoeft niet te betekenen dat het effect van de CO₂PL minder is. De CO₂PL is zelfs gebaseerd op minimale belemmering van de bedrijfsvoering. Een managementsysteem en documenten die speciaal zijn ontworpen voor het bedrijf hebben meer kans om efficiënt te zijn. Echter wordt het wel moeilijker voor de CI's om te beoordelen of de doelstellingen van de CO₂PL worden bereikt worden. Daarom kan de CO₂PL aangepast worden waardoor de bedrijven de verheid behouden om hun eigen voorkeuren te gebruiken maar de CI's ook kunnen controleren of de doelen behaald worden.

Uit dit onderzoek kan geconcludeerd worden dat het gebruik het EMP en het CP en de management systemen welke bedrijven gebruiken geperfectioneerd kunnen worden. De case study laat zien dat de eisen die door de CO₂PL worden voorgeschreven verduidelijkt moeten worden en dat specifieke verplichtingen mogelijk kunnen worden verwijderd omdat deze geen toegevoegde waarde hebben of in de praktijk algemeen erkend zijn.

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1. Introduction

The EU has set the target to decrease the Greenhouse Gas (GHG) emission by 20% in 2020 compared to the emissions of 1990 (European commission, 2007). In order to reach this target multiple regulations are developed or adapted. One of these is the EU public procurement directive. In 2004 new directives were formed to make it possible to include environmental consideration in the procurement process, also called Green Public Procurement (GPP) (European Commission, 2004). In the Netherlands, ProRail (a semi-governmental organisation in the Netherlands) developed a GPP scheme called the CO₂ Performance Ladder (CO₂PL). The goal of the CO₂PL is: *'to encourage companies to be aware of their CO₂ emissions (and those of their suppliers), and to be permanently on the lookout for new ways to save energy, use materials efficiently, and to use renewable energy'* (SKAO, 2011b). Every company can be awarded with a CO₂PL certificate of level 1 till 5 when it meets specific requirements related to CO₂ management and CO₂ emission reduction. Companies that hold a CO₂PL certificate can gain a competitive advantage (bonus) during specific tenders of some governmental and semi-governmental originations (like ProRail).

1.1. Problem definition

A company must meet a number of requirements specified in the CO₂PL handbook in order to obtain a certificate. The requirements of the CO₂PL state, among others things, that a Communication Plan (CP) and an Energy Management Programme (EMP) should be drafted. Ladder Certifying Institutions (Ladder CI's) verify that a company meets enough requirements to be awarded with a certificate and thus that these documents are in place. It is however unclear to what extent the Ladder CIs are able to check whether these two management documents are actually implemented in practice. The obligations of the EMP and CP are selected to reach the goals of the CO₂PL. When companies do not implement the requirements it is possible that the goals of the CO₂PL are not met. Another possibility is that the requirements are not optimal for reaching the goals of the CO₂PL. More insight in the area can perfect the requirements or increase the extent to which the goal of the CO₂PL is reached.

Also, so far only very little research has been carried out on the CO₂PL (See, e.g. Doree et al., 2011; Rietbergen and Blok, 2013; Veneberg, 2010; Wilbrink, 2012; Wortmann, 2012). Will brink (2012) however, assessed the effectiveness of the CO₂PL in his master thesis. He was however unable to conduct research on the CO₂PL management systems of companies and the use of the CP and EMP. Quoting from this research:

A key question that is not answered in much detail in this thesis is how the CO₂ management of the companies exactly works, how that compares to other management systems and how effective that is. Deeper insight in this matter could lead to very useful suggestions for improvement of the effectiveness of the CO₂ management systems. Subsequently, it would then be very interesting to investigate how the Ladder requirements affect this management system and how the Ladder requirements could be improved in order to force companies to make their CO₂ management system more effective and less expensive. (Wilbrink, 2012)

Wilbrink could not research how CO₂PL management system works and how the different CO₂PL requirements affect the CO₂PL management system. The two management documents are important requirements for forming a CO₂PL management system.

Therefore the main research question of this research is:

To what extent do companies use the drafted CO₂-Performance Ladder management documents for improving their CO₂ management?

To answer the research question the following sub questions have been drafted:

1. What actions and processes should be included in the communication plans and energy management programmes according the requirements in the CO₂PL handbook?

The first step in answering the main research question is determining what obligations the management documents must meet.

2. What important components should be included in the management systems of a Corporate Social Responsibility management system according to the literature?

This sub question will compare the CO₂PL with a theoretical framework for the design and implementation of CSR schemes. This framework is used to gain more understanding in the importance of the obligations of the handbook and to understand the use of the management document in CSR. This understanding is used to determine the importance of the obligations of the handbook and to assess if these obligations are important for the management system used by the companies.

3. To what extent do the energy management plan and communication plan meet the requirements of the CO₂PL handbook?

This sub question will assess the actions and processes that are included in the company's communication plan and energy management programme. This information is compared with the obligations of the CO₂PL handbook in order to assess to what extent the documents meet the requirements of the handbook.

4. To what extent are the management systems used in practice in compliance with the management documents.

This question compares the obligations of the handbook, the key conditions for an environmental management system shown in the literature and the company documents with the management system that is used in practice. This shows to what extent the management documents are implemented (or updated) in practice.

5. For what reasons do organizations use or deviate from the defined processes and actions in the obligations of the management documents and the handbook?

This sub question explains why companies implement or do not implement the management documents. This explanation is based on the literature review and the outcome of the interviews.

Only a limited amount of other research on the CO₂PL has been carried out. Below all relevant literature is shown.

- Addo-Nkansah et al., (2012) researched the quality of the quality of the chain analyses which companies need to draft in order to reach level four of the CO₂PL.
- Doree et al. (2011) researched the '*Rapid adoption of the CO₂PL scheme in numbers, explores the motives and mechanics at work, and discusses the value and impact of the scheme*'. ProRail's approach is compared with the traditional criteria based sustainable procurement.
- Primum researched the use of the CO₂PL by the companies (Wortmann, 2012). Research was also done on the reasons that companies implement the CO₂PL. One of the findings of Primum is that the certified companies would decrease their emissions even more if they would follow energy management plans completely. They state that not all reduction measures are carried out and that the lack of investment due to the economic crisis might be the cause of this.

- Rietbergen and Blok (2013) assessed the potential impact of the CO₂PL on the CO₂ emissions. They estimate that the additional emission reduction realized by the ladder is 0,8 % till 1,5 % reduction per year.
- Wilbrink (2012) researched the CO₂ emission reduction, cost and the effect on business operations. He is more opportunistic than Rietbergen and Blok with an added reduction of 0,5 % till 5,4 % per year. And he concluded that the annual costs of the ladder for a company varies between 5.000 and 300.000 euro.

The five sources above show that the research has not yet been conducted in the past.

1.2. Scope of the research

The CO₂PL holds multiple requirements however three management documents need to be drafted: the Energy Management Programme (EMP), Communication Plan (CP) and Quality Management Plan (QMP). Only the EMP and CP are researched in this thesis. The QMPs are most of the time not drafted or part of a companywide QMP (Addo-Nkansah et al., 2012). If the company did draft a combined QMP, it is hard to assess what parts of the QMP are results of the CO₂PL and what parts have another origin. Therefore the QMP is not part of this research.

Only the management system, the management documents and the role of the management documents in the management system are researched. The actual reduction of the CO₂ emission (the implementation of reduction measures) is not part of the scope of this research.

Only companies with a level five certificate were reviewed. The two documents are only required from level three and higher. As a result of this on average level five companies have used these documents longer than the level three companies. Just after implementing the system the changes are still new. A longer time after implementation of the system the organization is changes that stick have become more a more routine part of their work. It is harder to compare the outcome of the companies when some companies which are still in or just out of the changing process and for others the changes have become routine. Therefore only level five companies are researched.

Companies in all sectors can receive a CO₂PL certificate. It is likely that the management system of companies in different sectors vary a lot (because companies in different sectors have employees with different levels of educations have different business models etc.). Most of the companies currently holding a level five certificate are construction companies. This is the case because most the CO₂PL was started in this sector. Due to this, the research has specifically been conducted at construction companies.

Different versions of the CO₂PL handbook are available. These different versions also set different obligations for the CP and EMP. As more than half of the level five companies hold a version 2.0 certificate, the research is based on this version of the handbook. The version of the handbook which is used by the companies is taken into account in the company selection (although one company which used version 1.2 is also researched).

1.3. Methodology

The thesis is divided in three stages: the literature study, the case study and the data processing and document writing. In every stage one or more sub research questions are (partially) answered. These stages are depicted in figure 1.

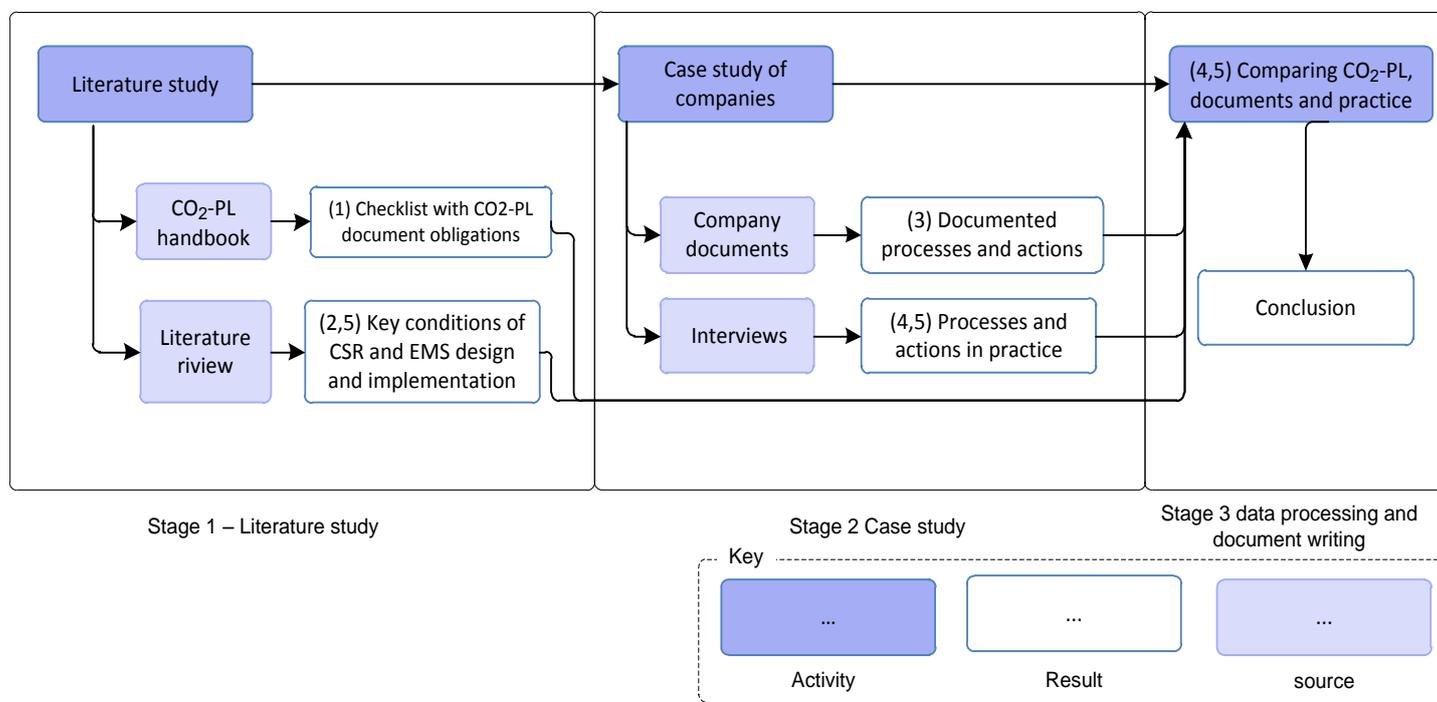


Figure 1: Three stage of the research.

Literature study

During the literature study a checklist is drafted in order to assess completeness of the CP and EMP of the companies. All obligations of the CO₂PL handbook on the CP and EMP are included in this checklist. This checklist is also used as a basis for the interviews and thus to determine whether the CO₂PL management systems of the companies corresponds to the CP and EMP.

The checklist only provides insight in the differences and similarities between the handbook, CP, EMP and the management system in practice (research questions 3 and 4). It does not show the causes or effects of the differences and similarities. Therefore a literature review is used to gain understanding which obligations are important and why this is the case. This understanding and the outcome of the interviews are used to explain causes and effects of the use or absence of the obligations. Literature on CSR and energy management is reviewed because only a very limited amount of literature on the implementation of CO₂PL management systems is available. CSR and energy management literature is a good substitute because these systems are comparable to the CO₂PL.

Case study

A case study is used to research the CP, EMP and the management system in practice of seven companies. A case study is effective in organisational research because much information can be obtained on a limited number of groups or individuals (in this research companies). The case study is however not suitable for doing quantitative research and taking large samples as much information per subject is gathered and much time per subject is needed (Cassell and Symon, 2004). This method selected because each researched company needs to be examined individually in order to answer the

research questions. The case study in this research consists out of the assessment of the CP and EMP of the companies and an interview with the CO₂PL coordinator and potentially another employee.

The interviews can be subdivided in two parts. In the first section questions are asked about the management system that is used in practice and how the obligations of the handbook are included in this system. This section provided the information which is needed to compare the management system used in practices with the documents. In the second section more information is gained on the reasons that companies used or deviate from the CP and EMP.

2. The CO₂ Performance Ladder

In this chapter the history and basic principles of the CO₂ Performance Ladder (CO₂PL) are explained.

2.1. History of the CO₂ Performance Ladder

In 2009 ProRail introduced the CO₂PL in order to take CO₂ emission reduction into account in their tendering process. The CO₂PL is a certification scheme designed to decrease the CO₂ emission of companies and their suppliers by obligating companies to set up an energy and CO₂ management system. If companies meet specific requirements, they can obtain a 'CO₂ conscious certificate' of level 1 till 5. This certificate does not only give recognition to the company's efforts with regard to reducing energy use and CO₂ emissions, but also gives them a competitive advantage in the tendering process.

In 2011 the ownership of the CO₂PL ladder was transferred to the Foundation of Climate-Friendly Procurement and Business (Stichting Klimaatvriendelijk Aanbesteden & Ondernemen (SKAO)). This transfer made application of the CO₂PL possible for other commissioning parties as well.

Regulations and obligations of the CO₂PL can be found in the CO₂PL handbook (SKAO, 2011a). The handbook has been updated regularly during the past years. The different versions of the handbook which are available are:

- 1.0: 12-2009 Start of the CO₂PL with several different official documents. (ProRail, 2010)
- 1.1: 23-09-2010 First merged handbook. (ProRail, 2010)
- 1.2: 25-12-2010 During this version of the handbook the ownership was transferred to SKAO. (SKAO, 2011a)
- 2.0: 23-06-2011 First handbook designed by SKAO. (SKAO, 2011a)
- 2.1: 18-07-2012 Most recent handbook. (SKAO, 2012)

Only ProRail still accepts certificate versions 1.1 and 1.2. More than half of the companies at level 5 currently hold a certificate based on handbook 2.0.

2.2. Structure of the CO₂ Performance Ladder

The requirements that need to be met in order to obtain a certificate are categorised in 5 levels (1-5) and 4 aspects (aspect A, aspect B, aspect C, aspect D).

- Aspect A = Insight. Companies should identify their scope 1, 2 and 3 emissions.
- Aspect B = Reduction. Once insight has been acquired emission objectives and the corresponding emission reduction measures can be set.
- Aspect C = Transparency. The CO₂ footprint, the goals, the reduction measures and other facts should be communicated in order to gain recognition and motivate others to decrease their emission.
- Aspect D = Participation. In addition to decreasing its own CO₂ emission, a company starts or joins initiatives in order to reduce CO₂ emissions elsewhere in or outside the sector. The reduction is reached with other companies through chain and sector initiatives.

Every level is subdivided in these 4 aspects and every aspect of every level has at least one	Aspect	Requirements
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requirement. For example the requirements of level 1.A are shown in table 1.10		
1A	<i>The company / tenderer has partial insight into energy consumption</i>	<i>1.A.1. Identification and analysis of energy flows of the company and the projects for which a CO₂-related award advantage has been obtained, have taken place.</i>
		<i>1.A.2. All energy flows of the company and the projects for which a CO₂-related award advantage has been obtained, have been demonstrably recorded.</i>
		<i>1.A.3. This list is regularly followed up and kept up to date.</i>

Table 1: Requirements of CO₂PL level 1 aspect A (SKAO, 2011a)

Table 1 shows all requirements of level 1 aspect A. As the level increases the requirements become more challenging. A company needs to meet the requirements of the desired level as well as the requirements of all levels below that in order to be awarded with a certificate; In order to reach level 5 the requirements of level 1, 2, 3, 4 and 5 need to be met.

The CO₂PL is based on the Capability Maturity Model (CMM). When the level of a company on the CO₂PL increase, the actions and processes of the companies become more specific and structured (Curtis et al. 1995). This increases the effort that companies need to put before obtaining a CO₂PL certificate. The virtual discount and thus the gaining's also increase. Because this structure is used the requirements for the lower levels are more qualitative then the ones at higher levels, and only focus on scope 1 and 2. At the higher level the requirements become more quantitative. At levels 4 and 5 the scope 3 emissions also need to be included.

2.3. Fictive discount

The tendering bid is often an important criterion in the tendering process. A company with a CO₂PL certificate receives a competitive advantage in the form of a fictive discount. This applies only for tenders on which CO₂PL award advantage can be obtained (this is specified in the tender requirements). The amount of fictive discount is dependent on the certificate level of the company. The higher the level, the higher the fictive discount. A calculation example of the fictive discount is shown in table 2.

Company	tender bid	certificate level	fictive discount	virtual bid	Win ?	revenue
A	1.000.000	5	10%	900.000	Yes	1.000.000
B	950.000	3	4%	912.000	No	0
C	950.000	No	0%	950.000	No	0

Table 2: Fictive discount of the CO₂PL (assuming that the score of all other tendering criteria (if included) are equal among the companies)

The table shows that a company with a higher tendering bid can win the contract because it registered for the tender with the lowest virtual bid. The fictive discount percentage for each level can vary among tender issuing companies. Therefore the impact of a CO₂PL certificate varies between tenders.

2.4. Ladder certifying institution audits

After the needed requirements are met a company hires a ladder CI to verify that enough requirements are met to award the company with a certificate. Once a certificate is acquired, an audit needs to be performed by the ladder CI every year. During this annual audit the ladder CI checks if the current level is still applicable. The auditing guidelines for the annual audit are different from the initial auditing guidelines. (SKAO, 2011a)

Three years after the initial audit, a reassessment of the requirements needs to be carried out. During the reassessment the ladder CI determines whether a new certificate will be issued. During this reassessment the level of the companies is checked, based on the initial auditing guidelines. During the reassessments the requirements of the most recent version of the handbook are checked. It is thus not possible that companies hold a valid certificate of a handbook version older than three years.

2.5. Awarding points

After a company is convinced it meets the requirements of the desired level, a Ladder Certifying Institution (ladder CI) is hired to verify that enough requirements are met. A company can obtain 25 points per aspect of every level. At least 20 points per aspect need to be obtained with an average of 22,5 points for the 4 aspects of each level. Weighting factors are taken into account in calculating these averages (A=40%, B=30% C=20% D=10%). This increases the importance of aspects A and B and decreases the importance of C and D.

Different requirements are worth different amounts of points. It is therefore not necessary to meet all the requirements in order to acquire enough points. Some requirements are worth more than 5 points. These requirements need to be met because it is not possible to reach the needed 20 points without them. It is also possible to receive points for partially met requirement. The amount of points is then proportional to the percentage of the requirement that is fulfilled.

3. Energy Management Programme and Communication Plan

In the previous chapter the basic principles of the CO₂PL were explained. In this chapter the two requirements which are the most important for this research are explained in more detail. These two requirements are: the Energy Management Programme (EMP) (3.B.2) and the Communication Plan (CP) (3.C.2).

This chapter shows all obligations on the EMP and CP which are included in the handbook. The checklist at the end of this chapter shows all obligations of which the companies EMPs and CPs will be reviewed.

The obligations are divided in three groups: obligations which are included in the handbook, obligations which are included in the appendix and assessment guidelines for CIs which are included in the appendix. The appendix is especially included for the Ladder CI and not for the companies. All obligations are however included in the handbook and thus available for all companies and CI's.

3.1. Obligations for the Energy Management Programme

The certification requirements

Table 3 shows that aspect B (reduction) at level 3 (3.B.) is divided in 2 requirements. 3.B.1 states that the company should have reduction objectives for its own organizations (scope 1 and 2) and an action plan. Requirement 3.B.2. states that the EMP should be drafted. For 1.B and 2.B a company should research the possibilities and have a qualitative description of the energy reduction ambitions. Table 3 shows requirement 3.B.1. and 3.B.2 from the handbook.

3.B	<i>The company has quantitative CO₂ reduction objectives for its own organization</i>	<p>3.B.1. <i>The company has drawn up a quantitative reduction objective for scope 1 & 2 emissions of the company 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 a related action plan, including the measures to be taken on the projects.</i></p> <p>3.B.2. <i>The company has drawn up an energy management programme (in accordance with EN16001 or equivalent), which has been endorsed by higher-tier management, communicated internally and externally, and implemented within the company and on the projects for which a CO₂-related award advantage has been obtained.</i></p>
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Table 3: Requirement 3.B.1. and 3.B.2 from the handbook. (SKAO, 2011a)

Table 3 shows that there are four obligations to the EMP: The EMP should be endorsed by the higher-tier management, the EMP should be internally and externally communicated and that it should be implemented in the company and projects. The first two obligations are included in the checklist in the end of this chapter. The third obligation is not included in the checklist because the obligation is similar to the main research questions and is thus answered in the conclusions of this research.

Explanation of the obligations in the appendix

In the appendix of the CO₂PL handbook a more extensive explanation of the EMP is given. In the appendix the following is stated:

'The programme consists at any rate of the following components:

1. *The action plan from 3B1 if it meets the criteria of 3B1, and*
2. *The provisions of § 3.3.3 of the EN 16001, and*
3. *Per project: the CO₂ reduction per measure in quantitative terms, and*
4. *An overview of the responsibilities per measure*

The reference to the EN 16001 provides a reference, a guideline, a yardstick. The implementation of this entire management system is not a requirement.' (With the exception of § 3.3.3) (SKAO, 2011a)

Ad 1. Action plan from 3.B.1

As shown in table 3, requirement 3.B.1 has two obligations: the action plan of the scope 1 and 2 reduction measures and the reductions objectives of scope 1 and 2 are included. The only criterion that applies to the action plans is that it should be stated which reduction measures are included in the projects. The reduction measures which are going to be taken by the company should thus be included in the EMP.

Ad 2. EN 16001 § 3.3.3 Energy objectives, targets and programme(s)

The EN 16001 is a guideline for drafting an Energy Management System (EMS). It states that (EN 16001, 2009):

- Energy objectives should be established and documented;
- Objectives and targets should be consistent with the company's policy;
- A timeframe should be added to the goals;
- A designation of responsibility is included;
- The means and timeframe by which individual targets are to be achieved;
- The document is updated at pre-determined intervals.

The company meets the EN 16001 § 3.3.3 when all these obligations are met.

Ad 3. Per project: the CO₂ reduction per measure in quantitative terms

The third obligation of the EMP is the quantification of the reduction measures of each measure which is implemented in each project which is granted with CO₂PL award advantage (this is also part of 3.B.1). All measures described in the action plan of 3.B.1 which are reasonably possible to implement at the projects should be implemented.

Ad 4. An overview of the responsibilities per measure

In this overview it should be stated who is responsible for the implementation of the measure. This obligation is also included in EN 16001 § 3.3.3. This obligation is thus included twice in the CO₂PL handbook.

EN 16001

The handbook states that the EN 16001 or equivalent (for example the OHSAS 18001) should be used as a guideline for drafting the EMP. The handbook states:

"In order to meet the requirements (iterative, process-based) continually, it is expected in terms of the EN 16001 that at least the components from section 3.3.1, 3.5.1 and 3.5.3 of the EN 16001 are included". (SKAO, 2011a)

"The reference to the EN 16001 provides a reference, a guideline, a yardstick. The implementation of this entire management system is not a requirement." (SKAO, 2011a)

It is thus not obligated to use the EN 16001. It is merely a recommended tool that can be used to meet the obligations. Therefore only the components of § 3.3.3. are included in the checklist.

Ladder CI audit guidelines

The ladder CI checks whether the audited company meets the requirements specified in the handbook. For some requirements extra auditing guidelines are added to the handbook. For the EMP no extra auditing guidelines for the initial audit have been added. Some guidelines for the annual audit have been included though.

Most of the obligations mentioned in this extra auditing guideline are also included in the other parts of the CO₂PL handbook. Other obligations that are included in the annual audit guideline but not in the other obligations are:

- The ladder CI should check if the Deming cycle is used and improved. The Deming or Plan-Do-Check-Act cycle is a schematic framework that can be used to improve the management system. The Deming cycle is mentioned only once before in brackets at the explanation of aspect B. Using the Deming cycle is thus not a real obligation of the handbook. Therefore it is not included in the checklist;
- The ladder CI should check whether measures for the company, and the projects for which the company will apply them, are endorsed by the higher-tier management. This obligation is included in the checklist;
- The ladder CI should check whether this endorsement is included in the steering cycle of requirement 2.C.2, which states that companies should have an effective steering cycle with regard to CO₂ reduction. This obligation is not included in the checklist as this is not part of the EMP or CP but of requirement 2.C.2;
- The ladder CI should check whether the responsible persons have demonstrably undertaken activities in accordance with their responsibilities of the EMP. This obligation is included in the interviewing questions.

Some of the auditing guidelines state that progress should be made. Making progress is not included in the checklist because only the most recent documents were checked.

Checklist for the Energy Management Plan

All obligations for the EMP which are checked during the document check and the interviews are shown in the checklist in table 4.

Obligation	Source
Endorsed by higher-tier management	3.B.2 (main document)
Communicated internally and externally	3.B.2 (main document)
Reduction measures are included.	3.B.1 (appendix)
Per project: the CO ₂ reduction per measure	3.B.2 (appendix)
Overview of responsibilities is included	3.B.2, EN 16001 § 3.3.3
Energy objectives included	EN 16001 § 3.3.3
Objectives and targets are consistent with the company policy	EN 16001 § 3.3.3
Time frame is included for reduction objectives	EN 16001 § 3.3.3
Time frame is included for reduction measures	EN 16001 § 3.3.3
The means and time frame by which individual targets are to be achieved	EN 16001 § 3.3.3
The document is updated at pre-determined intervals	EN 16001 § 3.3.3

Table 4: Checklist for researching the EMP of the companies.

3.2. Obligations on the Communication Plan

Certification requirements

Requirement 3.C.2. is the communication plan (CP). 3.C states that a company communicates internally and externally on its carbon footprint and reduction objectives. 1.C and 2.C state that the company communicates ad hoc about its energy reduction policy and the company communicates at least internally and possibly externally about its energy policy. The obligations of the CP do not refer to any other document in contrast to the EMP which refers to the EN 16001. The handbook itself specifies a number of obligations and auditing guidelines. Table 5 shows the requirements of the CP requirement.

3.C	<i>The company has communicates internally and</i>	<i>3.C.1. The company communicates, internally and externally, and on a structural basis, its CO₂ footprint (scope 1 & 2 emissions) and the quantitative reduction objectives of the company and the measures in projects for which a CO₂-related award advantage has been obtained. The communications contain as a minimum the energy policy and reduction objectives of the</i>
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externally on its carbon footprint and reduction objectives	company and the aforementioned measures, opportunities for individual contributions, information concerning current levels of energy consumption and trends in the company and on the projects.
	3.C.2. The company has a documented internal and external communication plan with documented tasks, responsibilities and methods of communication for the company and the projects for which a CO ₂ -related award advantage has been obtained.

Table 5: Requirement 3.C.2. (SKAO, 2011a)

Table 5 shows that there are two obligations to the CP. The CP should have:

- Documented tasks and responsibilities for the company and the projects for which a CO₂-related award advantage has been obtained;
- Methods of communication for the company and the projects for which a CO₂-related award advantage has been obtained.

Specifications of the certifications requirements in the appendix

In the appendix of the CO₂PL handbook a more extensive explanation of the CP is given. In the appendix it is stated that the CP should include:

- The message per target group;
- The communication objectives;
- The communication methods;
- Responsible parties and implementers;
- The planning, including frequency of actions;
- All communication actions taken in reference to CO₂-emission reduction;
- An overview of responsible persons.

In the checklist which is used to assess the CP the overview of responsible persons, parties and implementers is combined to one obligation.

Ladder CI audit guidelines

The ladder CI guidelines are valid for both the initial audit as for the annual audit. The obligations which are not included in the requirements but are included in the auditing guidelines are:

- *“that the CP is up to date on the basis of:*
 - *The list of external interested parties;*
 - *Current projects for which CO₂-related award advantage has been obtained;*
 - *Trend in energy consumption and CO₂ emission;*
 - *The boundaries of the company”* (SKAO, 2011a)
- That the responsible persons are aware of their responsibilities and take action in accordance with the CP

During the interview, it is checked whether or not the responsible persons take action. The other questions are checked more general as only questions on the way and frequency of the updating the CP in general will be asked.

Checklist for the communication plan

All obligations for the EMP are shown in the checklist in table 6.

Obligation	Source
Tasks and responsibilities are included	3.C.2 (main document)
Communication methods are included	3.C.2 (main document)
The message per target group is included	3.C.2 (appendix)

The communication objectives are included	3.C.2 (appendix)
The planning with the frequency of actions is included	3.C.2 (appendix)
Communication actions taken are included	3.C.2 (appendix)

Table 6: Checklist with obligations for the CP from the handbook.

4. Literature review

In this literature review a theoretical framework for design and implementations of a CSR scheme which is close to the CO₂PL is selected out of multiple frameworks. This theoretical framework is used to gain understanding in which obligations are important and why this is the case. First the framework is explained and compared to the CO₂PL. Next the key conditions are listed and it is explained if these factors should be valid for the CO₂PL.

4.1. A theoretical framework for designing and implementing Corporate Social Responsibility schemes

There are various frameworks for design and implementation of CSR schemes. Maon et al. (2008) introduce an integrative framework for CSR design and implementation. They combined five different frameworks (Cramer, 2005; Khoo and Tan, 2002; Maignan, et al, 2005; Panapanaan et al., 2003; Werre, 2003) out of the literature, a case study on three different companies and Lewin's change model into one framework of CSR design and implementation. This framework is suitable to compare with the implementation of the CO₂PL within firms because it consists out of nine logical steps, which can be compared with the steps of the CO₂PL. Also, the importance of these steps is explained in detail which increases the understanding of the conditions. Most other frameworks concentrate on a more limited number of less elaborated steps (for example: Cramer, 2005; Key, 1999; Khoo and Tan, 2002; Panapanaan et al., 2003; Rama et al., 2009; Werre, 2003).

The framework by Maon et al. (2008) is divided in four stages:

- Sensitize, during this stage the higher management becomes aware of the need of CSR for the organization;
- Unfreeze, during this stage the usual way of working is "unlearned" in order to prepare the organization for the upcoming change. Also the new CSR system is designed;
- Move, during this stage the CSR system is implemented into the organization; and
- Refreeze, during this stage the new norms and values are anchored in the organization to make sure that employees do not revert to their old habits over time.

The framework is also divided in nine steps:

1. Raising CSR awareness inside the organization;
2. Assessing corporate purpose in a societal context;
3. Establishing a vision of CSR;
4. Assess current CSR status;
5. Developing a CSR-integrated strategic plan;
6. Implementing the CSR-integrated strategic plan;
7. Communicating about CSR commitments and performance;
8. Evaluating CSR integrated strategies and communication;
9. Institutionalizing CSR.

These stages and steps are also shown in figure 2:

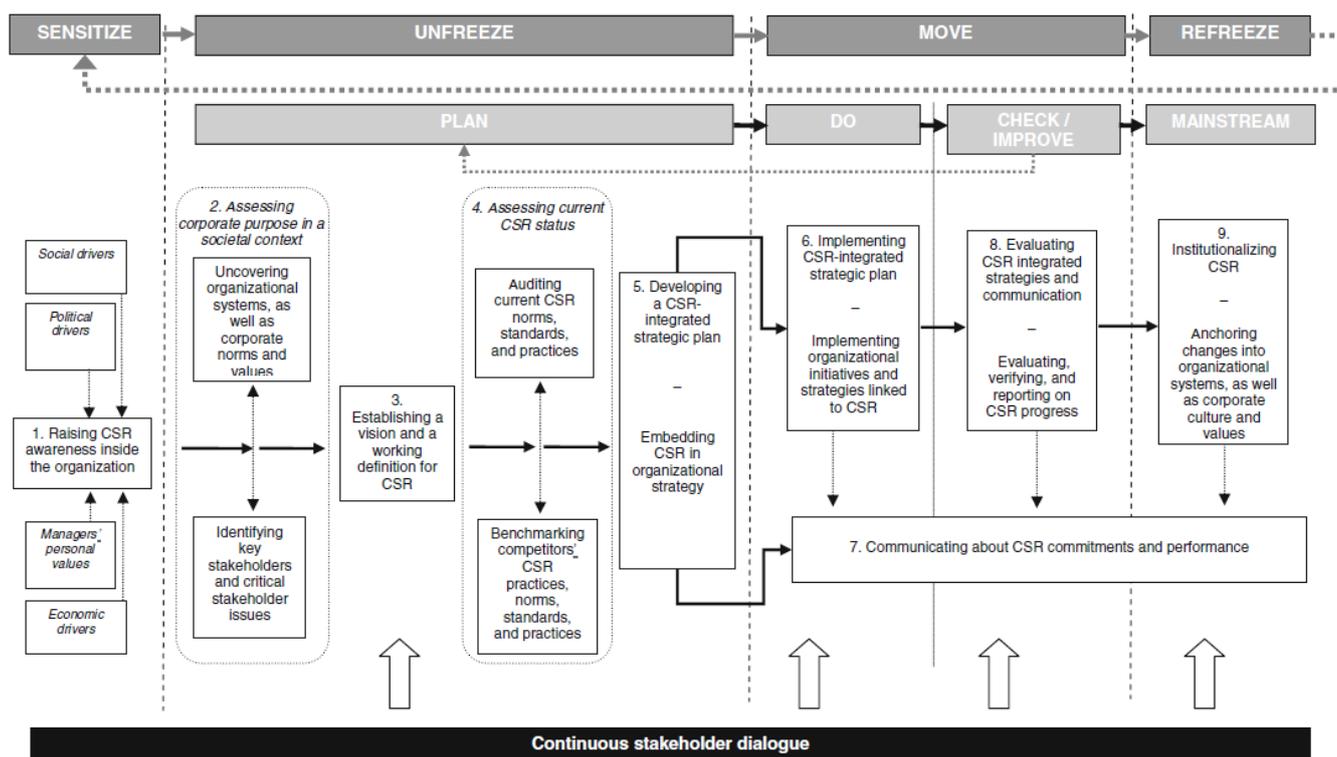


Figure 2; integrative framework for designing and implementing CSR. (Maon et al. (2008))

Raising CSR awareness inside the organization

The first step of the framework is increasing the CSR awareness in the organization, especially managers. This makes the organizations realize that a CSR system needs to be designed and implemented (Maon et al., 2008). In this step the driver which raises the awareness is important. Drivers can be social (pressure from Non-Governmental Organizations (NGOs) or labor unions), political (new regulations), manager's personal values or economic drivers (cost of resources or cost of accidents).

For many firms the CO₂PL the economic driver is the most important. The fictive discount is a very clear award and the most important driver for most companies to start implementing the CO₂PL. Efficiency improvement is an economic driver that is also important for companies. The manager's personal values is a driver that is important (in combinations with other drivers) for about half of the companies. (Wortmann, 2012)

Assessing corporate purpose in a societal context

This step is divided in two actions:

- Uncovering organizational systems, as well as corporate norms and values;
- Identifying key stakeholders and critical stakeholder issues.

In order to design an effective and efficient CSR program the company's norms and values should be taken into account (Maignan et al., 2005; Werre, 2003). Fitting the CSR program to the corporate norms demands awareness and understanding of these norms and the company's vision. This fit is needed because these corporate values and norms affect the decisions of employees. This point is of less importance for the CO₂PL then for other CSR schemes. For CSR schemes a company needs to decide what subjects are important for the organization (child labor, CO₂ emission reduction, educational level of employees etc. (Pava, 2008; Zhao, 2012)). The determination of this direction is more limited for the CO₂PL because the goal is CO₂ emission reduction. The companies can however still make strategic decisions for the implementation of the CO₂PL and create a system that is quickly accepted by the employees (for example decreasing energy use, reducing costs or reducing CO₂ emission). This is, however, not prescribed by the CO₂PL handbook.

In CSR implementation the stakeholder dialog is a very important step (Riordan et al., 2008). This dialog provides the necessary insights to determine the goals of the CSR system. Different stakeholders however have different interest. It is therefore important to identify the key stakeholders and their critical issues. CO₂PL requirement 2.C.3 states that the company should identify all the external interested parties for the company. It is, however, not stated that companies need or even suggested to take the stakeholders interests into account when determining the goals. The list of parties is used to guide communication mainly as this list is used in the CP. Because the ladder already specifies that CO₂ reduction should be accomplished the importance of the stakeholder dialog is decreased. Some stakeholders are however already included in the CO₂PL. Because the tendering party (customer) indicates that CO₂PL award advantage can be gained this stakeholder is always taken into account.

Requirement 4.C.1 states that the company needs to maintain a dialog with the government and NGO's. Related to that, 4.C.2 states that the company should identify and address areas of concern expressed by the governmental bodies or NGOs. This is however only a very limited stakeholder dialog as no customers or employees are included in this dialog. Also the explanations included in the handbook on the content this dialog does not specify that it should be a stakeholders dialog. Some other requirements also include some parts of the stakeholder dialog, however none are complete. Internal communication for example, keeps employees informed but using or asking for feedback is not an obligation of the CO₂PL. Therefore this is not part of a stakeholder dialog.

Establishing a vision on CSR

After the key stakeholders and their interest are clear the company can establish a companywide CSR vision. This vision helps firms in guiding actions and making sure that everybody works in the same direction. The vision of CSR is important, because many subjects can be part of this system. For the CO₂PL the only subjects are CO₂ emission reduction and decrease energy use. Therefore, the vision is already included in the CO₂PL handbook for the most part. It is possible however to determine a CO₂ reduction approach for the company. For example: reduce CO₂ emission in order to decrease climate change, decrease the depletion of natural resources or reduced cost by decreasing energy use. All these approaches can be used to decrease CO₂ emission however different visions can be suitable for different companies.

Assess current CSR status

After the vision has become clear it is possible to determine the status of CSR. The current status of CSR is needed in order to develop the strategic plan. If part of the vision is already realized within the company, other parts have priority (for example when the use of child labor is already extremely low the company can focus of environmental problems during production) (Maignan et al., 2005). A baseline is also needed to monitor the progress. Within the CO₂PL, this is done within aspect A. Within this aspect the current CO₂ emission is determined. This step is thus included in the CO₂PL.

It is also important to benchmark the companies CSR performance and practices against the performance of other comparable companies (Maon et al., 2008). This makes it possible to measure the gap between the CSR statuses of the two companies and increases the awareness of the current CSR status of the company. This step is also included in the handbook as it is stated that the reduction goals should be ambitious and comparable to other companies (SKAO, 2011a).

Developing a CSR-integrated strategic plan

After the current status of CSR is clear the CSR-integrated strategic plan is developed. First the vision and values of the company are translated into goals, performance measures and guiding principles. After which, responsibilities are assigned and a plan should be included to assess and increase knowledge level of the employees to ensure that the employees are able to execute their tasks.

For the CO₂PL the Energy Management Programme (EMP) needs to be drafted. The allocation of responsibilities and the reduction measures should be included into this plan. The measures taken are however not part of the CSR integrated strategic plan. Only the system that is used to come up with the reduction measures is part of this plan. For the CO₂PL the goals do not have to be included in the EMP. In the handbook no obligations are included on the knowledge level of these people. The EMP is thus comparable to the CSR-integrated strategic plan but there are some important differences.

Implementing the CSR-integrated strategic plan

After the strategic plan is drafted, it will be implemented into the company. During this step not only higher and middle management, but also other employees take active actions. The middle management implements the directions of the higher management which are elaborated in the strategic plan (Johnson & Scholes, 2002). For the CO₂PL it is stated that the EMP should be implemented. It is also stated that the EMP should be communicated internally and that the Ladder CI should check that the EMP is implemented in practice. This communication step shows that all employees should at least be able to know what the companies vision and strategy is for implementing the CO₂PL.

Communicating about CSR commitments and performance

An important step for the framework is communication during and after the implementation of the strategic plan. However, the message per step differs. During the implementation of the strategic plan, communication about progress of the implementation motivates and reassures people. Another communication goal during this step is clarifying misconceptions (Maignan et al., 2005). The higher management has an important motivational role during this step (Rodríguez et al., 2009; Werre, 2003). After the implementation of the strategic plan, communication should show the success of the CSR program to the employees. This helps to anchor the CSR program in the organization. During this step communication should also demonstrate the success to the other stakeholders.

Aspect C of the handbook is entirely dedicated to internal and external communication. The handbook thus recognizes that communication is important for the CO₂PL. It is specified that companies should include the communication objectives, methods and target groups in the CP. In the theoretical framework it is also stated that the communication plan should include the communication methods. A number of communication recommendations are thus the same. The CO₂PL handbook however leaves more room to the companies to elaborate communications based on their own preferences.

A difference in communication is that for the CO₂PL communication starts during the initial stages of the system (requirement 1.C.). For the framework, communication starts during implementation of the strategic plan.

Evaluating CSR integrated strategies

After implementation, the program is evaluated in order to check whether the program is working as supposed to and what parts can be improved. For the CO₂PL obligations for checking and improving the system are prescribed. The EMP and CP should be reviewed and improved every year and 2.C.2. states that a steering cycle to improve the system should be implemented for example. These obligations should be check by the ladder CI every audit.

Institutionalizing CSR

After the CSR system is perfected, the system needs to be anchored in the company to make sure that the system survives in the organization, especially during hard economic times. This can be done by including CSR in the long-term strategy and decision making guide or by establishing rewards/penalties for the employees. For the CO₂PL the annual audits ensure that the CO₂PL survives in the organization. This increases the chance that the system will “survive”.

Fundamental differences between CSR implementation and the CO₂PL

All steps of the theoretical framework are explained and related to the CO₂PL. So far the most important difference is that CSR is a container concept with a lot of possible subjects and the CO₂PL only has a few subjects. Because of this, in the framework some steps (for example the stakeholder dialog) are included to determine the important CSR subjects (like decreasing child labor or decreasing pollution) for the company. This is easier for the CO₂PL as CO₂ emission reduction is already the subject of the program and the companies can only determine their strategy (emission reduction, reduction of energy use, preserve resources or cost reduction).

There is however another important difference which is not visible within the explanation of the framework. Within the framework the actions are categorized based on the type of actions (for example: stakeholder dialog, communication or implementation). The CO₂PL is based on the Capability Maturity Model (CMM) (SKAO 2011a). Therefore all steps are first taken roughly and are perfected and extended on a higher level. Because of this, the steps of the framework are actually taken five times. Every time when the certificate level increases, a new (or more complete) base line is included, reduction and communication need to be improved and participation need to be intensified.

Also one aspect of the CO₂PL is not included in the theoretical framework. Aspect D obligates companies to join and start sector initiatives. This forces companies to invest in collaborating with other companies in order to share knowledge among companies. In the framework the system is only based on one company.

4.2. Key conditions

Within the framework and other literature sources, key conditions for implementing a CSR or environmental management system (EMS) are shown. The most common critical factors are listed below. It is also explained if and why the factors are also important for the CO₂PL.

1. The coordinating and executive staff get sufficient resources and time to reach the intended goals (Biondi et al., 2000; Gracia Rodríguez et al., 2009; Hillary, 2004);
2. The executive staff and coordinators have enough knowledge to fulfill their tasks (Biondi et al., 2000; Gracia Rodríguez et al., 2009; Zwetsloot 2003);
3. The higher management shows its commitment to the system in order to increase acceptance among the employees (Gracia Rodríguez et al., 2009; Lyon, 2004; Werre, 2003;);
4. The goals which are set are consistent with the company's vision, norms and values (Maignan et al., 2005; Werre, 2003);
5. The management system should be integrated into the other companies systems, such as ISO management systems; (Gracia Rodríguez et al., 2009; Maignan et al., 2005);
6. The management system should not count on quick win solutions but long term wins (Lyon 2004; Maon et al., 2008).

Ad. 1 Sufficient resources and time

The goal of a CSR system is to structurally incorporate other criteria in the decision making process then only initial cost. The willingness to spend money on CSR decreases especially during hard financial times, as mentioned in the framework. In order to make sure that enough resources and time are available for CSR a budget and time allocations should be clear at all times (Gracia Rodríguez et al., 2009; Hillary, 2004). This point is especially critical for SMEs because resources are often scarce for these companies and . (Biondi et al., 2000)

This factor could also be important for the CO₂PL, because implementing emission reduction measures nearly always cost money initially. Even reduction measures which are financially attractive in the long run are harder to implement in hard financial times. 5.D.2 states that the company should set a budget for setting up or participating in a sector-wide CO₂ emission programme. The EN 16001

also states that the means and time frame by which individual targets are to be achieved should be included. This factor is thus included for aspects B and D. Primum also concluded that not all reduction measures which are included in the EMP are implemented in practice. This is probably the case because not enough recourses are available for implementing the measures (Wortmann, 2012)

Ad. 2 The executive staff and coordinators have enough knowledge to fulfill their tasks

Training the coordinating and executing staff increases their awareness of the need of CSR and helps them to understand how CSR affects them (Biondi et al., 2000; Gracia Rodríguez et al., 2009; Zwetsloot, 2003).

CO₂ emission reduction is a much simpler concept with less different subjects than CSR (the subject of the CO₂PL is CO₂ reduction and CSR can also be on other subjects like child labor and pollution). Because of this the amount of training needed for the CO₂PL is relatively low. The CO₂PL itself is a somewhat more complicated systems which the CSR coordinator or CO₂PL coordinator must master. It is however not necessary that all employees understand the entire system as most employees do not have to write CO₂PL documents or coordinate the system. This factor is included in the checklist and the interviews with the remark that training of the coordinating and executing staff is of less importance for the CO₂PL than for CSR.

Ad. 3 The higher management shows its commitment to the system in order to increase acceptance

The management has an exemplary function within the company. The management should create enthusiasm by providing regular updates on progress and rewarding people that accomplish CSR successes (Gracia Rodríguez et al., 2009; Lyon, 2004; Werre, 2003)

This factor is also valid for the CO₂PL. As with CSR, employees need to be encouraged to make different decisions. Also the measures are approved and can thus be implemented directly and will not be rejected. The role of the management is however also depended on the number of employees that is contributing to emission reduction. If the reduction measures are implemented by a small group the motivating role of the management is less important. When all employees are asked to contribute to the reduction, the motivational role of the management is more important. The contribution of the management is included in the CO₂PL handbook twice. The EMP and the objectives should be endorsed by the higher-tier management.

Ad. 4 The goals which are set are consistent with the company's vision, norms and values

The vision of a company is a source of inspiration for the employees of the company. In order to increase the chance of acceptance of CSR, the CSR vision should be in compliance with the company's vision. (Maignan et al., 2005; Werre, 2003)

To increase acceptance it is important that the goals of company are in compliance with the company's vision. For the CO₂PL it is however only needed to draft an energy policy. This factor is more important for companies with a management system that includes multiple employees because it is then more important to motivate the employees. The EN 16001 also states that the objectives and targets should be in compliance with the company's objectives. This condition is therefore also included in the literature checklist.

Ad. 5 The management system should be integrated into the other company systems

The CSR management system should be integrated in the other management systems. This will make it easier for the employees and coordinators to use the system and it is easier to combine activities which will decrease cost (Gracia Rodríguez et al., 2009; Maignan et al., 2005),

This factor could also be valid for the CO₂PL. It should be even more important because it is a small system compared to CSR and it is thus less likely to use another separate management system. It is therefore logical that the CO₂PL is integrated with systems like the ISO regulations. This condition is included in the checklist and it is included in the interviews to research to what extent the system is integrated in practice.

Ad. 6 The management system should not count on quick win solutions but long term wins

CSR is a management strategy that is not based on quick fixes but long term wins (Lyon, 2004; Maon et al., 2008). Because of this, the company should also set long term goals and make decisions based on the long term. No obligation for the time horizon of the goals is included in the CO₂PL handbook.

This factor is also valid for the CO₂PL. The CO₂PL is a program in which the companies should put effort in reducing their emission every year. On the basis of the time horizon of goals, there is no difference between CSR and the CO₂PL. It is of course not wrong to choose the low hanging fruits first if these are also effective for the long term. The time horizon is included in the EMP assessment checklist and is included in the interviews.

These six critical factors are included in the document reviewing checklist and in the interviews to check if these factors are included in the EMP, CP and the management system in practice.

5. Results

In this chapter the results of the case studies of the companies are shown. In the case study the differences and similarities between: the company documents (EMP and CP), the obligations of the CO₂PL and the management systems practice are researched. In addition to that the use of the EMP and CP in the organisation is investigated. First the EMP and CP of the companies are reviewed in 5.1. After that the results of the interviews are shown in 5.2. During the interviews the CO₂PL management system of the companies are assessed.

5.1. EMP and CP document check

In chapter 3 “Energy Management Programme and Communication Plan” a list of the obligations of the EMP and CP was shown. Figures 3 and 4 show what percentage of these obligations can be found in the documents of the seven reviewed companies.

Handbook EMP obligations

Figure 3 shows how often the obligations of the EMP are included in the EMPs of the companies.

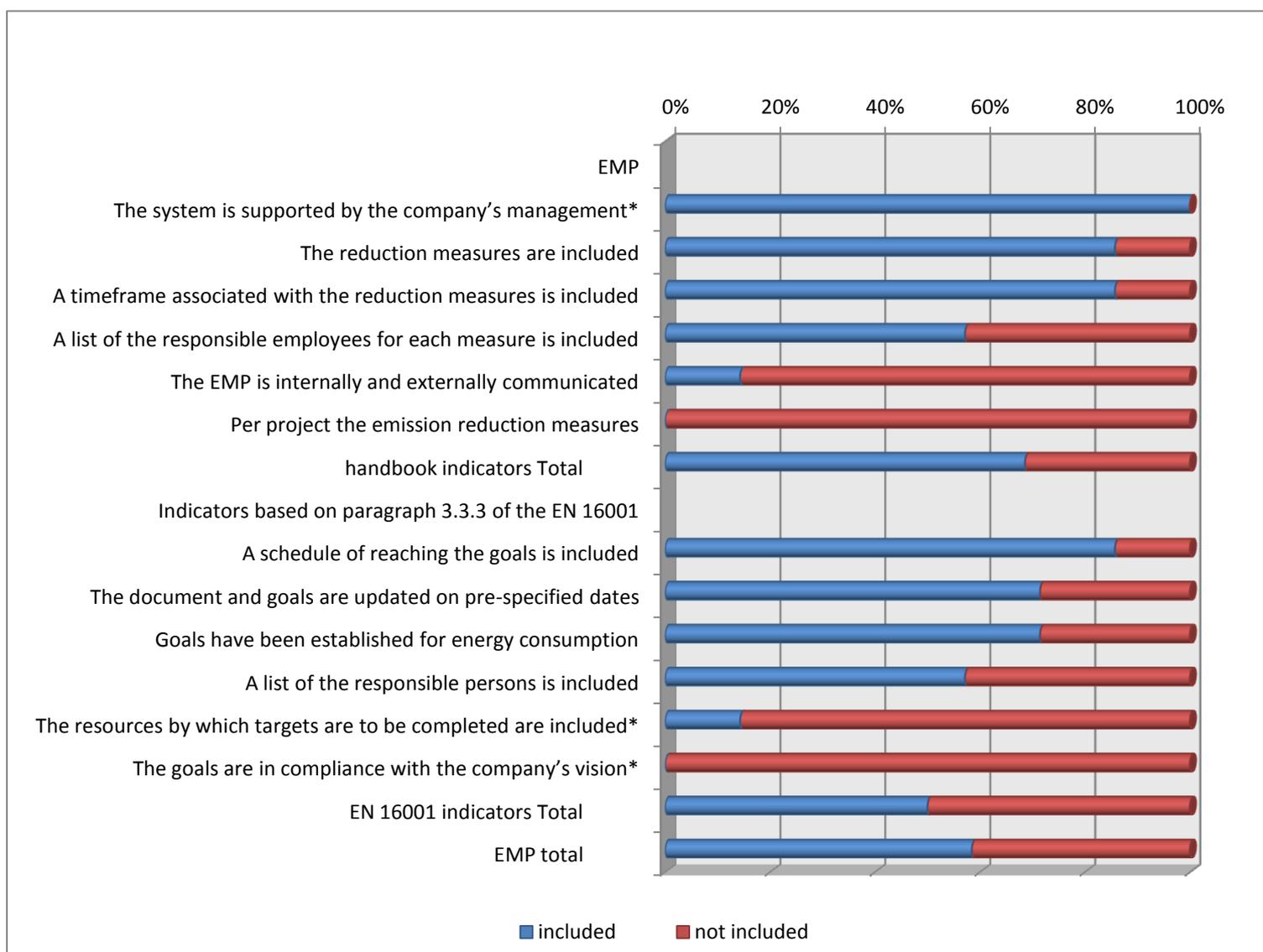


Figure 3: Outcome of EMP assessment. (*obligation/factor is included in the handbook and the literature)

There are big differences between the scores of the different obligations. The statement that the management supports the CO₂PL is included in all the seven EMPs but none of the documents explain if and how the goals are related to the company's strategy or vision. The obligations which are directly included in the handbook are included in the EMPs a little more often than the obligations from the EN 16001. The handbook and EN 16001 indicators are respectively included in 57% and 50% of the EMP documents. In total 54% of the obligations are included in the EMPs.

Two low scoring obligations (EMP is internally and externally communicated and the goals are in compliance with the company's vision) do not necessarily have to be included in the EMP. The CO₂PL handbook and EN 16001 state that the EMP needs to be communicated and that the reduction goals should be in compliance with the company's vision. It is however not stated that these steps should be documented or explained in the EMP. If these obligations have been implemented in practice, the company still meets these obligations. This is further researched during the interviews.

The worst scoring indicator (the reduction measures are specified per project) is not included in any of the EMPs. Also, the allocations of resources is only included in just one EMP. This is however an important obligation especially because Wortmann (2012) presumes that resources are now not sufficient to implement all reduction measures which are included in the EMPs. This means that reduction can increase when an allocation of resources is drafted and used in practice. These two indicators are further researched in the interviews.

CP obligations check

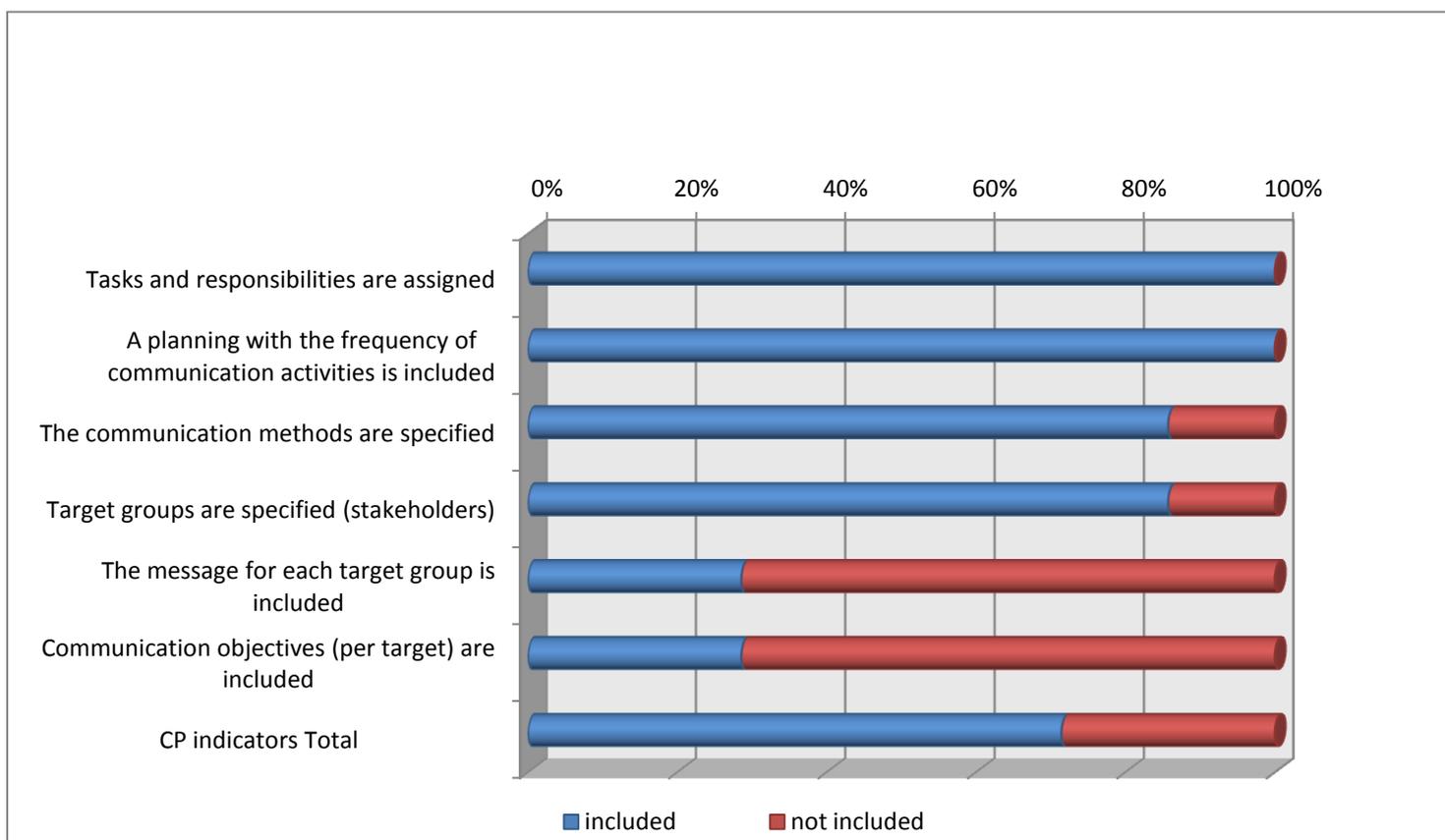


Figure 4: Outcome of the CP assessment.

Figure 4 shows the assessment of the CPs. It is clear that there is again a large difference between the scores of the obligations. In total 71% of the indicators across seven organizations are included in the CPs.

The companies score relatively low on specifying the message for each target group and specifying the communication objectives. All companies included the allocation of responsibility and the planning of the communication actions. These two obligations are further researched in the interviews.

5.2. EMP and CP in practice

In this chapter the outcome of the interviews is shown. During the interviews the content of the management documents are compared with the management system used in practice. In addition to that use of the management documents is researched.

Obligations of the EMPs in practice

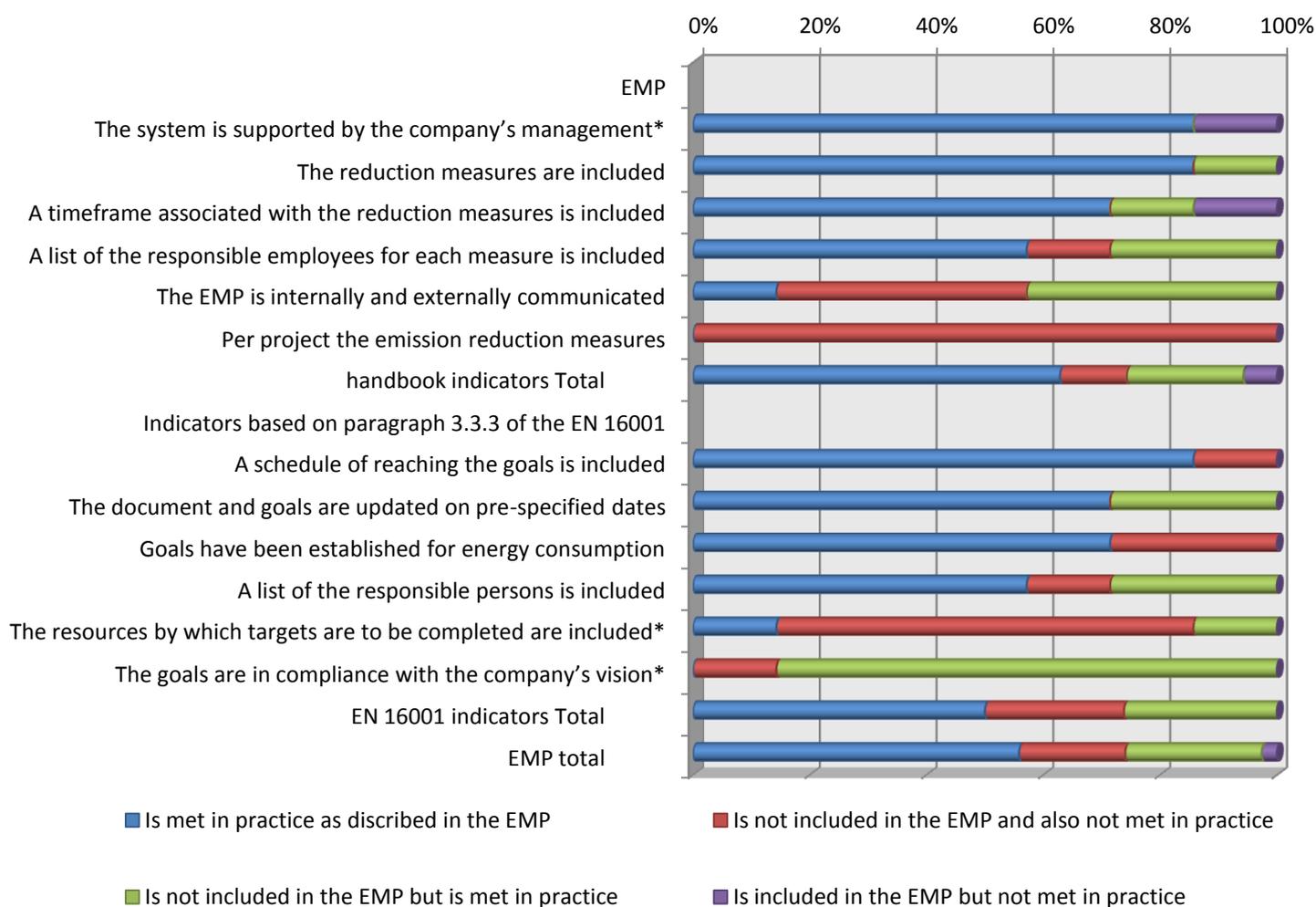


Figure 5: assessment EMP in practice. (*obligation/factor is included in the handbook and the literature)

Figure 5 shows the first part of the outcome of the interviews which shows to what extend the management system in practice corresponds to the two management documents. 51% of the obligations are included in the documents and are carried out in practice accordingly (the blue bars). The red bars show that 25% of the obligations are not included in the EMP and are also not met in practice. This is especially the case for allocating resources to reach targets and specifying the reduction measures per project. Green shows the obligations which are not included in the EMP but which are met in practice. This is the case for 21% of the obligations. This is especially the case for setting goals which are in compliance with the company's vision. The purple bars show that 2% of the obligations are included in the EMP but are not met (in compliance with the EMP) in practice.

The management systems in practice are in accordance with the EMPs for 75% of the obligations. 51% of the obligations are met in practice. 24% of the obligations are met in practice without being included in the EMP. Although this means that the energy management system in practice is more consistent with the CO₂PL handbook, the EMP is not strictly followed.

Communication of the EMP

Only one of the EMPs specifies that the EMP is communicated. Five of the seven companies have actively communicated the EMP internally. However, only two companies actually agree that it is useful to send the EMP to other employees and that it is read. The other three companies sent the EMP to the other employees because it is an obligation of the handbook. They however indicated that they do not expect that anybody reads it. The communication obligation of the CO₂PL implies that other employees should at least get the opportunity to contribute to the system or contribute to certain other CO₂ related actions. It is however not stated in the CO₂PL handbook that the CO₂PL management system should include multiple employees. Five companies indicated that this is a useless obligation because the EMP will not be read even when it is distributed internally. The company that uses the documents a lot will communicate anyway even if it would not be stated in the handbook because this is important for the functioning of the used management system. This indicates that the obligation is could be superfluous as the most common results is that companies send the EMP to employees when knowing that it is not read.

Specifying reduction measures per project

None of the researched companies specifies the reduction measures per project in the EMP or has a clear overview of what in practice. Some companies do have a general overview of the implemented reduction measures but none of the documents can be classified as an overview of the reduction measures per project. Most of the reduction measures are companywide measures (for example buying green electricity, driving efficient or use efficient lighting). As these measures have effect on all projects, companies do not specify these as implemented in a project. The companies also indicated that they do not see the purpose of including this information. As the purpose of this objective is very unclear, a way to increase the use of this obligation is to explain what the purpose of this obligation is. This can increase the acceptance of this obligation by the companies.

Allocating resources for achieving the CO₂ reduction goals

Five of the seven companies have not reserved specific resources for achieving targets or executing actions. Often the CO₂PL assigns the action to employees as an extra responsibility in addition to their other responsibilities. Wortmann (2012) implies that not all reduction measures which are included in the EMP are implemented because not enough resources are available. It is therefore expected that the CO₂ emission reduction can be increased when more companies meet this requirement. Other literature also indicates that this is an important part of a CSR management system (Biondi et al., 2000; Gracia Rodríguez et al., 2009; Hillary, 2004). Four companies did not include this in their EMP because they were unaware of the obligation. Of these four, one does have a clear budget in practice. The other two companies did not include this because it is hard to estimate how much time and money is needed for some actions. The best way to increase the number of companies that meet the obligation is thus by including it in the CO₂PL handbook instead of only in the EN 16001. Including this obligation in the handbook can increase the emission reduction that is realized by the companies.

Goals are in compliance with the companies vision

None of the companies included that their goals are in compliance with company's vision or that the company's vision was taken into account when determining the goals. However, six companies indicate during the interviews that the goals of the company are established so that they are in compliance with the company's vision or at least not the opposite of it. EN 16001 § 3.3.3 specifies that the companies vision needs to be taken into account not that this should be included in the EMP. Six of the seven companies thus meet this requirement. Having goals which are in compliance with the company's vision will increase acceptance of CSR (Maignan et al., 2005; Werre, 2003). For the

CO₂PL this can thus increase the acceptance of the employees. The acceptance of the employees is of more importance for a companywide system than for a management system that included only a handful of employees. This obligation is thus met by six of the seven companies but the importance of this obligation is not equal among companies because the management systems vary.

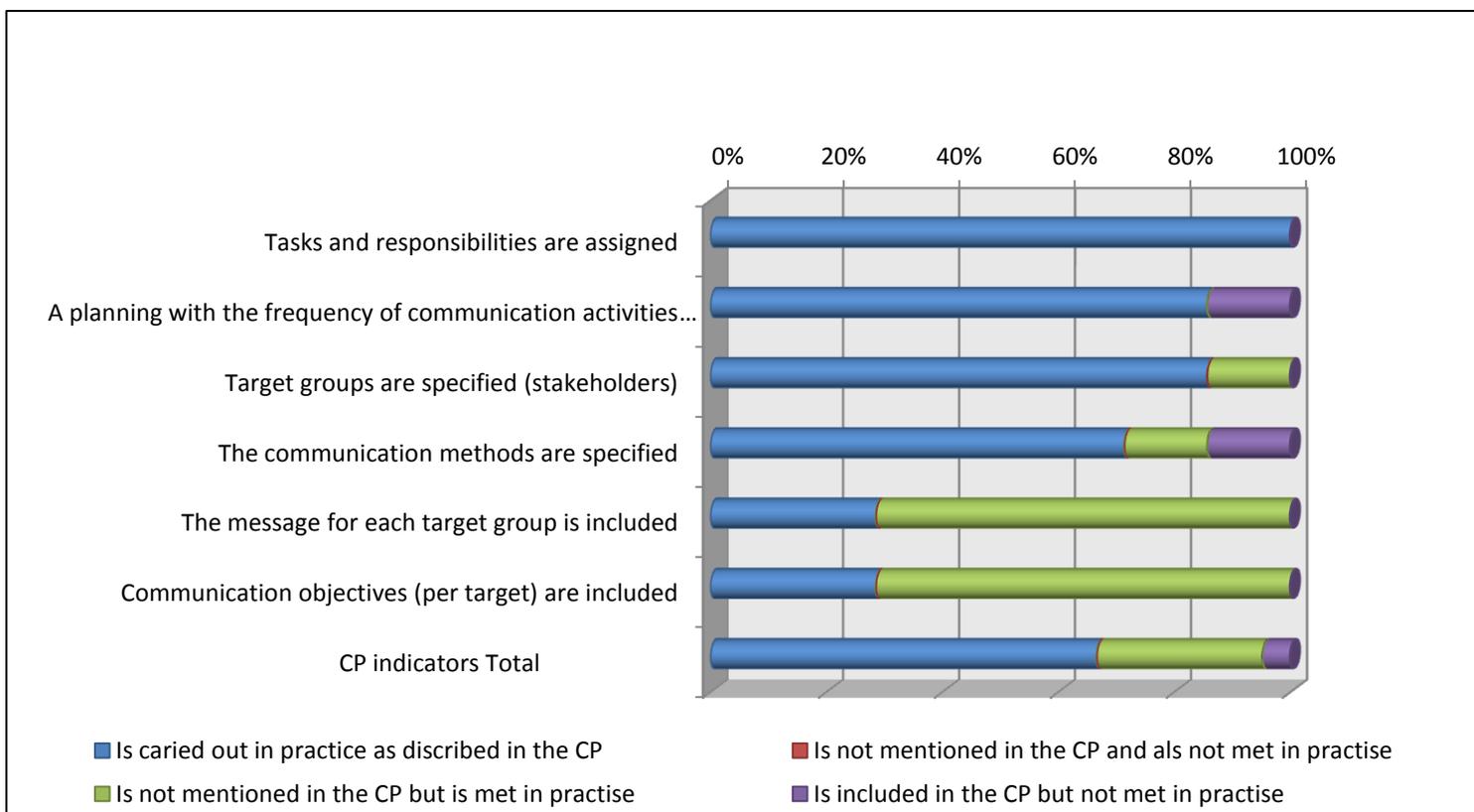


Figure 6: assessment of the use of the CP.

Figure 6 shows that nearly all obligations of the CP are met in practice. Only 5% of the obligations are not met in practice. The CP has fewer obligations than the EMP but they are also all included in the handbook instead of referring to another document. The last two obligations (message and communication objectives per target group) are often not included in the CP.

Message and communication objectives per target group

Only two of the seven companies include the message per target group and the communication objectives in their CP. All the companies however indicate that the objectives and message are clear in practice. It is stated that objectives and message are very obvious and that it is thus not necessary to include these obligations in the CP. These obligations are also not specified by the literature as an important factor. Because these two obligations are often not included in the CP, but they are always clear in practice, it might not be needed to include them in the handbook.

Allocation of tasks

Figure 7 shows the allocation of the different tasks and actions needed to acquire a CO₂PL certificate.

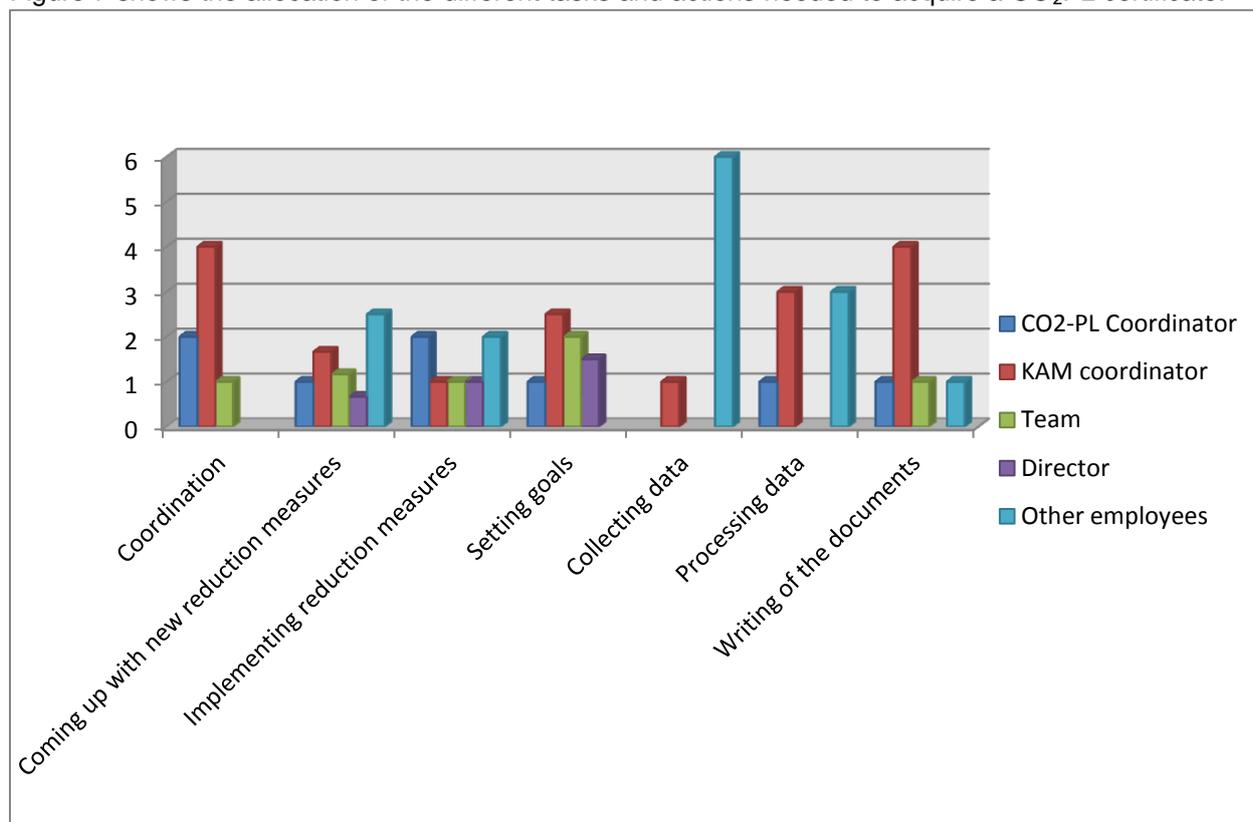


Figure 7: Allocation of tasks. (1/2 or 1/3 of a point is awarded when the tasks is shared)

The allocation which is included in the EMPs is much more general and based on a limited number of responsibilities. The figure shows that companies use various task allocations. Especially the diversity in the allocation of implementing reduction measures, processing data and writing documents demonstrates this. However the allocation of some tasks like the data collection is more consistent among companies. This is mostly done by other employees in the company. Especially by the persons who can carry out this task the easiest. The CO₂PL can be implemented by a small group of employees or it can be implemented companywide. When the system is based on a limited number of people the coordinator often takes a lot of responsibility and executes many tasks.

The allocation of tasks differs between the companies. This shows that the management system used by the companies also differs. In the interviews it became apparent that the systems ranged from a system that included only a hand full of employees to companywide systems. Although the management systems differed, five of the interviewed companies have a system that can be categorised as using a smaller system. The other two companies use a more integrated system in which many employees contribute to the CO₂PL system.

Comparison of the documents and practice

During the interviews all companies stated that there were no differences between the documents and practice. All the documents are checked before the next audit. All elements which are out of date are then adjusted. There are however a lot of obligations which are not included in the EMP or the CP but which are met in practice. If asked why this is the case, not knowing that these obligations should be included is often the answer. Another reason which is given by two companies is that these obligations are included in other documents such as work descriptions and process diagrams which are used more often by the companies.

Use of the documents

The EMP should be communicated internally. For the CP this is not an obligation. During the interviews, questions are asked about the use of the documents. In five of the seven cases only the coordinator (KAM coordinator or CO₂PL coordinator) uses the documents. One company states that the documents are used by a CO₂PL work group and one company states that a lot of employees read and use these documents. When the documents are only used by the coordinator it is used once or twice a year to check whether the company is still on track or to update the documents for the next annual audit. It is therefore not surprising that five companies use the documents as a guideline and two only as proof. None of the interviewed companies use the documents during the day to day activities. Two coordinators indicated that they would have written similar documents if these were not obligatory, three indicated that the documents are useful but are not really necessary and two stated that they are only useful when drafting the documents because they force/guide the coordinator in setting up a management system and documenting it. None of the coordinators feel that writing the documents is useless.

The outcome of the interviews indicates that the size (amount of employees) of management system is important for the use of the documents. The two companies which include a lot of employees in their management system also indicate that a lot of employees use/read the management documents.

Comparison with the theoretical framework and other literature

During the case study the company's documents and system in practice are assessed based on the CO₂PL handbook obligations. They are however also assessed on the basis of the key conditions shown by the literature. In this paragraph these key conditions are compared with the EMP, CP and the management system in practice.

Figure 8 shows that the score for literature indicators vary.

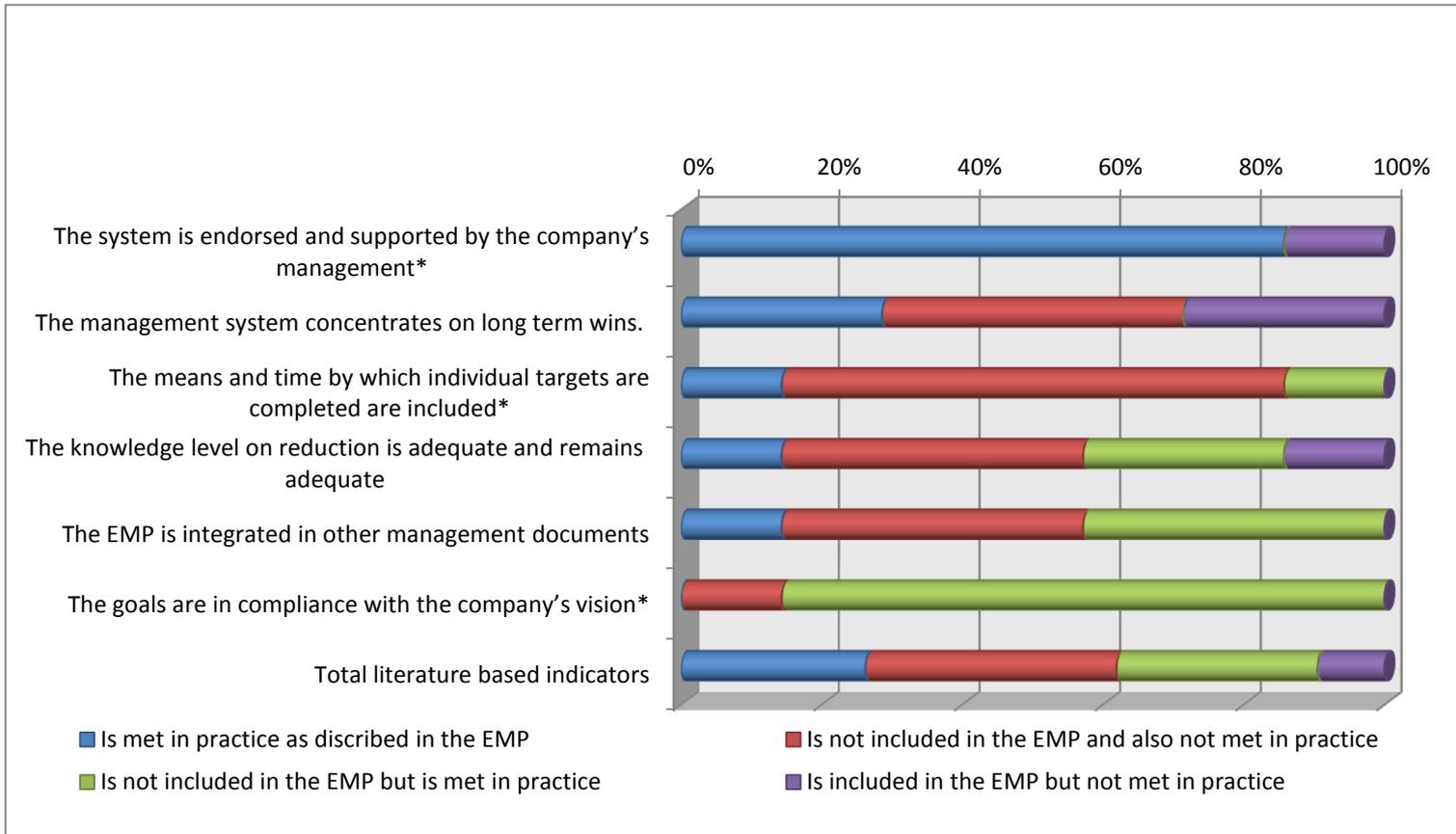


Figure 8: Outcome of the key condition assessment (*obligation/factor is included in the handbook and the literature)

Figure 8 shows to what extent the key conditions for an effective CSR and EMS system. In total 55% of the conditions are met in practice. Some conditions are however also included in the handbook. When only the three conditions which are not included in the handbook are scored, 43% is included in practice.

Only one of the companies indicates that the management does not support the CO₂PL. This condition is also an obligation of the CO₂PL which explains this high score.

58 % of the companies have long term goals (five years or longer) or a long term vision included in their documents. However half of them state that they only use the short term goals in practice. The short term goals are adapted if necessary, without using the long term goals as a basis for the new short term goals. One of the reasons for this is that the CO₂ emission is hard to predict. The type of work is very important for the CO₂ emission (in total but also per euro). The reduction goals are automatically reached when only a few projects with high CO₂ emissions are executed. Although this could be an argument to only use the long-term reduction goals, companies use it as an argument to not use them.

A key condition for the implementation of the CO₂PL management system is the amount of employees which will contribute to the reduction. When the reduction is realised by a small “CO₂PL group” without incorporating all employees the key conditions are different from a system in which all employees need to contribute. The theoretical framework is designed to make sure all employees (can) contribute to the system. For the CO₂PL some of the companies reach the goals with only a few employees. The knowledge level and experience of the employees is then a smaller risk. This decreases the importance of this factor. It also becomes less important to communicate the EMP internally. The two companies that communicated their EMP internally and tell their employees that the document is important are companies that use an “organisation wide” system.

6. Discussion

Within this document, the use of the Energy Management Programme and the Communication Plan is researched. This is done by reviewing the obligations from the CO₂PL handbook and literature on CSR. This review is used in a case study at seven companies to assess the EMP, CP and the management system in practice. This low number of companies was chosen because one of the goals of the research was to gain high insight in the company's management systems by conducting multiple interviews at different levels of the companies. In a later stage of the research it appeared however that companies were not willing to spend time on more than two interviews. 7 of the 44 construction companies with a certificate level 5 of the CO₂PL is not a representative sample. Before the conclusions of this research are definitive for all companies at certificate level five a larger sample of companies need to be interviewed.

A case study that consists out of an assessment of the company's documents and an interview is used to answer the research questions is. The assessment of the documents is done with the same checklist and by the same person for all companies. Therefore bias in the scoring is limited. Because the interviews conducted at seven different companies a limited bias in the answering of the interviewing questions can be expected. The interviewing questions (especially the multiple choice questions) are however developed to limit this bias by using answers which are clearly separated. Therefore the limited sample is a much more important uncertainty factor.

The EMP and CP are reviewed in this research. An auditor reviews all the documents of the company. When certain obligations of the EMP and CP are included in other documents the auditor could approve to this although the obligations should be included in the EMP or CP. These obligations are then "missing" in the assessment of the EMPs and CPs. These obligations are however included in the interviews and are thus still included in the research.

Some of the explanations of the importance of the obligations originate from CSR and EMS literature. Although these systems are comparable with the CO₂PL the importance of the key conditions could be different. The used CO₂PL management systems used in practice and the prescribed management system for CSR are compared however no other research has been conducted which confirms (or negates) that the key components are the same.

Because the amount of research on the CO₂PL is limited it is hard to compare the results of the research with other sources. The results with respect to the management system are however in compliance with the description that is shown by Wilbrink (2012)

7. Conclusions

In 2009 ProRail (Dutch railway) established a certification scheme, the so called CO₂-Performance Ladder (CO₂PL) in order to decrease CO₂ emission in the tendering process. A company can acquire a CO₂PL certificate when it meets special requirements. The purpose of this study was to find out to what extent two of these requirements, the Energy Management Programme (EMP) and Communication Plan (CP) are used by the companies to improve their CO₂ management.

The CO₂PL handbook prescribes obligations for drafting the EMP and CP. 42% of the obligations of the handbook are not included in the EMP and 29% of the obligations are not included in the CP. However 79% of the obligations on the EMP and 95% of the obligations on the CP are met in the CO₂PL management systems which are used in practice. This shows that companies do not strictly follow the obligations of the handbook but, more obligations are met in practice than in the documents. Also, the obligations for the CP are met more often than obligations on the EMP.

The obligations which are often not included in the EMP and CP are: The resources by which targets are to be completed are specified (EMP), A list of the responsible persons is included (EMP), The reduction measures are specified per project (EMP), The message for each target group is included (CP), Communication objectives (per target) are included (CP).

The literature does not show that it is important for the design and implementation of a CSR system to include the communication message per target group and the objectives per target group. However, it is stated in the literature that it is important that companies allocate resources for achieving the target (Biondi et al., 2000; Gracia Rodríguez et al., 2009; Hillary, 2004).

On averaged three obligations are often not met in practice.

- The resources by which targets are to be completed are included (EMP);
- The EMP is internally and externally Communicated (EMP);
- The reduction measures are specified per project (EMP).

During the interviews with seven companies three reasons why companies do not meet the obligations of the CO₂PL in the EMP and the CP or in practice were given.

- Companies were not aware of that the obligation should be included in the plans or in practice;
- Some requirements are not useful for (the management system that is used by) the company;
- The aim of the obligation is logical and that this outcome is achieved in practice even if it is not included in the documents.

Not all obligations of the handbook are used in the documents and in practice. Perfecting these indicators or increasing the verification of these obligations by the ladder CI could improve the CO₂PL and the CO₂PL management systems of the company.

The CO₂PL management documents are mostly used as a guideline for the CO₂PL coordinator. However some companies use the documents only as proof and some use it as an important management document. The type or size of the management system that is used appears to be important for the use of the EMP and CP. When only a small number of employees contribute to the system the documents are used less than when a lot of employees contribute. The usefulness of the CP and especially the EMP can be increased by removing unnecessary obligations and including other more important obligations.

The results shown above, show that the companies do not follow the obligations of the handbook strictly. The interviews suggest that the companies use their own standards to fill the gaps of the CO₂PL handbook and sometime even overrule the obligations. This is confirmed by the fact that some companies only use the documents as proof. As their standard is different from that of the CO₂PL they

rather not use the EMP or CP in practice in order to reach the goals. Another result that strengthens this statement is that some obligations are not met because the companies do not think the obligations are useful. It doesn't necessarily mean that the effect is less when companies use their own standards. The CO₂PL is even based on minimum obstruction of the company. A management system and documents which are specially designed for the company are more likely to be efficient. However it will be harder for the ladder CI's to assess whether the goals of the CO₂PL are reached. Therefore the CO₂PL could be adapted to ensure that companies can use their own preferences but the ladder CI can also verify that the goals are reached.

8. Recommendations

In this paragraph recommendations for SKAO to perfect the CO₂PL and for companies to improve their CO₂PL management system are shown.

The results and conclusions of the research show that there is a difference between: the obligations of the CO₂PL handbook, the company documents and the management system practice. Since companies do not include a number of obligations in the documents or in practice some conditions could be improved.

Some obligations are not included in the EMP and CP but are met in practice because they are common practice. It could be considered to remove these obligations from the handbook. Removing these unnecessary obligations decreases the effort companies need to put in the documents but should not influence the result of the CO₂PL system of the companies. Another less advised approach that can also be used to decrease the difference between the CO₂PL and the company's documents. Namely, increase the verifications of these obligations by the Ladder CI to make sure that these obligations are included in the company's documents. Although the first approach is advised, both approaches can be used to improve the current situation. This applies to two obligations: The message for each target group is included (CP), Communication objectives (per target) are included (CP).

Some other obligations are not included in practice but could improve the management system. This is the case for: The allocation of resources by which targets are to be completed are included (EMP). The literature shows that this is an important factor for a CSR management system and also for the CO₂PL. If verifications of this obligation by the Ladder CI would increase the CO₂ reduction could also be increased.

One of the reasons that companies do not incorporate the obligations in the documents or the system is because they are unaware of some of the obligations. This is only the case for the EMP. It is of course the responsibility of the company to read the CO₂PL handbook and all related documents carefully. However in the appendix a clear list of obligations of the CP is shown. The appendix of the EMP is however less clear with reference to the norms in other documents. If a clear list of obligations on the EMP would be included in the CO₂PL handbook it would be easier to make sure all obligations are included in the EMP.

Another reason why companies do not include some obligations is that they have the opinion that the obligation is not useful. When the obligations of the CO₂PL are justified, the companies will understand better why the obligations are important. The companies could then also reach the intended goal of the obligations more efficient by using a method that is efficient for the company.

9. Suggestions for further research

The conclusions of this research are based on seven case studies. If this research could be extended with more cases studies the conclusions will become more reliable.

During the interviews it seemed that an important property of the management structure is whether or not a general KAM manager coordinates the management system or that an individual CO₂PL manager is appointed. The KAM manager has less time to take actions himself and is thus forced to delegate more actions. A CO₂PL manager can take more actions himself. It seems that this results in a much smaller system that is less integrated in the other management system of the companies (like ISO systems). No specific interviewing question based on which this can be concluded have been asked though. Therefore no conclusion can be drawn on this subject. The role of the manager and the result in the emission reduction could however be an interesting subject for further study.

The research question of the thesis is partially based on Wilbrink's suggestions for further research. Nearly all the suggestions which are included in the introduction are answered in general (although he suggested that these subjects should be researched more extensively). The management system of the companies are researched in general and compared to a management framework used for CSR implementation. It could however not be researched how effective the used management systems are. However some improvements for obligations on the EMP and CP and the used management systems are suggested. No knowledge on the other requirements than the EMP and CP is gained however. Further research on all requirements of the ladder could be used to gain a higher understanding in the suggestions of Wilbrink (2012). The implementation process could be further researched when more open questions on the different steps and stage which the companies have completed are asked. Especially the drivers which are important in choice can show which requirements are important for designing and implementing different management systems. When these drivers on choices are clear it will be easier to steer companies toward an effective management system. In this type of examinations the researcher should however be aware of the fact that it is hard to conduct more than two interviews per company.

10. Definitions and abbreviations

CO₂-Performance Ladder handbook: The CO₂-Performance Ladder handbook with all information on reaching and maintaining a certificate of level 1-5 established by SKAO.

CO ₂ PL:	CO ₂ -Performance Ladder
CSR:	Corporate Social Responsibility (MVO: Maatschappelijk verantwoord ondernemen)
Ladder agency:	A company authorised by SKAO to assign certificates and conduct a reassessment.
Ladder CI:	Ladder agency
SKAO:	Stichting Klimaat Vriendelijk Aanbesteden en Ondernemen (Independent Foundation for Climate Friendly Procurement and Business) the owner of the CO ₂ -Performance Ladder
KAM Coordinator:	Coordinator Quality, Labour and Environment
Requirement:	Requirement of the CO ₂ PL (for example 3.B.2 EMP or 3.C.2 CP)
Obligation:	Part of an requirement which should be met by the company.
Deming cycle:	Plan, Do, Check, Act, cycle,
Stakeholder:	A person, group, organization, member or system who affects or can be affected by an organization's actions

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13. Appendix.

13.1. Multiple choice interview output