SPENO INTERNATIONAL SA

CO_2 Management Plan
SPENO International S.A.

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1 Introduction

The world is changing. Sustainability is becoming more important within the daily routine. Climate change is on our mind this is also visible in the vision of our society and the vision on how we should treat the planet. We find it to be more common to behave more environmental friendly and to reduce CO_2 emissions in our daily lives. Therefore, SPENO International S.A. has decided to act and introduce a CO_2 reduction system.

The effect of this decision is clearly visible within and outside the organization. Internally SPENO International S.A. maximizes the possibilities to prevent negative effects on the environment. In projects SPENO International S.A. is proactive in taking measures that reduce the CO_2 emissions of the activities.

To make it concrete and demonstrable that SPENO International S.A. strives to limit the negative impact on the environment we aim that to reduce one of the of the largest causes of the climate change: **CO_2 gas**. The first step for reducing CO_2 is insight. That's why SPENO International S.A. calculates its so-called CO_2 footprint every half year. In this document contains the fixed aspects of the CO_2 management plan. The plan has been drafted in such a way that it complies with the requirements if the ISO 50001 and the ISO 14064-1. It ensures that there is a Plan-Do-Check-Act system in place that ensures continual improvement.

In the documents of the CO_2 reduction system we speak of the emissions in scope 1, 2 and 3. These are originally form the GHG-protocol. For the CO_2-Preformance Ladder the implementing company SKAO sees business travel and kilometers driven in private cars as part of the scope 2 emissions instead of scope 3. Because these reports are specifically for the CO_2-Preformance Ladder we will follow the categories of the scope 1 and 2 defined by SKAO.

1.1 Reading guide

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

Chapter in this document	Requirement of the CO_2-Preformance Ladder
Chapter 2: Description of the Organization	3.A.1
Chapter 3: Emissions inventory Report	3.A.1
Chapter 4: Energy management program	2.C.2, 3.B.2 and 4.A.2
Chapter 5: Management cycle CO_2 reduction	2.C.2
Chapter 6: Communication plan	2.C.3

2 SPENO as an Organization

2.1 Description of the organization

SPENO International S.A. specializes in rail maintenance worldwide. Our company's activities include a full range of services from research and development through to the construction and operation of the machines needed for:

- ✓ Grinding and re-profiling of tracks and points
- ✓ Measuring rail surface faults and profiles
- ✓ Checking for internal rail flaws with ultrasound.

SPENO's rail maintenance know-how is not all: the company is also involved in the development of all the related equipment through close cooperation with its two plants in Italy, namely Mecnafer in Mestre, for grinding trains and A.S.I. in Marcon, to produce grinding stones.

SPENO operates on all five continents, maintaining rails on lines used for all types of railways, including underground railways, tramways, heavy haul trains and high-speed trains.

2.1.1 Facts

Operating field:	Design, manufacture and sale of machines as well as supply of services for development, construction and rail maintenance
Company foundation:	1960
Legal form:	Corporation
Employer identification number (EIN):	CHE-101.634.283 TVA
Trade register:	Federal identification number: CHE-101.634.283 RC registered since 1965
QM-System:	SN EN ISO 9001 since 1995 SN EN ISO 14001 since 2007 BS OHSAS 18001 since 2007
Employees:	650 world-wide 300 in SPENO International SA 350 in the subsidiaries and factories
Machines:	232 built since the existence of SPENO 32 machines are presently used in Europe for services
Grinding volume:	40'000 km (finished) ground per year world-wide
Grinding stones:	160'000 units (annual production output)
Customers:	204 world wide

2.2 Policy Statement

Sustainability is one of the most important topic in the society today. To ensure that sustainability is implemented within the organization SPENO has implemented the CO_2-Performance ladder. This is a platform to ensure a continuously improving plan with respect to our CO_2-emissions.

2.3 Statement company size

With a total CO_2-emissiosn of more than 10.000 ton CO_2 2017 SPENO International S.A. is considered a big Company in accordance with the CO_2-Performance Ladder. Of the emissions 1.350,02 ton CO_2 was emitted by the offices in Switzerland and 15.145,13 ton CO_2 by projects over all of Europe.

	Services	**Projects**
Small Company	Total CO_2-emissions are maximal (≤) 500 ton per year.	Total CO_2-emissionsof the offices are maximal (≤) 500 ton per year, and the total CO_2-emission of all the projects is maximal (≤) 2.000 ton per year.
Medium Company	Total CO_2-emissions are maximal (≤) 2.500 ton per year.	Total CO_2-emissionsof the offices are maximal (≤) 2.500 ton per year, and the total CO_2-emission of all the projects is maximal (≤) 10.000 ton per year.
Big Company	Total CO_2-emissions are more than (>) 2.500 ton per year.	Total CO_2-emissionsof the offices is more than (>) 2.500 ton per year, and the total CO_2-emission of all the projects is more than (>) 10.000 ton per year.

Table 1 | The category description of small, medium and big companies according to the CO_2-Preformance Ladder.

3 Emission inventory report 2017

3.1 Person responsible

The responsibility for the management cycle CO_2 reduction including all the underlying activities, such as the achievement of the objectives, is Yamine Guettari. He reports directly to the CEO.

3.2 Base year

This is the fourth time that SPENO International S.A. composes an emission inventory according to the GHG protocol. This report concerns the year 2017. The reference year for the CO_2 reduction objectives is 2012.

3.3 Organizational boundaries

This chapter will refer to the document "*Organizational Boundary SPENO International S.A.*". In this document an elaborate definition of the Organizational Boundaries is described. The text below will shortly summarize the conclusions of the Organizational Boundary definition. There have been no changes in organizational boundary compared to the past few years.

3.3.1 Boundary definition

The GHG Protocol names a few exceptions for excluding subsidiary companies in the boundary. For SPENO International S.A. some of these exceptions are relevant. According to several reasons the decision has been made to exclude these companies. In the separate document the reasons for this are elaborately explained. Below we present the definition of the Organizational Boundary.

SPENO International S.A.

Excluding the subsidiary companies
Mecnafer (Italy);
ASI (Italy);
NSKK (Japan);
SRMA (Australia).

3.4 Calculated GHG emissions

The direct and indirect GHG emissions of SPENO International S.A. in 2017 are 16.495,15 tons of CO_2. From this amount 15.145,13 tons of CO_2 is caused by direct GHG emissions (scope 1) and 1.350,02 tons of CO_2 is caused by indirect GHG emission (scope 2). The table underneath will show the exact number per energy flow.

Scope 1	amount	unit	conversion factor	ton CO2

Gas consumption (office)	0	m^3	1.887	-
Fuel consumption (office)	0	liters	3.230	-
Fuel consumption lease cars - diesel	98.696	liters	3.230	318,79
Fuel consumption trains - diesel	4.590.199	liters	3.230	14.826,34
			Total scope 1	**15.145,13**

Scope 2	amount	unit	conversion factor	ton CO2
Electricity consumption - grey	0	kWh	526	-
Electricity consumption trains - gray	20.773	kWh	526	10,93
Electricity consumption - green	207.967	kWh	0	-
Air travel < 700 km	755.269	km's	297	224,31
Air travel 700 - 2500 km	3.801.391	km's	200	760,28
Air travel > 2500 km	2.411.585	km's	147	354,50
			Total scope 2	**1.350,02**

Total scope 1 and 2	**16.495,15**

Table 2 | CO_2-emissions 2017 (in ton CO_2)

3.4.1 Combustion of biomass

No combustion of biomass took place at SPENO International S.A. in 2017.

3.4.2 GHG removals

There was no greenhouse gas removal or compensation at SPENO International S.A. in 2017.

3.4.3 Exceptions

There are no remarkable exceptions to mention on the GHG protocol.

3.4.4 Key influencers

Within SPENO International S.A. there are no individuals who have such an impact on the CO_2-footprint that a behavioral change of this individual person could ensure a significant change in the CO_2-footprint.

1.1 Future

The emissions in the paragraphs above are established for the year 2017. The expectation is that these emissions in the coming year will not be subject to any major changes. However, given the CO_2 reduction objectives of SPENO International S.A., the CO_2 emissions will decrease with 2,5% each year, with a total reduction of 20% in 2020.

3.4.5 Significant changes

As described in chapter 3.2, 2012 will be used as base year. In the table, the paragraph the progress of the different emissions and the reduction in CO_2 is shown. A description of the reasons why certain amounts of CO_2 have increased or decreased, can be found in the document CO_2-reductieplan 2020.

3.5 Quantification Methods

For the quantification of the CO_2 emissions a tailor-made model is used.

In the model all consumptions can be filled in. The corresponding CO_2 emissions will be calculated and compared with the base year. The model uses emission factors from the CO_2-Performance ladder that can be found on www.co2emissiefactoren.nl.

3.6 Emission factors used

For the calculation of the CO_2 emissions of SPENO International S.A. the emission factors of the CO_2-Performance ladder 3.0 are used. Because these are specific prescribed emission factors it can be assumed that these emission factors are very reliable for the conversion of the energy consumption in to related CO_2-emissions. All used emission factors are transparent and included in the calculation of the CO_2 footprint. The emission factors of SPENO International S.A. will adapt all the changes in future certification schemes of the CO_2-Performance ladder. The emission factors used can be found on www.co2emissiefactoren.nl. The emission factors are verified on 03-05-2018.

No removal factors have been used.

3.7 Uncertainties

The presented results should be the best estimate of the actual values. Almost all the data used for the calculation of the CO_2 footprint is based on invoices or measured quantities. This keeps the uncertainty margin very low. However, there are two opportunities for improvement. These are outlined below:

Fuel consumption of trains.
Business travel by train

Ad 1. The fuel consumption of the machines is based on several sources such as data from captains and invoices. The invoices are 100% accurate; the information from the captains is estimated. If possible to receive all the data from invoices it would improve the accuracy of the CO_2 footprint calculation.
Ad2. The amount of business travel by train is sporadic and has been omitted from the footprint. Is consists of less than 1% of the total footprint,

3.8 Verification

The emission inventory has not been verified for.

3.9 Statement in accordance with ISO 14064 part 7

This report has been made according to the requirements from ISO 14064-1 paragraph 7. The cross-reference table below shows all the parts from ISO 14064 and §7.3 of the GHG report is included in this document.

ISO 14064-1	§ 7.3 GHG report content	Description	Chapter of the report
	A	Reporting organization	2
	B	Person responsible	3.1
	C	Reporting period	3.2
4.1	D	Organizational boundaries	3.3
4.2.2	E	Direct GHG emissions	3.4
4.2.2	F	Combustion of biomass	3.4
4.2.2	G	GHG removals	3.4
4.3.1	H	Exclusion of sources or sinks	3.4
4.2.3	I	Indirect GHG emissions	3.4
5.3.1	J	Base year	3.2
5.3.2	K	Changes or recalculations	3.4
4.3.3	L	Methodologies	3.5
4.3.3	M	Changes to methodologies	3.6
4.3.5	N	Emission or removal factors used	3.6
5.4	O	Uncertainties	3.7
	P	Statement in accordance with ISO 14064-1	3.9
	Q	Verification	3.8

Table 3 | ISO 14064-1

4 Energy Management Program

The energy management plan contains a certain number of vast components for keeping the CO_2 management plan up to date. This plan makes sure that all demands are followed according to the requirements of ISO 50001, ISO 14064-1 and continues improvement throughout the year. In this chapter, the energy management plan (requirement 3.B.2) and the quality plan (requirement 4.A.2) will be described.

4.1 Energy Management Plan

The NEN- and ISO 50001 is considered as a guideline to set up an Energy Management Plan. This plan ensures a complete, reliable and actual consolidation of the energy performance of SPENO International S.A. The core of the quality- and the energy management plan is to continuously evaluate the activities and deviations to achieve improvements. These plans are composed according to the Plan-Do-Check-Act cycle.

4.2 Energy policy

Besides turnover- and profit growth are personnel policy, safety, wellbeing and environment of essential interest for SPENO International S.A. The responsibilities on these parts are therefor also an integral part of the way SPENO International S.A. arrange its businesses.

The importance of sustainability is an important factor nowadays. To deal with this consciously, we strive for a CO_2-aware management. This to ensure a continuous improvement of our reduction policy and a growing awareness of our employees to reduce emissions of our activities.

Our energy policy is aimed at the optimal use of our machines and material so we can exercise our work with the lowest possible energy consumption. Lower energy consumption is good for the environment because of its lower CO_2 emission. In addition, the operational costs will reduce due to the optimum use of the operation assets.

4.3 Objectives

The objective in general of the energy management system is to achieve continuous improvement of energy efficiency and reduction of CO_2 emissions. It should be noted that, due to fluctuations in the amount of work, the absolute energy consumption can be higher, while the relative consumption in indeed lower.

Scope 1 en 2 objective SPENO International S.A.*
*SPENO International S.A. produces 20% less CO_2 emissions in 2020 compared to 2012**

4.4 Execution

4.4.1 Energy Aspects

The first step is to provide insight into the energy consumers of the organization and the chain in which the organization is active. Based on this insight, it is possible to look at the aspects where CO_2 reduction can be achieved. These insights will be incorporated into the various reports. Once every 6 months this list is assessed and tested for its actuality.

4.4.2 Reference year

It has been decided to use the footprint of 2012 as the reference year. The reliability of the footprint is controlled by an internal audit. Based on the identified opportunities, we decide which parts will be eligible for the formulation of objectives. Ultimately, the management determines the objective.

4.4.3 Reduction targets

The general objective is formulated to 2020. Based on this general objective, annual measures to reduce CO_2 are formulated to achieve the target. All objectives will be recorded in the annual reduction plan. This plan specifies the measures which are needed to achieve the objective. In addition, this document states which departments are responsible for the realization of the measures.

4.4.4 Organization of the CO_2-Footprint

In 2012 SPENO International S.A. started to structurally chart its CO_2 emissions. This has led to the introduction of a CO_2 reduction system in the context of the CO_2 Performance ladder. For this system, responsibilities (administration, work preparation, QSE manager, department execution and workshop department) have been appointed within SPENO International S.A. under final responsibility of the management. The QSE manager is responsible for the preparation and execution of the annual reports, the monitoring of the emission data and reporting to the management. In addition, he is responsible for the communication about the CO_2 reduction system, the objectives and the progress that has been made.

The management is responsible for the possibilities to reduce CO_2 regarding commuting traffic of its employees, use of private vehicles for business trips, more efficient and effective logistical movements at the worksites and other ways of working.
The administration is responsible for the purchase of energy, waste processing and other things. In addition, he assists the QSE manager with his responsibilities regarding accountability, monitoring and communication about the CO_2 reduction system.

The execution department is responsible for the optimal use of machines and personnel on the work. Furthermore, they are responsible for supervising the project locations regarding putting the CO_2 reduction measures in practice.

4.4.5 Energy consumption of SPENO International S.A.

Every six months SPENO International S.A. charts its energy consumption. The implementation of this inventory is in accordance with ISO 14064-1, the GHG-protocol for scope 1 and 2 and the possible requirements from the CO_2 performance ladder. It is also confirmed whether the organizational boundary is still correct.

The QSE manager is responsible for carrying out the inventory, assisted by the administration. For the inventory, a datasheet is used in which the conversion factors are included. After the inventory has been made, the QSE manager performs a quality check on the data. He assesses whether the organization boundaries are still correct, the data are processed under the right scope and whether the correct conversion factors have been used.

4.4.6 Energy reduction opportunities

Everyone at SPENO International S.A. can suggest ideas for energy/CO_2 reduction via mail or informal consultation. In addition, toolbox meetings with CO_2 and reduction as main subject are held periodically. These CO_2 reduction opportunities are discussed in the CO_2 consultation and weighed on effectiveness. If they are possibly effective, they will be added to the energy audit report.

4.4.7 Monitor and Evaluate

Twice a year, the progress of the reduction objectives and the annual plan are determined. The QSE manager reports the results to the participants of the CO_2 consultation. This report includes at least:

- ✓ An overview of energy consumption and CO_2 emissions per scope
- ✓ A comparison of energy consumption compared to the reference year
- ✓ An analysis of noticeable increases and decreases in consumption and CO_2 emissions.
- ✓ Progress and prognosis for achieving the reduction objective and any recommendations for preventive or corrective measures
- ✓ The status of previous preventive or corrective measures
- ✓ General developments

Based on this report, the management decides whether adjustment of the objectives and/or adjustment of the annual plan is necessary.

5 Management cycle

The CO_2 policy has a management cycle that has actions every half-year and every full-year. The following aspects will be analyzed:

- ✓ The CO_2 emissions data needs to be collected
- ✓ Verify if the CO_2 emission factors are still up-to-date
- ✓ Verify if there are significant changes in the organization which have a big impact on the footprint.
- ✓ Determine if a recalculation of the footprint considering these changes needs to be done
- ✓ Determine if the reduction objectives and measurements are being met.

Sequentially it needs to be determined if modifications of the goals and the CO_2 management system need to be made. It could be that the reduction objective can be modified or when certain measures appear to be unavailable or unobtainable these can be modified. These modifications have to be communicated internally and externally. An inventory has to be made if the sector initiative is still up to date and meets the requirements for the company. Underneath is the PDCA-cycle depicted, this shows the different stages that the CO_2 reductions has.

5.1 TR Matrix

TR Matrix																			
	Updating website	Spread internal newsletter	Perform an energy audit	Compose communication messages	Spread external newsletter	Collect data concerning emission inventory	Compose CO2 footprint calculation	Compose emission inventory report	Perform review CO2 system	Determine CO2 reduction objectives	Updating energy measurement plan	Implement energy measure plan	Perfom research for energy reduction	Meet all the requirements of level 3	Complete CO2 objectives	Meet the ISO 14064-1 requirements	Participation in Obu initiative	Approve CO2 reduction objectives	Perform management review	Approve emission inventory
Functions	**Tasks**													**Responsibilities**						
Administration department						X														
CEO										X								X	X	
QSE Manager / CO_2 responsible		X		X	X	X			X	X		X	X	X	X	X			X	X
Communication department																				
QSE Employees		X	X			X			X		X	X	X				X			X
Webmaster	X																			
Interns						X							X							
CO2 advisor (external)				X	X		X	X	X							X				

6 Communication Plan

This part of this document defines what will be communicated at what time concerning the CO_2 reduction system of SPENO International S.A.

6.1 Overview external interested Parties

Date: 03-05-2018

Owner: CO_2 responsible

Subject: Overview external interested parties

External interested parties concerning CO_2 reduction	
Civil society	The civil society can be viewed as an external interested party. The climate problem effects everybody. So also everybody benefits from companies who reduce their CO_2 emissions.
Shareholders	Because the level 3 CO_2 certificate effects the competitiveness of SPENO, shareholders are an external interested party concerning the CO_2 reduction activities of SPENO.
Customers	A significant customer of SPENO is ProRail. ProRail is the developer of the CO_2-Performanceladder and is very interested in the CO_2 reduction activities of all her suppliers, including SPENO.
Staff	The staff is an important party concerning the CO_2 reduction system of SPENO. Most of the CO_2 reduction measures ask actions and or behavior changes of the staff.
Suppliers	In the future SPENO will probably aim for lever 4 or 5 on the CO_2-Performanceladder. This requires cooperation from the suppliers.

6.2 Communication Plan

What?	**Who?**	**How?**	**Target group**	**When?**	**Why?**
CO_2 footprint	CO_2 reduction responsible	Via internal mailing and website	internal	Mid Nov & mid May	CO_2-Performance ladder requirement 3.C.2
CO_2 footprint	CO_2 reduction responsible	Via website	external	Mid Nov & mid May	CO_2-Performance ladder requirement 3.C.2
CO_2 reduction objectives, sub-objectives & measures.	CO_2 reduction responsible	Via internal mailing and website	internal	Mid Nov & mid May	CO_2-Performance ladder requirement 3.C.2
CO_2 reduction objectives, sub-objectives & measures	CO_2 reduction responsible	Via website	external	Mid Nov & mid May	CO_2-Performance ladder requirement 3.C.2
Possibilities for individual contribution, current energy consumption and trends within the company.	CO_2 reduction responsible	Via internal mailing and website	internal	Mid Nov & mid May	CO_2-Performanceladder requirement 3.C.2
Possibilities for individual contribution, current energy consumption and trends within the company.	CO_2 reduction responsible	Via website	external	Mid Nov & mid May	CO_2-Performanceladder requirement 3.C.2
CO_2 reduction tips	CO_2 reduction responsible	Via internal mailing and website	Internal	Mid Nov & mid May	Boost employee engagement

6.2.1 *Additional information*

The website will be used for both external and internal communication. Employees visit on the website regularly;

- ✓ All internal communication to office personnel will be done in French;
- ✓ All internal communication to personnel on sight will be done in Italian;
- ✓ All external communication (on the website) will be done in English, German, Dutch, French and Italian;
- ✓ All documents published on the website are written in English.

6.3 Website

On the website, a dynamic page is designed and kept up to date about the CO_2 reduction system of SPENO International S.A.

6.3.1 *Textual information*

The following information is at all times available on the separate CO_2-Performanceladder page of the website:

- ✓ The CO_2 footprint;
- ✓ The CO_2 reduction objectives;
- ✓ The CO_2 reduction sub-objectives;
- ✓ De CO_2 reduction measures;
- ✓ Participation in the G21 Swisstainability Forum.

6.3.2 *Shared Documents*

Also located on this page are, at all times, the most up-to-date versions of the following documents (downloadable as PDF);

- ✓ CO_2 Reduction Plan 2020;
- ✓ CO_2 Management Plan;
- ✓ Communication memos;

6.4 Website SKAO

On the website of the SKAO the most up-to-date version of the following document can be found always:

- ✓ Sector and chain initiatives