



**SPENO INTERNATIONAL SA**

**CO<sub>2</sub> Reduction Plan**  
*SPENO International S.A.*

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# 1 Introduction

This document will present the scope 1 & 2 CO<sub>2</sub> reduction objectives of SPENO International S.A. Before the objectives were determined the CO<sub>2</sub> footprint was made for scope 1 & 2 in accordance with the requirements as stated in ISO14064-1 and the GHG Protocol.

Before setting the reduction goal an inventory was made of possible reduction measures. With the reduction measures that are chosen a CO<sub>2</sub>-reduction plan was developed. In this reduction plan de CO<sub>2</sub> reduction objectives and the measures that lead to this objective will be described.

In chapter two of this document the main objective and the scope 1 and 2 objectives will be stated. In chapter three the progress within the reduction aim will be described. In chapter four the action plan concerning the measures has been worked out.

This CO<sub>2</sub>-reduction plan has been made with approval of management. The progress in the objectives will be assessed every half year.

## 1.1 Reading guide

This document is as evidence for the requirements for the CO<sub>2</sub>-Performance Ladder. In each chapter, some of the requirements are met. Underneath you will find a reading guide

<b>Chapter in this document</b>	<b>Requirement of the CO<sub>2</sub>-Performance Ladder</b>
<b>Chapter 2: Energy Assessment</b>	2.A.3
<b>Chapter 3: CO<sub>2</sub> Objectives</b>	3.B.1
<b>Chapter 4: Measures taken</b>	3.B.1
<b>Chapter 5: Sector and Chain initiatives</b>	3.D.1 en 3.D.2



## 2 Energy assessment 03-05-2018

### 2.1 Introduction

The aim of the energy assessment is to analyze the current and historical energy uses of SPENO International S.A. This assessment will compose of the minimal of 80% of the energy used. Within this assessment, we would like to identify the individual entities that have the biggest impact on the CO<sub>2</sub> footprint. After this assessment, the most energy consuming process within SPENO can be identified and appropriate reduction measures can be taken. The analysis that was done for this assessment can be found in document Emission inventory 2016.xlsx on the tab "Energy assessment". This analysis was done on the 06-03-2017.

The biggest energy consumption of SPENO International S.A. is the fuel consumption of the trains. This consists of ±90% of the CO<sub>2</sub> footprint:

- Fuel consumption trains – diesel ±90%

### 2.2 Internal Control of the emission data

An independent control of the emission data was done on the 12-06-2018 by Noël Verberg during the internal audit just before the external audit.

### 2.3 Energy assessment of the fuel used in Trains 2017

Trains continue to be the greatest energy consumers for SPENO. With more than 90% of the emissions fuel consumption by the trains is the largest. We continue to see a reduction in CO<sub>2</sub>- emissions and fuel usages per ground meter has been reduced significantly. This is due to a continued improvement of the methods used by grounding the tracks.

The trains that use the most fuel are:

- ✓ RR 16 MS-2
- ✓ RR 16 MS-6
- ✓ RR 24 M-14
- ✓ RR 24 MC-6
- ✓ RR 48 M-7

This is very logical. All these trains are usually used to grind Switches. The method of grinding switches need several passes to be effective and safe. Therefore, these trains have a higher amount of fuel consumption per finished ground meter.

#### 2.3.1 Energy assessment of the fuel used in Trains 2016

This energy assessment was made in the document: Emission inventory 2016 tab, energy assessment. This compares fuel consumption of the trains per ground meter in 2016. This shows that the amount of ground meters has grown exponentially. But that the fuel consumption per ground meter finished as increased marginally. The relative emission has not stayed the same in 2016 compared to 2015.



### *2.3.2 Energy assessment of 2015*

The energy assessment of 2015 compared the fuel use of the trains. We have compared the fuel consumed per finished meter ground. This shows the fuel efficiency of the trains. This efficiency is highly related to the different types of work that the trains perform.

The results of the energy assessment have shown us that the bigger trains have higher energy efficiency. This must do with the work that these trains are used for. The long stretches of trail that can be ground with 1 passing have a high-energy efficiency. The bigger trains that can grind the rails in one passing are used for this. The smaller trains are used for the switches, which need to be ground by several passes have a low energy efficiency.

The trains that have lowest energy efficiency are mentioned below:

- RR 16 M-6
- RR 16 MS-11
- RR 16 MS-12
- RR 16 MS-2
- RR 16 MS-4

One outlier we must explain. The RR 24 MC-7 has very low energy efficiency. This is since it was transported to a project in the United Kingdom but was not used because the project fell through in the end. This caused fuel consumption but did not have a result in finished ground meters.

### *2.4 Reduction potential*

The number of passes has a direct correlation on the fuel consumption of the trains and the energy efficiency. In the Netherlands, the strategy applied to have fewer train passes with a result that the track is 95% ground. This is acceptable for all parties, because the next year that the grind-train passes the track will be ground 100%. This enables fuel efficiency and good results of work. Though the wished of the clients must be considered.



## 3 CO<sub>2</sub> Objectives

### 3.1 Comparison of the objectives with peers

The CO<sub>2</sub>-Preformanceladder states that the objectives of SPENO International S.A. need to be realistic and ambitious. To assess this an analysis was made of the objectives of peers in the sector. SPENO International S.A. is within the middle group of the sector. The precursors of the sector have a Level 5 certificate and are looking at challenges within finding measures to reduce CO<sub>2</sub>. SPENO International S.A. has a level 3 certificate and can still look at measures that have some influence on the CO<sub>2</sub> emissions.

Some of the peers in the sector with a CO<sub>2</sub> certificate are stated below:

- Voest Alpine Railpro | objective 27% op scope 1 en 2
- Rail Partner Holland B.V. | objective 5% op scope 1 en 2

### 3.2 Main CO<sub>2</sub> objective

SPENO International S.A. has the objective to reduce 2,5% annual until 2020.

#### **Scope 1 en 2 objective SPENO International S.A.\***

*SPENO International S.A. produces 20% less CO<sub>2</sub> emissions in 2020 compared to 2012\**

\* These objectives are related to the number of ground kilometers

This is specified in the following objectives for scope 1 and 2:

- Scope 1: 17% reduction in 2020 relative to 2012
- Scope 2: 2% reduction in 2020 relative to 2012



## 4 Progress in the reduction objectives

The main objective has been split in the different energy flows. This paragraph will describe the progress in the measures taken in these energy flows.

### 4.1 Sub-objective offices

<i>SPENO International S.A. will reduce the energy consumption of offices by 2%.</i>	
<b>Measures</b>	<ul style="list-style-type: none"> <li>- <i>The new offices have a heat pump installed. This will reduce CO<sub>2</sub> emission of gas and fuel consumption of the offices;</i></li> <li>- <i>Inform employees about economic behavior at the office;</i></li> <li>- <i>Paste posters at the printers. Inform people about two-sided printing/black-white printing/etc.;</i></li> <li>- <i>Stimulate the use of public transport for commuter travel.</i></li> <li>- <i>There has been a switch to 100% hydraulic electricity produces by local produces. This causes the offices to have no CO<sub>2</sub>-reduction.</i></li> </ul>

On 18<sup>th</sup> of July 2016 the offices moved to the new building on Rout du Nant d'Avril 94. These new offices have the certificate of high-energy efficiency. For climate control a heat-pump has been installed, this will eliminate the use of Gas or Fuel to heat the offices. The new office is situated near public transportation and employees are encouraged to take the train to work. The step has been made to have SIG blue electricity. This is 100% Hydraulic electricity produced by local producers. The heating of the offices is also electric. There is no usage of fossil fuels to power the offices of SPENO. This has an impact on the CO<sub>2</sub>-emissions of the offices. The greatest advantage will still be obtained through the reduction of fuel consumption by trains.

### 4.2 Sub-objective Air travel

<i>SPENO International S.A. will reduce Air travel by 2%</i>	
<b>Measures</b>	<ul style="list-style-type: none"> <li>- <i>Installation of new video conferencing system</i></li> <li>- <i>Increase the use of this system, so travel abroad when necessary</i></li> </ul>

In the new offices in Geneva a new video conferencing system has been introduced. This system will be used and travel to abroad companies will only be done when necessary.

### 4.3 Sub-objective lease cars

<i>SPENO International S.A. will reduce the fuel consumption of lease cars by 3%.</i>	
<b>Measures</b>	<ul style="list-style-type: none"> <li>- <i>All cars have been replaced by BlueMotion cars, which are more fuel efficient;</i></li> <li>- <i>Send a newsletter to the field personnel about economic drive behavior.</i></li> </ul>



#### 4.4 Sub-objective fuel consumption trains

<i>SPENO International S.A. will reduce the fuel consumption of the machines by 2,5%</i>	
<b>Measures</b>	<ul style="list-style-type: none"><li>- <i>Limit maximum use of the engine (reissue the instruction);</i></li><li>- <i>In case of changing the engine choose for an engine with the latest technology concerning energy usage;</i></li><li>- <i>Research possibilities for green Electricity in the new offices</i></li></ul>

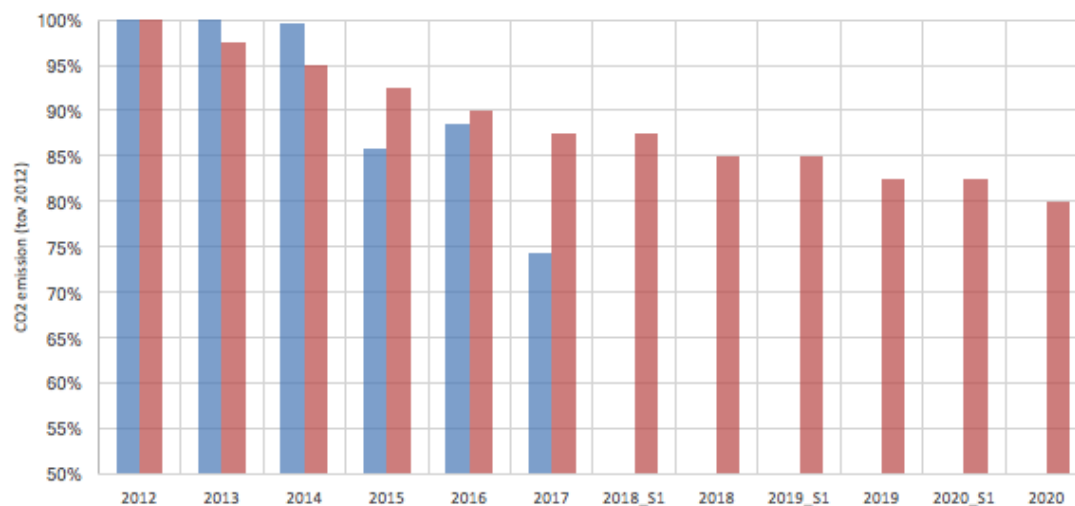




## 4.5 Progress CO<sub>2</sub> reduction in scope 1 and 2

In the graph below the progress of the footprint is depicted below.

Progress CO<sub>2</sub> reduction



<b>Progress CO<sub>2</sub> emissions</b>						
<b>Scope 1</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Gas consumption (office)	13,08	21,47	19,16	14,44	13,79	-
Fuel consumption (office)	8,44	5,17	6,93	7,20	7,11	-
Fuel consumption lease cars - diesel	129,20	379,25	326,14	259,25	295,36	318,79
Fuel consumption trains - diesel	17.259,89	16.580,22	17.567,85	16.946,90	17.301,25	14.826,34
<b>Scope 2</b>						
Electricity consumption - grey	60,20	30,10	53,56	51,65	42,36	-
Electricity consumption trains - gray	-	-	-	-	-	10,93
Electricity consumption - green	-	-	-	-	-	-
Air travel < 700 km	213,93	223,01	242,52	230,22	200,97	224,31
Air travel 700 - 2500 km	698,05	763,96	847,64	805,39	735,70	760,28
Air travel > 2500 km	374,47	491,65	337,23	352,30	283,40	354,50
Ground kilometers (finished)	19.688,00	19.228,00	20.434,00	22.854,00	22.368,60	23.306,87
Relative CO <sub>2</sub> emission:	0,95	0,96	0,95	0,82	0,84	0,71
Relative CO <sub>2</sub> emission in %:	100%	101%	100%	86%	89%	74%
Expectation:	100%	98%	95%	93%	90%	88%



## 5 CO<sub>2</sub> action plan

### 5.1 Measures and time schedule

Measure	Energy flow	Date
<b>Scope 1</b>		
Heat-pump in the new offices	Gas / fuel	Continues
Inform employees about economic behavior at the office	Gas / fuel	Continues
Stimulate the use of public transport for commuter travel (new office near train)	Cars	Continues
In case of replacement select a car that is economic on fuel (BlueMotion)	Cars	Continues
Instruct the employees to only use the air-conditioning for a 4 degrees difference with the outside temperature (this will reduce illness as well)	Cars	Continues
Send a newsletter to the field personnel about economic drive behavior	Cars and trains	Continues
Limit maximum use of the engine (reissue the instruction	Trains	Continues
In case of changing the engine choose for an engine with the latest technology concerning energy usage	Trains	Continues
<b>Scope 2</b>		
Paste posters at the printers. Inform people about two sided printing/black-white printing/etc.	Electricity	2016
100% Hydraulic Electricity of local producers in 2018	Electricity	2018
Installed Video conferencing system	Air travel	2017



## 5.2 Person responsible, recourses and Critical performance indicator

Measure	Person Responsible	Resources	Critical performance indicator
<b>Scope 1</b>			
Heat-pump in the new offices	Yamine Guettari	Cooperation employees, explanations	Gas offices / Fuel offices
Inform employees about economic behavior at the office	Yamine Guettari	Cooperation employees, explanations, toolboxes	Gas offices / Fuel offices
Stimulate the use of public transport for commuter travel (new office near train)	Yamine Guettari	Cooperation employees, possibility to travel with public transport	Fuel Cars
In case of replacement select a car that is economic on fuel (BlueMotion)	Yamine Guettari	Newsletter and mailings	Fuels Cars
Instruct the employees to only use the air-conditioning for a 4 degrees difference with the outside temperature (this will reduce illness as well)	Yamine Guettari	Cooperation employees, explanations, toolboxes	Fuels Cars
Send a newsletter to the field personnel about economic drive behavior	Yamine Guettari	Newsletter and mailings	Fuel Cars
Limit maximum use of the engine (reissue the instruction)	Yamine Guettari	Cooperation employees, explanations, toolboxes	Fuel trains
In case of changing the engine choose for an engine with the latest technology concerning energy usage	Yamine Guettari	Cooperation employees, explanations, toolboxes	Fuel trains
<b>Scope 2</b>			
Paste posters at the printers. Inform people about two sided printing/black-white printing/etc.	Yamine Guettari	Cooperation employees, explanations	kWh electricity
100% Hydraulic Electricity of local producers in 2018	Yamine Guettari	Cooperation employees, funds for green electricity	CO <sub>2</sub> -emissions Electricity
Installed Video conferencing system	Yamine Guettari	Cooperation employees, installation and use of the Video conferencing system	Air travel



## 6 Sector and Chain Initiatives

The CO<sub>2</sub>-Performance Ladder invites certified companies to attend sector and chain initiatives. The companies are required to inform itself of the innovations in CO<sub>2</sub>-reducing measures and developments within the sector.

### 6.1 Active participation

The principal behind these initiatives is to trade information with other like-minded companies and to inspire new ways of CO<sub>2</sub> reduction. The requirement was made for companies to attend in workshops and discussion groups. The agenda of the meetings, the presentation and the discussion are the evidence of participation.

#### **Progress of initiative**

Speno has participated in Öbu since 2013, and has decided that it is no longer relevant anymore for the activities. For that reason, Speno has chosen to become part of the G21 Swisstainability Forum (see below).

### 6.2 Current Initiative

#### **G21 Swisstainability Forum**

#### **The economy & sustainability date in Switzerland**

This annual event is meant to be the platform for the economic transition in Switzerland. Its aim is to encourage meetings and collaboration between scientific, economic, and political actors and NGOs, to support the companies in their innovating and sustainable projects, and to showcase the best initiatives and innovations which will be the leading projects of tomorrow, always in a forward-looking spirit.

Link: [www.g-21.ch](http://www.g-21.ch)

<b>Subject</b>	<b>Amount</b>	<b>Unit</b>	<b>Total</b>
<i>Yamine Guettari and Chantal Sacchi</i>	<i>As many hours as necessary</i>	<i>n.a.</i>	<i>CHF</i>
<i>Budget made available</i>		<i>n.a.</i>	<i>CHF 3.500,-</i>
<i>Annual contribution</i>		<i>CHF 1500,-</i>	<i>CHF 1.500,-</i>
<b>Total made available</b>			<b>CHF 5.000,-</b>



## Appendix A: Chain initiatives possibilities

<b>Sector- and chain initiatives regarding CO<sub>2</sub> reduction</b>	
<p><b>ProRail</b> ProRail is the developer of the CO<sub>2</sub>-Performanceladder.</p>	<p>SPENO has obtained the CO<sub>2</sub>-Performanceladder certificate on a level 3.</p>
<p><b>G21 Swisstainability Forum</b> the economy &amp; sustainability date in Switzerland This annual event is meant to be the platform for the economic transition in Switzerland. Its aim is to encourage meetings and collaboration between scientific, economic, and political actors and NGOs, to support the companies in their innovating and sustainable projects, and to showcase the best initiatives and innovations which will be the leading projects of tomorrow, always in a forward-looking spirit.</p>	<p>Speno has decided to attend this forum in June.</p>
<p><b>Government</b> The government of Switzerland (and a lot of other countries in Europe) is committed to the Kyoto initiative. That means 20% CO<sub>2</sub> reduction in 2020.</p>	<p>The Swiss Government approved the report «CO<sub>2</sub> and company's leading» By this, the government wants to encourage the social responsibility of the swiss companies. Social responsibility of the companies also includes the publication of information on CO<sub>2</sub> emissions, measures, risks related to climate change and strategies to control them. As a swiss company, SPENO is encouraged to follow the initiative. With the certificate on the CO<sub>2</sub>-Performanceladder SPENO has taken steps in this initiative.</p>
<p><b>Rail Cargo Information</b> A foundation in which 60 companies of the (Dutch) rail sector participate. Goal of the foundation is to stimulate the use of rail for transportation of goods.</p>	<p>A real interested initiative as we know that using rail for good transportation is one of the solutions expressed to reduce the energy consumption.</p>
<p><b>Railforum Kenniskring Duurzaamheid (Railforum Knowledge Network Sustainability)</b> A project with the objective to calculate the CO<sub>2</sub> footprint of the entire rail transportation in Holland. Including: production, construction, use, maintenance and waste.</p>	<p>It could be interested for SPENO to follow the progress of this initiative.</p>
<p><b>Öbu</b> <a href="http://www.oebu.ch">www.oebu.ch</a> Uraniastrasse 20 – 8001 ZÜRICH- Switzerland Works for sustainability in Switzerland. This platform develop several initiatives to encourage the swiss companies to implement a sustainable development program.</p>	<p>Öbu has decided to stop this initiative. SPENO has been part of this initiative since 2013.</p>
<p><b>Ecoparc</b> <a href="http://www.ecoparc.ch">www.ecoparc.ch</a> Association Ecoparc Faubourg du Lac 3 2001 NEUCHÂTEL – Switzerland Ecoparc association provides companies with information, tips and tools that enable them to assess, improve and enhance the actions they undertake in the field of sustainable development.</p>	<p>It's interesting for SPENO to follow this type of initiative to discover all other different programs elaborated to guide other companies in different field in Switzerland.</p>



<p><b>Equiterre</b> Rue des Asters 22 1202 GENEVE - Switzerland <a href="http://www.equiterre.ch">www.equiterre.ch</a> Created 40 years ago, the association advises and assists local communities and companies on the path of sustainable development.</p>	<p><i>Interested for SPENO to follow the progress of this initiative.</i></p>
<p><b>Le Baromètre Romand 2010 du Développement Durable</b> <a href="http://www.swisstainability.org">www.swisstainability.org</a> Study on the behavior of Swiss face to sustainable development.</p>	<p><i>It's interested for SPENO to know the behavior of the people face to energy consumption.</i></p>
<p><b>Energie-Environnement.ch</b> <a href="http://www.energi-environnement.ch">www.energi-environnement.ch</a> More than 500 practical tips to save energy and preserve the environment</p>	<p><i>A very interesting source of information for SPENO to disseminate messages to its employees.</i></p>