WORKTITUDE FOR **LIFE**

Carbon footprint

Greenhouse Gas (GHG) emissions report of LAMP S.A 2022

24 March 2023

Project Manager:
Elisabeth García Portero
Acció Accredited Advisor

cecot | energia

Office for the Energy Transition

LAMP
Worktitude for light

"What is not defined cannot be measured. What is not measured cannot be improved. What is not improved, always degrades".

William Thomson Kelvin (1824-1907)

1. BACKGROUND 2
2. BACKGROUND CONCEPTS 2
2.1. GREENHOUSE GASES AND THE CARBON EQUIVALENT CONCEPT 2
2.2. THE CONCEPT OF CARBON FOOTPRINT AND WHY TO CALCULATE IT 3
2.3. CLASSIFICATION OF EMISSIONS ACCORDING TO GHG PROTOCOL / ISO 14064 4
3. DESCRIPTION AND STRUCTURE OF THE REPORT 6
4. DESCRIPTION OF THE ORGANISATION 7
5. SCOPE 10
5.1. GEI EMISSION CONSOLIDATION METHOD 10
5.2. ORGANISATIONAL LIMITS 10
5.3. OPERATIONAL LIMITS 12
5.4. EXCLUSIONS 13
6. SELECTION OF THE CALCULATION METHOD 14
7. ELECTION OF EMISSION FACTORS 17
9. VOLUTION DATA 2021-2022 25
10. KEY PERFORMANCE INDICATORS 27
11. CONSIDERATIONS FOR THE FUTURE: ACTIONS FOR IMPROVEMENT 28
11.1. IMPROVEMENTS IN THE MANAGEMENT AND CALCULATION OF GREENHOUSE GASES 28
11.2. QUALITATIVE UNCERTAINTY ASSESSMENT AND IMPROVEMENTS 36
11.3. EMISSION REDUCTIONS, OFFSETS AND REGISTRIES 39
11.4. VOLUNTARY CARBON FOOTPRINT REGISTRIES 40
11.5. SUSTAINABLE DEVELOPMENT GOALS (ODS) TO WHICH IT CONTRIBUTES 41
12. CONCLUSIONS 42
13. GLOSSARY 44
14. BIBLIOGRAPHY 44
15. ANNEXES 46

1. Background

In this context in which society is moving towards a low-carbon society, companies and organisations must be prepared and even lead the process of decarbonisation and the transition towards a sustainable economy aligned with the Sustainable Development Goals. For this reason, they must make an effort to be fully aware of the impact of their activity and detect those points where they can improve, in terms of emissions reduction in this case.

On the other hand, according to the regulations derived from the European Green Pact, the business fabric must develop decarbonisation strategies to achieve a 55% reduction in emissions compared to 1990 values, known as the "fit for 55", and climate neutrality in 2050. For this reason, knowing the emissions of the activity and designing a plan to reduce emissions with progressive application is the best option for the adaptation and resilience of companies in the face of new climate demands and needs.

2. Background concepts

Before proceeding with the calculation of the organisation's carbon footprint, we will make a brief introduction to understand the current context, the concept and its unit of measurement.

2.1. GREENHOUSE GASES AND THE CARBON EQUIVALENT CONCEPT

Greenhouse gases (GHGs) are gaseous components of the atmosphere, some of which are naturally occurring and essential for the survival of living things, as they absorb infrared radiation and prevent, among other things, some of the sun's heat from being reflected back into outer space. In this way, a temperature suitable for life is reached on Earth.

Since the pre-industrial era, global GHG emissions have increased continuously and exponentially due to human activities such as the deforestation of the Earth's large lungs or the heavy consumption of fossil fuels, stimulated by economic and population growth. As a consequence, the capacity to retain heat in the atmosphere has increased and this has contributed to the increase in the Earth's average temperature and consequently to climate change.

There are six GHGs listed in the Kyoto Protocol, CO2 being the most abundant.

GEI	Atmospheric Warming Potential (GWP100) (CO_2 equivalent)
Carbon Dioxide - CO_2	1
Methane - CH4	28
Nitrous oxide - N20	265
Perfluorinated - PFC's	12.200 (for PFC-116)
Hydrofluorocarbons - HFC's	14.800 (for HFC-23)
Sulphur Hexafluoride - SF6	23.500

Source: United States Environmental Protection Agency and Oficina Catalana del Canvi Climàtic (2022)

To calculate the carbon footprint we use the term CO2 equivalent, a unit of measurement that can encompass the different greenhouse gases (GHG) using conversion factors. The mass of gases emitted is measured by their CO2 equivalence to generate the greenhouse effect. For example, this equivalence tells us that 1 tonne of N2O produces as much greenhouse effect in the atmosphere as 265 tonnes of CO2, i.e. 265 tonnes of CO2 equivalent.

2.2. THE CONCEPT OF CARBON FOOTPRINT AND WHY TO CALCULATE IT

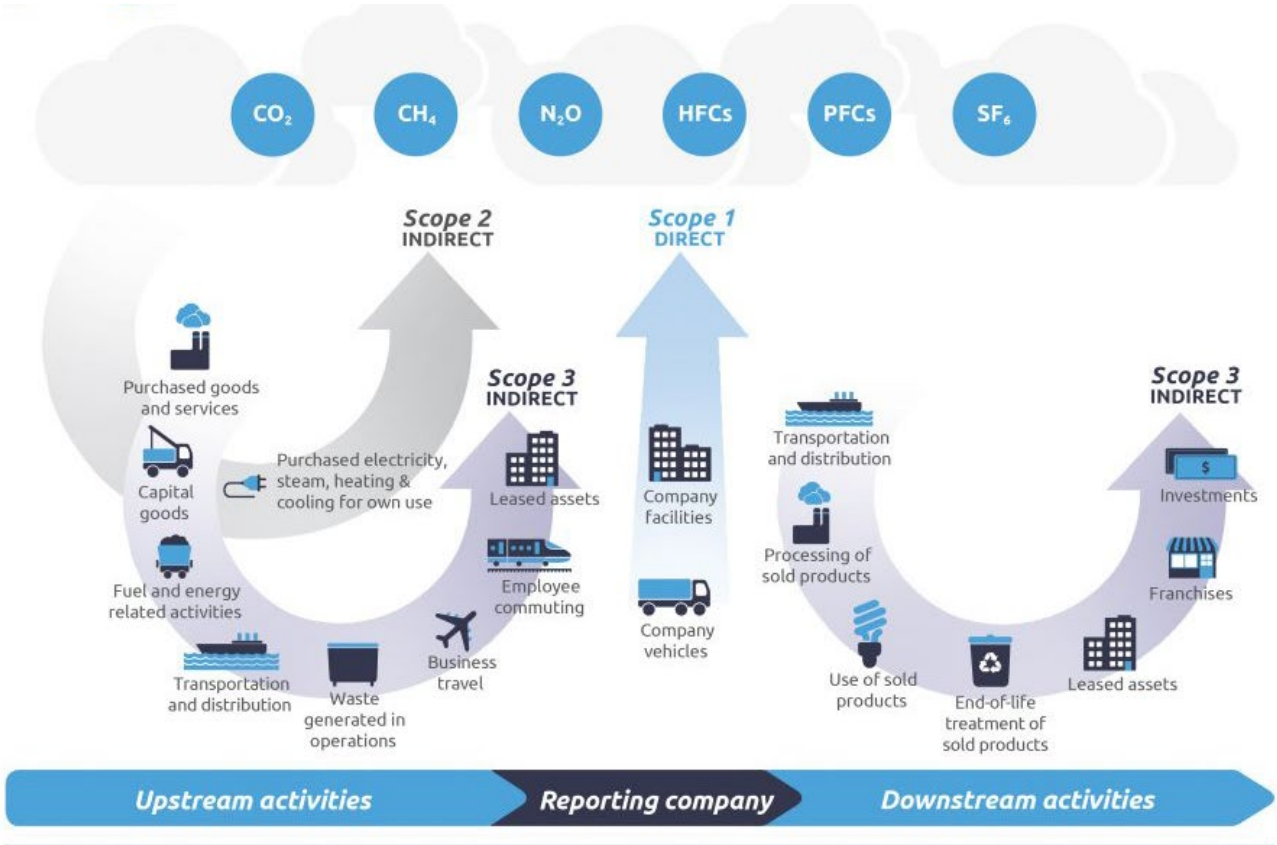
Carbon footprint (CF) is a term used to describe the amount of GHGs that are released into the atmosphere directly or indirectly as a consequence of a given activity, whether it is the manufacture of a product, the provision of a service, or the operation of an organisation.

The concept of an organisation's carbon footprint is intended to describe the total impact an organisation has on the climate in relation to GHG emissions into the atmosphere. The use of the carbon footprint has also been developed as an information element to communicate the environmental performance of an entity to all stakeholders, as well as an indicator to make decisions to reduce emissions associated with an activity.

Increasingly, both the administration and other organisations, as well as the public, are taking environmental aspects into consideration in their decision making, and among the different indicators, CO2 emissions are becoming more and more relevant in recent years.

2.3. CLASSIFICATION OF EMISSIONS ACCORDING TO GHG PROTOCOL / ISO 14064

Emissions can be classified into three types according to the company's capacity to control them and the place where they are produced. The following image and summary table shows the nomenclature and its equivalence according to the calculation methodology used:



Emissions categorised by Scopes according to the GHG protocol. Original source: https://ghgprotocol.org/

Location / control	GHG Protocol	ISO 14064	Examples
They are produced in the company and/or the company has control over them (Reporting company).	Scope 1	Direct emissions	✓ Natural gas ✓ Fossil fuels own vehicle fleet ✓ Refrigerant leaks from climate equipment
They occur at the place of energy generation (electricity, steam, cold, heat) and the consuming company has no control over them (upstream activities).	Scope 2	Indirect emissions from the purchase of electricity, heat, cooling or steam	✓ Electricity
They are a consequence of the organisation's operations, but occur from sources not owned or controlled by the organisation (Upstream, Downstream activities, and Out of Flow).	Scope 3	Other indirect emissions.	✓ Water consumption ✓ Purchase of raw materials ✓ Subcontracted distribution transport ✓ Waste treatment ✓ Corporate travel ✓ In itinere travel of employees ✓ Use of products sold ✓ End-of-life treatment of sold products

3. Description and structure of the report

This carbon footprint report consists of the calculation of LAMP's greenhouse gas (GHG) emissions for the year 2022. As the consumption history for many of the parameters analysed is available, specific calculations will also be made of the corresponding emissions for the year 2021 for these items, in order to assess the effectiveness of the measures implemented during the year 2022.

The methodology used and described in the carbon footprint calculation guide published by the Catalan Office of Climate Change in its June 2022 version (OCCC) based on the UNE-ISO 14069 methodology for quantifying and reporting greenhouse gas emissions for organisations as an application of the ISO 14064-1 standard has been followed for this study. On this basis, this technical report has been prepared and structured, to which we have added some sections of information that we consider to be of interest to the organisation and useful for the correct communication of the carbon footprint. By way of summary, the following sections contain the following information:

- ✓ **Paragraphs 4 and 5**: definition and description of the organisational and operational boundaries of the carbon footprint calculation.
- ✓ **Paragraphs 6 y 7:** Description of the calculation methodology and the emission factors used, indicating the source from which they were obtained for each of the emitting sources considered.
- ✓ **Paragraph 8:** It contains the inventory of existing emission sources in the facilities and scopes under study, and the calculation of the carbon footprint.
- ✓ **Paragraph 9:** Choice of activity indices and calculation of the organisation's KPIs.
- ✓ **Paragraph 10:** Dedicated to improvement actions, qualitative assessment of uncertainty, complementary measures to emissions reduction, such as offsetting, **registration and contribution to the United Nations Sustainable Development Goals (ODS).**
- ✓ **Paragraph 11:** Conclusions from both the calculations and the study process.
- ✓ **Paragraphs 12, 13 y 14:** They correspond to the glossary, bibliography and annexes.

4. Description of the organisation

Lamp S.A. is based in Terrassa (Spain), where both the production of luminaires and the headquarters function of Lamp and its subsidiaries located in France, Mexico, Colombia and Chile are carried out.

They advise, design, produce, market and implement technical lighting projects. Lamp defines its hallmark as:

"A commitment that we have maintained for more than 50 years: to turn our clients' lighting challenges into reality with a solvent and tailor-made response to any architectural project in the world. At Lamp we are work and attitude, we are Worktitude for Light.

WORKTITUDE FOR WELLBEING

We understand lighting as a fundamental element to improve people's well-being, analysing the visual and non-visual effects of light.

WORKTITUDE FOR INNOVATION

We promote and adopt innovation projects aimed at constant improvement in a transversal manner, understanding that innovation is a systemic and systematic process.

WORKTITUDE FOR LIFE

We encourage projects that have a positive impact on the environment and promote a more sustainable lighting industry".

GENERAL DATA

COMPANY NAME	***Lamp S.A***
VAT NUMBER	A08478042
ADDRESS	Córdoba, 16- 08226 Terrassa
CONTACT PERSON	Quico Escudé
POSITION/FUNCTIONS	Purchasing and Sustainability Manager
EMAIL	quico_escude@lamp.es
TELEPHONE	937 36 68 00
TOTAL SURFACE AREA OF THE INSTALLATIONS	5.800 m^2
NUMBER WORKERS (2022)	80
WEB SITE	https://www.lamp.es

5. Scope

5.1. GEI EMISSION CONSOLIDATION METHOD

The most appropriate consolidation of GEI emissions for the Lamp is the operational control approach. Thus, 100% of the GEI emissions attributable to the activities over which the organisation has direct operational control or the possibility of obtaining the information necessary to calculate the emissions derived from Lamp's activity, whether upstream, downstream or out of stream, will be accounted for.

5.2. ORGANISATIONAL LIMITS

In order to determine the organisational limits, temporal and spatial limits must be defined. In this case, we establish 2022 as the time limit and all the facilities located at the Terrassa headquarters described in section 4 as the spatial limits. The carbon footprint to be calculated in this study corresponds exclusively to the emissions derived from the activity of Lamp with Tax ID No. A08478042 at its facilities in Terrassa.

Time limits	Year 2022
Spatial boundaries	Lamp's production facilities and offices in Terrassa

Lamp's facilities in Terrassa have a total surface area of 5,800 m2 divided into 3 production-warehouse areas on the ground floor and 2 office areas, one on the ground floor and the other on the first floor.

Aerial view of Lamp's roof with photovoltaic installation

They have a warehouse for the reception and handling of raw materials, as well as a small painting area which currently has a diesel-powered oven.
The second building is a luminaire assembly area, with an office area for technical staff. This assembly area has a location for the management of the waste from the different materials in order to encourage ways of recovering them. The third building/area is a partially automated warehouse.



The office area/administration offices, showroom and meeting rooms are located on the first floor above the assembly area.

5.3. OPERATIONAL LIMITS

In order to define the operational limits, the emitting sources to be included in the calculation must be identified and classified by scope or emission category. In the following table we have classified the emitting sources of the activity to be included in Lamp's carbon footprint calculation for the year 2022.

OPERATIONAL LIMITS: Emission sources considered for the HC calculation	**Scope 1: Direct emissions**	✓ Fugitive emissions (assessed but no leakage of refrigerant gases in year 2022) ✓ Heating oil consumption ✓ Finishing kiln diesel fuel consumption ✓ Consumption of leasing vehicle fleet
	Scope 2: Indirect emissions from energy purchases	✓ Electricity (includes the consumption of the vehicles that are charged at Lamp's facilities)
	Scope 3: Other indirect emissions	✓ Water consumption ✓ Corporate travel ✓ In itinere travel ✓ Industrial waste ✓ Main materials/components purchased for production ✓ Purchases of office supplies ✓ Distribution transport (of KOMBIC and FIL products)

5.4. EXCLUSIONS

This sub-section describes the emitting sources that have been analysed and excluded from the calculation, either because no emissions have been produced, or because they are not significant or simply because they do not exist in the activity.

- ✓ **Refrigerant gas emissions:**

No refrigerant gas emissions have occurred. Maintenance company certificates on GEI management are attached in Annex 5.

- ✓ **Emissions from the production process:**

No emissions from the production process or diffuse emissions from wastewater treatment plants are generated. Given the activity, it is not necessary to have a wastewater treatment plant, as the wastewater is assimilated to urban water and is treated by the municipal sewage system.

- ✓ **Client and visitor travel:**

Given the nature of the activity, there are no customer movements or visits to the installations that could be considered significant for the purposes of emissions.

- ✓ **Other indirect emissions from outsourced services**:

Emissions from subcontracted consultancy or cleaning services have not been taken into consideration, as they are not considered significant within the overall scope of the footprint considered in this calculation.

- ✓ **Capital goods:**

Partially taken into account, depending on the availability of emission factors available from official sources.

No significant capital assets have been acquired during 2022.

- ✓ **Other emissions associated with the production of the energy acquired:**

Emissions that are currently not required to be included for the simplified process in the OCCC, nor is there an emission factor published in the OCCC that allows quantification of these indirect emissions associated with in-scope1 (direct) sources.

✓ **Emissions from the use and end-of-life treatment stage of products sold:**

In order to calculate the emissions of the purchased raw material, some emission factors of the supplier have been used which include the complete life cycle. In order to avoid duplication in emissions accounting, this emission source has not been included in Lamp's first corporate carbon footprint, as it is indirectly and partially within the life cycle of the purchased material.

It is proposed to establish a methodology that allows for one of these two options:

- To have the emission factors of the products purchased from suppliers available with a standardised methodology that allows for the selection of the phases to be included in the calculations, thus avoiding duplications.
- **To have the full Environmental Product Declarations (DAP), Life Cycle Assessment (LCA) or carbon footprints of Lamp's products (or significant part thereof)** and to make annual calculations of both this block of emissions and that of purchased materials and distribution transport from the functional units sold.

6. Selection of the calculation method

In order to carry out this study, different calculation procedures have been adapted depending on the data available for each of the vectors analysed, although the general methodological basis for calculating the emissions derived from the activity is always the same, consisting of the application of the following formula:

Carbon footprint (t CO2 e) = Activity data x Emission factor

Being:

- Activity data: the parameter defining the activity and referred to in the emission factor (e.g. m^3 of natural gas).
- Emission Factor: amount of CO_2 e emitted per unit of the parameter "activity data" (e.g. 2.16 kg CO_2/ m^3).
- The unit used to display the results (t CO_2 e) represents the Tonne of CO_2 equivalent, a universal unit of measurement indicating the **Global Warming Potential (PCA)** of each of the *GEI*.

Through EFs we convert activity data into emissions. Most emission sources, e.g. electricity, are calculated directly from actual consumption data. Others, however, such as in itinere travel, are obtained through an indirect calculation, as will be seen below.

The methodology applied is that used by the Catalan Office of Climate Change, which is based on the UNE-ISO 14069 methodology for quantifying greenhouse gas emissions for organisations as an application of the ISO 14064-1 standard.

The inventory data was collected through invoices, delivery notes, surveys and official administrative documents.

The **Emission Factors (FE)** used are mainly from official sources from the Catalan Office of Climate Change, **the Spanish Office of Climate Change (OECC)** and the **Intergovernmental Panel on Climate Change (IPCC)**, as well as from the Environmental Product Declarations of the materials, components purchased and those produced.

In order to minimise the uncertainty of the calculations, local or proximity emission factors have been used whenever possible, and supplier emission factors have been used whenever available.

In order to minimise the uncertainties of the **activity data (DA),** priority has been given to direct data on consumption and volumes, supplied directly by the team managing this information in the company, verifying this information with the corresponding invoices whenever possible.

The following table summarises the methodology used for each concept:

Concept	Source of data	Methodology for obtaining activity data	Methodology for obtaining the emission factor
Oven/heating oil	Supplier invoices	Direct data collection on litres consumed	Official OCCC issuance factor
Consumption of leasing vehicle fleet	Invoice-Solred supplier	Direct data collection on litres consumed	Official OCCC issuance factor
Electricity trading company Estabanell	Invoices-registration CUPS supplier	Direct acquisition of kWh consumed data	Official issuance factor OECC-CNMV-Commercialisation company
Electricity trader Nufri	Invoices-registration CUPS supplier	Direct acquisition of kWh consumed data	Official issuance factor OECC-CNMV-Commercialisation company
Water	Supplier invoices	Direct collection of m^3 consumed data	Official OCCC issuance factor
Corporate travel: air and rail	Provider agency: Viajes Tejedor	Data on emissions produced provided by the supplier-agency	Emissions have been provided directly

In itinere travel	Staff surveys	Calculation of fuel consumption based on data provided through staff surveys on km driven, means of transport used and consumption of private vehicles.	Official OCCC issuance factor
Subcontracted transport and distribution for KOMBIC and FIL products.	for Lamp: inventory of sales delivery notes	Box A4 (distribution trips by functional unit) of the verified product WTPs.	DAP kombic and DAP Fil
Industrial waste	DARI (Annual declaration of industrial waste)	Data on tonnes produced extracted from DARI	Official OCCC issuance factor
Materials/components purchased for production	Inventory by Lamp from purchase orders	Datos de las unidades o kg comprados proporcionado por Lamp	Emission factors provided by suppliers, except for one obtained from IPCC
Office supplies	Inventory by Lamp from purchase orders	Data on units or kg purchased provided by Lamp	Official OCCC issuance factor

7. Election of emission factors

Emission factors are the values that allow us to know the amount of CO_2 emitted per unit of the activity parameter under consideration. They are therefore unique for each concept (natural gas, diesel, electricity, water), and can also be variable over time, especially in the case of electricity as the proportion of energy sources to produce it is changing (gas, coal, nuclear, renewables, etc.).
The following table details the emission factors used for the calculation of the year 2022:

Concept	Emission factor units	Applicable FE value 2022	Source of data
Fixed[1] installation	kg CO_2/ litre	2,877	OCCC. Version June 2022
Estabanell Electricity	kg CO_2 e/kWh	0	Trading company - OECC
Nufri Electricity	kg CO_2 e/kWh	0,24	Trading company - OECC
Water	kg CO_2 e/m^3	0,385	OCCC. Version June 2022
Diesel fuel	kg CO_2 e/l	2,503	OCCC. Version June 2022
Petrol	kg CO_2 e/l	2,244	OCCC. Version June 2022
GLP	kg CO_2 e/l	1,742	OCCC. Version June 2022
Aircraft	kg CO_2	-	Supplier: Viajes tejedor
Short distance train	kg CO_2 e/ passenger *km	0,038	OCCC. Version June 2022
High speed train corporate travel	kg CO_2	-	Supplier: Viajes tejedor
Bus	g CO_2 e/ passenger *km	72,95	OCCC. Version June 2022

[1] Details of the fossil fuel emission factor of vehicles.

Fuel	CO_2	CH_4	N_2O	Aggregate emission factor applied kg CO_2 e/l
	kg CO_2/l	kg CO_2 e/l	kg CO_2 e/l	
Petrol car	2,23012	0,00681	0,00674	**2,24367**
Diesel car	2,47067	0,00019	0,03177	**2,50263**
GLP car	1,73217	0,00587	0,00435	**1,74239**

Concept	FE units	Applicable FE value 2022	Source of data
Industrial waste (emission factors per REG 2150/2002 group and via management)[2]			
Group 5 /T62	kg CO_2 e/t	173,08	OCCC. Version June 2022
Group 6 /T-62	kg CO_2 e/t	225,42	OCCC. Version June 2022
Group 15 / V41	kg CO_2 e/t	69,17	OCCC. Version June 2022
Group 18 / V11	kg CO_2 e/t	159,87	OCCC. Version June 2022
Group 20 / V12	kg CO_2 e/t	77,91	OCCC. Version June 2022
Group 21 / V15	kg CO_2 e/t	37,53	OCCC. Version June 2022
Group 35 / V41	kg CO_2 e/t	94,65	OCCC. Version June 2022
Group 35 / T62	kg CO_2 e/t	232,03	OCCC. Version June 2022
Components/materials purchased for production: Hydro Aluminium Bars	kg CO_2 e/kg Hydro aluminium	5	EDP Supplier HYDRO
Components/materials purchased for production: die-cast aluminium parts	kg CO_2 e/kg aluminium	1,8	IPCC consultation carried out 2023[3]
Components/materials purchased for production: LED Drivers LC 15 W	kg CO_2 e/ unit	1,3564	EDP Supplier TRIDONIC [4]
Components/materials purchased for production: LED Drivers LC 40/75	kg CO_2 e/ unit	7,2067	EDP Supplier TRIDONIC
Components/materials purchased for production: Linear LED modules LLE 16*280 mm 650 lm	kg CO_2 e/ unit	0,7479	EDP Supplier TRIDONIC
Components/materials purchased for production: Linear LED modules RLE 2*8 4000lm	kg CO_2 e/ unit	1,4453	EDP Supplier TRIDONIC
Components/materials purchased for production: CoB	kg CO_2 e/ unit	1,1372	EDP Supplier TRIDONIC
Paper/cardboard boxes	kg CO_2 e/t	326	Procarton 2019

[2] Details of REG 2150/2002 group correspondences and LER code in Annex 2

[3] For this material, the product footprint is currently not available from the supplier, so the option of choosing one of the emission factors available for this material in the IPCC database has been chosen. This emission factor therefore does not include the company's own injection moulding process. On the other hand, the supplier is local, being located in the same province as Lamp, and the emissions from transport are not significant. IPCC: CO2 Emission Factor for Metal Production Generally. 2.C.3 - Aluminium production EF ID: 22994

[4] For the three materials purchased from this supplier, the emissions provided by the supplier have been taken into account, corresponding to the phases of purchase of materials, production and transport of their product. ANNEX 6

Office supplies: Paper	kg CO_2 e/kg	1,84	OCCC. Version June 2022
Office supplies: Mobile	kg CO_2 e/ unit	60	OCCC. Version June 2022
Desktop computer	kg CO_2 e/ unit	423	OCCC. Version June 2022
Office supplies: Laptop	kg CO_2 e/ unit	374	OCCC. Version June 2022
Office supplies: Printer	kg CO_2 e/ unit	124	OCCC. Version June 2022
Distribution transport product sold Kombic	kg CO_2 e/unit (1000lm)	0,255	DAP verified KOMBIC [5]
Distribution transport product sold Fil	kg CO_2 e/ unit functional (m)	1,64	DAP verified IDF

To obtain the annual data for the different emission sources, Lamp has provided us with the consumption, generation and invoice data for the year 2022 for the different vectors considered, as explained in section 5.

- ✓ A breakdown of corporate travel (air/train) is given in Annex 1, which has enabled the annual calculation of corporate travel.
- ✓ See Annex 3 for a breakdown of in itinere journeys (summary of surveys conducted).
- ✓ A breakdown of the different consumptions can be found in Annex 4.

Scope 1: Direct emissions[6]

Emissive source	Activity data	Units Activity data	Emission factor	Emission factor units	Emissions kg CO_2 e	Emissions t CO_2 e
Oil -Heating	11.755	l/ year	2,877	kg CO_2 e/l	33.819,14	33,82
Fuel oil Oven	3.310	l/ year	2,877	kg CO_2 e/l	9.522,87	9,52
Diesel -leasing vehicles	14.071,24	l/ year	2,503	kg CO_2 e/l	35.220,31	35,22
Petrol-vehicle leasing	4.368,94	l/ year	2,244	kg CO_2 e/l	9.803,90	9,80
Total Scope 1						**88,37**

[5] Emission factors for Kombic and Fil WTPs in Annex 7
[6] Scope 1 emissions: Direct emissions (Fossil fuels) by GHG type (CO_2, CH_4 y N_2O)

		CO_2		CH_4		N_2O	
Fuel:	**Consumption (litres)**	**Emission factor (kgCO_2/l)**	**Emissions (kgCO_2 e)**	**Emission factor (kgCO_2 e/l)**	**Emissions (kgCO_2 e)**	**Emission factor (kgCO_2 e/l)**	**Emissions (kgCO_2 e)**
Diesel B - Oven	3.310,00	2,86767	9.491,99	0,00325	10,76	0,00615	20,37
Diesel B -Heating	11.755,00	2,86767	33.709,46	0,00325	38,21	0,00615	72,33
Diesel E+ / E+10	14.071,24	2,47067	34.765,39	0,00019	2,67	0,03177	447,04
Effitec 95+98	4.368,94	2,23012	9.743,26	0,00681	29,75	0,00674	29,45
TOTAL EMISSIONS			**87.710,10**		**81,40**		**569,19**

Scope 2: Indirect emissions electricity (Upstream)

Emissive source	Activity data	Units Activity data	Emission factor	Emission factor units	Emissions kg CO_2 e	Emissions t CO_2 e
Electricity-Estabanell	59.704	kWh/ year	0	kg CO_2 e/kWh	0	0
Electricity - Nufri	96.757	kWh/ year	0,24	kg CO_2 e/kWh	23.221,68	23,22
Total Scope 2						**23,22**

Outreach 3: Other indirect emissions *Upstream (U), Downstream (D)* and *Out of stream* (O).

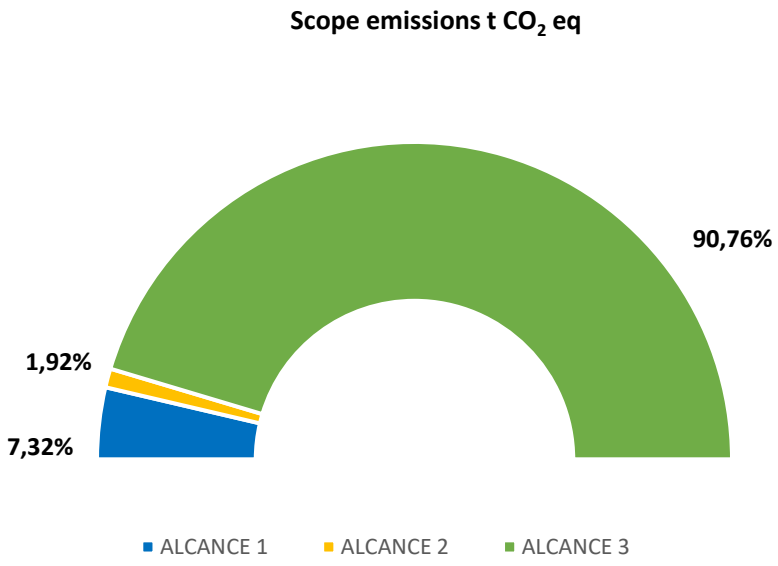
Emissive source	Activity data	Units Activity data	Emission factor	Emission factor units	Emissions kg CO_2 e	Emissions t CO_2 e
Water (U), (D)	554	m^3/ year	0,385	kg CO_2 e/m^3	213,29	0,21
Residues LER 80318 group 5 T62 (D)	0,03	t/year	173,08	kg CO_2 e/t	5,19	0,01
Residues LER 130110 group 6 T62 (D)	0,27	t/year	225,42	kg CO_2 e/t	60,86	0,06
Residues LER 150103 group 21 V15(D)	3,58	t/year	37,53	kg CO_2 e/t	134,36	0,13
Residues LER 150110 group 6 T62(D)	0,13	t/year	225,42	kg CO_2 e/t	29,30	0,03
Residues LER 150111 group 35 T62(D)	0,04	t/year	232,03	kg CO_2 e/t	9,28	0,01
Residues LER 150202 group 6 T62(D)	0,14	t/year	225,42	kg CO_2 e/t	31,56	0,03
Residues LER 200101 group 18 V11(D)	11,16	t/year	159,87	kg CO_2 e/t	1.784,15	1,78
Residues LER 200101 group 18 V11(D)	0,06	t/year	159,87	kg CO_2 e/t	9,59	0,01
Residues LER 200121 group 35 V41(D)	0,207	t/year	94,65	kg CO_2 e/t	19,59	0,02
Residues LER 200133 group 35 T62(D)	0,008	t/year	232,03	kg CO_2 e/t	1,86	0,00
Residues LER 200135 group 35 V41(D)	0,53	t/year	94,65	kg CO_2 e/t	50,45	0,05
Residues LER 200139 group 20 V12(D)	2,64	t/year	77,91	kg CO_2 e/t	205,68	0,21
Residues LER 200139 group 20 V12(D)	1,20	t/year	77,91	kg CO_2 e/t	93,49	0,09
Residues LER 200140 group 15 V41(D)	2,32	t/year	69,17	kg CO_2 e/t	160,47	0,16
Residues LER 200140 group 15 V41(D)	9,79	t/year	69,17	kg CO_2 e/t	677,17	0,68
Residues LER 200140 group 15 V41(D)	1,65	t/year	69,17	kg CO_2 e/t	114,13	0,11
Travel in itinere-Gasoline (O)	3.180,22	l/year	2,244	kg CO_2 e/l	7.134,90	7,13
Travel in itinere-Petrol Hybrid (O)	1.089,90	l/year	2,244	kg CO_2 e/l	2.445,38	2,45
Travel in itinere-Diesel (O)	3.218,85	l/year	2,503	kg CO_2 e/l	8.055,59	8,06
Travel in itinere-GLP (O)	292,50	l/year	1,742	kg CO_2 e/l	509,65	0,51
Travel in itinere-Electric car (O)	28.800	km/year	-	-	-	0
Travel in itinere- Electric skate (O)	1.350	km/year	-	-	-	0
Travel in itinere-Train (O)	15.570	km/year	0,038	kg CO_2 e/km	589,01	0,59

Travel in itinere-Bus (O)	900	km/year	0,073	kg CO_2 e/km	65,66	0,066
Components/materials procured for production: Hydroaluminium rods (U)	68.616	kg/year	5	kg CO_2 e/kg	343.080	343,08
Components/materials purchased for production: die-cast aluminium parts (U)	4.216	kg/year	1,8	kg CO_2 e/kg	7.588,80	7,59
Components/materials purchased for production: LED Drivers LC 15 W (U)	92.454	pcs/year	1,3564	kg CO_2 e/pcs	125.404,61	125,40
Components/materials purchased for production: LED Drivers LC 40/75 (U)	37.680	pcs/year	7,2067	kg CO_2 e/pcs	271.548,46	271,55
Components/materials purchased for production: Linear LED modules RLE 16*280 mm 650 lm (U)	110.344	pcs/year	0,7479	kg CO_2 e/ pcs	82.526,28	82,53
Components/materials purchased for production: Linear LED modules RLE 2*8 4000lm (U)	4.150	pcs/year	1,4453	kg CO_2 e/pcs	5.998,00	6,00
Components/materials purchased for production: ICoB LED modules DEL G4 (U)	92.454	pcs/year	1,1372	kg CO_2 e/pcs	105.138,69	105,14
Paper/cardboard boxes (U)	0,046	t/year	326	kg CO_2 e/t	14,90	0,01
Office supplies: Paper (U)	1.506,86	kg/year	1,84	kg CO_2 e/kg	2.772,62	2,77
Office supplies: Mobile (U)	2	pcs/year	60	kg CO_2 e/pcs	120	0,12
Office supplies: Laptop (U)	3	pcs/year	374	kg CO_2 e/ pcs	1.122	1,12
Office equipment: Desktop computer (U)	1	pcs/year	423	kg CO_2 e/ pcs	423	0,42
Office supplies: Printer (U)	1	pcs/year	124	kg CO_2 e/ pcs	124	0,12
AVE corporate travel or similar (D)	-	km	-	-	1.167,80	1,17
Corporate air travel (D)	-	km	-	-	34.200,63	34,20
Transport distribution (55% sales)[7] (D)	-	-	-	-	92.368,08	92,37
Total Scope 3						**1.095,97**

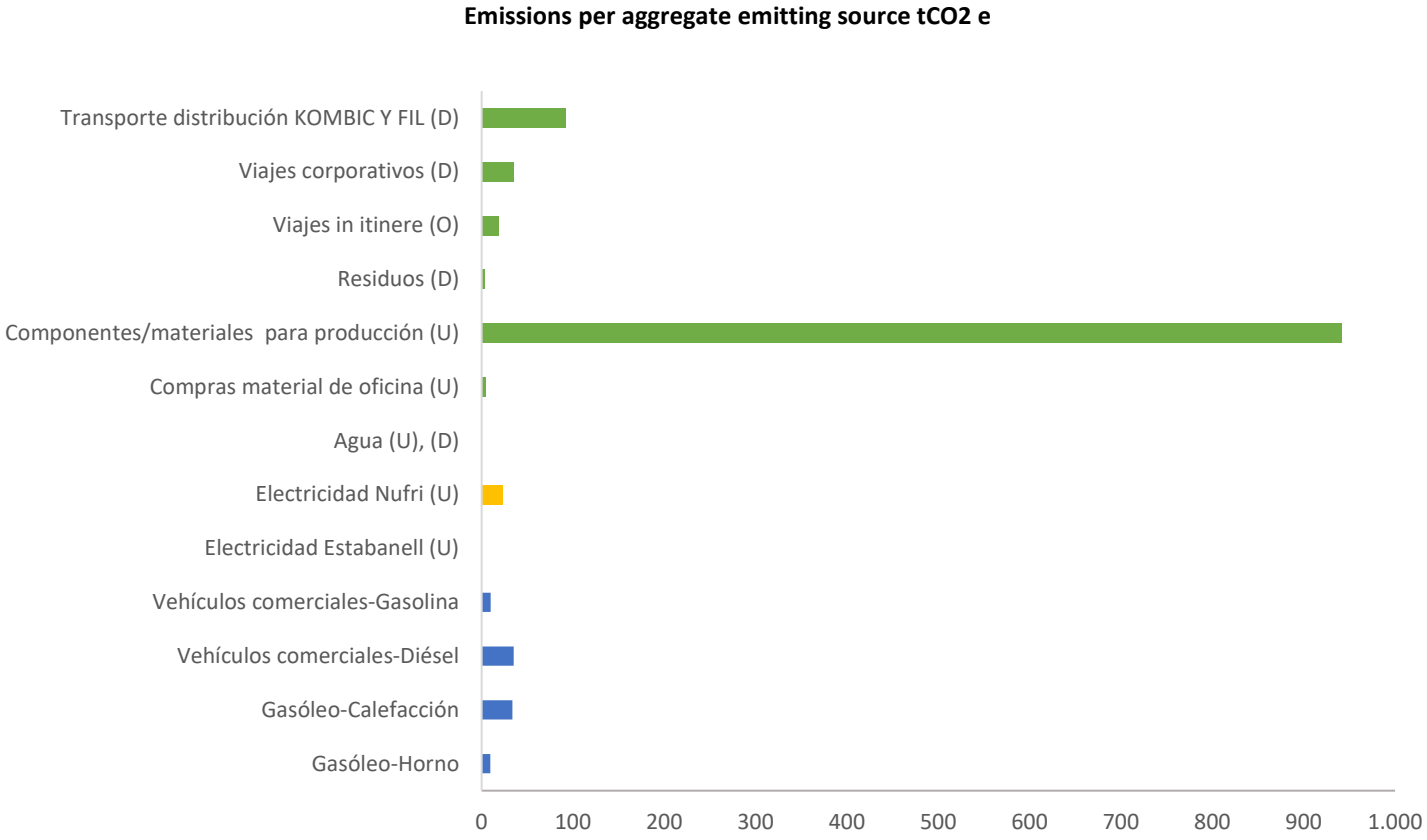
[7] Following consultation with the OCCC, an acceptable methodology has been determined to be able to account for emissions from distribution transport contracted out to third parties. This is done on the basis of the products currently marketed and which have a verified DAP. In this DAP, an overall transport emissions value per unit (A4) was estimated. These DAPs cover 55% of sales in 2022, so this transport estimate does not cover the whole of 2022. LAMP is currently developing another DAP that will allow this methodology to be used and increase the scope of this emission source.

Concept	Units distributed	Emission factor A4 DAP (kg CO_2 e/ unit)	Emissions kg CO_2 e
KOMBIC (functional unit 1000 lm)	160.109,00	0,255	**40.827,80**
FIL (functional unit 1 m)	31.427,00	1,640	**51.540,28**

Scope 1: Direct emissions (t CO_2 e)	Scope 2: Indirect emissions electricity (t CO_2 e)	Scope 3: Other indirect emissions (t CO_2 e)	TOTAL (t CO_2 e)
88,37	23,22	1.095,97	1.207,56



Lamp's carbon footprint is divided, as shown in the graph, into 7.32% direct emissions (scope 1), 1.92% indirect emissions from the consumption of electrical energy from the network (scope 2), and 90.76% of emissions belonging to other indirect emissions (scope 3). This third group of emissions, commonly referred to as scope 3, are the most significant. In the following graph we have grouped the emissions of the different scopes into the categories they belong to.



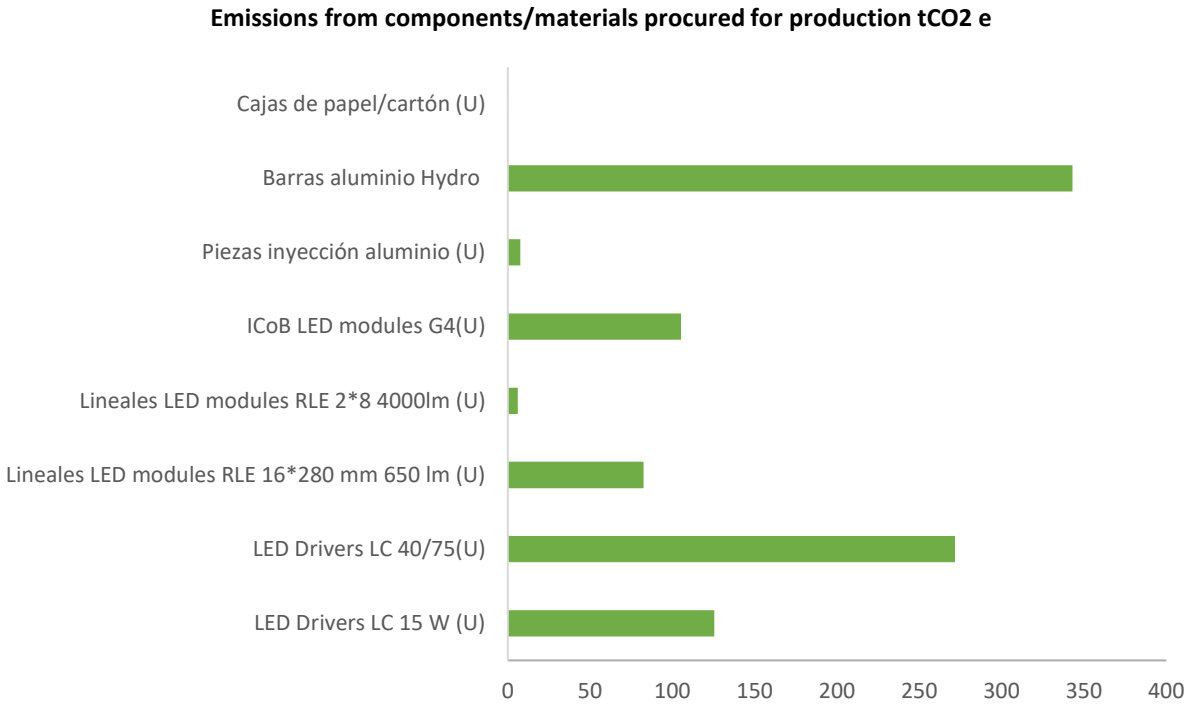
The main emissive category is the components and materials purchased for the production of luminaires. An upstream category that some companies have now started to incorporate into the corporate carbon footprint but which remains difficult to account for as it relies on supplier data. In the case of Lamp, two of its main suppliers have provided their emission factors included in their environmental product declarations, which has made it easier to account for the most significant part of this category of emissions.

In the last review of carbon footprints registered at the Catalan Climate Change Office (2022), it became clear that after the obligation for carbon footprints from 2021 to incorporate Scope 3 emissions to comply with the ISO 14064 standard, it was observed that this category became the most significant with percentages exceeding 80% of the total carbon footprint, as in the case of Lamp's carbon footprint, which, given that its Scope 2 emissions are very low, thanks to the installation of photovoltaic self-consumption, has a percentage of Scope 3 emissions of 90%.

Scope 3 emissions are currently omitted from many companies' corporate carbon footprint calculations, so the scopes included in the calculations need to be assessed in order to evaluate the emissions performance of organisations.

These emissions are at the same time the most complicated to reduce, as the company has no direct control over them and they depend on the decarbonisation measures of the supplier company. In section 10, some measures are proposed to act on the different emission sources included in the calculation.

The following graph shows the category of components and materials purchased for production disaggregated by material. It is, as mentioned above, the category of scope 3 that generates the most emissions.



In this category we have included materials that are purchased in more significant quantities. As mentioned in previous sections, almost all materials have emission factors available from the supplier, a calculation method recommended to reduce the risks of inaccuracy or uncertainty that accompany the emission factors that are extracted from generic tables of available products. Even so, it has been necessary to use for injection materials a value available in IPCC EF tables that probably underestimates the emissions of this material, and as the supplier is able to supply the EF of its product, the calculation will have to be readjusted to be able to assess the evolution of the emissions corresponding to this material.

9. Volution data 2021-2022

Lamp has historical data for many of the items included in this carbon footprint calculation. It also has improvement actions planned, some of which have already been implemented during 2022, others are underway or planned for 2023-2027.

Concept	Evolution data 2021-2022	Assessment/Measures implemented or planned
Fleet of leasing vehicles	Consumption 2021: 17,844 litres diesel (DARI data), Consumption 2022: 14,071.24 litres diesel + 4,368.95 litres gasoline	There has not been a decrease in overall consumption, but it would be necessary to assess whether, taking into account the exceptional nature of covid-19, the kilometres covered were lower and therefore the hybrid vehicles purchased during 2022 have helped to keep emissions stable despite the increase in journeys. In the section on improvements, it is advisable to add to the information collected to account for the kilometres travelled, as this data could, for example, confirm this hypothesis.
Refrigerant gases	No leakage 2021-2022	No leaks. Two R-22 inverter units have been replaced, duly managed for the destruction of the refrigerant gas (certificate attached in annex 5). Two new units have been installed with much lower PCAs than R-22. This measure, which does not reduce emissions per se, does represent a significant improvement in scope 1, reducing the impact of a potential leak of a refrigerant gas with a lower environmental impact in terms of global warming and ozone destruction potential.
Fuel for fixed installations	Consumption 2021: 15,082 litres (DARI data 2021) Consumption 2022: 15,065 litres	A stable value is maintained. One of Lamp's planning measures is the replacement of the paint finishing technology with water-based paint. This change in the process will also will allow the elimination of

		the diesel consumption of the furnace at this stage of production. The elimination of the oil-fired furnace will reduce approximately 3,310 litres, which is equivalent to 9.49 tonnes of CO2 e
Electricity	In the second quarter of 2022, Lamp installed a photovoltaic system for self-consumption that has enabled it to reduce its electricity consumption from the grid by 37.04% (from 248,489 kWh in 2021 to 156,461 kWh in 2022).	Given that LAMP was already consuming renewable energy prior to the photovoltaic (PV) installation, this action does not bring benefits in terms of reducing emissions, but it does bring benefits in terms of self-consumption and therefore increasing the availability of renewable energy for other users who consume from the grid. On the other hand, after the PV installation, the contracted supplier did not provide energy with a guarantee of renewable origin (GdO). On 1 January 2023, Lamp has a 100% renewable GdO certificate from the contracted company, which means that the scope 2 emissions in 2023 will be zero.
Corporate travel	Emissions 2021: 5.988,76 kg CO2 e Emissions 2022: 35,368.43 kg CO2 e	These data need to be put into context, as during the covid-19 pandemic in 2021, travel for purely health-related reasons was drastically reduced. It will be the data from the base year 2022 onwards that will have to be analysed as a year with normalised activity and the evolution of emissions of this concept will have to be evaluated.
Purchased goods: production	Injection-moulded aluminium parts purchased 2021: 9.210 kg Aluminium die-cast parts purchased 2022: 4,216 kg	Emission reductions from this concept amounted to 8,989.2 kg CO2e.

10. Key performance indicators

In order to provide the organisation with indicators that help to assess the evolution of its carbon footprint and at the same time take into account the evolution of its activity, three KPIs (Key Performance Indicators) have been calculated. These indicators integrate components of both aspects, emissions and the company's activity, will serve to generate improvement strategies and to objectively assess the evolution of the footprint with the changes made in the company.

KPI 1 and 2 have been elaborated considering the emissions of scope 1+2, in order to obtain an index that allows a clearer view of the evolution than the emissions that essentially have to do with energy consumption. KPI 3, on the other hand, is designed to provide an index of the global activity of Lamp's entire activity and therefore considers the carbon footprint calculated in its entirety, thus including the sources of emissions related to the increase in production.

In order to obtain values that show the variations in detectable magnitudes, the emissions have been counted in kg CO_2 e.

KPI	Company component considered	Group component value	Carbon footprint	KPI value (Emissions/Group component)
KPI 1	No. Operating hours of Lamp installations/year 2022	1800 h/year	Outreach 1+2: 111.587,90 kg CO_2 e	61,99 kg CO_2 e/h-operation of facilities
KPI 2	No. Total hours worked (all workers' hours added together) year 2022[8]	144.000 h/year	Outreach 1+2: 111.587,90 kg CO_2 e	0,77 kg CO_2 e/h- worker
KPI 3	Turnover year 2022	11.671.482 €	Outreach 1+2+3: 1.207.557,07 kg CO_2 e	0,10 kg CO_2 e/€

[8] During the year 2022 the average workforce was 80 workers, and 225 days were worked, 8 h/day.

11. Considerations for the future: actions for improvement

11.1. IMPROVEMENTS IN THE MANAGEMENT AND CALCULATION OF GREENHOUSE GASES

With this footprint study, a calculation of the carbon footprint of the activity has been made which can be improved in the coming years, both in terms of management to reduce emissions and with improvements in the parameters, methods and data used to make the calculations.
In the following tables we propose the different measures and improvements that we have detected during the study:

- ✓ Scope 1: Direct Emissions:

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Fleet of leasing vehicles	There are currently 13 leasing vehicles: 2 plug-in hybrids, 2 non-plug-in hybrids, and 9 diesel/petrol combustion vehicles. During the period 2021- 2022 the hybrid vehicles mentioned above have been acquired. The proposal that we make coincides with the strategy that Lamp has established and is implementing; the progressive replacement, once the leasing period is over, of the rest of the vehicles by hybrid models in order to reduce emissions. **This emitting source has an abatement potential of about 45t CO_2e if full electrical autonomy is achieved .**	The source for obtaining the consumption data is correct, as it is direct data from the fuel supplier (Repsol Group), but the inventory should include consumption from other supply channels. On the other hand, although emissions are calculated on the basis of the volume of fuel consumed, it would be interesting to collect information on the annual mileage of the different vehicles in the fleet. This would help to establish strategies that would allow the least emitting vehicles to be assigned to the commercial areas with the highest mileage, and also to analyse the reduction in emissions per mileage.

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Fuel for fixed installations	In the case of Lamp, the most effective way to reduce emissions from this emissive source, given that it consumes renewable and self-consumption energy, is to electrify with technologies such as aerothermal energy and switch to 0 emissions, but there are also alternatives of boilers that use other types of less emissive fuels: biomass, pellets, or even natural gas. If the transition to equipment using other energy sources is not feasible, carry out the correct preventive maintenance and/or invest in more efficient equipment. Thermographic study to evaluate the enclosures and insulation. During the visit we made to the facilities, we observed that there were unused rooms (rooms for occasional use, such as the showroom) that were set by the room's manual thermostat to a very high temperature. Remote management centres can be useful to control this type of irregularities. **The elimination of heating oil would lead to an emission reduction of 33,82 t CO_2e.**	The information collected is correct and from a verifiable source. We suggest that in order to be able to differentiate and verify by the calculation manager the destination of the purchased diesel, the supplier should indicate on the delivery note whether the equipment to be refuelled is the fixed heating installation or the fixed installation of the finishing oven. These are two different emissive sources, even though they are the same fuel.

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Refrigerant gases	Control of refrigerant gas losses through preventive maintenance. Continue with the progressive replacement of obsolete equipment using R-22 with equipment using new refrigerant gases with much lower PCAs and no ozone-depleting potential. There is currently equipment operating with refrigerant gases with PECAs close to 1000, or even the so-called ecological refrigerants, such as hydrocarbons.	We recommend keeping a record of the inventory of the inverter equipment, indicating the refrigerant gases used, and the incidents regarding leaks and recharges carried out on this equipment. Each unit must have a code. This should make it possible to detect whether gas leaks are occasional or recurrent in the same equipment, the need to change the equipment if the gas has a very high PECA (GWP), and to decide whether to repair or replace the equipment depending on the gas used.

✓ Scope 2: Indirect Emissions

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Electricity	Change of supplier to a renewable GoO or one with a higher percentage of renewable energy. This has already been done as of 1 January 2023. With this action, the 2023 footprint will have no Scope 2 emissions. The best renewable energy is the energy that is not consumed, so even if you have a self-consumption photovoltaic installation, we recommend analysing the insulation, envelopes and heat losses and cooling. To this end, we also recommend implementing a climate and lighting management system that allows you to remotely and centrally sectorise and switch off locations that are not in use (meeting rooms, showrooms). At the same time, it should also be possible to switch them on in anticipation of their use. **Emission reductions from this emitting source in 2023 will be : 23,22 t CO_2e**	The collection and source of information is correct, verifiable and sufficient.

✓ Scope 3: Other indirect emissions

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Water	It is not a significant source of emissions, but it is a very scarce resource and it is very important to reduce it as much as possible, so we recommend any measure to reduce its consumption: taps with IR proximity detection, aerators, dual flush cisterns, large surface cleaning systems with air or high pressure cleaners that minimise water consumption.	The collection and source of information is correct, verifiable and sufficient.
Corporate travel	Corporate travel: replace air travel for trips on the Spanish mainland where there is a rail alternative, such as AVE or other alternatives such as IRYO, a high-speed rail transport company with a solid sustainability policy that offers the possibility of neutralising the footprint of the journeys made. **A single Barcelona-Madrid journey by plane is 61.18 kg. CO_2e, if by train 18,4 kg CO_2e. (data extracted from the Lamp travel provider's report year 2021).**	The travel agency provides emissions from corporate travel. We suggest that by 2023, information on the methodology used to calculate these should be provided. Depending on the calculation methodology used (e.g. if calculated using ICAO), there are companies that also provide information on the mileage of the different journeys. This information is useful for assessing the emissions per km saved per journey, and for evaluating alternatives.

Concept	Improvements in greenhouse gas management	Improvements to the calculation
In itinere travel	It is not a significant source of emissions, but every possible emission reduction counts, and in this case and given some of Lamp's work profiles there is potential for reduction by increasing telework days. From the surveys carried out, 63% do not telework, approximately 33% telework 1 day per week, and only 3% telework 2 days per week (details of the surveys in annex 3). According to the data collected in the surveys, the majority of employees travel using private petrol, hybrid or diesel vehicles, so an increase in the number of teleworking days would have a direct impact on the reduction of emissions from this source.[9]	Improve the information and the representative sample of workers' transport in itinere: in the 2022 calculation, a total of 46 surveys were included for a total of 80 employees. Of these 46 forms, some employees did not know how to fill in some fields, such as the average consumption of their vehicle, or there was some confusion with the number of days of teleworking to be indicated. For future travel surveys, a brief explanation should be prepared first to avoid confusion, and with advance notice so that the employee can consult the average consumption of his or her vehicle.

[9] Data obtained from Lamp's employee surveys:

Means of transport	Number of users	km	litres fuel private vehicle
Bus	1	900	-
Diesel car	15	55.575	3.218,85
Electric car	3	28.800	-
Petrol car	16	54.900	3.180,02
Hybrid car	4	25.785	1.089,90
LPG car	1	4.500	292,50
Electric scooter	1	1.350	-
Train	3	15.570	-

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Bienes adquiridos: producción	This is the most significant source of emissions in the carbon footprint. Some of the recommended courses of action on this source are as follows. ✓ Choosing local suppliers ✓ Choosing suppliers with emission reduction strategies ✓ Design products with the impact of components, and the resulting carbon footprint, as well as other aspects such as water footprint and end-of-life circularity. Both claim to work with recycled material, although only Hydro provides clear and precise information in this respect, environmental declarations of its product as well as a clear R&D policy to improve the level of emissions. From this supplier, Lamp currently purchases Hydro Restore aluminium. Hydro currently has an aluminium catalogue with a lower carbon footprint and the viability of this new material-technology for Lamp's production would have to be assessed. The second supplier of die-cast aluminium parts included in this calculation does not currently have official data on its emissions or the impact of its product, and this would be an area for improvement. This supplier, like Hydro, is local. Both are not only within the EU but also within the same country. The third supplier considered, TRIDONIC, given the volume of parts purchased and the emission factor of some of them, generates the most significant volume of emissions. Specifically the components: **LED drivers** **LC 40/75-400/230 o4a NF h16 EXC4** 28004049 They have a cradle-to-gate emission factor (A1-A4 processes) of 7.20 kg. CO_2 e/ unit .	Emission factors: Lamp works with suppliers, most of which have already calculated the emissions of their components or products sold. Even so, given the characteristics of the sector, slightly different methodologies or standards are used, which have made it difficult to apply the emission factor directly or, as recommended by ISO 14064, to apply the emission factor of the complete LCA of the component. Priority has been given, as recommended by the OCCC, to applying the emission factors supplied by the supplier, as they are a priori more accurate than the generic databases, even so, the IPCC tables have had to be used for one of the suppliers. As suppliers implement the calculation of emissions from their products, the uncertainty of some parameters can be improved.

Concept	Improvements in greenhouse gas management	Improvements to the calculation
Acquired assets: Office	It is not a significant source of emissions, but paper consumption should be assessed, as it is the most significant of the items evaluated in this category. Apart from awareness and good practices to reduce consumption, many companies have implemented the printing or use of code printing, so that each user acquires some responsibility for the volume of printing he/she decides to do.	Inventory of consumed office goods: To have a register of consumed office goods already registered, which allows at the end of the year to have easy access to the total of what has been bought/consumed that year.
Distribution transport	✓ Choose service providers with an emissions reduction strategy. ✓ This sector will make progress in reducing emissions in the coming years, so it will be necessary to review the emission factors of the DAP .	Choose a methodology that makes it possible to quantify the entire distribution transport of the products sold.
GEI inventories	Assign an inventory manager for the carbon footprint and establish a carbon footprint management system: ✓ Agile and verifiable data collection for all emission sources. ✓ Schedule annual planning. ✓ Monitor, assess and validate methodologies. ✓ Make the necessary adjustments to the methodologies for obtaining DAs and EFs in order to reduce data uncertainties. ✓ Assessment over time of annual carbon footprints and effectiveness of implemented measures.	

For Scopes 1 and 2, a 4-year reduction potential of 102.04% is estimated.t de CO_2 e.

11.2. QUALITATIVE UNCERTAINTY ASSESSMENT AND IMPROVEMENTS

The estimated uncertainty of GEI emissions is a combination or sum of uncertainties associated with activity data (direct consumption data and estimated data) and emission factors. To assess the uncertainty we rely on the reference method set out in the document "IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories" (IPCC, 2001):

- ✓ Emission factors have been selected from official sources and suppliers, giving priority to local or national sources whenever possible. Therefore, it can be assumed that the uncertainty of the emission factors is low or zero.
- ✓ The data on direct consumption activity has been provided directly by the persons responsible for its management and for the custody of the documentation in this respect during the year 2022.
- ✓ The metering equipment and meters from which the billed data have been obtained are the property of the supply companies and therefore undergo the calibration and verification controls applicable to them by law. The uncertainties of this equipment cannot be greater than **+/- 2%.**[10]

Concept	Description and qualitative assessment	Uncertainty reduction options (uncertainty)
Oven/heating oil	Both the source of the inventory and the emission factor are recognised, direct and verifiable.	-
Consumption of leasing vehicle fleet	Both the source of the inventory and the emission factor are recognised, direct and verifiable.	-
Electricity trading company Estabanell	Both the source of the inventory and the emission factor are recognised, sufficient, direct and verifiable.	-

[10] Royal Decree 244/2016, of 3 June, implementing Law 32/2014, of 22 December, on Metrology.

Concept	Description and qualitative assessment	Uncertainty reduction options (uncertainty)
Electricity trader Nufri	Both the source of the inventory and the emission factor are recognised, sufficient, direct and verifiable.	-
Water	Both the source of the inventory and the emission factor are recognised, sufficient, direct and verifiable.	-
Corporate travel: air and rail	Both the source of the inventory and the emission factor are recognised and verifiable.	Assess the calculation methodology used by the supplier.
In itinere travel	Data provided by staff through a survey. Obtained directly from the people involved.	The uncertainty of the activity data can be improved by increasing the number of completed surveys.
Transport distribution of Kombic and Fil.	This data is currently not available directly from the transport service provider. These data are calculated from Lamp's verified WTPs (emission factor uncertainty +/-10) and the number of units sold of each typology (kombic and Fil) (value with zero uncertainty).	Adjust the methodology to one of the two possible scenarios: ✓ Ask the supplier for the emissions of the contracted distribution services, this methodology would have the lowest uncertainty value if the supplier uses a standardised calculation system. ✓ Have WTPs available for all products sold and use the distribution transport emission factor (uncertainty +/-10).

Concept	Description and qualitative assessment	Uncertainty reduction options (uncertainty)
Industrial waste	Both the source of the inventory and the emission factor are recognised, sufficient, direct and verifiable.	-
Materials/components purchased for production	Both the source of the inventory and the emission factor are recognised, direct and verifiable.	Emission factors can be improved as suppliers are able to provide them: e.g. aluminium die-cast parts.
Office supplies	Both the source of the inventory and the emission factor are recognised, direct and verifiable.	Uncertainties from official sources are usually very low, but it is always preferable to obtain the emission factor directly from the product supplier.

The OCCC has been asked for the uncertainty associated with their emission factors, but they are currently working on this aspect and cannot provide a quantitative value, although they clarify that they all come from official and recognised direct sources and that this information will be progressively added to the emission factors as they become available. For CO2 emission factors from official sources such as the IPCC they estimate uncertainties of **(+/- 5%).**[11]

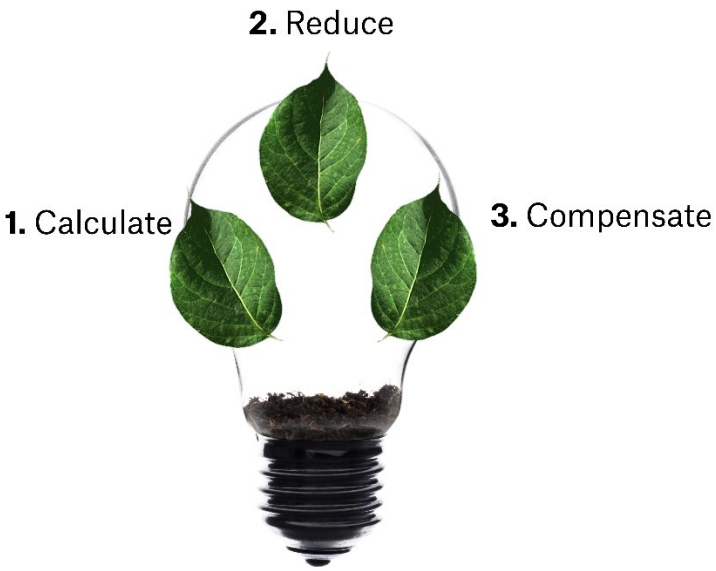
[11] IPCC Guidance 2006 (Vol. 3, ch. 4, item 4.4.2.1)

11.3. EMISSION REDUCTIONS, OFFSETS AND REGISTRIES

In order to reach carbon neutrality, efforts should be focused on reducing GHG emissions primarily, but there are also other mechanisms that are complementary once the organisation has a reduction plan in the process of implementation, or when it has already been implemented, but still does not achieve carbon neutrality.
It is worth remembering that, according to the regulations derived from the European Green Pact, the business fabric as a whole must reduce its emissions by 55% compared to the base year (1990) by 2030.

Compensation

Emissions offsetting is a mechanism by which an organisation can neutralise a certain amount of emissions by investing in environmental projects aimed at increasing the sink capacity of the planet, or by providing solutions to avoid the production of GEI.
We recommend doing so with projects that are carried out with a recognised and verified methodology.
If the organisation is interested in partially or fully offsetting its emissions it can do so at any time, but we recommend that this is not done as a substitute for a reduction plan, but as a complement. If the organisation voluntarily decides to register its footprint in the available public registers, it can choose to offset emissions in one of the offset projects registered in the same register, thus it could be certified as partially or fully offsetting its carbon footprint as part of its corporate environmental responsibility.



11.4. VOLUNTARY CARBON FOOTPRINT REGISTRIES

State Registration

The Spanish Office for Climate Change (OECC) has a registry where organisations can voluntarily register their carbon footprints as an act of commitment and transparency.

By registering in this register, the Ministry for Ecological Transition and the Demographic Challenge (MITECO) gives you the registration certificate and the seal, with the user manual explaining where to put the seal and how to publish it.

Depending on the milestone achieved, you will be certified as follows:

- Calculated footprint
- Calculated and reduced footprint
- Calculated, reduced and compensated footprint

CERTIFICADO DE INSCRIPCIÓN
Registro de huella de carbono, compensación y proyectos de absorción de CO_2 del Ministerio para la Transición Ecológica y el Reto Demográfico

CECOT

Año de cálculo 2017
Tipo de sello CALCULO
Alcances 1+2
Límites Se incluyen las actividades de prestación de servicios al empresario e impartición de cursos formación desarrolladas por las siguientes organizaciones CECOT, FUNDACIÓ CECOT PERSONA I TREBALL, FUNDACIÓ INSTITUT INDUSTRIAL I COMERCIAL, FUNDACIÓ CECOT INNOVACIÓ y FUNDACIÓ CECOT FORMACIÓ, desarrolladas en su sede situada en Terrassa (Barcelona).

2017 CALCULO 2

Valvanera Ulargui Aparicio
Directora General
Oficina Española de Cambio Climático
Ministerio para la Transición Ecológica y el Reto Demográfico

Fecha de inscripción: 26/04/2022
Cód. huella de carbono: 2022-id0411

11.5. SUSTAINABLE DEVELOPMENT GOALS (ODS) TO WHICH IT CONTRIBUTES

The SDGs are seventeen environmental, social and economic goals, that guide the implementation of the UN 2030 Agenda. All the goals are closely linked: in order to make progress on one, it is necessary to make progress on others as well. They are intended to be concise, easy to communicate, action-oriented and applicable to all countries.

The ODS can be grouped into five critical categories of the Agenda, the so-called 5Ps: People, Peace, Planet, Prosperity and Partnership.

With the study of the corporate carbon footprint and the implementation of the improvement plan, the categories and objectives to which Lamp as an organisation, and the employees as necessary partners, can contribute directly and indirectly are:

Esfera ODS Fuente: https://portal.edu.gva.es/

Category/sphere PLANET: Aims to protect the planet's natural resources and combat climate change to ensure a decent environment for future generations.		✓ ODS 6: Clean water and sanitation ✓ ODS 12: Responsible production and consumption ✓ ODS 13: Climate Action ✓ ODS 14: Underwater Life ✓ ODS 15: Life of Terrestrial Ecosystems
Category/sphere PROSPERITY: Ensuring that everyone can enjoy a prosperous and fulfilling life in harmony with nature		✓ ODS 7: Clean and Affordable Energy ✓ ODS 11: Sustainable cities and communities

12. Conclusions

This Lamp carbon footprint study has been carried out with a two-pronged approach:

- ✓ Calculate the corporate carbon footprint including the three emission scopes and the largest number of emission sources for which data could be obtained with an acceptable degree of uncertainty.
- ✓ Audit the current state of the information available, in quantity and quality, both from Lamp and from the different suppliers in order to establish a double improvement plan: improvements in the calculation method and improvements in the reduction of emissions.

From this two-pronged approach we can conclude the following:

- ✓ Lamp has a good system for recording, reporting and obtaining the data over which it has operational control.
- ✓ The availability of the verified Environmental Product Declarations (EPD) of the reference group, which account for 55% of its sales turnover, has made it possible to establish a calculation methodology for emissions from distribution transport that has been consulted and accepted as valid by the Catalan Office for Climate Change (Oficina Catalana de Canvi Climàtic). This source of emissions usually presents many difficulties in obtaining data from subcontracted transport companies, as it is a combination of different means and companies. This methodology will allow, as the WTPs for the rest of the products are carried out, to extend the current scope until the companies subcontracted for distribution transport can offer the carbon footprint of their service with a lower range of uncertainty.
- ✓ Although the main sources of emissions are related to the purchase of raw materials for production, and working on this concept is more complex as it relies on third parties, there is a potential for significant emission reductions in the short term related to scope 1, 2 and some of the easier to implement scope 3, which Lamp is already working on.
- ✓ The emissions corresponding to scope 1+2, which are the emissive sources on which Lamp can carry out the most direct reduction actions, account for a total of 9.24%. Lamp has already implemented very effective measures on the emission sources of these scopes during the year 2022 - 2023 in terms of electricity consumption (scope 2), and a forecast for the next 4 years in the plan for the renewal of commercial vehicles to hybrid vehicles.

- ✓ Lamp's main suppliers have data that allow accounting for the emissions of the purchased goods, but work should be done to extend this supplier profile to the rest of the purchased components. In order to reduce uncertainty in the calculations, it is recommended that the emission factors are provided by the supplier.
- ✓ There are applications and methodologies for assessing suppliers' corporate social responsibility profiles that can be very useful for extending Lamp's ESG (environmental, social and governance) strategy and criteria to the entire value chain of its products.
- ✓ Improvements can be implemented to make the data inventory management system for the calculation of GEI more agile and validatable by the assigned manager, and also allow the annual calculation of the carbon footprint to be obtained more immediately. Extending data collection for some parameters can facilitate the application of calculation methodologies with less uncertainty.
- ✓ In the coming years, as more direct data can be collected from suppliers, the methodology will have to be adapted to make the calculation progressively more accurate. The change in methodology will have to be made clear so that the analysis of the evolution of the carbon footprint can be carried out in the appropriate context.
- ✓ The first carbon footprints of organisations often have variations in the incorporation of Scope 3 emitting sources that make it difficult to assess the evolution. However, the evolution of scope 1+2 has a consolidated methodology and number of emitting sources that allow the company's performance in terms of emissions to be assessed. We therefore recommend analysing the evolution analysis by scope, and in the case of scope 3 evolution by emitting source.

13.Glossary

- **Scope. -** operational limits in relation to direct and indirect emissions.
- **- CO2 equivalent. -** A universal unit indicating the Global Warming Potential (PCA) of the six main greenhouse gases.CO_2 equivalente.
- **(DA). -** Activity data (consumption, production, etc.).
- **Emissions. -** Release of greenhouse gases into the atmosphere.
- **Direct emissions. -** Emissions from sources owned or controlled by the organisation.
- **Indirect emissions. -** Emissions that are a consequence of the organisation's operations but occur from sources that are not owned or controlled by the organisation.
- **(FE) Emission factor. -** A parameter for estimating GEI emissions from available activity data.
- **GEI**. - greenhouse gases listed in the Kyoto Protocol: CO_2, CH_4, N_2O, HFC, PFC y NF_3.
- **Emission inventory. -** A list of quantification of GEI emissions and emission sources for an organisation.
- **PCA / GWP**. - Atmospheric Warming Potential, taking as a reference the GWP of the CO_2, which is 1, we can define the GWP for the remaining greenhouse gases as.

14. Bibliography

Documents consulted

- AENOR, 2006. Standard UNE-ISO 14064-1:2006: Greenhouse gases. Part 1: Specifications with guidance, at the level of organisations, for the quantification and reporting of greenhouse gas emissions and removals. AENOR Ediciones. Spain.

- Guia per a la introducció progressiva de les emissions indirectes de GEH en el marc del Programa d'Acords Voluntaris. Catalan Office of Climate Change. 2020.

- PCC. 2001. IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. [Lead Writing Team:Penman, J.; Kruger, D.; Galbally, T; Hiraishi, T.; Nyenzi, B.; Emmanul, S.; Buendía, l.; Hoppaus, R.; Martinses, T.; Meijer, J.; Miwa, K. y Tanabe, K.]. IPCC. Suiza.

- Ministry for Ecological Transition and Demographic Challenge (MITECORD), 2020. Emission Factors. Carbon Footprint Registry, Offsets and Carbon Dioxide Absorption Projects. Spanish Climate Change Office.

- Ministry for Ecological Transition and the Demographic Challenge (MITECORD), 2020. Guide for the Calculation of the Carbon Footprint and for the elaboration of an Organisation's Improvement Plan. Spanish Climate Change Office.
- Guide for the estimation of carbon dioxide removals. Ministry for Ecological Transition and the Demographic Challenge. 2019
- Calculation and verification of the carbon footprint. Emission reduction actions. AENOR. 2017
- *Guide to calculating greenhouse gas emissions. Department of Climate Action, Food and Rural Agenda. 2021*
- BOE: Royal Decree 244/2016, of 3 June, which implements Law 32/2014, of 22 December, on Metrology.

Websites consulted

- Spanish Climate Change Office. https://www.miteco.gob.es/es/cambio-climatico/temas/organismos-e-instituciones-implicados-en-la-lucha-contra-el-cambio-climatico-a-nivel-nacional/oficina-espanola-en-cambio-climatico/default.aspx
- Catalan Office of Climate Change. https://canviclimatic.gencat.cat
- Ministry for Ecological Transition and the Demographic Challenge. https://www.miteco.gob.es
- Intergovernmental Panel on Climate Change. https://www.ipcc.ch/languages-2/spanish/
- UN Environment Programme: UNEP. https://www.unep.org/es/sobre-onu-medio-ambiente
- United States Environmental Protection Agency. https://www.epa.gov/ghgemissions/understanding-global-warming-potentials
- World Meteorological Organization. https://public.wmo.int/en/media/press-release/greenhouse-gas-concentrations-surge-new-record
- United Nations Sustainable Development Goals. https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/
- https://ghgprotocol.org/
- https://portal.edu.gva.es/

Annexes

ANNEX 1: CORPORATE TRAVEL

Detail and breakdown of corporate travel included in the calculations

ANNEX 1.1: CORPORATE AIR TRAVEL 2021 AND 2022

2021

Trip No.	*Origin*	*Destination*	*No. transactions*	*Journey kg CO2 e*	*Total kg CO2 e*
1	ALICANTE	BARCELONA	2	49,01	98,02
2	ALICANTE	PALMA MALLORCA	3	60,33	180,99
3	BARCELONA	ALICANTE	2	49	98
4	BARCELONA	BILBAO	4	61,65	246,6
5	BARCELONA	OVIEDO	2	84,76	169,52
6	BARCELONA	PALMA MALLORCA	1	36,07	36,07
7	BARCELONA	SEVILLA	1	89,02	89,02
9	BILBAO	BARCELONA	4	61,65	246,6
10	MADRID	BARCELONA	1	61,18	61,18
11	OVIEDO	BARCELONA	1	84,76	84,76
12	PALMA MALLORCA	ALICANTE	3	60,33	180,99
13	PALMA MALLORCA	BARCELONA	1	36,08	36,08
14	SEVILLA	BARCELONA	1	89	89
15	AMSTERDAM	BARCELONA	1	119,33	119,33
16	BARCELONA	AMSTERDAM	1	119,3	119,3
17	BARCELONA	BRUSELAS	1	112,82	112,82
18	BARCELONA	EINDHOVEN	3	110,06	330,18
19	BARCELONA	FRANKFURT	3	107,36	322,08
20	BARCELONA	GINEBRA	1	82,7	82,7
21	BARCELONA	LONDON HEATHROW	1	119,8	119,8
22	BARCELONA	PRAGA	1	132,4	132,4
23	BRUSELAS	BARCELONA	1	112,48	112,48
24	DUSSELDORF	BARCELONA	1	126,34	126,34
25	EINDHOVEN	BARCELONA	3	110,06	330,18
26	FRANKFURT	BARCELONA	2	107,38	214,76
27	GINEBRA	BARCELONA	1	82,7	82,7
28	LONDON HEATHROW	BARCELONA	1	119,06	119,06
29	PRAGA	BARCELONA	1	132,4	132,4
TOTAL					**5.691,36**

2022

Trip No.	Origin	Destination	No. transactions	Journey kg CO2 e	Total kg CO2 e
1	BARCELONA	MEXICO	-	-	1198,04
2	PALMA MALLORCA	ALICANTE	-	-	53,6
3	SANTIAGO CHILE	BARCELONA	-	-	2743,62
4	SANTIAGO CHILE	BARCELONA	-	-	2743,62
5	BARCELONA	MADRID	-	-	183,64
6	LISBOA	BARCELONA	-	-	286,71
7	BARCELONA	BARCELONA	-	-	270,72
8	BARCELONA	BARCELONA	-	-	484,5
9	PRAGA	BARCELONA	-	-	387,32
10	BARCELONA	BARCELONA	-	-	123,24
11	BARCELONA	BARCELONA	-	-	123,24
12	BARCELONA	BARCELONA	-	-	123,24
13	BARCELONA	MADRID	-	-	61,62
14	BARCELONA	SANTIAGO CHILE	-	-	2743,62
15	BARCELONA	SANTIAGO CHILE	-	-	2743,62
16	BARCELONA	BOGOTA	-	-	4702,46
17	BARCELONA	BOGOTA	-	-	4702,46
18	BARCELONA	MADRID	-	-	61,06
19	BARCELONA	MADRID	-	-	61,48
20	BARCELONA	MADRID	-	-	61,53
21	BARCELONA	BARCELONA	-	-	123,15
22	BARCELONA	BARCELONA	-	-	123,5
23	MADRID	BARCELONA	-	-	61,62
24	MADRID	BARCELONA	-	-	61,62
25	MADRID	BARCELONA	-	-	61,62
26	MADRID	BARCELONA	-	-	61,75
27	MADRID	BARCELONA	-	-	61,75
28	BRUSELAS	BARCELONA	-	-	112,82
29	BARCELONA	BARCELONA	-	-	434,22
30	BARCELONA	BELFAST CITY	-	-	472,09
31	BARCELONA	BARCELONA	-	-	648,66
32	BARCELONA	BELFAST CITY	-	-	322,95
33	LONDON HEATHROW	BARCELONA	-	-	324,33
34	BARCELONA	BARCELONA	-	-	558,6
35	BARCELONA	BARCELONA	-	-	1249,22
36	BARCELONA	BARCELONA	-	-	1249,22

37	BARCELONA	BARCELONA	-	-	1249,22
38	BARCELONA	PRAGA	-	-	387,32
39	BARCELONA	CHARLOTTE, NC	-	-	977,64
40	MADRID	CHARLOTTE, NC	-	-	1037,71
41	BARCELONA	BARCELONA	-	-	164,8
42	ALICANTE	PALMA MALLORCA	-	-	53,59
43	IBIZA	ALICANTE	-	-	125,96
44	MADRID	BARCELONA	-	-	61,06
45	MADRID	BARCELONA	-	-	61,06
46	MADRID	BARCELONA	-	-	61,49
47	MADRID	BARCELONA	-	-	61,62
48	PALMA MALLORCA	ALICANTE	-	-	86,35
49	PALMA MALLORCA	ALICANTE	-	-	86,35
TOTAL					**34.200,63**

ANNEX 1.2: CORPORATE TRAIN JOURNEYS 2021 AND 2022

2021

Trip No.	*Origin*	*Destination*	*No. transactions*	*Journey kg CO2 e*	*Total kg CO2 e*
1	BARCELONA	MADRID	6	18,4	110,4
2	BARCELONA	SEVILLA	1	33,1	33,1
3	MADRID	BARCELONA	6	18,4	110,4
4	SEVILLA	MADRID	3	14,5	43,5
TOTAL					***297,4***

2022

Trip No.	*Origin*	*Destination*	*No. transactions*	*Journey kg CO2 e*	*Total kg CO2 e*
1	BARCELONA	MADRID	-	-	18,4
2	BARCELONA	MADRID	-	-	18,4
3	BARCELONA	MADRID	-	-	18,4
4	BARCELONA	MADRID	-	-	18,4
5	BARCELONA	MADRID	-	-	18,4
6	BARCELONA	MADRID	-	-	18,4
7	BARCELONA	MADRID	-	-	18,4
8	BARCELONA	MADRID	-	-	18,4
9	BARCELONA	MADRID	-	-	18,4

10	BARCELONA	MADRID	-	-	18,4
11	BARCELONA	MADRID	-	-	18,4
12	BARCELONA	MADRID	-	-	18,4
13	BARCELONA	MADRID	-	-	18,4
14	BARCELONA	MADRID	-	-	18,4
15	BARCELONA	MADRID	-	-	18,4
16	BARCELONA	MADRID	-	-	18,4
17	BARCELONA	MADRID	-	-	18,4
18	BARCELONA	MADRID	-	-	18,4
19	BARCELONA	MADRID	-	-	18,4
20	BARCELONA	MADRID	-	-	18,4
21	BARCELONA	MADRID	-	-	18,4
22	BARCELONA	MADRID	-	-	18,4
23	BARCELONA	MADRID	-	-	18,4
24	BARCELONA	MADRID	-	-	18,4
25	BARCELONA	MADRID	-	-	18,4
26	BARCELONA	MADRID	-	-	18,4
27	BARCELONA	MADRID	-	-	18,4
28	BARCELONA	MADRID	-	-	18,4
29	MADRID	BARCELONA	-	-	18,4
30	MADRID	BARCELONA	-	-	18,4
31	MADRID	BARCELONA	-	-	18,4
32	MADRID	BARCELONA	-	-	18,4
33	MADRID	BARCELONA	-	-	18,4
34	MADRID	BARCELONA	-	-	18,4
35	MADRID	BARCELONA	-	-	18,4
36	MADRID	BARCELONA	-	-	18,4
37	MADRID	BARCELONA	-	-	18,4
38	MADRID	BARCELONA	-	-	18,4
39	MADRID	BARCELONA	-	-	18,4
40	MADRID	BARCELONA	-	-	18,4
41	MADRID	BARCELONA	-	-	18,4
42	MADRID	BARCELONA	-	-	18,4
43	MADRID	BARCELONA	-	-	18,4
44	MADRID	BARCELONA	-	-	18,4
45	MADRID	BARCELONA	-	-	18,4
46	MADRID	BARCELONA	-	-	18,4
47	MADRID	BARCELONA	-	-	18,4
48	MADRID	BARCELONA	-	-	18,4
49	MADRID	BARCELONA	-	-	18,4
50	MADRID	BARCELONA	-	-	18,4
51	MADRID	BARCELONA	-	-	18,4
52	MADRID	BARCELONA	-	-	18,4
53	MADRID	BARCELONA	-	-	18,4
54	MADRID	BARCELONA	-	-	18,4
55	MADRID	BARCELONA	-	-	18,4

56	MADRID	BARCELONA	-	-	18,4
57	MADRID	BARCELONA	-	-	18,4
58	MADRID	BARCELONA	-	-	18,4
59	MADRID	BARCELONA	-	-	18,4
60	MADRID	BARCELONA	-	-	18,4
61	MADRID	BARCELONA	-	-	18,4
62	MADRID	BARCELONA	-	-	18,4
63	MALAGA M.Z	MADRID	-	-	27
TOTAL					***1.167,8***

ANNEX 2: Details of REG 2150/2002 group correspondences and LER code

LER Code	Description	Classification (Dangerous/Non Dangerous)	REG Group 2150/2002	Group description	Management channel
80318	Tóner	NP	5	Chemical waste	T62
130110	Non-chlorinated mineral hydraulic oils	P	4 (6)	Used oils	T62
150103	Wooden pallets	NP	21	Wood waste	V15
150110	Containers with paint residues	P	6	Chemical waste	T62
150111	Metallic containers (aerosols)	P	43 (35)	Other mineral wastes	T62
150202	Absorbents, filters	p	6	Chemical waste	T62
200101	Paper and cardboard	NP	18	Paper and cardboard waste	V11
200101	Paper and cardboard	NP	18	Paper and cardboard waste	V11
200121	Lamps and other waste containing mercury	P	26 (35)	Rejected equipment	V41
200133	Cells and batteries	P	30 (35)	Waste batteries and accumulators	T62
200135	Reactances/raee	P	26 (35)	Rejected equipment	V41
200139	Plastics	NP	20	Plastic waste	V12
200139	Plastics	NP	20	Plastic waste	V12
200140	Aluminum and metal scrap	NP	15	Metallic waste	V41
200140	Aluminum and metal scrap	NP	15	Metallic waste	V41
200140	Aluminum and metal scrap	NP	15	Metallic waste	V41

ANNEX 3: BREAKDOWN OF IN ITINERE TRIPS

Indicate the means of transportation by which you are traveling to LAMP's facilities.	Indicate the distance (round trip) you drive to LAMP each day.	If you use a private vehicle that consumes fossil fuel (gasoline, diesel, biodiesel) and you know the average consumption per 100 km, indicate the value. For example, if it consumes 5.5 liters per 100 km in...	If you telecommute, how many days a week do you commute to LAMP?	Total km year (km day*number of days trips/year)	Consumption liters/year (km/year*consumption / 100 km)
Hybrid car	35	0 liters (for commuting to and from work always electric, sufficient autonomy)		7875	0
Electric car	52	0		11700	0
Gasoline car	6	8	5	1350	108
Gasoline car	8	10	5	1800	180
Gasoline car	4,5	5,9	4	810	47,79
Train	12		4	2160	
Gasoline car	5	6,3	5	1125	70,875
Diesel car	10	5,5	5	2250	123,75
Electric car	52		5	11700	0
Gasoline car	7	8	4	1260	100,8
Diesel car	18	5,5	5	4050	222,75
Diesel car	15	7	5	3375	236,25
Gasoline car	2	6	5	450	27
Diesel car	85	4,7	4	15300	719,1
Gasoline car	6	6	5	1350	81
Diesel car	27	7,5	5	6075	455,625
Train	66		3	8910	
Diesel car	16	6	5	3600	216
Diesel car	9	5,5	5	2025	111,375
Gasoline car	30	5,5	5	6750	371,25
Gasoline car	10	5,5	5	2250	123,75
Diesel car	72	5,5	3	9720	534,6
Diesel car	4	5,5	5	900	49,5
Hybrid car	24	6	4	4320	259,2
Hybrid car	70	6,2	4	12600	781,2
Gasoline car	70	5,5	4	12600	693
Bus	4		5	900	
Gasoline car	2	6	5	450	27

Hybrid car	4,4	5	5	990	49,5
LPG car	20	6,5	5	4500	292,5
Electric car	30	0	4	5400	0

Gasoline car	6	7,2	5	1350	97,2
Diesel car	5	5	5	1125	56,25
Diesel car	6,4	5,5	5	1440	79,2
Gasoline car	16	5,5	4	2880	158,4
Gasoline car	41	5,2	5	9225	479,7
Diesel car	15	8,2	5	3375	276,75
Gasoline car	2	6,9	5	450	31,05
Gasoline car	60	5,4	4	10800	583,2
Electric scooter	6		5	1350	0
Train	25		4	4500	
Diesel car	6	6	5	1350	81
Diesel car	2	6	5	450	27
Diesel car	3	5,5	4	540	29,7

If they telework 1 day they travel 180 days/year

If they telework 2 days they commute 135 days/year

If they telework 3 days they commute 90 days/year

Without telework 225 days/year

Means of transportation	liters fuel private vehicle	km
Bus		900
Diesel car	3.218,85	55.575
Electric car	-	28.800
Gasoline car	3.180,02	54.900
Hybrid car	1.089,90	25.785
LPG car	292,50	4.500
Electric scooter	-	1.350
Train		15.570

ANNEX 4: BREAKDOWN OF CONSUMPTION (ELECTRICITY, FUEL OIL, WATER) FOR 2022

Month	Electricity Estabanell (kWh)	Electricity Nufri (kWh)	Heating oil (liters)	Heating oil (liters)	Water (m^3:) 2 connections
January	21.185		3.422	-	
February	21.439		1.600	-	
March	17.080	1.833	3.859	748	75+5
April		10.102	1.371	-	
May		8.813	233	600	
June		9.833	-	-	146+6
July		10.804	-	569	
August		7.789	-	-	
September		10.669	-	-	171+8
October		10.453	-	-	
November		14.150	620	743	
December		12.311	650	650	136+7
TOTALS	**59.704**	**96.757**	**11.755**	**3.310**	**528+26**

ANNEX 5: REFRIGERANT GAS DECLARATION

Aire Condicionat, Refrigeració i Fred Industrial

ALGIS CLIMA

Terrassa a 21 de Desembre de 2022

LAMP
C/ CÒRDOVA, 16
08226 - TERRASSA (BARCELONA)

ALGIS CLIMA S.L., com a empresa com a empresa instal·ladora, mantenidora i reparadora d'aire condicionat i refrigeració amb número d'inscripció al Registre d'Agents de la Seguretat Industrial de Catalunya (RASIC): RASIC-005004072. exposa:

El passat dia 12 de Desembre de 2022 es va procedir a la recuperació per la seva posterior destrucció de 1,5 Kg de gas, refrigerant no ecològic tipus R-22, d'una unitat refredadora avariada marca CARRIER model 38 QT020700-21 per procedir a la seva substitució per una nova.

El gas recuperat s'ha ubicat a les bombones corresponents i s'ha gestionat la seva entrega al nostre gestor de residus KIMIKAL S.L.U., amb nif B83017574 i número de Gestor autoritzat de residus tòxics i perillosos AN-0065 per gasos refrigerants i lubricants frigorífics, per que procedeixin a la seva destrucció.

Molt atentament

ALGIS CLIMA S.L.

1

Aire Condicionat, Refrigeració i Fred Industrial

Terrassa a 21 de Desembre de 2022

LAMP
C/ CÒRDOVA, 16
08226 - TERRASSA (BARCELONA)

ALGIS CLIMA S.L., com a empresa com a empresa instal·ladora, mantenidora i reparadora d'aire condicionat i refrigeració amb número d'inscripció al Registre d'Agents de la Seguretat Industrial de Catalunya (RASIC): RASIC-005004072. exposa:

El passat dia 15 de Juliol de 2022 es va procedir a la recuperació per la seva posterior destrucció de 11,6 Kg de gas, refrigerant no ecològic tipus R-22, d'una unitat refredadora avariada marca INTERCLISA/ CARRIER model HUBV136 per procedir a la seva substitució per una nova.

El gas recuperat s'ha ubicat a les bombones corresponents i s'ha gestionat la seva entrega al nostre gestor de residus KIMIKAL S.L.U., amb nif B83017574 i número de Gestor autoritzat de residus tòxics i perillosos AN-0065 per gasos refrigerants i lubricants frigorífics, per que procedeixin a la seva destrucció.

Un cop recollit el gas de la unitat refredadora antiga s'ha realitzat el trasllat fins a deixalleria autoritzada Recuperación de Metales Alagón S.L. situada al C/ Joan Monpeó 47 de Terrassa.

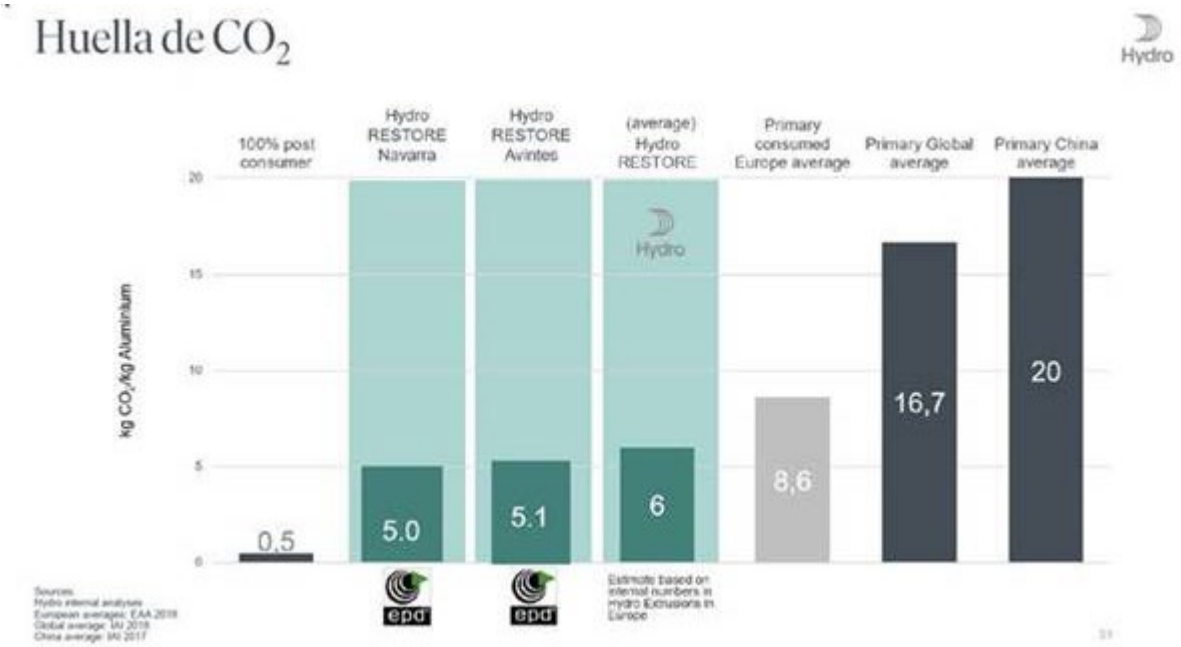
Molt atentament

ALGIS CLIMA S.L.

1

ANNEX 6: SUPPLIER EMISSION FACTORS

- **Aluminum Hydro Restore**



- **TRIDONIC components**

B2B SCOPE

- A1-A3: Production: Power generation, production of base materials, pre-products, ancillary materials, processing of secondary materials, packaging materials, installation of products; transport of base materials and purchased components as well as in-house transport is taken into account.
- A4: delivery of products from plant to customer

LED drivers
LC 40/75-400/230 o4a NF h16 EXC4
28004049

Environmental Product Declaration
According to EN ISO 14025 and EN 15804

Declaration number:	ECO-ZGR-28004049-Component-EU-2022-04-20
Date of Issue:	2022-04-20

Institut Bauen und Umwelt e.V.

Table 1: LCA results: environmental impacts of the product

Assessment parameter	Unit	Production-Stage	Construction Process Stage		Use-stage	End-of-Life Stage			Benefits and loads beyond the system boundary
		Raw material supply and manu-facturing	Transport to building site	Construction installation process	Operational energy use	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
		A1-A3	A4	A5	B6	C2	C3	C4	D
ADPE	[kg Sb eq]	4,41E-04	5,48E-10	7,65E-10	3,48E-04	7,83E-11	2,61E-08	8,08E-12	-2,02E-04
ADPF	[MJ]	8,59E+01	9,08E-02	1,53E-02	6,96E+03	1,30E-02	2,74E-01	5,21E-04	-6,49E+00
AP	[kg SO_2 eq]	4,64E-02	1,53E-05	4,09E-06	1,86E+00	2,19E-06	8,96E-05	1,66E-07	-1,12E-02
EP	[kg PO_4^{3-} eq]	2,60E-03	3,86E-06	3,83E-07	1,74E-01	5,52E-07	9,63E-06	6,32E-07	-2,85E-04
GWP	[kg CO_2 eq]	7,20E+00	6,67E-03	1,19E-02	6,54E+02	9,52E-04	1,18E-01	6,50E-04	-6,22E-01
ODP	[kg R11 eq]	-3,70E-10	1,82E-16	6,40E-15	2,91E-09	2,60E-17	9,88E-14	1,00E-17	-6,98E-10
POCP	[kg C_2H_4 eq]	2,64E-03	-5,14E-06	2,56E-07	1,16E-01	-7,34E-07	5,19E-06	1,62E-07	-5,26E-04

GWP = Global Warming Potential

LED drivers
LC 15W 350mA fixC SR SNC
87500572

Environmental Product Declaration
According to EN ISO 14025 and EN 15804

Declaration number:	ECO-ZGR-87500572-Component-EU-2017-06-28
Date of Issue:	2017-06-28

Institut Bauen und Umwelt e.V.

Table 1: LCA results: environmental impacts

Assessment parameter	Unit	Production Stage	Construction Process Stage		Use-stage	End-of-Life Stage			Benefits and loads beyond the system boundary
		Raw material supply and manu-facturing	Transport to building site	Construction installation process	Operational energy use	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
		A1-A3	A4	A5	B6	C2	C3	C4	D
ADPE	[kg Sb eq]	9,03E-05	4,24E-10	1,96E-10	1,28E-04	2,82E-11	3,55E-09	1,83E-08	-9,00E-05
ADPF	[MJ]	1,74E+01	8,76E-02	6,40E-03	4,27E+03	5,84E-03	1,19E-01	5,16E-02	-2,21E+00
AP	[kg SO_2 eq]	6,72E-03	1,62E-05	1,66E-06	1,10E+00	1,08E-06	3,06E-05	3,09E-05	-1,42E-03
EP	[kg PO_4^{3-} eq]	4,78E-04	3,77E-06	1,51E-07	9,83E-02	2,51E-07	2,74E-06	3,62E-06	-6,29E-05
GWP	[kg CO_2 eq]	1,35E+00	6,37E-03	4,39E-03	3,95E+02	4,24E-04	1,10E-02	1,24E-01	-1,76E-01
ODP	[kg R11 eq]	1,25E-10	2,92E-14	4,18E-13	2,80E-07	1,95E-15	7,80E-12	2,00E-13	-7,66E-10
POCP	[kg C_2H_4 eq]	5,17E-04	-4,65E-06	1,14E-07	7,57E-02	-3,10E-07	2,11E-06	1,82E-06	-7,93E-05

GWP = Global Warming Potential

LED modules
DLE G4 65mm 3000lm 840 H ADV
89602877

Environmental Product Declaration
According to EN ISO 14025 and EN 15804

Declaration number:	ECO-ZGR-89602877-Component-EU-2017-12-04
Date of Issue:	2017-12-04

Institut Bauen und Umwelt e.V.

Table 1: LCA results: environmental impacts

Assessment parameter	Unit	Production Stage	Construction Process Stage		Use-stage	End-of-Life Stage			Benefits and loads beyond the system boundary
		Raw material supply and manu-facturing	Transport to building site	Construction installation process	Operational energy use	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
		A1-A3	A4	A5	B6	C2	C3	C4	D
ADPE	[kg Sb eq]	1,70E-04	4,79E-10	1,07E-09	1,13E-04	3,19E-11	3,16E-09	1,71E-08	-1,89E-04
ADPF	[MJ]	1,33E+01	9,91E-02	3,58E-02	3,77E+03	6,61E-03	1,06E-01	4,88E-02	-2,67E+00
AP	[kg SO_2 eq]	5,52E-03	1,83E-05	9,20E-06	9,69E-01	1,22E-06	2,72E-05	2,94E-05	-1,79E-03
EP	[kg PO_4^{3-} eq]	4,99E-04	4,26E-06	8,23E-07	8,67E-02	2,84E-07	2,44E-06	3,26E-06	-1,25E-04
GWP	[kg CO_2 eq]	1,13E+00	7,20E-03	2,47E-02	3,48E+02	4,80E-04	9,78E-03	1,15E-01	-2,34E-01
ODP	[kg R11 eq]	4,10E-11	3,31E-14	2,35E-12	2,47E-07	2,20E-15	6,94E-12	2,03E-13	-2,64E-11
POCP	[kg C_2H_4 eq]	4,36E-04	-5,26E-06	6,34E-07	6,68E-02	-3,51E-07	1,88E-06	1,66E-06	-1,02E-04

GWP = Global Warming Potential

LED modules
RLE 2x8 4000lm 830 HP EXC2 OTD
89603162

Environmental Product Declaration
According to EN ISO 14025 and EN 15804

Declaration number:	ECO-ZGR-89603162-Component-EU-2018-07-25
Date of Issue:	2018-07-25

Institut Bauen und Umwelt e.V.

Table 1: LCA results: environmental impacts

Assessment parameter	Unit	Production Stage	Construction Process Stage		Use-stage	End-of-Life Stage			Benefits and loads beyond the system boundary
		Raw material supply and manu-facturing	Transport to building site	Construction installation process	Operational energy use	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
		A1-A3	A4	A5	B6	C2	C3	C4	D
ADPE	[kg Sb eq]	7,87E-05	3,51E-10	2,59E-09	3,32E-04	2,34E-11	2,50E-09	6,10E-09	-1,31E-04
ADPF	[MJ]	1,45E+01	7,26E-02	2,54E-02	1,11E+04	4,84E-03	8,37E-02	2,22E-02	-1,09E+00
AP	[kg SO_2 eq]	6,67E-03	1,34E-05	8,31E-06	2,86E+00	8,94E-07	2,15E-05	1,42E-05	-4,94E-04
EP	[kg PO_4^{3-} eq]	6,27E-04	3,12E-06	7,24E-07	2,56E-01	2,08E-07	1,92E-06	2,68E-06	-3,58E-05
GWP	[kg CO_2 eq]	1,44E+00	5,28E-03	2,20E-02	1,03E+03	3,52E-04	7,73E-03	4,09E-02	-8,59E-02
ODP	[kg R11 eq]	1,60E-11	2,42E-14	1,33E-12	7,28E-07	1,62E-15	5,49E-12	1,98E-13	-1,29E-11
POCP	[kg C_2H_4 eq]	5,54E-04	-3,85E-06	5,23E-07	1,97E-01	-2,57E-07	1,48E-06	9,48E-07	-3,28E-05

GWP = Global Warming Potential

LED modules
LLE 16x280mm 650lm 830 HV ADV5
89603391

Environmental Product Declaration
According to EN ISO 14025 and EN 15804

Declaration number:	ECO-ZGR-89603391-Component-EU-2019-03-27
Date of Issue:	2019-03-27

Institut Bauen und Umwelt e.V.

Table 1: LCA results: environmental impacts of the product

Assessment parameter	Unit	Production-Stage	Construction Process Stage		Use-stage	End-of-Life Stage			Benefits and loads beyond the system boundary
		Raw material supply and manu-facturing	Transport to building site	Construction installation process	Operational energy use	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
		A1-A3	A4	A5	B6	C2	C3	C4	D
ADPE	[kg Sb eq]	6,17E-05	7,54E-11	2,21E-09	5,08E-05	1,08E-11	3,09E-09	4,70E-13	-5,11E-05
ADPF	[MJ]	7,61E+00	1,25E-02	1,54E-02	1,02E+03	1,79E-03	2,98E-02	3,03E-05	-7,10E-01
AP	[kg SO_2 eq]	3,48E-03	2,11E-06	5,73E-06	2,71E-01	3,02E-07	1,07E-05	9,64E-09	-5,60E-04
EP	[kg PO_4^{3-} eq]	3,17E-04	5,32E-07	5,49E-07	2,54E-02	7,60E-08	1,45E-06	3,67E-08	-3,65E-05
GWP	[kg CO_2 eq]	7,47E-01	9,17E-04	1,50E-02	9,56E+01	1,31E-04	1,48E-02	3,78E-05	-6,50E-02
ODP	[kg R11 eq]	1,79E-12	2,51E-17	4,81E-15	4,25E-10	3,58E-18	1,01E-14	5,83E-19	1,18E-13
POCP	[kg C_2H_4 eq]	2,68E-04	-7,07E-07	2,98E-07	1,70E-02	-1,01E-07	6,47E-07	9,42E-09	-2,91E-05

GWP = Global Warming Potential

ANNEX 7: DISTRIBUTION TRANSPORT EMISSION FACTORS INCLUDED IN THE KOMBIC AND FIL (LAMP) DAP

KOMBIC

Luminarias KOMBIC100, KOMBIC150 y KOMBIC200

de

LAMP S.A.U.

LAMP Worktitude for light

Programa:	The International EPD® System, www.environdec.com
Administrador de programa:	EPD International AB
Número registro EPD:	S-P-03873
Fecha publicación:	2022-03-14
Válida hasta:	2027-03-13

A4- Transporte

El módulo A4 Transporte incluye el transporte de los productos acabados y empaquetados desde la puerta de la fábrica hasta la obra para su posterior instalación. En la distribución nacional, se ha considerado el transporte en furgoneta. En la distribución global, se encuentran dos medios de transporte: camión y avión.

Se ha considerado una media ponderada del kilometraje asociado al producto Kombic en función de sus ventas durante el año 2020. Para los transportes en avión, se ha considerado la distancia en camión desde el centro de producción hasta el aeropuerto de salida, el transporte de avión en sí, y un transporte en camión desde el aeropuerto de llegada hasta un punto de distribución final.

En concreto, en 2020 hay 55% de venta dómestica de KOMBIC, 15% al resto de Europa, 11% a los Estados Unidos, 13% al Medio Este y 6% al resto del mundo. La siguiente tabla recoge la información relacionada al transporte de KOMBIC en 2020:

PARÁMETRO	VALOR EXPRESADO POR UNIDAD DECLARADA
Tipo y consume de combustible del vehículo, tipo de vehículos utilizados para el transp orte; por ejemplo, camiones de larga distancia, barco, etc.	• Doméstica: "Furgoneta de transporte 3,5 – 7 t EURO6. Consumo diésel: • Europa: "Camión de transporte 16 t EURO6". Consumo diésel: 0,0165 kg/tkm • "Avión de cargo, sin especificaciones". Consumo de fueloil pesado: 0,00102 kg/tkm"
Distancia	• Km en furgoneta: 600 km • Km en camión: 1500 km • Km en avión: 4000 km
Utilización de la capacidad (incluyendo el retorno en vacío)	% asumido en Ecoinvent
Densidad aparente de los productos transportados	0,347 kg/m3
Factor de capacidad útil	1

Indicador	Unidad	Tot.A1-A3	A4
GWP-total	kg CO_2eq.	3,93E+00	2,55E-01
GWP- fósil	kg CO_2eq.	3,89E+00	2,55E-01
GWP-biogénico	kg CO_2eq.	2,75E-02	1,49E-05
GWP-luluc	kg CO_2eq.	1,42E-02	2,08E-06

FIL

FIL35, FIL45, FIL50, FIL70 y FIL120 Luminaria Lineal Técnica Modular

de

LAMP S.A.U.

Worktitude for light

Programa:	The International EPD® System, www.environdec.com
Administrador de programa:	EPD International AB
Número registro EPD:	S-P-05607
Fecha publicación:	2022-04-01
Válida hasta:	2027-03-31

Una EPD debería contener información actual y actualizarse si las condiciones cambian. Por ello, la validez indicada está sujeta al registro y publicación continuadas en www.environdec.com

El módulo **A4 Transporte** incluye el transporte de los productos acabados y empaquetados desde la puerta de la fábrica hasta la obra para su posterior instalación. En la distribución nacional, se ha considerado el transporte en furgoneta. En la distribución global, se encuentran dos medios de transporte: camión y avión.

Se ha considerado una media ponderada del kilometraje asociado al producto Fil 45 en función de sus ventas durante el año 2020. Para los transportes en avión, se ha considerado la distancia en camión desde el centro de producción hasta el aeropuerto de salida, el transporte de avión en sí, y un transporte en camión desde el aeropuerto de llegada hasta un punto de distribución final.

PARÁMETRO	VALOR EXPRESADO POR UNIDAD DECLARADA
Tipo y consume de combustible del vehículo, tipo de vehículos utilizados para el transporte; por ejemplo, camiones de larga distancia, barco, etc.	• Doméstica: "Furgoneta de transporte 3,5 – 7 t EURO6. Consumo diésel: • Europa: "Camión de transporte 16 t EURO6". Consumo diésel: 0,0165 kg/tkm • "Avión de cargo, sin especificaciones". Consumo de fueloil pesado: 0,00102 kg/tkm"
Distancia	• Km en furgoneta: 600 km • Km en camión: 1500 km • Km en avión: 4000 km

Utilización de la capacidad (incluyendo el retorno en vacío)	% asumido en Ecoinvent
Densidad aparente de los productos transportados	0,521 kg/m3
Factor de capacidad útil	1

Indicador	Unidad	Tot.A1-A3	A4
GWP-total	kg CO_2eq.	2,83E+01	1,64E+00
GWP- fósil	kg CO_2eq.	2,81E+01	1,64E+00
GWP-biogénico	kg CO_2eq.	9,80E-02	4,01E-04
GWP-luluc	kg CO_2eq.	1,02E-01	3,67E-04

WORKTITUDE FOR **LIFE**

LAMP
Worktitude for light