Xcalibur
SMART MAPPING

CARBON FOOTPRINT 2023 REPORT

DECEMBER 2024 | Xcalibur Smart Mapping

Xcalibur Smart Mapping
Unlocking Natural Capital

esgdepartment@xcaliburmp.com
www.xcaliburmp.com

+34 912 791 402

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1. Introduction

In the current era, where sustainability and environmental responsibility are global imperatives, Europe is at the forefront in the fight against climate change, setting ambitious commitments to reduce greenhouse gas (GHG) emissions.

Businesses play a crucial role in the fight against climate change, as they are responsible for a significant amount of global GHG emissions. Effective management of these emissions is not only essential to comply with environmental regulations and stakeholder expectations, but also to ensure the long-term sustainability and resilience of organisations.

This corporate GHG emissions report aims to present a detailed analysis of the emissions generated by our operations during 2023. It includes a breakdown by gas type, emission sources, and a comparison with previous years to identify trends and assess the progress in reduction of our carbon footprint.

In addition to providing a clear and transparent view of the company's environmental performance, this report is part of our commitment to transparency and accountability, aligning with international sustainability reporting standards.

2. Methodology

The methodological basis for calculating greenhouse gas emissions resulting from an organisation's activities is the application of the following formula:

Carbon footprint = Activity data x Emission factor

In which:

- **Carbon footprint:** total greenhouse gas emissions.
- **Activity data:** parameter defining the degree of activity (e.g. litres of gasoil C).
- **Normalised emission factor (EF):** assumption of the amount of greenhouse gases emitted per unit of the parameter 'activity data' (e.g. 2,868 kgCO2/l).

The unit used to display the results is the tCO2eq (tonne of CO2 equivalent), a universal unit of measurement that denotes the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of a unit of carbon dioxide. It is used to measure the impact on climate change of the release of different greenhouse gases through the same unit.

Direct GHG emissions (Scope 1) are also quantified separately for CO_2, CH_4, N_2O, NF_3, SF_6 and other appropriate GHG groups (HFCs and PFCs).

The methodology used to perform Scope 1 and 2 calculations is based on the processes described in the Corporate Accounting and Reporting Standard of the Greenhouse Gas Protocol, which is the most widely implemented international methodology at present and follows the guidelines of the Intergovernmental Panel on Climate Change (IPCC), while the methodology used for Scope 3 calculations is based on the Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

The following table shows the categories and subcategories for data collection, with a detailed description of each. The categories that are MANDATORY to report for the study to be considered valid (Scope 1 and 2) and those that are OPTIONAL (Scope 3) are also specified.

For organisations with more than one centre, next to each subcategory, whether the data is collected per centre or for the organisation as a whole, is indicated.

For the subcategories in which the calculation can be performed depending on the type of data collected, the different methodologies applicable are also specified.

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
1. DIRECT EMISSIONS	**Sources owned or controlled by the organisation.**	**MANDATORY**
1.1 STATIONARY COMBUSTION	Combustion of fossil fuels in furnaces, boilers or other stationary installations. Engine-generators are also included.	PER CENTRE
1.1.0 BIOMASS COMBUSTION	Use of biomass as fuel in furnaces, boilers or other fixed installations. Biogas is included. Reported separately from stationary fossil fuel combustion as CO_2 (biogenic) emissions are notified on and CH_4 and N_2O emissions are accounted for.	PER CENTRE
1.1.1 and 1.1.2 FOSSIL FUEL COMBUSTION	Emissions are distinguished into: 1.1.1 Installations subject to the Law 1/2005, of 9th March, which regulates the greenhouse gas emission allowance trading scheme. These emissions will be those that are verified and reported. 1.1.2 Installations not subject to the Law 1/2005, of 9th March. These emissions are calculated based on fuel consumption.	PER CENTRE
1.2 MOBILE COMBUSTION	Fuel consumption in vehicles and/or agricultural, forestry or industrial mobile machinery owned, rented or leased. Generally, consumption of those vehicles for which the fuel cost the organisation is responsible for.	VEHICLES – GLOBAL MACHINERY – PER CENTRE
1.3 PROCESS EMISSIONS	GHG emissions, other than combustion emissions, produced as a result of intentional or unintentional reactions between substances, or their transformation, including chemical or electrolytic reduction of metal ores, thermal decomposition of substances and the formation of substances for use as products or raw materials for processes. Emissions from fertiliser use, manure management and ruminant livestock farming are included.	PER CENTRE
1.4 FUGITIVE EMISSIONS	Leakage from air-conditioning and/or refrigeration equipment that uses greenhouse gases and occurs during use or maintenance. This also includes leakage from high voltage switchgear, leakage and/or use of fire extinguishers, anaesthetic gases, propellant gases in food aerosols, etc. The quantity leaked is considered equal to the quantity recharged.	VEHICLES – GLOBAL THE REST – PER CENTRE

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
2. INDIRECT EMISSIONS FROM IMPORTED ENERGY	**Emissions resulting from the organisation's activities, but occurring at external sources, which are owned or controlled by another organisation, associated with the purchase of energy.**	**MANDATORY**
2.0 ELECTRICITY FROM OWNED RENEWABLE INSTALLATIONS	Electricity generated in self-owned renewable energy installations (photovoltaic panels, wind turbines, etc.) either for sale or for self-consumption. Avoided emissions from self-consumption of renewable energy do not 'subtract' emissions, but they do generate avoided emissions that are reported.	PER CENTRE
2.1 IMPORTED ELECTRICITY	Consumption of electricity from external suppliers. Includes GHG emissions related to the production and consumption of electricity imported by the organisation.	PER CENTRE
2.2 IMPORTED ENERGY	Consumption of heat, steam, cooling or compressed air that is purchased externally for use in equipment or facilities owned or controlled by the organisation. GHG emissions related to the production of energy consumed by the organisation through a physical network (steam, heating, cooling and compressed air) are included. Electricity is excluded.	PER CENTRE

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
3. INDIRECT EMISSIONS FROM TRANSPORT	**GHG emissions from sources outside the boundaries of the organisation. These sources are mobile and are mainly due to fuel burned during transportation.**	**OPTIONAL**
3.1 UPSTREAM TRANSPORT AND DISTRIBUTION OF GOODS	Transport and distribution services purchased by the informing company in the reporting year, including inbound and outbound logistics.	GLOBAL
3.1.1 TRANPORT AND DISTRIBUTION PURCHASES	Emissions caused by the transport and distribution of products upstream from freight services paid for by the reporting organisation. The most recent transport activity from the supplier to the organisation is included.	GLOBAL
3.1.2 TRANSPORT AND DISTRIBUTION SALES	Emissions caused by transport and distribution of products downstream from freight services provided to first buyers (paid for by the reporting organisation).	GLOBAL
3.2 BUSINESS TRAVEL	Transportation of employees for business-related activities during the reporting year, in vehicles not owned or operated but paid for by the reporting company (travel by train, plane, taxi, etc.). Travel by outside staff may be included if it is paid for by the reporting organisation.	GLOBAL
3.3 EMPLOYEE COMMUTING	Transportation of employees between their homes and their workplaces and vice versa, in vehicles not owned or operated by the organisation.	PER CENTRE
3.4 TRANSPORT OF CLIENTS AND VISITORS	Emissions associated with customer and visitor transportation to the reporting company's premises.	PER CENTRE
3.5 DOWNSTREAM TRANSPORT AND DISTRIBUTION OF GOODS	Transport and distribution of products sold by the informing company in the reporting year between the company's operations and the final consumer (if not paid for by the reporting company), including retail and storage.	GLOBAL

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
4. INDIRECT EMISSIONS FROM PRODUCTS AND SERVICES USED BY THE ORGANISATION	**GHG emissions from sources outside the boundaries of the organisation associated with goods used by the organisation. Sources can be stationary or mobile and are associated with all types of products and services purchased by the reporting organisation.**	**OPTIONAL**
4.1 PURCHASED GOODS AND SERVICES	Emissions from purchased products associated with the organisation's activity.	GLOBAL
4.1.1 RAW MATERIALS 4.1.2 USED PRODUCTS	Products purchased by the organisation. They are classified into raw materials (products or materials that are used or transformed to produce the organisation's output) and used products (other materials or products that are necessary for the organisation's activity but are not directly incorporated into the product being sold). Quantification methodologies: • Raw material/product specific. Emissions from production (tier 1) are included. Additionally, if the organisation has recorded data, emissions can be included in a cradle-to-gate approach. • Estimated according to material. Cradle-to-gate emissions are represented according to the weight of materials purchased. Primary materials (not reused nor recycled) are considered. The emissions of material extraction, primary processing, manufacturing and transport to the point of sale are included. • Estimated according to expenditure/activity. Emissions from purchase and contracted services, excluding those related to fossil fuel consumption in buildings and vehicles, electricity consumption and water consumption.	GLOBAL
4.1.3 PRODUCTION OF ACQUIRED FUELS	Upstream emissions from purchased fuels: All upstream (cradle-to-gate) emissions from purchased fuels (from raw material extraction to the point of combustion, not including the latter). For the calculation of these emissions, the consumptions declared in the subcategories 1.1 and 1.2 expressed in fuel quantity are taken.	PER CENTRE
4.1.4 PRODUCTION OF ACQUIRED ELECTRICITY	Includes all emissions from the extraction to the transport and distribution of fuel to the electricity plant, construction of the electricity generating plant, and transport and distribution losses to the final consumer. For the calculation of these emissions, the consumption declared in the subcategory 2.1 is used.	PER CENTRE
4.2 CAPITAL GOODS	Emissions from capital assets purchased and amortised by the organisation. This includes assets used by the organisation to manufacture a product, provide a service, or sell, store and deliver goods. The amortised portion of the	GLOBAL

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
	total is included (based on accounting rules). Emissions should be reported each year on a pro-rata basis over the amortisation period. Quantification methodologies: • Asset specific (machinery, apparatus, vehicle). Emissions from production (tier 1) are included. Additionally, if data is available to the organisation, emissions can be included on a cradle-to-gate approach. • Estimated according to expenditure/activity. Emissions from purchases of amortised goods. The activity input will be the amount amortised by activity in the year calculated.	
4.3 USE OF WATER	Water consumption by the organisation. Emissions from the water cycle are analysed, both before use (collection, purification and distribution) and after use (sewage system, wastewater treatment, reuse and return of treated water to the environment).	PER CENTRE
4.4 WASTE DISPOSAL	The emissions from solid and liquid waste disposal depend on the characteristics of the waste and its treatment.	PER CENTRE
4.5 UPSTREAM LEASED ASSETS	Emissions not reported in Scope 1 and 2 from leased assets where the reporting organisation is the lessee (tenant). That is, in those cases where supplies are included, without breakdown, in the cost of the lease. Quantification methodologies: Specific. Includes Scope 1 and 2 emissions from the use of the leased asset. The activity data must be provided by the lessor (owner). Estimated according to expenditure/activity. Emissions shall be estimated based on rental expenditure. The organisation shall stipulate the percentage of expenditure attributable to the consumption generated by its activity.	GLOBAL
4.6 OTHER CONTRACTED SERVICES	Emissions from the use of services that are not described in the above subcategories, including consultancy, cleaning, maintenance, mail delivery or banking. Quantification methodologies: • Data source Delivery note/invoice: Service specific. This includes the emissions of the performance of the service. This data must be provided by the service provider. • Data source Estimate: Estimated according to expenditure/activity. Emissions from procurement excluding those related to waste disposal.	GLOBAL

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
5. INDIRECT EMISSIONS FROM USE OF SOLD PRODUCTS AND SERVICES	**GHG emissions associated with the use of the organisation's products during life stages after the production process carried out in the organisation. They come from products sold by the reporting organisation during the calculation year.**	**OPTIONAL**
5.1 EMISSIONS DURING USE OF PRODUCTS	Estimated emissions from the usage of the product, including the total expected lifetime emissions of all or part (the most significant) of the products sold in the reporting year. Depending on whether the product is final or intermediate, these will be assessed according to use of or processing, respectively.	GLOBAL
5.1.1 ENERGY CONSUMPTION OVER PRODUCT LIFETIME	Estimated emissions from the product use stage, associated with the consumption of fossil fuels or electricity. These emissions can be generated directly or indirectly, depending on the type of product. For the estimation of emissions, the emission factors of fuels and of the national electricity mix without GdO are taken, both from the year of calculation.	GLOBAL
5.1.2 FUGITIVE EMISSIONS OVER PRODUCT LIFETIME	Estimated emissions from the product use stage, associated with voluntary or involuntary GHG leakage or recharge. The GWP (Global Warming Potential) of AR6 (IPCC Sixth Assessment Report) is used to estimate emissions.	GLOBAL
5.1.3 USE OF WATER OVER PRODUCT LIFETIME	Estimated emissions from the product use stage, associated with water consumption. These emissions can be generated directly or indirectly, depending on the type of product. For the estimation of emissions, the emission factor for water network published by the OCCC is used.	GLOBAL
5.2 END-OF-LIFE TREATMENT OF SOLD PRODUCTS	Estimated emissions from the end-of-life stage of all or part (the most significant) of the products sold during the reporting year, associated with the disposal of waste from these products. The materials used for packaging and distribution can also be included in the calculation. Two scenarios are calculated: waste treated according to the fraction to which it belongs, and waste treated as the residual fraction of the municipal collection. The average of both calculations is considered as the estimated emission. For the estimation of emissions, the emission factors for the waste of the year of calculation are taken.	GLOBAL
5.3 DOWSTREAM LEASED ASSETS	Emissions not reported in Scope 1 and 2 from leased assets where the reporting organisation is the lessor (landlord). That is, where supplies are paid for directly by the tenant. Quantification methodologies:	GLOBAL

CATEGORIES AND SUBCATEGORIES	IDENTIFICATION OF SOURCES	INVENTORY
	• Specific. Scope 1 and 2 emissions from the use of the leased asset are included. Activity data to be provided by the lessee (tenant). • Estimated according to expenditure/activity. Emissions will be estimated according to rental income.	

In order to contextualise and track emissions over time, the overall emissions impact (absolute emissions in tCO_2e) and the emissions ratio are measured against the indicator defined by the organisation. This should adequately reflect the level of activity of the organisation.

Activity index	Parameter chosen by the organisation that defines its activity level	MANDATORY
Indicator Level Organisation	Company activity data, in economic terms from turnover, or in physical terms through the company's production. We recommend using annual turnover.	
Indicator Level Centre	Benchmark that allows comparison between sites to assess the efficiency of each site relative to others of the same type, e.g. annual production in manufacturing and industrial organisations or average annual number of employees (FTE) in service organisations.	For organisations with more than one centre

3. Description of the Organisation

Corporate Name: XCALIBUR MULTIPHYSICS GROUP S.L.

CIF/VAT: B85462950

Address: Avenida Partenón 10, 2nd Floor, 28042, Madrid, Spain

Website: www.xcaliburmp.com

Description: Xcalibur Smart Mapping (hereafter referred to as XSM or Xcalibur) is the global leader in airborne and mapping geophysics industry. With over 100 years of accumulated experience, Xcalibur provides comprehensive and sustainable solutions for mapping and assessing natural capital, including renewable and non-renewable resources.

With solid experience and a track record of exponential growth, Xcalibur Smart Mapping offers a wide range of advanced services and technologies for the exploration and evaluation of mineral, energy and environmental resources. Owning a fleet of more than forty aircraft equipped with geophysical systems, we map countries and lands to identify the properties of the sub- and above-surface, and discover potential areas of natural resources, such as critical minerals, hydrogen, or geothermal energy.

4. GHG Inventory Boundaries

The first stage in the process of calculating an organisation's carbon footprint involves determining the **temporal, organisational, and operational boundaries** that will establish the framework of the study and the subsequent calculation steps.

4.1 Temporal Boundary

The calculation of the carbon footprint for 2023 is carried out, corresponding to the calendar year. **All data collected corresponds to the period from January 1st to December 31st of 2023.**

As reliable and complete information for previous years is not available, 2023 is set as the base year.

Any relevant changes in:

- The structure of the reporting organisation (i.e. merger, acquisition or decommissioning),
- Inventory boundaries (i.e. extension of the calculation categories studied),
- Activity data (by detection of an error or several cumulative errors that are collectively substantial),
- Calculation methodologies or emission factors,

will motivate the recalculation of the base year emissions.

4.2 Organisational Boundary

4.2.1 Person responsible for the data

The data used for this calculation has been provided by XCALIBUR MULTIPHYSICS GROUP S.L., by the ESG Department, centralising the requested information from the various corresponding offices.

4.2.2 Approach

To establish the boundaries of the greenhouse gas emissions inventory, the operational control approach is followed. Under this approach, the calculation includes all emissions from operations of facilities, centres, and vehicles over which the reporting organisation has control over, and therefore, has complete and accessible information on.

4.2.3 Centres included in the calculation

All subsidiaries within the group are primarily dedicated to airborne geophysics, leveraging advanced technologies to conduct non-invasive surveys for natural resource mapping. Additionally, they engage in investment activities directed by the Corporate office, which supports strategic growth and diversification. These activities are complemented by initiatives aimed at driving business development, ensuring the organisation's sustained expansion and alignment with its overarching objectives.

Our company has offices and hangars across several countries. These include locations in Spain (Madrid), Brazil (Rio de Janeiro and Curitiba), Canada (Ottawa and Mississauga), Colombia (Bogotá and Chía), the Democratic Republic of the Congo (Kinshasa), India (Hyderabad), South Africa (Pretoria), the USA (Houston), and Australia (Perth).

4.3 Operational Boundary

This report analyses:

- **Non-biogenic GHG emissions** (arising from non-living sources such as fossil fuels or geological processes).
- **Anthropogenic biogenic GHG emissions** (resulting from human activity involving biogenic material such as biomass combustion).

The emissions associated with their operations are identified. All Scope 1 and Scope 2 emissions will be included in the calculations, as well as indirect Scope 3 emissions for which the organisation has available data.

To conduct the inventory, we divide emission sources into subcategories:

- We consider the following subcategories as INCLUDED: APPLIES, NON-EXISTENT SOURCE (N/A), NO ACTIVITY (0), and GLOBAL (in organisations with more than 1 centre).
- We consider the following subcategory as EXCLUDED: NO DATA (N/D).

INVENTORY BOUNDARIES		
APPLIES	The organisation provides activity data and emissions are calculated.	
DOES NOT APPLY	The organisation does not have emission sources for this category.	N/A
NO DATA	The organisation does not have activity data for this category.	N/D
NO ACTIVITY	The source exists, but there is no activity reported in the defined period.	0
GLOBAL	The organisation reports these emissions at a COMPANY level rather than by CENTRE.	GLOBAL

This information is detailed for each centre in the NOTES column of its respective Emissions Table.

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5. Overall Results

5.1 Carbon Footprint

REPORTING COMPANY	XCALIBUR MULTIPHYSICS GROUP S.L.
REPORTING PERIOD	01/01/2023 - 31/12/2023

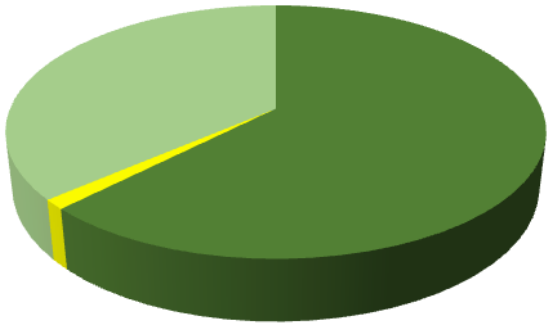
EMISSIONS	NOTES	TOTAL (tCO2e)	kg CO2	kg CH4	kg N2O	kg HFC's	kg PFC's	kg SF6	kg NF3
	GWP		1	27,9	273	by gas	by gas	24.300	17.400
1. DIRECT EMISSIONS		**9.364,58**	**9.277.893,35**	**250,86**	**291,88**	**0,00**	**0,00**	**0,00**	**0,00**
STATIONARY COMBUSTION		73,25	73.101,85	3,94	0,13				
Biomass combustion	N/A								
Fossil fuel combustion		73,25	73.101,85	3,94	0,13				
MOBILE COMBUSTION		9.291,33	9.204.791,50	246,92	291,76				
PROCESS EMISSIONS	N/A								
FUGITIVE EMISSIONS	0								
LAND USE AND FORESTRY CHANGES	N/A								
2. INDIRECT EMISSIONS FROM IMPORTED ENERGY		**186,27**							
IMPORTED ELECTRICITY	No GoO	186,27							
IMPORTED ENERGY	N/A								
3. INDIRECT EMISSIONS FROM TRANSPORT		**1.576,17**							
UPSTREAM TRANS. AND DISTRIBUTION OF GOODS	N/D								
BUSINESS TRAVEL		1.576,17							
EMPLOYEE COMMUTING	N/D								
TRANS. OF CLIENTS AND VISITORS	N/D								
DOWNSTREAM TRANS. AND DISTRIBUTION OF GOODS	N/D								
4. INDIRECT EMISSIONS FROM USED PRODUCTS		**3.881,68**							
RAW MATERIALS AND PRODUCTS	N/D								
PRODUCTION OF ACQUIRED FUELS		1.950,50							
CAPITAL GOODS	N/D								
USE OF WATER		0,85							
WASTE DISPOSAL		13,73							
UPSTREAM LEASED ASSETS	N/D								
OTHER CONTRACTED SERVICES		1.916,60							

EMISSIONS	NOTES	TOTAL (tCO2e)	kg CO2	kg CH4	kg N2O	kg HFC's	kg PFC's	kg SF6	kg NF3
	GWP		1	27,9	273	by gas	by gas	24.300	17.400
TOTAL EMISSIONS	**tCO2e**	**15.008,70**							
Energy consumption	MWh	534,10							
RELATIVE EMISSIONS	**tCO2e/ MWh**	**28,1010**							

NOTES	
DOES NOT APPLY (the organisation does not have emission sources for this category)	N/A
NO DATA (the organisation does not have activity data for this category)	N/D
The source exists, but there has been no activity in this reporting period	0
The organisation reports these emissions at the COMPANY level rather than by CENTRE	GLOBAL
The organisation provides consumption data, but applicable EF are not available.	N/EF
Annual energy consumption	MWh
Guarantee of Origin certificate for renewable energy (GoO)	GoO

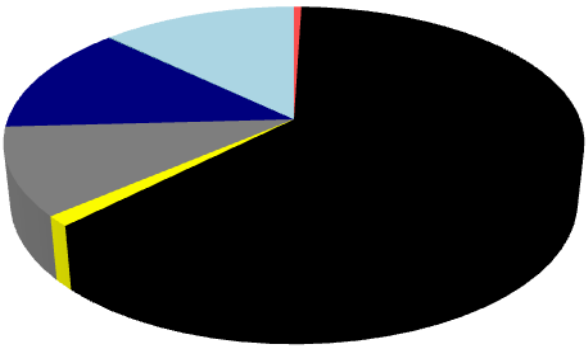
Emissions by Scope XCALIBUR MULTIPHYSICS GROUP S.L. – 2023

Key	Emissions	tCO_2e	%
	Scope 1: Direct	9.364,58	62,394%
	Scope 2: Indirect from energy	186,27	1,241%
	Scope 3:	5.457,86	36,365%

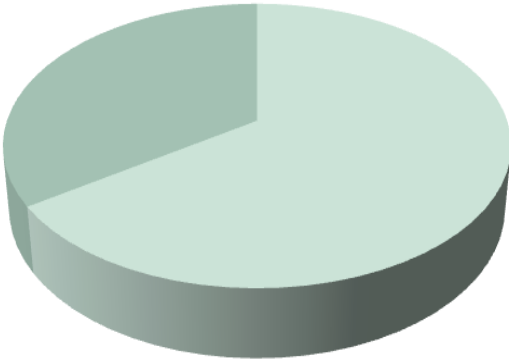


Emission Sources by tCO_2e

Key	Emissions	tCO_2e	%
	STATIONARY COMBUSTION	73,25	0,488%
	MOBILE COMBUSTION	9.291,33	61,906%
	IMPORTED ELECTRICITY	186,27	1,241%
	BUSINESS TRAVEL	1.576,17	10,502%
	PRODUCTION OF ACQUIRED FUELS	1.950,50	12,996%
	USE OF WATER	0,85	0,006%
	WASTE DISPOSAL	13,73	0,092%
	OTHER SERVICES	1.916,60	12,770%



OTHER SERVICES			
Key	**Emissions**	**tCO_2e**	**%**
	Leased aircraft	1.255,16	65,489%
	Digital emissions (server)	661,44	34,511%
TOTAL emissions		**1.916,60**	**100,000%**



5.2 Excluded emissions

Regarding fugitive emissions, some centres of the organisation have fire extinguishers available, however, data on recharges or use due to maintenance tasks or drills is lacking. Therefore, proper calculation on fugitive emissions cannot be done.

Assuming the nearly impossible scenario that all fire extinguishers had been recharged during the reporting year, this would result in 0,129 tCO_2e emissions. Considering that Scope 1 emissions totals 9.364,58 tCO_2e, the fugitive emissions released due to recharge of fire extinguishers would represent 0,00138% of the total Scope 1 emissions.

Thus, fugitive emissions have been excluded of the calculation in view of their low significance.

Centre	Inventory	Use	Maintenance frequency	Total $kgCO_2$ of fire extinguisher	Total emissions Scope 1	Significancy of fire extinguisher emissions
AUSTRALIA	HANGAR 3 x 2 kg; 7 x 3,5 kg; 4 x 5 kg. OFFICE 1x 2 kg	N/D	Semi-annual maintenance	52,50		
BRAZIL	OFFICE 5 x 6 kg; 2 x 4 kg	N/D	N/D	38,00		
CANADA	N/A	-	-	0,00		
COLOMBIA	HANGAR 4,5 kg. OFFICE 1 kg	N/D	Annual maintenance	5,50		
DRC	N/A	-	-	0,00		
INDIA	N/A	-	-	0,00		
SPAIN	OFFICE 5 kg	N/D	Annual maintenance	5,00		
SOUTH AFRICA	HANGAR 4 x 5kg; 1 x 2 kg	N/D	Annual maintenance	22,00		
USA	OFFICE 1 kg	N/D	N/D	1,00		
CORPORATE	OFFICE 5 kg	N/D	Annual maintenance	5,00		
			Total $kgCO_2e$	**129,00**	**9.364.580,00**	
			Total tCO_2e	**0,129**	**9.364,58**	**0,00138%**

6. Mitigation Measures and Carbon Reduction Plan

In addition to the knowledge of GHG emissions for which an organisation is responsible for, the carbon footprint offers the possibility to act on these emissions by setting targets for improvement or reduction. Mitigation measures are those actions that are aimed at reducing and restricting greenhouse gas emissions.

The following are some measures to reduce consumption and energy efficiency measures that organisations can implement to mitigate their GHG emissions, and the implementation phase it is currently at.

6.1 Use of renewable energy

Replacement of equipment that run on fossil fuel with renewable energy as much as is feasible.

MEASURE	IMPLEMENTATION	COMMENTS
Installation of photovoltaic panels to reduce electricity consumption from the grid.	☒Implemented ☐In study ☐Not contemplated ☒Does not apply	Implemented: BRA and KAZ. N/A: AUS and SAF due to glare hazard at the airport.
Replacement of boilers that use fossil fuels with biomass boilers.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Replacement of hot water generation boilers that use fossil fuels or electricity with solar panels.	☐Implemented ☒In study ☐Not contemplated ☐Does not apply	In study: AUS and COL.
Purchase of electricity from 100% renewable sources.	☐Implemented ☒In study ☐Not contemplated ☐Does not apply	In study: SAF.
Replacement of an installation that runs on fossil fuels or electricity with a geothermal installation.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Replacement of vehicle fleet with hybrid and/or electric models.	☒Implemented ☒In study ☐Not contemplated ☐Does not apply	Implemented: CRP and ESP. In study: SAF. *The company aims to replace its vehicle fleet with hybrid and electric models and has signed an MOU with Monte to transition the aircraft fleet once the technology becomes available.
Other:		

6.2 Promoting energy efficiency

In order to promote energy efficiency, equipment should be renewed based on energy efficiency criteria, improving equipment control to reduce consumption, and taking actions to enhance the performance of existing equipment.

MEASURE	IMPLEMENTATION	COMMENTS
Replacement of conventional boilers with higher efficiency condensing boilers, etc.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: CRP and ESP.
Installation of combustion analysers to improve the energy efficiency of boilers.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Installation of heat recovery systems.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Replacement of conventional lighting fixtures with energy-efficient bulbs, LEDs, etc.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS, CAN, COL, CRP, ESP, IND, KAZ, and SAF.
Replacement of equipment (computer screens, printers, etc.) with more efficient models than those being replaced, with labels A+, A++, A+++.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS, COL, and SAF.
Replacement of analogue thermostats with digital ones to enhance temperature management for comfort.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS, CAN, ESP, KAZ, and SAF.
Installation of ambient temperature and relative humidity sensors to improve HVAC system management.	☒Implemented ☒In study ☐Not contemplated ☐Does not apply	Implemented: KAZ. In study: SAF.
Installation of polarisers to eliminate static current from photovoltaic panels.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply to the organisation	
Sharing computer towers to reduce electricity consumption.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply to the organisation	
Other:		

6.3 Transport emission reduction plans

MEASURE	IMPLEMENTATION	COMMENTS
Use of bicycles.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Agreements with eco-friendly taxi services.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: ESP.
Prioritisation of travel by rail instead of plane and/or car, whenever feasible.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: ALL.
Prioritisation of public transportation over cars for travel.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: ALL.
Tire pressure monitoring to prevent fuel wastage.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS and SAF.
Installation of consumption control software to implement reduction measures.	☐Implemented ☒In study ☐Not contemplated ☐Does not apply to the organisation	In study: ALL.
Keeping a record of trips made for the implementation of optimisation measures.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS, IND, KAZ, and SAF.
Installation of electric chargers to facilitate employee commuting and customer and visitor transportation with electric vehicles.	☐Implemented ☒In study ☐Not contemplated ☐Does not apply	Implemented: CAN, CRP and ESP.
Other: Use of satellite internet.	Implemented: BRA - The internet used is via satellite (Starlink), which minimises the need (in different cities, sometimes very small and with little infrastructure) to install, maintain and uninstall their internet provider equipment.	

6.4 Sustainable planning and management of resources and facilities

Installation of devices and/or mechanisms to control consumption in order to take measures for their reduction:

MEASURE	IMPLEMENTATION	COMMENTS
Installation of energy management software.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Installation of efficient control devices (thermostats).	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: AUS and KAZ.
Implementation of a remote management system with an energy manager or person in charge.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Implementation of an energy management system, ISO 50001, conducting energy audits for the implementation of measures to reduce energy consumption.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Establishment of protocols for turning equipment on and off according to a schedule.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: IND and SAF.
Implementation of energy-saving protocols.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: IND.
Remote control of equipment.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: CRP and ESP.
Allocation of responsibilities for equipment disconnection.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: COL and KAZ.
Configuration of devices in energy-saving mode.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: IND and ESP.
Segmentation of lighting and air conditioning consumption.	☒Implemented ☒In study ☐Not contemplated ☐Does not apply	Implemented: AUS, CRP, ESP, IND, and KAZ. In study: SAF.
Installation of programmable timers.	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Installation of motion detectors in places of passage.	☒Implemented ☐In study ☐Not contemplated ☐Does not apply	Implemented: SAF and USA.
Regulation of air conditioning or setting a set point temperature.	☒Implemented ☐In study ☐Not contemplated	Implemented: AUS, CR, ESP, and KAZ.

MEASURE	IMPLEMENTATION	COMMENTS
	☐Does not apply	
Installation of light intensity regulators	☐Implemented ☐In study ☒Not contemplated ☐Does not apply	
Other:		

The reductions presented are estimated under the assumption that the level of activity will remain at the same level as in the base year, which is 2023. Therefore, any reduction in future emissions will have been due to an improvement in efficiency.

In the following table, the percentage of reduction expected for each year following 2023 is shown, with a breakdown in emission sources:

SCOPE	SOURCE OF EMISSIONS	EXPECTED EMISSION REDUCTION BY YEAR AND SOURCE (%)				
		2024	2025	2026	2027	2028
SCOPE 1	Stationary combustion	0%	0%	0%	0%	5%
	Mobile combustion – Land	3%	6%	10%	14%	20%
	Mobile combustion – Air	0%	0%	1%	3%	5%
	Fugitive emissions	0%	0%	0%	0%	0%
SCOPE 2	Imported electricity	5%	7%	9%	15%	20%

Which, expressed in the kg of CO_2e, would be:

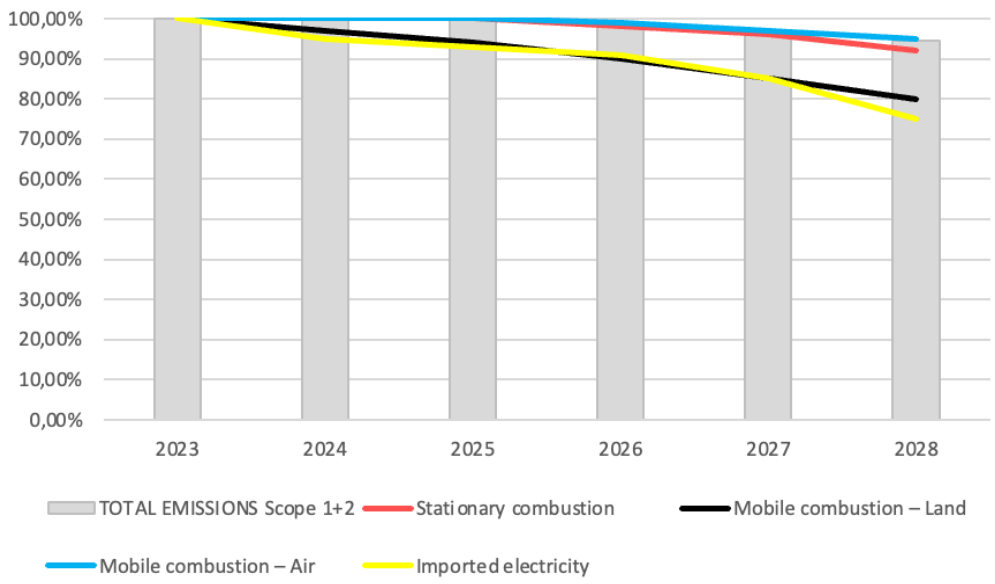
SCOPE	SOURCE OF EMISSIONS	EXPECTED EMISSION REDUCTION BY YEAR AND SOURCE (kg CO2e)				
		2024	2025	2026	2027	2028
SCOPE 1	Stationary combustion	0,00	0,00	0,00	0,00	3.662,36
	Mobile combustion – Land	3.982,66	7.965,31	13.275,52	18.585,73	26.551,04
	Mobile combustion – Air	0,00	0,00	91.585,74	274.757,23	457.928,72
	Fugitive emissions	0,00	0,00	0,00	0,00	0,00
SCOPE 2	Imported electricity	9.313,52	13.038,93	16.764,33	27.940,55	37.254,07

If these reductions are applied to the carbon footprint predictions for each year (under the assumption that the level of activity is maintained the same as 2023), it would result in the following:

SCOPE	SOURCE OF EMISSIONS	Baseline 2023 (kg CO2e)	ESTIMATED CARBON FOOTPRINT (kg CO2e)				
			2024	2025	2026	2027	2028
SCOPE 1	Stationary combustion	73.247,29	73.247,29	73.247,29	73.247,29	73.247,29	69.584,93
	Mobile combustion – Land	132.755,19	128.772,54	124.789,88	119.479,67	114.169,46	106.204,15
	Mobile combustion – Air	9.158.574,46	9.158.574,46	9.158.574,46	9.066.988,72	8.883.817,23	8.700.645,74
	Fugitive emissions	0,00	0,00	0,00	0,00	0,00	0,00
SCOPE 2	Imported electricity	186.270,36	176.956,84	173.231,44	169.506,03	158.329,81	149.016,29
SCOPE 1+2		9.550.847,31	9.537.551,13	9.529.843,07	9.429.221,71	9.229.563,79	9.025.451,11
% ANNUAL REDUCTION			-0,14%	-0,08%	-1,06%	-2,12%	-2,21%

NOTE: THE PERCENTAGE OF ANNUAL REDUCTION IS OBTAINED IN COMPARISON TO EACH PREVIOUS YEAR.

Following the same methodology, if we compare the carbon footprint calculated in 2023 with the estimated prediction for 2028, after the different mitigation measures have been applied, there would be a reduction in carbon footprint of 5,50%.



GRAPHICAL REPRESENTATION OF THE EXPECTED REDUCTIONS FOR SCOPE 1 AND 2.

It should be noted that Scope 3 has not been considered in the carbon reduction plan because the quality of the data is lacking, as most of it are estimations. However, we are committed to improve the level of accuracy for future data collection and will strive to include Scope 3 emissions once the quality is satisfactory.

Nonetheless, most of the emissions generated originate from Scope 1 and 2, in addition to production of acquired fuels, from Scope 3. Therefore, while applying the mitigation measures described above, a reduction in emissions from production of acquired fuels will, indirectly, also be achieved.

7. Annex

7.1 Use of water

The emission factor used for the calculation of the emissions from use of water has been taken from the activities "water supply" and "water treatment", from DEFRA.

Water supply refers to the emissions released during all the processes before use (collection, purification and distribution), when the water supply originates from the water network; and water treatment refers to the emissions released during all processes after use (sewage system, wastewater treatment and return to the environment), when the water is drained to the sewage system.

Activity	Type	kgCO2e/m3
Water supply	Water supply	0,177
Water treatment	Water treatment	0,201
	Total	0,378

7.2 Waste disposal

After an internal study on waste generation, it has been concluded that only the waste generated during maintenance of aircraft is significant enough to include in the calculation. However, none of the centres with owned aircraft had data on waste disposal, only on total of flight hours.

As AIRWORKS is the only supplier to have data available on waste generated from maintenance tasks on aircraft, the emissions for waste disposal have been calculated and associated with the number of flight hours registered by the same supplier. That is, the total emissions for waste disposal relative to the total amount of flight hours, giving us an emission factor of 0,832 $kgCO_2e$/flight hour.

The data on waste generation corresponds to the period from October 2023 to September 2024 (12 months), while flight data corresponds to the calendar year of 2023.

Code	Waste	Description	Treatment	Equivalence	Quantity (kg)	EF (kgCO2e/tn)	kgCO2e
130205	Mineral-based non-chlorinated engine, transmission and lubricant oils.	C003 - Non-chlorinated, used engine oil	R1301	Fraction 4 equivalent to fraction 6	350	200,169	70,06
150110	Containers with hazardous substance residues or contaminated by them.	C040 - Contaminated metallic containers	R1304	T62	110	225,423	24,80
130703	Other fuels (mixtures included)	C036 - Hydrocarbon mixture	R1301	T62	916	225,423	206,49
150203	Absorbents, filtration materials, cleaning rags and protective clothing different of those specified.	E042 - Non-hazardous absorbents and filtration materials	R13	Other Treatments fraction 5	23	173,083	3,98
150110	Containers with hazardous substance residues or contaminated by them.	C040 - Contaminated metallic containers	R13	T62	66	225,423	14,88
150203	Absorbents, filtration materials, cleaning rags and protective clothing different of those specified.	E042 - Non-hazardous absorbents and filtration materials	R13	Other Treatments fraction 5	120	173,083	20,77
130205	Mineral-based non-chlorinated engine, transmission and lubricant oils.	C003 - Non-chlorinated, used engine oil	R1301	Fraction 4 equivalent to fraction 6	140	200,169	28,02
130703	Other fuels (mixtures included).	C036 - Hydrocarbon mixture	R13	T62	170	225,423	38,32

TOTAL kgCO2e	**407,32**
Flight hours	**489,29**
kgCO2e/flight hour	**0,832**

EF SOURCE: CATALAN CLIMATE CHANGE OFFICE (OCCC, FOR ITS INITIALS IN CATALAN).

7.3 Other contracted services

Breakdown of the calculation for digital emissions:

	Value	Unit	kWh/TB/year	Total kWh/year
Processed data	2.500,00	TB	1.000,00	2.500.000,00
Stored data	44,00	TB	1.000,00	44.000,00

Total kWh	**2.544.000,00**
kgCO2e/kWh	**0,260**
Total kgCO2e	**661.440,00**
Total tCO2e	**661,44**

NOTE: AS WE LACK DATA ON THE LOCATION OF THE SERVERS, THE SPANISH NATIONAL MIX HAS BEEN APPLIED (LOCATION OF THE HEADQUARTERS). EF SOURCE: SPANISH OFFICE OF CLIMATE CHANGE (OECC, FOR ITS INITIALS IN SPANISH).

The conversion factors used have been taken out of the Lean ICT report: Towards Digital Sobriety (March 2019), on the following pages:

- Page 71. **Data centres**:

  "The impacts presented are given for an average data centre, characterised by its surface area and the total power capacity of its installations (in MW):

  - Surface area of the average data centre: 1,000 m²
  - Power of an average data centre: 1 MW
  - PUE (Power Usage Effectiveness): 2".

- Page 78. **The annual impact of storing a byte of data was calculated**: "The electricity consumption associated with the storage of a byte of data was evaluated on the basis of works and exchanges with a partner of this study, the *Groupe Caisse des Dépôts*: on the basis of the total volume of data stored and the associated annual electricity consumption, we obtained a magnitude of 1.10-9 kWh/byte/year."

Thus, since 1 terabyte (TB) equals 1.000.000.000.000,00 bytes (B), therefore,

kWh/B/year	kWh/TB/year
0,000000001	1.000,00