CEPSA

2023

CARBON FOOTPRINT REPORT
ISO 14064-1:2018

Moving together

towards a new future

Energy Parks
Mobility & New Commerce
Innovation Center for Energy Transition
Commercial & Clean Energies
Chemicals
Exploration & Production

CONTENTS

01

Strategy

01. Strategy

Cepsa continues this year 2024 with its inventory verification plan at the organizational level of Greenhouse Gas (GHG) emissions under the framework of ISO 14064- 1:2018 in line with its Positive Motion. The verification includes the emissions of the following GHGs: carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), as well as the fugitive emissions from transportation and fugitive emissions as of hydrofluorocarbons (HFCs) or others from the refills of refrigeration systems.

The process of inventory verification has been carried out in Sustainability & Energy Transition Area with the accreditation of AENOR with a limited level of assurance and a threshold of maximum relative importance of 5%.

With this report:

- Under our strategy and commitment to reduce our CO_2 emissions, we adopt rigorous monitoring and volunteer audit of these emissions to enhance our transparency and rigor in communication of emissions.

  Positive Motion Strategy is accompanied by Sustainability Plan in Cepsa. Our Sustainability Plan is Cepsa's roadmap to promote positive impact and sustainability through our actions linked to environmental, social, and good governance (ESG) criteria, which transversally involve all areas of the company.

Sustainability Plan | Cepsa

Cepsa has updated its policy framework and new climate action policy is available in www.cepsa.com

This Policy aims to establish a framework to articulate the Company's strategy and business model in a manner consistent with its commitment to carry out the necessary climate actions, aligned with the energy transition and a low-carbon economy.

Strategy 2030, towards the energy transition - Cepsa

Our Commitments:

- Establish, monitor, and validate by a third-party CO_2 emissions and abatement plan targets.
- Integrate climate change in the company strategy and in all businesses decision-making processes.
- Design carbon mitigation and adaptation plan considering the entire value chain.
- Keep climate-related objectives as monetary reward parameter.

02

Reporting Topics

2.1 Boundaries
2.2 Scope

02. Reporting Topics

2.1 Boundaries

Following emissions are reported under this report

- This report groups **direct GHG emissions** (CO_2, CH_4, N_2O and refrigerant gases) from the facilities, including combustion, process, fugitive emissions, and emissions from mobile sources. Emissions from facilities's wastewater treatment plants have also been included (Category 1).

- **Indirect emissions** by purchased steam and electricity of the facilities included in the scope of this verification (Category 2).

- Likewise, this 2023 report includes the **indirect emissions** of the **value chain** corresponding to scope 3 under the GHG Protocol Methodology and under ISO 14.064-1:2018 (Categories 3-6).

Greenhouse gas emissions sources have been identified and grouped in accordance with the ISO 14064-1:2018 standard. This standard lists six categories of emissions and differs somewhat from earlier categorisation in line with the Greenhouse Gas Protocol's Scopes 1 through 3.

- Category 1: Direct GHG emissions and removals
- Category 2: Indirect GHG emissions from imported energy
- Category 3: Indirect GHG emissions from transportation
- Category 4: Indirect GHG emissions from products used by the organization
- Category 5: Indirect GHG emissions associated with the use of products from the organization
- Category 6: Indirect GHG emissions from other sources

This report, although drawn up in parallel, is developed within the framework of the principles established by Cepsa regarding the quantification of GHG and the establishment of objectives to reduce GHG emissions.

Significance and Materiality

It is necessary to define and explain own predetermined criteria for the significance of indirect emissions, considering the intended use of the inventory.

Factors for consideration in assessing significance and materiality include:

- Magnitud or Size of the emissions
- Level of Influence on the emission source
- Difficulty in obtaining data
- Poor validity in available estimation approaches

Whilst all of the above would be considered in materiality assessments, the criteria that would mandate disclosure of emissions sources as significant is:

a) Where there is a single source with estimated emissions likely to be at least 1% of its category. In this case, that emissions source must be included.
b) Where the total of 'insignificant' sources has estimated emissions likely to be at least 5% of total emissions. In this case, enough of the 'insignificant' emissions must be included until the estimate of excluded emissions is below 5%.

2.2 Scope

Energy Parks

Our refining business is concentrated at two Energy Parks, located in Campo de Gibraltar (Cadiz) and Palos de la Frontera (Huelva), which we are adapting to produce renewable fuels such as biofuels and green hydrogen.

We transform crude oil into higher value-added products to meet society's needs for energy and basic materials. Our refining business accounts for 30% of total installed capacity in Spain.

We are working to remain competitive in a context conditioned by the existence of surplus refining capacity in Europe, the competitiveness of new refineries located outside of Europe, the impact of the energy transition on demand for traditional products, increasingly rigorous environmental regulations, and technical specifications for products in terms of carbon emissions and the growing presence of biofuels.

Our Energy Parks are strategically located close to key shipping ports with significant production and storage capabilities and excellent logistics connections for catering to national and international demand for refined products.

The production in Energy Parks is characterized by high energy efficiency in its units. Our interest is to reduce energy consumption and thereby reduce GHG emissions, for which we have Energy Management Systems, certified under ISO 50001, that allow us to monitor and optimize these consumptions.

- Energy Park San Roque (Cádiz)

Since its implementation in 1967 in San Roque (Cádiz), a strategic area for exports, the Gibraltar-San Roque refinery has been configured as a highly integrated industry with the petrochemical complex.

- Energy Park La Rábida (Huelva)

La Rábida refinery came into operation in 1967 in Palos de la Frontera (Huelva). Its production plants and port facilities allow it to store and distribute a wide range of products for various industries and consumers.

- Santa Cruz de Tenerife refinery

The dismantling of the Santa Cruz de Tenerife refinery will pave the way for 'Santa Cruz Green 2030', a project destined to become one of the most ambitious industrial-to-urban site reconversions in Europe.

- Petrocan storage facilities

Petróleos de Canarias SA (Petrocan) is dedicated to the reception, storage, and supply of marine fuels in the ports of Santa Cruz de Tenerife and Las Palmas de Gran Canaria.

Mobility & New Commerce

- Service Stations

Cepsa is expanding its range of energy and sales solutions for retail and professional customers and in its service stations network, which is the second largest in Spain and Portugal, along with a presence in Morocco and Mexico.

- Matosinhos bitumen factory

Cepsa has made a significant effort to develop great technology in the world of bitumen, based on the quality of an excellent human team, with a deep knowledge of new technologies. This has allowed it to achieve a solid reputation based on experience and competence.

Innovation Center for Energy Transition

At our Innovation Centre, we work on these research projects at lab scale for our production centres and sales units, while also providing our customers, particularly in lubricants and specialties with technical assistance.

Commercial & Clean Energies

Power Asset Management

This area supplies gas in the wholesale and retail markets and electricity to industrial customers and consumers in the tertiary sector. Object of this verification are the cogeneration and combined cycle plants integrated in Energy Parks. The cogeneration allows the reduction of CO_2 emissions thanks to the generation of steam along with the production of electricity. This steam is imported by the Refining and Chemical facilities.
GHG emissions reported in this report correspond to the total shareholding of the facilities, under operational control.

Renewable Energy

Biofuels unit called Cepsa Bioenergía San Roque owns the facility for FAME production (Fatty Acid Methyl Ester), located in San Roque. It has been included in this scope since its incorporation to Cepsa's portfolio in 2017. Biofuels are produced from raw material certified under Sustainability Standard of ISCC, offering a GHG reduction in the production process versus fossil fuels.
Renewable power facility in Cadiz, Alijar wind energy facility. Its power is 29MW and no direct emissions are allocated to it.

Asphalt facilities

Cepsa's current Asphalts Division has 5 moderns, strategically located factories on the Iberian Peninsula (Alcala de Henares, Alcudia, Valencia, Gijon y Tarragona), allowing it to supply the peninsular market and providing an excellent platform for exports. Once the bitumen has been produced in our Energy Parks it is distributed to the Asphalt Unit's factories for processing and subsequent delivery to the end customers. We manufacture and market bituminous emulsions, modified bitumen, and materials for industrial applications. The paving and waterproofing of surfaces sections have developed in parallel.

Lubes facilities

Lubricants Division has 2 strategically located factories on the Iberian Peninsula (San Roque and Paterna), allowing it to supply the peninsular market.
We sell more sustainable lubricants with our Fuel Economy, Hybrid and Biodegradable ranges. At Cepsa, we are experts in lubrication, and we are always working to offer you the product that best suits your needs. From products for cars, motorcycles, trucks, or vessels to lubricants for machinery, installations, and production systems.

Aviation facilities

There are different storing and distribution facilities included in the reporting scope grouped as SIS, CMD and CAV.
SIS. The "intoplane" service consists of the onboard supply of the fuel aircraft needed for flight operations. In order to ensure that engines do not fail during flight, the quality and quantity of fuel is of paramount importance.
Taking into account the characteristics of this type of fuel, the operation must be carried out with due respect for safety and the environment.
Currently, the main fuel used by most aircraft is kerosene, with its different specifications, depending on civil or military use and geographical area: USA or Europe. Aviation gasoline is also used on a small scale for light aircrafts.
CAV and **CMD** facilities in Canary Islands are also dedicated to the supply of the fuel aircraft needed for flight operation in the airport facilities.

LPG bottling facilities

The GASIB plants are dedicated to the storage, bottling, and bulk transfer of LPG (commercial mixtures of propane and butane) for distribution.

Chemicals

Cepsa's petrochemical activity is developed in a dynamic of maximum integration with Refining. In this way, products of high added value are manufactured, which are converted into raw materials for other industries and with multiple final ap-plications: detergents, synthetic fibers, pharmaceutical products, among others.

The manufacture of basic petrochemical products is carried out at the Gibraltar - San Roque and La Rábida Energy Park in Cepsa, which can produce more than 1 million tonnes per year of these derivatives. After the distillation of crude oil, the processing units of the refineries obtain raw materials (benzene, toluene, and xylene) for other processes, as well as intermediate and final products, such as solvents, propylene, and sulphur. Cepsa Química, after the processing of these products, dis-tributes and commercializes the final products worldwide.

- Cepsa Química Puente Mayorga

Puente Mayorga Plant, which is located in San Roque (Cádiz), produces linear alkylbenzene (LAB), sulphonic acid (LABSA) for the production of detergents, n-paraffin, dearomatized solvents and heavy alkylates as rolling oils in various industries.

- Cepsa Química Palos de la Frontera

Palos de la Frontera Plant is located in Palos de la Frontera (Huelva) and processes benzene and propylene to produce cumene, phenol, acetone and alphamethylstyrene. Phenol and acetone are used in the manufacture of resins, high-tech plastics, synthetic fibers, pharmaceuticals, and a long list of final applications.

- Cepsa Chemical Shanghai

Shanghai Plant is located in Lot C4 of Shanghai Chemical Industry Park (SCIP). It processes benzene and propylene to produce cumene, phenol, acetone and cumene. Phenol and acetone are used in the manufacture of resins, high-tech plastics, synthetic fibers, pharmaceuticals, and a long list of final applications.

- Cepsa Chemical Bécancour

Bécancour Plant is located in the Bécancour Industrial and Port Park in southern Quebec. Linear alkylbenzene (LAB) is produced there, compound used in the manufacture of biodegradable detergents as well as other secondary products of commercial and industrial utility. The alkylation of benzene with olefins for the production of LAB also implies the production of heavy alkylate bottoms made up mainly of dialkylbenzenes, mainly used as refrigerant additives and for the production of highly hydrophobic surfactants.

- Cepsa Química Deten

Deten Química Plant is located in Polo Petroquímico de Camaçari (Bahía). Linear alkylbenzene (LAB) is produced there, compound used in the manufacture of biodegradable detergents as well as other secondary products of commercial and industrial utility. The sulphonation of the LAB leads to the formation of the corresponding sulphonic acid (LABSA).

Exploration & Production

Cepsa E&P participates in the process of exploration, development and production of oil and gas in onshore fields. Our exploration and production activities are mainly located in North Africa, and Latin America. Assets reported under international standard ISO 14064 are managed under operational control.

- Asset E&P RKF Argelia

Rhourde el Krouf (RKF): onshore crude oil field located in the Berkine Basin.
Joint operation | Cepsa interest: 49%.

- Asset E&P BMS Argelia

BMS: onshore crude oil field located in the Berkine Basin.
Joint operation | Cepsa interest: 75%.

- Asset E&P Caracara, Colombia

Caracara: onshore crude oil field located in the Los Llanos Basin.
Operated | Cepsa interest: 70%.

- Asset E&P Casanare, Colombia

LLanos 22: onshore crude oil field located in the Los Llanos Basin.
Operated | Cepsa interest: 55%.

- Asset E&P Peru

Los Ángeles (Block 131): onshore crude oil field located in the Ucayali Basin.
Operated | Cepsa interest: 100%.

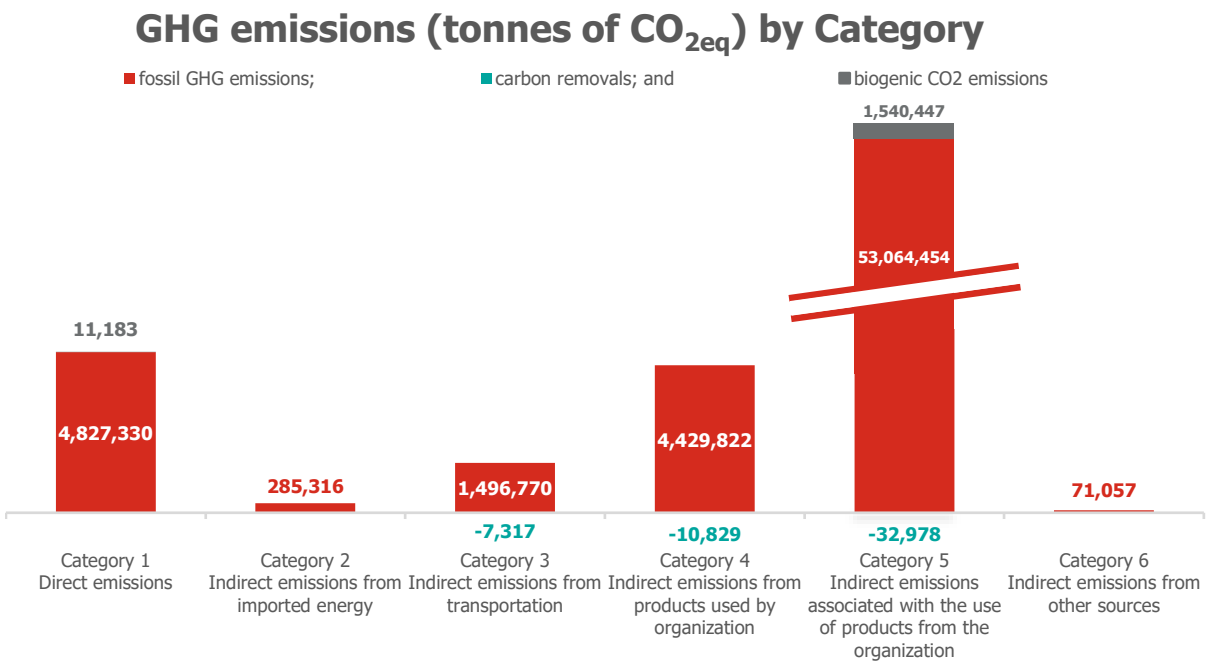
03

Emissions Data and Methodology

03. Data and Methodology

3.1. Emissions Data

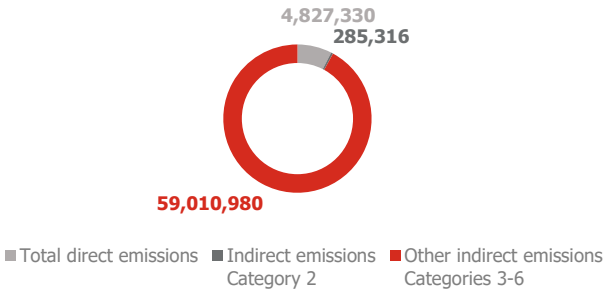
The general distribution of emissions among the above mentioned ISO 14064-1:2018 for the year 2023 categories is shown in the following graph, according to the materiality criteria.



Where,

- **Total fossil GHG emissions account to 64,123,626 tonnes of CO_{2eq}.** This sum of emissions includes -51,124 tonnes of CO_{2eq} due to carbon removals and excludes the biogenic emissions which accounts to 1,551,630 tonnes of CO_{2eq}.
- It is seen that **Category 5 contributes to the most emissions**, specifically the emissions from the use of sold energy products. This is followed by Category 1 and 4.
- Indirect emissions corresponding to Category 2, emissions from purchased energy is shown in the graph as **market-approach calculation**. This category accounts to 334,549 tonnes of CO_{2eq} under location-approach calculation.

Now, the percentage distribution graphs for carbon footprint by scope show that **indirect emissions account for the largest percentage** of emissions calculated.



The breakdown of **direct emissions** is shown in the following table where the equivalent tons of CO_2 are broken down according to the contribution of each business unit.

Direct emissions per business, GHG tonnes	Total, CO_2e emissions	CO_2	CH_4 as CO_2e	N_2O as CO_2e	Refrigerant gases as CO_2e
Energy Parks					
Fossil GHG emissions; and	2,712,319	2,611,922	87,234	10,868	2,295
biogenic CO_2 emissions	5,303	5,303			
Power Asset Management					
Fossil GHG emissions	1,414,600	1,382,151	22,966	9,483	0
Other Commercial & Clean Energies					
Fossil GHG emissions; and	8,016	7,708	254	55	0
biogenic CO_2 emissions	184	184			
Mobility & New Commerce					
Fossil GHG emissions	2,630	1,897	12	4	717
Innovation Centre for Energy Transition					
Fossil GHG emissions	237	234	3	0	0
Chemicals					
Fossil GHG emissions; and	617,209	572,530	37,426	3,757	3,496
biogenic CO_2 emissions	4,286	4,286			
Exploration & Production					
Fossil GHG emissions; and	72,319	67,607	3,614	237	861
biogenic CO_2 emissions	1,410	1,410			
Total, fossil GHG emissions	**4,827,330**	**4,644,048**	**151,510**	**24,404**	**7,368**
Total, biogenic CO_2 emissions	**11,183**	**11,183**			

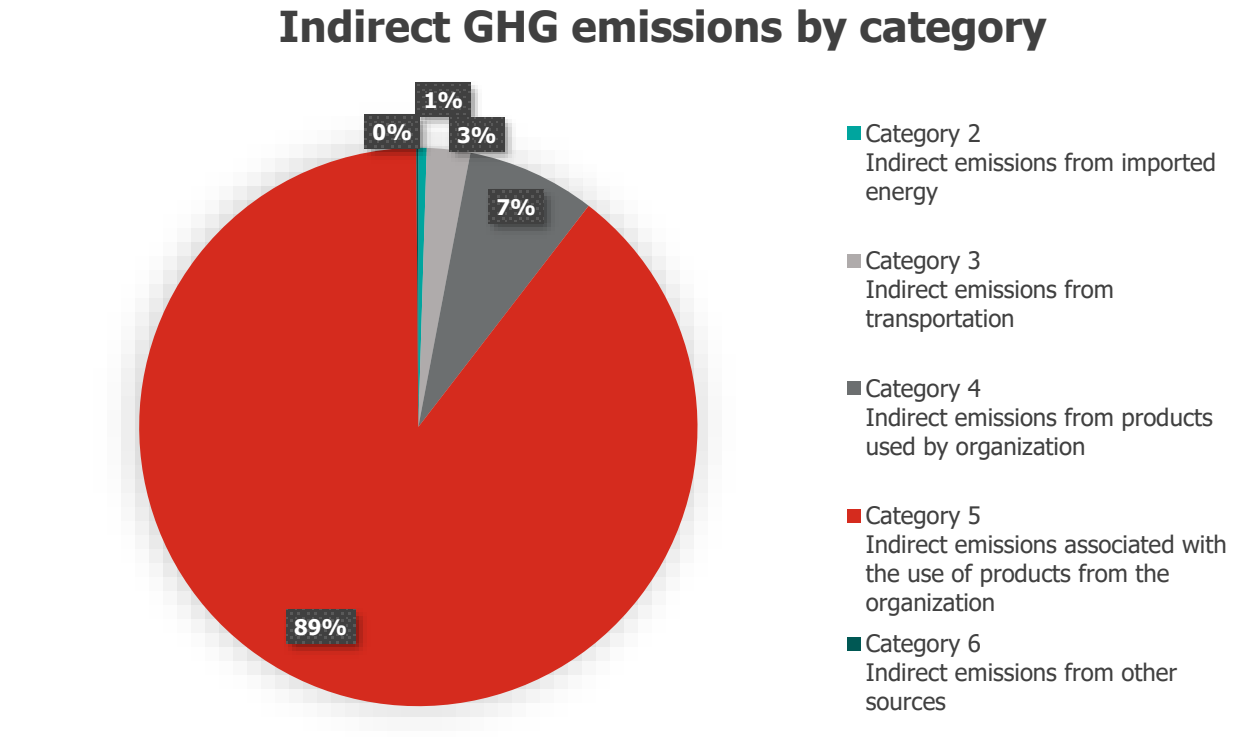
Indirect emissions associated with Categories 2-6 are summarized in the following table, differentiating between location- based and market-based methods.

Indirect emissions per category, CO_2e tonnes	market approach	location approach
Category 2 (purchased energy)	**285,316**	**334,549**
Fossil GHG emissions	285,316	334,549
Category 3 (transport) [1]	**1,489,453**	**1,489,453**
Fossil GHG emissions; and	1,496,770	1,496,770
carbon removals	*-7,317*	*-7,317*
Category 4 (products used) [1]	**4,418,992**	**4,418,992**
Fossil GHG emissions; and	4,429,822	4,429,822
carbon removals	*-10,829*	*-10,829*
Category 5 (use of products) [1, 2]	**53,031,477**	**53,031,477**
Fossil GHG emissions;	53,064,454	53,064,454
carbon removals; and	*-32,978*	*-32,978*
biogenic CO_2 emissions	*1,540,447*	*1,540,447*
Category 6 (others)	**71,057**	**55,487**
Fossil GHG emissions	71,057	55,487
Total, fossil CO_2e emissions;	**59,347,420**	**59,381,082**
Total, fossil CO_2e emissions [2]; and	**-51,124**	**-51,124**
Total, biogenic CO_2 emissions	**1,540,447**	**1,540,447**

[1] *Including carbon removals (-)*

[2] *Without considering biogenic emissions*

Within the section of **indirect emissions,** the following graph shows the distribution of indirect emissions from Category 2 to Category 5. As previously indicated, the results of emissions associated with electricity have been carried out according to the market-approach methodology.



3.2. Methodology

Category 1. Direct emissions

- Combustion emissions in stationary sources

In European facilities under complience, CO_2 is reported according to Monitoring, reporting and verification of EU ETS (Emission Trading Scheme) emissions methodology. Other non-EU facilities subject to carbon trading schemes to calculate CO_2 emissions.

For those that facilities that carbon markets are not applied, national inventory emission factors are used to calculate CO_2 emissions using activity data from invoices and/or internal registers.

In most cases, CH_4 and N_2O according to EU-PRTR Concawe methodology and GWP of CH_4 (27.9) and N_2O (273) GHG according to IPPC AR6 Global Warming Potentials.

In Exploration & Production, CO_2 from gas combustion is reported according to carbon content calculated from analysis of gases in the facilities. CH_4 and N_2O are reported according to API Compendium Methodology emission factors. Produced gas activity data is measured directly by gas flowmeters.
For diesel combustion, CO_{2eq} is reported according to API Compendium emission factors and activity data are reported according to direct measurement of diesel consumption in the facility.

- Flaring emissions in facilities

In facilities under complience CO_2 according to carbon trading schemes.

In Exploration & Production, CO_2 and CH_4 are reported according to carbon content calculated from analysis of gases in the facilities. N_2O is reported according to API Compendium emission factors. Activity data of flared gas is measured with a flowmeter and reported according to process data software in the facility or estimated based on Gas-Oil Rate (GOR).

- Process emissions in facilities;

CO_2 according to Methodology European Reporting under EU ETS. Activity data are reported following the EU Methodology regulation.

- Combustion emissions in mobile sources

Internal registers for Activity data, majority coming from supplier service, and national inventory emission factors for considered GHG.

In Exploration & Production, CO_{2eq} is reported according to API Compendium emission factors for mobile sources. Activity data are reported according to direct measurement of diesel consumption in the facility.

Renewable content is according to product certificate, and it has been shown separately in the graphs as biogenic emissions.

- Gas distribution fugitive emissions.

Activity data reported under ETS methodology and IPCC Guidelines for emission factors; transport & ERM (natural gas) fugitive emissions.

- Fugitive emissions of refrigerant gases.

GHG according to IPPC AR6 GWPs (100-years). Activity data reported under refill and maintenance evidence.

Category 2. Indirect emissions from imported energy

Associated emissions to purchased electricity and steam in facilities under scope. Activity data are reported under carbon markets verified data or invoices. Emission factor of indirect emissions due to steam come from operational data.

Emission factor for power are reported under market-based and location-based criteria.

Category 3. Indirect GHG emissions from transportation

3.1. Subcategory Indirect emissions by transport and distribution upstream

The quantification methodology used for calculating emissions is based on the raw materials and additives activity data and emission factors from Ecoinvent database.

3.2. Subcategory Indirect emissions by transport and distribution downstream

The quantification methodology used for calculating emissions is based on the sold products activity data and emission factors from Ecoinvent database.

3.3. Subcategory Indirect emissions caused by employees commuting to work

The quantification methodology used for calculating emissions is based on activity data from commuting survey (2022) and emission factors from DEFRA database.

3.4. Subcategory Indirect emissions caused by business travel

The quantification methodology used for calculating emissions is based on activity data from travel agencies reports and emission factors from DEFRA database.

Category 4. Indirect GHG emissions from products used

4.1. Subcategory Indirect emissions from purchased products

The quantification methodology is based on the same basis than upstream transport subcategory, with crude oil, chemical products, additives and renewable raw materials being purchased products.

4.2. Subcategory Indirect emissions from purchased consulting services

The quantification methodology used for calculating emissions is based on consulting services cost activity data and emission factors of business services.

4.3. Subcategory Indirect emissions from purchased energy

As upstream emissions of purchased fuels and electricity and transmissions and distribution losses

The quantification methodology used for calculating emissions is based on diesel, electricity and steam consumption activity data and emission factors from DEFRA database.

4.4. Subcategory Indirect emissions from third-party disposal and treatment of wastes generated in operations

The quantification methodology used for calculating emissions is based on official declaration of managed wastes, internal register or/and water discharged to third party treatment plant as activity data and emission factors from DEFRA database.

Category 5. Indirect GHG emissions from use of products

5.1. Subcategory Indirect emissions from the use of sold products

The quantification methodology used for calculating emissions is based on sold energy products as activity data and national emissions inventory for emission factors.

The methodology has been refined to more accurately distinguish between fossil and biogenic emissions, better reflecting the global addition of biofuel to our energy sales. Additionally, calorific values have been updated using reputable sources.

5.1. Subcategory Indirect emissions from the processing of sold products

The quantification methodology used for calculating emissions is based on crude and chemical sold products as activity data.

For third-party crude processing, the emission factor is the ratio of direct (Category 1) and indirect emissions (Category 2) per ton of crude oil processed in our refineries published in our Annual Management Report, [GRI 305-4] Energy Parks GHG emissions intensity (page 120).

For the processing of chemicals, the emission factors used are the actual processing ratios provided by our clients. However, this subcategory only includes sales for which we have client emission factors. Consequently, it is estimated that only about 5% of chemical sales are covered in this report due to the lack of access to this data. Action plans to address this are currently in development.

Category 6. Indirect GHG emissions from other sources

6.1. Subcategory Indirect emissions from the upstream leased assets.

Involving emissions in Cepsa's headquarters in Madrid, Lima, Bogotá and Argel.

The quantification methodology used for calculating emissions is based on natural gas and electricity invoices as activity data and national emissions inventory and electricity labeling for emission factors.

6.2. Subcategory Indirect emissions from the operation of franchises.

Involving franchises in Service Station network

The quantification methodology used for calculating emissions is based on the number of service stations in Spain, Portugal, Morocco and Mexico as activity data and electricity labeling emission factors.

6.3. Subcategory Indirect emissions from investments.

Involving emissions in ASESA bitumen facility *(50% share Cepsa)*.

The quantification methodology used for calculating emissions is based on natural gas, diesel and torches activity data verified under ETS methodology and the emission factors by Concawe and IPCC AR6 for CO_{2eq}.

3.4. Exclusions and Uncertainty

Exclusions

In 2023 exercise no exclusions in emissions reporting.

Uncertainty

Uncertainty in the emissions is a combination of the uncertainties in the activity data, the different primary data per emissions, and the emission factors.

Next, data for elementary flows is qualitatively evaluated, taking into account considerations such as precision, integrity, representativeness and coherence, among others. For this, a scale (A – D) is established in which A corresponds to verified data and D would be estimates.

Data for elementary flows	Data quality	Explanation
Category 1. Direct emissions		
Activity data	**A**	Most emissions under regulated system
Emission factors	**A**	Most emissions under regulated system
Category 2. Indirect emissions from imported energy		
Activity data	**A**	Invoices
Emission factors	**A**	Electricity labeling of electricity trading companies
Category 3. Indirect GHG emissions from transportation		
Activity data	**B**	Internal records and travel agencies report
Emission factors	**B**	Database
Category 4. Indirect GHG emissions from products used		
Activity data	**A**	Regulated systems and financial planning
Emission factors	**B**	Database
Category 5. Indirect GHG emissions from use of products		
Activity data	**A**	Verified under regulated systems
Emission factors	**A**	National Inventory and clients EFs
Category 6. Indirect GHG emissions from other sources		
Activity data	**A**	Regulated systems and invoices
Emission factors	**A**	Regulated systems and National Inventory EFs

3.5. Base Year

As part of our ongoing commitment to enhancement, Cepsa has opted to create a new certificate that encompasses all its business units, ensuring the avoidance of double-counting between them.

The year **2023 has been selected as the base year** for this comprehensive report due to it being the inaugural year with expanded reporting boundaries.

04

Emissions Reduction and Removal Actions

4.1 Emissions Reduction
4.2 Emissions Removal

04. Reduction and Removal

4.1 Emissions Reduction Actions

Cepsa has certified energy efficiency actions in the facilities. The certified energy efficiency projects are included in the Energy Management System audited under the international standard **ISO 50001** and are included in the Efficiency Plans of the business unit.

- Energy Park San Roque (Cádiz)

i. **Improved energy integration at Crude I furnace**. The Crude I furnace's energy efficiency was optimized by increasing the inlet temperature, preserving teflon integrity and emulsion stability, through enhanced energy integration.

Project implementation in June 2022, resulting in a direct emissions reduction of 1,626 tonnes of CO_{2eq} this year.

ii. **Refractory coating replacement**. This project consists of replacing the thermal insulation of the refractory coating of Crude I furnace with a new, more energy efficient one, composed of concrete and blankets of different thicknesses and densities. An improvement in unit performance is obtained, which translates into a CO_2 abatement.

Project implementation in November 2022, resulting in a direct emissions reduction of 1,917 tonnes of CO_{2eq} this year.

iii. **Advanced control for temperature**. An advanced temperature control has been implemented, introducing a new application. This innovation reduces the steam rate of the unit, particularly when the heat exchanger becomes dirty, preventing unnecessary steam flow increase without achieving the desired temperature set point this year.

Project implementation in October 2023, resulting in a direct emissions reduction of 94 tonnes of CO_{2eq} this year.

iv. **New natural gas burners**. Deployment of a new connection that allows the boiler (YB3) to work with natural gas. Since there won't be almost any sulfur compounds in the used fuel, the fumes temperature can be lowered, the efficiency of the system will be improved.

Project implementation in November 2023, resulting in a direct emissions reduction of 77 tonnes of CO_{2eq} this year.

- Energy Park La Rábida (Huelva)

v. **Improved FCC emissions calculation method** (new analyzer). It was shown that the emissions declared for this unit were higher than expected. With the implementation of a new analyzer, it has been possible to verify the real emission level and establish a new and more accurate emissions calculation method.

Project implementation in June 2023, resulting in a direct emissions reduction of 10,220 tonnes of CO_{2eq} this year.

vi. **PSA Health check**. The health check analysis is a first step to develop a larger project that allows energy savings and CO_2 emissions reduction. Different actions identified through the health check has been carried out in the PSA unit, and it is concluded from the plant that a relevant flow of hydrogen is recovered.

Project implementation in December 2023, resulting in a direct emissions reduction of 196 tonnes of CO_{2eq} this year.

- Cepsa Química Palos de la Frontera (Huelva)

vii. **Change of AMS plant operational mode**. This initiative consisted of modifying the operational mode of the columns to reduce energy consumption in heat exchangers.

Project implementation in June 2023, resulting in a direct emissions reduction of 618 tonnes of CO_{2eq}.

- Cepsa Química Deten (Brazil)

viii. **Improving the efficiency of thermal exchange in the PACOL unit**. A combined load preheater was installed in order to improve the efficiency of the thermal exchange in reactor.

Project implementation in November 2023, resulting in a direct emissions reduction of 135 tonnes of CO_{2eq} during reporting year.

In addition, another series of measures related to process optimization have also been carried out, which have resulted in final energy savings in the year 2023. The emissions from these initiatives are analyzed and reported through the electrointensive report, in accordance with the regulation (RD 1106/2020 - Statute of electrointensive consumers) and required by the Administration. The GHG emissions avoided through the operational measures implemented have amounted to 10,862 tonnes of CO_{2eq}.

4.2 Emissions Removal Actions

During 2023-year Cepsa has implemented some removal actions affecting indirect emissions in value chain.

4.2.1. Individual customers heating oil consumption carbon footprint offset

This removal action has been designed across an energy product in its portfolio. Heating diesel has been offered as neutral carbon product to the clients by removing emissions associated to its use. The initiative post is available in https://www.cepsa.es/en/individual-customer/gasoils/carbon-offset.

Several nature-based projects have been chosen as high standard quality for offsets and purchased to offset emissions during 2023 according to purchase orders from clients. Here you can find the portfolio of national and international projects.

"Combating climate change is our main objective and, to this end, the nine projects we are investing in throughout Spain and abroad are aimed at protecting and restoring our terrestrial ecosystems, combating deforestation, and halting the loss of biodiversity".

30,963 tonnes of CO_{2eq} have been removed between January and March 2023 through this offsetting initiative, which has been pilot in Cepsa and relevant for our customer engagement. These emissions have been considered **carbon removals in Category 5** Indirect GHG from use of products, and subcategory use of sold products.

Nature-based portfolio projects

- **Arzádegos 2013-2017-2019** – Ourense- Achieving the tree cover that this area had before the significant fire there in 2005. The project is intended to environmentally and touristically revitalize the area with a useful reforestation area of 23.92, 27.03 and 12.95 ha respectively.
- **San Nicolas Farm** – Ávila - This project aims to protect the habitat, soil and landscape, promoting the conservation of biodiversity in a total area of 88.92 ha, through the forest recovery of this area affected by fires in 2013.
- **Tellado e Viña**. Ourense - Plantation of Pinus radiata and different hardwood species in a neighboring common forest.

- **A rebordelo** – Pontevedra. A project based on reforesting burned land and recovering degraded soil to create a biodiverse forest mass.
- **La Enebrosilla Farm** – Ávila - The aim is to revitalize the soil structure and preserve the area as a source of renewable natural resources, promoting biodiversity, forestry, and rural employment.
- **Carballedo** – Pontevedra. This initiative includes habitat, soil, and landscape protection to combat the effects of climate change.
- **Apui Amazonas** – Brazil - This project involves the conservation of 58,073.54 hectares of forest throughout its useful life, which is an essential activity for climate change.

National projects are found in National Carbon Footprint Register in MITERD web:
https://www.miteco.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/organizaciones-proyectos.aspx.
International project in Brazil is found in VERRA web site:
https://www.carbonext.com.br/en-US/projects/evergreen

4.2.2. StarRessa Zero B2B offset

The Starresa Zero card allows our professional clients to offset 100% of the emissions from each refueling immediately, to see the progressive monthly offset on their invoices and also to obtain a CO_2 offset certificate endorsed by an external entity that accredits the execution of this commitment in the Project of Cerrado and Amazonia REDD Brazil, carbon stock in native forest.

1,312 tonnes of CO_{2eq} have been removed between March and December 2023 through this offsetting initiative, making our clients' fleet more sustainable and contributing to the European Green Deal. These emissions have been considered **carbon removals in Category 5** Indirect GHG from use of products, and subcategory use of sold products.

4.2.3. Renewable raw material carbon absorption

The absorption of carbon by renewable materials during their growth phase is accounted for when these materials are utilized for chemical production without any associated combustion. During this year, palm kernel oils (CPKO and PKO) have been processed in Chemical facilities to produce sustainable linear alkylbenzenes (NextLab portfolio).

10,829 tonnes of CO_{2eq} have been removed due to the renewable raw materials processed in 2023, helping our clients to achieve their challenging targets dedicated to reducing climate change impact. These emissions have been considered **carbon removals in Category 4** Indirect GHG from products used, and subcategory purchased products.

4.2.4. Employees commuting offset

As part of the launch of the Sustainable Employee Plan, Cepsa has offset the emissions from Commuting of employees nationwide 2023 with the forestry CDM project: Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil.

The proportional part of the voluntary cancellation corresponding to this report, with the reporting boundaries described in chapter 2.1 Boundaries, amounts to 7,326 tonnes of CO_{2eq}, expressed as **carbon removal in Category 3** Indirect GHG from transportation, and subcategory emissions caused by employees commuting to work.