

Sacyr

CARBON FOOTPRINT CALCULATION





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🕜 1. <u>PURPOSE</u>

Describe the methodology used by Sacyr to measure the carbon footprint associated with its activities.



The calculation of Sacyr's emissions is carried out under the operational control approach, that is, on those activities/contracts over which it has authority to introduce and implement its operational policies, as well as under the capital participation approach, in which the organization accounts for part of the emissions when applicable.

Organizational boundaries

Sacyr's emissions are calculated under the operational control approach, that is, on those activities/contracts over which it has the authority to introduce and implement its operational policies.

Operational Scope

The emissions associated with Sacyr's activities and facilities are quantified considering the following scopes:

• SCOPE 1: Direct Emissions GHG (Greenhouse Gases)

Direct emissions at Sacyr come from its different operating centers and are associated with:

- Mobile combustion sources: Emissions from the fuel consumption of the movement and use of vehicles and machinery.
- Stationary combustion sources: Emissions from the fuel consumption of stationary equipment and stationary facilities.
- Fugitive emissions: Emissions from leaked refrigerant gases from air-conditioning /refrigeration units installed in the facilities that are property of the company or that the company is responsible of their maintenance.
- SCOPE 2: Indirect Emissions GHG (Greenhouse Gases)

Sacyr indirect emissions occur in its different operational centers and are associated with electric power consumption in the facilities of these centers.

• SCOPE 3: Other indirect emissions GHG (Greenhouse Gases)

These emissions are consequence of the company activity, but they are emitted neither by company property sources nor by activities that are not under its control. The considered emissions within this scope are the following:

- Purchased goods and services: emissions from purchased or acquired goods and services that are necessary for the execution of the activity.
- Fuel and electricity related activities: emissions from the fuel and electricity production, transport and distribution.



- Capital goods: emissions associated with the life cycle of the capital goods purchased.
- Upstream transport and distribution: emissions associated with transport and distribution services of purchased products, parcels and machinery.
- Waste generated in operations: emissions from waste management.
- Business travel: emissions from train, plane and taxi trips and business overnight stay of employees.
- Employee commuting: emissions from transportation of employees between their homes and their worksites.
- Upstream leased assets: emissions from the operation and maintenance of industrial plants.
- Downstream transportation and distribution: emissions from the transport and distribution of RARx* and IOHNIC**.
- Processing of sold products: emissions from the processing of RARx and IOHNIC sold.
- Use of sold products: emissions from the use of RARx and IHONIC sold.
- End-of-life treatment of sold products.
- Investments: issues associated with investee companies for which Sacyr has no operational control.



Figure 1. Overview of GHG Protocol scopes and emissions across the value chain

Source: The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard. WRI/WBCSD.

* RARx: additive manufactured from tire dust at the end of its useful life for use in asphalt mixtures.

**IOHNIC: sustainable lighting system in tunnels with a durability five times greater than traditional lighting, 1.5 times greater than other LED alternatives and greater energy savings.

Once the fifteen categories of scope 3 have been analyzed, the categories "Downstream leased assets" and "Franchises" are not considered because they are not relevant to the organization, since there are no emissions not included in scope 1 and 2 from the operation. of assets that are our property and are leased to other entities or from the operation of franchises.

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3. RELATED DOCUMENTATION

- ISO 14001. "Environmental Management System. Requirements with guidance for use".
- ISO 50001. "Energy Management Systems. Requirements with guidance for use".
- The Greenhouse Gas Protocol. Corporate Accounting and Reporting Standard.
- Corporate Value Chain (Scope 3) Accounting and Reporting Standard. GHG Protocol.
- ISAE 3410 Assurance Engagements on Greenhouse Gas Statements.



4. **RESPONSIBILITIES**

Quality, Environment and Energy Director at Sacyr Group

- Will notify the Quality, Environment and Energy Area/country Manager and the Quality, Environment and Energy Management technicians, as appropriate, the scheduled dates to report the energy consumption data or keep this information updated in the quality computer application of the centers under their control. In addition, she/he will notify the expected date to report the information of the equipment with refrigerant gases / air conditioning.
- Will collect and review of the reported data, as well as the calculation of emissions at Company Group Level.
- Will update the last revision of the "Sacyr Emissions calculation tool" (tool designed to calculate each type of CO₂eq emissions generated in the Group).
- Will manage the changes and update the spreadsheet when circumstances may make it necessary this updating, for example, when a change in the calculation methodology is produced (e.g. associated with emission factors), etc.
- Will support and advice the Quality, Environment and Energy Area/country Manager in the collection and reporting of data.

The assigned responsibilities of the Quality, Environment and Energy Director at Sacyr Group can be carried out by staff of the Quality, Environment and Energy Management at corporate level to whom these functions are delegated.

Quality, Environment and Energy Area/country Manager

- Designates the responsible supervisors of collecting and recording the information required in this procedure on energy consumption and equipment with refrigerant gases/air conditioning, of the centers under its control.
- Controls and reviews the data provided by his/her area, before communicating them to the Quality, Environment and Energy Director of the Sacyr Group.

The assigned responsibilities of the Quality, Environment and Energy Area/Country Managers can be carried out by the Quality, Environment and Energy Management Technicians or by staff of the business areas to which these functions are delegated.

Company Director

- Provides the necessary resources so that GHG emissions are quantified and reported correctly.

- 5. <u>REFERENCES, TERMS AND DEFINITIONS</u>



5.1 References

The reference to a work center is also a reference to a company, organization and contract.

5.2 Definitions

Carbon Footprint

The total amount of greenhouse gases emitted directly or indirectly by a company.

Greenhouse Gases (GHG)

A gaseous component of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere and clouds. GHGs are measured in tons of carbon dioxide equivalent (CO_2eq) and the six gases listed in the Kyoto Protocol are: carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF₆).

<u>CO₂eq</u>

Amount of carbon dioxide emissions that would cause the same radiant intensity as a given emitted amount of a greenhouse gas or a mixture of greenhouse gases.

CO2eq Emissions

These are the set of greenhouse gas emissions, which in the case of Sacyr are made up of CO_2 , CH_4 , and N_2O emissions.



Scope 1. Direct GHG emissions

These are direct emissions from company-owned and controlled sources.

Scope 2. Indirect GHG emissions

These are emissions from the purchased or acquired electricity generation and consumed by the company. These emissions occur in the plant where the electricity is generated.

Scope 3. Other indirect emissions

This is an optional category that includes the rest of the indirect emissions. These emissions GHG are the consequence of the company activity, but they are emitted neither by company property sources nor by activities that are not under its control. The 15 categories proposed by GHG Protocol in its standard "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" are the following:

- 1. Purchases goods and services
- 2. Capital goods
- 3. Fuel and energy related activities (not included in scope 1 or scope 2)
- 4. Upstream transportation and distribution
- 5. Waste generated in operations
- 6. Business travels
- 7. Employee commuting
- 8. Upstream leased assets



- 9. Downstream transportation and distribution
- 10. Processing of sold products
- 11. Use of sold products
- 12. End-of-life treatment of sold products
- 13. Downstream leased assets
- 14. Franchises
- 15. Investments

Source of greenhouse gases

Process that releases GHG into the atmosphere.

Stationary equipment

Stationary equipment such as gensets, boilers, furnaces, ovens, burners, turbines, heaters, incinerators, engines, flamers, etc. that use fossil fuel to generate heat, electricity or steam or are used to carry out a company process.

GWP (Global Warming Potential) Index

It is a relative measure of how much heat can be trapped by a certain greenhouse gas, compared to a reference gas, usually carbon dioxide (CO₂). Carbon dioxide has a GWP value of 1.

Measurement unit

Standardized quantity of a given physical quantity (mass, volume, length, energy...).



6. <u>PROCEDURE</u>

6.1.- Carbon footprint calculation process

6.1.1.- Data compilation and report

All Sacyr business areas involved in the Carbon Footprint calculation through its operational centers register their fuel and electricity consumption, material use, water consumption and waste generation data in Sacyr application called CYMAE on an ongoing basis.

There are some exceptions in relation with data compilation and its report that are the following:

- Somague does not use CYMAE application. Somague has its own IT tools and reports the data in Excel sheets.
- Sacyr extracts the SOLRED company fuel consumption from SOLRED webpage directly.
- Business travel and overnight stays data are provided by the Sacyr's Travel Department.
- Information about refrigerant gases/conditioning is reported in an Excel sheet.
- The information provided to meet some categories of emissions of scope 3 is reported by the business/departments of the company that manage them directly.

6.1.2.- Emissions calculation methodology

The calculation methodology is based in GHG Protocol published by "The Greenhouse Gas Protocol Initiative"



(World Resources Institute (WRI) y World Business Council for Sustainable Development (WBCSD). All available data are included and consolidated in an Excel sheet at corporate level.

To carry out calculations of the different types of emissions, a calculation tool is available that allows segregating the categories of emissions generated by the Group, company or contract/facility to be verified.

Additionally, the emission factors source is reviewed at corporate level on a regular basis to check if there are new updates or new possible sources of emission factors. Depending on the results of the revision the emission factors will be updated or not.

6.1.2.1 Scope 1: Direct emissions

Direct emissions are those emissions that come from sources owned or controlled by the company.

Emissions from stationary and mobile combustion sources

Emissions from the fuel consumption of the different Sacyr operational center.

<u>Calculation method</u>

In order to calculate these emissions, the first thing that shall be known is the total amount of fuel consumption of each operational center broken-down by type of fuel.

 CO_2 eq emissions are calculated by multiplying each type of fuel consumption for the related CO_2 eq emission factor and using a conversion energy factor when necessary.

The emission factors used to calculate the direct emissions are the last version of DEFRA (UK Government GHG Conversion Factors for Company Reporting. Department for Business, Energy & Industrial Strategy) in force when developing the calculation of the carbon footprint.

Fugitive emissions of refrigerant gases from air-conditioning /refrigeration units

Fugitive emissions of refrigerant gases are emissions from air-conditioning /refrigeration units installed in some Sacyr operational centers that are property of the company and the company is responsible of their maintenance.

It is considered leaked gas from a unit the equivalent of refilled gas of this unit.

• <u>Calculation method:</u>

The fugitive emissions are calculated based on refilled gas developed in the previous year (refilled gas=leaked gas).

 CO_2 eq emissions are calculated by multiplying the gas refill of each type of gas for the related Global Warming Potential (GWP).

Sacyr uses the last version of the refrigerant gases Global Warming Potential (GWP) of the Spanish Office for Climate Change (OECC) in force when calculating the Carbon Footprint.



6.1.2.2 Scope 2: Indirect emissions

Indirect emissions are emissions from the purchased or acquired electricity generation and consumed by the company, namely, these are emissions from the electricity consumption of the different Sacyr operational centers.

<u>Calculation method</u>

In order to calculate these emissions, the first thing that shall be known is the total amount of electric power consumption of each operational center broken-down by country.

 CO_2 eq emissions are calculated by multiplying the electrical energy consumption in each of the countries by the CO_2 eq emission factor corresponding to each of them, quantified under both the market-based and location-based methods.

Depending on the country where the electricity is consumed the source of the emission factors varies:

- Spain: the emission factors of the Spanish Office of Climate Change (OECC) published in the latest version available and in force when the carbon footprint calculation is carried out are used. Specifically, the emission factors (Electricity Mix Factor) of the different Spanish marketing companies are used depending on whether they have made redemptions of guarantees of origin to their clients once said redemptions have been deducted or they have not made redemptions of guarantees of origin to their customers. customers.
- United Kingdom: It is used the last version of DEFRA (UK Government GHG Conversion Factors for Company Reporting. Department for Business, Energy & Industrial Strategy) factor in force when calculating the carbon footprint.
- Portugal: It is used the emission factors published by the different Portuguese energy suppliers and from them the energy is purchased. In that case where the emission factor is not available the ecoinvent factor shall be used. Both cases, the emission factor used shall be the last version in force when calculating the carbon footprint.
- Australia, Canada, Colombia and United States: It is used the national or regional emission factor provided by the government agencies responsible for publishing this information. The emission factor used shall be the last version in force when calculating the carbon footprint.
- Rest of the countries: the emission factors used shall be the last version published by ecoinvent in force in each country.

The method described above for calculating Scope 2 emissions corresponds to the market-based method, where supplier or product-specific emission factors are used as contractual instruments. Scope 2 CO₂eq emissions are also calculated using the location-based method, where the same factors are used as for the market-based method, except in Spain and Portugal where the following are used:

 Spain: the emission factor of the Spanish Office of Climate Change (OECC) published in the latest available version and which is in force when the carbon footprint calculation is carried out is used. Specifically, the Electricity Mix Factor is used (factor associated with suppliers without GdO).



 Portugal: the emission factor corresponding to the Electricity Mix of this country published in econvent is used, in the latest version available and in force when the carbon footprint calculation is carried out.

6.1.2.3 Scope 3: Other indirect emissions.

Scope 3 emissions are the consequence of the company activity, but they are emitted neither by company property sources nor by activities that are not under its control.

Within this scope, Sacyr calculates the emissions associated with: purchased goods and services, capital goods, activities related to fuel and electricity, upstream transport and distribution, waste generated in operations, business travel, employee commuting, upstream leased assets, downstream transport and distribution, processing of products sold, use of products sold, end-of-life treatment of sold products and investments.

All emission factors used are from sources with the latest version available and in effect at the time of the carbon footprint calculation.

• <u>Calculation method</u>

Category 1- Purchased goods and services

This category refers to the emissions from goods and services purchased by Sacyr and are used in the execution of the activities. It is considered the most relevant materials and resources from the point of view of the purchased volume and environmental point of view, e.g. steel, concrete, asphaltic materials, aggregates, soil, paper and water. In addition, purchases of other goods and services acquired are considered in monetary units.

 CO_2 eq emissions are calculated by multiplying the good and services consumption (in unit of measurement or expenditure) for the related CO_2 eq emission factor.

For materials and resources with a unit of measurement, the factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting", " are used. For all other goods and services, the factors from the CEDA (Comprehensive Environmental Data Archive) database are used.

Category 2 – Capital goods

Emissions in this category are associated with the life cycle of purchased or acquired capital goods. Capital goods are those treated as fixed assets, property and equipment. Purchases of capital goods acquired in monetary units are considered.

CO₂eq emissions are calculated by multiplying the consumption of capital goods by the CO₂eq emission factor corresponding to each of them.

Factors from the CEDA database are used.

Category 3 - Fuel and electricity related activities



The emissions of this category are emissions from the fuel and electricity production purchased by the company and are not considered in scope 1 and 2.

The activities included are the following:

a) Emissions from extraction, production, and transportation of fuels consumed by Sacyr;

b) Emissions associated with the extraction, production and transportation of fuels consumed in the generation of electricity consumed by Sacyr, in addition to the losses suffered in the transportation of said electricity.

The CO_2eq emissions associated with the fuels are calculated by multiplying the consumption of each type of fuel by the CO_2eq emission factor for scope 3 corresponding to each of them. For energy, the consumption corresponding to each country is multiplied by the CO_2eq emission factor for generation, transport and transport losses corresponding to each of them.

In both cases, fuel and electricity, the factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting", are used. In the case of electricity, only the United Kingdom emission factors are available. For the rest of the countries, there are different calculation methods depending on the emission factor:

- Emission factors for the extraction, production and transportation of fuels consumed in the generation of electricity: The latest version of emission factors published by DEFRA where the emission factors by country appear is the 2021 version. For this reason, the specific emission factors of each country by means of the proportion between these emission factors and the Scope 2 emission factors of that same year, to subsequently apply this proportion to the Scope 2 emission factors in the latest version available and which are in in force when the carbon footprint calculation is carried out.
- Emission factors for losses incurred in the transportation of consumed electricity: Since emission factors by country are not available, these are calculated by the ratio between the loss emission factor and the Scope 2 emission factor, both from the United Kingdom and published in DEFRA in the latest version available and which are in force when the carbon footprint calculation is carried out. Subsequently, this proportion is applied to the rest of the Scope 2 emission factors.

This category is quantified under both the market-based and location-based method, taking into account what is described in section 6.1.2.2 "Scope 2: Indirect emissions".

Category 4 – Upstream transportation and distribution

This category includes emissions associated with the transport and distribution of products owned or purchased by Sacyr in vehicles that are not owned by Sacyr (mail, other types of physical messaging, general freight transport, etc.). Two types of transportation are included:

- a) External transport of materials and products between supplier and company facilities;
- b) Internal transport among the different company facilities.



The CO₂eq emissions of products and materials with a unit of measure are calculated by multiplying their weight by the distance traveled and by the CO₂eq emission factor corresponding to the means of transport, which considers its characteristics. Emissions from products and materials with a monetary unit are calculated by multiplying the expenditure by the corresponding CO₂eq emission factor.

To calculate the emissions of products and materials with units of measurement, the factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting", are used. For the rest of the products and materials transported, the factors of the CEDA database are used.

Category 5 - Waste generated in operations

The emissions in this section are related to the waste generated by the organization's activities and include all of them, i.e. construction and demolition waste, non-hazardous waste and hazardous waste.

 CO_2 eq emissions are calculated by multiplying the amount of each type of waste managed by the CO_2 eq emission factor for each type of waste, depending on the treatment method.

The factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting" are used.

Category 6 – Business travels

This group includes the emissions associated with the organization's business trips, specifically those derived from travel by plane, train, taxi and overnight stays.

The calculation of emissions is done differently for trips and overnight stays.

Calculation of emissions from business travel

Sacyr's Travel Department provides us with information on all the plane, train and taxi journeys made by the organization, detailing the distance travelled on each of them.

 CO_2 eq emissions are calculated by multiplying the distance travelled on each trip by the CO_2 eq emission factor corresponding to each trip, depending on the means of transport and the route taken.

For journeys made by train, the factors published by the Oficina Catalana de Cambio Climático in the "Guía práctica para el cálculo de emisiones de gases efecto invernadero".

For journeys made by plane and taxi, the factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting".

Calculation of emissions from overnight stays

Sacyr's Travel Department provides the data of all company overnight stays.

 CO_2 eq emissions are calculated by multiplying the total number of overnight stays per country for the country specific overnight stay CO_2 eq emission factor, different depending on the country.



The used emission factors for overnight stays are the last version of DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting".

Category 7 – Employee Commuting

Emissions in this category are associated with employees travelling from their homes to the workplace.

To calculate CO₂eq emissions, information from the latest mobility survey available for those employees with digital identity and an internal tool based on mobility patterns at the country level for each of the geographies in which the organization operates is used to those workers who do not have a digital identity. The calculation is based on the number of employees and the number of days worked in order to know the route taken, which is multiplied by the DEFRA CO₂eq emission factors corresponding to the means of transport used.

Category 8 - Upstream leased assets

This category includes emissions associated with the operation of assets that are leased by the organization and that are not included in the Scope 1 and 2 emissions inventory. Included in this category are industrial plants over which the organization does not have operational control, as well as the expenses attributed to the remaining leases.

The method for calculating CO_2eq emissions in this category is analogous to the calculation of scope 1 and 2 emissions from plants with operational control. For stationary combustion fuels and refrigerant gases, the emission factors of the sources defined for scope 1 are applied to the total kWh or kg as appropriate, and in the case of electricity, the emission factor of the sources defined for scope 2 is used, depending on the country. Emissions associated with all other leases with monetary unit are calculated by multiplying the expenditure by the corresponding CO_2eq emission factor from the CEDA database.

Category 9 – Downstream transport and distribution

This category includes emissions due to the transportation and distribution by third parties of products sold between the point of sale and the final consumer. Specifically, the emissions associated with the transportation and distribution of RARx and IOHNIC products are calculated.

 CO_2 eq emissions are calculated by multiplying the quantity of products distributed by the distance traveled and by the CO_2 eq emission factor associated with the means of transport used.

The factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting" are used.

Category 10 - Processing of sold products

This category refers to the emissions associated with transformations after the sale of those products that require it to achieve their operational purpose. Specifically, the emissions associated with the processing of the commercialized IOHNIC and RARx products are calculated.

The CO_2eq emissions of the RARx are calculated by multiplying the number of hours needed to use the product sold in the reporting year by the CO_2eq emission factor from the ecoinvent database associated with the implementation.



The CO₂eq emissions of the IOHNIC are calculated by multiplying the weight of the different materials that make up the IOHNIC sold in the reporting year by the CO₂eq emission factor for the use of materials based on their origin. The factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting" are used.

Category 11 – Use of sold products

This category includes emissions due to the use of products sold by the company. Specifically, the emissions associated with the use of the IOHNIC and RARx products sold are calculated.

The CO_2eq emissions of the RARx are calculated by multiplying the number of hours needed to use the product sold in the reporting year by the CO_2eq emission factor from the ecoinvent database associated with the road surface repair phase.

IOHNIC CO₂eq emissions are calculated by multiplying the energy consumption of the useful life of the products sold by the emission factors associated with energy, as described in section "6.1.2.2 Scope 2: Indirect emissions" and in the section "Category 3 - Activities related to fuel and electricity".

Category 12 - End-of-life treatment of sold products

This category includes emissions from the elimination and treatment of waste from products sold by the company at the end of their useful life. This category includes the total expected end-of-life emissions of all products sold in the reporting year.

CO2eq emissions are calculated by multiplying the amount of each type of waste managed, both the materials that make up the IOHNIC and the corresponding packaging sold in the reporting year, by the CO2eq emission factor corresponding to each of them.

The factors published by DEFRA (Department for Business, Energy & Industrial Strategy), "UK Government GHG Conversion Factors for Company Reporting" are used.

Category 15 - Investments

These are the emissions associated with Sacyr's investments. This includes emissions related to investees companies or other financial investments that are not consolidated on the balance sheet. The latest available primary data for scopes 1 and 2 is taken directly from the investee company and attributed in the same percentage as the economic investment.

6.1.3.- Base year emissions adjustment

In the event of significant variations that need to be considered in the historical series, emissions will be recalculated, mainly for the base year (2020) of Sacyr. Circumstances such as the following should be analyzed to determine whether the base year emissions adjustment should be made:

- Structural changes that have a significant impact on base year emissions.
- Changes in calculation methodology or improvements in the accuracy of emission factors or activity data, resulting in a significant change in base year emissions.



• Discovery of significant errors.

Anything that implies a relevant change with respect to the base year is considered significant.

6.2.- Documented information

The emissions calculation tool including energy consumption, consumption of materials and water, waste generated and the calculation of the different types of emissions (scope 1, scope 2 and scope 3) of Sacyr will be kept as documented information.