

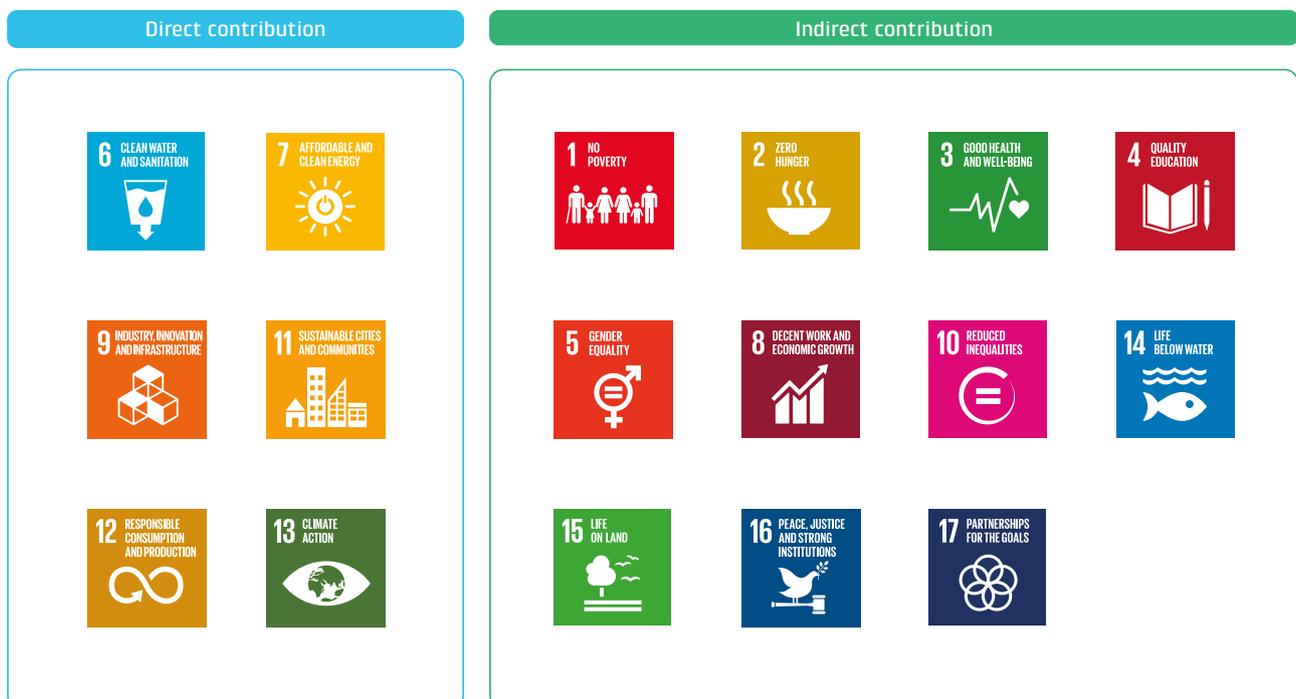
Greenhouse Gas Emissions Report 2018



1 FCC Construcción's commitment

FCC Construcción, with more than 115 years' accumulated experience, is the construction company of FCC Group. Its business activities cover every field of construction areas, being a benchmark company in the construction of civil engineering works and buildings, both on the national market as well as internationally. FCC Construcción has a proven experience in the development of concession projects and it has a group of subsidiary companies involved in the industrial and energy sector and in construction-related activities (engineering, prefabrication, installations etc.).

Climate change is possibly the biggest challenge of our time and we are at a defining moment in this race against the clock that is crucial for the future of the planet and its next generations. A people's movement, such as "Fridays for future", initiated by Greta Thundberg and followed worldwide by thousands of students, urges governments to take action on climate change. In addition, the United Nations international agreements, such as the Paris Agreement or the 2030 Agenda with the Sustainability Development Goals, bring all nations into a common cause to keep the global temperature rise well below 2 degrees Celsius above pre-industrial levels. All of them are sending us a clear message. Everyone: governments, private sector and civil society have to join efforts and take action to address the climate crisis.



Greenhouse Gas Emissions Report 2018



Repairation works of Ponton road in Asturias (Spain)



Obidos dam (Portugal)

We firmly believe that a responsible and committed company such as FCC Construcción should position itself as a key agent in the definition of solutions to address climate change. Being aware that the company works in an international context, in which we build representative projects, mainly civil engineering works and some of them located in countries that are more vulnerable to climate change than Spain; FCC Construcción defined in its **Management Objectives** 2017-2020 the expansion of the Greenhouse Gas (GHG) emissions report verification. Fulfilling this objective, **100% of the company** activity will be verified by **2020** according to the Standard ISO 14064-1:2012. This will enable us to continue to calculate our carbon footprint, to track down the most carbon intensive activities, to reduce emissions and to communicate sector-based Good Practices' examples among the stakeholders of all the countries in which we operate. The external verification reinforces our management transparency and credibility.

Aiming to fulfil this goal, the current report quantifies and verifies the GHG emissions of Spain, Portugal, Panama and Peru in the fiscal year 2018, which entails the verification of 56% of FCC Construcción's activity. The broadening of the scope implied actions, such as the spreading of the organisation's quantification methodology among the own staff, aiming to raise their awareness about the annual GHG emissions report and the climate change strategy of the company; the collection of emission factors that are specific to the different countries and inventory GHG sources; or the definition of internal monitoring in order to assure the activity data quality.

However, this topic is not a novelty for FCC Construcción; we have been aware of the importance of integrating in our activity the climate change management for a long time and we have travelled a **longstanding commitment** in this regard. In 2010, FCC Construcción started its climate change strategy, with the design and implementation of a protocol for the quantification of Greenhouse Gas emissions in the construction sector. Since then, the company prepares and verifies annually its Greenhouse Gas emissions report, being the first Spanish construction company to have it verified by AENOR and having since 2012 AENOR's Environmental certificate "CO₂ verified", which guarantees both the accuracy of the organisation's Carbon Footprint calculation and the inclusion of the GHG management in the organisation's system and strategy. This initiative was awarded by the organization "Fundación Entorno" in 2012 with a prize in the category "Management for sustainable development" of the European Business Awards for the Environment.



Line 2 of Panama metro project (Panama)



Line 2 and line 4 of Lima metro project (Peru)

In addition, in the interest of promoting transparency, FCC Construcción has been registering its verified carbon footprints every year, since its outset, in the “Carbon footprint, offsetting and carbon sequestration project Register”, created in 2014 by the Spanish Ministry for the Ecological Transition. With this action, FCC Construcción was the first construction company to appear in said public list. With the carbon footprint of financial year 2015, 2016 and 2017, we obtained the “Calculate and Reduce” label of the government, which, in addition to granting recognition and acknowledging the fact of being able to quantify and verify our Greenhouse Gases Emissions, it also identifies the company as an organisation which reduces its carbon footprint effectively. The company's commitment for reducing emissions is also reflected in the [“#PorElClima Community”](#) platform, to which we adhered in 2016, after the Paris Agreement.

As a further step in the management improvement, in 2017 we adopted a strategy for combating climate change, which structures in 4 main areas (mitigation, adaptation, communication and innovation) the work done and the results obtained since 2010. Also since this year, FCC Construcción started to implement the recommendations of the Financial Stability Board (TFCD⁽¹⁾) working group on the climate change, which were presented at the summit of the G-20 in 2017. The TFCD report develops a framework to help companies understand and quantify the risks related to climate change, structuring the progress on climate change in four major blocks: “Governance”, “Strategy”, “Risk Management” and “Metrics and Targets”.

This is clearly not enough: climate change is a reality with unavoidable implications. Much has been done and still more has to be done, this is just the starting point. **We need to go further** and promote a respectful business model that increases efficiency in the resources use, reduces energy demand, suggests a progressive substitution of the fossil fuels with alternative energies and designs climate-resilient infrastructures, which prepare for, and adapt to climate change conditions and additionally promote resilience of the environment.

⁽¹⁾ Task Force on Climate Related Financial Disclosures (TFCD).

Our short-mid challenges are being able to set ambitious reduction targets, validated by the Science Based Target Initiative⁽²⁾ and, particularly, working on the field related to adaptation to climate change, by assessing the impacts and analysing the vulnerability and opportunities of our company in our different locations.

This report includes the GHG inventory for **2018** reporting period, recording all emissions from the activities carried out at construction sites and premises of FCC Construcción located in **Spain, Portugal, Peru and Panama**. This report is the responsibility of the Quality, CSR and R&D Director.

The report has been prepared according to the requirements of ISO Standard 14064-1:2012: *“Greenhouse Gases. Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals”* and of the sector guidelines of the European Network of Construction Companies for Research and Development (henceforth, ENCORD), May 2012 edition: *“Construction CO₂ Measurement Protocol”*. Said document has obtained the logo “Built on GHG Protocol”, making it the sector guidance of GHG Protocol for construction companies.

The verification of the Greenhouse Gas inventory has been accomplished with a limited level of assurance by AENOR. (see annex).

2 Organisational boundaries, operational boundaries and exclusions

2.1. Organisational boundaries

FCC Construcción uses the operational control approach for GHG emissions recording and for consolidation of GHG emissions data. This approach is recommended best practice, since it is the most appropriate for the activities of the construction sector. For the quantification of scope 1 and scope 2 emissions (emissions associated with the consumption of fuel and electricity), the GHG inventory does only consider those emissions over which the company has financial control, that is, the emissions deriving from consumption whose costs are assumed by FCC Construcción.

The information included in the GHG inventory for 2018 reporting period contains data of all centres located in Spain, Portugal, Peru and Panama, taking centres to mean construction sites and premises (offices, warehouses and plant storage /maintenance facilities).

⁽²⁾ SBTi, founded by CDP, United Nations Global Compact, WRI, WWF and We Mean Business, aims to help companies to set climate targets based on the science for reducing greenhouse gas emissions and limiting global warming to below 2°C, taking advantage of the opportunities thrown up by the transition to a low-carbon economy.

2.2. Operational boundaries

The emissions of the centres within the organisational boundaries of FCC Construcción are quantified, assuming the following scopes:

Scope 1: Direct GHG emissions

These are emissions from sources that are owned or controlled by the company. They include emissions deriving from the burning of fuel used by FCC Construcción. They can be broken down into:

- Emissions associated with fuel used at projects (construction sites).
- Emissions associated with electricity used at premises.

Scope 2: Indirect GHG emissions

Scope 2 emissions are a consequence of the organisation's activities, but they occur at the facility where electricity is generated. They include emissions from the generation of purchased electricity consumed by FCC Construcción. They can be broken down into:

- Emissions associated with electricity used at projects.
- Emissions associated with electricity used at premises.

Scope 3: Other indirect GHG emissions

These emissions are a consequence of the company's activities, but they occur from sources not owned or controlled by FCC Construcción. It has been decided to include the following emissions under scope 3:

- Emissions associated with the production and transport of purchased materials.
They include emissions from the manufacture and transport to site of concrete, bituminous products (asphalt), steel, non-ferrous metals, brick and glass and emissions from transport to site of earth and graded aggregates.
- Emissions associated with the subcontracted work units.
They include earth-moving works.
- Emissions associated with the transport and management of surplus waste and materials.
They include emissions from the transport of surplus earth and surplus clean rubble and emissions from the transport and disposal in landfill of municipal waste and wood waste.
- Emissions associated with employee business travel.
They include emissions associated with business travel of employees located in Spain and expatriate staff.
- Emissions deriving from losses due to electricity transport and distribution.

2.3 Exclusions

FCC Construcción has decided to exclude from quantification any fugitive emissions from air-conditioning leaks from equipment controlled by the company, given its low representativeness (approximately 1.3%) with regard to the total emissions released by the company.

3 Uncertainty and maximum relative importance

The emissions' estimation uncertainty is a combination of the uncertainty in emission factors and in activity data.

The emission factors deployed to draw up FCC Construcción greenhouse gas inventory are obtained from official sources and they are specific to each emission source category. The selection of these emission factors is carried out aiming to reduce uncertainty, as far as proves possible. Unless there is clear evidence otherwise, it is assumed that the probability density functions are normal and hence that the uncertainty in emission factors is low.

The activity data derive from billing data, delivery notes, measurements and data from the construction project. Based on the supplementary guidance document about uncertainty assessment (*"Guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty"*), drawn up by ECCR under the "GHG Protocol", we can assume that the origin of the FCC Construcción activity data guarantees the maximum achievable certainty for the various GHG emission sources.

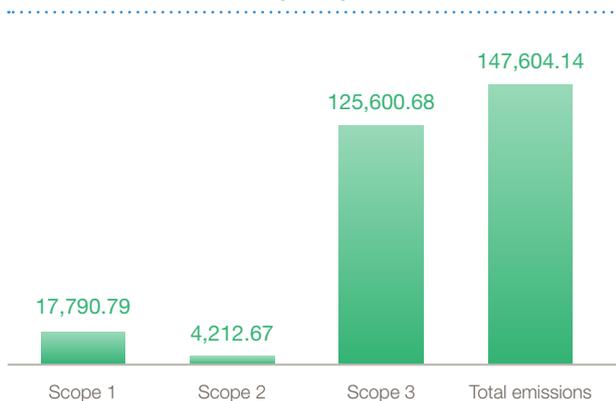
A maximum relative importance level of 7% has been established with regard to the total reported Greenhouse Gas emissions.

4 Quantification of GHG emissions

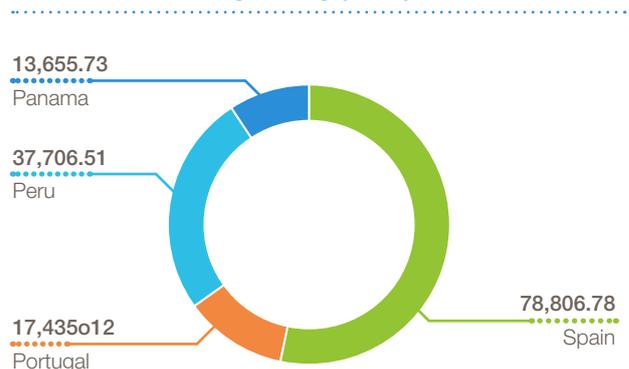
This section contains the GHG emissions' quantification of FCC Construcción in 2018, specifying the GHG emissions of Spain, Portugal, Peru and Panama.

Firstly, the emissions are classified by scopes as defined in the Standard ISO 14064-1.

Total GHG emissions 2018 (tCO₂e)



2018 GHG emissions by country (tCO₂e)



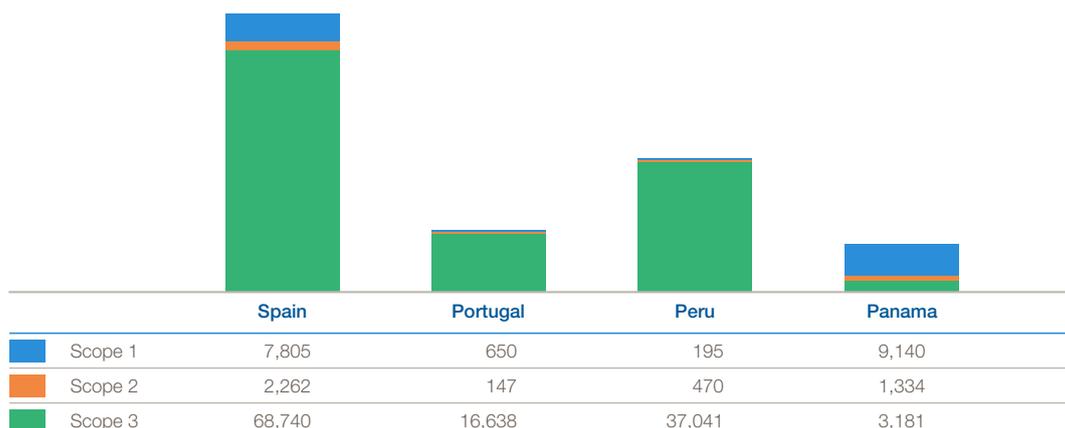
Emissions classified by scopes (according to ISO 14064-1:2012)

	t CO ₂ e 2018				Total FCCCO
	Spain	Portugal	Peru	Panama	
Scope 1: Direct GHG emissions	7,804.89	650.19	195.39	9,140.32	17,790.79
Associated with fuel used at projects	5,076.30	632.40	190.42	560.22	6,459.34
Associated with fuel used at premises	2,728.59	17.79	4.97	8,580.10	11,331.45
Scope 2: Indirect GHG emissions	2,262.03	146.56	470.14	1,333.94	4,212.67
Associated with electricity used at projects	1,269.04	125.19	466.24	388.18	2,248.65
Associated with electricity used at premises	992.99	21.37	3.90	945.76	1,964.02
Scope 3: Other indirect emissions	68,739.86	16,638.37	37,040.98	3,181.47	125,600.68
Associated with the production and transport of purchased materials	55,717.24	13,581.14	35,002.34	2,827.65	107,128.37
Associated with the subcontracted work units	3,702.25	343.69	954.50	33.22	5,033.66
Associated with the transport and management of surplus waste and materials	4,448.95	2,702.13	1,034.47	133.96	8,319.51
Associated with employee business travel	4,743.42	0.00	0.00	0.00	4,743.42
Deriving from losses due to electricity transport and distribution	128.00	11.41	49.67	186.64	375.72
Total Emissions	78,806.78	17,435.12	37,706.51	13,655.73	147,604.14

FCC Construcción broadens the scope of the verified GHG inventory

Although FCC Construcción is calculating its GHG emissions since 2010, these were only verified in Spain. The addition of Portugal, Peru and Panama in the verification process adds credibility and transparency to the organization and entails the certification of 56% of the activity.

2018 GHG emissions (tCO₂e)



Specifically for Scope 1, the GHG emissions of financial year 2018 are reported by Greenhouse Gas type.

Scope 1 Emissions classified by GHG Type

	t CO ₂ e 2018						
	Total	Projects	Premises	Spain	Portugal	Peru	Panama
CO ₂	17,731.55	6,437.11	11,294.44	7,778.36	648.07	194.71	9,110.41
CH ₄	20.48	7.68	12.80	9.17	0.73	0.24	10.34
N ₂ O	38.76	14.55	24.21	17.36	1.39	0.44	19.57
All	17,790.79	6,494.34	11,331.45	7,804.89	650.19	195.39	9,140.32

In addition, the emissions are also classified and reported according to the emission blocks of the ENCORD sector guidelines.

Emissions classified by emission blocks (according to ENCORD Guidelines)

	t CO ₂ e 2018				
	Spain	Portugal	Peru	Panama	Total FCCCO
Construction⁽³⁾					
1. Fuel (projects)	5,076.30	632.40	190.42	560.22	6,459.34
2. Fuel (premises)	2,728.59	17.79	4.97	8,580.10	11,331.45
3. Process and fugitive emissions ⁽⁴⁾	0.00	0.00	0.00	0.00	0.00
4. Electricity (projects)	1,269.04	125.19	466.24	388.18	2,248.65
5. Electricity (premises)	992.99	21.37	3.90	945.76	1,964.02
6. Heat	0.00	0.00	0.00	0.00	0.00
7. Vehicle fuel ⁽⁵⁾	218.85	0.00	0.00	0.00	218.85
8. Public transport	4,524.57	0.00	0.00	0.00	4,524.57
9. Subcontractor	3,702.25	343.69	954.50	33.22	5,033.66
10. Waste	4,448.95	2,702.13	1,034.47	133.96	8,319.51
11. Materials	55,717.24	13,581.14	35,002.34	2,827.65	107,128.37
Total Emissions	78,678.78	17,423.71	37,656.84	13,469.09	147,228.42⁽⁶⁾

⁽³⁾ The ENCORD sector protocol divides the construction sector into three key areas of operation: the materials manufacture stage (off-site production and transport of materials used for construction); the construction stage (project design, execution of the works, including demolition and refurbishment and on-site materials manufacture); and the operation stage (management or use of the final product). All FCC Construcción activities are included in the construction stage.

⁽⁴⁾ See section "2.3. Exclusions".

⁽⁵⁾ The emission block 7 only considers emissions associated to the use of vehicles powered by electricity and emissions associated to leased or privately owned vehicles used for business travel. Emissions associated to the business travel in company owned vehicles are included under the quantification of emissions associated with fuel consumption at construction sites and premises, corresponding to emission blocks 1 and 2, respectively.

⁽⁶⁾ The total emissions quantified in accordance with ENCORD guidelines do not coincide with the total emissions quantified according to the Standard UNE-ISO 14064-1. This is due to the fact that ENCORD guidelines do not include a category to classify "emissions deriving from losses due to electricity transport and distribution" which in 2018 stand at 375.72 t CO₂e eq. verified.

5 Avoided emissions

This section sets out a quantification of the avoided Greenhouse Gas emissions in the four countries due to the implementation of environmental good practices on site. The report details the emissions which are no longer produced by implementing the following directed actions, as defined according to the terminology of Standard ISO 14064-1:2012.

Avoided emissions

	t CO2e 2018				Total FCCCO
	Spain	Portugal	Peru	Panama	
By reusing surplus material on site and not taking it to landfill	3,027.98	20.16	142.84	48.58	3,239.56
By pH neutralization with CO ₂	49.05	0.00	0.00	0.00	49.05
By suitable maintenance of the machinery operating on site	248.84	0.00	9.92	246.15	504.91
Due to vehicle speed control on site	17.71	0.14	1.17	0.26	19.28
Total Emissions	3,343.58	20.30	153.93	294.99	3,812.80

6 Base year

Due to the inclusion of the construction sites and premises of Portugal, Peru and Panama in the verified GHG emissions report of FCC Construcción, according to Standard ISO 14064-1:2012 and ENCORD's sector guidelines, **2018** is selected as historic base year for GHG emissions to be compared over time⁽⁷⁾.

The change of the base year from 2011 to 2018 is due to the change of the organisational boundaries, because, as a consequence of FCC Construcción's Management Objectives 2017-2020, it has been decided to broaden the scope of the verified GHG emissions report, by including additional countries other than Spain.

FCC Construcción has defined that the recalculation of the base year emissions will be carried out when any of the following aspects occurs:

- Changes in the operational boundaries that result in a significant change in the GHG emissions.
- Structural changes at FCC Construcción that have a significant impact on the company's base year GHG emissions.
- Changes in the GHG quantification methodologies and/or improvement in the accuracy of the emission factors that result in a significant change in the quantified GHG emissions data.
- Discovery of significant errors or of an accumulation of an important number of non-significant errors which, in an aggregate figure, have relevant consequences on the total quantified GHG emissions.

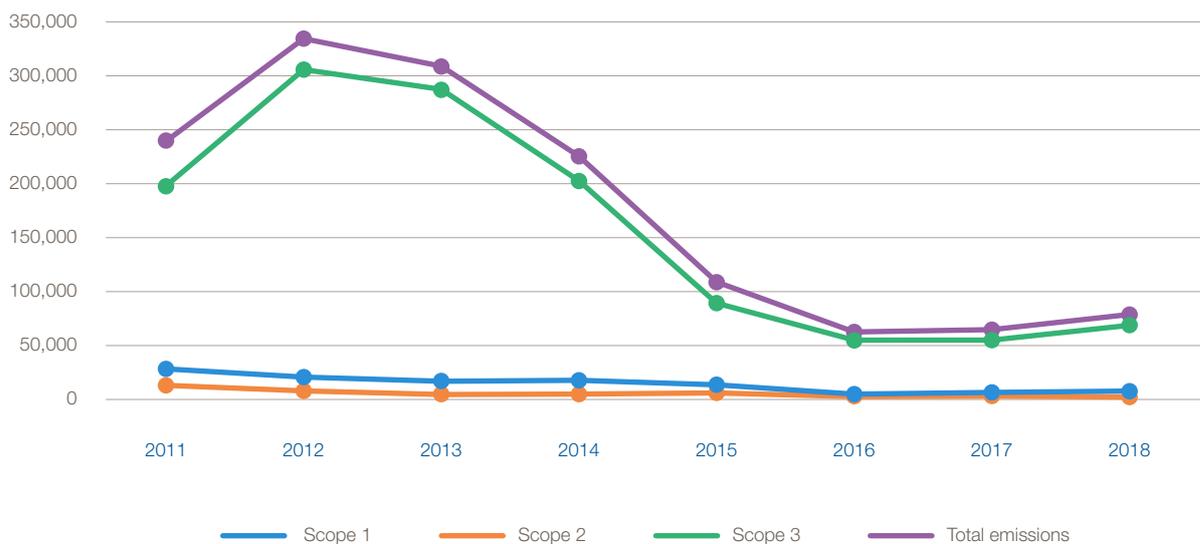
⁽⁷⁾ A meaningful and consistent comparison of the emissions over time requires finding an historical reference with which current emissions can be compared; this is known as base year emissions.

Our experience is our best asset: we are verifying Spain's GHG emissions since 2010.

Although the expansion of the scope in the GHG inventory verification has led to changing the base year to 2018, FCC Construcción has been voluntarily quantifying and verifying its GHG emissions of the construction sites and premises located in Spain since 2010.

We were the first Spanish construction company to achieve this.

Verified GHG emissions in Spain (tCO₂e)



7 Quantification methodologies

FCC Construcción determines its Greenhouse Gas emissions using a calculation approach, multiplying the activity data compiled at each construction site or premise by the documented GHG emission factors which are selected and updated periodically at corporate level.

FCC Construcción uses a centralised approach, consolidating the activity data gathered at each construction site or premise and quantifying the GHG emissions at corporate level, though being able to create GHG emission reports at different levels (by project, business area, client type, geographical distribution, etc.)

Reference is made below to the quantification methodologies and GHG emission factors used to draw up this report.

Scope 1: Direct GHG emissions

Emissions associated with fuel consumption.

To calculate these emissions, fuel consumption (at construction sites or at premises), according to FCC Construcción billing, is multiplied by the emission factors which have been calculated using official sources which are specific for each fuel and country. More precisely:

- For Spain: the data from the spreadsheet “Organisation’s carbon footprint - Scope 1+2” of the Spanish Ministry for the Ecological Transition (MITECO) in its 14th version (April 2019) and the data from Table 2.3 of “2006 IPCC Guidelines for National Greenhouse Gas Inventories” have been used.
- For Portugal: the data published in “Despacho nº17313/2008” of “Ministério da Economia e da Inovação, Direcção-Geral de Energia e Geologia y a la Decisión de la Comisión 2004/150/CE” and the data from Table 2.3 of “2006 IPCC Guidelines for National Greenhouse Gas Inventories” have been used.
- For Peru: the data from the spreadsheet “Infocarbono”, developed by the Peruvian Environment Ministry, based on the 2006 IPCC Guidelines have been used.
- For Panama: the data from Table 2.3 of “2006 IPCC Guidelines for National Greenhouse Gas Inventories” have been used.

Scope 2: Indirect GHG emissions

Emissions associated with electricity consumption.

To calculate these emissions, electricity consumption (at construction sites or at premises), according to FCC Construcción billing, is multiplied by the emission factor from the energy-mix of the appropriate country. For Spain, it has been obtained from the spreadsheet “Organisation’s carbon footprint - Scope 1+2” of the Spanish Ministry for the Ecological Transition (MITECO) in its 14th version (April 2019), whereas for Portugal, Peru and Panama it has been obtained from the report “Statistics - Emissions Factors (2018 Edition)” of the International Energy Agency.

Scope 3: Other indirect GHG emissions

Emissions associated with the production and transport of purchased materials.

The quantification methodology is based on activity data (materials’ production and consumption data and the distance travelled from their production site to the construction site) and on the emission factors associated with the production and transport of said materials.

The emission factor for asphalt (bituminous products) has been obtained from the verified emissions of FCC Construcción’s own premises, the emission factors for steel, non-ferrous metals, brick and glass have been obtained from a study of Cantabria University and the emission factor for concrete has been obtained from historical data of FCC Construcción plants’ electricity consumption.

The emission factors associated with transport have been obtained from the Annexes to the report by the UK Department for Environment, Food and Rural Affairs (DEFRA) “2018 Government GHG Conversion Factors for Company Reporting”.

Emissions associated with the subcontracted work units.

To calculate emissions associated with earth-moving works, the methodology uses an emission factor which is calculated based on a study of the Machinery Directorate of FCC Construcción that determines the amount and type of fuel required to carry out earth-moving of a certain size and using the fuel emission factors from specific official sources of each country, as has been specified previously (see Scope 1).

Emissions associated with the transport and management of surplus waste and materials.

The emissions associated with the transport and management of wastes and surplus materials are calculated, considering as activity data both the volumes of surplus rubble and earth and the weight of municipal waste and wood waste generated on site, as well as the distances from the construction site or premise to its final destination.

The emission factors associated with transport and landfill disposal have been obtained from Annexes to the report by the UK Department for Environment, Food and Rural Affairs (DEFRA) *"2018 Government GHG Conversion Factors for Company Reporting"*.

Emissions associated with employee business travels.

The activity data required for calculating these emissions, in other words, the kilometres travelled by FCC Construcción employees (Spain and expatriate staff) in business travels, are supplied by the Corporate Department which obtains these data from the reports provided by the different suppliers.

The emission factors associated to the different forms of transport (car, coach, plane) derive from the Annexes to the Report by the UK Department for Environment, Food and Rural Affairs (DEFRA) *"2018 Government GHG Conversion Factors for Company Reporting"*. The emission factors associated with the employee business travels by train are obtained from the *"Practical Guide for the calculation of Greenhouse Gas emissions (GHG)" of the Catalan Office for Climate Change*.

Emissions deriving from losses due to electricity transport and distribution

These emissions are obtained as a product of the electricity consumption multiplied by an electricity distribution losses factor which is to be found in the report *"Statistics - Emissions Factors (2018 Edition)"* of the International Energy Agency.



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AENOR Verification Statement for FCC CONSTRUCCIÓN, S.A. for the Inventory of greenhouse gas emissions for 2018

FILE: 1994/0112/GEN/01

Introduction

FCC CONSTRUCCIÓN, S.A. (hereinafter the company) has engaged AENOR INTERNACIONAL, S.A.U. (AENOR) to perform a limited review of the Greenhouse Gas Emissions Inventory (GHG) for 2018 of its activities included in the GHG report dated 10 July 2019, which is part of this Statement.

AENOR is accredited by the Mexican Accreditation Body, with OVVGHG number 004/14 (valid from 31/10/2014; revision date 27/11/2018), pursuant to standard ISO 14065: 2013, to verify greenhouse gas emissions in accordance with the requirements established in the ISO 14064-3: 2006 standard for the energy and waste sectors.

Inventory of GHG emissions issued by the Organisation: FCC CONSTRUCCIÓN S.A., with registered office at AV CAMINO DE SANTIAGO, 40. 28050-MADRID

Representatives of the Organisation:

Director of Quality and CSR at FCC CONSTRUCCIÓN S.A.

FCC CONSTRUCCIÓN S.A., was responsible for reporting its GHG emissions in accordance with the reference standard UNE-EN ISO 14064-1:2012

Objective

The objective of the verification is to provide interested parties with a professional and independent opinion on the information and data contained in the aforementioned FCC CONSTRUCTION, S.A. GHG Report.

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Scope of the Verification

The scope of the verification is for the activities provided by the company at its facilities in Spain, Peru, Portugal and Panama. Facilities are defined as fixed works and centres, which include offices, warehouses and machinery depots.

All greenhouse gases emitted by the organisation have been considered. The FCC Construcción emissions inventory includes CO₂, CH₄ and N₂O emissions.

During the verification process, the information was analysed in accordance with the operational control approach established by the UNE-EN ISO 14064-1:2006 standard. In other words, the company reports all the GHG emissions that are attributable to the operations it controls.

Direct and indirect activities and verification exclusions

The activities subject to verification are studied under three scopes (following ISO 14064-1 guidelines), which are:

Scope 1: Direct GHG emissions:

These are the emissions from sources that are owned or controlled by the company. They include emissions resulting from the combustion of fuels consumed by FCC Construcción.

They are broken down into:

- Emissions associated with fuel consumption on site.
- Emissions associated with fuel consumption at fixed centres.

Scope 2: Indirect GHG emissions from the generation of energy

Scope 2 emissions are caused by the organisation's activity, but they occur at the plant where electricity is generated. They include the emissions generated by the electricity purchased by FCC Construcción.

They are broken down into:

- Emissions associated with the consumption of electricity on site.
- Emissions associated with the consumption of electricity at fixed centres.

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Scope 3: Other indirect GHG emissions

These emissions are a consequence of the company's activities, but they are produced at sources that are not owned or controlled by FCC Construcción.

A decision has been made to include the following emissions in scope 3:

- Emissions associated with the production and transport of consumed materials: Emissions from the manufacture and transport of concrete, asphalt agglomerate, steel, non-ferrous metals, bricks and glass and emissions from transporting earth and graded aggregates are considered.
- Emissions associated with the activities performed by subcontracted works units: Earthmoving is considered.
- Emissions associated with the transport and management of waste and surplus materials: Emissions associated with the transport of surplus land, surplus clean waste and transportation and landfill of MSW and wood are considered.
- Emissions associated with travel undertaken by company personnel for business trips.
- Emissions from losses incurred during the transportation and distribution of electricity.

Exclusions

FCC Construcción has decided to exclude emissions from its air conditioning equipment, as these have low representativity (1,3%) with respect to total emissions.

Targeted actions

The company has presented the quantification of greenhouse gas emissions avoided in 2018 due to the implementation of good practices on site and the use of electric vehicles. The actions that have been considered are as follows:

- reusing materials on site and not taking them to landfill
- neutralising pH with CO₂
- proper maintenance of machinery used on site
- controlling the speed of vehicles on site

Base year

The organisation's base year is **2018**.

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Relative importance

The verification process considered as material discrepancies any omissions, distortions or errors that can be quantified and that result in a difference of more than 7% with respect to the total declared emissions.

Criteria

The criteria and information taken into account to perform the verification were:

- 1) The UNE-ISO 14064-1:2012 standard: Specification with guidance, at organisational level, for the quantification and reporting of greenhouse gas emissions and removals.
- 2) The UNE-ISO 14064-3:2012 standard: Specification with guidance for the validation and verification of greenhouse gas statements
- 3) ENCORD - European Network of Construction Companies for Research and Development directives.
- 4) Basic guide for quantifying greenhouse gas emissions, version 6.
- 5) Guide for calculating greenhouse gas emissions in fcc construction, version 17.

Finally, the Emission Report prepared by the organisation and dated July 2019 was verified. AENOR is expressly held harmless from any responsibility with respect to investment decisions or other decisions based on this statement.

Conclusion

There is no evidence to suggest that the information on emissions reported in the Greenhouse Gas Report 2018 of FCC CONSTRUCCIÓN, S.A., is not a faithful representation of the emissions of its activities.

In accordance with this Statement, the data on emissions/removals finally verified and the non-conformities, observations and improvement opportunities detected are listed below.

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TOTAL FCC DATA

TOTAL FCC	t CO₂e
Scope 1: Direct GHG emissions	17,790.79
associated with on-site fuel consumption	6,459.34
associated fuel consumption at fixed centres	11,331.45
Scope 2: Indirect GHG emissions	4,212.67
associated with on-site electricity consumption	2,248.65
associated electricity consumption at fixed centres	1,964.02
Scope 3: Other indirect emissions	125,600.68
associated with the production and transport of consumed materials	107,128.37
associated with the activities performed by subcontracted works units	5,033.66
associated with the transport and management of waste and surplus materials	8,319.51
associated with the travel undertaken company personnel for business trips	4,743.42
caused by losses incurred during the transportation and distribution of electricity	375.72
Total Emissions	147,604.14

TOTAL FCC	t CO₂e
Construction	
1. Fuel (site)	6,459.34
2. Fuel (fixed centres)	11,331.45
3. Fugitive and process emissions (excluded emissions)	0.00
4. Electrical energy (site)	2,248.65
5. Electrical energy (fixed centres)	1,964.02
6. Heat	0.00
7. Vehicle fuel	218.85
8. Travel undertaken by company personnel	4,524.57
9. Subcontractors	5,033.66
10. Waste	8,319.51
11. Materials	107,128.37
Total Emissions	147,228.42

8.1.1.- AVOIDED EMISSIONS (TARGETED ACTIONS AND QUANTIFIED EMISSIONS)

TOTAL FCC	t CO₂e
reusing materials on site and not taking them to landfill	3,239.56
neutralising pH with CO ₂	49.05
proper maintenance of machinery used on site	504.91
controlling the speed of vehicles on site	19.28
Total Emissions	3,812.80

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FCC ESPAÑA VERIFIED DATA

FCC ESPAÑA	t CO₂e
Scope 1: Direct GHG emissions	7,804.89
associated with on-site fuel consumption	5,076.30
associated fuel consumption at fixed centres	2,728.59
Scope 2: Indirect GHG emissions	2,262.03
associated with on-site electricity consumption	1,269.04
associated electricity consumption at fixed centres	992.99
Scope 3: Other indirect emissions	68,739.86
associated with the production and transport of consumed materials	55,717.24
associated with the activities performed by subcontracted works units	3,702.25
associated with the transport and management of waste and surplus materials	4,448.95
associated with the travel undertaken company personnel for business trips	4,743.42
caused by losses incurred during the transportation and distribution of electricity	128.00
Total Emissions	78,806.78

FCC ESPAÑA	t CO₂e
Construction	
1. Fuel (site)	5,076.30
2. Fuel (fixed centres)	2,728.59
3. Fugitive and process emissions (excluded emissions)	0.00
4. Electrical energy (site)	1269.04
5. Electrical energy (fixed centres)	992.99
6. Heat	0.00
7. Vehicle fuel	218.85
8. Travel undertaken by company personnel	4,524.57
9. Subcontractors	3,702.25
10. Waste	4,448.95
11. Materials	55,717.24
Total Emissions	78,678.78

AVOIDED EMISSIONS (TARGETED ACTIONS AND QUANTIFIED EMISSIONS)

FCC ESPAÑA	t CO₂e
reusing materials on site and not taking them to landfill	3,027.98
neutralising pH with CO ₂	49.05
proper maintenance of machinery used on site	248.84
controlling the speed of vehicles on site	17.71
Total Emissions	3,343.58

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VERIFIED FCC PERU DATA

FCC PERU	t CO ₂ e
Scope 1: Direct GHG emissions	195.39
associated with on-site fuel consumption	190.42
associated fuel consumption at fixed centres	4.97
Scope 2: Indirect GHG emissions	470.14
associated with on-site electricity consumption	466.24
associated electricity consumption at fixed centres	3.90
Scope 3: Other indirect emissions	37,040.98
associated with the production and transport of consumed materials	35,002.34
associated with the activities performed by subcontracted works units	954.50
associated with the transport and management of waste and surplus materials	1,034.47
associated with the travel undertaken company personnel for business trips	0.00
caused by losses incurred during the transportation and distribution of electricity	49.67
Total Emissions	37,706.51

FCC PERU	t CO ₂ e
Construction	
1. Fuel (site)	190.42
2. Fuel (fixed centres)	4.97
3. Fugitive and process emissions (excluded emissions)	0.00
4. Electrical energy (site)	466.24
5. Electrical energy (fixed centres)	3.90
6. Heat	0.00
7. Vehicle fuel	0.00
8. Travel undertaken by company personnel	0.00
9. Subcontractors	954.50
10. Waste	1,034.47
11. Materials	35,002.34
Total Emissions	37,656.84

AVOIDED EMISSIONS (TARGETED ACTIONS AND QUANTIFIED EMISSIONS)

FCC PERU	t CO ₂ e
reusing materials on site and not taking them to landfill	142.84
neutralising pH with CO ₂	0.00
proper maintenance of machinery used on site	9.92
controlling the speed of vehicles on site	1.17
Total Emissions	153.93

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VERIFIED FCC PERU DATA

FCC PORTUGAL	t CO₂e
Scope 1: Direct GHG emissions	650.19
associated with on-site fuel consumption	632.40
associated fuel consumption at fixed centres	17.79
Scope 2: Indirect GHG emissions	146.56
associated with on-site electricity consumption	125.19
associated electricity consumption at fixed centres	21.37
Scope 3: Other indirect emissions	16,638.37
associated with the production and transport of consumed materials	13,581.14
associated with the activities performed by subcontracted works units	343.69
associated with the transport and management of waste and surplus materials	2,702.13
associated with the travel undertaken company personnel for business trips	0.00
caused by losses incurred during the transportation and distribution of electricity	11.41
Total Emissions	17,435.12

FCC PORTUGAL	t CO₂e
Construction	
1. Fuel (site)	632.40
2. Fuel (fixed centres)	17.79
3. Fugitive and process emissions (excluded emissions)	0.00
4. Electrical energy (site)	125.19
5. Electrical energy (fixed centres)	21.37
6. Heat	0.00
7. Vehicle fuel	0.00
8. Travel undertaken by company personnel	0.00
9. Subcontractors	343.69
10. Waste	2,702.13
11. Materials	13,581.14
Total Emissions	17,423.71

AVOIDED EMISSIONS (TARGETED ACTIONS AND QUANTIFIED EMISSIONS)

FCC PORTUGAL	t CO₂e
reusing materials on site and not taking them to landfill	20.16
neutralising pH with CO ₂	0.00
proper maintenance of machinery used on site	0.00
controlling the speed of vehicles on site	0.14
Total Emissions	20.30

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VERIFIED FCC PANAMA DATA

FCC PANAMA	t CO₂e
Scope 1: Direct GHG emissions	9,140.32
associated with on-site fuel consumption	560.22
associated fuel consumption at fixed centres	8,580.10
Scope 2: Indirect GHG emissions	1,333.94
associated with on-site electricity consumption	388.18
associated electricity consumption at fixed centres	945.76
Scope 3: Other indirect emissions	3,181.47
associated with the production and transport of consumed materials	2,827.65
associated with the activities performed by subcontracted works units	33.22
associated with the transport and management of waste and surplus materials	133.96
associated with the travel undertaken company personnel for business trips	0.00
caused by losses incurred during the transportation and distribution of electricity	186.64
Total Emissions	13,655.73

FCC PANAMA	t CO₂e
Construction	
1. Fuel (site)	560.22
2. Fuel (fixed centres)	8,580.10
3. Fugitive and process emissions (excluded emissions)	0.00
4. Electrical energy (site)	388.18
5. Electrical energy (fixed centres)	945.76
6. Heat	0.00
7. Vehicle fuel	0.00
8. Travel undertaken by company personnel	0.00
9. Subcontractors	33.22
10. Waste	133.96
11. Materials	2,827.65
Total Emissions	13,469.09

AVOIDED EMISSIONS (TARGETED ACTIONS AND QUANTIFIED EMISSIONS)

FCC PANAMA	t CO₂e
reusing materials on site and not taking them to landfill	48.58
neutralising pH with CO ₂	0.00
proper maintenance of machinery used on site	246.15
controlling the speed of vehicles on site	0.26
Total Emissions	294.99

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Chief verifier: ASIER TORRES

Technical reviewer: FERNANDO SEGARRA

Place and date, Madrid, 27 September 2019