Annual Report 2023

Environment

FCC Servicios Medio Ambiente has surpassed the results of the previous year, achieving an **annual turnover** of **€3,853.2 million (+5.83%)**, a **gross operating profit** of **€646.7 million (+9.04%)** and a **profit before tax** of **€296.9 million (+11.83%)**

1. Geographical platforms and sector analysis. Strategy

The Environmental Services Area of the FCC Group has been delivering municipal services and end-to-end waste management for more than 110 years, **serving today over 67 million people in close to 5,400 municipalities**.

In 2023 the company operated in a total of 11 countries through a variety of services that reflect its extensive experience in the industry, including: collection, treatment, recycling, energy recovery and disposal of municipal solid waste; public street cleansing; maintenance of sewage systems; parks and ground maintenance; treatment and disposal of industrial waste or the recovery of polluted soils.

FCC Servicios Medio Ambiente Holding, S.A.U., backbone of the Environmental Services activities, is structured into **four geographical divisions or business platforms**:

- **Iberia:** FCC Medio Ambiente Spain, FCC Environment Portugal and FCC Ámbito (Industrial Waste)
- **United Kingdom:** FCC Environment UK
- **Central and Eastern Europe:** FCC Environment CEE
- **United States:** FCC Environmental Services

The destabilising effects of Russia's invasion of Ukraine continued to be felt throughout the year, although the influence on price, fuel and energy indices was less marked than in the previous period. FCC Servicios Medio Ambiente has intensified its efforts in **growth and cost restraint and has achieved an outstanding performance** that has allowed it to surpass the excellent results of the previous year, reaching an **annual turnover of €3,853.2 million (+5.83%)**, a **gross operating profit** of **€646.7 million (+9.04%)** and a **profit before tax** of **€296.9 million (11.83%)**. The backlog keeps at a record €13,284.4 million.

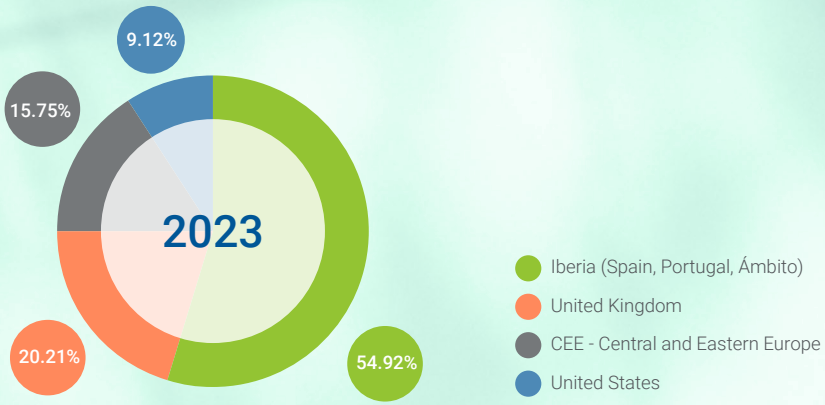
In 2023, FCC Servicios Medio Ambiente managed 24.7 million tonnes of waste and produced 4.9 million tonnes of secondary raw materials (SRM) and refuse-derived fuel (RDF). The company boasts over 800 operational waste management facilities, out of which more than 220 are environmental compounds performing waste management and recycling, including 11 waste-to-energy projects with a capacity of 3.2 million tonnes per year and 380 MW of non-fossil electricity.

As a significant milestone, in October 2023 the FCC Group perfected the agreement for the sale of a minority stake of 24.99% of the capital of its subsidiary FCC Servicios Medio Ambiente Holding, S.A.U. ("FCC Medio Ambiente") to the Canada Pension Plan Investment Board ("CPP Investments"), through its subsidiary CPP Investment Board Europe S.àr.l.

Furthermore, FCC Servicios Medio Ambiente announced in December an agreement to acquire Urbaser's activities in the United Kingdom through its subsidiary FCC Environment UK.

Financially, in 2023 FCC Servicios Medio Ambiente carried out the issuance of a six-year bond in the European market for €600 million, fully subscribed. It also carried out the annual renewal of the Euro Commercial Paper notes programme for up to €400 million.

Turnover 2023. Geographical platforms



In 2023, FCC Servicios Medio Ambiente managed **24.7 million tonnes** of waste and produced **4.9 million tonnes** of secondary raw materials (SRM) and refuse-derived fuel (RDF)

FCC Medio Ambiente Iberia (Spain, Portugal and FCC Ámbito)

FCC Medio Ambiente provides environmental services in almost **3,700 municipalities in Spain and Portugal** (FCC Environment), serving a population of close to **33 million inhabitants** with activities including street cleansing, the collection and transport, treatment and disposal of waste, parks and ground maintenance, maintenance of sewage systems, beach cleaning, and energy efficiency services, among others. During the 2023 financial year, FCC Medio Ambiente Iberia **managed 11.8 million tonnes of solid waste**.

The destabilising effects of Russia's invasion of Ukraine continued to be felt throughout the year. Although the influence on price indices, fuel and energy has been less marked than in the previous year, the upward pressure on wage costs has been significant. **FCC Medio Ambiente Iberia's efforts to develop the business and optimise costs** have enabled it to achieve an excellent performance. In 2023, the portfolio figure reached a record €8,418.1 million, with important renewals such as the **Collection and Cleansing** service for the northern area of the **city of Valencia**, where the company has been present since 1957, and the award of new contracts, such as the refurbishment and operation of the **Las Calandrias Environmental Compound in Jerez de la Frontera (Cádiz, Spain)**. The annual turnover has reached €2.116 billion and the gross operating profit €314.7 million, increases of 5.44% and 2.71% with respect to 2022.

In this environment, the company has continued to develop its **2050 Sustainability Strategy** and has published the **21-22 ninth Sustainability Report**, aligned with the Sustainable Development Goals and under the slogan **"Leading the era of change"**, which highlights the progress made in the 20-22 Action Plan and presents the main challenges of its new 23-26 Sustainability Action Plan. Among the most relevant milestones in the two-year period, the 28.9% increase in the recovery of valuable materials and the 35.3% raise in the use of renewable energies stand out.

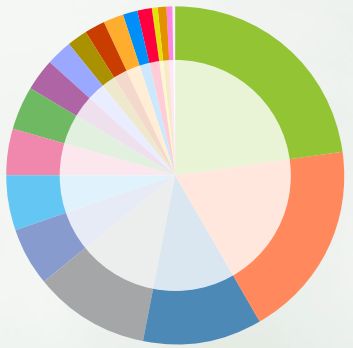
Innovation is a paramount part of this Strategy, an element within FCC Medio Ambiente's DNA and the basis of its competitive differentiation, as evidenced by the significant **investment figure of close to €4 million** in R&D&I in 2023. The company has met the development milestones of the low cab heavy-duty vehicle for urban service applications on a chassis-platform with a 100% plug-in electric engine, whose battery can be recharged by a hydrogen fuel cell, called **H2TRUCK**. It has also opened a new line of research in the development of **connected service equipment**

and autonomous driving with the **PLAUSU project** (AUtonomous PLatform for Urban Services), also recognised with funds from the Centre for the Development of Industrial Technology (CDTI for its acronym in Spanish) and co-financed by the European Regional Development Fund (ERDF). The year also saw the **real commissioning** of numerous **100%-electric collection and cleansing equipment** developed by the company, which continues to research both in the field of **Renewable Energy Vehicles**, as well as in projects that promote the **Circular Economy**, or in **Information and Communication Technologies applied to services**.

In 2024 FCC Medio Ambiente Iberia will continue to focus on tenders for the **development of infrastructures** to meet the demanding **recycling and landfill diversion targets** of the European Union and on the implementation of the **separated collection of the organic fraction**, with support in many cases from the **European Next Generation funds** of the Spanish Recovery, Transformation and Resilience Plan (PRTRE for its acronym in Spanish).

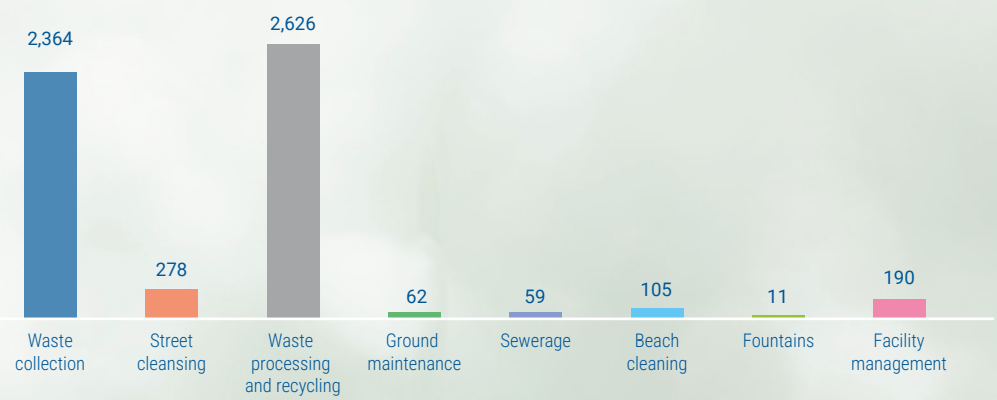
The environmental services market in **Portugal**, on the other hand, continues to evolve favourably, with the award of the **Waste Collection and Street Cleansing contract in Vila Real**.

Turnover 2023. Geographical location



- 23.0% Catalonia
- 18.8% Community of Madrid
- 11.6% Valencian Community
- 10.9% Andalusia
- 5.8% Basque Country
- 5.2% Aragón
- 4.5% Canary Islands
- 4.0% Castilla y León
- 3.1% Galicia
- 2.5% Murcia
- 2.0% Asturias
- 2.0% Navarre
- 1.8% Balearic Islands
- 1.4% Portugal
- 1.4% Extremadura
- 0.8% Castilla-La Mancha
- 0.8% La Rioja
- 0.6% Cantabria

Municipalities served 2023



Inhabitants served 2023

FCC Ámbito

FCC Ámbito is specialised in the comprehensive management of industrial and commercial waste, recovery of by-products and decontamination of soil. Through innovative solutions to make the most of resources contained in the different types of waste, FCC Ámbito has become a strategic partner of industries and businesses that, aligned with the circular economy, develop their activities ensuring environmental, social and economic sustainability. Overall, it boasts a total of 39 treatment centres in Spain and Portugal, which represent 69 process lines that guarantee the performance of the facilities. Internationally, FCC Ámbito has a significant presence in Portugal, where it operates through its subsidiary ECODEAL.

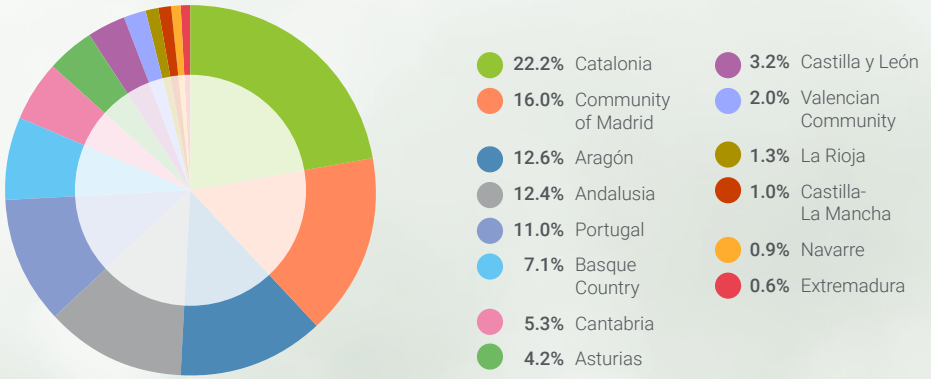
Within the Spanish market, a slight decrease in tonnes of processed waste, mainly from environmental liabilities, has been detected throughout 2023. However, the result of FCC Ámbito's activity is maintained, with a solid recovery of margins from the lows of the economic and pandemic crisis. The legislative changes that are taking place promote greater control of the traceability of waste by regional administrations, a fact which, together with the entry into force of extended producer responsibility, favours management companies that possess end of treatment facilities, as is the case of FCC Ámbito.

Regarding process optimisation and focusing on reducing fossil fuel energy consumption, FCC Ámbito is firmly committed to solar energy with a major investment plan for the 2023-2024 biennium in most of its facilities, thus contributing to achieving the FCC Group's decarbonisation and sustainability objectives.

In Portugal there has also been a certain decrease in the number of tonnes treated, mainly due to the absence of special operations this year, but at the same time there continues to be a recovery in activity with the main recurring customers and a recovery in prices.

This year, the Industrial Waste activity will continue to improve the efficiency of operations and grow the business. The addition of new technologies will enable FCC Ámbito to strengthen its position in the waste recycling and recovery markets, placing itself as a key player in the circular economy.

Turnover 2023. Geographical location



FCC Environment UK

FCC Environment is one of the leading companies in the United Kingdom for comprehensive waste management and recycling and continues to focus on harnessing the full potential of the resources it manages, targeting greater volumes of recycling whilst generating energy from waste that cannot be cost-effectively recycled.

Across the country the company serves around 18 million citizens and it managed 6 million tonnes of waste as a resource in 2023, generating around 115 MWe of green energy from non-recyclable waste.

FCC Environment achieved **revenues of close to €780 million** in 2023, with a **gross operating profit** of **€174.9 million** and **profit before tax** of **€87.9 million**, up 14.62% and 153.81% on 2022, respectively, which constitutes an excellent performance.

As the UK market evolves and government policies change, there is increasing pressure to demonstrate that ESG (Environmental, Social and corporate Governance) criteria are being followed to achieve objectives, and the company has worked hard to evidence that it delivers real social value to the communities it serves. It can now display it to customers by measuring these activities, which include such diverse initiatives as volunteering, planting sapling trees, educating school children, community clean-ups, driving carbon savings through fuel efficiency or alternative fuels in vehicles, or keeping items in use for longer by encouraging a 'repair and reuse' mentality.

Thus, the measured economic figure of social value brought forward by the company as a direct benefit to the municipalities where it operates has grown from £27,625 (about €32,200) in 2021 to £317,352 (about €370,000) in 2023.

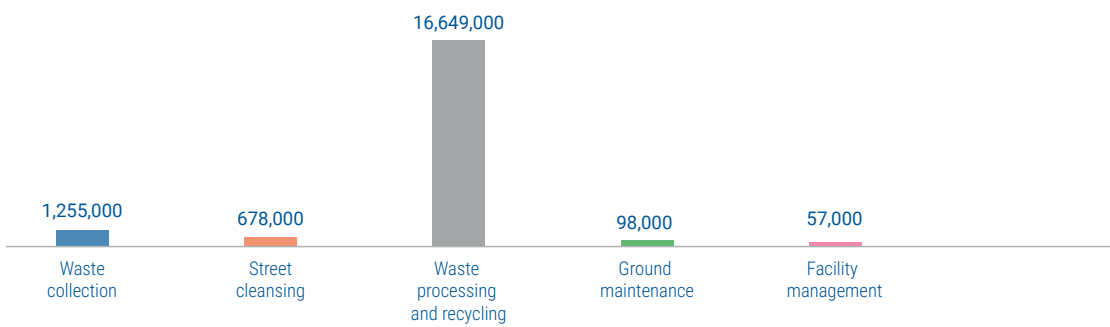
The company has also invested in a wide range of waste management facilities that aim to minimise the amount of waste going to landfill sites by processing the material to ensure it reaches its full potential as a valuable resource. The state-of-the-art Material Recovery Facility (MRF) in Reading, Berkshire, was the first in the UK to install a self-teaching, AI-powered robotic waste picking system, and the Midlothian waste-to-energy plant in Scotland will soon be contributing to heat 3,000 homes, education and retail properties in the area.

In 2023 FCC Environment published its own plan to achieve Net Zero Emissions and deliver environmental excellence in everything it does, with a consistent focus on social value, pushing for the repair and reuse of items that still have a useful life, increasing recycling aligned with Government policy, greener fuels and vehicles and reclaiming land for economic use, as well as enhancing biodiversity in all its activities.

The UK recycling market will undergo major changes in 2024, as producers of household packaging will be required to pay for the full cost of recycling or disposal of waste under the Extended Producer Responsibility system. A Return and Deposit Scheme will roll out and the Simpler Recycling campaign will include flexible plastics in household recycling separate collections, food waste and kerbside glass collections, where there is no such service at present. Medicines Regulatory Group (MRG) regulations will also change to mandate a stricter testing regime and response to change.

As for the company, it will continue to serve its customers and communities with excellence in the proper management of secondary raw materials and the valorisation of its land holdings.

Inhabitants served 2023



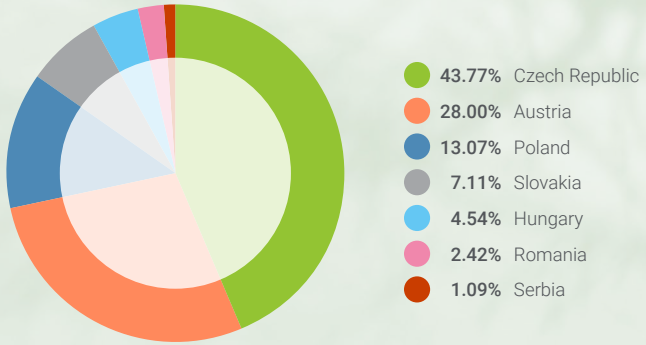
FCC Environment CEE

FCC Environment is one of the leading global groups in Central and Eastern Europe (CEE) in the end-to-end management of municipal solid waste and the recovery of renewable energies, where it serves 6 million inhabitants in 1,571 municipalities. It applies innovative systems and state-of-the-art clean technologies in the provision of quality services, sustainable in the medium and long term and adapted to the needs of customers.

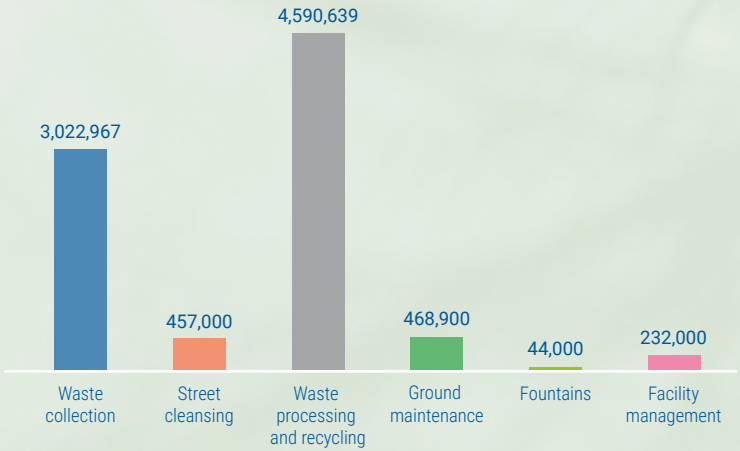
The 2023 financial year, which exceeded €600 million in turnover for the first time (€607 million), was very successful for the company, with a gross operating profit of €109.3 million (18% of turnover and +7.37% over 2022). Overall, the year continued to be marked by high inflation and low or even negative gross domestic product growth.

The main drivers of the favourable Ebitda development were the increase in waste collection and treatment prices and the stabilisation of secondary raw material prices (especially paper), mainly in the Czech Republic; the overall good development of the treatment business in Austria; and a very favourable development in Hungary during the second half of the year after having signed mainly collection and treatment contracts with the new global waste management operator MOHU MOL.

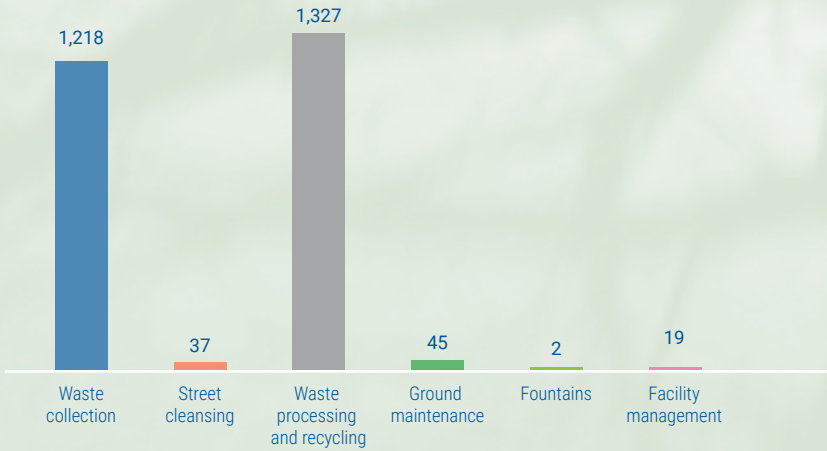
Turnover 2023. Geographical location



Inhabitants served 2023



Municipalities served 2023



FCC Environmental Services USA

FCC Environmental Services is one of the top 15 comprehensive solid waste management and recycling companies in the United States. It serves over 10.5 million Americans in the states of California, Texas, Florida, Nebraska and Iowa and in 2023 it managed 2.13 million tonnes of waste.

Just a few years after the start of the activity in the United States, the market continues to offer important growth opportunities in the field of municipal solid waste management, both in household and commercial collection as well as in recycling and treatment activities.

Once again, business in 2023 has been exceptional, with the award and renewal of several long-term contracts in some of the main municipalities in Florida, such as Polk and St. Johns counties. FCC has also successfully completed the start-up of the Palm Coast service awarded in 2022.

Total revenues in 2023 amounted to €351.6 million, and the gross operating result reached €47.9 million, respectively 42.2% and 37.24% more than in the previous year and, with a backlog of €2.108 billion, a very significant level of growth is also expected for 2024. For the new financial year, the company's strategy is to consolidate the commercial business and continue with the vertical integration of its activities, with the incorporation of waste collection and treatment contracts or the potential acquisition of businesses that fit within the company's long-term strategy.

FCC Environmental Services kept consolidating its commercial business with the integration of the recently acquired Houston Waste Solutions company in the Houston metropolitan area, which will position FCC as one of the largest commercial companies in the area.

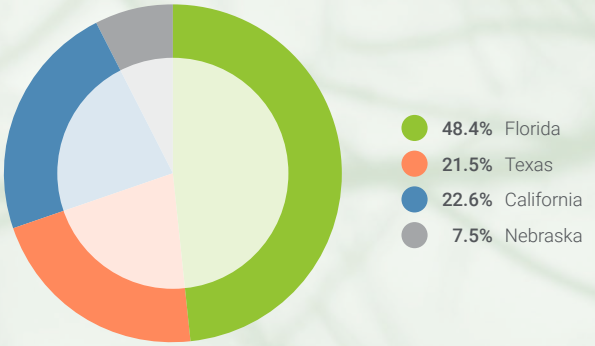
The commercial division boasts a total of nine locations across three states, Texas (Houston and Dallas), Florida (West Palm Beach, Daytona Beach, Port Saint Lucie, Tampa, Lakeland and Orlando) and Nebraska (Omaha). The division currently serves industrial customers such as Exxon Mobil, Amazon, Dr Pepper, Greater Omaha Meat Packing and major universities.

The commercial business growth strategy is three-pronged. First, to sell front-loading and roll-off services to small, medium and large companies. Second, to expand the current customer portfolio and market all additional services FCC can offer. Third, to sell profitable business by harnessing annual and off-cycle price increases.

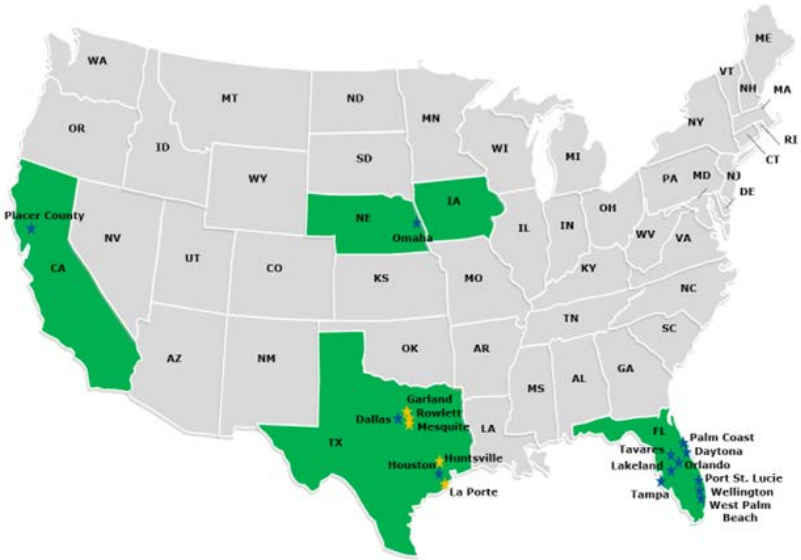
In 2023 the commercial business line exceeded budgeted revenues and profitability by 54% and 56% respectively. Year-on-year revenue growth reached €24 million with the addition of 3,600 new commercial customers of which 60% are retail, 30% industrial and 10% miscellaneous.

Inhabitants served 2023

Turnover 2023. Geographical location



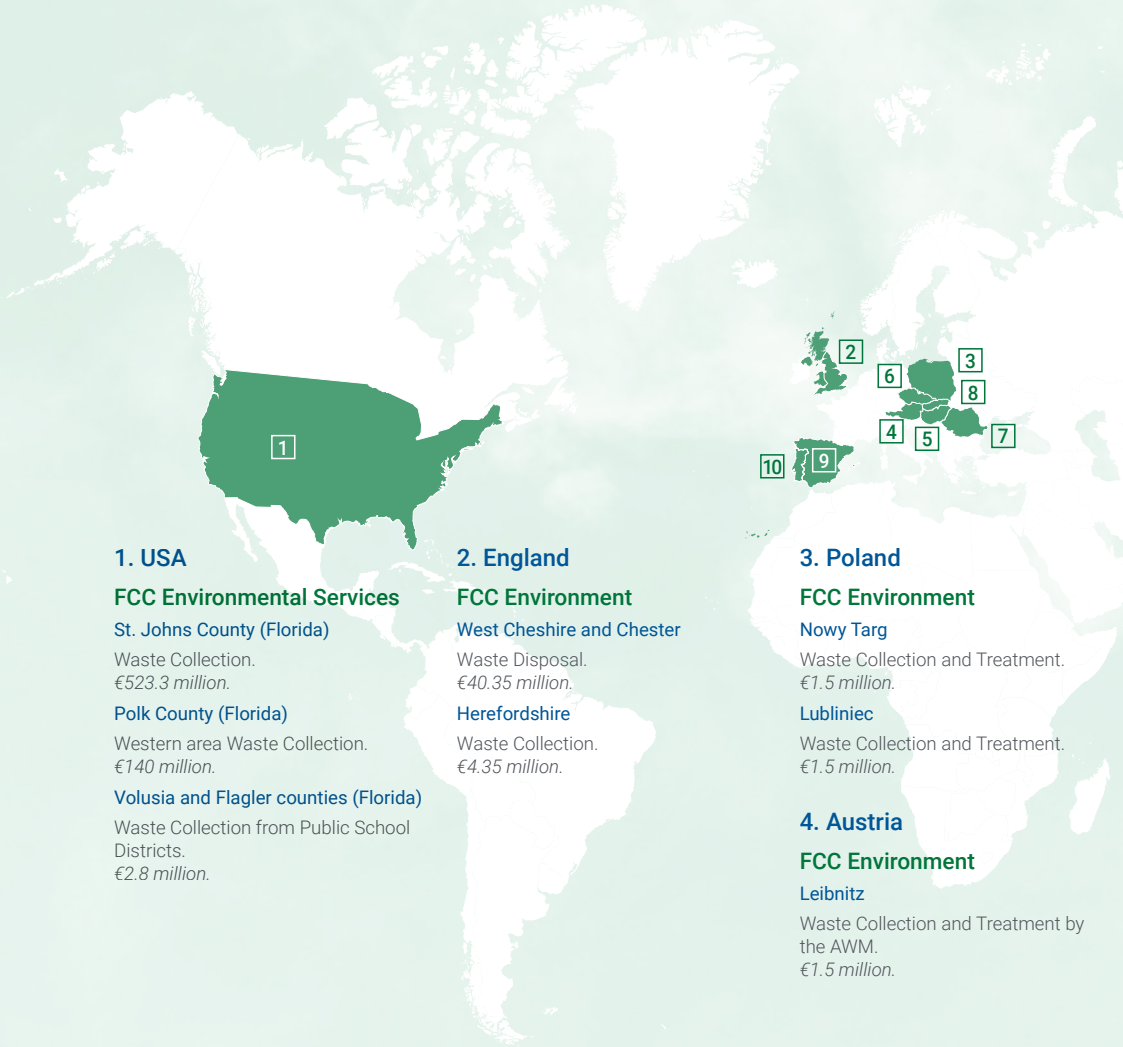
Presence of FCC Environmental Services in the USA



FCC Environmental Services Activity in the USA in 2023

- Award of the contract for the collection of municipal solid waste for St. Johns County for the next 7+5+5 years (Florida).
- Renewal of the contract for the collection of municipal solid waste for the western part of Polk County for the next 5+1+1+1 years (Florida).
- Start-up of the solid urban waste collection contract for the city of Palm Coast (Florida).
- Award of the contract for the waste collection of the urban public school districts of Volusia and Flagler counties for the next 3 years (Florida).
- Renovation work begins on the Placer County Environmental Compound in California.
- Renewal of the city of Huntsville's recyclables contract for next year (Texas).
- Renewal of the city of Garland's recyclables contract for the next 2 years (Texas).
- Integration of Houston Waste Solutions (Texas).

2. Activity in the Environment Area



1. USA

FCC Environmental Services

St. Johns County (Florida)

Waste Collection.
€523.3 million.

Polk County (Florida)

Western area Waste Collection.
€140 million.

Volusia and Flagler counties (Florida)

Waste Collection from Public School Districts.
€2.8 million.

2. England

FCC Environment

West Cheshire and Chester

Waste Disposal.
€40.35 million.

Herefordshire

Waste Collection.
€4.35 million.

3. Poland

FCC Environment

Nowy Targ

Waste Collection and Treatment.
€1.5 million.

Lubliniec

Waste Collection and Treatment.
€1.5 million.

4. Austria

FCC Environment

Leibnitz

Waste Collection and Treatment by the AWM.
€1.5 million.

5. Hungary

FCC Environment

Miscellaneous Waste Management for MOHU MOL Waste Management Ltd.

6. Czech Republic

FCC Environment

Nošovice

Comprehensive Waste and Recycling Management for Hyundai Motor Manufacturing.
€10.8 million.

Vysoké Mýto

Comprehensive Waste and Recycling Management at three IVECO plants.
€6 million.

Ostrava-Kunčice

Management of a Recycling Centre.

7. Romania

FCC Environment

Braila County

Operation of Integrated Waste Management System Facilities (zones 2 and 3).
€8.54 million.

8. Slovakia

FCC Environment

Hlohovec

Collection, Transport, Disposal of Waste and two Household Recycling Centres.
€1.8 million.

9. Spain

FCC Medio Ambiente

Valencia

Lot 2 Waste Collection and Street Cleansing (northern area of the city).
€525.89 million.

Jerez de la Frontera (Cádiz)

Refurbishment and Operation of the Las Calandrias Environmental Compound.
€317 million.

Torrent (Valencia)

Waste Collection and Street Cleansing.
€101 million.

San Sebastián (Gipuzkoa)

Waste Collection.
€67.3 million.

Bilbao (Biscay)

Facility Management for the City Hall.
€53.4 million.

Sant Adrià de Besòs (Barcelona)

Operation of Ecoparc 3.
€28.3 million.

Lepe (Huelva)

Waste Collection and Street Cleansing.
€27.06 million.

Santanyí (Mallorca)

Waste Collection.
€20.91 million.

Barcelona

Cleaning of graffiti and Removal of other elements from the public thoroughfare.
€14.57 million.

Badajoz

West Lot 2 Waste Collection for the Environmental Municipalities Association of the Regional Council.
€13.59 million.

San Miguel de Abona (Tenerife)

Waste Collection.
€13.17 million.

Alcudia (Mallorca)

Lot 1 Waste Collection.
€12.83 million.

Ripollès (Girona)

Waste Collection.
€12.5 million.

FCC Ámbito

Basque Country

Management of Environmental Incidents and Emergencies and their Waste for the Basque Government.

La Muñoza (Madrid)

Waste, Household Recycling Centres and Treatment Plants Comprehensive Management for IBERIA.

10. Portugal

FCC Environment

Vila Real

Waste Collection and Street Cleansing.
€18.22 million.

3. Highlights Environment 2023

January

- FCC Medio Ambiente continues to provide municipal services for the city of Manresa (Barcelona, Spain).
- FCC Equal Comunidad Valenciana Special Employment Centre starts up new street cleansing service in the town of Massamagrell (Valencia, Spain).
- EnergyLOOP, company promoted by FCC Ámbito and Iberdrola, will build its innovative wind turbine blade recycling plant in the municipality of Cortes (Navarre, Spain).
- FCC Environment opens a new recycling centre for sorting plastic and paper waste in Ostrava (Czech Republic).

February

- FCC Medio Ambiente sends a shipment of basic necessities to Ukraine with the collaboration of 'És Per Tu'.
- FCC Ámbito launches the PV4INK project for the recycling of photovoltaic panels (Spain).

March

FCC Environment starts up the Integrated Waste Management System in Brăila County, (Romania).

April

- FCC Environmental Services breaks ground at the Placer County Environmental Compound in California (USA).

May

- FCC Medio Ambiente renews its accession agreement to the Spanish Business and Biodiversity Initiative (Spain).
- FCC Medio Ambiente organises Solidarity with Ukraine events in Madrid and Barcelona with the participation of the 'És Per Tu' non-profit association (Spain).
- FCC Environment becomes a double winner at the Letsrecycle Awards for Excellence 2023 in Recycling and Waste Management with the award for Household Recycling Centre of the Year and for Contributing to Achieving Zero Emissions (Buckinghamshire, UK).

June

- FCC Medio Ambiente makes a public commitment to the Tent organisation at the European Business Summit to hire 300 refugees.
- FCC Ámbito becomes the second company in Spain to obtain the WEEELABEX certification for its WEEE management facility.

July

- FCC Medio Ambiente and FCC Ámbito develop solar energy infrastructures at their recycling plants (Spain).
- The Millerhill Recycling and Recovery Centre operated by FCC Environment will supply heat to the first community heating network in Midlothian (Scotland).
- FCC Environmental Services renews the contract for waste collection in the western area of Polk County (Florida, USA).

August

- FCC Medio Ambiente renews its commitment to the collection, cleansing and ground maintenance services of the city of Valencia (Spain).
- FCC Medio Ambiente awarded new waste collection contract in Ripollès (Girona, Spain).
- FCC Medio Ambiente renews waste collection and street cleansing contract for the city of Torrent (Valencia, Spain).

September

PLAY

- FCC Servicios Medio Ambiente updates its Green Financing Framework incorporating taxonomic criteria (Spain).
- FCC Medio Ambiente grows in the Barcelona Metropolitan Area with the contract for the operation of the Ecoparc 3 (Spain).

October

Completion of the agreement to sell 24.99% of the capital of FCC Servicios Medio Ambiente Holding, S.A.U. to CPP Investments.

- FCC Medio Ambiente awarded the contract for the refurbishment and operation of the Las Calandrias Environmental Compound (Cádiz, Spain).
- FCC Medio Ambiente delivers its AVANZA Awards to four innovative, committed and sustainable projects (Spain).
- FCC Medio Ambiente to continue providing facility management services for Bilbao City Council (Biscay, Spain).
- FCC Medio Ambiente renews the 2022 'Calculate-Reduce-Offset' seal awarded by the Spanish Office for Climate Change (Spain).

November

- FCC Medio Ambiente obtains European funds for the development of the PLAUSU project: Autonomous Platform for Urban Services (Spain).
- FCC Medio Ambiente awarded the waste collection contract for the city of San Sebastián (Gipuzkoa, Spain).
- FCC Medio Ambiente highlights its achievements and efforts in social and environmental sustainability and innovation at the 2023 Smart City Expo World Congress (Barcelona, Spain).
- FCC Medio Ambiente launches the LIFE ZEROLANDFILLING project to reduce the flow of waste to landfill (Spain).
- FCC Ámbito obtains the 2022 'Calculate-Offset' seal awarded by the Spanish Office for Climate Change (Spain).

December

- FCC Servicios Medio Ambiente signs an agreement for the acquisition of Urbaser's UK affiliate.
- FCC Medio Ambiente Iberia publishes its ninth biennial Sustainability Report: 'Aligned with the SDGs.'
- FCC Ámbito completes the environmental authorisation process for solar panel recycling in its Cadrete facility (Zaragoza, Spain).
- FCC Environment awarded the prestigious Sword of Honour Award by the British Safety Council (UK).
- FCC Environment begins construction works on new Boston solar park (Lincolnshire, UK).
- FCC Environmental Services is awarded the waste collection service in St. Johns County (Florida, USA).

4. Other highlights

CPP Investments completes the acquisition of 24.99% of FCC Servicios Medio Ambiente Holding, S.A.U.

As a significant milestone, in October 2023 the FCC Group perfected the agreement for the sale of a minority stake of 24.99% of the share capital of its subsidiary FCC Servicios Medio Ambiente Holding, S.A.U. ("FCC Medio Ambiente") to the Canada Pension Plan Investment Board ("CPP Investments"), through its subsidiary CPP Investment Board Europe S.àr.l.

FCC Servicios Medio Ambiente reaches agreement for the purchase of Urbaser's affiliate in the UK

FCC Servicios Medio Ambiente has agreed to buy the business of Urbaser's affiliate in the United Kingdom. The estimated enterprise value of the transaction (including debt and equity) is £398 million (around €464 million). The deal is expected to be completed in the second quarter of 2024, subject to the fulfilment of certain conditions customary in this type of transactions.

Urbaser entered the UK market in 1998 and its businesses and operations include municipal waste collection, recycling, treatment and street cleansing activities and it boasts household recycling, composting, materials recovery, energy recovery and disposal centres. The business serves over 12 million citizens, has more than 1,700 employees and in 2022 it managed over 1.5 million tonnes of waste. Urbaser's activities in the UK account for around 5% of Urbaser total revenues.

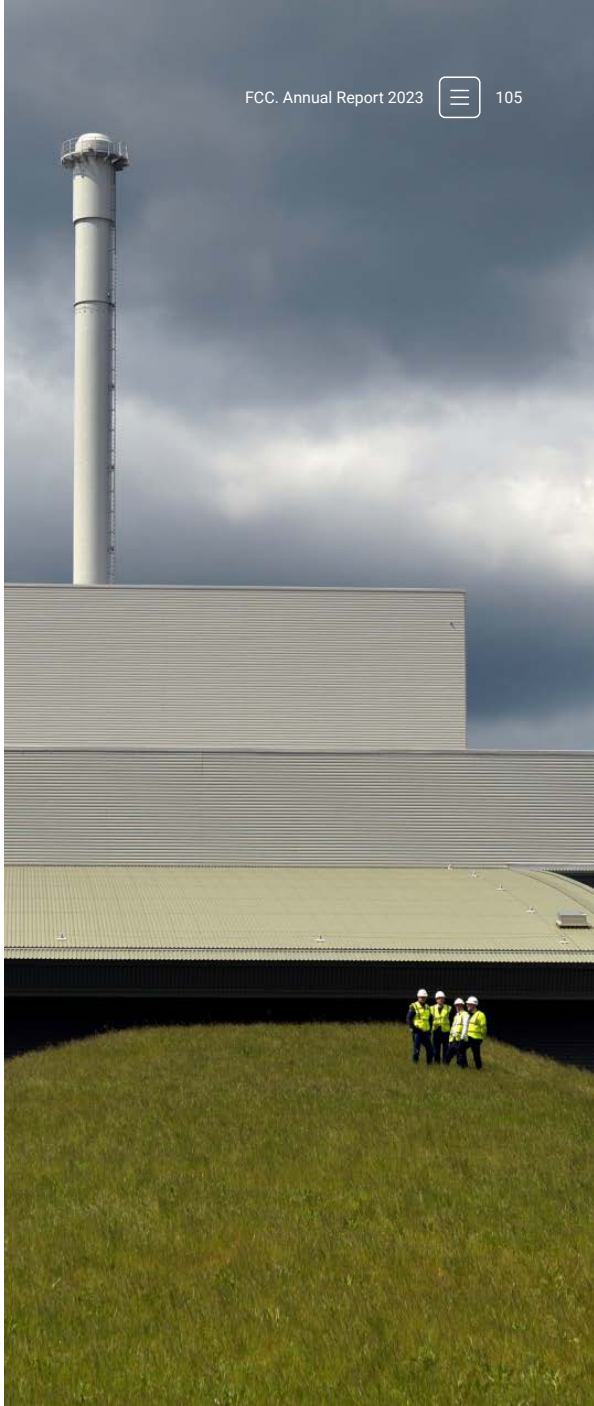
Santander Corporate & Investment Bank acts as financial advisor to FCC Servicios Medio Ambiente in the transaction and Linklaters is acting as legal advisor.

FCC Servicios Medio Ambiente has been present in the UK market since 1989 through its affiliate FCC Environment UK and is one of the top five waste management local operators. The acquisition of Urbaser's UK business will enable it to expand its product and service offering and enhance the value proposal for its customers.

FCC Servicios Medio Ambiente updates its Green Financing Framework incorporating taxonomic criteria

This new Green Financing Framework is a reflection of FCC Servicios Medio Ambiente's ongoing commitment to sustainability, which began in 2019 with the previous framework and was boosted in 2021 with the launch of its 2050 Sustainability Strategy.

The Framework follows the Green Bond and Loan Principles set out by the International Capital Market Association (ICMA) and the Loan Market Association (LMA), as it encompasses short and long-term bond and loan financing products. As a novelty, in updating the framework, a reference to the EU Taxonomy has been included in order to establish a link between the projects to be funded through this new version of the Framework and the sustainable activities defined in EU Taxonomy. This innovative character allows the company, backbone of the FCC Group's environmental activities, to highlight its ambition to align the use of funds with a positive environmental impact with climate mitigation and adaptation objectives of the EU Taxonomy Regulation. In this regard it should be noted that, according to the data reported for the 2022 financial year, approximately 83% of FCC Servicios Medio Ambiente's eligible activity is aligned with the objectives of EU Taxonomy. All Green Projects incorporated in the Framework provide clear environmental benefits and promote the transition to low-carbon technologies.



Iberia. FCC Medio Ambiente Spain

FCC Medio Ambiente reaffirms its commitment to Valencia city services

Valencia City Council has once again trusted FCC Medio Ambiente with the street cleansing and urban waste collection and transport contract for lot 2 for €525.89 million over a 15-year period. The company has been present in the city since 1957. The contract boasts a workforce of over 550 people to serve 365,000 inhabitants, collect around 140,000 tonnes per year and cover an area of 2.3 million square metres. The nearly 200 service vehicles and machines will have ECO and Zero Emission environmental labels. The more than 2,000 container islands will have a container for each fraction and the new electric bicompartmentalised vehicles for maintenance tasks will enable the simultaneous selective collection to be reinforced with the minimum environmental impact. 1,600 sensors, locking systems and user identification equipment will be installed, as well as filling buoy sensors. Two mobile household recycling centres will be added.

FCC Medio Ambiente awarded the contract for the modernisation and operation of Las Calandrias Environmental Compound in Jerez de la Frontera (Cádiz)

Jerez de la Frontera City Council awarded FCC Medio Ambiente the contract for the modernisation and operation of Las Calandrias Environmental Compound, which will serve over 450,000 inhabitants of the area. The contract is worth €317 million for the next 20 years, with a possible one-year extension, and the work is expected to be completed in 18 months. The planned investment reaches €40.8 million and aims to provide the facilities with state-of-the-art recycling technology, with maximum flexibility and modularity to meet the European Union's recovery targets. The total capacity of the plant will be 260,000 tonnes per year. It will boast photovoltaic panels, a system to minimise odours, new refining lines, a compost and biostabilised material storehouse and a leachate treatment facility.

FCC Medio Ambiente renews the contract for waste collection and street cleansing in the city of Torrent in Valencia

FCC Medio Ambiente renewed its contract for waste collection and street cleansing in Torrent, where it has been present since 1996. The service, worth €101 million over the next 14 years, will have a staff of nearly 100 people and a fleet of 65 vehicles to serve the city's more than 85,000 inhabitants. All of the service's new equipment has an ECO or Zero Emission environmental label, 80% electric and 20% powered by Compressed Natural Gas (CNG). The entire fleet of containers is being renewed; the collection of the organic fraction is being introduced throughout the municipality as well as door-to-door collection in the old town. Solar panels will also be installed on the roof of the machinery depot. In order to promote social sustainability, women victims of gender violence and people with disabilities will join the workforce.

Iberia. FCC Medio Ambiente Spain

FCC Medio Ambiente to continue providing municipal services for the city of Manresa (Barcelona)

FCC Medio Ambiente will continue to provide waste collection and street cleansing services for the city of Manresa, where it has been present uninterruptedly since 1993. The contract is worth €91.4 million over the next ten years and will serve nearly 80,000 inhabitants. The service boasts a staff of 145 people and a fleet of 54 vehicles. It shows Manresa City Council's commitment to sustainability and a cleaner environment for the city, with significant reductions in CO_2 emissions and noise pollution thanks to the new service machinery, a large proportion of which will be Zero-Emission electric. In addition, solar energy panels will be installed in the service's central depot.

FCC Medio Ambiente with Ukraine

On the occasion of the first anniversary of the invasion of Ukraine, the company launched an internal campaign to raise funds and collect basic necessities that culminated in the transport by road of a shipment to the Polish-Ukrainian border, from where it was distributed to families affected by the conflict. This campaign and shipment was made possible thanks to the collaboration of the "És Per Tu" non-profit organisation, different branches and people from FCC Medio Ambiente. Following the reception of the shipment, the company held two "Solidarity Days of Commitment to Ukraine" at its headquarters in Madrid and Barcelona to raise awareness of the situation of the Ukrainian refugees, thank the staff for their solidarity and continue to demonstrate FCC Medio Ambiente's social vocation.

FCC Medio Ambiente renews its commitment to the city of San Sebastián (Gipuzkoa)

San Sebastián City Council awarded the contract for waste collection to the RSU Donostia joint venture, led by FCC Medio Ambiente, for €67.3 million. The company has been providing the service uninterruptedly since 1990. The contract, which serves over 187,000 residents, includes 33 newly acquired sustainable vehicles, 40% fully electric, which will drastically reduce noise, pollutant and CO_2 emissions, and will incorporate several units of the multi-award-winning ie-Urban truck on the industrial chassis-platform for electric mobility for urban services developed by FCC Medio Ambiente. The service has a staff of 70 people and foresees the collection of more than 53,000 tonnes of waste annually. The aim of this renewal is to reach 65% of recycled waste by 2035 and to achieve 57.42% of selective collection.

Iberia. FCC Medio Ambiente Spain

FCC Medio Ambiente to continue providing facility management services for Bilbao City Council (Biscay)

Bilbao City Council has once again awarded to a joint venture led by FCC Medio Ambiente the facility management service contract for the City Hall and other dependent entities that the company has been providing since 1993. The contract amounts to €53.4 million for the next four years with a possible extension of one more year and will cover over 350,000 square metres spread over 170 centres and the city's only funicular railway. The service will boast a staff of around 400 people and will incorporate newly acquired Zero-Emission environmental-labelled machinery to join the existing electric fleet. It will also install small household waste recycling centres for non-containerised selective collection (toner, batteries, etc.) on the public thoroughfare.

FCC Medio Ambiente grows in the Barcelona Metropolitan Area with the contract to operate Ecoparc 3

The Barcelona Metropolitan Area has awarded FCC Medio Ambiente, in a joint venture with another company in the sector, the new contract to operate Ecoparc 3, located in the town of Sant Adrià de Besòs. The contract is worth €28.3 million for the next three years, with two possible one-year extensions. The company is already present in two of the four compounds that treat waste from the city of Barcelona and its metropolitan area. It is foreseen to manage 198,000 tonnes of residual waste and 60,000 tonnes of organic waste per year. During the execution of the contract, a tender is planned to refurbish the facility, so that the biological system will change from treating the organic matter contained in the residual fraction to processing the organic fraction collected selectively.

FCC Medio Ambiente awarded new waste collection contract in Ripollès (Girona)

Ripollès County Council awarded FCC Medio Ambiente the new waste collection contract for over €12.5 million for the next six years to serve the 25,200 inhabitants of the 19 city councils that make up the county. To collect the 11,500 tonnes of waste per year, the service boasts 15 vehicles and 21 people. The service will be monitored by GPS systems in all vehicles and radio frequency identification (RFID) tags on containers. Environmental objectives are set, namely to improve selective collection by 2% per year to reach an increase of 12%, which will mean a recycling rate of 50.88% by the end of the contract. The service also includes the management of a waste transfer plant given the remoteness of the final recycling facilities.

Iberia. FCC Ámbito

The EnergyLOOP company receives the backing of Next Generation Funds and signs an agreement with SURUS to advance the energy transition and boost circular economy

EnergyLOOP, company owned by FCC Ámbito and Iberdrola for the recycling of wind farm components, has signed a collaboration agreement with SURUS, a leading Spanish company in adding value through the implementation of sustainability and circular economy projects, with the aim of providing a joint solution for the recycling of wind turbine blades in wind farm repowering projects. Under the agreement, SURUS will provide a flow of elements from those projects where it implements its circular dismantling solution and EnergyLOOP will recycle those blades that have not been marketed for reuse.

EnergyLOOP's activity will begin with the start of operation of its innovative plant located in the municipality of Cortes in Navarre (Spain) in 2024, which will involve an investment of close to €10 million. It will be the first industrial-scale plant in Europe and will place Spain at the technological forefront of this sector. The company expects to create around 100 direct and indirect jobs over the decade. To promote the construction of this facility, EnergyLOOP submitted the project: ADVANCED MULTIPURPOSE RECYCLING OF AEROGENERATOR BLADES (RAMPA for its acronym in Spanish) to the "Circular Repowering" programme within the framework of the Recovery, Transformation and Resilience Plan financed by the European Union - Next Generation EU, from which it received a grant of close to €2.9 million.

FCC Ámbito starts up recycling photovoltaic panels activity

Following the successful completion of start-up tests, the Aragonese Institute for Environmental Management granted final authorisation to FCC Ámbito's photovoltaic panel recycling plant. Located in Cadrete, Zaragoza (Spain), it offers the sector a solution for recycling its panels. The plant is integrated into FCC Ámbito's glass recycling activity, thus achieving direct recovery of the glass, the main material of the panels. The treatment technology is exclusively mechanical and environmentally more sustainable as it does not generate any waste flow other than the materials that make up the panels. The facility will give a new life to 200,000 panels per year and has required an investment of €1 million.

Expansion of Industrial Waste activity in Portugal

Industrial waste business is expanding in Portugal with the acquisition of the company Resicorreia, which has two operational waste treatment facilities, one in in the north, in Sertã, and the other in Loures, near Lisbon. A site adjacent to Ecodeal's location has also been acquired in pursuit of a future expansion.

Iberia. FCC Ámbito

FCC Ámbito and Iberdrola extend their collaboration in circular economy in Spain to develop battery recycling solutions together with Glencore

FCC Ámbito and Iberdrola will collaborate with Glencore to provide industrial-scale lithium-ion battery recycling solutions in the Iberian Peninsula through the development of a specialised facility. This alliance will seek to establish the strategic arrangements necessary for the effective recovery of lithium batteries, extending the positive impact of the initiative to other actors along the entire value chain. It will also contribute to the research and development necessary for the effective circularity of these materials. In this way, FCC Ámbito and Iberdrola extend the collaboration they began with EnergyLOOP to address the recycling of wind turbine blades and reinforce their circular economy strategies, with a production and consumption model that is a key lever for the energy transition.

Renewal of the contract for Environmental Emergencies of the Basque Country region

The Basque Government has awarded FCC Ámbito one of two lots of the contract for the management of environmental incidents/emergencies and waste generated, consisting of dealing with incidents likely to have an environmental impact in the region, as well as the collection of waste generated in emergency situations. With the renewal of this contract, FCC Ámbito will continue to provide technical assistance to the Basque Government's department of Environment and Territorial Policy for another two years, with the possibility of a further two-year extension.

Renewal of Iberia's waste management contract

After four years of service to Iberia España, the Western branch of FCC Ámbito has renewed the contract for the comprehensive management of waste generated by this company at its La Muñoza facilities in Madrid (Spain) for a further two years. The awarded services include the management and maintenance of the waste recycling centre, the treatment plant of the physicochemical treatment line and the WWTP facility, as well as the collection and management of hazardous and non-hazardous waste.

Iberia. FCC Environment Portugal

Renewal of the urban waste collection and street cleansing service in the municipality of Vila Real

FCC Environment has renewed the Vila Real waste collection and street cleansing contract for a period of ten years for a value of over €18.22 million. It serves 49,574 inhabitants and includes the collection of organic and residual waste, as well as the maintenance and washing of containers.

United Kingdom. FCC Environment UK

Construction work begins on Boston's new solar park

FCC Environment commenced construction of a new landfill solar park in Boston, Lincolnshire, which will generate around 10,500 MWh, enough to power 2,900 homes. The project is located on a site of over 12 hectares and is being developed in accordance with the methodology approved by the UK Environment Agency to promote biodiversity. It is planned to introduce a range of new high-value habitats, increase nesting and feeding opportunities for birds, provide shelter and breeding facilities for reptiles and amphibians and relocate existing orchids. To protect the existing landfill cap engineering, a large proportion of the solar foundations will be above ground and will use recycled aggregate. The solar park is scheduled to be operational in June 2024.

FCC Environment to supply heat to Midlothian's first district heating network

The Millerhill Recycling and Energy Recovery Centre (RERC) operated by FCC Environment will supply heat to the first district heating network in the county of Midlothian. The Midlothian Energy Limited joint venture has taken a step forward towards the regeneration and decarbonisation of the area by supplying low carbon heating to newly built homes via an underground pipe network. This year alone, the RERC plans to feed 100,000 MWh into the network, supplying 3,000 homes, schools and businesses and avoiding the emission of over 2,500 tonnes of CO_2. This initial heat supply will be the catalyst for a wider regional network stretching into South Edinburgh and East Lothian.

United Kingdom. FCC Environment UK

Completion of the Suffolk Recycling Centre redevelopment

The new and improved Foxhall household recycling centre in Ipswich opened to the public in December following the completion of redevelopment works ahead of schedule. The new facility increases capacity for vehicles, improves access from Foxhall Road and reduces queuing on the highway. It also has a new raised level construction which gives better access to containers for users without the need for stairs.

Work completed on new solar park in Winterton

FCC Environment's new solar park in Winterton has reached project completion. Developed on a former landfill site, the park generates circa 4,300 MWh of renewable energy each year, enough to power more than 1,300 homes.

FCC Environment double winner at the 2023 Letsrecycle Awards for Excellence in Recycling and Waste Management

FCC Environment won two awards at the 2023 Letsrecycle Awards for Excellence in Recycling and Waste Management. On the one hand, it received the 'Household Recycling Centre of the Year' award for its High Wycombe facility in Buckinghamshire, where public entities, citizens and the company have collaborated to make a real and measurable difference to the volume of recycling. In addition, it was awarded in the 'Contribution to Achieving Zero Emissions' category for 'Reuse and Repair'. Committed to achieving Net Zero targets and reducing its carbon footprint, FCC Environment believes that repair and reuse are fundamental to avoiding emissions because they extend the lifespan of items, thus reducing the manufacture of new products.

Central and Eastern Europe. FCC Environment CEE

Contract with MOHU MOL Waste Management Ltd. (Hungary)

FCC Environment was awarded the waste management contract by MOHU MOL Waste Management Ltd. (owned by the Hungarian oil company MOL). FCC provides waste collection and management services for a total value of €5.2 million and acts as a partner in the landfill, composting and mixed packaging waste collection service for an order book value of €10.4 million per year. The contract began on 1st July 2023.

Renewal of the contract with Hyundai Motor Manufacturing Czech s.r.o. in Czech Republic

FCC Environment has once again renewed the contract for the comprehensive complex waste management of Hyundai Motor Manufacturing Czech, which it has been providing since 2008 and which represents a total order book value of €10.8 million. The service, which began on 1st November for the next three years, covers the collection, transport and subsequent treatment of all waste produced, including secondary raw materials.

FCC Environment to continue providing services for Iveco Czech Republic, a.s., Vysoké Mýto (Czech Republic)

FCC Environment will provide diverse outsourcing services (emptying of containers at the location where the waste is generated, waste management, supply of equipment and employees) for Iveco Czech Republic at three different plants in Vysoké Mýto, with whom it has been working since 1998.

The prior three-year contract, which included the collection, disposal and further processing of secondary raw materials, expired on 31st December 2022 and has been extended for three more years.

Central and Eastern Europe. FCC Environment CEE

Integrated Waste Management System in Braila in operation (Romania)

FCC Environment started up the contract awarded in 2021 to operate two of the three areas of the Braila County Integrated Waste Management System for a period of seven years and an order book value of €8.54 million. The company has been appointed to operate the INSURATEI Transfer Station with an annual capacity of 5,000 tonnes serving 46,000 inhabitants; and the management and operation of the IANCA Integrated Waste Management Centre, which consists of a landfill and a waste sorting plant with an annual capacity of 5,000 tonnes. The facilities were built and equipped through a €5 million project co-financed by the European Regional Development Fund. FCC Environment's investments in Romania to ensure the optimisation and conditions necessary for the operation of these facilities amount to over €130,000 until 31st December 2023.

Renewal of the contract of the city of Hlohovec (Slovakia)

FCC Environment renewed its contract with the city of Hlohovec for the collection, transport and disposal of municipal waste, as well as the operation of two household waste recycling centres. The company has been providing services in the city since 2006. The contract is worth €1.8 million and is valid until 31st December 2024.

Renewal of contracts in Poland

FCC Environment has renewed the contract for the collection and treatment of municipal waste from the city of Nowy Targ with 24,000 inhabitants, worth almost €1.5 million and with a duration of 12 months. The company has also signed the renewal of the contract for the collection and treatment of waste from the town of Lubliniec. For this contract, FCC will collect solid urban waste, selective raw materials and organic waste from more than 20,000 inhabitants over the next year. The expected turnover of the service amounts to €1.5 million.

AWV Leibnitz (Austria)

FCC Environment in Austria has been awarded a contract by the Leibnitz Waste Management Association (Abfallwirtschaftsverband AWV) for the next five years to begin on 1st January 2024. It secures 9,000 tonnes of household waste per year for FCC's Halbenrain (Styria) treatment plant and generates an annual revenue of approximately €1 million. The special feature of this contract is that the transport to the treatment plant and the subsequent transfer of processing residues to the incineration plant will be carried out by electric lorry.

United States. FCC Environmental Services

Polk County renews its trust in FCC Servicios Medio Ambiente

Polk County (Florida) has once again awarded FCC Environmental Services the contract for municipal solid waste collection in the western area of the county. The renewal represents an order book value of up to $155 million (about €140 million) for a maximum of five years and three possible one-year extensions. The new service, which serves more than 200,000 people, represents an investment of $20 million (about €18 million) and will incorporate a fleet of 38 state-of-the-art, compressed natural gas (CNG) collection vehicles, as well as the setting up of a CNG refuelling station in its facilities.

Expansion of Municipal Collection services in Florida

The Board of Commissioners of St. Johns County in Florida has awarded FCC Environmental Services the contract for the solid waste collection service, worth a total of up to $575 million (€525.3 million). The initial contract spans 7 years, with the potential for two 5-year extensions, and will begin on 1st August 2024. The service will attend over 300,000 residents and involve a major investment of $42 million (€38.3 million) including the acquisition of a CNG-powered fleet of 62 new collection lorries and 13 ancillary vehicles.

Two new school contracts awarded in Florida

FCC Environmental Services has been awarded two new contracts for waste collection from public school districts in Volusia and Flagler counties for the next three years. The awards represent a portfolio of up to $3 million (nearly €2.8 million) and will serve nearly 110 schools in both counties, a total of nearly 75,000 students. Services under both contracts will be provided from the company's facility in Volusia County.

United States. FCC Environmental Services

Commissioning of the Palm Coast contract (Florida)

FCC Environmental Services started up the municipal solid waste collection service for the city of Palm Coast, located in Flagler County, on 1st June, which was awarded in July 2022. The contract represents a backlog of $175 million (about €163.3 million) for a term of up to ten years. Palm Coast is a city of 90,000 people and since the company rolled out the service, over 1,000 homes have been built and settled in. The company has added 35 trucks to its fleet, 30 of them CNG-powered, operating from the Volusia facility.

Management and operation of the Placer environmental recycling compound continues (California)

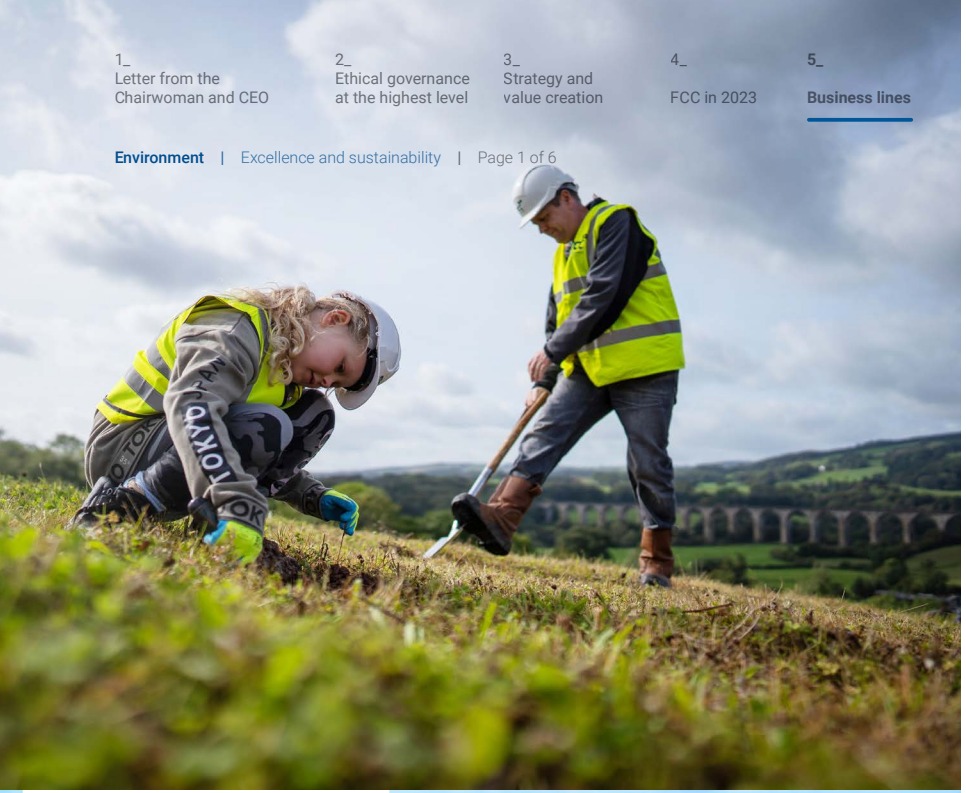
The Municipal Solid Waste Management Authority of Placer County awarded FCC Environmental Services the contract for the construction and operation of the environmental recycling compound for a total of $1.5 billion (about €1.4 billion). During 2023, operations have further developed and the MSW recovery rates established in the contract have been achieved. New equipment has also been installed for the treatment of construction and demolition waste (C&D), capable of processing 60 tonnes per hour of C&D and recovering 60% of the material.

City of Huntsville contract renewal (Texas)

The city of Huntsville has extended the contract with FCC Environmental Services for the management of recyclables for one more year. The overall annual revenue from this contract will amount to $200,000 (about €184,000).

Renewal of the contract of the city of Garland (Texas)

FCC Environmental Services has renewed the city of Garland's contract for the transportation and treatment of recyclable waste and its subsequent marketing for a period of two years. Annual revenues associated with the treatment of recyclable materials in the region reach €1 million (€923,000).



5. Excellence and sustainability

2021-2022 biennial Sustainability Report

FCC Medio Ambiente has presented its **2021-2022 ninth biennial Sustainability Report,** aligned with the SDGs and verified by an independent external entity. Under the slogan 'Leading the era of change,' the report highlights the progress made in the 20-22 Action Plan and presents the main challenges of its new 23-26 Sustainability Action Plan, within the framework of its **2050 Sustainability Strategy**, which will mark the company's development over the next few years. The Strategy revolves around four main lines of action: Environmental, Social, Excellence and Governance, within which the Action Plan includes 17 strategic objectives, 176 commitments and 282 compliance indicators.

Regarding the progress made on the commitments within the 20-22 Action Plan, the report offers a figure of 79.2% of achievements and 9.4% of targets 'under way'. Some of the most relevant milestones include the commitment to the circular economy, with the renewal of accession to the Pact for the Circular Economy and an increase of 28.9% in the valorisation of recoverable materials. In terms of efficiency in the use of resources, there has been 35.3% increase in the consumption of renewable energies (2020-2022) and 25% increase in water consumption from alternative sources. In terms of the fight against climate change, in 2022 the company avoided the emission of 3,333,990 tonnes of CO_2e.

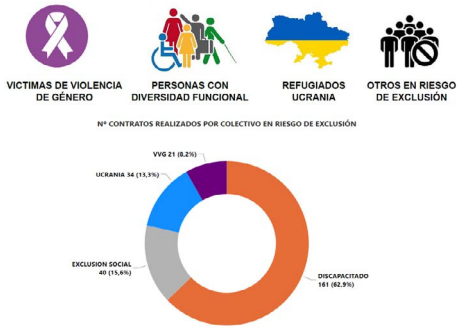
The 23-26 Sustainability Action Plan considers 17 strategic objectives, 176 commitments and 282 compliance indicators

AVANZA Awards

The AVANZA awards were created with the aim of recognising the work and efforts made by the people of the organisation who contribute on a daily basis to improving the company's competitiveness, social integration within the business, quality of processes, respect for the environment and the development and application of innovative solutions or practices. All this within the scope of the organisation's ongoing commitment to sustainable development, the promotion of well-being at work and research, development and innovation. These awards, whose first edition was held in 2017, are given every two years and are meant for all business units within the Environmental Services area.

This year's edition, under the slogan 'Together, we create the future,' 22 initiatives competed in the categories: Social Initiatives, Quality, Environment and Innovation. The following projects received the top awards:

Social Initiatives



Programme for the integration of groups at risk of exclusion into the labour market.

Author: Madrid branch.

Quality

Use of new technology to control 100% of the weighing of litter bins in the San Sebastian-Donostia beach cleaning.

Author: Gipuzkoa – Navarre branch.

Environment

Small dimensions rear-loading bi-compartmentalised compact-collection lorry on a hybrid electric chassis.

Author: Machinery department.

Innovation

Zero Waste and circular economy at the Refrigerator Recycling Plant.

Author: Industrial Waste Eastern branch.

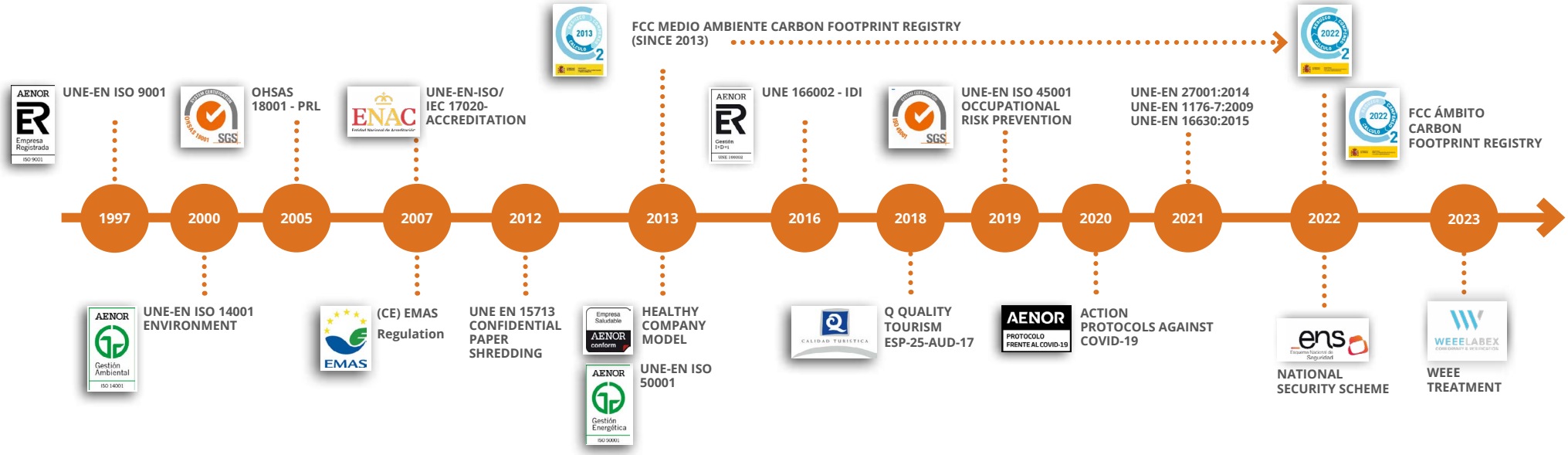
Service excellence

FCC Medio Ambiente's commitment to excellence benefits its entire value chain, from customers, suppliers, employees and, of course, to all citizens living in the communities the company provides service in, mainly public customers.

Both FCC Medio Ambiente and FCC Ámbito have implemented an Integrated Management System based on the requirements by international standards of recognised prestige that ensure a management model based on excellence, which integrates, as its name implies, sections as varied as quality, environment, occupational health and safety (OHS), R&D&I, energy efficiency, healthy organisation, quality in tourism and information security, among others. This system establishes a working methodology that guarantees that processes are carried out with rigour, applying sustainability criteria and in accordance with common procedures.

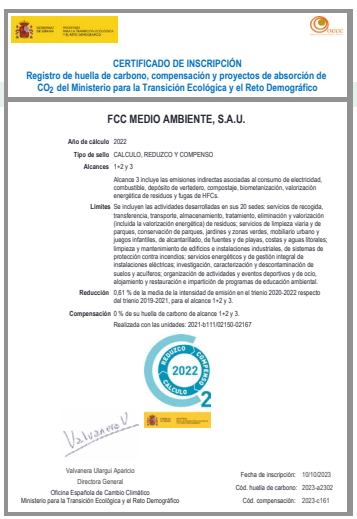
The following graph shows the historical evolution of the certifications and accreditations obtained by FCC Medio Ambiente and FCC Ámbito:

Certifications and accreditations obtained by FCC Medio Ambiente and FCC Ámbito



Sustainability and excellence highlights in 2023

- In 2023, the carbon footprint corresponding to the previous year's data was verified. For the third year in a row, FCC Medio Ambiente obtained once again the "Calculate-Reduce-Offset" seal awarded by the Spanish Office for Climate Change (OECC for its acronym in Spanish), the scope of which includes the calculation, reduction and offsetting of emissions associated with the consumption of electricity, fuel, landfill, composting, biomethanisation, energy recovery of waste and hydrofluorocarbon (HFC) leaks generated by the organisation's activities. The company has thus managed to reduce its average emission intensity by 0.67% in the 2020-2022 three-year period compared to the previous three-year period. To achieve this reduction, FCC Medio Ambiente is working on key aspects in the fight against climate change, such as the sustainability of its vehicle fleet, improvements in waste treatment facilities and the generation of renewable energy.
- In 2022, the company collaborated in a certified reforestation project that will span over the next 40 years in an area of 40 hectares located in the *Monte de Utilidad Pública* No. 60 *"Valle de Iruelas"*, belonging to the *Asocio de Ávila* Municipalities Association and included within the Natural Reserve of the same name. This area, which is home to one of the most important colonies of black vultures in Europe, was burnt down in 2019, making it urgent to restore it in order to halt the erosive processes and re-establish the regulation of the hydrological cycle. This is why 80,000 trees have been planted, including wild pine and birch trees.
- FCC Ámbito successfully completed the process of verifying its carbon footprint and entering the 'Carbon Footprint, CO_2 Offsetting and Absorption Projects Registry' established by the Ministry for Ecological Transition and the Demographic Challenge. For the 2022 financial year, it has obtained the 'Calculate-Offset' seal awarded by the OECC, whose scope includes the calculation and offsetting of emissions associated with the consumption of electricity, fuels, industrial waste landfills, industrial waste treatment and hydrofluorocarbon (HFCs) leaks generated by the activities carried out by the organisation.



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

FCC MEDIO AMBIENTE, S.A.U.

Año de cálculo 2022
Tipo de sello CALCULO, REDUZCO Y COMPENSO
Alcances 1+2 y 3

Alcance 3 incluye las emisiones indirectas asociadas al consumo de electricidad, combustible, depósito de vertedero, compostaje, biometanización, valorización energética de residuos y fugas de HFCs.

Límites Se incluyen las actividades desarrolladas en sus 20 sedes: servicios de recogida, transferencia, transporte, almacenamiento, tratamiento, eliminación y valorización (incluida la valorización energética) de residuos; servicios de limpieza viaria y de parques, conservación de parques, jardines y zonas verdes, mobiliario urbano y juegos infantiles, de alcantarillado, de fuentes y de playas, costas y aguas litorales; limpieza y mantenimiento de edificios e instalaciones industriales, de sistemas de protección contra incendios; servicios energéticos y de gestión integral de instalaciones eléctricas; investigación, caracterización y descontaminación de suelos y acuíferos; organización de actividades y eventos deportivos y de ocio, alojamiento y restauración e impartición de programas de educación ambiental.

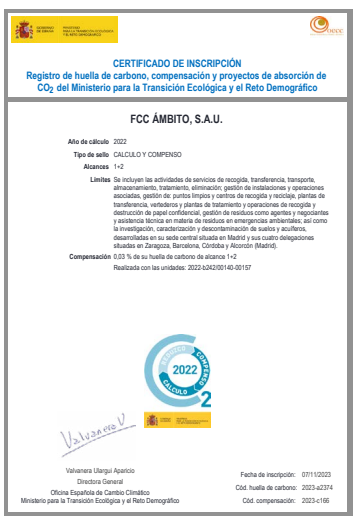
Reducción 0,61 % de la media de la intensidad de emisión en el trienio 2020-2022 respecto del trienio 2019-2021, para el alcance 1+2 y 3.

Compensación 0 % de su huella de carbono de alcance 1+2 y 3.
Realizada con las unidades: 2021-b111/02150-02167

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

Fecha de inscripción: 10/10/2023
Cód. huella de carbono: 2023-a2302
Cód. compensación: 2023-c161

2013-2023 Evolution of FCC Medio Ambiente's Carbon Footprint



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

FCC ÁMBITO, S.A.U.

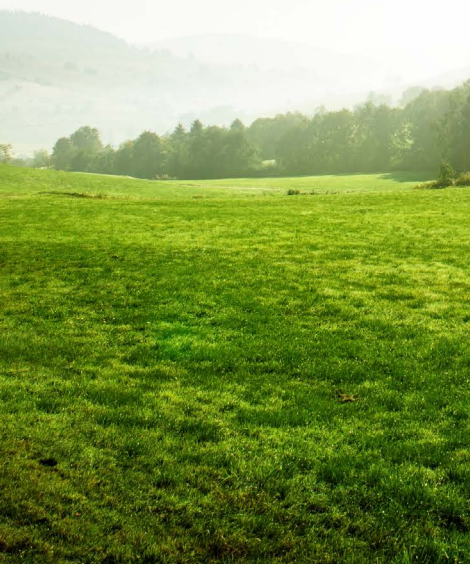
Año de cálculo 2022
Tipo de sello CALCULO Y COMPENSO
Alcances 1+2

Límites Se incluyen las actividades de servicios de recogida, transferencia, transporte, almacenamiento, tratamiento, eliminación, gestión de instalaciones y operaciones asociadas, gestión de puntos limpios y centros de recogida y reciclaje, plantas de transferencia, vertederos y plantas de tratamiento y operaciones de recogida y destrucción de papel confidencial, gestión de residuos como agentes y negociantes y asistencia técnica en materia de residuos en emergencias ambientales; así como la investigación, caracterización y descontaminación de suelos y acuíferos, desarrolladas en su sede central situada en Madrid y sus cuatro delegaciones situadas en Zaragoza, Barcelona, Córdoba y Alcorcón (Madrid).

Compensación 0,03 % de su huella de carbono de alcance 1+2
Realizada con las unidades: 2022-b2420/00140-00157

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

Fecha de inscripción: 07/11/2023
Cód. huella de carbono: 2023-a2374
Cód. compensación: 2023-c166



- In 2023, FCC Ámbito, through its subsidiary InduRaees, obtained the WEEELABEX certification for the treatment of refrigeration equipment in its Waste Electrical and Electronic Equipment (WEEE) management plant located in Osorno (Palencia, Spain). This accreditation recognises best practices in the treatment of this type of waste, and aims to develop and provide quality, service and tools to promote the use of the best WEEE management facilities on the market. FCC Ámbito has thus become the second company in Spain to obtain this certification.

- On the tenth anniversary of its launch in 2013, FCC Medio Ambiente renewed its membership agreement with the Spanish Business and Biodiversity Initiative (IEEB for its acronym in Spanish), a public-private collaboration platform that seeks to involve the business sector in the improvement and maintenance of biodiversity and natural capital, coordinated by the Biodiversity Foundation of the Ministry for Ecological Transition and the Demographic Challenge (MITECO for its acronym in Spanish). The company's sustainability commitments, set out in its 2050 Sustainability Strategy, include the protection of natural capital in the management of its services, understanding cities as 'ecosystems that are home to urban biodiversity'. Being part of the IEEB is a further step towards fulfilling the commitments of the environmental axis of this Strategy in terms of biodiversity.

- FCC Environment received the British Safety Council's prestigious Sword of Honour, which recognises companies that achieve excellence in occupational health and safety and environmental management. This is the third time that the organisation has been recognised, having previously received the award in 2017 and 2020. On this occasion it was given to the company's Green Energy division for the five-star rating received in the audit of the Eastcroft waste-to-energy plant. This has enabled FCC to be one of only 115 organisations worldwide to receive this award.

Other sustainability highlights

- FCC Ámbito received the 'Circular Aragón Seal' for its glass recycling activity, awarded by the Government of Aragon, for its contribution to circularity throughout the value chain, the fulfilment of best practices and the actions for process improvement such as participation in R&D&I projects.

- Over 2023, FCC Medio Ambiente collaborated and participated in the development of three forestry management projects, two in collaboration with the Galician Forestry Association (one through FCC Medio Ambiente and another through FCC Ámbito) and one in collaboration with the Hellín City Council in Albacete (Spain).

- After commissioning two photovoltaic power plants in Linz and Himberg in the past two years, FCC Environment Austria has begun five new projects to increase its renewable energy production. By 2026 the company will thus cover about 25% of its electricity consumption by photovoltaic energy. These measures are aligned with its goal of becoming self-sufficient in terms of electric power by 2035.

- FCC Environment installed solar panels on the roof of the Ostrava-Hrabová office building in the Czech Republic. The power of the plant is 15 kWp and it will produce 16,000 kWh per year, covering approximately 9% of the building's total consumption.

- FCC Environment, which carries out waste and recycling collections as well as ground maintenance on behalf of Harborough District Council in the UK, has been supporting the community to plant nearly 5,000 hedge whips which have been supplied free of charge by the Leicestershire County Council and The Conservation Volunteers, with a further 2,500 whips to be planted in 2024.

- The Las Tablas building, headquarters of the FCC Group in Madrid (Spain), received in 2023 the 'Zero Waste' certification, which means that over 90% of all waste generated in the building is being recovered. The AENOR Zero Waste specification has been implemented in the building since 2021 with the support of FCC Medio Ambiente.

6. Innovation and technology

Throughout 2023, FCC Servicios Medio Ambiente kept on developing innovation projects and, for yet another year, upheld the certification of its R&D&I Management System, in accordance with the UNE 166002 standard.

R&D&I projects in development or launching phase reached an investment of close to €4 million throughout the year. They are classified into four areas of knowledge:

- **Vehicles, mobile machinery and facilities**
- **Management and recycling of waste – Circular Economy**
- **Information and Communication Technologies**
- **Sustainable development**

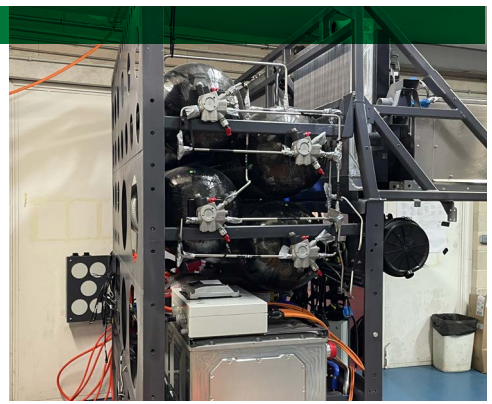
Vehicles, mobile machinery and facilities

Projects associated to vehicles and mobile machinery

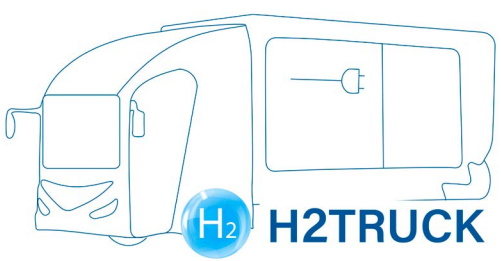
H2TRUCK Project

Since the end of 2021, FCC Medio Ambiente has been developing a low cab heavy-duty vehicle for urban service applications on a chassis with a 100% plug-in electric engine, whose battery can be recharged by a hydrogen fuel cell, called H2TRUCK, as part of the Programme for Sustainable Automotive Technology (PTAS for its acronym in Spanish) within the framework of the funds granted by the Centre for the Development of Industrial Technology (CDTI for its acronym in Spanish) and supported by the Spanish Ministry of Science, Innovation and Universities (MICIN for its acronym in Spanish) as part of the Recovery, Transformation and Resilience Plan financed by the European Union.

Hydrogen Truck Tower of components.



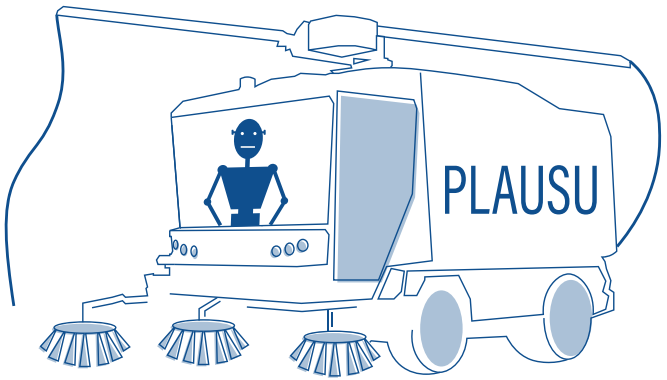
The company thus differentiates itself in the provision of urban services through excellence in the environmental, technical and economic features of its offer. Although the initial prototype is a large-tonnage solid waste compactor collector, the developing chassis will be versatile and can be adapted to different types of bodywork to provide a variety of urban services in the future. In addition, a mobile hydrogen compression and refuelling station has been developed from scratch so that the prototype vehicle can be quickly and safely refuelled and tested at any location.



Funded by the European Union NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

Building on the achievements established in 2022, especially the characterisation of the fuel cell on the test bench at the National Hydrogen Centre (CNH2) located in Puertollano (Ciudad Real, Spain), FCC Medio Ambiente has continued working on the project throughout 2023, with the completion of the design and development of all systems to be incorporated in the vehicle, the trial and bench testing of the entire power train, including the electronic management of the fuel cell and the lithium-ion battery at the University Institute for Automotive Research (INSIA in Spanish). In addition, the final production of the prototype has begun, both chassis and bodywork, and it is expected that both the prototype and the hydrogen refuelling station will be available in 2024.



GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN

CDTI INNOVACIÓN

EUROPEAN UNION
European Regional Development Fund
"A way of making Europe"

PLAUSU Project: Autonomous Driving

In 2023 FCC Medio Ambiente established another line of research and development for the coming years: autonomous driving and connected vehicle technology in the field of urban services. The aim of the project is to research and develop automation technologies, specifically focused on the operation in autonomous mode of a platform for urban service vehicles in cleansing tasks, and to materialise these technologies on a dual washing down-sweeper vehicle that already incorporates a fully electric driving and propelling system.

The project, named 'Autonomous Platform for Urban Services' (PLAUSU), has received funds for the CDTI and is co-financed by the European Regional Development Fund (ERDF). The project has a two-year execution period and is being carried out in collaboration with INSIA.

The system will have a tablet or similar device for remote control where the user will be able to supervise and correct the performance of the machine, as well as control the ancillary cleaning elements. Navigation of the washing-down and sweeping vehicle will be reinforced with GPS positioning and LiDAR (Light Detection and Ranging) perception, using a digital map with the location of fixed elements. In areas where GPS coverage is insufficient, perception sensors will be used for guidance and positioning.

Other electric mobility projects

The following research projects, launched in 2022, have been consolidated this year and now the first series of vehicles are already operating in Spanish cities such as Madrid and Valencia:

- Tanker manufactured in high density copolymer (polyester reinforced with fibreglass, GFRP), for street watering and washing down tasks with front water jets and sprinklers, upper pole and double rear reel, 2 metres wide (non-existent on the market), on a fully electric chassis with a state-of-the-art European-made lithium-ion battery, also 2 metres wide and maximum authorised mass (MAM) of 18 tonnes (with the possibility of being registered up to 19 tonnes).
- New side-loading bodywork on a 26-tonne Compressed Natural Gas (CNG) chassis for the washing of containers with capacity from 1,100 to 3,200 litres, with an aluminium washing chamber and maximum clean water capacity of up to 9,750 litres. Special internal and external washing pumps allow a whole working day's washing without having to refill water, which reduces down time, increases performance and consequently decreases the vehicle's energy consumption and pollutant emissions.

Green vehicles in Wychavon's fleet (United Kingdom)

FCC Environment added eight vehicles powered by Hydrotreated Vegetable Oil (HVO) to its waste and recycling collection service in the Wychavon district of Worcestershire. These vehicles reduce by 90% CO_2 emissions compared to those powered by diesel, and their implementation constitutes an intermediate stage in the transition towards electric mobility. This is part of a process in which the Wychavon District Council, in partnership with FCC Environment, will invest £270,000 (circa €315,560) to ensure that all city service vehicles are powered by HVO.

Fuel savings from new fleet of power shovels in the United Kingdom

FCC Environment has invested in a fleet of Cat® 966 XE wheel loaders after seeing an annual fuel saving of £11,000 (€12,835) per machine. Data showed that over a six-month period the machines had achieved a 29% reduction in fuel consumption. Based on this, over a seven-year life cycle, and with a standard repair and maintenance warranty programme, the machines will collectively deliver savings of over £250,000 (€292,000).

Projects associated to facilities

Robotic waste sorting system at the Dallas plant in Texas (USA)

FCC Environmental Services' first waste sorting robot was installed at the Dallas plant in March and has been jointly funded by the Carton Council of North America (CCNA) and the Foodservice Packaging Institute (FPI). The AMP Generation 4.3 robot operating at 40-60 picks per minute is programmed to separate carton and paper cups on the quality control line, along with any Polyethylene Terephthalate (PET) bottles containing liquid that were not picked by optical sorters. This machine has allowed the Dallas government, which collects domestic recyclables, to manage cartons from nearly half a million households. The robot has driven down the plant's residue tonnage by 4%, with a corresponding increase in recovered materials for sale to a paper mill and reduction of disposal costs.

Fire suppression system for the new C&D waste line at the Placer County environmental compound in California (USA)

Due to the size of the equipment, the height of the canopy and the wall-less structure of the new demolition and construction (C&D) waste facility at the Placer County environmental compound, a solution different from the conventional fire detection systems had to be found. A regular system would not detect a fire from the tipping floor in time as, given the characteristics of the plant, it would have probably spread by the wind and the air draft. Therefore, a system designed by Fire Rover has been installed which uses 12 thermal cameras and 24 hosepipes to monitor the entire structure, equipment, etc. 24 hours a day, 7 days a week. The hoses are connected to the municipal water network so that the resource is unlimited, giving the fire brigade a greater reaction capacity.

Construction of several CNG stations in Florida (USA)

FCC Environmental Services has successfully completed the construction of two CNG refuelling stations in 2023. On the one hand, Lake County required a refuelling station for its new CNG vehicles. Built by Opal Fuels, it was commissioned in September and has the capacity to refuel 40 vehicles. On the other hand, the Volusia refuelling station expansion has been completed to service the Palm Coast contract. FCC Environmental Services commissioned Clean Energy to expand the existing facility with an additional 45 fuelling stations in addition to the existing 40.

Management and recycling of waste. Circular economy

Funded by the European Union NextGenerationEU

Photovoltaic panels recycling

FCC Ámbito launched the PV4INK project to develop technologies for the recovery of the silver contained in photovoltaic panels and its conversion into nanoparticles that can be used directly in the conductive ink industry for electronic applications. The project will run for three years and involves the participation of TECNAN, LEITAT and LUREDERRA, with funding from the State Research Agency, part of the Ministry of Science, Innovation and Universities (MICIU, for its acronym in Spanish), within the framework of the call for Public-Private Collaboration Projects, co-financed by the Spanish Government's Recovery, Transformation and Resilience Plan. It will be carried out at an FCC Ámbito plant in Zaragoza, which will install a line for the treatment of photovoltaic panels at the end of their useful life, scheduled to be commissioned in 2024.

Recovery of critical raw materials from Municipal Solid Waste (MSW)

Funded by the European Union NextGenerationEU

MINETHIC: Promoting the recovery and valorisation of strategic mineral resources for the green transition

Official website of the project: www.minethic.es

The MINETHIC project, led by FCC Medio Ambiente and subsidised by the CDTI with support from the MICIU, is co-financed by the Recovery and Resilience Mechanism. The goal of the project is to research new sources of non-conventional mining raw materials for the green transition. FCC Medio Ambiente will be responsible for concentrating phosphorus, nickel and cobalt present in the slag from waste incineration, as well as phosphorus in biostabilised material from biological treatment of municipal solid waste. During 2023, microbiological research was conducted at the Multisectoral Research Technology Centre (CETIM for its acronym in Spanish) for the bioaccumulation of phosphorus with PAO microorganisms (Poliphosphate Accumulating Organisms) using FCC Medio Ambiente's biostabilised material.

Recovery of slag from MSW incineration

Europar Batasunak kofinantzatua
Co-funded by the European Union

EUSKO JAURLARITZA GOBIERNO VASCO

ECO2D4.0 (ZL-2023/00884): Development of comprehensive road surface solutions using priority waste from the Basque Country, and ecosystem for the functional and environmental monitoring of road infrastructures

FCC Medio Ambiente is participating in a project co-financed by HAZITEK 2023, the Basque Country's Business R&D Support Programme, which seeks to research new applications for waste management in the region. It focuses on cases with limited recovery options, such as ferrosite, incineration slag, foundry sands, milling refuse and black slags. Products from digitised ECO-roads are being developed, exploring the technical and market feasibility of using different waste streams as secondary aggregate in pavement design. Complementary materials seek to obtain sustainable layer solutions, ensuring compliance with functional and environmental specifications at all stages of development.

RSU4HOM

Europar Batasunak kofinantzatua
Co-funded by the European Union

EUSKO JAURLARITZA GOBIERNO VASCO

RSU4HOM: Development of new construction products from the valorisation of incineration slags from municipal solid waste

Led by FCC Medio Ambiente and co-financed by the HAZITEK 2022, the project is planned to last 30 months, from July 2022 and with a scheduled end date of December 2024.

RSU4HOM aims to minimise the environmental impact generated by the landfilling of incineration slag from two plants in Zubieta (Gipuzkoa, Spain). The aim is to recover this waste and integrate it as aggregates for the manufacture of construction materials (concrete, mortar and precast concrete).

Leading a circular economy for plastic

Co-funded by the European Union

LIFE ZEROLANDFILLING (LIFE-2022-SAP-ENV 101114213): Recovering landfill waste through an innovative and integrated process committed to the circular economy

Official website of the project:
www.zerolandfilling.com

The LIFE ZEROLANDFILLING project, led by FCC Medio Ambiente, addresses the increase in urban waste generation through an innovative system for the management and recovery of non-recyclable waste, mainly plastics and bio-waste. The consortium includes CEPSA, ECOCUADRADO, NEOLIQUID, the University of Alcalá and Ecomesa (subsidiary of FCC Medio Ambiente). It is expected to treat 2,112 tonnes of waste, avoiding 2,069.76 tonnes of CO_2e associated with landfilling. The recovery process will produce 458 tonnes of green naphtha and 583 tonnes of solid coal, avoiding the generation of 918.56 and 1,700.26 tonnes of CO_2e, respectively. The project promises a sustainable zero landfill solution, low carbon footprint and circular economy, with environmental and economic impact in Europe. It is expected to reduce 160,000 tonnes of waste and 355,222.65 tonnes of CO_2e per year over 3 years, consolidating the European waste treatment sector. In 2023, the kick-off meeting was held and administrative work, licensing, basic engineering and selection of sites for prototypes have begun.

European Commission

LIFE PLASMIX (LIFE18 ENV/ES/000045: Plastic Mix Recovery and PP & PS Recycling from Municipal Solid Waste) (2019-2024)

Official website of the project:
www.lifeplasmix.com

This project, led by FCC Medio Ambiente, is aimed at demonstrating the material recovery of Plastic Mix from municipal waste (PP, PS and EPS) in a semi-industrial plant located at the Ecocentral plant, Granada (Spain). During this year, the processes for obtaining recycled pellets from Plastic Mix for the manufacture of added-value products have been optimised.

European Commission

LIFE4FILM (LIFE17 ENV/ES/000229: Post-consumption film plastic recycling from municipal solid waste) (2018-2022)

Official website of the project: www.life4film.com

Project carried out by a consortium led by FCC Medio Ambiente and co-financed by the European LIFE programme, with the aim of avoiding sending plastic film (LDPE) present in urban waste to landfill or energy recovery through the implementation of innovative recycling on a semi-industrial scale by means of a recovery line of 11,000 tonnes per year at the Ecocentral in Granada. During 2023, the work has been completed, concluding the project achieving its objective, proof of which are the ECOSAC bags being distributed already, obtained from recovered plastic film.

Leader in renewable energy

FCC Medio Ambiente is committed to converting the "Waste Treatment Centre" (WTC) into a "renewable energy producer". To this end, it has a line of research for the development of innovative processes for the production of hydrogen and methane by means of biological treatments (bioH_2 and bioCH_4) from waste, as well as thermochemical processes such as gasification and biogas purification.

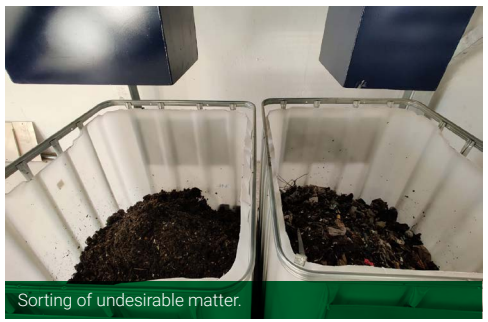
ECLOSION

Gobierno de España · Ministerio de Ciencia e Innovación · CDTI Innovación · Plan de Recuperación, Transformación y Resiliencia · Funded by the European Union NextGenerationEU

ECLOSION: New materials, technologies and processes for the generation, storage, transport and exploitation of renewable hydrogen and biomethane, generated from bio-waste (2021-2024) MIG-20211071

FCC Medio Ambiente carried out research in the laboratories of the University of Valladolid (Spain) with the aim of studying the dark fermentation process using Organic Fraction of Municipal Solid Waste (OFMSW) as a substrate. As a result, a significant amount of hydrogen was obtained out of the total biogas generated in each fermentation. The development of new, efficient and low-cost polymeric membranes has also been completed for the separation of biohydrogen mixtures from dark fermentation (H_2/CO_2) and H_2/CH_4 mixtures from syngas purification.

In 2023, a novel depacker has been installed that will enable the obtention of organic waste streams free of impurities, thus optimising the dark fermentation process. During 2024, dark fermentation tests will be carried out on a scale prototype at the Valladolid WTC.



Sorting of undesirable matter.

Gas station at the Ecocentral plant in Granada (Spain).

life landfill biofuel

European Commission

LIFE LANDFILL BIOFUEL (LIFE18 ENV/ES/000256: Integral management of the biogas from landfills for use as vehicle fuel) (2019-2022)

Official website of the project:
www.landfillbiofuel.eu

Project co-financed by the European LIFE programme which aims to demonstrate the technical and economic viability of a solution based on the implementation of new landfill exploitation techniques to improve biogas production and facilitate the recovery of waste gases through the purification of biogas by means of an adsorption process through vacuum pressure oscillation. The gas station has been installed at the Granada Ecocentral plant where the first refuelling with the biomethane obtained has been carried out. During 2023, different tests were conducted with the biomethane generated, verifying that all of them comply with current regulations. Likewise, this year, light and heavy-duty vehicles have travelled over 30,000 and almost 40,000 kilometres respectively with the biomethane produced from landfill biogas.

Biorefineries

INSECTUM

CDTI
@CDTIoficial

INSECTUM: Recovery of urban by-products and biowaste through bioconversion with insects to generate innovative products in strategic sectors

CDTI's CIEN programme project, led by FCC Medio Ambiente, which consists of the implementation of an innovative system for the recovery of urban bio-waste based on its bioconversion by means of insects into products with high added value for industry (human and animal food, nutraceuticals/pharmaceuticals, fertilisers and chemicals).

FCC Medio Ambiente participates in the conditioning and supply of the OFMSW for its subsequent recovery. 2023 has seen the completion of the project, allowing the first results of the bioconversion of urban waste into valuable products to be obtained.

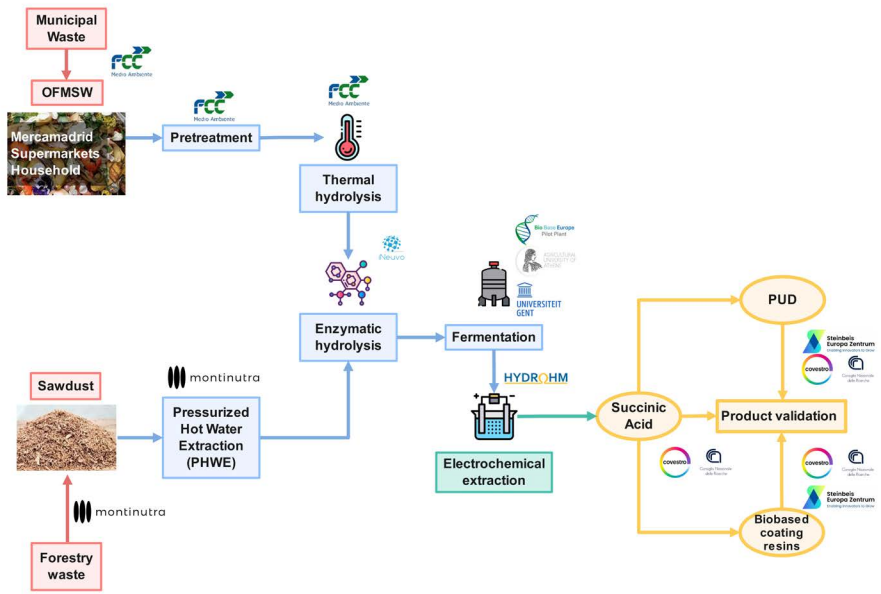
Creation of new by-products and biomaterials

BIOPROLIGNO

Funded by the European Union
NextGenerationEU

BIOPROLIGNO (CPP2022-009647): Transformation of lignocellulosic waste into bioproducts for their application in infrastructure and ground maintenance

The BIOPROLIGNO project is funded by the Spanish State Research Agency under the 2023 Public-Private Partnership programme. It started in 2023 and has a planned duration of three years. This project aims to develop experiences in the field of lignocellulosic waste pyrolysis, where three state-of-the-art bioproducts are generated: wood vinegar, charcoal and biochar. These have demonstrated their effectiveness in laboratory and experimental tests, and the project intends to use them in real experiences in the field of maintenance of linear infrastructures and green areas, so that they can offer an improvement in the management of woody urban waste.



LUCRA (101112452 – HORIZON-JU -CBE-2022): SustainabLe sUCcinic acid production using an integRAted electrochemical bioreactor and renewable feedstock

Official website of the project: www.lucra-project.eu

FCC Medio Ambiente participates in this HORIZON JU CBE (Circular Bio-based Europe Joint Undertaking) call project that will use municipal solid waste and wood waste as feedstock for the large-scale production of bio-based chemicals products with high yields and high interest for industrial end-users, from a circular bioeconomy biorefinery approach. LUCRA proposes innovative technology for the electrochemical extraction of succinic acid through the circular use of the aforementioned resources, which greatly reduces the dependence on fossil resources by developing a sustainable route for the production of succinic acid. The implemented process aims to reduce the cost of bio-succinic acid and will demonstrate a 50% reduction of Greenhouse Gases (GHG) compared to conventional production processes. In 2023, the kick-off meeting of the project took place in the city of Ghent (Belgium). In addition, the first samples of organic waste have been sent to the different project partners to start the research.

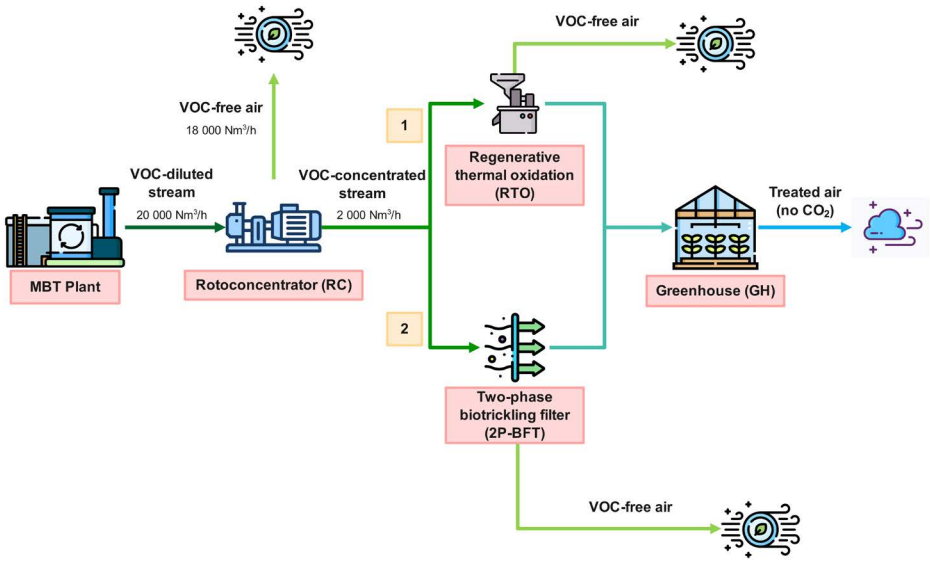
DEEP PURPLE: Domestic Extraction of Emerging Products with Purple Phototrophic Bacteria

Official website of the project: www.deep-purple.eu

Project co-funded by the Bio-Based Industries Joint Undertaking in the European Union's Horizon 2020 Framework Programme for Research and Innovation.

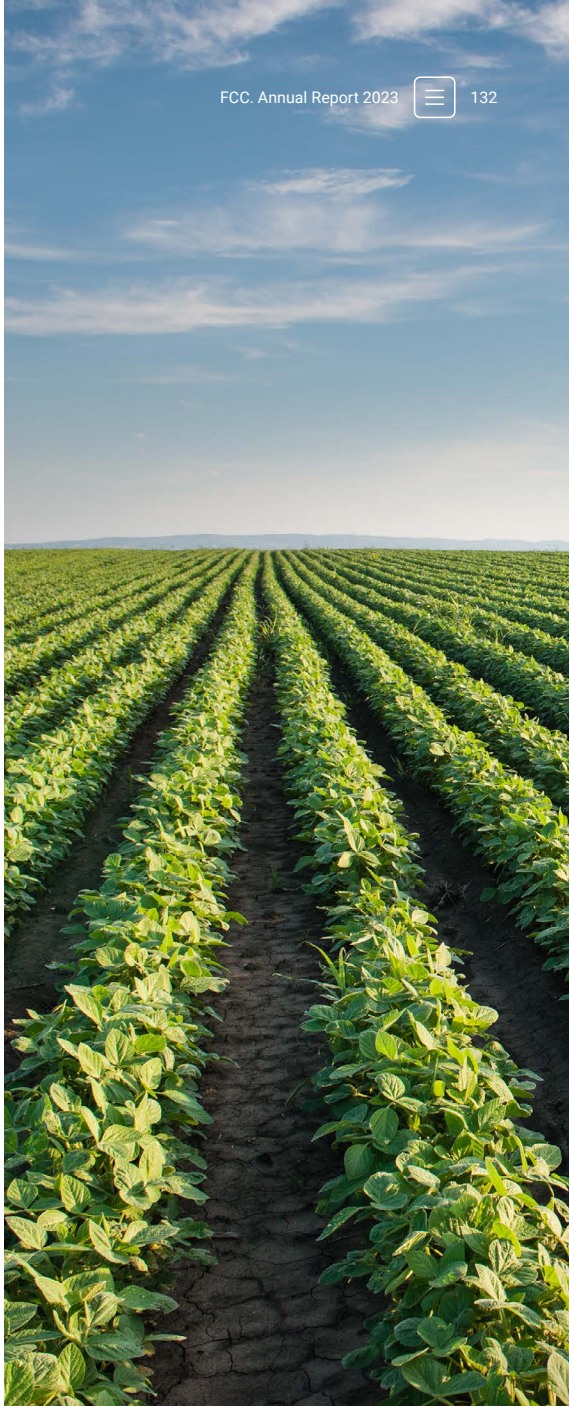
The project proposes a synergistic and comprehensive treatment for the valorisation of three types of bio-waste: OFMSW, sludges from wastewater treatment plants (WWTP) and urban wastewater, by means of a multi-platform photo-biorefinery based on phototrophic purple bacteria. This new concept will enable the generation of five new bioproducts for commercial applications in the cosmetics, plastics, construction and fertiliser industries.

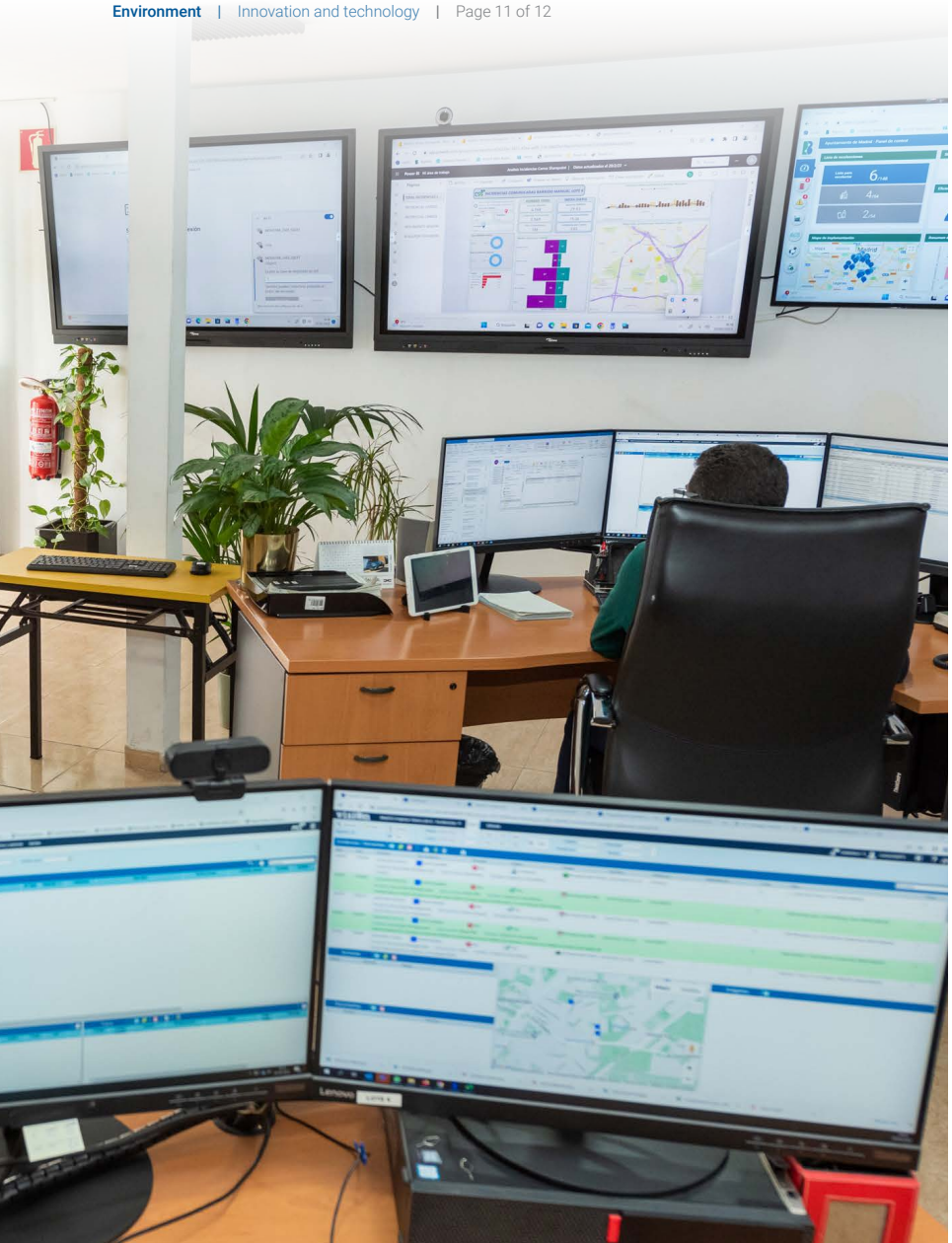
Mitigation of environmental impact



LIFE ABATE (LIFE-2022-SAP-ENV 101113838): Marketable high performance compact technologies for the abatement of VOCs in EU waste treatment plants, decreasing CO_2 emissions and energy consumption

The LIFE ABATE project, partially funded by the LIFE programme, aims to improve the sustainability of mechanical biological waste treatment (MBT) plants by demonstrating the benefits of innovative technology to reduce emissions of non-methane volatile organic compounds (NMVOCs) and CO_2. This process includes a VOC concentration stage using the concentrator followed by biological or thermal degradation, reducing emissions of NMVOCs and odours, lowering energy consumption and using the emitted CO_2 to promote the growth of crops in greenhouse agriculture. The ultimate goal of the project is to reduce NMVOC and CO_2 emissions, improving human and ecosystem health and well-being, with a lower energy consumption in comparison to current systems. The solution will be validated on an industrial scale at Ecoparc 3 Barcelona (Spain) and replicated at the Las Dehesas Biomethanisation plant in Madrid (Spain). In 2023, the partners visited these facilities to determine the optimal location for the prototypes.





Information and communication technologies

VISION

Within the framework of providing services to cities, it is essential to consolidate Information and Communication Technology (ICT) tools or technological systems that allow for the identification of the main challenges and that support the provision of effective, efficient, sustainable and integrated services.

In the city services management sphere, there is an increasing demand for integrated and accurate information that guarantees the provision of the necessary work with the quality demanded by public administration and citizens.

FCC Medio Ambiente, through its ICT department, is developing 'VISION - Intelligent platform for the provision of citizen services', which enables it to meet the objectives set by clients and respond to current and future requirements regarding the provision of services. This platform has been a driving force for innovation since the beginning of its development in 2008, applying best practices in IT developments, integrated communications systems, geographic information management, Internet of Things, etc.

2023 saw the completion of a major technological migration process necessary to respond to the large number of users and clients served by VISION.

The resulting technical solution is a platform that integrates a web portal, communication services with third-party applications (communication APIs), mobility platform, geographic services, IoT, connection with advanced third-party services, also prepared for the new challenges posed by the use of artificial intelligence in the systems. Boarded on containers and hosted on AWS (Amazon Web Services), it is a modular and scalable infrastructure that adapts to specific needs and it constitutes the basis for guaranteeing the sure growth of business demands. This technological environment meets the requirements of high availability (24/7), security and scalability required by the ISO-27001 and National Security Scheme certifications in which the system is certified.

In terms of software development, continuous integration and delivery methodologies (CICD) are used to provide a swift response to new requirements or the evolution of current ones. Within this methodology, quality control systems are integrated through the programming and execution of validation tests that globally assess the impact of changes introduced to guarantee their effectiveness, as well as security and regulatory compliance.

Sustainable development

Project for the sealing of metallic mining waste landfills

In 2023 FCC Ámbito completed the 'EFFECTIVE SEALING SOLUTION FOR METALLIC MINING WASTE LANDFILLS FOR THE CONTROL OF POTENTIALLY TOXIC ELEMENTS' Research and Development project. This is a novel process involving a multi-layer physical barrier based on technology proven at small scale. The feasibility of using materials from waste in the making of granular layers was investigated, thus promoting the circular economy. The project received funding from the CDTI and counted with the collaboration of the Polytechnic University of Cartagena. The work was carried out in the Region of Murcia, and it hopes that the positive results will contribute to improving the environmental quality of this and other regions in Spain.

Complast Project

In 2023 FCC Ámbito collaborated in the CIEN 'COMPLAST' project, led by ANTEX, a specialist in synthetic textiles. The project, which will last 42 months, seeks to obtain new thermoplastic composites with improved properties for high-value applications in the aeronautical, railway and automotive industries, which can be recycled and/or incorporate recycled materials. The synthesis and generation of new textile products and thermoplastic composites and their use in parts for different transport industries will be researched, as well as manufacturing processes for the materials and parts to be developed. FCC Ámbito is focusing on finding high-value uses for recycled glass and carbon fibres, collaborating with universities and technology centres such as AITEX, GAIKER and the University of Girona (Spain).

Bicisendas (Cycle Lanes) Project

The CIEN 'Bicisendas' project, led by FCC Construcción and in which FCC Ámbito participates, was completed in 2023. The main objective was to develop a new generation of sustainable, energy self-sufficient, smart, decontaminating, integrated and safe bicycle lanes, made of modular and sustainable materials. The project focused on four areas: environment, energy, safety and ICTs. Universities and technology centres such as CSIC, University of Zaragoza (Spain), UPC, AITIIP, CIMNE, LEITAT and Lurederra collaborated in the project. FCC Ámbito focused on the recovery of waste, selecting materials with high silicon and aluminium content to be used as raw materials in an AAM agglomerant and the study of the suitability of various wastes for the adsorption of hydrocarbons and the immobilisation of microorganisms.

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