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Seville Climate City Contract

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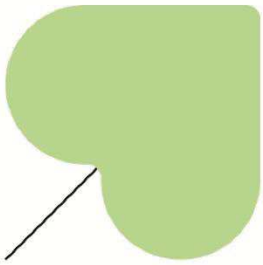

Seville

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Introduction

At a crucial moment in the global response to climate-related emergencies, the EU is committed to leading climate action and has set the targets and legislation to achieve this. Thus, the EU must reduce its emissions by at least 55% by 2030 and achieve climate neutrality by mid-century. In this context, cities have a key role to play, both to accelerate the decarbonisation process and to ensure a fair and equitable transformation that contributes to the well-being of society as a whole.

Cities, despite occupying only about 3% of the earth's surface, generate more than 70% of greenhouse gas emissions and consume more than 65% of global energy. And it is important that they act as centres of experimentation and innovation in the transition to climate neutrality.

The EU Mission "100 Climate Neutral and Smart Cities by 2030" (hereafter the Mission, or the Climate Mission) aims to support the transformation of cities to accelerate compliance with the Paris Agreement, and to be both a catalyst and driver for the implementation of the European Green Pact, and a demonstrator that it is possible to achieve climate neutrality by 2050.

In Spain, on 8 September 2021, the Government of Spain and the City Councils of Barcelona, Madrid, Seville and Valencia signed the Declaration "Climate Neutral Cities in 2030", as a boost to the commitments and initiatives of the signatory cities and as government support for the transformation of these cities to achieve climate neutrality and improve their resilience. Following the path opened, the City Councils of Soria, Valladolid, Vitoria-Gasteiz and Zaragoza adhered to the Declaration on 13 December.

In addition, on 15 September 2021, the Plenary of the Senate approved a motion urging the Government to push for climate neutrality of cities in the framework of the European Cities Mission. The motion recognises the fundamental role of cities in the response to the climate emergency and highlights the opportunity to accelerate the necessary and cross-cutting changes to make cities climate neutral by 2030. It also values that the different territorial administrations promote and facilitate the climate neutrality of Spanish cities through their incorporation into the Mission of Cities and through the development of transformation projects.

In this regard, on 25 November 2021, the Cities Mission launched a call for expression of interest addressed to European cities with more than 50,000 inhabitants interested in participating. Of the 377 that applied, 100 were selected from the EU-27, including the Spanish cities of Barcelona, Madrid, Seville, Valencia, Valladolid, Vitoria-Gasteiz and Zaragoza.

The **Mission Implementation Plan** foresees that each of the 100 selected cities will develop a Climate City Contract (CCC) adapted to its own reality, through a process of co-creation and in close collaboration with the whole of civil society and citizens, detailing the strategy for the deployment and monitoring of innovative and digital solutions to achieve climate neutrality; and enabling other cities to follow their example by 2050. This document thus constitutes a clear political commitment, not only to the European Commission and national, regional, and local authorities, but also to citizens, and includes a first package of proposals for a comprehensive climate action plan in the different sectors, such as energy, buildings, waste management and transport, together with the corresponding investment projections that would be required, according to the estimates of this European Mission. This is in line with the process already initiated in the city of Seville since 2009, in the framework of the Covenant of Mayors for Sustainable Climate and Energy.

In this way, this document responds to the requirements of the European Cities Mission. It has been prepared by the city and takes into account the concerns and forecasts of other public and private actors, establishing an indicative plan to achieve climate neutrality[1] .

In particular, it recognises that the Mission cannot succeed without being solidly anchored in the local community and garnering broad support. It therefore involves civil society, youth groups, cultural institutions and creative sectors, foundations, local media, small and medium-sized enterprises, private industry, trade unions, academia and research, and the public sector, among others, in their respective roles as decision-makers, users, consumers, producers and owners.

Furthermore, it integrates the city's own qualities and heritage, which guarantee the local dimension of the transition to climate neutrality; but also, its inclusive character, in line with the values of the New European Bauhaus (art/culture, sustainability,

[1] The document incorporates the responses to the shortcomings identified by NetZeroCities on the first version of 15 April 2023.

society). It fosters a sense of ownership and ownership by the city's inhabitants and professional actors, showing that their unique contribution is relevant, and that the fulfilment of this document will result in a better quality of life and a better environment (including health) for all.

On the other hand, the entire Mission is configured in the framework of an **iterative process**, as a document that will be **subject to monitoring and updating**, both through the signing of addenda and other documents of adhesion, thus bringing together other actors necessary for the city to achieve the goal of climate neutrality established with the maximum involvement of the different actors. In particular, the commitments contained therein may be extended or updated to effectively contribute to the achievement of climate neutrality in the city. Special relevance will be given to supra-municipal policies that are incorporated into regional and national planning.

The document is divided into several parts: one concerning the **city's commitment to** achieve climate neutrality in the city; one concerning the **institutional support and coordination** of the different public administrations; one concerning its **monitoring and updating**; and a final part comprising the annexes corresponding to the **Climate Action Plan**, the **Climate Investment Plan** and the **city's stakeholder support** and commitments. In all cases and for the 100 participating cities, the models developed by NetZeroCities[2] are followed.

[2] The NetZeroCities (NZC) project is part of the Horizon 2020 Research and Innovation Programme and provides the necessary technical, regulatory, and financial assistance to cities in the European Cities Mission (https://netzerocities.eu/the-nzc-project/).

Seville's commitment to climate neutrality

Introduction

Seville and its metropolitan area represent one of the European urban regions located in the front line of global warming. Its latitude and climate place it in an area with a high incidence of rising temperatures and adverse climate scenarios (droughts, heat waves, rain, and river flooding). In accordance with the **Sustainable Development Goals**, Seville has set itself the strategic objective of reducing emissions and combating climate change, placing special emphasis on actions that have an impact on sustainability, adaptation to the environment and decarbonisation. In this sense, Seville is promoting a rigorous strategy to reduce emissions, leading an energy transition towards a more sustainable model, based on more sustainable energy sources, energy saving and a more rational management of the transport of people and goods.

To achieve this objective, it is essential to **improve energy efficiency and effectiveness** in all areas of urban life: transport, construction and conservation of public and private buildings, street lighting, waste management, etc. Along the same lines, the development of distributed renewable energy production is promoted, with buildings mainly producing photovoltaic electricity, facilitating, and providing economic incentives for the installation of panels and self-consumption of electricity in public and private buildings. The use of clean energy sources for public and private transport is also favoured, developing the necessary infrastructures for this purpose. Actions aimed at improving the thermal comfort of citizens in public spaces are also implemented.

In the **development of the city adapted to climate change**, green space and trees take centre stage, both as natural sinks for CO_2, and as climate moderators for a more liveable city. In this way, the management of trees and green spaces in general becomes a strategic element in achieving this city objective. Seville will continue and reinforce its commitment to sustainable urban mobility, which it has been developing since the last decade, with relevant milestones such as the development of cycle lanes, new means of electric transport (metro and tram), traffic calming and the facilitation of pedestrian mobility.

The commitment to sustainable mobility in Seville must be based on the existence of multiple transport systems, with priority given to decarbonised public transport and non-motorised mobility, with the development of pedestrian routes and the extension of cycle lanes. It is also committed to innovative mobility.

Seville is also committed to complying with the principles of the circular economy, incorporating into its strategy the sustainable use of resources, compliance with the waste management hierarchy emanating from the European Union and the promotion of public procurement of green products. And all this from instruments of awareness, sensitisation, and participation, promoting R&D&I and the generation of public-private alliances and partnerships.

Climate neutrality target for 2030

The City of Seville's interest in joining the Mission of Cities and committing to the goal of achieving climate neutrality by 2030, as defined in the context of the Mission, is contained in three institutional agreements: the first, is evidenced by being part of the **Covenant of Mayors for Sustainable Climate and Energy** since 2009 (with subsequent ratifications in 2013 and 2016); the second, was approved by the Governing Board in session held on 30 July 2021, based on the provisions of the **Seville 2030 Strategic Plan,** which had been approved by the Seville City Council Plenary on 11 April 2019; and the third is contained in the **Seville Local Action Plan** to develop the Urban Agenda 2030, approved by the Seville City Council Plenary on 21 July 2022.

Therefore, the Mission's commitments are explicitly contained in those institutional agreements of the Seville City Council. We must also add the **Declaration of Climate Emergency** by the Seville City Council, approved by the Municipal Plenary on 24 July 2019, which was the first initiative in this sense, at national level.

The commitment implicit in the declaration is not just a mere acknowledgement of intentions but commits all public institutions and organisations to the implementation of precise and detailed actions to combat Climate Change in our local environment, all of which are framed within the SDGs agreed by the United Nations. The declaration reinforces all the actions that have been planned and will be implemented in the coming years by the local corporation itself and its municipal companies. In view of this Declaration of Climate Emergency, each of the municipal companies (management of the integral water cycle, housing, waste, and public transport) have established their commitment, planning and prioritisation of actions, and reflect this in the following documents of the Corporation of Municipal Companies of Seville.

Figure: Documents of the Commitments, plannings and prioritisations of actions of the Corporation of Municipal Companies of Seville.

And as we have been reiterating in this document, we must highlight the preparation of the **Seville Climate Action Plan (PACC)**, whose revision is scheduled for the first quarter of 2024, in compliance with the requirement contained in Law 8/2018, on climate change in the Autonomous Community of Andalusia (art. 15). This update will fully contain the forecasts and commitments established by the Mission, which we are

now dealing with. And it will give shape in a single document to all the actions derived from the 2030 Agenda and the Strategic Plan.

In accordance with the objectives of the Mission, the decarbonisation of the City of Seville will be carried out through intervention in three main sectors that generate CO emissions$_2$, all of which are included in the different planning instruments mentioned above. The results of the 2019 GHG Emissions Inventory for these three sectors show the following balance:

- **Road traffic**, which accounts for about 38.7% of the total, approximately.
- **Electricity consumption**, which represents 36.1%.
- **Consumption of** miscellaneous **fuels** and waste management, with a weight of approximately 20.6% (integrating solid urban waste and wastewater treatment).

It should be borne in mind that GHG emissions may present some differences depending on the methodology used for their inventory. This will be the case in the development of the Climate Mission, which uses a very precise methodology, as opposed to the more general methodology used by the Covenant of Mayors.

For its part, regional planning to combat climate change, which is established through the **Andalusian Climate Action Plan** (PAAC), approved by the Governing Council on 13 October 2021 and published by Decree 234/2021 of 13 October, which approves the Andalusian Climate Action Plan, in BOJA No. 87 of 23 October 2021, is the general strategic planning instrument in Andalusia for the fight against climate change, and derives from Law 8/2018 on climate change in Andalusia. Its mission is to **integrate climate change into regional and local planning**, in order to align them with the plans of the Spanish Government, the European Green Pact and the Paris Agreement, contributing to achieving the Sustainable Development Goals set by the United Nations Agenda 2030.

The PAAC establishes 6 strategic objectives for 2030, 12 sectoral objectives and more than 137 lines of action distributed in three Programmes: Mitigation and Energy Transition, Adaptation and Communication/Participation, which are developed in their operational deployments with a 2022, 2026 and 2030 horizon. The Emission Mitigation Programme for Energy Transition aims to establish the strategies and actions necessary to achieve the objective of reducing emissions, as well as the coordination, monitoring and promotion of policies, plans and actions that contribute to this

reduction and the transition to a new energy model. It defines ten strategic areas in terms of mitigation, in line with the forecasts established in the city of Seville, and aligned with the objectives of the EU Climate Mission.

The **Carbon Footprint** of Andalusian Municipalities (HCM) application is a tool that provides access to data on GHG emissions at municipal level in the main emitting sectors. The HCM has been developed by the Regional Ministry and made available to citizens and decision-makers of all Andalusian municipalities[3] , including the city of Seville.

The application calculates emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2 O) and fluorinated gases (PFCs) and expresses the results in terms of CO_2 equivalent. The emitting sectors considered are electricity consumption, road traffic, waste and wastewater management, agriculture, livestock, fossil fuel consumption in stationary installations, and fluorinated gases. In addition, information is included on the consumption of renewable energies and the sink capacity, which allows the municipality to have an approximate figure of the annual carbon absorption that takes place in its municipal district according to the activities contemplated by the Kyoto Protocol.

The initial data are based on statistical sources from the Multi-territorial Information System of Andalusia (SIMA), the National Inventory of GHG Emissions and various departments of the Andalusian Regional Government. These data are processed following sectoral methodologies for the calculation of emissions, based on the guidelines and guidelines for the preparation of GHG inventories of the National Inventory and the Intergovernmental Panel on Climate Change (IPCC)[4] .

This tool, which has been in operation since 2009 and has been improved in 2021, allows consultation on the GHG emissions inventories of Andalusian municipalities, with a historical series since 2005. The new version of the HCM presents improvements, incorporates new emitting sectors, updates the calculation methodologies, and uses better sources of statistical information.

[3] https://www.juntadeandalucia.es/medioambiente/portal/web/cambio-climatico/indice/-/asset_publisher/hdxWUGtQGkX8/content/huella-de-carbono-de-los-municipios-andaluces/20151

[4] https://www.juntadeandalucia.es/medioambiente/portal/documents/20151/33609659/Informe+Metodologico_3.pdf/0ce29a79-3a2a-da15-3241-f6ce7fb7b3bb?t=1643811351145

Seville's total emissions reach 2,087,988.7 tCO_2 eq for 2019. This represents a per capita emission of **2,9828 tCO_2 eq per inhabitant per year**, which predicts a significant impact of the metropolitan area on its central area: Seville has 693,229 inhabitants (2023), and the metropolitan area (the fourth largest in Spain) reached 1,548,741 inhabitants in 2021.

The following is a breakdown of GHG emissions by sector (from highest to lowest impact in Seville):

- Road traffic/transport 807.735,56 (38,7%)
- Electricity consumption: 753.248,91 (36,08%)
- Consumption of other fuels: 223,792.41 (10.71%)
- Wastewater: 142.290,71 (6,81%)
- Fluorinated gases: 89.638,84 (4,29%)
- Waste: 63.811,32 (3,06%)
- Agriculture: 4.993,48 (0,24%)
- Livestock: 2.477,47 (0,12%)

In terms of the categories established for the Mission, we would have:

- Road traffic: 807.735,6 (38,7%)
- Electricity consumption: 753.248,9 (36,08%)
- Consumption of miscellaneous fuels and waste: 429.894,4 (20,58%)

These categories account for 1,990,878.9 t CO2 eq, leaving a total of 97,109.8 t CO2 eq (4.6%) in the "others" group, corresponding to emissions from agriculture, livestock and fluorinated gases. These, although not very representative in the city, are also included in this Climate City Contract.

These sub-sectors or categories are treated by the Climate City Contract in a segregated manner (sometimes not coinciding with the criteria followed by the municipal climate change plans) with the aim of establishing common criteria for the 100 cities that are the subject of the process.

We assume that it will be necessary to adapt the methodologies followed for the Seville emissions inventory to the model established in the Climate City Contract for the 100 selected cities; although we understand that this complex task will be the subject of future iterations for a good part of the participating cities. Nevertheless, the

present document already advances results in the application of that common model of the Mission.

Now, our Mission must integrate all these sectoral instruments to take advantage of existing synergies, setting the goal of full decarbonisation by 2030. This requires a redoubling of efforts, within the framework of a more active and participatory work dynamic, in a multi-level, iterative and continuous learning process, which will allow us, through joint and co-creative work, to achieve the goal. The active participation of the quintuple helix, the cooperation between cities and, above all, the support of the NZC project, with citiES2030 in Spain, will be essential.

Strategic priorities and interventions

The following is a detailed analysis of the sectors covered by the Climate City Contract, based on the data obtained from the Seville 2019 emissions inventory. As already mentioned, the appropriate treatment of this data in the document will sometimes be conditioned by the different calculation methodologies used. Likewise, in the case of the planned actions, the calculation of these actions follows different calculation methods, which logically does not allow for a comparison in terms of emission reductions.

Road traffic

Transport is the main GHG emitter in Seville, with 807.735,6 t of CO_2 equivalent. This represents **38,7% of total emissions**. On average in Seville, 1,15 t of CO_2 eq per inhabitant per year are emitted by transport. By type of vehicle, passenger cars account for the highest percentage of emissions (71%), followed by lorries and vans (21%). The remaining vehicles have less significant CO_2 emissions in road traffic as a whole.

- Passenger cars: 591.006,41
- Trucks: 104.411,73
- Vans: 69.289,58
- Motorbikes: 21.300,65
- Buses: 16.613,90
- Mopeds: 5.113,27

Mobility has always been an integral part of everyday human life. Economic and social development has always been linked to the possibilities that humanity has had to move around. Nowadays, cities are spaces of freedom and coexistence that increasingly concentrate more and more people. They are not cities isolated from each other; they are becoming true cities whose limits go beyond their own administrative boundaries. This population structure conditions the very development and organisation of mobility and transport, and how we face the challenges of movement in cities will largely determine whether we have spaces for coexistence that are habitable, healthy, and sustainable.

Building the cities of the present and the future to be a space of freedom, culture and progress is a collective task so that the activities carried out in their environment offer opportunities to the entire population. And in this sense, the mobility of any city and its correct integration with metropolitan and territorial environments is an urgent necessity. The interrelationships of mobility with urban structure and integrated planning are evident. Strategies towards sustainable mobility contribute to eleven of the seventeen Sustainable Development Goals set by the United Nations (SDGs). We must therefore consider the movement of people and goods as an easy, safe and environmentally, economically and socially sustainable organisation within the framework of strategic planning and the development and transformation of the city in order to reaffirm its universality for people and its vocation as a common and public space.

All efforts are focused on achieving a more sustainable city by adopting a more economically and functionally efficient, socially equitable and environmentally protective mobility model. The main objective of the Sustainable Mobility Strategy will therefore be to improve the modal split of the city, reducing the share of private vehicles in favour of public transport and soft modes (cycling and walking) and reclaiming public space for people.

Specifically, the following specific objectives are set out in the Seville Municipal Sustainable Urban Plan (PMUS):

- The City of Seville will become a large Low Emission Zone in which 2/3 of journeys are made by more sustainable modes and only 1/3 by private vehicle. This would imply that the share of private vehicles in the modal split of the city would decrease to 33.33%, and that the transport system would be more efficient, improving average journey times for each mode.

- In this sense, it is established as an objective that the average journey time should not exceed 20 minutes, and that in no case should it exceed 25 minutes per mode, i.e. that no journey in the different modes of transport should take more than 25% of the average journey time.

- Given the significant volume of journeys between Seville and the Metropolitan Area, which accounts for 46% of the total number of vehicles in the city centre, integration elements will be established to improve the transport system between Seville and the Metropolitan Area. The share of zero-emission private

vehicles should reach 10% by 2030, and to this end, measures will be adopted to encourage the promotion of electric vehicles, as well as the necessary infrastructures for the evolution of the electric vehicle fleet itself, with aid and incentives for this type of mobility.

+ Within this line of action, the specific objective is that 100% of journeys made by public transport should be made in zero-emission vehicles.

These objectives establish specific values that will make it possible to monitor the impact of the Plan's measures and which will have a direct impact on the reduction of emissions in the city as a result of the transfer of users from private vehicles to more sustainable modes, a more efficient transport system reducing average travel times, and improving the transport system with the metropolitan area.

The measures envisaged for the improvement of internal mobility in the SUMP are developed in 8 chapters, organised thematically, according to the following scheme:

1. Mobility management
2. Proposals for pedestrian mobility
3. Proposals for cycling mobility
4. Public Transport
5. Distribution of Goods
6. Roads and Circulation
7. Parking
8. Measures to support decarbonisation in transport.

Electricity consumption

Electricity consumption represents the second largest sector of GHG emissions in Seville, with **36.08% of total emissions**. By area, the sectors with the highest emissions from electricity consumption are residential, followed by commerce and services, and administration and public services.

- Residential 334.239,57
- Trade 237.097,02
- Administration/Public Services 111.141,21
- Industry 65.844,11[5]
- Rest 4.926,99

The high consumption for cooling in the city of Seville explains these data which, far from improving, are likely to worsen year by year due to increasingly warmer conditions in a context of accelerated climate change. On the other hand, it should be noted that the reduction in electricity consumption is not always associated with a reduction in emissions, as it depends on the equivalent energy mix. In this case, for 2019, the emission factor applied by the Junta de Andalucía was 0.31 tCO_2 eq/MWh consumed[6].

The measures envisaged by the Seville City Council to reduce electricity consumption are developed in 7 chapters, organised by theme, according to the following scheme:

1. Municipal buildings and facilities
2. Buildings and equipment/ Facilities in the tertiary sector
3. Residential buildings
4. Street lighting
5. Local electricity production
6. Local heating/cooling production
7. Forestry and bioclimatic urban planning.

Seville has almost 3,500 hours of sunshine per year, which makes it an ideal place for the implementation of solar energy. Photovoltaic generation on roofs, pergolas, roads and car parks will be connected to energy communities, which will set up self-

[5] The Climate City Contract does not include industry subject to emissions trading.
[6] The Climate City Contract will apply an emission factor of 0.22% in Spain.

consumption networks in each of the city's districts. In addition, large-scale storage facilities will be developed to regulate generation and manage the load curve as an integrating element of this, the constitution of a smart grid will be possible through automation and control of the current distribution network.

The treatment of organic waste and wastewater will be used for the generation of biogas or green hydrogen for self-consumption, in treatment plants and for transport.

With regard to the residential sector, Seville has a housing stock of some 300,000 homes in which the energy rehabilitation of buildings together with cooling networks will improve energy efficiency by offering more efficient air conditioning systems and a greater reduction in energy demand, and on the other hand, the use of renewable energies and energy generation. These are two complementary measures in new urbanisation and urban regeneration processes. In this sense, the rehabilitation offices will constitute platforms of actors that will connect some actions with others, mainly in areas of greater degradation and with worse levels of energy efficiency and poverty.

Afforestation and bioclimatic urban planning would be the third major action to reduce energy demand in the city. The progressive elimination of shiny smooth surfaces for draining pavements with rainwater storage systems, and the increase of vegetation as a fundamental pillar of shading up to three-storey buildings are part of the healthy city model, mitigating the heat island effect.

Consumption of miscellaneous fuels and waste

The consumption of other fuels (LPG, diesel, natural gas, butane, propane, fuel oil and coal) together with waste and wastewater treatment represent the third sector of GHG emissions in Seville, with **20.6% of total emissions**. Their use in Seville is expected to decrease as electricity consumption for cooling increases. Coal has disappeared significantly, shifting consumption to natural gas and butane, which is used more for domestic hot water. The production of renewable energy will be the determining element for the elimination of residual consumption of other fuels.

The distribution of emissions according to the 2019 inventory is as follows:

- Natural Gas 157.833,24[7]
- LPG 51.216,29
- Coal 6.842,89
- Diesel C 6.117,12
- Agricultural diesel B 1.782,86

Municipal waste management has the following emissions by sub-sector:

- CH_4 generated by deposit in landfill site 51.092,35
- Stabilisation of organic matter 12.700,15
- Biogas combustion 18,82

Lastly, wastewater management contributes a total of 142,290.7 tCO_2 eq, which is due to

- CH_4 generated by organic matter degradation129 ,513.33
- N_2 O from waste water 12.769,72
- Biogas combustion 7,65

[7] 75% are considered to be associated with the buildings sector for the purposes of the Mission's plan.

Other issuers

The emitters that complete the GHG inventory of Seville are the following:

Agriculture, where emissions are expressed per use:

- Herbaceous 3.590,01
- Woody 1.068,66
- Grazing 334,80

Livestock, the emission types of which are as follows:

- CH_4 by enteric fermentation 1.932,26
- CH_4 for manure management 391,54
- N_2 O for manure management 153,67

And as for the **F-Gas** sector, we have:

- HFCs and PFCs emissions 86.949,46
- SF6s emissions 2.689,38

Emissions offsets

According to the 2019 Inventory, Seville has an **absorption capacity of 526,2 t CO_2** eq. We must remember the small size of the municipal area (141,4 km^2) and its high degree of urbanisation. The resulting population density is 4,887 inhabitants per km^2.

The development of the City's Green Belt is planned, through the creation and/or adaptation of a green infrastructure of some 42 km, which will serve as an ecological corridor and link a large number of existing green spaces and parks.

Also, the recovery of areas of high ecological potential which, belonging to the H.P.D. on the left bank of the River Guadalquivir, currently lack access, or have not been stripped of the riparian vegetation that allows the development of diverse and enriching ecosystems. These sections would provide a connection to the rest of the paths that run along this bank of the river, which are of enormous scenic and environmental attraction, as well as being frequently used for cycling, equestrian, bird-watching and general enjoyment of nature.

The performances in general will be:

- Creation of a native vegetation cover along its entire length to mark out the proposed route, improve environmental conditions and promote an increase and diversification of biodiversity.
- Construction of several bridges/bridges to bridge existing infrastructure.
- Defence of river and stream banks and regeneration of primeval forest-galleries in the DPH and in the areas affected by the new green ring/corridor.
- Conditioning of paths for public use, so as to enhance the use of the new space by citizens.
- Improving and promoting accessibility.
- Installation of viewpoints for birdwatching in strategic places, mainly wetlands and the Guadalquivir river.

The collaboration of various companies (local, national and international) is also foreseen for the offsetting of emissions, such as the initiative promoted with Iberia for the offsetting of its aircraft operations at airports.

Both at the municipal level and among the business sector, work is being done to find effective alternatives to maximise the possibilities of offsetting the city's carbon

footprint. An example of this is the Real Betis Balompié Football Club, which already officially registers its calculated emissions, is in the process of reducing and offsetting GHG emissions due to its activities.

Currently, more than 50 companies operating in Seville are registered in the Spanish Government's Carbon Footprint, offsetting and absorption projects. The aim is to cement collaboration strategies from the local level to integrate these actions into the framework of the Mission process, which will undoubtedly contribute significantly to increasing the CO_2 sink capacities of the city of Seville.

Strategic interventions

The set of actions planned and being implemented are included in the Seville Sustainable Climate and Energy Action Plan (rev. 2020), a consequence of Seville City Council's participation in the EU Covenant of Mayors. This work, which began in 2009, has an estimated reduction of 54,28% in GHG emissions compared to the 2005 Inventory.

In the case of electricity consumption, Seville has achieved a reduction 2005-2019 of 592.469,9 tCO_2 eq (44%); and for road traffic, 424.717 tCO2eq (34,5%). The challenge now is to achieve neutrality by 2030.

This will require action in four main areas: minimising road transport, reducing electricity consumption, reducing the use of other fuels in the residential sector, and improving waste and wastewater management.

In terms of **transport**, the main interventions should focus on passenger cars, which are responsible for 73% of road traffic emissions in Seville. And freight transport, which accounts for almost 22% of emissions. We must be aware that the electrification of these modes of transport will lead to an increase in the city's electricity consumption, so that in the design of measures it is necessary to achieve a net reduction for each sector that makes the desired neutrality possible.

It is essential to work together with the populations of the metropolitan area (and multilevel institutional collaboration) to reduce private vehicle journeys from the peripheral area to the centre, represented by a large part of the city of Seville, and not just the historic centre. The transport of goods from the logistics centres to the city (last mile) must also be managed effectively to avoid its significant impact on road traffic emissions.

In terms of **electricity consumption**, intervention in the residential sector is key, which accounts for 44,4% of total consumption in Seville. And in commerce, with 31,5%. Not forgetting the impact of administration and public service buildings, with annual emissions of 111.141,21 tCO_2 eq. It should be borne in mind that Spain's energy mix heavily penalises emissions from electricity consumption; a reduction in this mix could contribute significantly to reducing emissions.

According to some unofficial studies, a 1ºC reduction in the public thoroughfare could save up to 2% in building cooling consumption. For this reason, it is necessary to intervene on public roads with a shading plan capable of minimising the temperature in the summer season, and especially in the face of heat waves, which are becoming more frequent and intense. In commerce, immediate interventions are needed to inform about the significant impact on GHG emissions due to certain *open-door* commercial policies, with indoor/outdoor temperature differences of more than 30ºC in many cases during the summer season. This is in addition to the implementation of other alternatives.

Just over 10% of the city's total emissions are mainly due to the consumption of **natural gas and LPG**. Intervention in these sub-sectors will be needed to reduce their consumption in fixed installations, mainly linked to the residential sector and small and medium-sized industry.

Finally, a change in the municipal **waste management** model is needed. It is necessary to reduce as much as possible the CH_4 generated by the deposit of waste in landfills, either by preventing the arrival of organic matter or by implementing new management alternatives.

Three strategic, clearly cross-cutting interventions are reproduced below as examples:

+ The **eCitySevilla project** proposes the development of an open ecosystem, digital, decarbonised and sustainable city model on Isla de la Cartuja by 2025, bringing the energy and climate targets set for 2050 forward by twenty-five years. The project is fully aligned with all the forecasts contained in the Mission's Climate City Contract so that, at different scales, they will have very similar paths.

  With eCitySevilla, we are leading the way for sustainable cities of the future. In the field of energy, the aim is to ensure that the PCT Cartuja has a 100% renewable electricity supply, generated on the Isla de la Cartuja itself and with more efficient buildings. Furthermore, from the point of view of mobility, sustainable models will be encouraged, with more space for pedestrians and cyclists and promoting the use of electric vehicles thanks to a new network of charging infrastructures. All this, supported by a firm commitment to digitalisation, with a connected and autonomous system, through an intelligent

electrical network (Smart Grid) that will also allow an open data platform for the intelligent management of the park. This is a pioneering Smart City project on an international scale to ensure that an urban space as large as Isla de la Cartuja, which is a true city in itself, covering 200 hectares, where 523 companies and entities live and where nearly 23,000 people work, becomes 100% self-sufficient in terms of energy and emission-free.

+ **Cartuja Qanat** is the natural continuation of the climate control work that began on the occasion of EXPO'92, expanding and updating the concepts and procedures carried out in the original work.
Without losing the working spirit of that time, the more than 30 years that have passed since then have allowed the incorporation of ICTs in aspects such as remote sensing or artificial intelligence for the optimal management of the facilities using presence control, user preferences, climate prediction, etc.

  Likewise, innovative components and strategies are incorporated such as variable solar control, night-time dissipation towards the sky, dissipation towards the ground with night-time evaporative regeneration, thermal storage in Qanats or the production of solar electricity. All this will contribute to the outcome of the project as a pioneering zero-energy and zero-emission installation on a yearly basis, bringing new business models combined with scientific knowledge for change, through eco-innovation and adaptation to new solutions for microclimatic improvement Cartuja Qanat will be developed through an innovative system of public-private-citizen governance, based on democratic principles, Good Governance and Open Government, through the co-responsibility of all actors through the application of urban care rights.

  Finally, the project for the largest implementation of **charging points** for electric vehicles to be carried out in a Spanish city is being implemented, with 350 double points (700 places) on public roads. This network has several peculiarities:

  1. It is designed to bring each recharging point as close as possible to the citizen by means of a homogeneous network in each of the 11 districts of the city, so that regardless of the neighbourhood or district where you live, you will have access to the network.

2. All districts will have semi-fast recharging points with a minimum of 44KW, fast recharging with a minimum of 100Kw and ultra-fast recharging with a minimum of 350Kw.
3. Electric mobility is promoted equally throughout the city, avoiding an increase in vehicle journeys between districts or neighbourhoods of the city.
4. Four different operators will be established in order to guarantee free competition and better fares for citizens.
5. It also favours the implementation in La Cartuja where the first Low Emission Zone of Seville will be developed in the coming months, which in 2025 will move to zero emissions and where electric mobility and its infrastructure will play an important role in achieving its objectives.

Principles and process

We have already referred to Seville's diagnosis and situation in terms of forecasts and commitments in its planning for the fight against climate change, as well as the role that we understand should prevail in the work to achieve the objectives of the Climate Mission. We now complete the situation to clarify the existing reality in terms of the principles and process that should govern future actions to achieve these goals.

The Seville 2030 Strategic Plan establishes in its fourth objective the strategy to develop governance and citizen participation, stating that, in order to fulfil the central objective, it is essential to articulate in the city renewed forms of good governance based on transparency, consensus and equity.

The strategy that guarantees the objective of climate neutrality stems from the following sectoral plans approved by the Seville City Council Plenary:

- Climate and Sustainable Energy Action Plan
- General Urban Development Plan (Plan General de Ordenación Urbana)
- Sustainable Urban Mobility Plan
- Tree Master Plan for Seville
- Bicycle Plan
- Seville Digital Agenda
- Municipal Housing, Land and Rehabilitation Plan

All of them make up Goal Three to create a sustainable city that mitigates and adapts to climate change. Seville aims to reduce the vulnerability of its economic, social, and natural systems, focusing on the creation of a green, sustainable and climate change-adapted city, seeking to improve the quality of life.

These strategies must in turn be an economic and social driving force for Seville and its metropolitan area. At a global level, the preparation of the Seville Urban Agenda will be the governance instrument that will guarantee compliance with the Climate City Contract by integrating all sectors of society and the rest of the provincial, regional, and state territorial administrations.

Thus, the Seville Urban Agenda is made up of 10 strategic axes, 30 specific challenges and 291 lines of action to achieve a more liveable, sustainable, and innovative city,

with a new economic model and better public services. The ten strategic axes on which the Urban Agenda is based are:

- **Axis 1.** A sustainable and connected territorial model.
- **Axis 2.** A compact, accessible, and quality urban organisation
- **Axis 3.** Building adaptive capacity and resilience to climate change
- **Axis 4**. Promoting the responsible management of urban resources and the circular economy
- **Axis 5**. Promoting sustainable mobility
- **Axis 6.** Strengthening social cohesion, integration, and equity
- **Axis 7.** Boosting the economy and employment generation capacities
- **Axis 8.** System facilitating access to housing.
- **Axis 9.** Enhancing digital innovation and urban intelligence capacity
- **Axis 10.** Strengthening governance and participation Under these ten axes, each of the climate actions that incorporate all social visions will be studied, analysed and reflected upon for their final formulation.

The municipal citizen participation mechanisms have been established through whose channels the work of the Urban Agenda will be fed.

Within the framework of the specific planning that directly concerns this Climate City Contract, social participation is articulated through the Advisory and Public Participation Council of the Energy and Sustainability Agency of Seville (regulated by the Municipal Ordinance on Energy Management, Climate Change and Sustainability), in which the participation of the quintuple helix innovation model is guaranteed: administrations, companies, civil society, academia and the media.

This participation council, constituted in 2014 and periodically renewed, meets regularly in four sessions per year, and will be responsible for assessing the degree of progress of the commitments acquired in the Seville' Climate City Contract. It will also intervene in the iterative and co-creation process that characterises the Climate Mission, reviewing the diagnoses and giving its opinion on the action plans on an annual basis. It will therefore have a consultative character for the positions of the highest municipal decision-making body, the Plenary.

In conclusion, the process in the new Climate City Contract that is formalised should enable an increase in the targets initially set out in the Climate Action Plan (SECAP, Rev. 2020), with a 54.28% reduction in GHG emissions compared to the baseline year

(2005), to reach at least an 80% reduction by 2030. This margin to a climate neutral city could be achieved through local absorption capacities, as well as public and private offsetting actions developed in and/or from the city.

Therefore, the **Seville Climate Action Plan (CAP)** will integrate the PMCC due to the autonomous Law 8/2018, the Climate Agenda 2030, and the Climate City Contract of the Climate Neutral Cities Mission. At the epicentre of the CAP will be eCitySevilla, the technological, geographical, and temporal spearhead for the Climate Mission.

This process should enable the decarbonisation of the city of Seville in this period, without affecting its aspirations for economic growth and social welfare, which will place us in the group of the 100 climate-neutral cities in the EU. The expected co-benefits can lead to a net result that exceeds the necessary investments, especially in terms of health benefits, employment benefits, energy savings, and ecosystem services (local, regional, and global). Some medium-sized cities have assessed the co-benefits of mobility actions at more than 400 M €.

The process will be driven in a very significant way by the collaboration of the Seville City Council with the Academy. We can now highlight the strong cooperation in the training and internship programmes with the following teaching and research activities:

+ **Master's degree in smart cities from the European University Ulysseus**
  This programmehttps://ulysseus.eu/ulysseuscitiesmd/ of the European university Ulysseus, led by the University of Seville, is aimed at tackling the challenges that connect the areas of **Energy, Transport, Mobility and Smart Cities,** and addresses priority issues in European policy such as energy transition and decarbonised systems. It is the first joint Ulysseus degree and is aligned with the latest needs of the labour market, research, and innovation, including a just transition to renewable energies and the development of smart cities and urban areas.

  The university alliance, made up of eight universities, has been responsible for the design of the master's degree and has built a joint academic governance structure and its joint administrative and financial management bodies.

During the first year, the programme will provide students with a theoretical grounding in the technical and technological aspects specific to the smart and climate-neutral cities of the future, while the second year is designed to be more flexible. The academic offer will cover cross-cutting aspects, including an intensive course on entrepreneurship, and additional courses to enrich the technical curriculum, equipping students with cutting-edge knowledge and skills.

During the second year, students will have the possibility to complete a professional internship, which will allow them to deepen their fields of specialisation. At the end of the second year, students will complete a thesis that may allow them to pursue further doctoral studies.

Ulysseus is one of the 44 European Universities selected by the European Commission to become the universities of the future. Coordinated by the University of Seville, together with seven other European universities - the University of Genoa (Italy), the Côte d'Azur University (France), the Technical University of Košice (Slovakia), MCI The Entrepreneurial School (Austria), the University of Applied Sciences of Haaga-Helia (Finland), the University of Münster (Germany) and the University of Montenegro (Montenegro) - the project will allow students, researchers and graduates to move freely between universities, develop internships in companies or administrations and promote high-impact research projects.

+ **Master's Degree in Eco-efficient Rehabilitation of Buildings and Neighbourhoods, University of Seville**

  This training plan is based on the fact that 40% of the total energy consumption in the European Union corresponds to buildings; therefore, the reduction of energy consumption and the use of renewable energy in buildings are priority energy objectives. In this sense, the minimum energy performance requirements for buildings have been modified to become more and more restrictive and move towards the construction of Nearly Zero Energy Buildings (NZEB).

In the current building landscape, the European Union places particular emphasis on the retrofitting of existing buildings as a key instrument to achieve energy targets. In addition, environmental policies advocate the use of eco-efficient materials, better use of material resources and improved waste management in construction as a sustainability measure that reduces greenhouse gas emissions and can mitigate climate change.

These strategies are not only restricted to buildings but should also be extended to **public space** to mitigate the heat island effect.

The objective of this Master is to provide professionals, administration technicians and future researchers with the tools and knowledge necessary to apply eco-efficient rehabilitation techniques in buildings and neighbourhoods.

+ **Master Intelligent Systems in Energy and Transport**
This Official University Master's Degree is an initiative framed within the Campus of International Excellence Andalucía Tech that aims to respond to the need for highly qualified technicians in certain areas related to the application of ICTs to sectors such as Energy, Environment or Transport.

The syllabus consists of 90 ECTS credits, taught over 3 terms, structured around two specialisations: Smart Cities and Mechanics and Energy. In both specialisations, you can choose between a professionally oriented pathway (with work placements in companies) or an introduction to research.

The Master has been designed with three main objectives in mind:
- To complete the training of graduates with excellent training to take on R&D&I projects and activities in high-level technological companies.
- To respond to the demand for professionals in a sector considered to have "high growth potential".
- To prepare students to carry out research work, making it possible, for those who wish to do so, to write a doctoral thesis in the specialised areas of the Master's degree, after joining a doctoral programme.

+ **Master Sustainable City and Architecture**
The basic objective of the master's degree is the acquisition, by professionals, administration technicians and future researchers, of advanced transdisciplinary training in the field of Sustainability, focusing on the regeneration of the City and Architecture, and using, among other instruments, those developed by architecture such as the project and planning.

Starting from a common core that guarantees in its first five subjects a transdisciplinary training in the field of City, Architecture and Sustainability, based on learning and mastery of regeneration actions on an urban and territorial scale, two itineraries have been defined, with a character of both training synthesis and deepening.

The professional orientation is designed to provide students with professional training in the field of the City, Architecture and Sustainability. It is designed so that students will be able to join interdisciplinary groups to tackle regeneration at all scales of intervention with scientific and technical rigour, as well as design skills, promoting its transdisciplinary projection. The research itinerary is designed to provide basic research training in the field of the construction of sustainable buildings and cities, priority lines of research in Andalusia, Spain and Europe in their R+D+i research plans, as well as Spanish and European construction technology platforms, promoting the opening up of new lines of research in sustainability, ecology and energy efficiency in cities and buildings.

+ **Chair of Circular Economy of the University of Seville**
The Chair of Waste Management in the Circular Economy arises as a response to the important need for collaboration between academia and industry to intensify efforts in research, dissemination and training, in order to meet the challenges facing our society, and more particularly the environment and waste management sector, in order to become circular.

The Chair is the result of collaboration between the University of Seville, through the Department of Chemical and Environmental Engineering of the School of Engineering of the University of Seville, and the company Aborgase (Abonos Orgánicos Sevilla).

The purpose of the Chair is to promote teaching, research and dissemination activities that study the reality, problems and prospects of waste management, from all points of view that are considered relevant in the field of sustainability in general, and the Circular Economy in particular, taking care of developing training programmes and research tasks that contribute to improving training in these matters among students and graduates of the University of Seville.

The collaboration and participation of these training programmes in the Seville Mission will undoubtedly lead to an enrichment of the process until 2030, with the greatest levels of talent with the involvement of the teaching staff and during the students' curricular internships in the process.

All the details for the fulfilment of this overall objective of the Mission will be presented in the relevant annexes to this document.

However, the present Climate City Contract with the EU is a process proposal to achieve the EU Mission's targets set for the 100 climate neutral cities, rather than a formal commitment, which will only be possible after the stages of final shaping of the local partnerships, multi-level cooperation, and coordination and co-creation between the twinned cities (iterative process). In any case, these tasks must be completed by 31 December 2023.

The European Mission, like all the cities that are part of it, is aware that the challenge will not be possible without the active participation of the private sector. But it is the case, as on so many other occasions, that the business sector is moving more firmly towards the goal of decarbonisation than the public sector, which is an advantage for that alliance.

All indications are that the EU Climate Mission will generate considerable *investment appetite* in the participating cities, which should also be the subject of numerous demonstration projects and consolidated applications for mitigation. This will come with the **European Mission City Label**, which will give confidence and technical, legal and institutional security to the private sector for their investments.

Throughout the process it will be necessary to avoid interpretations of *greenwashing*, and to apply tools to measure achievements. In this respect, despite its complexity, it

will be necessary to resort to the most appropriate techniques, such as the green taxonomy, promoted by the EU, an area in which joint work between Mission cities is particularly welcome in order to harmonise criteria and take advantage of existing synergies.

In any scenario, everything points to the fact that a change of paradigm will be essential to face the new challenges and achieve decarbonisation from the city councils, being essential to make compatible the mitigation of GHG emissions, adaptation to climate phenomena, economic development, and social protection and welfare. The Seville City Council will formalise the necessary agreements with Caritas Seville and the Red Cross (in accordance with the work that has already been carried out for years) to ensure that the most disadvantaged are part of the diagnosis and that they will be attended to in the framework of the climate emergency, among other resources, through the provision and availability of the necessary climate shelters.

Government of Spain's support for climate neutrality in Mission cities

Through the Declaration signed by the Third Vice-President of the Government and Minister for Ecological Transition and the Demographic Challenge, which is attached to this document, the Government of Spain expresses its commitment to the transformation process of the city of Seville, selected by the European Commission on 28 April 2022, to participate in the European Mission on Climate Neutral Cities 2030.

GOBIERNO DE ESPAÑA
VICEPRESIDENCIA TERCERA DEL GOBIERNO
MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO

citiES 2030

Supporting statement of National Government for the climate neutrality of Spanish Mission Cities

I hereby place on record the Spanish Government's commitment to support the climate city contracts presented by the cities, which were selected by the European Commission on 28 April 2022 to participate in the European Cities Mission: Madrid, Barcelona, Sevilla, Valencia, Zaragoza, Valladolid and Vitoria-Gasteiz.

This support contributes to the ecological and energy transformation of cities and to a greater climate and social resilience, which is materialised in the Spanish State's framework of competences, among others, in the following aspects:

1. **The impulse of a regulatory framework aligned with the systemic innovation and public-private collaboration** required by the European Mission of Cities. In this context, it highlights:

    + The Spanish Urban Agenda, approved in February 2019, which highlights the need to achieve sustainability in urban development policies. It is constituted as a working method and a process for all the actors involved in cities that aspire to an equitable, fair and sustainable development from the different fields of action. This strategy is developed around 30 specific objectives and 291 action lines, which includes all villages and cities regardless of size and population, and it addresses economic, social and environmental sustainability.

    + Law 7/2021, of 20 May, on climate change and energy transition. This institutional framework guarantees, through its various measures, the coordination of sectoral policies, ensures coherence between them and synergies to achieve the objective of climate neutrality, and increases our capacity to adapt to the adverse effects of climate change.

The work commitment on the regulatory developments of the Law is clear. Due to the implications for the European Mission Cities, the following stand out: (i) in the energy field, work is being done to establish a framework to deploy energy efficiency in industries and buildings, and renewable energies as vectors towards decarbonisation, (ii) in terms of emission-free mobility, the mandate for cities to adopt sustainable urban mobility plans with mitigation measures, such as low-emission zones, is included, iii) in the area of green procurement, we are working to establish measures to integrate the fight against climate change in public procurement procedures, such as the inclusion of emission reduction and carbon footprint criteria specifically aimed at the fight against climate change as specific technical requirements in procurement specifications.

2. **The launch of the Multi-stakeholder Collaboration Platform for the Climate Neutrality of Spanish Cities (citiES 2030),** a tool created *ad hoc* and already in operation to facilitate the implementation of the Cities Mission.

   With the implementation of this platform, the Government of Spain not only fulfils one of the initial activities of the Mission, but also becomes a reference for the other countries and cities in the programme.

   This platform is a multi-stakeholder innovation and collaboration infrastructure to support and accelerate the transformation of Spanish cities towards climate neutrality.

   The platform's main beneficiaries are city councils of Spanish cities with more than 50,000 inhabitants or provincial capitals that want to achieve full or partial climate neutrality by 2030, as well as cities with more than 20,000 inhabitants that want to initiate this process.

   The platform offers cities a range of services, including:

   + Training, learning and skills enhancement

+ The support for the development of local systemic innovation platforms for the design of transformative project portfolios;

+ The assistance in drafting and monitoring climate city contracts and the design of roadmaps in a multi-stakeholder environment;

+ The connection with related processes in other European cities; the incubation of multi-city projects; the citizen participation and activation;

+ The assistance to cities to structure transformation financing schemes, involving financial actors;

+ The strategic communication.

The Platform's governance is multi-stakeholder and multi-level, with the aim of facilitating, ordering and guaranteeing directionality and stability in these collaborations. In this way, it relies on the participation of the actors of the quintuple helix:

+ The public sector (administrations and public agencies).

+ The private sector (companies, financial sector, urban infrastructure sector and professional associations).

+ The academia (universities and research centres).

+ The civil society (NGOs and neighbourhood associations).

+ The media.

3. **The support to mobilisation of green investments.** A good example is the deployment of the Recovery, Transformation and Resilience Plan through the mobilisation of an unprecedented volume of investment that prioritises not only mitigating the effects of the crisis, but also the transformation of our country towards a sustainable and inclusive economy.

   The Recovery Plan recognises the fundamental role of cities in economic and social transformation, due to their capacity to generate short-term activity with a pull effect on industry and key sectors, and their importance in terms of the climate emergency. Thus, it includes initiatives aimed at essential aspects for the climate neutrality of cities, such as:

   + The improvement of sustainable mobility, with the promotion of electric and fuel cell vehicles and the extension of recharging infrastructures, through the different MOVES programmes.

   + The promotion of the renovation of urban residential environments, housing, buildings and neighbourhoods, with the priority objective of decreasing energy consumption and promoting decarbonisation in the household stock.

   + The development of energy communities that promote social innovation and citizen participation in renewables, energy efficiency and electric mobility, thereby contributing to fair and inclusive decarbonisation in urban areas.

   + The promotion of self-consumption for the energy use of urban roofs and decks, storage behind the meter and renewable HVAC in homes.

   + The development of transformative strategies and initiatives for urban renaturalisation, helping to increase green infrastructure and biodiversity in Spanish cities and favouring Nature-Based Solutions to respond to their socio-environmental challenges.

   + The support for the implementation of waste regulation, in collaboration with the autonomous communities and cities, with investments in

digitalisation for environmental management, through the Recovery Plan.

+ The deployment of calls for grants to municipalities and local entities for the implementation of low-emission zones in cities and the sustainable and digital transformation of urban transport.

4. **The monitoring of the progress of the seven cities through the information processed in the citiES 2030 Platform**, with the aim of integrating the urban transformation roadmap into the country's decarbonisation process.

As part of the iterative process of the European Cities Mission, the Spanish Government will participate in the monitoring and updating of the commitments made in the climate neutrality agreements of the cities of Barcelona, Madrid, Sevilla, Valencia, Valladolid, Vitoria-Gasteiz and Zaragoza, supporting the recognition and dissemination of the progress achieved.

Signed by Teresa Ribera Rodríguez, Third Vice-President of the Government of Spain and Minister for Ecological Transition and Demographic Challenge

Monitoring, updating and amending the Climate City Contract and its Annexes

This indicative proposal for the Climate City Contract of the City of Seville with the EU is configured within the framework of an iterative process, as a dynamic and flexible document that will be subject to monitoring, updating and modification in order to review and adjust the commitments, actions and/or investments necessary to achieve the City's climate neutrality objectives. It is a second version of the initial proposal, which complements and rectifies the one initially submitted in April this year.

The Climate City Contract requires at least biennial monitoring of the progress of the proposals assumed in this document and its Annexes and their due updating. This monitoring and updating is without prejudice to the fact that specific monitoring, review and updating methodologies are set out in the different Annexes.

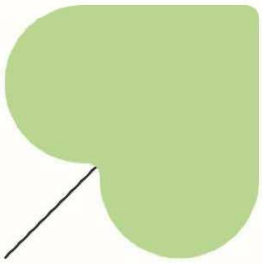
Whenever it is necessary for the better achievement of its objective, does not affect its essential purpose, and provided that it involves a specification, improvement or upward revision of the objectives and commitments undertaken, amendments may be made to it and/or to any of its Annexes.

These amendments will preferably be made in the framework of the biennial monitoring and will be sent to the other signatory parties for information purposes.

In Seville, 15th September 2023

José Luis Sanz Ruiz
Mayor of Seville

citiES 2030



ANNEX 1:
Climate Neutrality Action Plan

Annex 1: Climate Neutrality Action Plan of the Seville

Introduction

The City of Seville has been a member of the Covenant of Mayors for Sustainable Energy and Climate since 2009. The objective of achieving climate neutrality by 2030 was ratified by the Governing Board in session held on 30 July 2021, based on the provisions of the Seville 2030 Strategic Plan approved by the Seville City Council Plenary on 11 April 2019, and the Seville Local Action Plan to develop the 2030 Urban Agenda, approved by the Seville City Council Plenary on 21 July 2022[8] .
There is a Municipal Ordinance for the management of energy, climate change and sustainability, approved by the Municipal Plenary (text approved by the Governing Council of the Local Energy Agency of Seville, in session held on 1 March 2012).

The Municipal Ordinance for the management of energy, climate change and sustainability in Seville responds to the need to comply with the commitments made by the city of Seville in three specific areas: **sustainable development**, as a result of signing the Aalborg Charter and joining the European Sustainable Cities and Towns Campaign; **climate change, having** signed the Covenant of Mayors against Climate Change, and now joining the EU Climate Mission; and the continuous improvement of **energy management at the local level**, a task that had already been carried out since 1997.

Seville and its metropolitan area represent one of the European urban regions located in the front line of global warming. Its latitude and climate place it in an area with a high incidence of rising temperatures. In accordance with the **Sustainable Development Goals**, Seville has set itself the strategic objective of reducing emissions and combating climate change, placing special emphasis on actions that have an impact on sustainability, adaptation to the environment and decarbonisation. In this sense, Seville is promoting a strategy to reduce emissions, leading an energy transition towards a more sustainable model, based on the most sustainable energy sources.

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To achieve this objective, it is essential to **improve energy efficiency and effectiveness** in all areas of urban life: mobility, construction and conservation of public and private buildings, street lighting, etc. Along the same lines, the development of distributed renewable energy production is promoted, with buildings mainly producing photovoltaic electricity, facilitating and providing economic incentives for the installation of panels and self-consumption of electricity in public and private buildings. The use of clean energy sources for public and private transport is also favoured, developing the necessary infrastructures for this purpose. Actions aimed at improving the thermal comfort of citizens in public spaces will also be implemented.

In the **development of the city adapted to climate change**, green space and trees take centre stage, both as natural sinks for CO_2, and as climate moderators for a more liveable city. In this way, the management of trees and green spaces in general becomes a strategic element in achieving this city objective. Seville will continue and reinforce its commitment to sustainable urban mobility, which it has been developing since the last decade, with relevant milestones such as the development of cycle lanes, new means of electric transport (metro and tram), traffic calming and the facilitation of pedestrian mobility.

The commitment to sustainable mobility in Seville must be based on the existence of multiple transport systems, with priority given to decarbonised public transport and non-motorised mobility, with the development of pedestrian routes and the extension of cycle lanes. It is also committed to innovative mobility.

Seville is committed to complying with the principles of the circular economy, incorporating into its strategy the sustainable use of resources, compliance with the waste management hierarchy emanating from the European Union and the promotion of public procurement of green products. And all this from instruments of awareness, sensitisation and participation, promoting R&D&I and the generation of public-private alliances and partnerships.

The main shortcomings stem from the scarcity of resources and means, with notable limitations to cope with the economic needs required for the numerous actions for emissions mitigation, and also adaptation.

Work process

The city of Seville, in its commitment to achieve climate neutrality by 2030 through the iterative process proposed by the Mission, has defined three planning framework lines that will characterise the work process until 2030:

First, at the global city level, the **Seville 2030 Strategic Plan**, which establishes among its objectives the strategy to develop governance and citizen participation, stating that for the fulfilment of the central objective it is essential to articulate new forms of good governance in the city based on transparency, consensus and equity. It will integrate the sectoral plans related to each of the SDGs. In addition, it aims to reduce the vulnerability of its economic, social and natural systems, focusing on the creation of a green, sustainable city adapted to the new climatic conditions, seeking to improve the quality of life. These strategies must in turn be an economic and social driving force for Seville and its metropolitan area.

Secondly, the Climate and Sustainable Energy Action Plan, which will be renamed **Misión Clima Sevilla**, and which will integrate all the agreements and commitments generated as a result of the European process that is now beginning, in addition to the legal prescriptions derived from Law 8/2018, on climate change in Andalusia. Thus, it will especially ensure the reduction of GHG emissions in the sectors of transport, electricity consumption, consumption of other fuels and urban solid waste and wastewater). The executive responsibility for this process will lie with the Energy and Sustainability Agency of Seville, which will have the support of the Corporation of Municipal Companies as well as the different municipal areas involved (Finance, Mobility, Urban Planning, etc.).

And thirdly, the full integration of the **university fabric** in the new proposals, through a symbiotic involvement that makes possible the necessary changes in the city through scientific knowledge, backed by the business fabric, and maintained by the new ways of managing the city from a holistic and systematic perspective.

As a consequence of the requirements of the aforementioned regional law, Seville must soon present its Municipal Plan against Climate Change (PMCC), which meets all the requirements of the Covenant of Mayors. The deadline for submission is April 2024.

And the next review of the Mission Climate Agreement will take place two years after its inception.

It should be clear that the GCMP and the Climate 2030 Agenda (Agenda 2030) will be consistent with the Seville Climate Mission Plan, integrating all sectoral actions for mitigating emissions that are projected in the city, with its system of indicators, evaluation and monitoring.

PART A - CURRENT STATE OF CLIMATE ACTION

MODULE A-1: Baseline greenhouse gas emissions inventory

A-1.1: Final energy use by sector of origin				
Base year	**2019**			
Unit	**MWh/year**			
Issuing sector	**Scope 1**	**Scope 2**	**Scope 3**	**Total**
Transport	3.330.893,6			
(Type of fuel/energy used)				
Buildings and heating	1.078.192,2 [9]			
(Type of fuel/energy used)				
Electricity		1.351.643,0[10]		
(Type of fuel/energy used)				
Waste and reforestation			5.491	
(Type of fuel/energy used)				
Other	39.861			
(Type of fuel/energy used)				

[9] Residential electricity consumption
[10] Total electricity consumption, except residential sector

A-1.2: Applied emission factors						
(Please specify the type of primary energy and the GHG emission factor according to the methodology used.)						
For calculation in t or MWh primary energy						
(Indicate the method used, e.g. GPC, IPCC, CRF, national, etc.)						
Primary energy/ source of energy	**Carbon dioxide (CO)₂**	**Methane (CH)₄**	**Nitrous oxide (N_2 O)**	**Hydrofluorocarbons and Perfluorocarbons**	**Sulphur hexafluoride (SF)₆**	**Nitrogen trifluoride (NF)₃**
Diesel C (l)	2.881	0.389	0.023			
Diesel B (l)	2.721	0.123	0.007			
Natural gas (kWh)PCS	0.182	0.016	0.000			
Fuel oil (l)	3.017	0.390	0.012			
LPG (l)	1.541	0.122	0.002			
Propane gas (kg)	2.966	0.000	0.000			
Butane gas (kg)	2.996	0.000	0.00			
Manufactured gas (kg)	0.878	0.099	0.002			
Biogas (kg) (kg)** Biogas (kg)** Biogas (kg)** Biogas (kg)**	0.000	0.025	0.003			
Wood biomass (kg)**	0.000	4.332	0.058			
Biomass pellets (kg)**	0.000	5.424	0.072			
Petroleum coke (kg)	3.169	0.325	0.20			
Coal coke (kg)	3.017	0.282	0.042			
Hard coal and anthracite (kg)	3.117	0.303	0.046			
Subituminous pullets (kg)	1.331	0.134	0.020			

A-1.2: Emission factors applied (source: economic model input data)	
Base year	2019

For the calculation in t or MWh primary energy							
*Intergovernmental Panel on Climate Change (IPCC) principles, Covenant of Mayors for Climate and Energy methodology_ Methodology for calculating material economics: Emission=activity data*Emission Factor*							
Issuing sector	**Primary energy/ source of energy**	**Carbon dioxide (CO_2)**	**Methane (CH4)**	**Nitrous oxide (N2O)**	**Hydrofluorocarbons and Perfluorocarbons**	**Sulphur hexafluoride (SF_6)**	**Nitrogen trifluoride (NF3)**
Transport	Private Transport (g/km)	196					
	Transport Buses (g/km)	593					
	Commercial transport (<3.5 t) (g/km)	216					
	Commercial transport (>3.5 t) (g/km)	374					
Buildings and heating	Heating Production (District Heating)(g/kWh)	200					
	Heating Production (Local Heating)(g/kWh)	202					
Electricity	(Emission factor of the national mix 2019)(g/kWh)	222					

A-1.3: Activity by source sector (from economic model data inputs)			
Base year		2019	
	Scope 1	**Scope 2**	**Scope 3**
Transport			
Transport need - passenger cars + motorbikes (M km/year)	3021		
Transport need - buses (M km/year)	48		
Transport need - trains/metro (M km/year)	13		
Transport need - light duty trucks (<3.5 t) (M km/year)	82		
Transport need - heavy duty trucks (>3.5 t) (M km/year)	1014		
Buildings & Heating			
Heating demand (space heating + domestic hot water)(GWh/year)	943		
Electricity			
Electricity demand within city boundaries (GWh/year)		2430	
Waste			
Collected waste within city boundaries (tonnes)			344373
Other			

A-1.4a: GHG emissions by sector of origin (data source: PACES)[11]					
Base year	2019				
Unit	t CO2 equivalent/year				
	Scope 1	**Scope 2**	**Scope 3**	**Total**	**% of Total**
Transport	**807.735,56**			**807.735,56**	**38,7%**
Buildings and heating	**334.239,57**			**334.239,57**	**16%**
Electricity		**419.009,34**		**419.009,34**	**20%**
Waste			**206.102,03**[12]	**206.102,03**	**9,9%**
Other	**320.902,2**			**320.902,2**	**15,4%**
Total	**1.462.877,33**	**419.009,34**	**206.102,03**	**2.087.988,68**	**100%**

[11] All 2019 inventory data, segregated by sector, have been included in the text of the Climate Agreement.
[12] All waste is processed outside the municipality.

A-1.4b: GHG emissions by source sector (from economic model inputs)					
Base year	2019				
Unit	t CO_2 equivalent/year				
	Scope 1	**Scope 2**	**Scope 3**	**Total**	**% of Total**
Transport	789588			789588	42%
Buildings & Heating	127825			127825	7%
Electricity		537036		537036	28%
Waste			70342	70342	4%
Other	362555			362555	19%
Total	1279968	537036	70342	1887345	100%

** Includes Scope 1 Waste emissions (produced and processed in the city) and Scope 3 (produced by the city but processed outside the city border).*

A-1.4c: GHG emissions by source sector (from economic case)					
Base year	BAU 2030 (Business as Usual 2030)				
Unit	t CO_2 equivalent/year				
	Scope 1	**Scope 2**	**Scope 3**	**Total**	**% of Total**
Transport	571545			571545	34%
Buildings & Heating	156655			156655	9%
Electricity		549430		549430	32%
Waste			58775	58775	3%
Other	362555			362555	21%
Total	1090755	549430	58775	1698960	100%

** Includes Scope 1 Waste emissions (produced and processed in the city) and Scope 3 (produced by the city but processed outside the city border).*

A-1.6: Description and assessment of the Baseline GHG Inventory

Seville's total emissions amount to 2.087.988,7 tCO_2 eq. This is equivalent to a per capita emission of 2,9828 tCO_2 eq per inhabitant per year, which shows a notable impact of the metropolitan area on its central area.

The breakdown by sector is presented below:

- Road traffic/transport 807.735,56 (38,7%)
- Electricity consumption: 753.248,91 (36,08%)
- Consumption of other fuels: 223,792.41 (10.71%)
- Wastewater: 142.290,71 (6,81%)
- Fluorinated gases: 89.638,84 (4,29%)
- Waste: 63.811,32 (3,06%)
- Agriculture: 4.993,48 (0,24%)
- Livestock: 2.477,47 (0,12%)

In terms of the categories established for the Mission, we would have:

- Road traffic: 807.735,6 (38,7%)
- Electricity consumption: 753.248,9 (36,08%)
- Consumption of miscellaneous fuels and waste: 429.894,4 (20,58%)

This amounts to 1.990.878,9 t CO2 eq, leaving a total of 97.109,8 t CO2 eq (4.6%) in the "other" group, which corresponds to emissions from agriculture, livestock and fluorinated gases.

MODULE A-2: Evaluation of current policies and strategies

A-2.1: List of relevant policies, strategies, and regulations					
Type	**Level**	**Name and/or title**	**Description**	**Relevance**	**Necessary actions**
Action Plan	Local	Sustainable Energy and Climate Action Plan	The Sustainable Energy and Climate Action Plan (SECAP) is the document that replaces the SEAP and incorporates the emissions inventory, the analysis of risks and vulnerability to Climate Change and the package of measures to be implemented in the field of energy and adaptation to Climate Change. https://www.sevilla.org/transparencia/relaciones-con-los-ciudadanos/1-informacion-atencion-ciudadanos/paes-2013.pdf	It is the result of Seville's adherence to the European Covenant of Mayors (2009), in a first phase, and in its re-edition after the Paris Agreement (2015). Includes Adaptation Plan.	Preparation of the SECAP and biannual review of both the emissions inventory and the adaptation plan. The SECAP will be integrated into the Seville Climate Action Plan.
General plan	Local	General Urban Development Plan (Plan General de Ordenación Urbana)	https://www.urbanismosevilla.org/areas/planeamiento-desarrollo-urbanistico/pgou-vigente-1	It represents the urban planning of the city, both for new constructions and for urban restoration and rehabilitation interventions.	Integrate into the PGOU the necessary modifications, as a consequence of the Climate Action Plan, for both mitigation and adaptation.
General plan	Local	Sustainable Urban Mobility Plan	Seville's Sustainable Urban Mobility Plan aims to bring about a change in travel modes that will enable a drastic reduction in GHG emissions by minimising travel times.	General objectives of the document: Mobility as a citizen's right: guaranteeing travel by a means of	Integrate SUMP forecasts into the Climate Action Plan, with indicators for monitoring and updating according to results.

			The Bicycle Plan is also part of this area. It integrates the forecasts contained in the Spanish Strategy for Sustainable Mobility.	transport with an average journey time of 20 minutes. Combat climate change and reduce emissions in Seville by 55%. Integration of the sustainable mobility model of the metropolitan area. Specific objectives: 2/3 of journeys to be made in a sustainable way (pedestrian, bicycle and public transport) and only one third by car. Achieve a more efficient transport system with a travel time of 20 minutes and a maximum of 25 minutes. Improving the integration of the transport system of Seville and the metropolitan area. Increase the share of zero-emission private vehicles to 10% by 2030. 75% of public transport in zero-emission vehicles.	should enable climate neutrality of the transport sector in the city by 2030.
Master plan	Local	Tree Master Plan for Seville	The Seville Urban Tree Master Plan is the document that sets out the guidelines for the overall planning of the city's trees. It establishes the	Given the scarcity of forested areas in the municipality, parks and gardens represent the main	Integrate this planning into the Climate Action Plan, incorporating the sink variable as a

			main challenges and the principles on which it is based. Based on the analysis of different sources of information, it diagnoses the current situation, defines the optimal model for trees and their management, establishes objectives and proposes concrete actions to achieve them. https://www.sevilla.org/servicios/medio-ambiente-parques-jardines/plan-gestion-arbolado-urbano	scenario to promote CO2 absorption.	criterion for the choice of species and density of plantations.
General plan	Local	Municipal Housing, Land and Rehabilitation Plan	https://www.emvisesa.org/wp-content/uploads/2022/08/20220729_JGL-Aprobacion-inicial-modificacion-PMVS.pdf	It represents the planning from which the rehabilitation of the residential sector of the city is projected.	Integrate this planning into the Climate Action Plan, enabling the consideration of climate parameters in urban rehabilitation actions (mainly reduction of electricity consumption, water consumption and organic waste generation).

Strategy	Regional	Year 2002. Andalusian Strategy for Climate Change.	Designed as a set of measures to be implemented by the different Andalusian Government Departments as a contribution to the Spanish Climate Change Strategy, its content is based on six operational criteria: Zero irreversibility, which aims to eliminate actions that produce non-restorable damage. Sustainable use, the aim of which is not to exploit resources beyond their renewal rate. Sustainable emissions. Technological efficiency. Precaution. Prevention		
Plan	Regional	Year 2003. Andalusia Energy Plan 2003-2006 (PLEAN).	Instrument for strategic planning and coordination of sectoral policies in The programme is aimed at energy infrastructures, the promotion of renewable energies, as well as actions in the field of energy saving, efficiency and diversification in Andalusia.		
Plan	Regional	Year 2007. Andalusian Energy Sustainability Plan 2007-2013 (PASENER).	PASENER aims at the adoption of a new energy model that gives meeting the energy supply needs of the population without generating environmental, economic and social imbalances, within the framework of sustainable development for Andalusia		

Law	Regional	Law 8/2018, on measures against and for the transition to a new energy model and climate change in Andalusia.	It establishes the obligation for Andalusian municipalities to draw up municipal plans against climate change (art. 15). It is part of the Junta de Andalucía's Climate Action Plan (2021-2030).	The content of these plans requires, as a minimum: **a)** Analysis and evaluation of the greenhouse gas emissions of the municipality and, in particular, of municipal infrastructures, facilities and services. **b)** Identification and characterisation of vulnerable elements and the impacts of climate change on the municipal territory, based on the analysis of regional Climate Scenarios, including the analysis of extreme weather events. **c)** Objectives and strategies for mitigating and adapting to climate change and promoting energy transition. **d)** Actions to reduce emissions, particularly considering those with the greatest potential to improve air quality in the urban environment, within the framework of the Andalusian Climate Action Plan. **e)** Actions to incorporate climate change adaptation and energy transition measures in municipal planning and programming	Integrate this scope and content into the new Seville Climate Action Plan.

				instruments, especially in general urban planning. **f)** Actions for the promotion of research, development and innovation (R&D&I) for the implementation of mitigation, adaptation and energy transition measures in the area of its competence. **g)** Actions for awareness raising and training on climate change and energy transition at local level, incorporating gender equality principles. **h)** Actions for the progressive substitution of municipal consumption of fossil fuels by renewable energies produced on site. **i)** Actions in the field of construction and energy rehabilitation of municipal buildings in order to achieve the energy efficiency and savings targets set out in the municipal plan. **j)** Measures to promote energy transition within urban mobility plans. **k)** Actions to optimise public lighting so that, in accordance	

				with applicable legislation, electricity consumption is minimised, maximum energy efficiency is guaranteed and light pollution is reduced in accordance with the best available technology. **l)** Temporal programming of the planned actions, their economic evaluation and execution.	

A-2.2: Description and evaluation of policies

Seville is immersed in the new edition of the PMCC, in accordance with the provisions contained in the Andalusian Climate Change Law, mainly following the methodology for the elaboration of the municipal HC. Likewise, the diagnosis and drafting of goals within the framework of the 2030 Agenda (Agenda Clima 2030) is underway, and now the edition of the Seville Climate Mission Plan is underway.

Below is a summary of the main measures that were incorporated in the revision of the PACES 2018:

- Municipal buildings and facilities
- Buildings and equipment/ tertiary sector facilities
- Residential buildings
- Street lighting
- Transport
- Local electricity production
- Local heating/cooling production
- Other

The actions envisaged meant a reduction of **506,656.7 tonnes CO2 eq**, well above the 55,213 tonnes CO_2 eq that were required in 2015. The target was to achieve a **54.28%** reduction compared to the old 2015 inventory, exceeding the commitment set in the Covenant of Mayors by 14.28%.

New policies and planning instruments, coupled with the commitment to the Climate Neutral Cities Mission 2030, imply a rethinking of the objectives to achieve the decarbonisation of the urban system.

However, this is a dynamic, iterative process, in continuous co-creation, which requires permanent updating of this planning, always attentive to the proposals that emanate from the different multilevel public participation procedures established within the framework of the Advisory and Public Participation Council of the Seville Energy and Sustainability Agency.

A list of the main measures included in the SECAP (under revision) is presented below[13]:

Title	Process	PACES 2016 Emission Reduction (t CO_2 /year)
AESS05 - Energy certification of municipal buildings (Audits)	ED 25% ED	1.944,4
EMASESA001 - Increase of cogeneration by co-digestion at WWTPs	ED	3.761,4
IMD001 - Pumping efficiency IMD installations	IP 2017	16,2
IMD002 - Energy efficiency in swimming pools - use of sunlight	IP 2017	38,1
IMD003 - Conducting energy audits in IMD centres	ED 45	47,5
IMD005 - Energy efficiency in swimming pool enclosures	IP 2017	5,9
IMD006 - Energy Efficiency in Sports Centres	Jan 2016	14,3
TUSSAM001 - Development and implementation of an action plan for energy saving and efficiency in TUSSAM offices, depots and workshops.	ED 50% ED	114,1
AESS03 - Implementation of new private solar energy installations, supported by feed-in tariffs	ED 50% ED	26.455,0
AESS09 - FEMP's EA Green Homes Programme	IP 2017	194,3
AESS05 - Establishment of Municipal Energy Optimisation Plan (Audits)	ED 25% ED	1.944,4
EMVISESA001 - Installation of solar thermal energy in dwellings promoted by the City Council.	ED	6.999,5
EMVISESA004 - Implementation of bioclimatic architectural techniques	IP	No data
GMU001 - Replacement of luminaires without reflector by luminaires with reflector and lower wattage	ED	131,0
GMU002 - Replacement of mercury lamps with lower wattage sodium lamps	ED	361,6
GMU003 - Replacement of open luminaires to avoid performance decrease due to soiling	ED	101,9
GMU004 - Replacement of traditionally designed street lamps	ED	56,3
GMU005 - Placement of voltage regulators in headers	ED	2.076,1
GMU006 - Centralisation of public lighting control	ED	3.153,3
IMD004 - Increasing the efficiency of lighting in sports centres	IP 2017	5,9
AESS06 - Renewal of the vehicle fleet through incentives	ED 20% ED	154.221,0
GMU007 - Adaptation of buildings to accommodate electric vehicle recharging point infrastructures	IP 2017	41.597,6
LIPASAM001 - Use of electric vehicles in LIPASAM vehicle fleet	ED 26	85,0
LIPASAM002 - Increased lateral waste collection	ED	687,9
LIPASAM005 - Recovery and use of biogas in landfills	ED	9.008,0
LIPASAM006 - Implementation of containerised collection of domestic oil	ED	105,9

[13] Full information can be found at https://eu-mayors.ec.europa.eu/en/signatory/12737#actionPlansAndProgress

Title	Process	PACES 2016 Emission Reduction (t CO_2 /year)
LIPASAM008 - Home and Community Composting	Not Started	0,9
MOBILITY001 - Sustainable Mobility Plan of the Transport Consortium of Seville	ED 50% ED	10.790,0
MOBILITY003 - Implementation of bus lanes and reserved platforms in Ronda Histórica, 2nd ring road and Luis Montoto.	ED	491,9
MOBILITY004 - Extending the network of reserved bus lanes in different areas of the city		
MOBILITY005 - Extension of the Tramway route (to San Bernardo area)	ED	1.262,0
MOBILITY006 - Extension of the tramway route from San Bernardo to Santa Justa railway station (drafting of Special Plan and Environmental Assessment).	IP 2017	3.415,4
MOBILITY007 - Management of the new metro line 3, line 2 BTR and above-ground connection of a section of line 4	IP 2020	139.431,2
MOBILITY013 - Implementation of low-emission zones	IP 2018	17.730,0
MOBILITY016 - Car sharing programme	ED 50% ED	108,0
MOBILITY017 - Efficient Driving Courses for Taxis and Commercial Vehicles	ED 80%	618,5
MOBILITY018 - School transport plans (implementation of school routes)	IP 2018	6.160,0
PARQUEMOVIL001 - Purchase of eco-efficient vehicles for the municipal vehicle fleet	IP 2018	633,0
RRHH001 - Establishment of a teleworking procedure	IP 2018	189,4
TUSSAM002 - Implementation of a fleet of 156 Compressed Natural Gas (CNG) buses	ED 68% ED 68	45,6
TUSSAM003 - Expansion of the Compressed Natural Gas (CNG) bus fleet by 47 pcs.		
TUSSAM004 - Implementation of a 500 KW photovoltaic solar plant for self-consumption in the TUSSAM bus car park.		
TUSSAM005 - Construction and commissioning of a 1880 kW solar photovoltaic plant in the bus car park of the TUSSAM bus depot.		
TUSSAM006 - Compressed natural gas refuelling station for external vehicles at the TUSSAM facilities at Avda. de Andalucía nº 11.		
TUSSAM007 - Education and awareness programmes to promote the use of Public Transport in schools.	ED 20% ED	27,5
TUSSAM008 - Publicity campaigns to promote the use of Public Transport	ED 30% ED	450,0
TUSSAM009 - Implementation of Efficient Driving System in the Fleet	Jan 2016	2.200,0
TUSSAM010 - Commissioning of new hybrid bus	Jan 2016	33,6
TUSSAM011 - Expansion of the CNG Refuelling Station to allow refuelling of 300 buses during the night.	Jan 2016	97,0
EEMM03 - Feasibility study of the 68 photovoltaic energy installations in municipal buildings "Sevilla Solar".	IP 2017	273,5
AESS03 - Implementation of new private solar energy installations, supported by feed-in tariffs	ED 50% ED	26.455,0
CEMS01 - Environmental Education Programmes	ED	411,2
PYJ001 - Tree Planting: Planting of 10,000 trees on city streets.	ED 50% ED	19.000,0

Title	Process	PACES 2016 Emission Reduction (t CO_2 /year)
PYJ002 - Study and trials for the use and valorisation of bitter oranges in Seville	IP 2018	434,5
PYJ003 - Identification of spaces and projection of green areas in vertical gardening in Seville	IP 2018	112,5
Total GHG emission reductions from measures per year		**674.403,0**

A-2.3: Emissions gap (kt CO2e)							
	Baseline emissions (BAU 2030)	**Residual emissions offsetting[1]**		**Emissions reduction target**		**Emissions gap (amount necessary to achieve net-zero)**	
	(Absolute value)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)
Transport	572	169	29%	381	67%	22	4%
Buildings & Heating	157	5	3%	152	97%	0	0%
Electricity	549	82	15%	467	85%	0	0%
Waste	59	12	20%	44	75%	3	5%
Other[2]	363	73	20%	283	78%	7	2%
Total	1699	340	20%	1327	78%	32	2%
[1] Residual emissions consist of those emissions which can't be reduced through climate action and are being offset. Residual emission may amount to a maximum of 20 % as stated by the Mission Info Kit.							
[2] Emissions reduction target reduction percentage for "Other" sector is assumed to be the same as for the other 4 main sectors unless updated by city. Activities and commitments to reduce these emissions are documented in the Climate Neutrality Action Plan.							

MODULE A-3: Systemic barriers to climate neutrality by 2030

A-3.1: System and stakeholder mapping				
Description of the system	**Actors involved**	**Web**	**Influence**	**Interests**
Public Sector	Seville Energy and Sustainability Agency's Advisory and Public Participation Board	Seville City Council	Institutional consultative and participatory body of the Energy and Sustainability Agency of Seville. Integrates the quintuple helix	Encouragement of public participation in the development of actions that could affect energy management, greenhouse gas emissions and/or the sustainability of Seville. Working groups or commissions are set up for matters requiring diagnosis.
Public Sector	Municipal public enterprises	Seville City Council	Management of urban transport, waste and water services	Improving the provision of urban public services
Public Sector	Energy and Sustainability Agency of Seville	Seville City Council	Environmental project management and monitoring (energy consumption, transport and waste)	Reducing greenhouse gas emissions in the city of Seville. Monitoring of the Adaptation Plan
Private Sector	Business associations	Business employers	Existing business and industrial activity in the city of Seville	Increased business profitability and profit maximisation, regulatory certainty. The Seville Climate Action Plan will

				accompany companies registered in the Ministry's HC Register, offsetting and absorption projects.
Private Sector	Professional Associations	Professional Associations	Existing business activity in the city of Seville	Follow-up of the evaluation of the Climate Action Plan, both in mitigation and adaptation.
Academy	University of Seville	Academy	Intervention in decision-making processes on mitigation actions (transport, energy consumption, waste and others).	To turn its university faculty and students into a national and international reference. Cooperation in the curricular internship programmes of Master's programmes
Academy	Pablo de Olavide University	Academy	Intervention in the processes of information and social participation in the process.	To turn its university faculty and students into a national and international reference. Cooperation in the curricular internship programmes of Master's programmes
Civil society	Consumer associations	Consumer associations	Defending consumers' interests and rights	Participation in the Climate Action Plan process, identifying the impacts of the different actions (mitigation and

				adaptation) on consumers.
Civil society	Neighbourhood Associations	Citizenship	Defending the interests and rights of the citizens of Seville	Participation in the Climate Action Plan process, identifying the impacts of the different actions (mitigation and adaptation) on neighbours.
Civil society	Social NGOs (Cáritas Sevilla/Cruz Roja)	Citizenship	Attention to the most disadvantaged	Participation in the Climate Action Plan process, identifying the impacts of the different actions (mitigation and adaptation) on the most disadvantaged.

A-3.2: Description of systemic barriers

The Spanish regulatory framework, often considered excessively prescriptive and rigid, could be a barrier to the necessary innovation in the process of transition to net neutrality in cities, with the currently existing management models. Often, the lack of agility in the regulatory and administrative process prevents the incorporation of innovations of various kinds. Regulations are not easily and quickly adapted to the requirements of climate innovation, preventing actions that could generate positive impacts. In the case of Andalusia, the regulatory framework and its application have been strengthened in order to intensify the fight against the climate crisis from the local entities, based on the competences attributed to the municipalities in the Statute of Autonomy.

Public-private collaboration is essential for the joint construction of new urban models and imaginaries, and it is not sufficiently developed. There are few mechanisms that explore formulas for collaboration beyond contracting and sponsorship. There is a lack of formulas that allow for a systemic and continuous participation of all the agents involved in the areas of action. In terms of urban management procedures, the conventional formulas of sponsorship and patronage, combined with the limitations of public procurement, do not allow for the flexible public-private management of investments required for the transition to carbon neutrality. The lack of financial mechanisms for the implementation of impact projects for climate neutrality, combining private and municipal public funds, can also be a constraint.

Citizen engagement is also critical for the fulfilment of the Climate Mission. Progress must be made in mechanisms for citizen participation in climate policies, plans and actions. An example may be the need to disseminate climate objectives to society in non-expert language.

With regard to municipal management, the current centralised model is a barrier, where the processes of planning, design, execution and maintenance are not adequately coordinated, nor are they implemented in a transversal manner in the organisation. The inertia of working in silos and the compartmentalised distribution of competences is an impediment to the development of integral actions necessary in the processes of urban transformation towards neutrality. These are limitations or barriers that affect a good part of the city councils of large cities, and are common issues in the known diagnoses.

Some opportunities for the city of Seville to support the planning of the Climate Action Plan are as follows:

- There is an active interdepartmental and collaborative working group that has been functioning since 2013, which serves as a connection and communication between the different areas, but also as a space for collaboration on new projects.
- Relations with the city's two public universities allow for very positive links and agreements to be established for both parties. Numerous existing chairs and postgraduate master's programmes focus their research on the fight against climate change, both in the areas of mitigation and adaptation.
- Previous experiences, such as Re-habilitar El Carmen, have been demonstration projects in which multidisciplinary and multilevel participation has given very good results in the field of social intervention. These focal points of knowledge need to be strengthened and directed towards concrete achievements in the sectors of energy saving, mobility, water saving and waste management.
- The existence of the Corporation of Municipal Companies (Emasesa, Lipasam, Tussam and Emvisesa), in charge of the integral water cycle, waste, public transport and housing sectors, strongly committed to planning and fighting climate change, led them to establish climate emergency protocols. They represent a strength for the implementation of the Seville Climate Action Plan.
- And in connection with the above, dozens of companies are committed to the fight against climate change, having promoted their registration in the Ministry's Carbon Footprint Register in the phases of Calculate, Calculate and Reduce, and even Calculate, Reduce and Compensate. The Seville Climate Action Plan will promote these initiatives, increasing the number of committed companies and broadening their involvement in the process. Special emphasis will be placed on the commerce and real estate sectors, which account for almost three quarters of the emissions due to electricity consumption in Seville. Not forgetting the transport sector (bus companies, delivery companies, taxis, etc.), which also account for significant emissions due to road traffic.

However, we would highlight as an important barrier the insufficient communication that the business community maintains with local councils in this respect, perhaps due to the belief that local authorities do not have competence in this area.

A-3.3: Description or visualisation of the city's participatory model for climate neutrality

Seville is committed to complying with the principles of the circular economy, incorporating into its strategy the sustainable use of resources, compliance with the waste management hierarchy emanating from the European Union and the promotion of public procurement of green products. And all this from instruments of awareness, sensitisation and participation, promoting R&D&I and the generation of alliances and public-private partnerships.

The regional climate action plan establishes 6 strategic objectives for 2030, 12 sectoral objectives and more than 137 lines of action distributed in three Programmes: Mitigation and Energy Transition, Adaptation and Communication/Participation, which will be developed in their operational deployments with a 2022, 2026 and 2030 horizon. The city of Seville is part of this planning, which it will integrate into its municipal Climate Action Plan.

The Seville 2030 Strategic Plan establishes in its fourth objective the strategy to develop governance and citizen participation, stating that, in order to fulfil the central objective, it is essential to articulate in the city renewed forms of good governance based on transparency, consensus and equity.

Within the framework of the specific planning that directly concerns this Climate Agreement, social participation is articulated through the **Advisory and Public Participation Council of the Energy and Sustainability Agency of Seville** (regulated by the Municipal Ordinance on Energy Management, Climate Change and Sustainability), in which the participation of the quintuple helix is guaranteed: administrations, companies, civil society, academia and the media.

This participation council, constituted in 2014 and periodically renewed, meets regularly in four ordinary sessions per year, and will evaluate the degree of progress of the commitments acquired in the Seville Climate Agreement. It will also intervene in the iterative and co-creation process that characterises the Climate Mission, reviewing the diagnoses and giving its opinion on the action plans on an annual basis. It will therefore have a consultative character for the positions of the highest municipal decision-making body, the Plenary.

Given that there has been a change in the municipal corporation as a result of the last municipal elections, this Advisory and Public Participation Council has not yet been

constituted with the representatives appointed for the period 2023-2027. This appointment must take place before the end of December 2023.

However, prior to this change, a participatory process was launched among the members of the participation forum of the 2030 Agenda, where the scope and contents of the Mission have been presented. All the institutions and groups participating in this process have also adhered to the Climate Mission, which is why they are included in Annex III.

The Energy and Sustainability Agency has a Governing Board, as well as an Advisory and Public Participation Board, which meets periodically to address the Agency's own issues: Energy, Climate Change and Sustainability. The structure of this public participation forum is set out in the Agency's statutes:

- The Presidency, which corresponds to the President of the Governing Board of the Energy and Sustainability Agency of Seville, or the person he/she delegates.
- The Vice-Presidency, which shall be held by the head of the Directorate-General concerned.
- A representative of each and every one of the municipal areas and companies, with a maximum of twelve members.
- A representative of the Energy and Sustainability Agency of Seville.
- One representative from among the consumer associations, at their proposal.
- A representative of the Seville City Council Works Committee.
- A representative of the business associations.
- One representative from among the Professional Associations established in the city of Seville.
- A representative of the city's residents' associations, at their proposal.
- One representative from each of the public universities based in Seville.
- Up to four members, at the proposal of the Energy and Sustainability Agency of Seville, from among competent technicians of recognised prestige working in the city of Seville.

In this section k), NGOs (environmental and social) and the media are integrated, thus ensuring the participation of the five helix in the process.

PART B - PATHWAYS TO CLIMATE NEUTRALITY BY 2030

MODULE B-1: Climate Neutral Scenarios and Impact Pathways

B-1.1: Impact pathways						
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years)**	**Late outcomes (3-4 years)**	**Direct impacts (Emission reductions - kt CO2e)**	**Indirect impacts (co-benefits)**
Transport	Reduced motorized passenger transportation need				142	
	Shift to public & non-motorized transport				54	
	Increased car pooling				18	
	Electrification of cars + motorbikes				48	
	Electrification of buses				30	
	Optimised logistics				60	
	Electrification of trucks				28	
Buildings & Heating	Building renovations (envelope)				2	
	New energy-efficient buildings				5	
	Efficient lighting & appliances				68	
	Decarbonizing heating generation				77	
Electricity	Decarbonizing electricity generation				467	
Waste	Increased waste recycling				44	

B-1.2: Description of impact pathways

The main areas or impact pathways of the **Seville Climate Action Plan** are based on the following actions, firstly, in the area of mitigation:

- Analysis and assessment of the GHG emissions of the municipality and, in particular, of municipal infrastructures, facilities and services.
- Objectives and strategies for mitigating and adapting to climate change and boosting the energy transition.
- Actions to reduce emissions, particularly considering those with the greatest potential to improve air quality in the urban environment, within the framework of the Andalusian Climate Action Plan.
- Actions for the promotion of research, development and innovation (R&D&I) for the implementation of mitigation, adaptation and energy transition measures in the area of its competence.
- Actions for awareness raising and training on climate change and energy transition at local level, incorporating gender equality principles.
- Actions for the progressive substitution of municipal consumption of fossil fuels for renewable energies produced in situ.
- Actions in the field of construction and energy refurbishment of municipal buildings in order to achieve the energy efficiency and savings targets set out in the municipal plan.
- Measures to boost energy transition within urban mobility plans.
- Actions to optimise public lighting, minimising electricity consumption, guaranteeing maximum energy efficiency and reducing light pollution based on the best available technology.
- Temporal programming of the planned actions, their economic evaluation and execution.

And in the context of adaptation:

- Identification and characterisation of vulnerable elements and the impacts of climate change on the municipal territory, based on the analysis of regional Climate Scenarios, including the analysis of extreme weather events.
- Actions to incorporate climate change adaptation and energy transition measures in municipal planning and programming instruments, especially in general urban planning.

This is supported by a rigorous emissions inventory that addresses the sectors included in the European Climate Mission: road traffic, electricity consumption,

miscellaneous fuel consumption and waste management, with monitoring of these sectors and their sub-sectors from 2005 to 2019.

We assume that the **Climate Action Plan** will integrate all the requirements contained in the regional regulations, as well as the localisation of the SDGs in Seville.

B-2.1: Description of the portfolios of transformative actions		
Issuing sector and sub-sector	**Description of the portfolio of transformative actions**	
	List of actions	**General description**
Transport	Electric vehicle charging point infrastructures	Implementation of charging systems for EVs. The aim is to promote the availability of charging points in the city.
	Use of electric vehicles in LIPASAM's vehicle fleet	Renewal of the LIPASAM fleet with the acquisition of more energy-efficient electric vehicles with a lower impact on CO2 emissions. The project includes the purchase of 4 electric multi-purpose vehicles and 50 electric motorbikes.
	Extension of the tram route	Extension of the tramway route from the San Bernardo area to the Santa Justa railway station. The budget includes the design and execution of the project (€27 million) and the purchase of 5 tram units. This project promotes intermodality between different public transport modes/ autonomous modes (bus, tram, bicycle, train).
	Acquisition of eco-efficient vehicles for the municipal vehicle fleet	Renewal of 50% of the municipal vehicle fleet with the acquisition of more energy-efficient vehicles with lower associated CO2 emissions.
	Implementation of an Efficient Driving System in the TUSSAM fleet.	An Efficient Driving System is to be implemented in the entire TUSSAM fleet (385 buses). The system includes the installation in all buses of the fleet of equipment that captures the necessary data on the driving of the vehicle and on the identity of the driver, storing them and allowing the subsequent analysis of the driving mode. During driving, a display shows the driver whether his driving is optimal. It includes training in efficient and safe driving for the 1200 drivers and middle management of TUSSAM and the monitoring of all drivers, analysing their driving style and encouraging efficient and safe driving with personalised monitoring. An average annual reduction of 8 % in the fleet's fuel consumption is expected.

	Expansion of the Compressed Natural Gas (CNG) bus fleet by 93 units.	Project to expand the CNG public bus fleet by 93 units. This is an alternative to traditional fuels in urban bus fleets. It is a measure already initiated in Seville and, thanks to the results obtained, the number of buses with this fuel, CNG, is expected to increase.
	Incorporation of LIPASAM's vehicle fleet management system.	The aim is to manage LIPASAM's vehicle fleets to improve efficiency and reduce unnecessary journeys, thus avoiding emissions into the atmosphere, while improving the effectiveness of route control and reducing fuel consumption. Management systems are essential to achieve operational excellence within a transport company and also reduce unnecessary costs.
	Use of electric vehicles in LIPASAM's fleet of supervision vehicles.	The measure is based on its application to motorbikes and multi-purpose vehicles in the LIPASAM fleet.
	Education and awareness-raising programmes to promote the use of Public Transport in schools (TUSSAM).	Awareness-raising campaigns will be promoted in educational centres at the Compulsory Secondary Education (ESO) level, aimed at pupils to encourage the use of Public Transport. The aim of these campaigns is to encourage them to adopt behaviour in their daily lives that will lead to a better perception of Public Transport and a greater use of it, which will result in a future reduction in the use of private vehicles and a reduction in CO2 emissions. The campaign consists of organising visits throughout the school year for secondary school pupils to representative facilities, with an exhibition of the advantages of Public Transport, a visit to the Control Centre, the Workshops, the solar photovoltaic plant, the CNG refuelling plant and other facilities. Emphasising the recycling of batteries, tyres, used motor oil, coolant and separation of other waste according to type.
	Publicity campaigns to promote the use of public transport.	Between 5 and 7 publicity campaigns are carried out each year to promote the use of public transport and the reduction of private vehicle use. These campaigns aim to encourage the citizens of Seville in their daily lives to adopt behaviours that will lead to a better perception of Public Transport and a greater use of it, which will result in a future reduction in the use of private vehicles and a reduction in CO2 emissions. The campaigns are diverse in nature and emphasise both bus and tram use.

	Sustainable Mobility Management Plan	Within the SUMP, the management plan aims to bring together all the actions foreseen for its proper planning.
	Pedestrian Mobility Action Plan	This pedestrian mobility action plan encompasses a large number of actions with the aim of recovering public space for the citizen, creating certain infrastructures in the city to serve pedestrians, in parallel with the other ordinary strategies that are carried out to make progress in terms of universal accessibility and maintenance of pavements.
	Actions to promote cycling mobility	This plan foresees that they will be developed in the short term, with proposals focused on completing the current network, renovating sections or specific reforms, integrating the network into the historic centre, improving the maintenance of the cycleway network, as well as the provision of secure cycle parking facilities.
	Actions to promote public transport	In the short term, measures to improve the commercial speed of urban public transport and optimisation of the network to guarantee a quality service, as well as an improvement in the fare system and payment methods in order to make it easier for citizens to use public transport are foreseen.
	Last mile" urban distribution of goods	For the Urban Distribution of Goods action plan, the aim is to implement logistics platforms that will serve the Old Quarter and Triana Historical Quarter, where the greatest deficiency of the current goods distribution model was detected and which, given the need for prior studies to determine the construction and operation model for this type of facility in order to determine its economic and financial viability, are expected to be implemented in the long term.
	Road and traffic improvement actions	The measures aim to consolidate the hierarchy of roads by improving the flow of traffic on main roads and penalising traffic on local roads in favour of pedestrians and bicycles, promoting the outer ring roads as opposed to the inner or transversal roads by improving the outer ring roads and the communication between outer ring roads, reducing and calming traffic on the historic ring road and interrupting the main and penetration roads in favour of the outer ring roads, in addition to other complementary measures aimed at freeing the urban nucleus from through traffic by directing it towards the main road

	Decarbonisation of transport	The action plan for the Promotion of Decarbonisation in transport aims to promote the use of electric mobility with the implementation of the ZBE City and an adequate provision of infrastructure for Charging Points. To this end, a set of measures are proposed to move towards a travel model based on the progressive decarbonisation of transport in the City, therefore, it is a programme that will be developed throughout the plan progressively trying to adapt to the growth of electric vehicles and facilitating as far as possible the promotion of electric mobility.
Buildings and heating	Pumping efficiency in IMD installations	Improving efficiency of pumping equipment by installing variable speed drives
	Energy efficiency in swimming pool coverings	Modification of pool cover systems for annual use with more energy-efficient construction elements. Application to pools with presostatic covers in the Torreblanca and Tiro de Línea sports centres.
	TUSSAM Facilities Efficiency Plan	Development and implementation of a plan of energy saving and efficiency actions in TUSSAM's offices, depots and workshops, with the incorporation of more efficient lighting, improved air conditioning and insulation.
	Pilot building project based on high energy efficiency parameters for monitoring and analysis of its application to other municipal buildings.	Pilot project based on the Emvisesa headquarters building, which is equipped with numerous features to achieve high energy efficiency. Its design obeys very demanding energy efficiency parameters, such as intelligent lighting, with brightness sensors capable of regulating the lighting and intensity based on the natural light existing at any given time, or heat recovery systems, to enable constant ventilation in the building, taking advantage of the internal temperature and minimising energy consumption, among other aspects.
	Performance of energy audits and application of the corresponding EMASESA Energy Efficiency and Saving Improvement Plan.	The main objectives are to understand the current energy situation, inventory equipment and installations, take measurements of electrical, thermal and comfort parameters, and analyse options for optimising the demand for fuel and electricity.

	Energy management in WWTPs (ISO 50001) of EMASESA	The measure is based on a set of actions to be applied in WWTPs in order to obtain the best performance from the energy demanded by this type of facility. The measure is applied in accordance with the UNE-EN ISO 50001:2011 Standard, which establishes the requirements that an Energy Management System must have, in order to make continuous and systematic improvements to the energy performance of organisations. The certification of an energy management system ensures the systematic control and monitoring of energy aspects and the continuous improvement of energy performance. This contributes to a more efficient and sustainable use of energy, giving confidence in the management system.
	Implementation of bioclimatic architectural techniques	Through the implementation of bioclimatic architectural techniques in the design and subsequent construction of housing, the energy efficiency of buildings can be significantly improved (greater acoustic and thermal insulation, better use of natural light, etc.).
Electricity Consumption	Centralisation of street lighting control	Reduction of electricity consumption by centralising the control of public lighting.
	Installation of a 1 MW photovoltaic solar plant on the roof of TUSSAM's workshops and offices.	Implementation of a 1 MW photovoltaic solar plant on the roofs of TUSSAM's workshops and offices. This will allow the roof to be rented to a specialised company in the energy sector. For this reason there is no investment for TUSSAM.
	100 kw solar plant for self-consumption	100 kw solar power plant in the Metrocentro depot for self-consumption.
	Solar thermal collectors for DHW auxiliary parks	The aim is to heat water by capturing the maximum solar radiation. Solar thermal energy is proving to be the most economical and ecological hot water production system available today. The main benefit is the reduction of CO2 emissions. The production of domestic hot water (DHW) is the main application of solar thermal energy, due to the low preparation temperatures and the homogeneity of its consumption throughout the year. The Technical Building Code requires that in new buildings and in the refurbishment of existing buildings there must be a minimum contribution of solar energy to cover the energy needs of DHW.

	Installation of mini-hydroelectric power plant in "El Gergal	The project has been drafted and is being processed by industry. The unified environmental authorisation procedures are about to begin. Given the information provided by the promoter, an execution rate of 5% is estimated. Finally, the implementation period for the current 2020-2030 period is established as follows
Waste	Home or community composting	This is the separation at source of the biowaste or organic fraction of urban waste (FORU) for recycling on site, through home or community composting. The measure is aimed at families, schools or neighbourhood communities, in semi-urban and urban areas. The implementation of the measure involves the distribution of composting machines among the target population, as well as an awareness-raising/training campaign among the households and communities involved.
	Installation of smart separate collection bins	Application of smart systems to the city's glass containers to improve the efficiency and sustainability of their management, as 65% of the containers for glass containers are emptied with very little glass (when they are only 25% full). This is a measure based on the Life Ewas project, which consists of the use of efficient and sustainable methodologies for waste management through the use of ICT tools to reduce polluting emissions.
	Separate collection of biowaste by side-loading container	Like the previous measures (65 and 66), this measure is closely related and has been defined as an evolution of these measures, being a third consolidation phase. In short, the idea is to progressively introduce the side-loading container for the collection of bio-waste. The containers of
Other	Environmental Education Programmes	Programmes with dissemination and awareness-raising material on energy saving and sustainable development. Estimated attendance of 8250 people per year.

This set of transformative actions[14] will be complemented by actions from the private sector, which will be detailed in the annual follow-up assessment of the Climate Action Plan, within the framework of the Mission.

Some selected individual actions are presented below, corresponding mainly to the transport sector, as it is the largest emitter in the emissions inventory of the city of Seville. In the edition of the Climate Action Plan (in preparation), individual actions aimed at reducing energy consumption (both electricity and other fuels) will also take on special relevance.

[14] All the transformative actions contained in the Seville Climate Action Plan can be viewed at https://www.sevilla.org/ayuntamiento/unidad-organica/agencia-energia-sostenibilidad/documentos/paces-2016-aprobado.pdf.

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Developing the Sustainable Mobility Management Plan
	Type of action	MOBILITY MANAGEMENT
	Description of the action	Development of the actions included in the Mobility Management Plan.
Reference to the impact pathway	**Subsector**	TRANSPORT
	Systemic lever	Governance and politics
	Short and medium-term changes	Most of these measures will help the implementation and success of some of the proposals of the Sustainable Urban Mobility Plan, as well as facilitate and encourage the change of the city's current mobility towards a more sustainable model.
Implementation	**Agencies/persons responsible for implementation**	DG Mobility
	Scale of action and target entities	All public and private land transport in the city
	Actors involved	Citizens (private vehicles), businessmen (taxis, freight and passenger transport)
	Comments on implementation	The estimated budget for this package of measures is 372,600 €.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	10% of those due to the transport sector
	Total costs and costs per unit of CO2eq	4.65 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Pedestrian Mobility action plan
	Type of action	PROPOSALS FOR PEDESTRIAN MOBILITY
	Description of the action	The Pedestrian Mobility action plan encompasses a large number of actions with the aim of recovering public space for citizens, creating certain infrastructures in the city at the service of pedestrians, in parallel with the other ordinary strategies that are carried out to make progress in terms of universal accessibility and pavement maintenance.
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	Governance and politics
	Short and medium-term changes	Most of these measures will help the implementation and success of some of the proposals of the Sustainable Urban Mobility Plan, as well as facilitate and encourage the change of the city's current mobility towards a more sustainable model.
Implementation	**Agencies/persons responsible for implementation**	DG Mobility
	Scale of action and target entities	
	Actors involved	Citizens (private vehicles), businessmen (taxis, freight and passenger transport)
	Comments on implementation	The estimated budget for this package of measures amounts to 136,041,290 €, with most of the actions planned to be implemented in the short and medium term.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	1.5% of total inland transport

	Total costs and costs per unit of CO2eq	11.33 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Cycling Mobility Action Plan
	Type of action	CYCLING MOBILITY PROPOSALS
	Description of the action	This plan foresees that they will be developed in the short term, with proposals focused on completing the current network, renovating sections or specific reforms, integrating the network into the historic centre, improving the maintenance of the cycleway network, as well as the provision of secure cycle parking facilities.
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	Governance and politics
	short and medium-term changes	Medium-term measures are focused on improving bicycle-public transport intermodality and in the long term on improving the bike-sharing system.
Implementation	**Agencies/persons responsible for implementation**	Urban Planning Management
	Scale of action and target entities	
	Actors involved	General public
	Comments on implementation	The Cycling Mobility action plan encompasses the largest number of actions to be implemented with an estimated budget of €9,451,850.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	5% of total land transport

	Total costs and costs per unit of CO2eq	236 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Implementation of the action plan for public transport.
	Type of action	PUBLIC TRANSPORT
	Description of the action	In general, in the short term, measures to improve the commercial speed of urban public transport and optimisation of the network are expected to be implemented in order to guarantee a quality service, as well as an improvement in the fare system and payment methods in order to make it easier for citizens to use public transport.
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	
	short and medium-term changes	In the medium and long term, the Medium-High Capacity Public Transport Network will be implemented. The different improvements proposed for the connections with the Metropolitan Area are foreseen from the short to the long term according to the complexity required for their development.
Implementation	**Agencies/persons responsible for implementation**	TUSSAM
	Scale of action and target entities	
	Actors involved	General public
	Comments on implementation	The Public Transport action plan is the one with the largest estimated budget, 164,676,980 €. It is one of the fundamental axes of sustainable mobility, being essential to improve the current public transport system so that it is attractive to citizens and so that they choose to use it instead of the car.

Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	2% of total road traffic
	Total costs and costs per unit of CO2eq	10,292 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Urban Distribution of Goods action plan
	Type of action	DISTRIBUTION OF GOODS
	Description of the action	For the Urban Distribution of Goods action plan, the aim is to implement logistics platforms that will serve the Old Quarter and the Triana Historical Quarter, where the greatest deficiency in the current goods distribution model was detected and which, given the need for prior studies to determine the construction and operation model for this type of facility in order to determine its economic and financial viability, are expected to be implemented in the long term.
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	
	short and medium-term changes	In the short term, measures are proposed to optimise loading and unloading in the city and to improve the current model of the DUM in the Old Town and Old Triana in the short and medium term.
Implementation	**Agencies/persons responsible for implementation**	DG Mobility
	Scale of action and target entities	
	Actors involved	Transport entrepreneurs

	Comments on implementation	For the Urban Freight Distribution action plan, a budget of approximately €62,062,250 is estimated.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	2,5%
	Total costs and costs per unit of CO2eq	3.073 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Road and Circulation Action Plan
	Type of action	ROADS AND TRAFFIC
	Description of the action	The proposed measures are expected to be implemented in the short to medium term, achieving the strategies defined to alleviate the problems generated by traffic from the metropolitan area of Seville, consolidating the hierarchy of roads by improving the flow of traffic on main roads and penalising traffic on local roads in favour of pedestrians and bicycles, strengthening the outer ring roads as opposed to the inner ring roads or transversal roads by improving the outer ring roads and the communication between outer ring roads, reducing and calming traffic on the historic ring road and interrupting the main and penetration roads in favour of the outer ring roads, in addition to other complementary measures which aim to free the urban centre of through traffic by directing it towards the main road
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	Policy and governance
	Short and medium-term changes	

Implementation	**Agencies/persons responsible for implementation**	
	Scale of action and target entities	
	Actors involved	General public
	Comments on implementation	The Road and Traffic Action Plan has a budget of approximately 30.590.000 €.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	2% of total land transport
	Total costs and costs per unit of CO2eq	1,515 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Parking Action Plan
	Type of action	PARKING
	Description of the action	
Reference to the impact pathway	**Subsector**	TRANSPORT //
	Systemic lever	
	short and medium-term changes	The proposals will be developed in the short to medium term, although most of them will be implemented in the medium term due to their development needs.
Implementation	**Agencies/persons responsible for implementation**	DG Mobility
	Scale of action and target entities	
	Actors involved	General public

	Comments on implementation	For the Action Plan concerning the Car Park, a budget of 5.384.000 € is estimated.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	0.5% of total land transport
	Total costs and costs per unit of CO2eq	1,333 e/t

B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Development of the Action Plan for the Promotion of Decarbonisation in Transport
	Type of action	MEASURES TO SUPPORT DECARBONISATION IN TRANSPORT
	Description of the action	The action plan for the Promotion of Decarbonisation in transport aims to encourage the use of electric mobility with the implementation of the ZBE City and an adequate provision of infrastructure for Charging Points. To this end, a set of measures are proposed to move towards a travel model based on the progressive decarbonisation of transport in the City, therefore, it is a programme that will be developed throughout the plan progressively trying to adapt to the growth of electric vehicles and facilitating as far as possible the promotion of electric mobility.
Reference to the impact pathway	**Subsector**	
	Systemic lever	Policy and governance
	Short and medium-term changes	
Implementation	**Agencies/persons responsible for implementation**	Energy and Sustainability Agency of Seville
	Scale of action and target entities	

	Actors involved	General public
	Comments on implementation	The estimated budget is 143,121,000 €, although some of the measures cannot be assessed a priori, such as bonuses and/or surcharges depending on the type of vehicle, requirements in specifications for future government contracts, etc.
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	2% of total emissions due to land transport
	Total costs and costs per unit of CO2eq	8,945 e/t

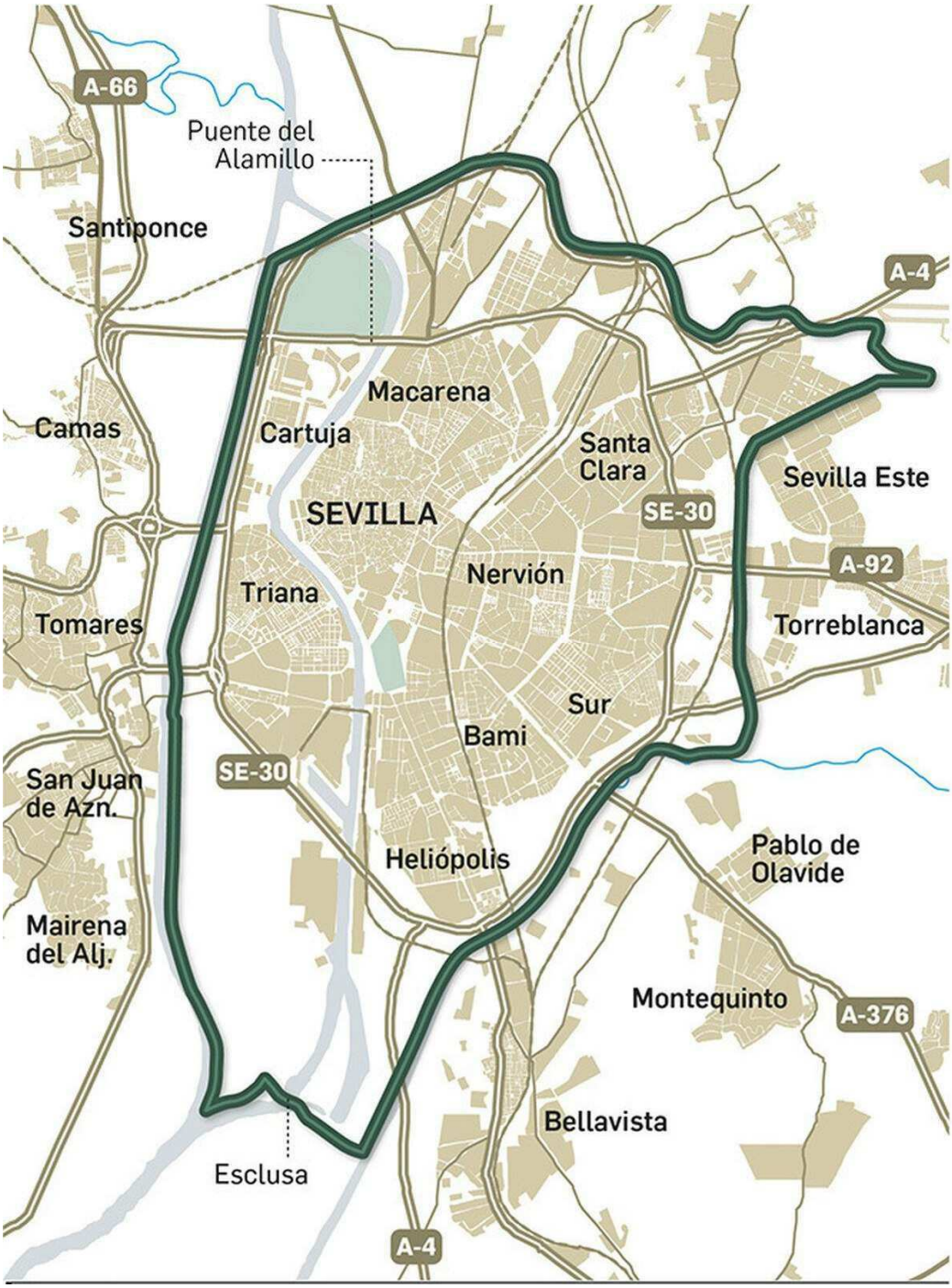
B-2.2: Individual Action Schemes		
Action plan	**Name of the action**	Implementation of the Green Belt
	Type of action	absorption SUPPORT MEASURES
	Description of the action	The development of the City's Green Belt is planned, through the creation and/or adaptation of a green infrastructure of some 42 km, which will serve as an ecological corridor and link a large number of existing green spaces and parks. Also, the recovery of areas of high ecological potential which, belonging to the H.P.D. on the left bank of the River Guadalquivir, currently lack access, or have not been stripped of the riparian vegetation that allows the development of diverse and enriching ecosystems. These sections would provide a connection to the rest of the paths that run along this bank of the river, which are of enormous scenic and environmental attraction, as well as being frequently used for cycling, equestrian, bird-watching and general enjoyment of nature.
	Subsector	

Reference to the impact pathway	**Systemic lever**	Policy and governance
	Short and medium-term changes	
Implementation	**Agencies/persons responsible for implementation**	Parks and Gardens/Energy and Sustainability Agency of Seville
	Scale of action and target entities	
	Actors involved	General public
	Comments on implementation	The estimated budget amounts to 30 Meuros
Impacts and costs	**Renewable energy generated (if applicable)**	
	Energy removed/replaced, volume or fuel type	
	Estimated GHG emission reductions (total)	Increased absorption capacity by 750 tCO2eq By shadow effect, reduction of 2% of emissions from electricity consumption (residential sector).
	Total costs and costs per unit of CO2eq	8,488 e/t

B-2.3: Summary of residual emissions strategy

According to the 2019 GHG Inventory, Seville has the potential to absorb 526.22 tCO2 eq. It is foreseeable that with the implementation of the actions contained in the project for the city's Green Belt, this amount will increase significantly (around 1,800 t).

Creation of the Green Belt of the City of Seville:



The main phases of this project are as follows, although it is subject to some extensions and modifications at some stages:

- F-0 Design of the set of phases, projection and creation of structure and process of citizen participation in interest groups, and other institutions or City Councils that could be affected. Tendering and contracting of the works for the next phase.
- F-1 Section of 14,130 m between the Olympic Stadium and the Exclusa del Puerto. It involves, among other actions:
    - Recovery of the DPH in 2,500 m and its conditioning.
    - Construction of an elevated footbridge over the mouth of the old Guadaira riverbed.
    - Improvement of existing trees and reforestation of the riverbed and public land in the Tablada area.
    - Creation of accessible access areas, rest and recreation areas and rest areas.
    - Signage for public use
    - Construction and/or improvement of roads, and start of improvement of existing roads to municipalities in the Aljarafe area.
- F-2 Section of 8,900 m between the Exclusa del Puerto and Guadaira Park 1:
    - Construction and/or improvement of roads, and the beginning of the route towards Alcalá de Guadaira.
    - Construction of elevated footbridges over the Utrera road and the Bellavista road.
    - Reforestation of the edges of the canal as well as the Guadaira River and nearby public land that can be integrated into the project.
    - Creation of fully accessible access areas and rest areas
    - Signage for public use

- F-3 9,400 m stretch between Guadaira 1 Park and Tamarguillo Park. It involves, among other actions:
    - Demolition of the paving, conditioning and landscaping of the Ranillas canal as it passes through Palmete and areas of East Seville.
    - Construction and/or improvement of roads
    - Construction of elevated walkways over the Alcalá de Guadaira road and access road to the Airport Control Centre.

- Reforestation of the edges of the canal and of public land close to and integrated into the project.
- Creation of access and rest areas with full accessibility.
- Signage for public use

+ F-4 9,200 m stretch between Tamarguillo Park and the Olympic Stadium. It involves, among other actions:
  - Construction and/or improvement of roads
  - Construction of elevated footbridges over the N IV road.
  - Reforestation of the edges of the canal and of public land close to and integrated into the project.
  - Creation of fully accessible access areas and rest areas
  - Signage for public use

+ F-5 Continuous improvement and fine-tuning of the whole on the basis of the guarantee periods of the works carried out.

Also in this area of green sinks, the City Council will carry out a new planting and replanting of green areas and roads with more than 350,000 trees, which will be consolidated before 2030.

It will be necessary to consider the potential contribution of Seville's green spaces as Ecosystem Services, and it is to be expected that their capacity for compensation will be considerable from a natural and cultural point of view.

On the other hand, the **Seville Offsets Programme will be launched**, similar to that designed in other cities such as Madrid, with plantations carried out by the City Council or directly by the participating entities. Among these entities (local and supralocal), those companies that carry out their activity in Seville and are part of the Ministry's HC reduction programme will have special relevance, regardless of whether they have reached the "*compenso*" level. It should be taken into account that all the companies attached to eCitySevilla (almost 100) will be part of this programme, having agreed to join the Climate Mission (they are listed in Annex III). In addition, other very relevant companies in the city, such as Heineken, Endesa Andalucía, Cepsa, ... have compensation plans that will be integrated (in whole or in part) in the compensation calculation of the city of Seville.

It will also have as special target groups the shops in Seville, due to their significant relevance in terms of electricity consumption in the GHG Inventory of Seville, as well as all passenger and freight transport companies. For these, information campaigns will be carried out to encourage them to join the Ministry's programme or to adopt measures in their sustainability plans.

The aim is to offset 16% of emissions in order to achieve full climate neutrality.

Although there are no agreements to assess the potential for CO capture$_2$ in the city, the issue is part of the university cooperation projects for the 2023-2024 academic year, in order to quantify the potential of these alternatives in the city.

MODULE B-3: Monitoring, evaluation and learning indicators

B-3.1: Impact pathways						
Changes (short and long term)	**Actions**	**No. of indicator**	**Indicator name**	**Target values**		
				2025	**2027**	**2030**
	Reduction of motorised transport	1	Reduction of motorised transport	5%	20%	35%
	Transport modal shift	2	Modal shift of transport ...	5%	15%	30%
	Promoting ridesharing	3	Private carpooling	2%	10%	15%
	Electrification of passenger cars	4	Electric vehicle	5%	15%	30%
	Bus electrification	5	Electric bus	5%	15%	50%
	Last mile optimisation	6	Last mile	10%	25%	60%
	Electrification of trucks >3.5t	7	Electrification of heavy transport	5%	15%	20%
	Motorbike electrification	8	Motorbike electrification	10%	25%	50%
	Renovation of building stock	9	Building renovation	10%	20%	40%
	New near-zero energy buildings	10	Zero-energy buildings	50%	75%	90%
	Reduction of residential electricity consumption	11	Efficient lighting and appliances	20%	40%	80%
	Reduction of residential	12	Residential air conditioning	15%	35%	75%

	electricity consumption					
	Reduction of electricity consumption in commerce	13	Electricity consumption trade	20%	30%	50%
	Reduction of electricity consumption in administration buildings	14	Electricity consumption public administration	10%	20%	50%
	Reduction (substitution) of natural gas and LPG consumption in fixed installations	15	Consumption of other fuels	10%	20%	40%
	New waste management models	16	CH_4 landfill	10%	25%	100%
	Increased absorption capacity	17	CO2 sink capacity	5%	20%	50%

Note: there is a need for a system of common indicators between the Mission cities that allows for the quantification of progress with the different actions implemented in the process, making comparability between cities possible.

In this respect, the Seville CAP includes the following indicators in its Indicator System (expressed in t CO_2 eq):

- GHG emissions from stationary energy
- GHG emissions from transport
- GHG emissions from waste
- GHG emissions from IPPU
- AFOLU GHG emissions
- GHG emissions from energy supplied by the grid

An indicator system is in place in the SECAP (Rev. 2020) from which it will be possible to generate the information as metadata. This task will be carried out with the Climate Action Plan (PAC), and will be included in the next iteration of this document.

An example of an action in the existing model, corresponding to the installation of PV generation in the city, is presented below:

PLAN DE ACCIÓN PARA EL CLIMA Y LA ENERGÍA SOSTENIBLE DE SEVILLA (PACES)
INFORME DE SEGUIMIENTO

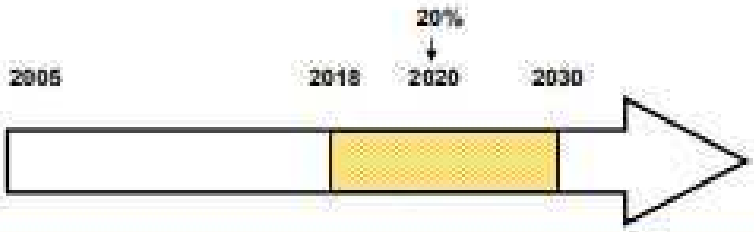
Plan de Mitigación				
1	Nombre	Puesta en marcha de instalaciones de energía fotovoltaica en edificios municipales "Sevilla Ciudad Solar"	PES 2030	3.1. Descarbonización de la ciudad
			ODS (AU2030)	3, 7, 11, 13, 15
Sector	EDIFICIOS Y EQUIPAMIENTO / INSTALACIONES MUNICIPALES			
Descripción	Conexión y puesta en marcha de instalaciones fotovoltaicas en edificios municipales de la ciudad (principalmente centros educativos). Están compuestas por 53 instalaciones de 5kW, y 10 de 15 kW.			
Alcance	Edificios de gestión municipal			
Año inicio	2018	Año finalización	2030	
Estado ejecución	20%	En proceso		
Promotor	Edificios Municipales y Agencia de la Energía y para la Sostenibilidad			
Estimación económica	900.000,00 €			
Coste hasta la fecha	26.027,79€			

Expectativas de reducción de CO_2	
Reducción potencial (t CO_2)	273,5
Reducción de CO_2 acumulada 2005 - 2018 (t CO_2)	0,00
Reducción de CO_2 acumulada 2005 - 2020 (t CO_2)	54,70
Reducción de CO_2 restante hasta 2030 (t CO_2)	218,80

Indicadores de seguimiento	
Indicador	Unidad
Superficie y potencia de energía solar fotovoltaica instalada	m2

Observaciones y comentarios

Para el seguimiento de la presente medida se han propuesto dos indicadores. Por un lado, será necesario contabilizar la superficie de placas fotovoltaicas conectadas y, por otro lado, la potencia de las mismas. Con el fin de ser más específicos a la hora de hacer el seguimiento, será necesario especificar la potencia nominal y la potencia pico según el fabricante de las placas fotovoltaicas para determinar tanto la potencia instalada real como la eficiencia de producción de las instalaciones existentes.
En relación al plazo de ejecución, al no haberse alcanzado la reducción esperada a la finalización del plazo establecido en un primer momento por causas técnico-económicas, se ha decidido ampliar el mismo hasta el año 2030.



B-3.2: Indicator metadata	
Indicator name	
Indicator unit	
Definition	
Calculation method	
Context	
Does the indicator measure direct impacts (i.e. reduction of greenhouse gas emissions)?	[yes/no] [yes/no
If yes, to which area of emission is the co-benefit linked?	Emission domains according to MyCovenant or CDP / ICLEI
Does the indicator measure indirect impacts (i.e. co-benefits)?	[yes/no] [yes/no
If yes, what co-benefit do you measure?	
Can the indicator be used to monitor impact pathways?	[yes/no] [yes/no
If yes, for which impact pathway?	
Is the indicator captured by existing CDP/SCIS/Mayors' Covenant platforms?	[yes/no] [yes/no
Additional information	
Planned data source	
Planned availability	
Planned collection interval	
References	
Results describing the indicator	
Other indicator systems using this indicator	

PART C - ACHIEVING CLIMATE NEUTRALITY BY 2030

MODULE C-1: Organisational and governance innovation interventions

C.1.1: Organisational and Governance Interventions					
Number and name of the action	**Description**	**Person and entity/body responsible**	**Actors involved**	**Impact**	**Cobenefits**
Municipal Climate Change Working Group	This is a WG regulated by the Seville OM for Energy, Climate Change and Sustainability.	Energy and Sustainability Agency	All municipal delegations and municipal companies	Internal coordination	Holistic and integrated vision of the problem, taking into account all points of view, so that no one is left out of the diagnoses and action plans.
Spanish Network of Cities for Climate	Network attached to the FEMP, for advice and support to municipal actions against climate change. The Ministry participates	Energy and Sustainability Agency	On the Seville side, one political representative and one technical representative.	Cooperation and exchange of experience	Exploiting synergies in the needs of the participating cities (more than 300)
Andalusian Federation of Municipalities and Provinces	Working groups for mitigation and adaptation	Energy and Sustainability Agency	One technical representative, from the Energy and Sustainability Agency	Cooperation and exchange of experience	Exploiting synergies in the needs of participating cities
European Networks	Covenant of Majors, EuroCities, ICLEI	Mayor's Office and technical representative	Energy and Sustainability Agency	Cooperation and exchange of experience. Monitoring of the international situation and actions	Exploiting synergies in the needs of the participating cities

Spanish Network of Smart Cities	Spanish network for cooperation in digitalisation and urban sustainability, with more than 140 member cities.	Energy and Sustainability Agency	Political representative and technical representative	Cooperation and exchange of experience	Exploiting synergies in the needs of the participating cities

C-1.2: Description of organisational and governance interventions

The general objective of the Agency is to be an instrument of planning and management of the municipal environment, especially in the fields of Energy Management, Climate Change and Sustainable Development, both internally in the City Council and in the rest of the city, in coordination with all the Municipal Areas, Companies and Entities and with the different Administrations, with the aim of promoting energy saving and efficiency and the implementation of renewable energies, the development of Local Agenda 21 and the execution of the commitments acquired by joining the Covenant of Mayors (climate change) in order to contribute and progress towards a more sustainable city from the local level.

In all matters not provided for by the Autonomous Community or the State, the Agency is the competent body of the Excmo. Seville City Council for the planning of actions to improve air quality, waste management, contaminated soils, surface and underground water pollution, landscape conservation, environmental impact assessment of plans, programmes and projects, and integrated environmental authorisation, all without prejudice to the competences of the Municipal Delegation of Urban Planning, Environment and Parks and Gardens with regard to the control of qualified activities and in coordination and collaboration with the same, as well as with the municipal company LIPASAM with regard to waste.

For the correct fulfilment of this general objective, all areas of Seville City Council must previously submit to the Agency the proposals for Agreements to be adopted by the Municipal Plenary that could affect, directly or indirectly, energy management, the minimisation of greenhouse gas emissions (GHG), or the sustainability (environmental, social or economic of the city). The Agency must issue a specific

validation report on the proposal, which will be mandatory and non-binding for its submission to the Plenary.

With regard to **energy management**, the Agency will aim at improving the use of local energy resources, as well as raising awareness among institutions, businesses and citizens of the scarcity of energy resources and the need for diversification and the introduction of clean energy. To this end, it is proposed:

- Analyse the city's energy situation.
- Develop municipal energy optimisation plans.
- Plan and implement local projects that promote a more sustainable energy model.
- Promote the use of renewable energies in City Council buildings and facilities and throughout the city.
- Promote energy saving and efficiency measures in buildings and facilities, public lighting, urban mobility, etc.
- To offer an energy information, awareness and communication service to citizens in all social spheres.
- Advising, coordinating and promoting energy-related projects for the different areas, companies and municipal entities.
- Encourage, promote and support projects that foster sustainable energy actions in the city.
- To promote and bring together R&D&I tasks in companies related to the energy technology sector.

Any other activity that complements the above, in accordance with the aims and objectives entrusted to this Agency, under the terms established in the corresponding agreement of the competent municipal body. Still within the framework of energy management, the Agency's actions will focus primarily on four areas: buildings (energy certification), lighting (buildings, exterior, LED traffic lights), transport (promotion of cleaner vehicles) and energy management of municipal buildings.

Of particular significance are the basic energy saving requirements set out in Article 15 of the Technical Building Code (2006), developed in the Basic Document HE on Energy Saving: limitation of electricity demand, efficiency of thermal installations, energy efficiency of lighting installations, minimum solar contribution to domestic hot water, and minimum photovoltaic contribution to electrical energy.

With regard to the **fight against climate change**, as a result of Seville's adherence to the so-called Covenant of Mayors against Climate Change in 2009, the aim was to contribute to meeting the targets set by the EU for 2020, reducing CO_2 emissions by at least 20% through the implementation of a Sustainable Energy Action Plan, for which the following objectives had to be met:

- Develop a baseline emissions inventory.
- Implement a sustainable energy action plan.
- Adapt municipal structures.
- Mobilise civil society.
- Submit follow-up reports.
- Sharing our experiences.
- Organise a Covenant of Mayors day.
- Attend and participate in the EU Conference of Mayors.
- Disseminate the message of the convention.

In relation to **global sustainability**, as a consequence of the signing of the Aalborg Charter, Seville City Council joined the European Sustainable Cities and Towns Campaign (Lisbon, 1996). Later, it also ratified the Aalborg Commitments (Aalborg, 2004). These Commitments aim to raise awareness and highlight the need for local governments across Europe to act in an integrated way to address sustainability challenges. They were designed as a practical and flexible tool for action in local settings. The Commitments are designed around these ten themes:

- Forms of government.
- Municipal management towards sustainability.
- Natural commons.
- Responsible consumption and lifestyles.
- Urban planning and design.
- Improved mobility and traffic reduction.
- Local action for health.
- A vibrant and sustainable local economy.
- Equality and social justice.
- From local to global.

Once the 2019 GHG Diagnosis is available, and a first System of Indicators has been defined that contemplates each of the impact pathways envisaged in the Mission, the Seville Sustainability Accounting System will have to be set up. Finally, each cycle of

this process will culminate in an Action Plan, aimed at improving those Indicators that show deficits.

In terms of networks, Seville has chaired the Spanish Network of Cities for Climate since 2015, having developed numerous training and informative activities in various locations in Spain, as well as the annual assemblies. Among many other actions, the Network promotes the incorporation into the programme for the calculation and registration of the municipal HC, with support mechanisms for the different initiatives, which are then evaluated by the Spanish Climate Change Office.
Therefore, the Agency will be the entity of Seville City Council in charge of the organisation and governance of the CAP, which will integrate the PMAC, the CA 2030, and the Seville Climate Mission Plan.

MODULE C-2: Social and other innovation actions

C.2.1: Social and other innovation interventions					
Number and name of the action	**Description**	**Person and entity/body responsible**	**Actors involved**	**Impact**	**Co-benefits**
Ecity Seville	The project proposes the development on Isla de la Cartuja of an open, digital, decarbonised and sustainable ecosystem city model in 2025, bringing the energy and climate targets set for 2050 forward by twenty-five years. With eCitySevilla, we are leading the way for the sustainable cities of the future. In the field of energy, the aim is to ensure that the PCT Cartuja has a 100% renewable electricity supply, generated on the Isla de la Cartuja itself and with more efficient buildings. In addition, from the point of view of mobility, sustainable models will be encouraged, with more space for pedestrians and cyclists and promoting the use of electric vehicles thanks to a new network of charging infrastructures. All this, supported by a firm commitment to digitalisation, with a connected and autonomous system, through an intelligent electrical network (Smart Grid) that will also allow an open data platform for the intelligent management of the park. This is a pioneering Smart City project on an international	Junta de Andalucía (through the Consejería de Transformación Económica, Industria, Conocimiento. The Energy and Sustainability Agency is involved.	eCitySevilla is a pioneering public-private collaboration initiative in Spain led by the Regional Government of Andalusia (through the Regional Ministry of Economic Transformation, Industry, Knowledge and University and the Andalusian Energy Agency, attached to the Regional Ministries of the Presidency, Public Administration and the Interior and Finance and European Funding); Seville City Council, the Cartuja Science and	Achieve climate neutrality in one city district by 2025, mainly by acting on transport/mobility and energy consumption.	First-rate academic research line. Laboratory at a scale well suited to implement the achievements at the district level at the city level.

	scale to ensure that an urban space as large as Isla de la Cartuja, which is a true city in itself, covering 200 hectares, where 523 companies and entities live and where nearly 23,000 people work, becomes 100% self-sufficient in terms of energy and emission-free.		Technology Park (PCT Cartuja) and Endesa, which has already been joined by dozens of entities, including companies, institutions, universities and research centres.		
Qanat Charterhouse	Qanat is the natural continuation of the climate control work that began on the occasion of EXPO'92, expanding and updating the concepts and procedures carried out in the original work. Without losing the working spirit of that time, the more than 30 years that have passed since then have allowed the incorporation of ICT's in aspects such as remote sensing or artificial intelligence for the optimal management of the facilities using presence control, user preferences, climate prediction, etc. Likewise, innovative components and strategies are incorporated such as variable solar control, night-time dissipation towards the sky, dissipation towards the ground with night-time evaporative regeneration, thermal storage in Qanats or the production of solar electricity. All this will contribute to the outcome of the project as a pioneering zero-energy and zero-emission installation on a yearly basis, bringing new	Seville City Council. The Energy and Sustainability Agency participates.	EMASESA metropolitana, Urban Planning and Environment Management, University of Seville, CSIC, PCT Cartuja, Innovarcilla,	It is an innovative urban design experience that will improve environmental comfort, promote social exchange and promote sustainable models of urban growth. The potential for replication of the experience could achieve reductions in public roads of >5°C, which could reduce electricity consumption by	Mainly health, social welfare and ecosystem service benefits.

	business models combined with scientific knowledge for change, through eco-innovation and adaptation to new solutions for microclimatic improvement Cartuja Qanat will be developed through an innovative system of public-private-citizen governance, based on democratic principles, Good Governance and Open Government, through the co-responsibility of all actors through the application of urban care rights.			>10%, mainly in the residential and commercial sectors.	
Network of electric vehicle charging points on public roads	The largest implementation of recharging points to be carried out in a Spanish city has been planned, with 350 double points (700 places) on public roads. This network has several peculiarities: 1º. It is designed to bring each recharging point as close as possible to the citizen by means of a homogeneous network in each of the 11 districts of the city, so that regardless of the neighbourhood or district where you live, you will have access to the network. All districts will have semi-fast recharging points with a minimum of 44KW, fast recharging with a minimum of 100Kw and ultra-fast recharging with a minimum of 350Kw. 3º. Electric mobility is promoted equally throughout the city, avoiding an increase in vehicle journeys between districts or neighbourhoods of the city.	Seville City Council. The project is led by the Energy and Sustainability Agency.	Cable Energía S.L. (Shell), Eranovum E Mobility, Wenea Urban, and Endesa X Way	Reduction of emissions due to road traffic, especially by private cars, and also in support of last mile transport.	The action could achieve a reduction of GHG emissions from the road traffic sub-sector of more than 15%.

	4º. Four different operators will be established in order to guarantee free competition and better fares for citizens. 5º. It also favours the implementation in La Cartuja where the first Low Emission Zone of Seville will be developed in the coming months, which in 2025 will move to zero emissions and where electric mobility and its infrastructure will play an important role in achieving its objectives.				

The actions and strategies of the Seville City Council's Social Innovation Master Plan are framed within the following territorial development areas:

- **Seville as a global node** (International, European and National). From the point of view of the plan, this leads us to strengthen our leadership in networks such as the Cities for Climate, the Covenant of Mayors, the Seville Declaration for the Circular Economy, the Cities for Employment Network and to be a leader in Social Innovation and the social economy.
- **Seville as a regional node in Andalusia.** This concerns the strengthening of the economic and territorial integration of the network of regional centres of Andalusia (its nine metropolitan areas) and, in particular, the reinforcement of the Seville-Malaga axis as the head of this network, from the point of view of innovation.
- **Seville as a metropolitan node**. It is a central city with a population of around 1.5 million inhabitants, which functions as a common space from an economic point of view and which means that the development of the city cannot be understood in isolation from its metropolitan area.
- **Seville as an internal node** articulating a systemic functioning towards maximum coordination between all the departments of the City Council, its municipal companies, its districts and the entire business, trade union, civil and political ecosystem.

Moving towards becoming one of the most innovative city councils in terms of administrative modernisation, with cutting-edge policies and exemplary local management. But these mechanisms and planning for social innovation must address the **systemic barriers** described in this Climate Agreement. For this, it will be essential:

- Adapt the municipal structure to the needs required for the implementation of the necessary planning and concrete (often innovative) measures to combat climate change. Removing existing silos
- Strengthening public-private partnership actions
- Addressing the insufficiency of financial resources for mitigation and adaptation actions
- Designing and strengthening public participation structures
- Consolidate cooperation with academia and social NGOs.

C-2.2: Description of social and other innovation actions

Numerous theorists assert that the attributes for a social innovation to be considered a significant practice for cities must be: novel, strategic, comprehensive or cross-cutting, effective, participatory, grounded and responsive to vulnerability, transferable, pluralistic and scalable.

- **Novelty**: creativity and originality must be integrated, but not only in terms of the design of the innovation but also in terms of the population impacted or the territory benefited.
- **Strategy**: the most valuable strategy is one that weakens the "economic, environmental, social, relational or political" drivers of vulnerability. It involves training, capacity building and community empowerment.
- **Comprehensiveness or transversality:** understanding that today we must respond to accumulated urban challenges; social innovation must confront at least two major fields of vulnerability.
- **Effectiveness**: the innovation must generate tangible impacts with its implementation.
- **Social participation and empowerment**: innovation with spaces for actors at all stages and that strengthens links with and between the community.
- **Rationale and response to vulnerabilities**: the significance of the practice will be greater if it is based on explicit diagnostic criteria.
- **Transferable**: meaningful social innovation experiences should be cumulative and transferable, to the context in which they are created or to others.
- **Pluralism**: an ideal innovation is one that does not exclude debate and diversity, but incorporates the multiplicity of interests, positions, perspectives and goes beyond the homogenisation of proposals or solutions.
- **Scalability**: in a globalisation scenario, social innovation that involves different territorial and governmental spheres and the greatest number of public or private agents will be significant.

We understand that the examples presented in C-2.1 meet these criteria. Our Mission's Climate Action Plan will seek to respond to these requirements in all its social innovation interventions.

C-3.1: Summary of interventions with related costs									
Actions	**Actions & Results**		**Responsible entity and person**	**Start / end date**	**Sector**	**Impact**			**Total investment cost (CAPEX)(MEUR - NPV 2020-2030)**
						GHG reduction (kt CO2e)	**Operational cost/savings (OPEX) (MEUR - NPV 2020-2050)**	**Co-benefits (MEUR - NPV 2020-2050)**	
Reduced motorized passenger transportation need	33%	reduction		2020-2030	Transport	142	€ 2.069	€ 437	€ -
Shift to public & non-motorized transport	28%	reduction in car passenger kms		2020-2030	Transport	54	€ 162	€ 553	€ (243)
Increased car pooling	10%	increase in average passengers per car		2020-2030	Transport	18	€ 268	€ 77	€ -
Electrification of cars + motorbikes	42%	electric cars + motorbikes by 2040		2020-2040	Transport	48	€ 19	€ 28	€ (78)
Electrification of buses	85%	electric buses		2020-2030	Transport	30	€ 56	€ 35	€ (36)
Optimised logistics	10%	reduction in total trucking kilometers		2020-2030	Transport	60	€ 664	€ 102	€ -
Electrification of trucks	80%	Llght duty trucks (<3.5t) by 2040		2020-2040	Transport	28	€ (24)	€ 26	€ (356)
	45%	heavy duty trucks (>3.5t) by 2040		2020-2040	Transport				

Building renovations (envelope)	2,0%	annual renovation rate		2020-2030	Buildings & Heating	2	€ 27	€ 2	€ (151)
New energy-efficient buildings	20%	share of new buildings built with top performing building standard		2020-2030	Buildings & Heating	5	€ 61	€ 5	€ (76)
Efficient lighting & appliances	15%	share of renovations producing ~40% efficiency improvement		2020-2030	Buildings & Heating	68	€ 516	€ 4	€ (145)
Decarbonizing heating generation	90%	share of local heating produced with electric heat pumps		2020-2030	Buildings & Heating	77	€ 20	€ 0	€ (11)
Decarbonizing electricity generation	85%	share of fossil fuel electricity production replaced with renewables		2020-2030	Electricity	467	€ 389	€ -	€ (244)
Increased waste recycling				2020-2030	Waste	44	€ 12	€ 1	€ (8)
Total						1044	€ 4.241	€ 1.269	€ (1.347)

PERSPECTIVES AND NEXT STEPS

The present Seville Climate Agreement, as part of an iterative process of continuous improvement, will be reviewed within the next 2 years. The following are the next steps and plans in the process of reviewing and improving the Action Plan as part of the city's Climate Agreement.

- **Improvement and extension of the Economic Model**: this refers to the review and adjustment of the current economic model with the aim of broadening its scope and refining its analysis so that it reflects even more accurately the ambition of the climate action plan and the capital and investment needs associated with it. This task will need to be undertaken in line with the rest of the Spanish Mission cities, especially as they have to comply with identical basic regulations in terms of budget management.

- **Specification of the initiatives and projects included in the Action Plan**: this involves identifying and defining in detail the different actions, initiatives and projects that form part of the Action Plan, with the aim of ensuring their financing and adequate implementation. Likewise, in this task, co-creative work between cities seems fundamental, identifying and promoting those common actions that are most effective, supported by public-private partnerships that can strengthen the joint process of the Mission in Spain.

- **Expand interdepartmental collaboration to advance the implementation of the Climate Investment Plan**: this refers to the need to promote greater collaboration between the different departments and work areas involved in the implementation of the Climate Investment Plan, in order to improve their coordination and increase their effectiveness. This internal organisation will be led by the Presidency of the Energy and Sustainability Agency of Seville.

- **Obtain specific commitments from various entities within the framework of the Climate Agreement (Letters of Accession)**: the aim is to increase the number of formal commitments from entities and

organisations within the framework of the Climate Agreement, through the signing of Letters of Accession, to support and collaborate in the achievement of the objectives and goals established in the Agreement.

+ **Development of the monitoring and evaluation plan Climate Agreements: Key indicators of the CA, information collection method and monitoring reporting requirements**: this refers to the development of a detailed plan for monitoring and evaluation of the Climate Agreement, identifying the key indicators to be measured, the information collection method and the monitoring reporting requirements. As noted above, the key indicators are defined, and it is essential to adapt them to the Mission's recommendations regarding the metadata tables.

+ **Implementation of the monitoring and evaluation process, including communication of the plan to participating cities and guidance on data collection and reporting**: this is the implementation of the monitoring and evaluation plan, including communication of the plan to participating actors and entities and guidance on how data is collected and related monitoring reports are produced.

+ **Collection of baseline data on the key indicators identified in the M&E plan**: this refers to the collection of baseline data on the key indicators identified in the M&E plan in order to establish a basis for comparison for future measurement and analysis. Again, collaboration between cities is essential in order to define a robust system of common indicators to make progress on actions in each city measurable and comparable. It is also necessary to measure the costs of inaction.

+ **Analysis of benchmark indicators and degree of progress in achieving emission reduction targets**: this involves analysing benchmark indicators and assessing the degree of progress in achieving the emission reduction targets set out in the Climate Agreement (climate neutrality in 2030).

+ **Review of the Cities Climate Agreement based on the results of the evaluation process, including assessment of the effectiveness of the**

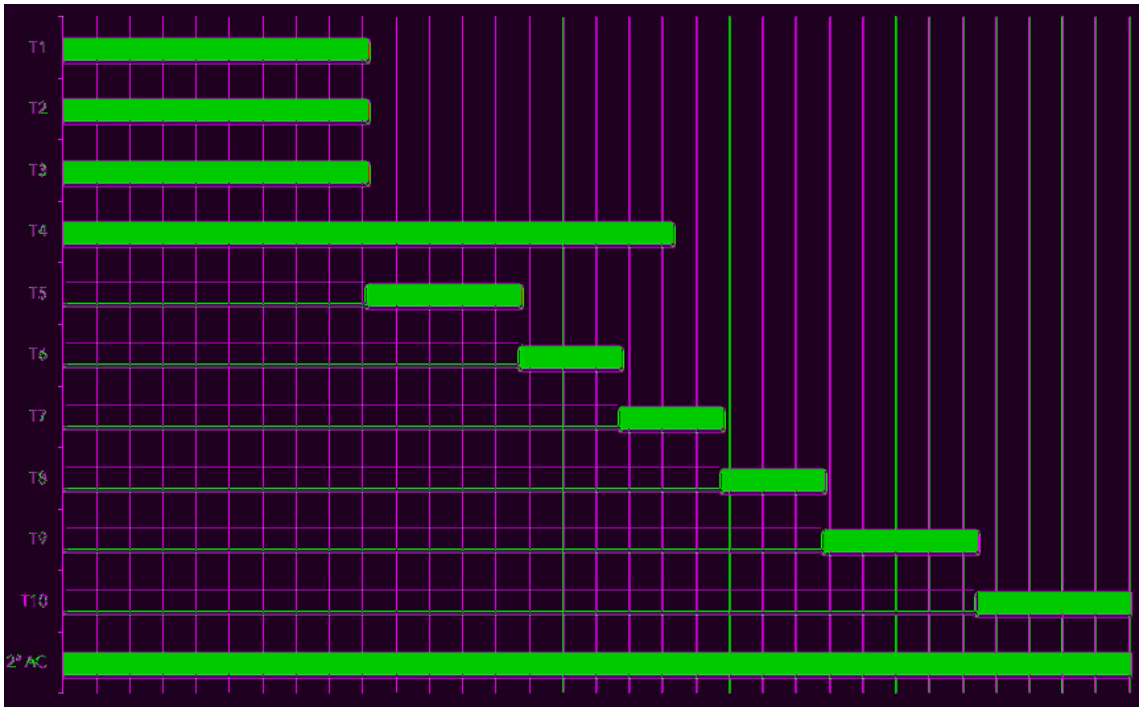
monitoring and evaluation process and identification of areas for improvement: refers to the review of the Cities Climate Agreement based on the results of the evaluation process.

+ Throughout the process it will be necessary to **identify and implement participatory and collaborative social innovation actions** that minimise the barriers identified in this Climate Neutral Agreement.

+ The timelines below are indicative and may be modified and adapted as deemed necessary, keeping the maximum timeframe for a 2nd version of the Climate Agreement to a maximum of 2 years.

+ The tasks defined require continuous monitoring of the same, with the planned cycle of weekly meetings, incorporating the sectoral working groups that are considered appropriate for further progress in the process. Initially, as a proposal, it is considered appropriate to create four areas: transport, electricity consumption, consumption of other fuels, and waste.

T	Tasks	Start date	Final date
T1	Improvement and extension of the Economic Model	M1	M6
T2	Specification of the initiatives and projects included in the Action Plan	M1	M6
T3	Expand interdepartmental collaboration to advance the implementation of the Climate Investment Plan.	M1	M6
T4	Obtain specific commitments from various entities under the Climate Agreement (Letters of Accession).	M1	M12
T5	Development of monitoring and evaluation plan Climate Agreements: Key JI indicators, data collection method and monitoring reporting requirements	M6	M9
T6	Implementation of the monitoring and evaluation process, including communication of the plan to participating cities and guidance on data collection and reporting.	M9	M11
T7	Gathering baseline data on key indicators identified in the monitoring and evaluation plan	M11	M13
T8	Analysis of baseline indicators and progress towards achieving emission reduction targets	M11	M13
T9	Review of the Cities Climate Agreement based on the results of the evaluation process, including assessment of the effectiveness of the monitoring and evaluation process and identification of areas for improvement.	M13	M16
T10	Drafting of the 2nd version of the Climate Agreements based on the results of the assessment and monitoring process	M16	M24
2ND CA	**2nd version Climate Agreement**	**M1**	**M24**



Months

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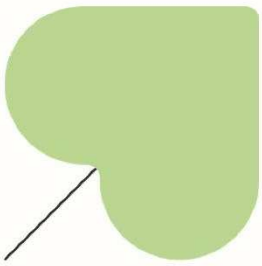

ANNEX 3:
Individual Signatory Commitments

Annex 3: Individual Signatory Commitments

ACTORS IN THE CITY OF SEVILLE AND THEIR COMMITMENTS

Name of the organisation	Sector/Area	Legal form of accession	Name and surname of signatory	Position of the signatory
Junta de Andalucía	Public Administration	Adhesion to the Climate City Contract	Ramón Fernández-Pacheco Monterreal	ouncillor for Sustainability, Environment and the Blue Economy
Sevilla Provincial Council	Public Administration	Adhesion to the Climate City Contract	Gonzalo Domínguez Delgado	Deputy of Supramunicipal Public Services
Port of Seville	Public Administration	Adhesion to the Climate City Contract	Ángel Pulido Hernández	CEO
Cartuja Science and Technology Park	Public Administration	Adhesion to the Climate City Contract	Luis Pérez Díaz	CEO
Universidad de Sevilla	Universities	Adhesion to the Climate City Contract	Carmen Vargas Macías	Vice Chancellor
Universidad Pablo de Olavide	Universities	Adhesion to the Climate City Contract	Laura López de la Cruz	Vice Chancellor
Seville Chamber of Trade	Social	Adhesion to the Climate City Contract	Francisco Herrero León	President
Confederación de Empresarios de Sevilla	Social	Adhesion to the Climate City Contract	Miguel Rus Palacios	President

Unión General de Trabajadores	Social	Adhesion to the Climate City Contract	Juan Bautista Ginés	General Secretary
Comisiones Obreras	Social	Adhesion to the Climate City Contract	Carlos Aristu Ollero	General Secretary
Real Betis Balompie SAD	Social	Adhesion to the Climate City Contract	Ramón Alarcón Rubiales	CEO
Sevilla Futbol Club	Social	Adhesion to the Climate City Contract	Jose María Cruz	CEO
Endesa	Corporate	Letter of Support	Rafael Sánchez Durán	General Manager Andalucía, Extremadura, Ceuta and Melilla
Iberdrola Spain	Corporate	Letter of Support	Mario Ruiz-Tagle Larrain	CEO
Repsol	Corporate	Letter of Support	Siridia Berenguer Murcia	Development and New Business Director
CEPSA	Corporate	Letter of Support	Pierre-Yves Sachet	Executive Vice-President, Mobility and New Commerce
Círculo de Empresarios de Cartuja	Social	Letter of Support	Raúl Maldonado Blanes	President

COMMITMENTS BY OTHER ACTORS

ORGANISATIONS NAMES

ECITY SEVILLE PROJECT: this is a pioneering public-private collaboration initiative in Spain led by the Regional Government of Andalusia (through the Regional Ministries of University, Research and Innovation and Industrial Policy and Energy - through the Andalusian Energy Agency); Seville City Council, the Cartuja Science and Technology Park (PCT Cartuja) and Endesa, which has already been joined by dozens of entities, including companies, institutions, universities and research centres.

The project proposes the development on Isla de la Cartuja of a city model in an open, digital, decarbonised and sustainable ecosystem by 2025, bringing the energy and climate targets set for 2050 forward by twenty-five years.

It currently brings together 99 companies that have already shown their support for climate neutrality and collaborative work in energy solutions, digitalisation, mobility and energy efficiency to achieve the 2030 objective in the City.

https://ecitysevilla.com/


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