

International Networking Event

Horizon Europe – Missions

**ADAPTATION TO CLIMATE  
CHANGE & CLIMATE -  
NEUTRAL AND SMART CITIES**

📅 10 February 2022



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# THE CLIMATE-NEUTRAL AND SMART CITIES MISSION

SERGIO SANZ - R&D PROGRAMMES MANAGER

[ TECHNOLOGY  
CENTRE ] **CARTIF**



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Technical Assistance for Turkey in Horizon 2020 Phase-II  
EuropeAid/139098/1H/ER/TR

- **CARTIF** – RTO ON CITY TRANSFORMATION PROJECTS
- **CITIES MISSION** – REFERENCES
- **CONTEXT AND CHALLENGES** OF CITIES MISSION
- **KEY ELEMENTS** OF CITIES MISSION
- **CALL HEU** “SUPPORTING THE TRANSITION TOWARDS CLIMATE NEUTRALITY WITHIN CITIES”
- **HOW TO ADDRESS THESE OPPORTUNITIES**



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# CARTIF

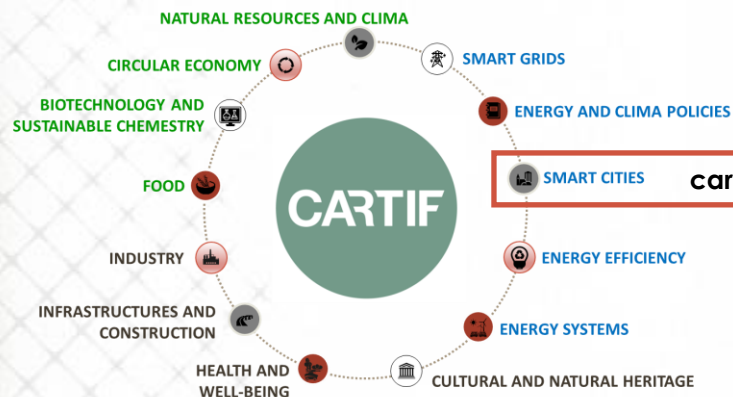
## CITY TRANSFORMATION



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# CARTIF CITY TRANSFORMATION



[cartif.es/en/research-areas/smart-cities/](http://cartif.es/en/research-areas/smart-cities/)

RESEARCH AREAS  
Smart Cities



**H2020 SCC1 2014**  
**CARTIF COORD.**  
Regeneration MOdel for accelerating the smart URBAN transformation



**H2020 SCC1 2015**  
Towards Smart Zero CO2 Cities across Europe



**H2020 SCC1 2016**  
**CARTIF COORD.**  
Transition of EU cities towards a new concept of Smart Life and Economy



**H2020 SCC2 2016**  
**CARTIF COORD.**  
New Strategy for Renaturing Cities through Nature-Based Solutions



**H2020 SCC1 2017**  
Maximizing the UPscaling and replication potential of high level urban transformation strategies



**H2020 SCC1 2018**  
**CARTIF COORD.**  
Energy efficient pathway for the city transformation: enabling a positive future



**H2020 SCC1 2019**  
Amsterdam Bilbao citizen driven smart cities

## Description

In the Smart Cities Area we support local authorities to plan the energy transition towards the decarbonisation of cities, facing medium and large time horizons (2030, 2050) through the analysis of complex energy scenarios. We deploy capacity building strategies, in order to promote the maintenance of this capacity in the local environment.

We also develop high-value services in urban platforms, based on open specifications and making decisions through the analysis of large amounts of information with advanced machine learning and Big Data techniques.

Moreover, we develop and support the reporting and evaluation of the effectiveness of the Sustainable Energy and Climate Action Plan (SECAP) and the Sustainable Urban Mobility Plan (SUMP) for Municipalities.



# CARTIF CITY TRANSFORMATION

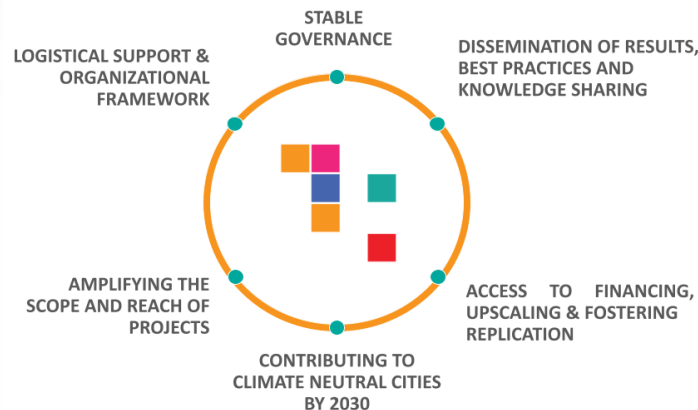


# CARTIF IS MEMBER OF THE BOARD OF COORDINATORS OF LIGHTHOUSE PROJECTS

## SCALABLE CITIES

**SCALABLE Cities is a city-led initiative**, created under the umbrella of the **European Commission and CINEA**, with the aim to create **large-scale, long-term support for the cities in the Smart Cities and Communities Project Cluster**.

### Services



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# CARTIF

## MEMBER OF THE CITIES MISSION PLATFORM

**NET  
ZERO  
CITIES**

**NetZeroCities will support Europe and in particular European cities to drastically cut down greenhouse gas emissions through climate action to achieve ‘climate neutrality’, one of the biggest challenges our societies face today.**



**CARTIF leads the work package of technological services definition**



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# CITIES MISSION

## REFERENCES TO RELEVANT DOCUMENTS



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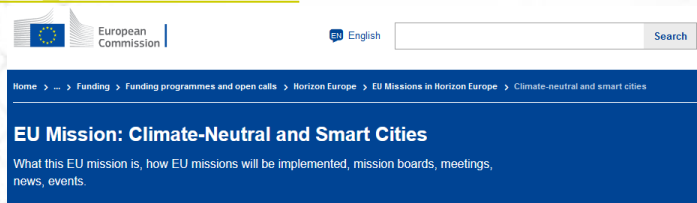




# CITIES MISSION

## REFERENCES TO RELEVANT DOCUMENTS

[https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities\\_en#documents](https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en#documents)



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### What are EU Missions?

[EU Missions](#) are a new way to bring concrete solutions to some of our greatest challenges. They have ambitious goals and will deliver tangible results by 2030.

They will deliver impact by putting research and innovation into a new role, combined with new forms of governance and collaboration, as well as by engaging citizens.

EU Missions are a novelty of the Horizon Europe research and innovation programme for the years 2021-2027.

### What this EU Mission deals with

#### The importance of climate-neutral and smart cities

Cities play a pivotal role in achieving climate neutrality by 2050, the goal of the European Green Deal. They take up only 4% of the EU's land area, but they are home to 75% of EU citizens. Furthermore, cities consume over 65% of the world's energy and account for more than 70% of global CO2 emissions.

Since climate mitigation is heavily dependent on urban action, we need to support cities in accelerating their green and digital transformation. In particular, European cities can substantially contribute to the Green Deal target of reducing emissions by 55% by 2030 and, in more practical terms, to offer cleaner air, safer transport and less congestion and noise to their citizens.

### Documents



#### European Missions - Info Kit for Cities

November 2021  
English (2.4 MB - PDF)

[Download](#)



#### Foresight report for Mission Area Climate-Neutral and Smart Cities

October 2021  
English

[Download](#)



#### EU Mission Climate-Neutral and Smart Cities factsheet

September 2021  
English

[Download](#)



#### EU Mission Climate-Neutral and Smart Cities Implementation Plan

September 2021  
English (1.1 MB - PDF)

[Download](#)



#### Communication from the Commission on European Missions

September 2021  
English (669.2 KB - PDF)

[Download](#)



#### Climate neutral and smart cities mission - Questions and answers

December 2021  
English (962.5 KB - PDF)

[Download](#)

# CITIES MISSION

## REFERENCES TO RELEVANT DOCUMENTS



**EN**

**Horizon Europe**

**Work Programme 2021-2022**

*12. Missions*

*(European Commission Decision C(2021)9128 of 15 December 2021)*



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# CONTEXT AND CHALLENGES

## CITIES MISSION IMPLEMENTATION PLAN



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# CONTEXT AND CHALLENGES

## MAIN OBJECTIVES

To deliver at least **100 European climate-neutral and smart cities by 2030**

To ensure that these cities also act as experimentation and **innovation hubs** for others to follow, to enable all European cities to become climate-neutral by 2050.



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# CONTEXT AND CHALLENGES

## EXPECTED ACHIEVEMENTS

- At least 100 **Climate City Contracts** → as a Memorandum of Understanding from the city representative. A kind of commitment to their citizens.
- At least **EUR 100 billion invested** for city level deployment and scale up of solutions for climate-neutrality.
- **Climate-neutral solutions** scaled-up and deployed in cities
- Progress towards **smart, holistic & inclusive city governance** mechanisms
- Common **city-level monitoring & communication**
- Increased **buy in and support** from national, local and regional authorities for cities mission



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# CONTEXT AND CHALLENGES

## SPECIFIC OBJECTIVES

- **Climate City Contracts (CCC)** including **investment plans** for deployment of innovative and smart solutions for climate neutrality
- **Research & Innovation pilots and demonstrators** within the Mission Platform that will be funded by Horizon Europe



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# CONTEXT AND CHALLENGES

## SPECIFIC OBJECTIVES

- To help cities develop, where necessary, **the administrative, financial and policy capacity through innovative governance**
- To put in place a strong and transparent system of **measuring and monitoring the progress towards climate neutrality towards Scope 1, Scope 2 and Scope 3 emissions.**



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# CONTEXT AND CHALLENGES

## FINANCIAL RESOURCES

- **HORIZON EUROPE**
- **European Regional Development Fund**
- **Recovery and Resilience Facility (RRF)**
- **Just Transition Fund**
- **Digital Europe programme**
- **InvestEU**
- **Commission is considering setting up a new Cities Mission Blending Facility**
- **The EIBG and other International Financial Institutions**
- **Private financing**



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# KEY ELEMENTS OF THE CITIES MISSION



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# KEY ELEMENTS OF THE CITIES MISSION MISSION PLATFORM

- NetZeroCities acts as **Mission Platform**
  - RIA financed by H2020-LC-GD-2020-TOPIC LC-GD-1-2-2020
  - Led by Climate-KIC
- The ambition of the NetZeroCities project is to create **Europe's platform for the future of its cities:**
  - Forge a platform for cities to use for all services & expertise critical to climate neutrality – Technical and financial sustainability
  - Develop an approach to support climate-neutral transformation in cities – CCC, metrics, citizen engagement strategies
  - Help cities build capabilities and ways of working to advance systemic change using innovation - climate neutrality, notably mobility, energy and buildings
  - Facilitate a pipeline of cities accelerating towards climate neutrality - Support large scale pilot R&I projects, network of twinning cities



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# KEY ELEMENTS OF THE CITIES MISSION

## CLIMATE CITY CONTRACT - CCC

It is the **pivotal element** of the transition to climate-neutrality

- In the form of a Memorandum of Understanding signed by the cities themselves: it is intended to ensure that it is read as a clearly visible, political commitment not just to the Commission but also to its citizens
- Set out plans for the city to achieve **climate neutrality by 2030**
- It includes an investment plan to scale up and deploy **innovative solutions** for delivering on the commitments
- The CCC will be **co-created by cities**, with the help of the **Mission Platform**



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# KEY ELEMENTS OF THE CITIES MISSION

## CLIMATE CITY CONTRACT - CCC

A Mission label will be awarded to the selected cities that have signed a **Climate City Contract**, recognising the quality and feasibility of their commitments under the contract

- EXPECTED that this label will leverage (or at least will ease the access) funds from other of the mentioned initiatives



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# KEY ELEMENTS OF THE CITIES MISSION

## 100 CITIES

- The aim of the Mission is to support, promote and showcase **100 European cities** in their systemic transformation to **climate neutrality by 2030**
- The Mission is much more than a traditional R&I programme. It is a **challenging and ambitious endeavour where cities commit to transformation** and engage in it for the benefit of Europe's quality of life and sustainability
- A group of 100 cities ready to go for climate neutrality by 2030 can therefore be very **useful frontrunners to promote the objective of climate neutrality across the EU**



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# KEY ELEMENTS OF THE CITIES MISSION CLIMATE NEUTRALITY TARGETS

- **Scope 1:** GHG emissions for the city within the geographic boundary (mandatory from the beginning of the Mission). This indicator will be calculated based on the emissions from **buildings, industry, transport, waste treatment** (solid waste and wastewater), **agriculture and forestry and from other activities**.
- **Scope 2:** GHG emissions for the city (mandatory from the beginning of the Mission). *This indicator will be calculated based on **indirect emissions due to consumption of grid-supplied electricity within the geographic boundary and indirect emissions due to consumption of grid-supplied heating and/or cooling within the geographic boundary.***



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# KEY ELEMENTS OF THE CITIES MISSION CLIMATE NEUTRALITY TARGETS

- **Scope 3:** GHG emissions for the **city** (to be considered further but not to be adopted before 2030).
  - Scope 3 emissions would be calculated based on the emissions from “out-of-boundary” emissions from treatment of waste produced within the geographic boundary, out-of-boundary emissions from transmission and distribution of energy consumed within the geographic boundary, out-of-boundary emissions from transportation of citizens living within the geographic boundary, out-of-boundary emissions from consumption made within the geographic boundary (food, clothes, furniture, materials, etc.) and other indirect emissions.
  - These emissions are undeniably important in climate change, but because they address individual consumer actions that are well outside the scope of the Cities Mission or indeed the city authorities, **they should not be included in the baseline calculations**. It is planned to launch one or more R&I projects to consider this matter further, and there is already interest from cities in joining such projects



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# CALL MISSIONS HORIZON EUROPE

SUPPORTING THE TRANSITION TOWARDS CLIMATE NEUTRALITY  
WITHIN CITIES CALL 21-22



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# SUPPORTING THE TRANSITION TOWARDS CLIMATE NEUTRALITY WITHIN CITIES - CALL 21-22

- Research and Innovation actions to support the **implementation of the Climate-Neutral and Smart Cities Mission**
- It provides support to innovative approaches to:
  - integrated **urban planning and design**
  - large-scale demonstrations of **Positive Clean Energy Districts**
  - activities that strengthen the innovation and inclusiveness potential of **public transport and urban mobility**
  - the **setup of a platform** to coordinate the international dimension of the Mission.
- Overall, the actions funded under the Work Programme will also foster the engagement of citizens and urban stakeholders as well as the mainstreaming of social innovation and of user-friendly and secure digital services



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# CALL 21-22

## DEADLINE APRIL

**HORIZON-MISS-2021-CIT-02-01: Urban planning and design** for just, sustainable, resilient and climate-neutral cities by 2030

- The overall aim of this topic is to support a diverse range of urban areas across Europe (e.g. small and medium sized, port cities, cities with different geographical, climatic, socioeconomic conditions, levels of preparedness etc.), their urban authorities, stakeholders and citizens to **identify, plan, design, fund, roll out and replicate solutions and measures in order to achieve climate neutrality, sustainability and resilience and significantly reduce emissions** across the most relevant sectors by 2030
- Proposals should set up **innovative urban planning and design practices** that result in flexible building/design regulations and instruments, that harmonize high quality place making, mix-land use, compact urban fabrics and well-balanced densities with equitable access to amenities.



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# CALL 21-22

## DEADLINE APRIL

**HORIZON-MISS-2021-CIT-02-02:** Unleashing the **innovation potential of public transport** as backbone of urban mobility

- The objective of this call is to **increase the uptake of replicable public transport solutions** in the living labs involved in the proposals while facilitating joint lesson-drawing and learning at European level. The funded actions will contribute to the objectives of the Cities Mission and to the priorities of the European Green Deal, which stresses that “**transport should become drastically less polluting, especially in cities**”. A combination of measures should address emissions, urban congestion and improved public transport
- Projects should **enhance the public transport share in the modal distribution by 30%** compared to the baseline defined for each experimentation site **at** the start of the project and against which progress will be assessed



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# CALL 21-22 DEADLINE APRIL

## **HORIZON-MISS-2021-CIT-02-03:** Framework Partnership Agreement (FPA) for the Climate-Neutral and **Smart Cities Mission Platform**

- The Commission calls for a Framework Partnership Agreement to establish the necessary **framework and collaboration for scaling up and implementing the concept and activities of a Mission Platform** and to fully integrate this platform into the Cities Mission.
- The partners will be responsible for defining and enabling the framework conditions that will allow for the **development of a fully-fledged Mission Platform** that will be focused on **delivering the Mission objective of achieving 100 climate neutral cities by 2030** and ensuring that these cities will act as innovation hubs for other European cities to follow, thus accelerating the transition to climate neutrality at city level.



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# CALL 21-22 DEADLINE APRIL

## HORIZON-MISS-2021-CIT-02-04: Positive Clean Energy Districts

- **Test large-scale Positive Clean Energy Districts** under real life conditions and analyse:
  - The main aspects of successful conception and roll-out of Positive Energy Districts;
  - Combinations of **demand measures** (e.g. energy efficiency, demand response and user behaviour) and **supply measures** (e.g. onsite RES and storage, including from EVs,, building/district management) **at district scale** to identify the best cost-effective mix;
  - Synergies between the **built environment, energy communities, active and e-mobility** (e.g. integration of smart and/or bidirectional EV charging), smart grids (e.g. heating/cooling, electricity) and **energy storage**. Inclusion of resource efficient **smart water and waste management** is also an asset.



# CALL 21-22

## DEADLINE APRIL

**HORIZON-MISS-2021-CIT-02-05:** Global cooperation and exchange on urban climate neutrality

- The coordination and support action will set up a **Global Knowledge Exchange Centre** on emissions reduction pathways for urban environments. This global platform will coordinate the international outreach activities of the Cities Mission, thus expanding and complementing the geographical scope and reach of the Mission Platform
- The platform will establish a geographically and thematically structured online **repository of evaluated best practices**, complemented by a moderated learning community, to facilitate the two-way exchange of experience and practices **on achieving climate neutrality** between the cities under the Cities Mission and cities worldwide



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# CALL 21-22

## DEADLINE SEPTEMBER

### **HORIZON-MISS-2022-CIT-01-01: Designing inclusive, safe, affordable and sustainable urban mobility**

- Projects should **collect data** on differences between patterns, behaviours and habits **in relation to the mobility of various categories of vulnerable road users**. Such data should where possible, be integrated with cross-domain data, to ensure interdependencies and co-benefits are identified.
- Projects should **identify specific mobility needs and public space re-design** needs, taking into account actual and perceived safety and security of women, children and accessibility for people with disabilities e.g. blind people in shared spaces, people in prams, wheelchairs and other supporting vehicles. Measures should be taken to implement necessary changes within the timeline of the project



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# HOW TO ADDRESS THESE OPPORTUNITIES

FIND OUT MY ROLE



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# SUPPORTING CITIES

- Many cities **want to be pioneers** and need a lot of support to advance the main commitments related with climate-neutrality to 2030
- **Technical and non-technical solutions, expertise, experiences** to city transformation (technology, methodologies, strategies, planning, ...)
- **Help cities to access to the funds** it is a great opportunity. Support on innovative financial mechanisms, investment plans and business models



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# CREATING NEW MARKET OPPORTUNITIES

- Climate-neutrality in 2030 is a huge opportunity to **move innovations from the labs to the market:**
  - Very efficient HVAC systems
  - Renewable energy systems integrating at district/city level
  - Innovative grid management strategies as energy communities
  - Waste and water management systems
  - Sustainable mobility systems, multimodal, EV, ...
  - ICT developments
  - ...



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# PLACE CITIZENS IN THE CORE OF THE TRANSFORMATION

- Improving **governance practices**, involving all policy levels
- Deploying **citizen engagement** strategies, fostering inhabitants participation in the decision making processes
- Working in **multi-stakeholder and multi-sectoral approach**



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📅 10 February 2022



**THANK YOU VERY MUCH  
FOR YOUR ATTENTION**

**SERGIO SANZ**

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