Draft Implementation Plan for the mission area on Climate Neutral and Smart Cities:

"100 Climate-Neutral Cities by 2030"

3 May 2021 version

Contents

EXECUTIVE SUMMARY

The purpose of this **Implementation Plan** is to describe the rationale and feasibility of the objectives, activities and process for the Mission on Climate-neutral and Smart Cities (hereinafter "Cities Mission"). The central thrust of this Plan is to demonstrate the **clear added value** of this Mission, particularly to the European Green Deal.

It is proposed that the Mission should have **two central objectives**: to deliver 100 climate neutral cities in the EU by 2030 (henceforth "Climate Neutral Cities 2030"), but also to pave the way for all cities to be climate neutral by 2050. The Plan argues that fulfilment of these dual objectives would be a major contribution to the European Green Deal agenda, because (a) many climate emissions come from cities; (b) cities (where policies often first meet people) are uniquely well placed to be first movers towards climate neutrality; but (c) a concerted, innovative effort is essential now to help a large group of cities reach climate neutrality by 2030, thereby preparing the way for all cities to follow by 2050. Hence our view that the plan is **ambitious, realistic and with clear, time bound and measurable objectives.**

Many cities are already working towards climate neutrality, albeit with very different timescales. Others have announced plans to be climate neutral in some sectors of their economy or some parts of their city. This provides a strong pre-existing base of commitments.

However, the **added value** will come from the Mission's ability to overcome the substantial challenges that currently prevent 2030 climate neutrality being adopted by a large group of cities. Many cities and city organisations tell us that, while they want to go further and faster, they face barriers to doing so, such as their operational capacity and capability; the availability of funding and finance; and the need to develop political support both with their voters, and within their individual countries. These are concrete examples of the many difficulties faced by cities in their journey to climate neutrality and illustrate why the Mission must also serve as an important innovative test bed for how fair and just transition can be achieved at city level.

Moreover, while the EU and the European Commission in particular have a range of policies, programmes and funding support for cities, the cities also tell us that this support is fragmented and in particular that there is no programme focused on the complete **needs of the individual cities for achieving climate neutrality**.

Hence the central innovation of **Climate City Contracts** (CCC) to enable the city authorities to develop clear plans for climate neutrality by 2030 and to signal their firm commitment to mainstream their Climate City Contracts into their overall city planning processes. The CCC would include an investment plan for delivering on the commitments. The CCC would be co-created by cities with the assistance of the Commission, using the **Mission Platform** in particular to develop a range of supportive activities, but crucially also with the full involvement of Member States, regions, all stakeholders and in particular, citizens and local economic actors. The process also aims to develop the necessary synergies with (and support from and for) other relevant existing programmes of the Commission related to the push for urban climate neutrality.

How the Mission uses its **budget** will be centrally important. In one sense, the term is a misnomer in this context, because the Mission does not envisage having at its disposal anything close to the many tens of billions of euros required for cities to deliver their actual transformation towards climate neutrality. But this Implementation Plan sets out clearly how the Mission intends to use the Horizon Europe funds allocated to it particularly in the inception phase of the project to help cities move forward; how it is planned to augment this with other sources of funding and financing from EU and other sources; and last but not least, how it intends to help cities develop their investment plans within the CCC to pull in other sources of financing.

By setting out a detailed plan for implementation at the city level, these Climate City Contracts will provide the vehicle, the political focus, both for city efforts to become climate neutral and smart, and for the Commission to understand and address the individual concerns of different cities. In this, **diversity and inclusiveness** will be vital. The Mission wants to bring cities of different sizes and from all corners of Europe within its scope, but most of all, to bring on board cities with very different starting points in terms of climate neutrality. The EU will not meet its EGD objectives if they are addressed only by those who are already prepared to make the necessary commitments. In the same way, this Mission must embrace, right from the start, a number of cities from across Europe that have the most work ahead of them to deliver climate neutrality.

The Climate City Contracts will also enable participating Cities to integrate and promote the values and the principles of the **New European Bauhaus** initiative into their climate-neutral plans.

The overall concept of driving towards climate neutral cities by 2030 is innovative especially when applied at the European level, but the Plan also demonstrates in detail the **strong Research and Innovation content**, particularly at the inception phase, but in a broader sense, the CCC requires profound innovation in governance to effectively deploy existing and future innovative solutions. The spirit of innovation will remain central to the Mission's work.

The Plan takes as its starting point the inspirational and innovative report of the Mission Board for climate-neutral and smart cities of 22 September 2020.[1] The Mission Board proposed the following mission: **"100 climate neutral cities by 2030 - by and for the citizens".**

> "The aim of the mission is to support, promote and showcase 100 European cities in their systemic transformation to climate neutrality by 2030, making these cities innovation hubs for all cities. 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."
>
> *Report of the Mission Board for Climate Neutral and Smart Cities*

This plan fully endorses these objectives, and aims to be the operational blueprint for how the European Commission can deliver on them.

[1] https://ec.europa.eu/info/publications/100-climate-neutral-cities-2030-and-citizens_en

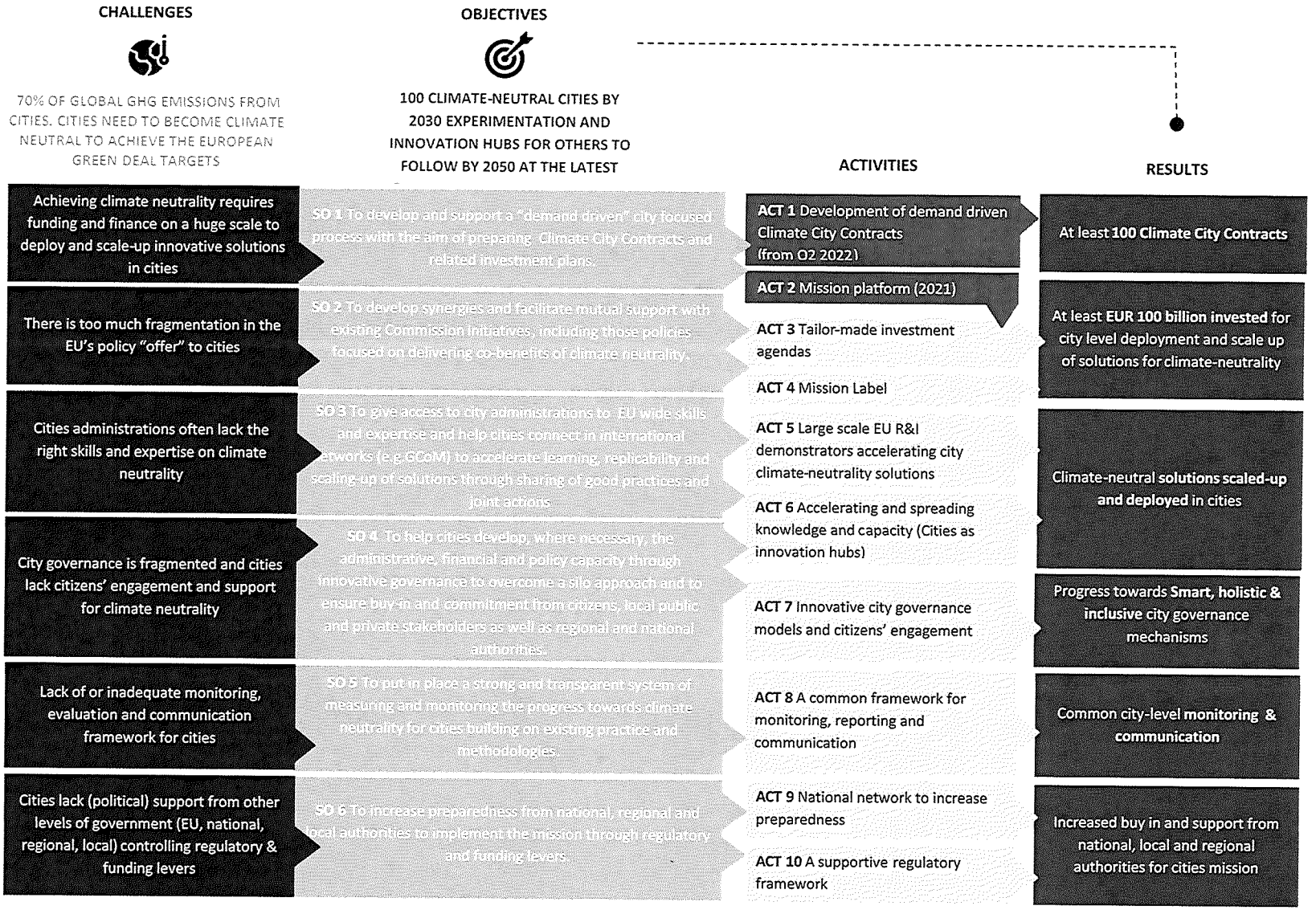
INTERVENTION LOGIC

This plan sets out a clear intervention logic for the Cities Mission, moving from a description of the general objectives to an analysis of the opportunities but particularly the challenges. There then follows an explanation of the specific objectives, of the related activities, and the expected results.

The intervention logic can be summarised graphically as follows. Please note in particular

(1) that it is a heavily simplified depiction of the work that lies ahead. In reality, each Specific Objective will be addressed by more than one activity and several of the activities will naturally serve more than one objective. The arrows are intended to indicate the principal "centre of gravity" and of course therefore all potential linkages are not depicted.

(2) Activity 1 and Activity 2 – the development of Climate City Contracts, and the work of the Mission Platform – are central, organising activities, which will encompass a range of other activities, set out below from Activity 3 to 10.


CHALLENGES
70% OF GLOBAL GHG EMISSIONS FROM CITIES. CITIES NEED TO BECOME CLIMATE NEUTRAL TO ACHIEVE THE EUROPEAN GREEN DEAL TARGETS
OBJECTIVES
100 CLIMATE-NEUTRAL CITIES BY 2030 EXPERIMENTATION AND INNOVATION HUBS FOR OTHERS TO FOLLOW BY 2050 AT THE LATEST
ACTIVITIES
RESULTS
Achieving climate neutrality requires funding and finance on a huge scale to deploy and scale-up innovative solutions in cities
SO 1 To develop and support a "demand driven" city focused process with the aim of preparing Climate City Contracts and related investment plans
ACT 1 Development of demand driven Climate City Contracts (from Q2 2022)
At least 100 Climate City Contracts
ACT 2 Mission platform (2021)
There is too much fragmentation in the EU's policy "offer" to cities
SO 2 To develop synergies and facilitate mutual support with existing Commission initiatives, including those policies focused on delivering co-benefits of climate neutrality.
ACT 3 Tailor-made investment agendas
ACT 4 Mission Label
At least EUR 100 billion invested for city level deployment and scale up of solutions for climate-neutrality
Cities administrations often lack the right skills and expertise on climate neutrality
SO 3 To give access to city administrations to EU wide skills and expertise and help cities connect in international networks (e.g. GCoM) to accelerate learning, replicability and scaling-up of solutions through sharing of good practices and joint actions
ACT 5 Large scale EU R&I demonstrators accelerating city climate-neutrality solutions
ACT 6 Accelerating and spreading knowledge and capacity (Cities as innovation hubs)
Climate-neutral solutions scaled-up and deployed in cities
City governance is fragmented and cities lack citizens' engagement and support for climate neutrality
SO 4 To help cities develop, where necessary, the administrative, financial and policy capacity through innovative governance to overcome a silo approach and to ensure buy-in and commitment from citizens, local public and private stakeholders as well as regional and national authorities
ACT 7 Innovative city governance models and citizens' engagement
Progress towards Smart, holistic & inclusive city governance mechanisms
Lack of or inadequate monitoring, evaluation and communication framework for cities
SO 5 To put in place a strong and transparent system of measuring and monitoring the progress towards climate neutrality for cities building on existing practice and methodologies
ACT 8 A common framework for monitoring, reporting and communication
Common city-level monitoring & communication
Cities lack (political) support from other levels of government (EU, national, regional, local) controlling regulatory & funding levers
SO 6 To increase preparedness from national, regional and local authorities to implement the mission through regulatory and funding levers
ACT 9 National network to increase preparedness
ACT 10 A supportive regulatory framework
Increased buy in and support from national, local and regional authorities for cities mission

General objectives

Although cities occupy only 4% of the EU's land area[2], 75 % of Europeans are living in urban areas in 2020[3] and this number is expected to rise to 85% by 2050[4]. Cities already consume over 65% of the world's energy and account for more than 70% of global CO2 emissions[5][6]. Against this background, if the EU is to be climate neutral by 2050 and to reduce climate emissions by 55% by 2030 to deliver on the European Green Deal, the cities will have to be one of the key focal points. But they are also a particularly prominent example of where "policy meets people", i.e., where the citizens - and their city leaders - most directly confront the issues involved in tackling climate change, and the Cities Mission therefore aims to involve citizens directly in this process.

The Mission has two general objectives:

General Objective 1: to achieve at least 100 European climate-neutral and smart cities by 2030 – by and for the citizens.

General Objective 2: 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 and smart by 2050.

DEFINITION OF A CITY

In the context of the mission, entities will be eligible to express their interest to become a Climate Neutral City if they are local authorities or their mandated representatives that represent one city defined as a Local Administrative Unit (LAU), or a "greater city" or metropolitan region, taking account of Functional Urban Areas (FUA) where relevant. Entities of more than 50 000 inhabitants may apply.

However, in order to maximise the impact in terms of reducing GHG overall, we are keen to encourage applications in particular from cities where the majority of the population lives in an urban centre of at least 100 000 inhabitants.

In addition, in order to ensure maximum inclusiveness, for entities coming from Member States with five or less cities above 100 000 population, a lower threshold of 10 000 residents will apply.

Climate neutrality is a concept which is still evolving. The IPCC has of course defined climate neutrality, i.e., when the amount of greenhouse gas released into the atmosphere is neutralised through the planet's natural absorption, but this must be applied to the urban context. At this point no unanimously agreed definition exists of what climate neutrality means for a city. Further analysis of the current concepts and methodologies currently being discussed is presented in Annex XI to this document[7]. Developing mechanisms to offset the remaining emissions to reach a net-zero emissions

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[2] European Environment Agency, Analysing and managing urban growth, European Environment Agency, Copenhagen, 2019, https://www.eea.europa.eu/articles/analysing-and-managing-urban-growth

3 https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=EU

[4] https://ec.europa.eu/knowledge4policy/foresight/topic/continuing-urbanisation/developments-and-forecasts-on-continuing-urbanisation_en

[5] https://www.c40.org/why_cities

[6] This global figure includes emissions beyond cities (e.g. emissions physically taking place well outside a city but "triggered" by the cities). The estimate for EU-27 using the Eurostat definition of cities (i.e. more than 50,000 inhabitants) would be 36% of GHG coming directly from cities.

[7] The final definition needs to be refined over the coming months, but for now, the goal should be that cities should aim to achieve net zero emission of greenhouse gases by reducing such emissions as much as possible.

balance will also be necessary, but these should be used only for the residual, unavoidable (or disproportionately costly) emissions[8].

The Cities Mission wants to ensure that this definitional work meets the highest and most rigorous standards possible, and in particular those mandated by the IPCC, and we will also use the state of the art mechanisms in Monitoring, Reporting and Verifying (MRV). At the same time, cities should not be discouraged from participating in the Mission by these high standards. The Mission will work with them to set, and pursue, this demanding target of climate neutrality by 2030 but does not intend to set in place legal consequences for cities for failing to meet the targets: indeed, quite the contrary. The Mission will also develop positive indicators that show the added value of the benefits, and co-benefits, in terms of citizens' well-being and prosperity that will flow from these major efforts that lie ahead.

Context

a) Why cities can play a major role

A number of cities – but far from all – have adopted the goals of climate neutrality, reflecting the national and regional differences we see across the EU. 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. For example:

- In areas such as urban mobility and energy efficiency of buildings, **cities have built-in advantages over rural areas** – such as high levels of population density and geographic focus - when it comes to delivering climate neutrality. Cities represent a major share of Europe's building stock which renovation is a must to save energy on the way to climate neutrality.

- The political climate has changed sharply. Cities across the EU are now demonstrating both the **political will** and the potential capability to be first movers, the vanguard of European efforts to implement EGD levels of ambition on climate neutrality. They are forming a variety of alliances to tackle climate change at both national, European and global level, such as the Covenant of Mayors, which offers a vehicle to cities to develop Sustainable Energy and Climate Action Plans (SECAPs)[9] collaborating with the Smart Cities Marketplace[10] for helping to realise these plans also with support of private investments.

- Cites are **competing for investment** from new and innovative "green" companies and want to attract the best, most qualified and adaptable workforce who themselves tend to demonstrate strong "green zeal".

- In areas such as urban mobility, cities from networks like CIVITAS and Polis have taken bold and innovative steps to reduce their urban transport footprint on the environment and deliver climate neutrality – such as limiting the use of cars in urban areas, digitalizing transport operations or developing public transport connections. This brings massive (and more visible) "**co-benefits**" for their citizens such as better air quality, less road congestion, healthier active mobility, fewer road deaths, and less noise.

- Cities and their local economies are **in the forefront of recovery,** stimulating the development of new markets for climate neutral and circular technologies and products. The decarbonisation

[8] See section Monitoring and Reporting for further analysis of this point.

9 For a full list of different initiatives, see the Addendum

[10] https://smart-cities-marketplace.ec.europa.eu/matchmaking

and modernisation of energy-intensive industries is creating **new jobs and reskilling workforces**, leading the way towards sustainable, resource efficient, resilient and socially responsible industrial development that puts people first.

- Many cities are **committed to tackling climate change**. So far, more than 300 cities with over 50000 inhabitants in the EU 27 that are part of the Covenant of Mayors have pledged to reduce their GHG emission by at least 40% by 2030[11], although **only a handful have committed to full climate neutrality**[12]. More than 11,000 cities have committed to sustainable urban mobility in the EUROPEANMOBILITYWEEK at least once since 2002. The highest participation rate ever was in 2019 with 3,125 towns and cities from 50 countries in Europe and beyond. Last year was the second highest participation rate with 2,945 towns and cities from 53 countries. More than 300 cities from Europe have signed the CIVITAS Declaration committing to cleaner and innovative transport. Over 30 cities participating in the Intelligent Cities Challenge Initiative have developed or are currently shaping Local Green Deals, to support the implementation of the European Green Deal (EGD) at the local level.

- Cities are advancing in their **digital transformation.** Smart city solutions and data-sharing at scale are offering opportunities to plan, implement and monitor reductions in emissions across a range of sectors, such as urban mobility, energy efficiency in buildings, monitoring of air pollution, water and waste management. And because of the huge potential social, environmental and economic impacts of the data revolution, cities are also an excellent starting point for the twin green and digital transitions. Cities are uniquely well placed to draw on the fundamental, transformative and crosscutting power of data in the digital era, and to address the resulting complexities as well. The Commission is ready to play its role - for example, the **Living-in.EU** movement seeks to accelerate the digital transformation in a way that assists cities and communities to address a range of societal challenges, in particular those resulting from climate change.

b) Building on existing commitments from cities, national authorities and other players.

Many cities have been asking for a swift launch of the Cities mission. In addition to the 12 cities that were actively involved in citizen engagement events organised in 2020 (see Annex VII), mayors of Barcelona, Eindhoven, Helmond, Madrid, Berlin, Budapest, Milan, Munich and Stockholm, for example, have very recently written to confirm their interest in the mission. This high interest has been repeatedly confirmed through our interactions with city officials and city networks at all levels.

Member States and the European Parliament have given their support for the Cities mission as one of the five mission areas in the Horizon Europe Regulation. In the preparatory phase of the Cities mission, four meetings were held, at key points in the mission design process, with the representatives of the Member States, and the Mission was described to us[13] as an innovative approach that could improve not only local outcomes, but also positively boost national strategies. On 17 September 2020, the European Parliament proposed the year 2022 to be designated **'European Year of Greener Cities'**. This would be an opportunity to mobilise the interest of a broad

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11 JRC CoM database (extraction date 22 February 2021)

[12] JRC CoM database: 15 signatories over 50,000 inhabitants with a target of minus 80% or higher by 2030 or earlier, and 16 such signatories with a long term target of climate neutrality (2031-2050)

[13] "France welcomes this proposal and shares the systemic vision and the main orientations developed by the Climate City Mission. ... This holistic vision, mobilizing society as a whole, and feeding into public policy instruments, is the keystone of a successful transformation.", extract from the position paper sent by the French delegation to the Shadow Programme Committee of Horizon Europe

range of cities in issues linked to climate neutrality, notably but not exclusively zero pollution, and would therefore also help achieving the G02 objectives of the Mission.

Specific national climate neutral city networks are emerging in a number of Member States, set out in the box below:

Examples of national agencies embracing and piloting the Cities mission model:

- *France and EcoCités.* The French Ministry in charge of Urban and Territorial Planning provides targeted support to 30 cities and urban agglomerations under the EcoCités label. Eco-city projects benefit from funding under cross-policy programs involving the public and the private sector, with actions tailored to cities and their historic, geographic and climatic context.
- *Spain and citiES 2030.* Following the EU Cities Mission proposal, Spain set up the platform citiES 2030. The platform is preparing the signature of Climate City Contracts with Barcelona, Madrid, Seville and Valencia. It will also define a portfolio of projects that allow progress towards the goals established by each city. Four Spanish ministries are involved in the process: Ministry for Science and Innovation, Ministry for Ecological Transition, Ministry for Transportation and Urban Agenda, and Ministry for Health.
- *Austria and Fit4UrbanMission.* In November 2020, the Austrian Ministry of Climate Action launched Fit4UrbanMission, a competitive call for Austrian cities to develop plans for climate neutrality by 2030 and in view of the Cities Mission. Nine cities have already committed to apply with their concepts. After the final selection in May, each city will receive a EUR 100,000 grant and support from the National Smart City Platform and other national agencies such as AustriaTech and the National Climate Fund. The Ministry of Climate Action is also developing a concept for a national implementation plan in the context of the Cities Mission.
- *Sweden and Klimatkontrakt 2030.* In December 2020, nine Swedish cities (Enköping, Göteborg, Järfälla, Lund, Malmö, Stockholm, Umeå, Uppsala and Växjö) signed Klimatkontrakt 2030, a city contract to accelerate climate efforts. Inspired by the Climate City Contract proposed by the Cities Mission, Klimatkontract 2030 will enable investments in climate and sustainability actions in each city with regulatory, innovation and financial support and facilitation at the national level. The initiative is coordinated by Viable Cities, Sweden's R&I program for smart and sustainable cities, with funding from Vinnova, the Swedish Energy Agency and Formas

In the international arena, during the inception phase of the Cities mission, we have interacted with various global city networks and international organisations such as C40, the Global Covenant of Mayors, UN ECE, WHO, and UN Habitat to discuss the implementation modalities of the Cities Mission. We are also involved in an informal working group with business leaders from the World Economic Forum (WEF) and the World Business Council for Sustainable Development (WBCSD) to discuss the involvement of private actors in supporting the transition of cities towards climate neutrality. Japan has followed the cities mission example with a national initiative and Mission Innovation is also considering a "cities mission" at global level.

c) The European Commission's efforts to deliver on the European Green Deal

The Mission's key focus is on how it can deliver to support the **European Green Deal**. All cities need to be climate neutral by 2050 as part of the overall ambition of the European Green Deal – and it is clear that the least prepared, and particularly those where the political conditions are least conducive, will need consistent support from the EU to get there. Again, that is why the Mission has twin general objectives of the Mission. By first facilitating and enabling 100 cities, many of them of significant size, to be climate neutral by 2030, the Mission will prepare the ground for all other cities in the European Union to go further and faster to meet the challenge of climate neutrality.

The Cities Mission will pursue these objectives in a joined up way: drawing on, and supporting, the work of the European Commission in a number of different policy areas.

Making our cities climate-neutral and smart is an absolute need for achieving the 'twin green and digital transformation' in the EU therefore the Mission will also support **Europe's digital policy and supporting initiatives.** By mobilising and supporting 100 cities transitioning to climate neutrality by 2030 and drastically reducing their emissions, the Cities Mission will contribute to a wide range of sectoral EU policies implementing the European Green Deal, including the **Smart and Sustainable Mobility Strategy**; the **EU Strategy on Adaptation to Climate change;** the **EU Digital Strategy**; the new **EU Industrial strategy**; the **Renovation Wave** for sustainable energy by supporting cities in their applying circularity principles to building renovation and the **Zero Pollution Action Plan**, by generating co-benefits in cities.

The mission will work closely with the **European Climate Pact**, particularly in the early days of the Mission, to encourage cities and their citizens to express their interest and consider becoming a Climate Neutral City, and with the **Covenant of Mayors**.

The Mission will also contribute to develop collaborative local governance models to accelerate the emblematic transformation of the urban environment. It will foster renovation of urban spaces combining sustainability, accessibility and aesthetics in a human-centred way thus reflecting the values and principles promoted by the **New European Bauhaus initiative** into climate-neutral urban quality transformations.

The Mission will coordinate its work closely with the **National Energy and Climate Plans,** which include priority areas for reforms and investments such as the renovation of the building stock and access to affordable housing, decarbonisation of industry and renewable energy, sustainable mobility and energy system integration including infrastructure, batteries and renewable hydrogen. All these priorities are extremely relevant for urban climate transition. Based on Commission calculations, to achieve the current EU 2030 climate and energy targets, annual investments related to energy production and use will need to increase in 2021-2030 by just over 1 percentage points of GDP on average, compared to the previous decade, that is, an increase of around EUR 260 billion per year. For an increased greenhouse gas emissions reduction target of 55% this figure would increase to around EUR 350 billion.

With its strong city-driven approach and focus on place-based solutions, the mission contributes to the objectives of the new **EU Cohesion Policy**[14] which has an increasingly strong sustainable urban development dimension[15]. Under shared management, the strategic choices of Member States and regions remain central, but, a minimum 8% of the ERDF resources in each Member State must be invested in priorities and projects during the period 2021-27 that are selected by cities themselves and based on their own sustainable urban development strategies.

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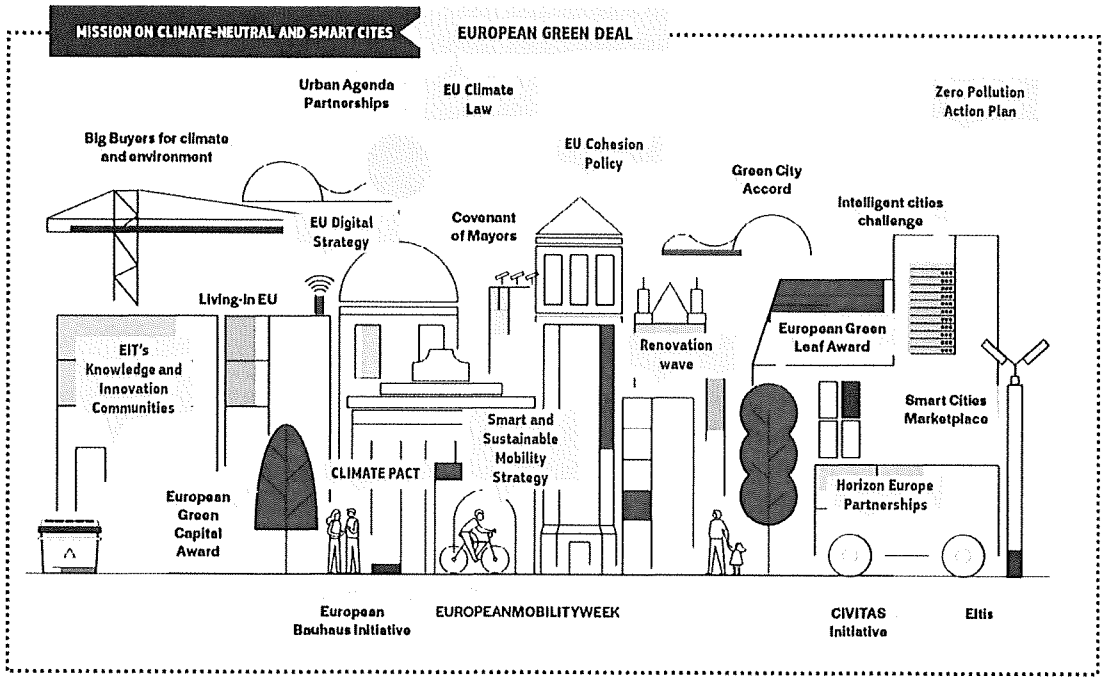
[14] In the 2014-2020 period, some EUR 115 billion from the cohesion policy funds were invested in cities. Of these, EUR 17 billion was implemented locally through more than 980 sustainable urban development strategies managed directly by urban authorities (the 'Article 7 cities'). The Urban Innovative Actions provided direct support of EUR 372 million for cities to experiment with novel innovative ideas. The URBACT III programme built the capacities of cities with the support of EUR 96 million by transnational networking, learning from experiences and identifying good practices to improve sustainable urban development policies and strategies.

[15] For the period 2021-2027, the urban dimension of cohesion policy has been strengthened. The five policy objectives of cohesion policy focused on Smarter, Greener, More Connected and More Social Europe and a Europe closer to Citizens will mobilise substantial investments in urban areas. The new Policy Objective 'a Europe closer to Citizens' has been introduced to the main policy framework as an enhanced commitment to integrated territorial development and includes a specific objective to foster sustainable urban development.

The Addendum to the Implementation Plan positioned just before the Annexes provides a full overview of all relevant EU policies and initiatives linked to cities.

Figure: Cities Mission policy landscape & synergies to cities.[16]



Challenges

Cities can be very useful frontrunners to promote the objective of climate neutrality bottom up. There are however a number of different challenges to overcome[17] to enable cities to play this enabling role.

In practice tackling climate challenges means addressing polluting sectors head-on.

For example, greenhouse gas emissions from the EU's transport increased in 2018 and 2019 and have not followed the EU's general decreasing emissions trend. National projections compiled by the EEA suggest that transport emissions in 2030 will remain above 1990 levels, even with measures currently planned in Member States. Further action is needed particularly in road transport, the highest contributor to transport emissions. These projected trends suggest that the transport sector is unlikely to contribute to the emission reductions needed to achieve the EU's new targets for 2030

[16] Visual adapted from Eurocities' *Study in support to the development of a communication strategy of the Mission Board for Climate Neutral and Smart Cities* delivered under the contract RTD/2020/LV/008.

[17] These challenges are largely based on the focus groups meetings organised by Eurocities within its network encompassing 140 large cities in the course of 2020. The participating cities noted in particular how funds and initiatives are relatively scattered across many programmes on the national and EU level that offer assistance for cities; expressed the need and ambition for a shift from a project-based to a systemic approach; and asked for a one-stop shop to facilitate sustainable financing of the climate work in cities to support closing the gap between their climate ambitions and climate actions. The participating cities also underlined that the current pledges and awards are mobilising cities towards partial neutrality by 2030, but not sufficient to accelerate the transition towards full climate-neutrality by 2030.

or to achieving climate neutrality by 2050[18] without a step change in urban mobility policy (DG MOVE are to come forward with a revised Urban Mobility Initiative in Q4 2021).

Looking more horizontally, to allow cities to play this enabling role to accelerate the twin green and digital transitions:

1. **Achieving climate neutrality requires funding and finance on a huge scale to deploy and scale up innovative solutions in cities**. One recent study carried out by Material Economics[19] for the Mission Board report estimated the average cost, for a city with a population of around 100,000, to be around 1 billion EUR. City finances are weak following the financial / economic crisis of 2008-10, a situation amplified by the challenges of COVID. Their existing funds are limited and their tax base is often fragile. Supporting funds and finance for cities come from a variety of sources but they are often diffused and fragmented. Existing EU funds are clearly not sufficient for this purpose (and of course do not purport to be).
2. **There is too much fragmentation in the EU's policy "offer" to cities.** As exemplified by the above mentioned figure, the EU, and the Commission in particular, offers already a wide variety of policy support and solutions, set out in more detail in the Addendum. There are many different programmes, initiatives and awards tackling the green, climate neutral agenda, but it is often difficult for cities to find the necessary resources to engage with all of them. In particular, there is no overall, integrated EU level programme focused on helping an individual city to deliver climate neutrality on a tight timescale.
3. **Cities administrations often lack the right skills and expertise on climate neutrality.** Climate neutrality will be both politically demanding and administratively complex for cities to deliver. Cities need to be helped to develop their capacity to deliver radical change across the whole city administration, and administrations need to have staff with a broad range of skills to deliver. City officials also often lack the time or incentives to invest in learning eg from other cities' experiences.
4. **City governance is fragmented and cities lack mechanisms to engage citizens and other stakeholders, public and private, to win their support for climate neutrality.** Cities, especially smaller and medium sized ones, often lack the necessary administrative and policy capacity to be ready by 2030. There appears to be a "governance gap" that needs to be overcome to deliver the necessary integrated policies, and to ensure political support from all levels. The sheer scale of work to reach climate neutrality needs strong public support, based on visible co-benefits of climate neutrality, such as air quality and lower energy bills. Citizens need to be brought on board, but they also have an important role to play, in providing the policy legitimacy for climate action.
5. **Lack of or inadequate monitoring and evaluation framework for cities**. Cities need to be able to measure and monitor their progress, to measure their successful achievements and decide on adjustments or pivoting their strategy.
6. **Risk of lack of (political) support for cities from other levels of government (EU, national, regional, local) who control regulatory and/or funding levers.** Although there is some strong support that already exists (see above), in some cases there are regulatory barriers at Member State or regional level which prevent cities taking the necessary actions. Similarly, it will be important to find ways to unlock funding from all sources for cities to focus on addressing their specific needs. Most of all, if cities are to take commitments on climate neutrality at EU level, they need the supportive involvement of their regions and their Member State.

[18] Greenhouse gas emissions from transport in Europe — European Environment Agency (europa.eu)

[19] The estimation is based on the experience gathered by Material Economics and tested on seven cities supported via the EIT Climate-KIC Deep Demonstration projects

Specific objectives

To address these challenges, the Mission has six specific objectives:

- **Specific objective 1** - To develop and support a "demand driven" city focused process based on the preparation Climate City Contracts including investment plans.
- **Specific objective 2** - To develop synergies and facilitate mutual support with existing Commission initiatives, including those policies focused on delivering co-benefits of climate neutrality, while reducing administrative costs for cities related to the need to work with many different EU initiatives on similar issues.
- **Specific objective 3** - To give access to city administrations and their local businesses to EU wide skills and expertise and help cities connect in international networks (e.g. Global Covenant of Mayors) in order to accelerate learning, replicability and scaling-up of solutions through sharing of good practices and joint actions and ultimately serve as an inspiration for cities across the world.
- **Specific objective 4** - To help cities develop, where necessary, the administrative, financial and policy capacity through innovative governance to overcome a silo approach and to ensure buy-in and commitment from citizens, local public and private stakeholders (i.e. industry, businesses) as well as regional and national authorities.
- **Specific objective 5** - To increase the level of assistance from national, regional and local authorities through regulatory and funding levers to help cities implement the mission.
- **Specific objective 6** – To put in place a strong and transparent system of measuring and monitoring the progress towards climate neutrality for cities building on existing practice and methodologies.

The Mission will address these challenges and specific objectives through the activities described below.

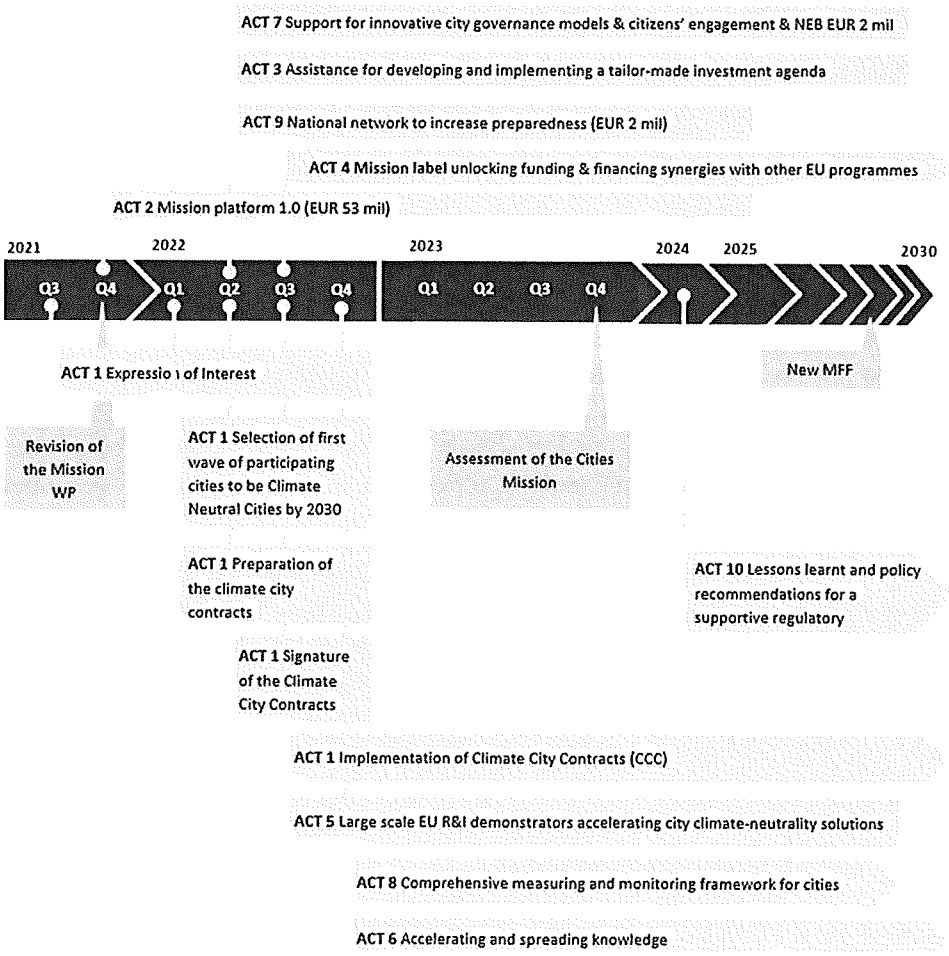
ACTIVITIES

The Mission's objectives cover the time frame 2021 – 2050, with two "waves" of transitions towards climate-neutral cities (2030 and 2050).

The activities described below focus particularly on the first implementation phase, namely from 2021 – 2023.[20] This means a heavy focus on the preparation of the Climate City Contracts, and at least strong initial reliance on the Mission Platform. Funding and financing will be issues right from the outset. In this first phase, the EU funding for the Cities Mission activities described below mainly comes from Horizon 2020 and Horizon Europe, EU Framework Programmes for research and innovation. Over time, other EU funding and financing instruments are also expected to support Mission activities (see below under 'budget'), based on the synergies we are developing with other DG programmes, and the added value that the Mission will bring.

Implementation of the Climate City Contracts will bring its own set of challenges, and this Implementation Plan will therefore need regular revisiting in the coming years to take account of progress achieved, but also to tackle new challenges effectively along the way.

Figure: Timeline of the Cities Mission activities



[20] This time line fits with Article 8 of the Horizon Europe Regulation, which provides for a public assessment of the progress of the Cities mission by the end of including an analysis of the selection process, governance, budget, focus and progress to date, see Article 8 of the Horizon Europe Regulation.

Activity 1 Demand-driven Climate City Contracts

The central focus for cities seeking to become Climate Neutral Cities by 2030 will be ***the Climate City Contract (CCC),*** *and the initial phase of work will be centred on helping cities deliver these contracts. The CCC will encompass a range of other activities including the innovative city governance models and citizens' engagement, tailor-made investment plans for cities and the mission label.*

The inception period of the Mission will span two phases: the Call for Expression of Interest (phase 1 - from Q3 of 2021 – Q1 2022), followed by the co-creation and preparation of the Climate City Contract (phase 2, starting in Q1 2022 with work beginning on the first climate city contracts which in turn start to be concluded from Q3 2022). These timings are of course indicative at this stage.
The development of Climate City Contracts addresses in particular the Mission's specific objective 1, and also specific objectives 2, 3 and 5.

This activity will start with the launch of the **Call for Expression of Interest (EoI)** by Q4 2021. The EoI will be open to all cities that wish to commit to the objectives of climate neutrality with a short time scale. By indicating that we have a particular interest in the largest cities of the EU that have by definition the greatest capacity to cut GHG emission, this call should lead to a significant reduction of GHG by 2030 (GO1). But it will also be signed to be inclusive, ensuring that cities in all Member States can participate, and needs to be truly diverse in encouraging expressions of interest from cities of different sizes and levels of preparedness, and from all corners of Europe (GO1 and GO2). In this phase, the Commission will also start to support cities with citizens' engagement activities through the **European Climate Pact**.

The next phase of the process will consist in the development of a **Climate City Contract (CCC) for each city intending to be climate neutral by 2030,** through an innovative process of co-creation involving the cities, the national/regional authorities and the Commission. The work to begin preparation of Climate City Contracts, and the specific, focused Commission assistance for that, should initially be for the cities that have demonstrated through the Call for Expression of Interest their capacity to become climate neutral by 2030 (G01). For the other cities (G02), more general eg web-based assistance and mentoring activities will be provided to help them develop the necessary capacity. Their readiness to be climate neutral, including even by 2030, could be reassessed at a later stage, potentially triggering additional support.

As shown in the Addendum, many cities are already participating in a significant number of EU initiatives and programmes that are often relevant for achieving climate-neutrality at city level. In preparing their response to the Call for Expression of Interest, cities will be informed of the ongoing policy initiatives available in the EU and will be invited to indicate their involvement in these programmes. *[Several DGs are expressing their wish to know more precise details about the process at the end of the call for EoI and in particular the "selection criteria" that will be used to identify which cities will be part of the "first wave" i.e. cities invited to co-create their climate city contracts. We will continue to work with all interested DGs and JRC to prepare the template to be used in the EoI and in particular the criteria to be employed.]*

However, the existing mechanisms are mostly technology-driven and/or sectoral and are generally not part of an overarching strategy aiming at climate neutrality for cities. Nor are they specific to the needs of a particular city. The CCC puts cities in the driver's seat and will be based on their data showing their actual needs. The nature of the CCC process and will empower the level of governance that is closest to the problem and closest to the citizens experiencing it. By its nature, the CCC will be a cross-sector, demand-based and bottom-up approach as opposed to a "top-down",

"supply-driven" perspective. This is important because cities rarely receive demand- driven assistance, i.e., specifically tailored to their specific situation, in getting to climate neutrality.

The CCC will include specific commitments in relation to climate neutrality across all relevant sectors, including an agreed baseline; how the city plans to implement these commitments by 2030; and an investment plan that will identify relevant funding and financing sources needed to deliver on the climate contract.

The Contract itself would be a non-legally binding but carefully co-created delivery tool based on the realities and needs of each city. On this basis, the cities will set out how they are going to design, deploy and monitor agreed actions in a systematic way, with citizens engaged throughout the process.

For the development of the Climate City Contract, support will be provided to cities by the Commission through in particular the Mission Platform (see Activity 2 and Annex I). The network of national contacts (supported in the Horizon Europe Work Programme 2021 and to be signed in Q1/Q2 2022 – see Annex II topic HORIZON-MISS-2021-CIT-01-01) will also establish national hubs that provide dedicated information for their cities on the national services and conditions thus helping the preparation of the Climate City Contract. During the development of their contracts, the cities will be able to align and integrate their commitments related EU policies such as the Green City Accord and the relevant elements of zero pollution action plan. This will not only help them develop synergies and deliver reciprocal benefits, but the process will also reduce the sheer number of different activities cities need to align with (also linked to SO2).

A particular and recent example of such synergies comes from the Horizon Europe Coordination and Support Action that has been launched to ensure the Cities mission takes on board the **New European Bauhaus**'s principles of sustainability, inclusiveness and aesthetics into climate-neutral urban transformation (Annex II, topic HORIZON-MISS-2021-CIT-01-02). In addition, the lighthouse demonstrators for the New European Bauhaus initiative, which will be supported by the work programme 2021 of Horizon Europe (Annex II, topic HORIZON-MISS-2021-NEB-01-01), will have a clear expected transformational impact both on the built environment, and on how people live and interact in that environment. By providing tangible and replicable results, they will serve as test-beds for the cities that commit to the mission.

So the demand-driven, city specific nature of the Climate City Contract covering all aspects of the necessary work (including detailed planning for investment and implementation) will ensure that the needs of the city are taken as the starting point for more focused support to fund decarbonisation from the EU, national and local levels. This will also help to channel public funding to where it is most needed.

Activity 2 Mission Platform

*The **Mission Platform** will be the main initial basis for supporting cities in the transition towards climate neutrality, beginning with support for cities as they start to develop Climate City Contracts (see above). The platform will offer a range of support activities for cities including support for tailor-made investment plan, innovative city governance models and citizens' engagement and a common framework for monitoring, reporting and verification.*

The Mission Platform will be a key tool for the Cities Mission. It will be launched through a Horizon 2020 project, to start in Q3/4 2021,[21] for a duration of four years (2021 – 2025) to provide the necessary technical, regulatory, financial and socio-economic expertise as well as assistance to cities for developing and implementing their climate action plans, and related social innovation action plans. The platform should facilitate the coordination of ongoing European activities in the area of climate neutrality for cities and will receive additional funding under Horizon Europe.

The Mission Platform will involve research organisations, academia, industry including social entrepreneurs, the financial sector including impact financiers, investors, philanthropists, NGOs, national and local authorities and citizens.

Its initial capacity will be limited. However, if the model of using the Mission Platform to provide both general and specific assistance to cities, notably in developing their CCC, proves to be successful, the Mission will consider making further calls in the future to extend the platform for the use of more cities.

The Mission Platform will also be responsible for the management of competitive calls addressed to third parties to fulfil the objectives of this Mission. More information about the Mission Platform and its activities can be found in Annex I.

Activity 3 Tailor-made investment plans for cities

*The Mission Platform will support cities to develop **a tailor-made investment plan**, including with financial advisory services, to access public and private funding and financing as part of their climate city contracts and their implementation, thus contributing in particular to the Mission's specific objective 1.*

The different activities of the Mission Platform will guide cities through the different funding opportunities that exist at EU level to accelerate the implementation of the city climate contract. For example, the Platform will systematically analyse opportunities for cities offered in the Cohesion policy programmes, and in the roll out of national Resilient and Recovery plans. Apart from funding, cities will in future need access to innovative financing opportunities - the Platform will therefore also support cities preparing specific investment projects for the transition to climate neutrality. Lastly the Platform will develop innovative tools and educational programmes and will identify methods to measure and demonstrate the value of the co-benefits of climate neutrality projects (more details in Annex I).

Furthermore, as part of the Horizon Europe Mission Work Programme, all missions will receive support from the EIB for the identification of investment sources and outreach and engagement with potential investors or other types of funding models and mechanisms. These services will contribute to the understanding and use of appropriate financing tools and models and instruments of actions, including the development of blended instruments under InvestEU, ensuring effective financing to reach mission objectives (see Annex II - EIB Innovation Finance Advisory to support the implementation of EU Missions).

[21] A dedicated topic was included in the European Green Deal call published in the work programme of Horizon 2020 (ref LC-GD-1-2-2020) to set up a Mission platform that would provide the necessary technical support to cities for developing and implementing their climate action plans in order to reach climate neutrality by 2030 (see Annex I for details).

In the context of the revision of the Horizon Europe Mission Work Programme to be carried out in Q4 of 2021, options for new or reinforced dedicated financing advisory services for cities[22] will be explored in order to provide targeted advisory assistance for the participating cities' climate city contract and related implementation and investment plan and giving participating cities access to simplified services and experience-based assistance for smaller projects. In particular, the topping up of ELENA and/or JASPERS or Sustainable Infrastructure Advisory (SIA), could be considered. Adapting or creating a new window under ELENA should include targeted performance-based assistance for project support development to cities participating in the Cities Mission. Such advisory assistance would consist in particular of technical assistance for capacity building, market assessment and program and project preparation, including for multi-sectorial climate and energy audit and for developing municipal climate, mobility and energy plans covering whole value chain of urban economy. Financial engineering advice should be also given including investment advice on business modelling (covering whole value chain analysis), support to blending and combination, procurement using PPP, and financial structuring to optimize access to finance.

Activity 4 Mission label to unlock synergies with other programmes

Climate neutral cities will need to be able to access other EU funding programmes, including of course ongoing calls under Horizon Europe, particularly as we will be urging cities to take advantages of the opportunities to build in cumulative, complementary synergies with other EU projects. Therefore it is proposed that ***a "mission label"*** *will be awarded to the selected cities having signed a Climate City Contract, recognising the quality and feasibility of their commitments under the Climate City Contract. [The implementation of the concept will need further work with other services, in particular DG REGIO, JRC and the EIB, to make sure that the mission label would work effectively at the level of investment projects]*

This label will enable other EU funding programmes to:

- Make an explicit reference to the cities involved in the Mission in their calls for proposals/actions/initiatives;
- Provide whenever possible preferential access to funding and/or financing.

By 2023, i.e., when we anticipate that the vast majority of CCC will be in place, we want to establish linkages to calls for proposals under other EU funding programmes to enable dedicated access to cities participating in the Mission or evaluation criteria in their calls. For example, this could give cities participating in the Mission additional "points" in the evaluation process.

The "mission label" will also offer an opportunity for regions and Member States (and other public actors) to support highly visible activities on climate neutrality to help carry forward their overall efforts to meet European Green Deal targets. Since 'labelled' cities would have already have passed

[22] The EU is currently supporting a number of successful financing advisory actions for cities in preparing bankable projects, exploring innovative financing opportunities and crowding-in private investors. Of particular relevance for cities participating in the Cities mission are the advisory facility under the InvestEU Advisory Hub, namely URBIS, which provided advisory support to urban authorities to facilitate, accelerate and unlock urban investment projects, programmes and platforms; JASPERS helping regions and cities absorbing EU structural funds; ELENA, focussing on larger project based [30 m +) energy efficiency and renewable energy investments in buildings and urban transport; Other advisory facilities, to be developed, such as the Sustainable Infrastructure Advisory, which can also handle smaller scale advisory (including helping some cities with their applications to ELENA). Coordination between different instruments is important, because without this, cities are forced to break down their climate plans to adapt to the different types of assistance requirements (in terms of size of the project, objectives, partners etc.).

a stringent selection and award criteria, regions and Member States could grant relevant funding to these cities without additional qualitative evaluation, including under their national Recovery and Resilience Plans, thus reducing administrative burdens.

In addition, the EU's structural funds under the next financial framework from 2021-27 will be a potentially significant source of funding to cities aiming to be climate neutral by 2030. These funds, are however programmed and implemented in the shared management mode, where the Member states have responsibility for implementation of programmes.

In order to facilitate the process of accessing support from different funding sources, the Commission services will develop a memorandum to explain – for example to managing authorities in the context of the ERDF – how the Cities Mission process works and the nature of commitments in CCC in order to facilitate access of cities to funding and uptake of investments in different funding instruments.

Moreover, since the activities planned under the Climate City Contract will have been already vetted as environmentally sustainable in line with the EU framework to facilitate sustainable investment, the label will serve to boost investor awareness and confidence. In turn, this will make it easier for the cities to attract financing for their climate-related activities.

Activity 5 Large scale EU R&I demonstrators accelerating city climate-neutrality solutions

The Mission Platform will launch[23] ***large-scale pilots*** *to act as demonstrators for the deployment of R&I and other off the shelf solutions*[24] *in lead European cities and districts as of 1Q 2023. This will accelerate the capacity of cities to deliver on climate neutrality and help cities become innovation hubs focused on deployment - these pilot projects should be chosen on the basis that they have the potential of being scaled up and replicated in other cities participating in the mission and enable all cities to benefit and support their transition towards climate neutrality by 2050.*

This activity therefore contributes in particular to the Mission's specific objective 4:

These pilots will also helpfully illustrate and provide a visible and strong range of social, environmental and economic co-benefits, which are often more directly relevant for citizens.[25]

In addition, activities should also focus on how to move from singular, customised pilot programmes to city-wide initiatives: evolving from demo sites based on specific contexts or conditions in a particular district to solutions applicable to the whole city.

This activity will be carried out in close cooperation with the **EIT's Knowledge and Innovation Communities (KICs)** which have experience in delivering holistic, transformative, citizen-driven and systemic solutions and innovations to specific global challenges that address the needs of the market

[23] Based on an open call for all cities participating in the cities mission.

[24] The R& I work that will contribute to the Mission's goals will be mostly based on existing or soon to be delivered outcomes of research funded under previous EU R&I Framework Programmes such as emissions reduction and air pollution; improved quality of life by changing behaviours and healthier lifestyles; improved environmental conditions, by proposing cleaner and more efficient transportation; reduced traffic congestion, noise and road deaths, by lowering the number of private vehicles; social inclusion and innovation, by extending public transportation to remote areas and improved connectivity; water resilience, energy efficiency, renewable energy use and availability deploying innovative and systemic solutions that integrate nature based solutions as well as technological, digital, cultural, social, and financial innovations.

[25] The Mission Platform will provide a methodology for participating cities to map, quantify and promote these co-benefits.

and society. By involving cities as living labs and demonstrators, they contribute to the objectives of the Mission. In particular, the deep demonstrations supported in 15 EU cities as part of the Healthy, Clean cities initiative[26] of the EIT Climate KIC have confirmed the importance of challenged based and systemic approach to meet the objectives of climate neutrality.

This activity will be closely linked to the R&I support action of EUR 25 million for the deployment of **lighthouse demonstrators for the New European Bauhaus** initiative Delivery Phase. Cities participating in the Cities Mission will be supported to include the 'Bauhaus' dimension in their climate city contract and therefore these cities should be in a strong position to deploy one of the five NEB lighthouse demonstrators.

Activity 6 Accelerating and spreading knowledge and capacity (Cities as innovation hubs)

The Mission Platform will support cities participating in the Mission to get access to EU wide skills and expertise from working with peers and through networking with national, regional and local authorities.

The Mission Platform will provide a wide range of services to support skills development and accelerate learning/teaming/twinning and encourage joint activities such as joint public procurements for deployment of innovative solutions, thus contributing in particular to the Mission's specific objective 4.

Apart from sharing expertise, best practices and knowledge, the Mission Platform will also support cities to **team up with peers**. This may include groups of cities that share similar challenges and want to solve them together, or simply enable economies of scale to be realised. Twinning approaches may also be used by cities facing very different types of challenges. Overall, this demand-based networking will help to smooth the path for those cities participating in the mission that face particular difficulties in arriving at the climate-neutrality goal, perhaps in a particular sector, e.g. mobility or energy. Twinning opportunities will also involve cities with a climate neutrality target beyond 2030.

The Platform will build on existing experiences including those developed through Horizon 2020 projects and collaborate closely with successful existing initiatives that have developed knowledge and expertise, in particular with the **Covenant of Mayors** and their methodologies and processes co-developed with the JRC, and the Covenant Community Group of Cities Practitioners as well as the **EIT KICs[27].** The assets of the **Smart Cities and Communities** context and the Smart Cities Market Place will be factored in, particularly with regard to engaging private and public stakeholders to support project financing and implementation.

Accelerating and spreading knowledge and know-how will also be done through **dedicated national networks** in support of missions. This will include support to a Mission Core Network (see Annex II – topic HORIZON-MISS-2021-DEPL-01-01) to set the basis for a solid governance and implementation of the missions' concept at national and regional level through sharing experiences in missions

[26] https://www.climate-kic.org/programmes/deep-demonstrations/

[27] For example, EIT InnoEnergy addresses eight thematic fields including 'Smart Cities and Buildings', 'Mobility and Transport' and 'Smart Grids and Energy Storage' through setting up long term alliances with cities across Europe. EIT Urban Mobility strategic objectives steer activities and ambitions towards the Mission on Climate Neutral and Smart Cities through creating liveable urban space better balancing between the conflicting demands of mobility and other areas of people's lives and deploying user-centric, integrated eco-efficient and safe mobility solutions for people, goods and waste

approach and align national initiatives to the upcoming missions. It will also involve the setup of dedicated national networks for supporting cities in the form of multi-stakeholders national platforms, promoting collaboration, cross-learning and training, exchange and replication of best practices between the European, national, regional and local level.

The Mission should also help cities to share their experience and develop good practices with their counterparts outside the EU. To this end, a **Global Knowledge Centre for Cities and Climate** will be launched in Q2 2023 to coordinate interactions and facilitate the two-way flows of knowledge between Europe and relevant international organisations and networks of cities (Global Covenant of Mayors, C40, ICLEI, Mission Innovation etc.). The centre will also monitor and promote European and international best practices and solutions that can be replicated and scaled-up in a mutually beneficial manner and may allow for the set-up of joint activities that deepen cooperation with strategically important partners. [28]

Activity 7 Innovative city governance models and citizens' engagement

*The Mission Platform will support cities to adopt an **innovative governance** model to help develop, implement and monitor progress of the Climate City Contract, and in particular to involve citizens.*

The Mission Platform (see above) will help cities participating in the mission to explore such innovative governance methods, including local key stakeholders such as civil society platforms to engage with citizens and actively involve them to develop, implement and monitor progress of the climate city contract. This will reduce the silo mentality that causes fragmentation even at local level and build inclusiveness, trust and legitimacy of the necessary actions. In particular by linking local actions for climate neutrality with some of the co-benefits such as air quality and road safety, it will also help develop further "ownership" of the overall climate neutrality objective ("now we understand why we are doing this") and thereby induce stronger local commitment and behaviour change, e.g. in mobility behaviour. These local social innovations will in turn contribute to the important process of gaining sufficient "buy-in" from local, regional, national and EU level for both the preparation and the implementation of the climate city contract, thus addressing in particular the Mission's specific objective 4.

This activity as it comes on stream will be carried out in full synergy with the activities[29] the Commission is promoting through the **Covenant of Mayors** and the **European Climate Pact,** which will be particularly useful in the inception phase to raise awareness amongst cities, citizens and indeed all stakeholders and encourage strong participation in the call for Expression of Interest.

Activity 8 A common framework for monitoring, reporting and verification (MRV)

*The Mission Platform will support participating cities **to monitor data and report on performance** thus contributing in particular to the Mission's specific objective 6.*

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[28] In the process, its activities will contribute to EU external action in climate diplomacy as outlined in the Council Conclusions of 18 January 2021.

[29] E.g. integrated governance practices and the setting up of local climate pacts and other citizen engagement models towards clean energy transition and climate neutrality

The Cities Mission will provide a common framework for understanding what climate-neutrality means for cities. The Mission will encourage cities to use existing monitoring frameworks, such as that used by the Covenant of Mayors. The Mission Platform will provide cities with the know-how to develop a baseline, using established monitoring tools and agreed KPIs to measure and communicate on progress towards achieving the climate city contract's objective. An important principle in the CCC will be that the plans can be adjusted to take account of the evolving (internal and external) context.

Further reference to the monitoring framework is included under the section on Monitoring and reporting at page 27.

Activity 9 Network of national authorities for increased preparedness

National, regional and local authorities will need to be fully involved in the co-creation and implementation of the Climate City Contracts. A dedicated national network of contacts will be established in Q2 2022 to prepare for the transition towards climate neutrality within cities in their respective countries (see Annex II, topic HORIZON-MISS-2021-CIT-01-01).

As set out in the Opportunities section above, national authorities have a key role to play in supporting the cities in delivering on the Mission's objectives, and there is a solid pre-existing basis. The Mission will further supporting the network and the cities participating in the mission by:

- encouraging relevant regional or national stakeholders (e.g. regional transport companies, national energy producers, national research institutions, etc.) to join in the preparation of the Climate City Contract;
- boosting the national framework for the funding of climate action, including funding channelled via Recovery and Resilience Plans, to contribute to the overall financing portfolio for cities; and by
- fostering twinning schemes or regional cities networks in support of knowledge transfer and replication efforts, thus multiplying the overall impact of the mission.

Activity 10 A supportive regulatory framework

*The Mission Platform will also provide recommendations to address **regulatory barriers** that may exist at local, regional and/or European level, thus contributing in particular to the Mission's specific objective 5.*

As of [timing], the Mission Platform will engage key stakeholders to synthesise and test the proposed solutions for deployment and other key aspects and lessons learned from the experiences of co-creating the climate contract in particular on the interpretation, implementation, and impact of laws, regulations, and standards. As of 2024, this should result in concrete finance and investment policy recommendations to accelerate the cities' path to climate neutrality in 2030, and to help the next wave of cities coming afterwards to prepare their plans.

This work will also provide valuable feedback to benefit EU-level and national and regional climate-action and pollution policies and in turn help them to better support cities as they undergo the transformative change necessary. This type of two-way exchange can not only help those cities preparing for climate neutrality, but also help develop recommendations of broader applicability on other aspects of the EU's 2030 climate and energy framework, such as integrated national energy

and climate plans (NECPs)[30], National Air Pollution Control Programmes (NAPCPs) as well as other EU sector-specific strategies.

Through the experiences of the Cities participating in the Mission, the Commission and Member States will have concrete elements that can contribute to the development of a regulatory framework that is more supportive of the European Green Deal as a whole.

[30] The EU implements its Paris goals through a policy framework centred around the National Energy and Climate Plans (NECPs) that define Member States energy and climate ambition for 2030 and the framework for achieving it. The NECPs include priority areas for reforms and investments such as the renovation of the building stock and access to affordable housing, decarbonisation of industry and renewable energy, sustainable mobility and energy system integration including infrastructure, batteries and renewable hydrogen.

BUDGET

In order to support cities in their transformation towards climate neutrality, **a wide array of funding and financing instruments will need to be deployed** at European, national, regional and local level. As stated in the executive summary, the notion of a "budget" for the Mission is potentially misleading because the resource needs of the General Objectives go far beyond what the EU can provide. Indeed, as already set out, a key will be to help cities develop their access to the broader finance community notably the EIB. The detailed needs of each individual city will need to be set out in the investment plan section of their Climate City Contract.

This is why the Mission budget has to be understood as the leveraging tool to create the framework conditions for any interested city in the EU to deploy a new contract with its citizens to achieve climate-neutrality. The success of this Mission will ultimately rely on its potential to unleash, for each city, the level of funding and financing necessary for these contracts to be realised.

The Mission Board estimated that transforming 100 European cities into climate-neutral of an average size of 100,000 inhabitants by 2030 would cost around EUR 96 billion, or around an average of EUR 1 billion per city (obviously would vary considerably between cities). 94% of the upfront investment would be offset via returns in investments in 30-years' time. The estimation is based on the experience gathered by Material Economics and tested on seven cities supported via the EIT Climate-KIC Deep Demonstration projects.

EU R&I support through Horizon 2020 and Horizon Europe

A comprehensive set of activities have already been launched in Horizon 2020 and have been planned in the first work programme of Horizon Europe so as to ensure a rapid lift-off of the Mission during the second half of 2021, in particular:

- EUR 53 million for the Mission Platform;
- EUR 2 million for integrated NEB principles in the city climate contracts;
- EUR 1 million for support for the preparatory work on the expression of Interest/assessment of applications;
- EUR 2 million for setting up a network with Member States to support the transition towards climate-neutral cities.

More details are provided in Annex II.

Different parts of the Mission can however be costed in a more conventional budgetary analysis. The Commission will ensure that **EU R&I activities under Horizon Europe** will have a dedicated budget which will focus on developing, testing and demonstrating new and innovative solutions for climate neutrality in cities across sectors and on deployment of solutions, including scaling up, tailor-made finance advisory and de-risking of investments and the mission label (see above page 17) will allow for more focussed and targeted support for cities from other EU funding programmes. During the first three years of the Programme, a maximum of 10 % of the annual Horizon Europe budget of

Pillar II will be reserved for the Missions[31]. Available EU R&I budget dedicated to the further implementation of the Cities Mission would therefore consist of at least EUR 1 billion for the next 3 years of implementation (2021 – end of 2023).
This budget will be used for additional support for the Mission Platform to support additional demonstration projects and additional teaming and twinning activities. A specific envelope could be added for support to cities lagging behind. In addition to the afore mentioned focus on projects focused on deployment of solutions and replicability / scaling up, the budget will also be used for EU R&I activities that explicitly contribute to the Mission objectives by developing, testing and demonstrating new and innovative solutions for climate neutrality in cities across sectors (e.g. energy efficiency, sustainable and smart mobility, digitalisation etc.); facilitating access to finance for cities as well horizontal activities such as communication, citizens engagement and international outreach.

Box: Distribution of the Mission budget in Horizon Europe

The Mission activities will be supported by approximately EUR 1 billion from Horizon Europe for the first three years of its work, out of which a very rough estimation suggests that it would be used in approximately the following proportions (to be reviewed e.g. depending on what cities tell us they most need in their Expressions of Interest) :

- 20% to be allocated to the preparation of the CCC through technical support (the Mission platform)
- 40% to be dedicated to the development and scaling up of R&I activities
- 35% to be allocated to financial advisory services and de-risking of investments
- 5% to communication, citizens engagement and international outreach activities

Apart from this dedicated budget for the Cities mission in the Cities Mission Work Programme, Horizon Europe will also develop activities that are relevant to the Cities Mission and directly or indirectly contributing to its objectives. There are several destinations across the different **Horizon Europe Pillar II clusters** that are relevant and can contribute to the objectives of the Mission. Indirect contributions may arise also from activities funded under Pillar I (e.g. knowledge developed through the Marie Skłodowska-Curie actions or the Research Infrastructures program) and III (in particular through the **European Innovation Council)**. These actions will be cross-referenced in order to provide a complete picture of their contribution and to flag additional opportunities of interest to the Cities Mission's activities.

There are clear **synergies with other Missions** such as the Climate Adaptation Mission – for example for port cities that will have to take into account the impact of the sea level rise for their infrastructures when developing their transition towards climate neutrality. The Missions all address the role that Member States, regional and local authorities, other stakeholders and citizens should play. Therefore, communication and awareness raising activities should be coordinated between the Missions to maximise impact (see Annex VIII for details). A number of **Horizon Europe Partnerships**[32]

[31] See Article 8 of Horizon Europe. II shall be programmed through specific calls for proposals for implementing the missions. For the remaining years of the Programme that percentage may be increased subject to a positive assessment of the mission selection and of the management process.

[32] These are in particular: People-centric sustainable built environment (Built4People), European Partnership - Towards zero-emission road transport (2ZERO), European Partnership on Cooperative, Connected and Automated Mobility (CCAM), European Partnership on Zero-emission Waterborne Transport, European

can also contribute directly or indirectly to the Mission's objective and synergies will be fostered in order to maximise the impact of their potential. For example, dedicated calls for cities participating in the Mission will be organised for demonstration projects (e.g. on hydrogen-fuelled public transport so to have in the Mission the "first hydrogen city" in the EU).

Possible synergies can be explored also with other types of initiatives such as **Industry Alliances, Important Projects of Common European Interests and European Innovation Partnerships,** whose outputs can contribute to achieving mission objectives.

A simple overview of the initiatives where synergies can be explored with other EU R&I instruments and initiatives and their relevance for the Cities Mission is provided in Annex X.

Other EU funding/financing

The Mission is rooted in R&I but activities supporting the Cities mission and its objectives under Horizon Europe will not be enough. Many EU programmes exist that offer sectoral support to cities, all with different types of support, eligibility requirements and application deadlines. As illustrated by the Addendum, the current landscape for funding climate-neutral solutions for cities is vast, sectoral, and fragmented across the value chain of city investments.

The Cities mission will help focus EU support from different sources for the deployment of climate-neutral solutions for Climate Neutral Cities and in particular via the Mission Label (see page 17 above), which will allow a more strategic approach to EU funding for cities by unlocking synergies between these types of EU activities.

We are exploring whether support for the cities participating in the Cities Mission from other EU funding programmes - in particular from the Connecting Europe Facility (CEF), Digital Europe Programme (DEP), LIFE+ Programme Innovation Fund and the Cohesion Fund, European Regional Development Fund - can be facilitated by use of the Mission Label in future calls, i.e., from 2023.

In the period until the end of 2027, these EU funding programmes could contribute up to [10%] of EU funding, directly contributing to the implementation of the climate city contracts.

In the next seven years the **European Regional Development Fund** together with the Cohesion Fund, is expected to invest more than EUR 100 billion in projects related to climate and environment over the 2021-2027 period.[33] These investments will have a special focus on cities and regions that need to take a leap to achieve a climate-neutral and zero-waste future and that need support in smart economic transformation.

Partnership – Driving urban transitions to a sustainable future (DUT), European Partnership for Smart Networks and Services (SNS) (tbc).

[33] In the next seven years the European Regional Development Fund will provide EUR 400 million to support European cities via the European Urban Initiative (support to Innovative Actions, capacity and knowledge building, capitalisation and policy development) and EUR 80 million support to URBACT IV programme, plus an earmarking of 8% of the ERDF resources at national level must be dedicated to sustainable urban development accounting for around EUR 16 billion to be implemented through integrated urban strategies having a multi-thematic focus. Furthermore, a large share of funding under mainstream cohesion policy programmes will be invested in cities. Almost one third of the 2021-2027 European Regional Development Fund resources will finance green projects. These funds are implemented in the shared management based on the strategic choices of Member States and regions.

The **Recovery and Resilience Facility (RRF)** will make €672.5 billion in loans and grants available to support reforms and investments undertaken by Member States. The aim is to make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions. The national Resilient and Recovery Plans (RRP) that are currently being developed by the Member States and should be ready before June 2021. Each RRP will have to include a minimum of 37% of expenditures for climate investments and reforms and a minimum of 20% of expenditure to foster the digital transition. Preliminary indications are however very encouraging and there will be opportunities for cities that commit to climate neutrality to benefit from the RRF in many areas such as urban mobility, renewable energy and energy efficiency for instance. A first internal screening of the content of the draft national RRF plans and types of R&I and other mission-relevant investments per Member States is provided in Annex IX.

One of the first tasks of the Mission, either through the Mission Platform or through the network of national contacts to provide the interested cities with a comprehensive mapping of the opportunities offered to them in the national RRP to support the implementation of their Climate City Contract.

By the end of 2023, the Commission will take stock of the available funds for the Cities mission and report back to this to the European Parliament and the Council.

The **Just Transition Fund** will complement these cohesion policy efforts. With its EUR 17.5 billion, the Fund will provide targeted support to territories facing serious socio-economic challenges in moving towards climate neutrality, and will thus ensure that transition to climate neutrality leaves nobody behind. The funding will be provided on the basis of Territorial Transition Plans prepared by Member states.

The **Digital Europe programme** will support and accelerate the transition to sustainability for cities through digital, in particular by helping cities procure interoperable, local data platforms that enable the management of cross-sectoral data flows and the engagement of a variety of stakeholders. The programme will also support the creation and validation of a data space for climate-neutral and smart communities. Examples of the validation projects could address mobility, energy management, zero pollution and climate mitigation. Finally, in order for cities to truly benefit from the large amounts of data collected through sensors, monitor, understand and predict the state of the environment and make evidence-informed decisions, the funding will allow for laying the ground for the large-scale roll-out of Local Digital Twins across the EU.

In terms of financing at EU level, **InvestEU** can support investment in cities participating in the Cities mission.

For the second phase of the implementation of the Cities mission, **as of 2024, the Commission is considering setting up a new Cities Mission Lending and Blending Facility** order to support cities with the ambition of being climate-neural by 2030. The Mission Board advised to set up a new lending and bending facility, co-financed by InvestEU via the EIB[1], the EBRD, National Promotional Institutions, foundations and private partners could to effectively support the Cities Mission and the implementation of the Climate City Contract. This facility could be a joint effort between the Commission and the EIB through the InvestEU windows.[2] This new facility could be seen as the

[1] Between 2012 and 2018, the EIB estimates that it lent EUR 152 Bn to projects in urban areas, of which nearly EUR 26 Bn was directly invested in climate mitigation actions.

[2] An example, is provided by the Connecting Europe Broadband Fund, where the EIB is providing EUR 140 million of which EUR 100 million are guaranteed by the EFSI; the CEF provides EUR 100 million; the German,

principal de-risking grantor for cities to access blended finance options (loans and equity mainly). It is furthermore expected that the facility fully factors in the offerings of the Explore-Shape-Deal Matchmaking services of the Smart Cities Marketplace to complement its operations.

Italian and French National Promotional Banks KfW, Cassa Depositi e Prestiti and Caisse des Dépôts provide EUR 50 million each, and further EUR 30 million are pooled from private investors.

MONITORING AND REPORTING

Monitoring frameworks have to be developed both for the purposes of verifying cities' progress towards the 2030 target and for regularly assessing the performance of the Mission as a new delivery instrument.

Monitoring for cities

Dynamic and real-time monitoring of the progress towards climate-neutrality will be essential to keep a sense of urgency, achievement and motivation among the cities and stakeholders involved. At the same time, real-time monitoring allows for informed and flexible adjustments to the mission if and when necessary.

To this end the mission will establish a simple yet robust impact focused monitoring system using established methodologies based on short (progress in implementation), medium (delivery of tangible result) and longer term (impact) indicators[34]:

- **Implementation indicators** will measure the level of city interest for climate neutrality, their preparedness and diversity;
- **Results indicators** will measure the level of city commitment to climate neutrality, their diversity and mobilisation of EU/regional/national financing;
- **Impact indicators** will measure the actual real-time progress towards the climate-neutrality of mission cities as well as their overall contribution towards the 55% target of the European Green Deal.

The Cities Mission will provide a common framework for understanding what climate-neutrality means for cities. The Mission will encourage cities to use (and continue to use) existing planning and monitoring frameworks, such as that used by the Covenant of Mayors or ELTIS[35] (for SUMPs) as well as the most recent indicators prepared by the European Commission with the support of 50 cities in the area of sustainable urban mobility to support cities in measuring and evaluating interventions in urban transport[36], while the Mission Platform will provide cities with additional know-how to develop a baseline and a coherent monitoring tool and agreed KPIs to measure and communicate on progress towards achieving the climate city contract's objectives.

Decreased level of GHG emissions in Europe (due to cities taking part in the mission) will be measured in line with the three main indicators identified in the Global Covenant of Mayors.

DEFINING CLIMATE NEUTRALITY
For the purposes of the Climate Neutral Cities mission, calculations on climate neutrality should focus on: 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.

[34] The system is compatible with the Key Impact Pathways framework of Horizon Europe
[35] https://www.eltis.org/mobility-plans/sump-guidelines
[36] https://ec.europa.eu/transport/themes/urban/urban_mobility/sumi_en

Scope 2 GHG emissions for the city (mandatory from the beginning of the mission). *This indicator will be calculated based indirect emissions due to consumption of grid-supplied electricity within the geographic boundary and indirect emissions due to consumption of grid-supplied heat or cold within the geographic boundary.*

Scope 3 GHG emissions for the city (TBC: **recommended, to be adopted by 2030**). This indicator will 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.*

For the cities that have entered the Mission and concluded their Climate City Contract, the indicators and monitoring system will be agreed as an integral part of the contract.

When it comes to pollution, relevant indicators on air quality could be the levels of air pollution within city boundaries as reported under the EU legislation (or as monitored using a corresponding assessment regime, namely:

- $PM_{2.5}$ concentration levels [highest annual mean observed at (sub) urban background stations]
- NO_2 concentration levels (highest annual mean observed at traffic stations).

Monitoring for the Mission

A first assessment of the Missions is planned in 2024. In order to be able to monitor the implementation of the Cities Mission and assess its functioning, a monitoring framework with indicators needs to be set-up. Illustrative examples of monitoring activities and indicators that can be used for this **purpose are provided below [to be developed further]**:

Figure: Example of cities mission monitoring framework with indicators

IMPLEMENTATION	RESULTS	IMPACT
▪ Number of cities interested to commit towards climate neutrality and their level of preparedness ▪ Nr and type of services provided by Mission platform and cities satisfaction rating ▪ Nr of cities committed to climate neutrality (Climate City Contracts) and their level of preparedness TARGET 2025: 100	Amount of public and private funding & financing mobilised TARGET 2025: EUR 20 bn TARGET 2030: EUR 100 bn Nr. of large-scale pilots and experiments of solutions Nr. of fully deployed solutions Nr. of cities applying inclusive governance mechanisms Public opinion on Climate City Contract in mission cities	▪ Nr of climate-neutral cities in Europe **TARGET 2025: 20** **TARGET 2030: 100** ▪ Reduced GHG emissions and other co-benefits in mission cities ▪ Public opinion on climate-neutrality and the EGD in mission cities

Box: illustrative example of monitoring activities under the Cities mission:

Results	Indicators:	Milestones:
100 climate neutral cities by 2030 and all cities by 2050	• Number of cities applying to the EoI • Number of cities committing to G01 and G02 • Number of CCC signed in 2025, 2030, 2040 • % GHG reduction in 2025, 2030, 2040 compared to the baseline	Annual monitoring and reporting
100 climate neutral cities by 2030 and all cities by 2050	• Number of cities supported by the One Stop Shop Mission Platform that will respond to G01 and G02 • Total investment made by cities to support the G01 and G02 objectives • Number of cities involved in the Mission that integrate the NEB principles	Q2 2024 for mid-term reviews assessment
10% of EU funding across the Multi-Annual Financial Framework and the Recovery and Resilience Facility contributing to the implementation of the CCC	• HE budget used to support the cities involved in the Mission • LIFE, CEF, DEPshare of the budget used for the implementation of the CCC • Number of cities benefiting from EU advisory services • Investment granted by EIB/EBRD to the Cities involved in the Mission • RRF budget used to support the Cities involved in the Mission	Q2 2024 for mid-term reviews assessment
Set-up a global knowledge exchange platform for cities involved in the Mission to share experience and good practice with their counterparts	• Number of international events on climate neutrality organised involving EU cities participating in the Mission • Number of cities outside the EU involved in the platform	Q2 2023 for launching the platform

CONCLUSIONS

The Cities Mission's proposed objectives are challenging and ambitious, but necessary in view of the critical role that cities play for achieving the European Green Deal objectives, because a "business as usual" approach for supporting climate actions by cities will not be enough to deliver on the European Green Deal in which cities must play a critical role.

The first Mission goal, namely to have 100 climate-neutral European cities by 2030 is a necessary and major intermediate step and will be a crucial support mechanism for the European Green Deal. But the ultimate objective is of course to make all European cities climate-neutral by 2050 and deliver on Europe's goal of becoming the first climate-neutral continent by that date.

So these two objectives are strongly linked. These first 100 cities will make an important contribution to the 2030 targets to reduce climate emissions by 55%. But they will constitute at the same time the 'innovation hubs' for all other cities and provide a powerful showcase on how to achieve the Green Deal objectives at city level.

The Climate Neutral Cities will move towards climate neutrality within a common European framework while at the same time benefitting from the demand-driven approach, based on their individual needs. The contracts they develop in co-creation will build in EU, national and regional funding support and set out how they plan to have access to financing from other sources. The contracts will embrace innovative multi-level governance models with a particular focus on involvement and commitment from citizens themselves. The contracts will show how the cities plan to use new and existing innovations but always focused on deployment and delivering results. The Climate Neutral Cities will be at the heart of a wide international network focused on delivering urban solutions for climate neutrality that ultimately extends well beyond the EU.

The wider ramifications of a successful Cities Mission may ultimately be more political. European cities have a key role to play to win public support for the European Green Deal's objectives, since they perhaps have the best understanding of local people's needs. City authorities are closer than most to the public, on the front line, and continuously delivering a wide range of projects and services that will impact on people's daily lives. They have to make sure that people are aware of the benefits, including the co-benefits, as well as of the inevitable costs, of the different actions to get to climate neutrality. What cities achieve locally will not only carry a large part of both the national and the European load in meeting the Paris Accord. It can also encourage greater uptake of sustainable solutions outside cities, setting a trend for the national level.[37]

There is no doubt that action to deliver carbon neutrality now needs to accelerate dramatically, starting in cities. The ability of the Mission to deliver this will be our principal added value. Many cities are now starting to embrace the policies needed for climate neutrality, and the concept of doing so by 2050 is taking hold, as seen in the new commitments taken by the signatories of the Covenant of Mayors just in April of this year. But so far only a handful of cities have committed to full climate neutrality by 2030. Without both the substance of the contribution of this first wave of Climate Neutral Cities, and the leadership they can provide for others to follow, cities are unlikely to deliver on their full potential.

In short, this Mission represents a major opportunity for the Commission, Member States, regional and local authorities, the private sector and our citizens to forge a new partnership with Europe's cities to help deliver the response to the defining challenge of this era. This Implementation Plan sets out a practical yet innovative way in which this can be done.

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[37] https://energypost.eu/climate-neutral-cities-can-be-the-key-to-winning-public-support-for-the-european-green-deal/

ADDENDUM - Mapping of ongoing EU activities and policy initiatives targeting cities

Successful programmes and projects on climate or related "green" initiatives, particularly at the sectoral level, are being run by several Commission services and agencies. A large number of European cities have been engaged in such actions.

ACTIONS	PARTICIPATING CITIES
100 Intelligent Cities Challenge	136 cities receive strategic support to drive a green and digital economic recovery and social resilience, leveraging advanced technologies. One of the five thematic tracks is on 'green economy and local green deals'.
100 Positive Energy Districts	Implementation of 100 Positive Energy Districts by 2025
CIVITAS	Over 800 innovative urban transport measures and solutions in over 80 living labs in European cities since 2002. Over 300 European cities signed the CIVITAS Declaration, committing to cleaner and innovative transport.
EIT Climate KIC, Healthy Clean Cities	Deep demonstrations of radical climate action in 15 European cities to prove feasibility of rapid systems transformations. Other demonstration areas circular economies, climate-neutral food systems and carbon sinks.
European Universities Initiative	Support in creating local ecosystems of higher education institutions, cities, businesses, civil society and citizens in contribution to developing solutions for Sustainable Cities.
Horizon 2020 Lighthouse Projects	18 projects involving 124 lighthouse, follower and observer cities, 186 project demonstration sites across Europe
Smart Cities Marketplace (SCM)	Wide range of Action Clusters and initiatives from at least three sectors (energy, mobility/transport and the digital sector), with flexibility to expand the scope.
URBACT programme	112 cities have participated in projects on carbon neutrality since 2002
Urban Innovative Actions	38 cities have led projects on air quality (9), circular economy (9), nature-based solutions (5), digital transition (7), energy transition (3), urban mobility (5)
Sustainable Urban Development of Cohesion Policy	684 cities have implemented integrated sustainable development strategies that focus on climate adaptation, air quality, low carbon society, mobility, circular economy, energy *or* nature-based solutions in the 2014-2020 period ('Article 7 cities' of the European Regional Development Fund)
Affordable Housing Initiative	Implementation of 100 lighthouse districts for renovation of affordable and social housing in an integrated approach (energy efficiency, social cohesion and digital transition)
Sustainable Urban Mobility Plans	1,028 SUMPs have been adopted by cities, with over half of them in cities with over 100,000 inhabitants, and 122 SUMPs are under preparation
COMMITMENTS	**PARTICIPATING CITIES**
Covenant of Mayors	Almost 10 000 cities and other local governments have committed so far to achieving and exceeding the EU climate and energy targets. They translate their commitment into projects and measures through submission of a Sustainable Energy and Climate Action Plan (SECAP) within two years after the local council decision
European Climate Pact	Opportunities for local authorities and stakeholders to make pledges for the planet and mobilise support for climate action.
European Mobility Week	More than 11, 000 cities have committed to sustainable urban mobility at least once since 2002. In 2020, the participation rate was 2,945 towns and

	cities from 53 countries.
Green City Accord	Movement of European mayors committed to environmental management for cleaner and healthier cities, 40 signatories since launch in October 2020.
Living-in.eu Movement	Launched in 2019 with the Join, Boost, Sustain political declaration signed by 90+ EU cities, regions and member states that commit to building the European way of Digital Transformation.
AWARDS & NETWORKS	**PARTICIPATING CITIES**
CIVITAS Awards	Since 2004, CIVITAS has awarded 53 European cities for their mobility work in categories such as bold measure, technical innovation, resilience, stakeholder and citizen engagement or public participation.
European Capital of Innovation Award	6 winning and 19 runner-up iCapital cities since 2014
European Green Capital Award	13 cities won the award since 2010, with alumni network of winners and finalists covering 31 cities
European Green Leaf Award	11 smaller cities (under 100,000 inhabitants) won the award since 2013, with alumni network covering 17 cities
European Mobility Week Awards	26 winning towns and cities since 2002. For the SUMP Award, 9 winners and 19 finalists since the first edition.
European Network of Living Labs (ENoLL)	Network of benchmarked Living Labs that provides co-creation, user engagement, test and experimentation facilities since 2006 for domains including energy and mobility. 150+ active members worldwide.
POLIS City Network	Network of European cities and regions working together to develop innovative technologies and policies for local transport (air quality, e-mobility, decarbonisation. 80+ cities and regions from across Europe.

However successful and popular these actions are, they could benefit from a complementary effort to focus holistically, across different sectors, on the interventions and policies needed overall to deliver city-wide climate action. Second, these actions can gain better traction within an overall, individualised, demand-driven city plan to achieve climate neutrality. Finally, the target date of 2030 provides additional impetus both for these actions and political focus for the city.

Below we set out how the Cities Mission will build synergies and complementary actions with some of these initiatives and their wider political context.

Climate Pact and climate action plan:

Achieving the purpose of the Mission must be a process inspired by and with the full involvement of informed citizens as well as local businesses and other economic actors that are key partners in effective local governance. This will help to build consensus that a 'just transition' to climate neutrality is necessary, possible and beneficial, and everyone has a role to play.

The direct involvement of citizens in the **European Climate Pact** as drivers of change and ambassadors for climate neutrality will help the Mission bring citizens closer to the design, implementation and monitoring of mission activities, including by their active participation in the creation and implementation of the Climate City Contracts. Our intention, along with the Mission on Climate Adaptation, is to work closely with the European Climate Pact, particularly in the early days of the Mission, to encourage cities and their citizens to express their interest and consider becoming a Climate Neutral City. The Climate City Contract could constitute a **Climate Pact Pledge**. Learning and interlinking via the **Knowledge Hub** of the Climate Pact would help initiatives achieve greater

impact and scale, spreading this knowledge and facilitating the exchange of successful approaches across Europe to accelerate change and capacity building for existing and new actors.

By mobilising and supporting 100 cities transitioning to climate neutrality by 2030, the Cities Mission will also contribute to the objectives of the new **EU Strategy on Adaptation to Climate Change** and will accelerate the rollout and up-scale of solutions tackling both adaptation and mitigation aspects.

Action needed: The Cities Mission will work closely with the Climate Pact, in particular in its inception phase, to develop citizen engagement and "ownership" of what the Mission is trying to achieve.

Cohesion Policy:

The EU has quite a long history of engagement with cities and regions of the EU, most recently in the new **Leipzig Charter**[38], the **Urban Agenda for EU**[39], which is a key vehicle for the implementation of the New Leipzig Charter, and the **Pact of Amsterdam**[40].

With its strong city-driven approach and focus on place-based solutions, the mission contributes to the objectives of the new **EU Cohesion Policy** and particularly to the policy objective of "a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility". Cohesion Policy could complement new innovative solutions to cities that will be developed by the Cities Mission, in particular through **integrated urban development strategies** under Article 9 of the ERDF/CF Regulation (the 'sustainable urban development' part) when such solutions are in alignment with the strategies supported by Cohesion Policy.

The Mission also contributes to the new policy objective of "a Europe closer to citizens by fostering the sustainable and integrated development of all types of territories and local initiatives" that will support **tailor-made investment strategies at territorial level, in cities and local communities**, to address their diverse challenges, and tapping into their development potential. The Mission promotes a multi-level co-creation process engaging cities and their citizens, Member States, the European Commission, and all stakeholders in line with the spirit of the New Leipzig Charter and its operational mechanism Urban Agenda for the EU.

As concerns the Cohesion policy programmes and support for sustainable urban development, the Mission platform will seek connections and synergies with the urban knowledge platform of the European Urban Initiative. The EUI will be launched as part of cohesion policy's support to sustainable urban development in the 2021-2027 period (under the ERDF/CF Regulation with the proposed budget of EUR 400 million). The initiative is sought to provide coherent support to cities by supporting urban innovation, capacity and knowledge building, territorial impact assessments, policy development and communication. Synergies could be developed between the EUI and the Cities Mission across the pertinent work streams of the EUI, for example, in the context of knowledge sharing and capitalisation for evidence-based policy making.

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[38] https://ec.europa.eu/regional_policy/en/information/publications/brochures/2020/new-leipzig-charter-the-transformative-power-of-cities-for-the-common-good. The new Leipzig Charter is a key policy framework document for sustainable urban development in Europe. The Charter highlights that cities need to establish integrated and sustainable urban development strategies and ensure their implementation for the city as a whole, from its functional areas to its neighbourhoods. Member States agreed to implement the Charter in their national or regional urban policies.

[39] https://futurium.ec.europa.eu/en/urban-agenda

[40] https://ec.europa.eu/futurium/en/system/files/ged/pact-of-amsterdam_en.pdf

Action needed: Commission services will develop a memorandum to explain – for example to managing authorities – how the Cities Mission process works and the nature of commitments in CCC in order to facilitate access of cities to funding and uptake of investments in different funding instruments.

Urban mobility strategy:

Deploying successful urban mobility innovation requires a city to work across departments, industries and other stakeholders: from bringing real estate developers to the same table with the public transport provider, to ensuring that the energy fueling its public transport system runs on renewable sources. Most importantly however, smart and sustainable urban mobility is demonstrated by how people travel in the city, the levels of congestion, how clean the air is, how safe people feel to cycle or walk, and how many are using public transport and are satisfied with it. These are key **co-benefits of policies aimed to produce climate neutrality in cities**, many of them focused on reducing our dependence on privately owned, conventionally fueled cars in cities. More will be set out in Q4 2021 in the revised urban mobility package.

The Mission will keep cities at the forefront of the transition towards greater sustainable mobility and will deliver the target of at least 100 climate-neutral cities as included in the **Smart and Sustainable Mobility Strategy (SSMS)**. In practice, the Mission will contribute to making interurban and urban mobility healthy and sustainable, for instance by doubling high-speed rail traffic and developing extra cycling infrastructure over the next 10 years, investing in safe bike lanes, and ensuring connectivity with rural and suburban areas so that commuters are given sustainable mobility options. Furthermore, under the SSMS, all large and medium-sized cities that are urban nodes on the TEN-T network put in place their own **sustainable urban mobility plans by 2030**. The plans should include new goals, for example on having zero emissions and zero road fatalities.

The Mission can also contribute to greening freight transport or first/last mile solutions that include multimodal mobility hubs, park-and-ride facilities, and safe infrastructure for walking and cycling. Pricing carbon and providing better incentives for users – for instance by pursuing a comprehensive set of measures to deliver fair and efficient pricing across all transport – can also be considered.

'The Commission is also working on a 'Common EU framework for greenhouse gas emissions accounting in transport and logistics' at the level of transport services. This will establish a common methodological framework for measurement of CO2 emissions of individual operations, and provide tools for the transport stakeholders to quantify emissions for road, rail, maritime, air and door to door transport and logistics

Action needed: Set up linkages between the Mission and the urban mobility package. Within the framework of the new urban mobility initiative, the Commission plans to propose that every large and medium-sized city that is an urban node on the TEN-T network should put in place its own sustainable urban mobility plan (SUMP) by 2030

Renovation Wave:

The Cities Mission will contribute to the objectives of the Renovation Wave to increase **energy efficiency** of Europe's building stock and scale up **building renovation** in Europe. This will include applying smart technologies and circularity principles to building renovation, thus reducing consumption-based and materials-related greenhouse gas emissions for buildings. The Mission also aligns well with energy policies such as the **Energy System Integration strategy** by supporting

citizens to become active energy consumers individually or through local energy communities, decentralized renewable energy, and the voluntary bottom-up initiatives ranging from Covenant of Mayors to Smart Cities & Communities.

The Mission will also contribute to develop collaborative local governance models to accelerate the transformation of urban environment. It will foster renovation of urban spaces combining sustainability, accessibility and aesthetics in a human-centred way, thus reflecting the values and principles promoted by the **New European Bauhaus initiative** into climate-neutral quality transformations.

With their dense population, cities are best suitable for implementing district heating solutions, including heat and energy storage for buildings and undertakings. Cities also control their territorial development plans and can influence the localisation of undertakings to support the reuse of waste heat and cold by placing close by the sources of waste heat and cold and their demand.

Industrial and digital strategies

a) The new EU Industrial Strategy is structured around **14 industrial ecosystems**[41], which encompass all players involved in the achievement of a certain socio-economic goal: from start-ups and largest companies, or research activities, to regulators, services providers and suppliers. Each of the 14 ecosystems might have moderate to strong interlinkages with economic activity in a city. The **ecosystem on Proximity and Social Economy** has specific relevance to the Cities Mission, as it provides a vision of local economic activity that includes a multitude of services and businesses fostering local and short value chains that link local production and consumption trough user-friendly 'last mile' (or "15-minute city" model) services. The proximity and social economy ecosystem, and in particular cities, as hubs of proximity economy, knowledge generation, community engagement and innovation, are therefore key building blocks to deliver a people-centric, innovative and socially responsible industrial development and achieve a resource efficient, resilient, low-carbon and socially responsible society.

   While pressing ahead with the climate neutrality ambition, the Cities Mission will build upon and promote the capacity building tools of the 100 Intelligent Cities Challenge (ICC)[42], that supports cities to lead the green and digital transformation of their local economies and to strengthen social resilience, leveraging the promises of advanced technologies and innovative business models in partnership with the local businesses and citizens. Those are notably the Local Green Deals Blueprint, the Cities Guide for Reskilling, a compendium of best practices in the five thematic priorities of green economy, citizen engagement, localization of supply chains and logistics and green and digital transition in tourism. The Mission will seek to build bridges between climate city contracts and local green deals.

[41] As announced in the March 2020 Industrial Strategy , the ecosystems lens provides an innovative approach to industrial policy, as it allows for a vision that goes beyond a narrow definition of industry and fully incorporates the systemic importance of all the horizontal and vertical links among economic actors. The ecosystem approach recognise the importance of those activities that were too often considered only as ancillary to industry, as supply of raw material, provision of business services, access to distribution and retail networks. The **14 industrial ecosystems** have been identified by the Commission services, based on their economic and technological relevance and for their expected contribution to the decarbonisation, digitalisation and resilience of the EU economy.

[42] https://www.intelligentcitieschallenge.eu/about-intelligent-cities-challenge

In this context, an SMP call on "Local Green Deals" (Q3 2021, 2M EUR) will help cities to co-design, and co-create local green deals, to deliver the EU Green Deal and green transformation of industry at local level. It will be based on the Local Green Deals Blueprint and best practices from pioneering cities.

(b) The EU Digital Strategy

While fostering digital solutions as enablers towards achieving climate neutrality in line with the **EU Digital Strategy**, the Cities Mission encourages cities to pursue their digital transformation along the principles promoted by the **"Living in the EU' political Declaration**[43] that aims to strengthen the European way of digital transformation in cities and communities and boost the efforts to use digital solutions to create places where people enjoy living and working.

Through the ICC, cities and their local stakeholders receive one-to-one strategic guidance and expert support as well as access to advisory services, city networks and capacity building tools. The ICC focuses on five thematic priorities: green economy and **local Green Deals**, citizen participation and digitisation of public administration, upskilling and reskilling, supply chains, logistics and the economics of mobility, and the green and digital transition in tourism. The Mission will seek to build bridges between Climate City Contracts and local Green Deals. The Digital Europe programme will build cities' capacity to pursue their digital transformation and equip them with digital enablers to benefit from environmental and climate related data. It will in particular prepare cities, regardless of their digital maturity, to put in place the necessary digital infrastructure and governance, so that they could benefit from the power of Local Digital Twins.

Action needed: with both DG GROW and DG CONNECT to finalise the language, including for the Expression of Interest, on linkages between initiatives such as Living in the EU and the Intelligent Cities Challenge and in particular to look for ways of mutually reinforcing the initiatives and providing new opportunities for scaling up and deployment.

Education for Climate Coalition:

Although climate change ranks second among EU priorities in last year's Eurobarometer and despite many young people believing that schools need to give more attention to climate change, the environment and eco-friendly behavior, the gap between concern and action remains a worrying reality. Schools, training institutions and universities are mostly located in cities. They will play a key role in the green transition by engaging with pupils, parents and the wider community on the transformative adaptation needed for a successful transition.

The Cities Mission and the **Education for Climate Coalition**, a flagship initiative of the European Education Area, will mutually reinforce each other. The Coalition aims to become the main bottom-

[43] https://www.living-in.eu/declaration main principles : a citizen-centric approach; a city-led approach at EU level; the city as a citizen-driven and open innovation ecosystem; ethical and socially responsible access, use, sharing and management of data; technologies as key enablers; interoperable digital platforms based on open standards and technical specifications, Application Programming Interfaces (APIs) and shared data models.

up engagement contribution of the European education community to the Climate Pact and the Green Deal. It will mobilise available expertise, commitment and networks in education across the Member States where cities could play an active role, by supporting and sharing innovative solutions towards the transition to climate-neutrality, engaging pupils and school communities particularly in relation to skills development and change in behaviour.

Zero Pollution:

The Cities Mission will ensure that the many synergies with the zero pollution ambition of the European Green Deal and the **Zero Pollution Action Plan** are realized, while avoiding potential trade-offs. For instance, energy efficiency improvements and non-combustible renewable energy sources will improve air quality, while air pollution from inefficient biomass burning in old household stoves and boilers can and should be avoided. Low-carbon sustainable urban transport will help further clean the air and reduce noise in cities.

The **Green City Accord initiative** mobilises European mayors committed to safeguarding natural environment (quality of life, implementation of EU environmental laws locally). Accord cities commit to step up efforts in water, air, nature and biodiversity, circular economy and waste as well as noise by 2030. Around 40 cities have already committed to the initiative and 20 additional cities are being considered.

Action needed: Close links between the Green City Accord initiative as well as the zero pollution action plan and the Mission, including in the co-creation of Climate City Contracts, to boost the coverage and impact of all initiatives while avoiding duplication of effort from participating cities.

Covenant of Mayors:

Since 2008 the European Covenant of Mayors has pulled together a strong coalition of large and small cities that gathers together almost 10 000 cities and other local governments that voluntarily commit to achieving and exceeding the EU climate and energy targets. In order to translate their political commitment into projects and measures, Covenant signatories submit, within two years after the local council decision, a Sustainable Energy and Climate Action Plan (SECAP). The plan features a Baseline Emission Inventory to track mitigation actions. This is followed by biannual reporting on their implementation.

Given this long-standing process that is already familiar to the cities under the Covenant of Mayors, the Cities Mission will align its requirements for baseline setting and reporting under the Climate City Contract with the SECAP model used by the Covenant. This compatibility in terms of template, indicators and timeline will reduce the reporting burden on local authorities. Synergies are already being implemented between the Covenant, Smart Cities Marketplace and the European Climate Pact to the same effect. A closer linking of SECAPs and SUMPs could offer further benefits for cities.

Action needed: The most ambitious Covenant signatories (in particular those aiming for climate neutrality by 2030) are likely to be among the 100 Cities joining the Cities Mission, and we will finalise the language on how they can best benefit from synergies with the Mission process. The rest of the Covenant communities will learn from the experience of their peers

Smart Cities & Communities | Smart Cities Marketplace:

As a further synergy, the Mission Platform of the Cities Mission will factor in the Smart Cities Marketplace, which will continue facilitating the market uptake, upscaling and replication of

solutions across sectors to effectively and efficiently support the Cities Mission, while linking to many other initiatives at EU level such as the Covenant of Mayors, Living-in.eu, CIVITAS etc.

This will enable building on the assets delivered by the European Innovation Partnership on Smart Cities and Communities (EIP-SCC) and its still very active community of Action Clusters and Initiatives under the SCM.. It will also enable building on the EIP-SCC's subsequent Lighthouse Projects programme and its 18 Lighthouse Projects, which have engaged 124 cities across Europe and triggered a vision on how Europe could lead in the area of urban development, across and integrating various sectors. For instance, the Explore-Shape-Deal process serves to shape and match solutions/project plans with financing (new, replication and upscaling). By early 2021, around EUR 600 million were matched with the interest of the SCM's investor network. In addition, based on the highly holistic and integrated nature of the urban context the SCM operates across sectors, there is a great opportunity for SCM to catalyse and multiply the work of other initiatives, thus serving as a single stakeholder platform for the Cities Mission, closely collaborating with its One-Stop Shop Mission Platform, which focusses on funding.

Action needed: Based on the highly holistic and integrated nature of the urban context in which the SCM operates across sectors, there is a good opportunity for the SCM to catalyse and multiply the work of other initiatives, thus serving as a single bottom-up stakeholder platform in direct support of the Cities Mission and its One-Stop Shop Mission Platform. This, while fully exploiting the synergies between the Explore-Shape-Deal Matchmaking process of the SCM and the funding activities of the Cities Mission, which will bring about further concrete blueprints and solutions for replication and upscaling, a concept which is already in full swing with the signatories of the Covenant of Mayors.

Creative Europe programme:

Creative Europe is the EU's framework programme for support to the culture and audio-visual sectors. The Regulation establishing the Creative Europe Programme 2021-2027 recognizes the importance of tackling climate change in line with the Union's commitments to implement the Paris Agreement and to achieve the United Nations' Sustainable Development Goals.

Without prejudice to its fundamental character, Creative Europe will contribute to mainstreaming **climate actions** and to achieving of the overall target of 30% of Union budget expenditure supporting climate objectives. In line with the European Green Deal as a blueprint for sustainable growth, the actions under the Regulation should respect the 'do no harm' principle. In line with the sustainability/greening priority, projects funded under Creative Europe will also contribute to the implementation of the **New European Bauhaus**, which means future CE beneficiaries will be able to include NEB-relevant activities in their programme of activities. Local authorities are eligible for support under the Culture sub-programme of Creative Europe and can be among beneficiaries of cultural cooperation projects.

European Capitals of Culture:

Born in 1985, the European Capitals of Culture have become a laboratory for a strategic and sustainable investment in culture, pushing cities and their surrounding regions across Europe to reflect in a participative way on the role culture and Europe can play in their overall development and in the daily life of their citizens. Being a European Capital of Culture has become a catalyst for a wider change in the perception of a city — both by its own residents, and by the world beyond, going much beyond the cultural sphere, and spreading into social, educational, urban planning and even economic and regional dimensions. Cities hosting the title often seize this opportunity to

accelerate urban regeneration planning, improve their creative and innovative potential, develop new and more sustainable forms of tourism, foster social and territorial cohesion within city boundaries and beyond or strengthen citizens' role in the city development as well as in the shaping and making of cultural expressions.

Extended description of EU programs targeting cities

FUNDING					
Programme	Involved	Type of support	Who can access	Preconditions	Amount
Connecting Europe Facility	INEA, DG MOVE, DG ENER, DG CNECT	Grants for works	Cities et alia	Identified as Project of Common Interest (PCI). For CEF Calls addressing Urban Nodes (as defined in Article 30 of the TEN-T regulation).	Co-funding varies according to the call and sector from 15% t 60% for project feasibility studies. For TEN-T from 20 to 50% for works under general envelop / up to 85% under cohesion envelop
LIFE	DG ENV, DG CLIMA, DG ENER, EASME, EIB, NCP	Support in preparing applicants for integrated projects + NGO operating grants to facilitate dialogue within stakeholders and other services.	Cities, others		Standard projects: 500k to EUR 1,5 mil Integrated projects: 8 to 15 M Eur. Co-funding 60%-75%.
Urban Innovative Actions	UIA Entrusted Entity and Secretariat, DG REGIO	Projects and pilots capitalisation, awareness raising, stakeholders' involvement	Cities et alia (any type of grouping >50k inhabitants)		Project 1-5 M Eur. Up to 80% of project costs.
URBACT	URBACT III Managing Authority and Secretariat, DG REGIO	Projects and pilots on policy making (all phases) capacity building, awareness raising, stakeholders' involvement	Cities, any local municipal entity (even aggregated) with politico-administrative competence.	Partnership composition depending on the phase of application	Between 50% and 85% of project costs depending on development of the region
Connecting Europe Facility	INEA, DG MOVE, DG ENER	CEF Grants for studies	Cities et alia	For CEF Calls addressing Urban Nodes (as defined in Article 30 of the TEN-T regulation)	For TEN-T, up to 50% for studies and up to 85% under cohesion envelope.

European Structural and investment Funds	DG REGIO, in particular CF and ERDF (Managing Authorities)		Cities et alia	Fixed in call	Fixed case-by-case
European Maritime and Fisheries Fund	DG MARE	Calls of relevance to coastal cities and Blue Economy			
Digital Europe Programme	CNECT	Calls relevant for the digitalisation of cities: urban digital platforms deployment, digital twins, data space for cities and communities		Calls for proposals	

SUPPORT TO FINANCING							
Programme	Involved	Support	Who can access	Preconditions	Amount	Time frame	Reporting
European Local Energy Assistance (ELENA)	EIB, DG ENER, DG MOVE	Hiring of experts / preparation of bankable projects/ technical assistance	Cities et alia	Programme above 30 M Eur	Up to 90% of technical assistance/project development costs.	2-4 years	Leveraging investment by 20 factor for sustainable energy projects, 10 factor for residential buildings and urban transport.
Joint Assistant to Support Projects in European Regions (JASPERS)	EIB, DG REGIO	Advice to support better project preparation for ESIF projects	Cities et alia				
Natural Capital Financing Facility - Technical Assistance	EIB, DG ENV, DG CLIMA	Technical assistance to access Natural Capital Financing Facility	Cities et alia	Focus on: ecosystems, impacts of climate change, financial sustainability, contribute to LIFE, meet EIB criteria.	Up to 1 M Eur per project		

Smart Cities Marketplace (merge of EIP-SCC Marketplace and Smart Cities Information System)	Service Contract coordinated by DG ENER (in collaboration with DGs MOVE and CNECT)	In the frame of shape and deal meetings to close deals for financing of concrete projects	Cities, businesses, financing community, researchers	None	variable, depending on the deal prepared/closed during the matchmaking process	variable	reporting on the outcomes of the matchmaking process in the form of aggregated figures
URBIS (will be ended)	EIB, DG REGIO	Technical assistance and advice on accessing EFSI	Cities et alia	Urban Agenda targets, advice for an integrated urban investment programme: short/medium term, investments are typically >20 M Eur.		3-5 years	
100 Intelligent Cities Challenge	DG GROW	One to one strategic guidance to cities to shape visions and strategies; capacity building tools, blueprints, best practices, guides, peer-review mechanisms, KPIs for progress monitoring	Cities including their local stakeholders and civil society	Being a participant city in the Intelligent Cities Challenge	7,5 - 15 million EUR (SMP) with potential of renewal	2-5 years	DG GROW

Affordable Housing Initiative	GROW, ENER	Support to local industrial partners hips, involving cities, to renovate social and affordabl e housing district following a holistic approach .	SMEs, cities, social housing providers	Eu-level cross sectoral partnership set up through a call for proposals	1.2 million EUR (SMP)+ 10 million Horizon Europe for lighthouse demonstrato rs		GROW, ENER
European Energy Efficiency Fund - Technical Assistance		Technical assistanc e to access European Energy Efficiency Fund	Cities et alia	Preselection companies to carry out the investment programme's implementati on works. Tender within the 2 years of funding.		Open applicati on, first come first served. Fast contract (> 2 mo between applicati on and signing. 2 years support.	If energy plan is not selected by the EEEF. the technical assistance is not reimburse d.

FINANCING						
Programme	Involved	Support	Who can access	Preconditions	Amount	Timeframe
Connecting Europe Facility - Blending Facility	DG MOVE, INEA, EIB, EBRD, National Promotionn al Banks (BG, FR, HU, PL, SI, ES, IT and discussions with BE; DE; NL; SE as of April 2020)	CEF Grant	Cities et alia	In line with TEN-T policy and CEF Regulation, Grant conditionnal to leveraging debt (min. 5M€), focus on green mobility (and ERTMS).	Minimum grant amount of 1M€. Co-funding rates from 10 to 20% for green mobile assets and supporting infrastructure.	cut-off dates every 3 months, next one in mid-May 2020 and then up to February 2021 or until exhaustion of the budget.

Connecting Europe Facility - Debt Instrument	DG MOVE, ENER, CNECT, EIB. CLIMA for NER300 funds	EIB Debt / Quasi-equity products. Includes Future Mobility product for high risk deployment of innovative green mobility	Cities et alia	In line with Trans-European Network (TEN) policies.	EIB operation amount, usually higher than 10M€	Approval of operations under CEF-DI until end 2022. InvestEU to take over in next MFF.
European Fund for Strategic Investment (EFSI)	EC, EIB	Project loans, loans for R&I projects, equity, risk-sharing.	Cities et alia	Due diligence	Loans (up to 50% project cost, starting at 25 M Eur). Direct investment loans for large urban investment projects (>100 M Eur).	Long-term. For smaller investments (<50 M Eur) 3-5 years return plan.
European Structural and Investment Funds, in particular CF/ERDF	Managing authorities, DG REGIO	Possibility to fund FI from structural funds	Cities et alia	Project in line with operational programme of region/ares.	Co-funding fixed case-by-case	
Green Economy Transition: Green City Action Plan	EBRD	Variety of instruments: credit lines, loans, equity.	Cities (mainly EU 13 countries and non-EU)	>100k inhabitants, identification additional financial sources, tutor/train new stakeholders	variable	Variable, typically 10 years targets
Invest EU	EC, EIB					
Just Transition Fund	REGIO					
Municipal Loans	EIB	Large project-specific loans and multi-component loans	Cities et alia	Project investment costs >25 M Eur. Economically, technically and environmentally sound. Financing condition depend on	Large projects: up to 50% of total cost (public and private promoters), on average 33%. Most flexible loans available for cities.	3-5 years

				security offered by third parties (i.e. banks).		
Natural Capital Financing Facility	EIB, DG ENV, DG CLIMA	direct and/or intermediated debt financing and equity investment funds depending on project types and conditions	Cities et alia	Focus on: ecosystems, impacts of climate change, financial sustainability, contribute to LIFE, meet EIB criteria.	Finance Facility: loans and equity 2-15 M Eur. Debt financing: up to 75% total project costs. Equity: up to 33%	
Smart Cities Marketplace (merge of EIP-SCC Marketplace and Smart Cities Information System)	Service Contract coordinated by DG ENER (with MOVE and CNECT)	In the frame of shape and deal meetings with the aim to close deals for financing of concrete projects	Cities, businesses, financing community, researchers	None	variable, depending on the deal prepared/closed during the matchmaking process	variable
Blue Invest Platform under the European Maritime & Fisheries Fund	MARE					
European Energy Efficiency Fund	EIB, EC, Cassa Depositi e Prestiti, Deutsche Bank	senior and junior debt, mezzanine instruments, guarantees, and equity as well as leasing structures and forfeiting loans	Cities et alia	Investments must achieve at least 20% primary energy savings for EE projects, Investments in the transport sector will also target a 20% reduction of CO2 emissions. Project size: 5-25 M Eur		

A complete overview of EU R&I activities and initiatives targeting cities is available at https://op.europa.eu/en/publication-detail/-/publication/9fb7a8ce-aefa-11e7-837e-01aa75ed71a1

ANNEX I - Overview of the activities to be implemented under the Mission Platform

The Mission platform will provide the necessary technical, regulatory, financial and socio-economic expertise as well as assistance to cities for developing and implementing their climate action plans, and related social innovation action plans. The project can involve research organisations, academia, industry including social entrepreneurs, the financial sector including impact financiers, investors, philanthropists, NGOs, national and local authorities and citizens. The project should also be responsible for the management of competitive calls addressed to third parties to fulfil the objectives of this action. The platform should facilitate the coordination of ongoing European activities in the area of climate neutrality for cities and should be sustainable, scalable and self-financed beyond the life of the action. Where relevant, the action should take into due account and build on existing platforms[4], experience already matured by the Covenant of Mayors[5] initiative and methodologies, analysis and processes developed by the Joint Research Centre of the European Commission as well as based on the principles and standards of the Join, Boost, Sustain Declaration[6].

The Platform, with a budget of EUR 53 million, will be set up for a duration of four years (2021 – 2025) and will address the following four activities:

Activity 1: Climate action plans and Green Deal innovation:

- Develop a science-based set of indicators[7] enabling the assessment of the climate, environmental and socio-economic impact of cities' climate neutral action plan, as well as its replication and scaling potential, in terms of greenhouse gas emissions reduction within the framework of the European Green Deal
- Develop innovative urban greening assessment methodologies for planning[8] and monitoring[9] GHG emissions reduction to meet the Green Deal ambitious targets.
- Provide harmonised specifications for inter-operable and comparable evidence repositories for cities, documenting action plan approaches and impacts;
- Support cities in identifying and possibly overcoming regulatory, institutional, governance, financing, public acceptance and other barriers preventing progress and coordinated pathways towards climate neutrality;
- Design, in close collaboration with the cities and the European Commission, a concept for a climate-neutral city contract[10] corresponding to climate action plans that includes the application process and assessment criteria. Particular attention should be paid to citizens' engagement, social innovation and social entrepreneurship, environmental, economic and health benefits, and Just Transition mechanisms.
- Support cities in innovating their local governance and, where appropriate, building capacity to implement systemic and integrated climate-neutral policies, also building on existing experiences developed by local networks[11];
- Coordinate the group of cities committing to the climate-neutral city contract, ensuring an operational customer-driven link of this action with the cities as final users. Facilitating the sharing of experience and good practices and mutual learning between cities regarding setting up and mainstreaming co-creation processes engaging all relevant actors for the framing, deployment and assessment of their vision, strategy, and an action plan to reach climate neutrality while ensuring shared ownership.

Activity 2: Investment project preparation and finance:

- Provide information and consulting services to cities on preparing and financing investment projects for the transition to climate neutrality. This should take into account and build on the good practices developed by global, European and national initiatives and programmes such as Horizon 2020, ELTIS, ELENA, CIVITAS, EIP on Smart Cities and Communities (EIP-SCC) Marketplace, EIT Climate KIC, Intelligent Cities Challenge (ICC), European City Facility, JPI Urban Europe, Positive Energy Districts, Green City Accord, the European Green Capital award. Financial solutions should include, but should not be restricted to, those provided by InvestEU, EIB, EBRD and the European Structural and Investment Fund. Collaboration with national development banks as well as commercial banks is also encouraged.

Activity 3: Social innovation and citizens' engagement:

- Support cities and local communities in testing solutions (including new technologies, non-technological, and social innovations) that stem from European R&I. This should entail a matching of cities' and local communities' needs to R&I results through various means, e.g., match-making and brokerage hubs;
- Combine existing results of European R&I with social innovation, and take advantage of the digital transformation and digital infrastructure to co-create and test solutions with local communities, including changes in social practices and behaviour;
- Provide support to cities for reinforcing not only communication but also citizens' engagement activities involving also marginalised or vulnerable to exclusion citizens. This should include sharing and using good practices on social innovation as well as enabling cities and local communities to exchange experiences and learn from each other when testing and implementing solutions, connecting more innovators and researchers and making them aware of citizens' needs, and, though all these channels, helping cities move closer to climate neutrality.

Activity 4: Research and Innovation for climate-neutral transformation of cities:

- Once the services of the platform are made available, open calls for proposals will be launched to support large scale pilots for the deployment in lead cities or districts of systemic solutions combining, as appropriate, technological, nature-based, social, cultural, regulatory and financial innovation and new business and governance models to underpin the climate transition, taking stock of existing best practises and already available solutions. These calls should be evaluated by external, independent experts in a fair and transparent process.
- In order to facilitate the upscaling of these solutions and their replicability, the pilots will also support for each lead city and/or district, activities dedicated to the twinning with and mentoring of at least 2 other cities and/or districts from different EU Member States or H2020 associated countries facing structural disadvantages or with a size smaller than 50 000 inhabitants, which are willing to develop their proper climate action plan and implement it in a subsequent phase beyond the life of the current action.

This action aims at a rapid, full-scale deployment of systemic and integrated climate actions at city or district level in order to reach climate neutrality by 2030. It should integrate a package of measures covering all sectors such as health promotion, water, food, energy, industry, housing (private housing and public buildings such as schools and other critical infrastructures), transport (including connected mobility and modal shift) and other sectors considered essential for climate neutrality, with digital, circularity as well as nature-based solutions as critical enablers, while respecting the do no significant harm (DNSH) principle in the specific city context and the set timeline.

Cities and/or local communities participating in the pilots are expected to engage the necessary resources and commit to the deployment of their action plan and the achievement of the expected impacts stated below.

This action, in particular the activities covered under Activity 4, allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes. Due to the nature of the work to be supported under the call(s) supporting deployment of innovative solutions, the contribution to a third party may go beyond EUR 60 000. The Commission considers that the size of the pilots should range between EUR 0.5 million up to EUR 1.5 million, depending on the expected impact of the proposed projects. The selection of the third parties to be supported under the grant will be based on an external review by independent experts of the proposed work.

The open calls for proposals to be launched within the grant for the selection of third parties should respect all the rules and conditions laid out in Annex K of the Work Programme, in particular as regard transparency, equal treatment, conflict of interest and confidentiality.

The consortium should possess, among others, good knowledge and expertise in European urban-relevant programmes and initiatives, urban planning, state-of the-art in technological innovation for climate neutrality, social innovation and stakeholders engagement, financing programmes (such as the, Horizon 2020, European structural and investment funds, EIB, EBRD...) and European / international umbrella organisations (such as the C40, CIVITAS, POLIS, EU Covenant of Mayors/ Global Covenant of Mayors, ICLEI etc.).

Proposals should ensure that an appropriate geographical balance across Europe is achieved through twinning activities and other means to maximise impact without leaving anyone behind, and by demonstrating commitment of cooperation.

The Commission considers that proposals requesting a typical contribution from the EU up to EUR 53 million would allow this specific area to be addressed appropriately, of which at least 60% should be allocated to activities covered under Activity 4 for the financial support to third parties. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

As the scope of this action is to support a one-stop shop platform, at most one proposal is expected to be funded under this topic.

ANNEX II – Planned activities in Horizon 2020 and Horizon Europe

One-stop shop Mission Platform launched through European Green Deal call

A one-stop shop mission platform will be developed and launched through the project funded under the H2020 European Green Deal call (Topic *LC-GD-1-2-2020 Towards climate-neutral and socially innovative cities*). This grant will kick-off in Q4 2021 and would indicatively last up to 4 years; it will benefit from a EUR 53M support to launch and test a delivery mechanism for the Mission aimed at assisting cities in their transition towards climate neutrality. It will provide the necessary technical, regulatory, financial and socio-economic expertise as well as assistance to cities for developing and implementing their climate city contracts. An overview of the expected activities to be developed by this action is provided in Annex I.

Targeted actions for the Cities Mission through the Horizon Europe Missions Work Programme 2021-2022

The draft Horizon Europe Missions Work Programme 2021-2022 includes three actions that can support the Mission inception phase:

- HORIZON-MISS-2021-CIT-01-01: Supporting national, regional and local authorities across Europe to prepare for the transition towards climate neutrality within cities. With an EU contribution of up to EUR 2 M, this action will contribute to strengthen buy-in and increased preparedness from national/local/regional authorities for implementing the cities mission. It will set-up dedicated national networks for supporting cities in the form of multi-stakeholders national platforms, promoting collaboration, cross-learning and training, exchange and replication of best practices between the European, national, regional and local level. It will mobilize and support a large number of urban authorities in engaging in climate-neutrality transitions as well as identify country-specific challenges, best practices and opportunities concerning regulatory frameworks, funding and financing, urban morphology and governance structures.
- HORIZON-MISS-2021-CIT-01-02: Collaborative local governance models to accelerate the emblematic transformation of urban environment and contribute to the New European Bauhaus initiative and the objectives of the European Green Deal. With an EU contribution of up to EUR 2 M, this action will develop innovative and collaborative models of local governance to engage with citizens and local stakeholders in order to identify urban emblematic projects that simultaneously address the three dimensions of sustainability (including circularity), quality of experience (including aesthetics) and inclusion (including accessibility and affordability).

The indicative timeline for both actions mentioned above, to be implemented through Coordination and Support Actions, foresees a call opening on 12/05/2021 and deadline on 09/09/2021.

- Scientific and technical services to the Mission on 'Climate-neutral and smart cities'. Through a EUR 1 M direct action grant for scientific and technical services, the European Commission Joint Research Centre will support the first phase of the Cities Mission by developing i) a 'Self-assessment toolkit for cities' climate-neutrality pathway'; ii) a mapping of European cities' preparedness level and ambition; iii) a mapping of proved R&I solutions and conditions enabling their transferability. These activities should ensure the uptake and capitalisation of the existing European urban initiatives and policies, while also considering the necessary interaction with the above mentioned one-stop-shop to be established under

the Horizon 2020 topic LC-GD-1-2-2020 on 'Towards Climate-Neutral and Socially Innovative Cities'. The action should last indicatively one year starting from Q2 2021.

Horizontal support for all Missions through the Horizon Europe Missions Work Programme 2021-2022

Four actions designed to provide horizontal support and services to the preparation of all five Missions have been identified in the first Horizon Europe Work programme:

- HORIZON-MISS-2021-DEPL-01-01: Transnational cooperation on the missions-approach. This Coordination and Support Action with an EU contribution of EUR 2 M will foster transnational cooperation on the missions-approach and support the national deployment of the missions approach. It will foster ownership across the European Union at a national level, with the engagement of national, regional and local actors. It will set up a Missions Core Network to set the basis for a solid governance and implementation of the missions concept at a national level through sharing experiences in missions approach and align national initiatives to the upcoming missions; exchange best-practices between national mission-oriented programmes and initiatives and on how to combine national efforts and funding for missions at a national level. It will establish the appropriate partnerships with local and regional actors and stakeholders to ensure proper multi-level actions and will prepare for potential hubs, by mission, at national level.

The indicative timeline for this action foresees a call opening on 12/05/21 and a deadline on 09/09/2021.

- EIB Innovation Finance Advisory to support the implementation of EU Missions. With an EU contribution of EUR 2 M, this indirectly managed action supports initial Innovation Finance Advisory services for the first year of the implementation of the missions under an advisory agreement with the EIB Group for the implementation of the InvestEU Advisory Hub. The Innovation Finance Advisory services will support the identification of investment sources and outreach and engagement with potential investors or other types of funding models and mechanisms. These services will contribute to the understanding and use of appropriate financing tools and models and instruments of actions, including the development of blended instruments under InvestEU, ensuring effective financing to reach mission objectives.

The indicative timeline sets a start for this action in Q2 2021.

- OECD Benchmarking Study on missions implementation. OECD has unique access to countries where missions have been developed and expertise in the study of mission oriented innovation policies. OECD will provide a benchmarking of practices in relevant countries taking into account governance of the implementation of missions, processes related to the implementation of a portfolio approach and connections/interlinkages between EU missions and EU Member States, EEA and Associated countries related activities.

This indirectly managed action foresees an EU contribution of EUR 0,15 M set to start indicatively during Q2 2021 and will last for 1 year.

- Informing citizens and stakeholders about EU Missions and engaging them in the implementation of EU Missions. The objective of this action - a continuation of the current communication and citizens' engagement actions for missions - is to inform and engage citizens and stakeholders to be able to effectively launch and start implementing the missions. It will include a Europe-wide, multilingual communication campaign, a series of interactive offline and online events and setting up of a digital platform to ensure

transparency and to facilitate stakeholder and citizen engagement, including building of EU missions community through a multilingual approach.

This action will be implemented through a public procurement of EUR 2 M to be launched indicatively during Q2 2021 lasting for 1 year.

Indirect support relevant to all Horizon Europe Missions provided through the Horizon Europe Missions Work Programme 2021-2022

- HORIZON-MISS-2021-NEB-01-01: Support the deployment of lighthouse demonstrators for the New European Bauhaus initiative in the context of Horizon Europe missions. Through a mutually supportive relationship, Horizon Europe missions and the New European Bauhaus (NEB) initiative will develop connections on a wide range of topics. For example, there are shared objectives in areas such as climate-neutral and smart cities, adaptation of the built environment to the effects of climate change (while respecting existing aesthetic and historical values), including flooding and sea level rise, sustainable use of soils through better spatial planning, urban greening and nature-based solutions, and cancer prevention and quality of life through healthy lifestyles and a healthy living environment. With an overall EU contribution of EUR 25 M this action will fund projects contributing to the Delivery Phase of the NEB, by deploying mission-oriented pilot projects that will act as 'lighthouse demonstrators' across the territory of the European Union and Associated Countries. They should embrace the key principles of the NEB initiative (sustainability, inclusion and aesthetics), using architecture, design and culture as core resources for a sustainable society, and the mission-oriented approach (impactful, measurable, targeted) in an innovative and exemplary manner.

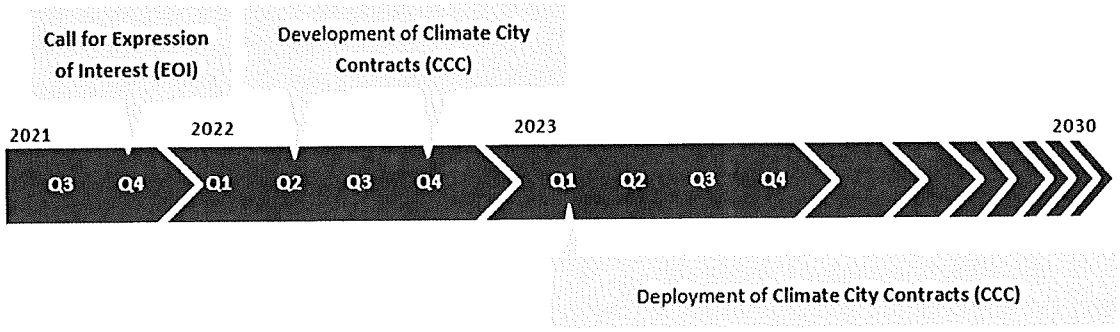
The indicative timeline for this action foresees an opening of the call in September 2021 and a deadline in late January 2022.

ANNEX III – Process of the Mission

The process of delivering the Cities mission consists of:

- **the inception period**, during which cities will receive support from programmes under H2020 and Horizon Europe, together with any necessary advisory support and assistance;
- **the deployment period**, during which other EU programmes and other financing and funding sources will be made available.

The inception period will span two phases: the Call for Expression of Interest (phase 1), followed by the co-creation and preparation of the Climate City Contract (phase 2). The deployment period coincides with the implementation of the Climate City Contract (phase 3).



The Call for Expression of Interest

The ultimate goal of the Mission is to ensure that all cities are climate neutral by 2050. Therefore no entity successfully meeting the selection criteria will be "rejected". Some cities will be ready to be part of the first wave of cities to be climate neutral by 2030, others may require more time.

Scope:

The objective is to invite the largest possible number of cities to register their intention to become climate neutral by 2030. By default, the applicant city would commit the whole city or entity to become climate neutral. However, where duly justified by the applicant, the city may propose to exclude one or more district(s)[44] from the 2030 deadline, but in this case should commit to a strategy of climate neutrality for these districts as soon as possible, and of course no later than 2050.

The cities, or an entity mandated by them[45], should provide the information requested in the call for expression for interest. This would include a mapping of cities' climate projects/initiatives/actions, participation in relevant EU initiatives and activities, commitments from key stakeholders and citizens/civil society NGOs (letters of intent or other proofs), indication of a high level of ambition (eg mayor's letter of intent to commit to climate neutrality by 2030 or a later date), and how – initially – they believe they can meet this ambition. Note: the detailed setting out of how a city proposes to become climate neutral will of course be done in the second phase, the co-creation of

[44] In this context, districts will considered as neighbourhood or zone of special interest of a city administered or governed by some type of "district council"

[45] In some cases, cities have established a dedicated legal entity to take in charge the implementation of their climate action plan (see Leuven 2030 as an example)

the Climate City Contract. Additional information on the content of the call for expression of interest is provided in Annex IV.

Services provided to applicants:
Basic support through a helpdesk and a webpage that will provide necessary information for cities to submit their expression of interest (both in English). Support may also be provided by the one-stop shop Mission platform already in Q4 2021 that will help cities prepare their expressions of interest (PM to be agreed with the consortium and the agency).

Evaluation criteria:
The applications will be evaluated based on the cities' levels of preparedness, using the JRC mapping as reference, their ambition, their ongoing and planned commitment to climate neutrality and reducing pollution, and their commitment to involving citizens and relevant stakeholders in the city climate plan.
The applications will be evaluated by the Commission (with external experts).
At the end of the evaluation, the cities for which there is a reasonable level of confidence that are ready to prepare a Climate City Contract that meets the objective of becoming climate-neutral by 2030, will be invited to move to phase 2. Other cities will obviously require more time to become climate neutral, but will still be eligible for access to all the general support provided by the Mission, such as networking, sharing of good practice, twinning etc.

Inclusiveness, diversity and geographical balance:
One of the goals of this selection process is to ensure a fair geographical balance and diversity of types of city, different levels of preparedness, etc. In particular, the participation of cities from all MS will be encouraged. At least one city per MS should be among the first wave of selected applicants going to phase 2. If it becomes clear at the end of phase 1 that we still lack a reasonable geographical balance, e.g., if we have a heavy preponderance of cities from the north and west of the EU, additional and targeted calls for expression of interest may be necessary.

Timeline:

- Q3/Q4 2021: The call for expression of interest will open as soon as possible after the decision of the Commission Project Group for a period of up to four months, during which cities will be invited to express their interest in becoming a climate-neutral city by 2030.
- By Q1 2022: The Commission services inform the applicants

The Preparation of the Climate City Contract

Scope:
The preparation of the Climate City Contract should be performed in co-creation with citizens, local and national authorities and relevant stakeholders, as well as the European Commission.

Timeline:
As cities will start from different levels of preparedness, the duration of the co-creation of the Climate City Contract will vary. It could last only around 6 months for the most advanced cities, but for others, the process may take a little longer.

Evaluation:
The criteria for the assessment of the Climate City Contract include a city's baseline greenhouse gas (GHG) emissions and level of air quality[46], the barriers to reduce GHG emissions, a clearly defined

[46] As reported under the Ambient Air Quality Directives 2008/50/EC and 2004/107/EC

collaborative governance structure and roles, an investment strategy, an innovation approach, the establishment of measurable KPIs as well as the identification of clear benefits for. Additional co-benefits will be considered in the evaluation such as for example reduction of air pollutant emissions.

Support provided:
For the co-creation of the Climate City Contract, support will be provided to cities by the Commission through in particular the one-stop shop Mission platform.
The network of national contacts (supported in the Horizon Europe Work Programme 2021 and to be signed in Q1/Q2 2022 – See Annex II) will also establish national hubs that provide dedicated information for their cities on the national services and conditions thus helping the preparation of the Climate City Contract.
A tender/project should be put in place in Q2 2022 to support the implementation of phase 2 in particular as regard the evaluation of the Climate City Contracts that will be submitted by the cities.

The implementation of the Climate City Contract

Scope:
In this final phase, cities will implement the Climate City Contract, including its investment strategy. Cities will be required to share their expertise with other cities through e.g. mentorship, twinning or teaming.

Timeline:
The first Climate City Contracts could be finalized as early as Q3 2022. Their implementation will last until 2030.

Support provided:
For the implementation of the Climate City Contract, support will come from other EU programmes, national and regional programmes and from public and private investors. The latter could be reinforced by a dedicated lending and blending facility. Additional information on the sources of funding and financing that could be used by the cities during this phase is provided in the "Funding and Financing" section.
Support will also be provided for the twinning and/or mentoring of cities and for the monitoring of the Climate City Contracts.

Monitoring of the Climate City Contract:
For the implementation of the Climate City Contract, the endpoint against which success will be measured is the full mitigating and offsetting of all GHG (in CO_2-eq) while ensuring synergies with the zero pollution ambition, notably improving air quality within a city.. The timelines of participating cities should converge to achieve this target by 2030, thus paving the way for a wider transformation in European urban areas and Europe in general by 2050.

Communication:
Throughout the whole process, communication will be essential to engage with local, regional and national authorities, stakeholders and citizens. Additional information is provided in Annex VIII.

ANNEX IV – Elements for the Expression of Interest

The Expression of Interest will include the following elements that will be assessed against an agreed percentage (higher if they have already in place a local ecosystem and climate plans for instance)

- **City's key motivations** - fitness for purpose of organization interested in leading the preparation for entering the Cities Mission;
- **City's strengths and assets** but equally **barriers to achieve the CN** target by 2030 (qualitative analysis to be matched with the JRC action) - demonstrated added value in unleashing city potential and capacity in anticipating risks, including initial indications in relation to funding and financing;
- **City ecosystem** (citizens, local stakeholders...) - level of support for the city to engage in the Cities Mission within the local network of stakeholders and especially with citizens;
- **City partnerships** with private funders and businesses – existing or planned collaborations and level of engagement to work together with the city;
- **Local policy landscape** and **available resources** (past and ongoing climate initiatives/projects such as participation in CoM – to demonstrate the coherence with the target of achieving CN but also as an indicator of preparedness) as well as evidence of added value of the Cities Mission with regard to the existing policy framework;
- **Local political ambition** – e.g. Mayor's letter of intent or city council resolution, etc to demonstrate climate neutrality commitment as well as for example, goals towards zero pollution such as air quality objectives;
- **Proposed team** - allocation of sufficient resources;
- **Inter-city collaboration** - capacity to identify actions to be implemented through a collaborative approach at the EoI stage;
- **Expected results and impact** – to assess the innovative nature of expected impact described;
- **Annexes** – e.g. letters of intent from Mayors or city council resolution, etc, stakeholders and other endorsements, indications of intent, etc. to support the application.

The EoI should be accompanied by:

- A communication strategy to reach as many cities as possible across all Europe
- EoI guidelines summarizing the purpose and expectations
- A helpdesk to support applicants

A guide explaining the different elements of the application should be prepared in order to support cities along their application and to increase their success rate. The guide should provide information on the following points:

- What is Cities Mission (objectives plus additional information on the implementation plan of the Mission)
- What are the benefits of being part of the Cities Mission
- The participation modalities
- What types of cities are targeted
- The duration of the EoI
- The language of the application
- What level of commitment is expected
- The eligibility criteria
- Possibilities for pre-screening
- Individual or consortia application
- Feedback on the results

The guide will also include a technical section to inform the city on reporting requirements (GHG baseline), how to account for emissions, sectors, city boundaries etc.

ANNEX V - Mapping of EU cities

In order to support the further development of the cities selection process, a preliminary analysis of the European urban landscape was carried out, focusing on six European initiatives addressing sustainable urban development through different perspectives. Such analysis aims at identifying **indications on cities' ambitions and interests**, analysing their response to different types of European policy engagement processes. The initiatives selected for this purpose do not quantitatively replicate the Cities Mission's targets (full climate-neutrality by 2030); they nevertheless promote aligned objectives and are considered as building blocks for the achievement of urban climate-neutrality.

The analysis identified 476 European cities [1] as involved into one or more of the six selected European initiatives.

- *The European Covenant of Mayors 2030 commitment*[2]: 137;
- *The European Green Capital Award and Green Leaf Award**[3]***: 21;
- *The European Capital of Innovation**[4]***: 18;
- *The 100 Intelligent Cities Challenge**[5]***: 74;
- *Cities provided with (or preparing for) a Sustainable Urban Mobility Plan (SUMP)*[6]: 422.

In order to provide consistency between data and to ensure statistical relevance, the analysis was restricted to cities with a population greater than 50.000 inhabitants (2016 Eurostat[7]).

The number of cities analysed represents nearly the **half of the European population living in urban areas**[8] (and respectively over one-third of the total European population) suggesting sustainable urban development and climate-neutrality are **objectives already familiar to a large number of local authorities and citizens**.

The analysis also highlighted a pool of over **150 cities currently involved in at least two of the identified initiatives**. A smaller number (34) of 'ambitious' cities also emerged (more than 3 commitments/recognitions), suggesting that expanding the analysis to a wider range of international, European, National, Regional and Local initiatives promoting climate-neutrality would result in uncovering a much larger number of cities with ambitions and plans.

	No	Average population	% of EU-27 urban population	% of EU-27 population
Total number of cities analysed	476	315.947	45%	34%
1 commitment/ recognition	321	230.904	22%	17%
2+ commitments/ recognitions	155	492.070	23%	17%

Not surprisingly, the analysis confirms that bigger cities tend to engage and commit more, while confirming the need to keep a **large number of cities involved** in order to achieve concrete impact on European citizens. Should 100 average-sized cities participate into the Mission, the European urban population impacted would consist on ~10%, whereas in the case of 27 (one per Member State) this would drop to ~3%. These values may vary greatly depending on the size of the city and district. It is to be noticed that in order to achieve full urban climate-neutrality by 2050 the population to be impacted in a decade should actually triplicate with respect to the Mission target, reinforcing the necessity to find a compromise between the need for inclusivity (of small cities) and fair treatment (of metropolitan citizens).

When looking at the **geographical distribution** of cities engaged into at least one and more commitments/recognitions, these appear to be present in **every Member State**. Such distribution shows Germany and Spain at the forefront, but also flags how sensitive the analysis can be to the number of initiatives analysed (Italian, Greek, Finnish and Irish cities present higher percentages of cities engaged in two and more initiatives than just in one of them).

When normalising the information to the urban population impacted, it results clear that despite more populated countries may seem to be more engaged, the actual **participation rate is well distributed among Member States** as this depends both on the degree of urbanisation and on the population living in the identified cities.

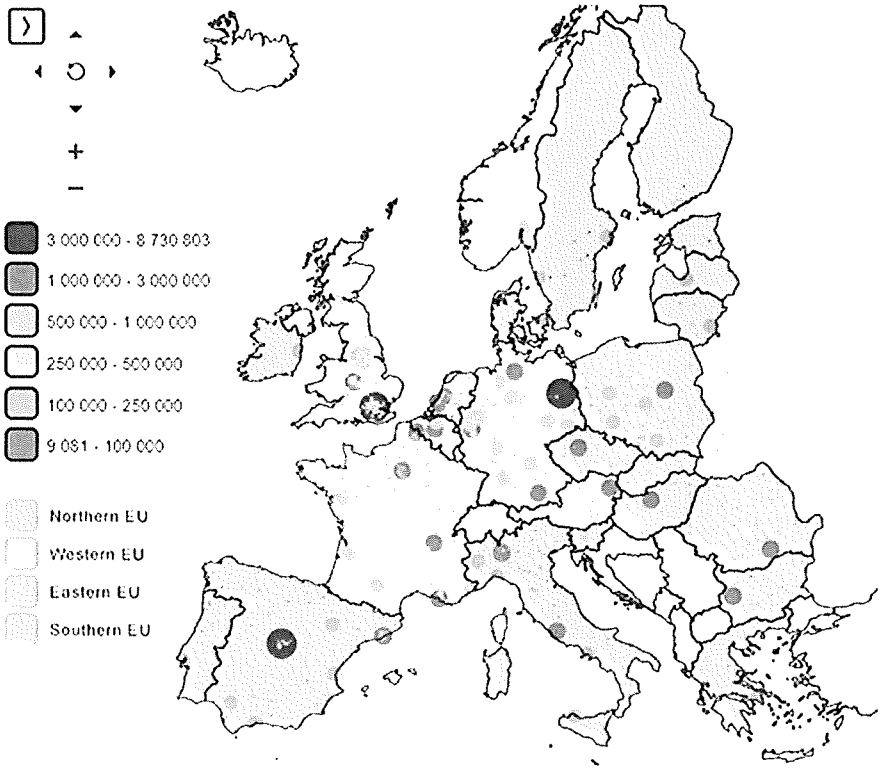
The results of the analysis can be condensed around four key questions:

- *Is it realistic that 100 European cities could show interest in committing to the Cities Mission targets?*
  - According to the preliminary analysis, this seems to be the case since more than 150 cities look to be already sensitive to climate targets and sustainable urban development.
- *Are cities capable of coming forward on their own?*
  - The initiatives selected are typically directly managed by cities, which respond to a European call for engagement/interest.
- *Is it an inclusive process and geographically balanced objective?*
  - The initiatives selected suggest ambitious cities can be found in all Member States, in numbers depending on the rate of urbanisation and the city population.
- *Is it an impactful objective?*
  - The analysis shows that leaving initiative to 100 European cities would affect around the 10% of the European urban population.

Concerning European urbanisation, a quick outlook is proposed using the Functional Urban Areas classification, highlighting their distribution among the EU.
The map shows European cities according to their size and attempts to classify MS by macro-regions (according to UN classification).

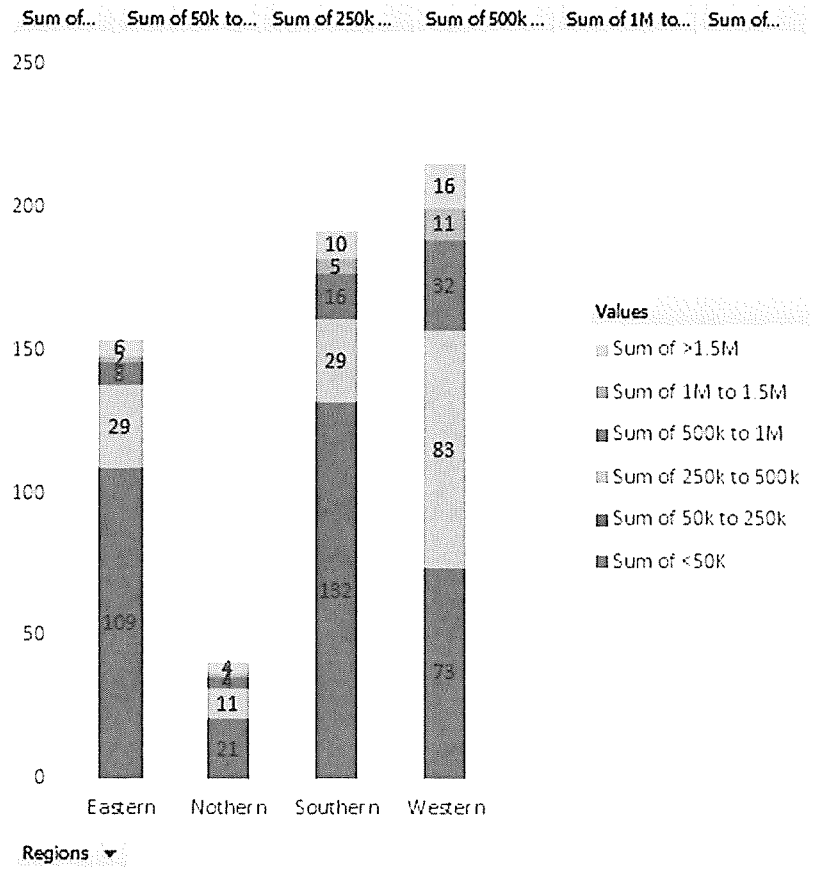
Population on 1 January, 2016 (Urban Audit cities)

For data visualisations of more indicators for European cities, see Regions and Cities Illustrated

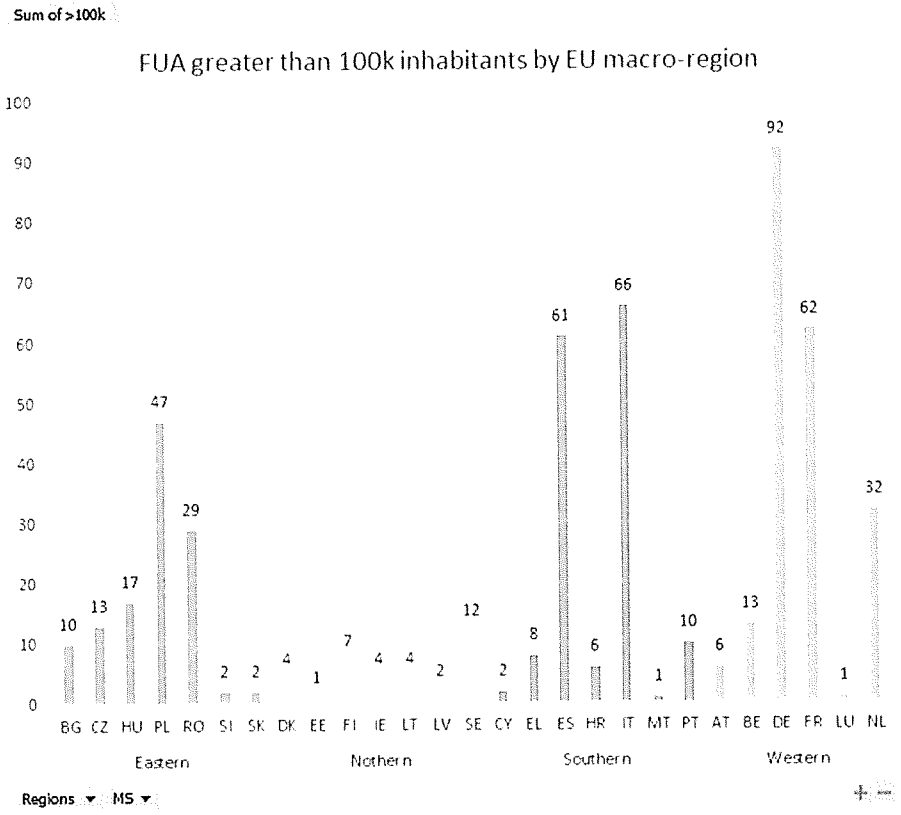


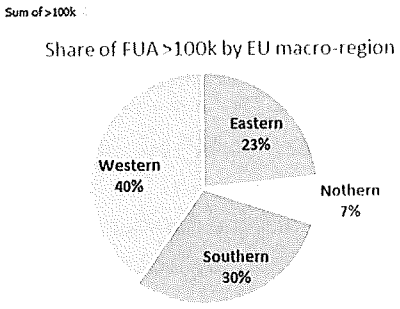
Regions	MS	FUA	<50K	>100k	50k to 250k	250k to 500k	500k to 1M	1M to 1.5M	>1.5M	Not largest city
Nothern	FI	7	0	7	3	3	0	0	1	1
Nothern	SE	12	0	12	8	1	1	1	1	3
Nothern	LT	6	0	4	4	1	1	0	0	1
Nothern	LV	4	0	2	3	0	1	0	0	1
Nothern	EE	3	0	1	2	1	0	0	0	0
Nothern	DK	4	0	4	0	2	1	0	1	2
Nothern	IE	5	0	4	1	3	0	0	1	1
Western	BE	14	1	13	7	2	3	1	1	5
Western	NL	35	0	32	20	10	2	1	2	5
Western	LU	1	0	1	0	0	1	0	0	1
Western	FR	0	0	62	19	27	10	3	4	17
Western	DE	96	0	92	27	41	14	6	8	28
Western	AT	6	0	6	0	3	2	0	1	3
Eastern	PL	58	0	47	37	12	5	2	2	9
Eastern	CZ	15	0	13	11	1	2	0	1	3
Eastern	SK	8	0	2	7	1	0	0	0	0
Eastern	SI	2	0	2	1	1	0	0	0	0
Eastern	BG	17	0	10	13	2	1	0	1	2
Eastern	RO	35	0	29	26	8	0	0	1	1
Eastern	HU	19	0	17	14	4	0	0	1	1
Southern	IT	83	0	66	58	12	8	1	4	13
Southern	HR	7	0	6	5	1	0	1	0	1
Southern	ES	73	0	61	47	13	8	1	4	13
Southern	PT	12	0	10	9	1	0	1	1	2
Southern	MT	1	0	1	0	1	0	0	0	0
Southern	CY	0	0	2	1	1	0	0	0	0
Southern	EL	14	0	8	12	0	0	1	1	2
Total	27	537	1	512	335	152	60	19	36	115

The chart below shows the number of FUAs according to population size, depending on their macro-region. Such information is useful to understand demography and morphology of European FUAs.



Similarly, it is was investigated how FUAs greater than 100.000 inhabitants are distributed among the EU. The information highligted that all MS have at least one FUA of that size, although the ratio among macro-regions depends inheritely from their demography and morphology.





[1] For the purpose of this analysis and to ensure consistency with Eurostat statistics, cities were defined according to the EC-OECD standards and clustered as urban centres, metropolitan cities and functional urban areas. https://ec.europa.eu/regional_policy/sources/docgener/focus/2012_01_city.pdf.

[2] Signatory cities pledge action to support implementation of the EU 40% greenhouse gas-reduction target by 2030 and the adoption of a joint approach to tackling mitigation and adaptation to climate change. Data retrieved from the European Covenant of Mayors for Climate and Energy website: https://www.eumayors.eu/about/covenant-community/signatories.html

[3] The award recognise cities that are leading the way with environmentally friendly urban living. Depending on the size of the city, the award is referred as Green Capital or Green Leaf. Data retrieved on 13/01/2021: https://ec.europa.eu/environment/europeangreencapital/about-the-award/

[4] The iCapital Award recognises city that can best demonstrate their ability to harness innovation to improve the lives of its citizens. The cities identified included urban sustainability actions. Data retrieved on 13/01/2012: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/prizes/icapital_en#what

[5] The initiative brings together cities to achieve intelligent, socially responsible and sustainable growth through advanced technologies. Data retrieved from the 100 Intelligent Cities Challenge website on 13/01/2021: https://www.intelligentcitieschallenge.eu/cities

[6] SUMPs are strategic plans designed to satisfy the mobility needs of people and businesses in cities for a better quality of life, reducing air and noise pollution, greenhouse gas emissions and energy consumption. Data retrieved from the Urban Mobility Observatory on 13/01/2021: https://www.eltis.org/mobility-plans/city-database;

[7] The 2016 Eurostat demographic data was integrated with online search in rare cases where data was not available. It is to be noticed that possible errors/inconsistencies do not affect the overall interpretation of the data.

[8] Data retrieved from the World Bank website on 13/01/2021: https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?name_desc=false

ANNEX VI - Contribution of Horizon 2020 projects to the objectives of the mission

Through the Horizon 2020 programme the EU invested with a total EU contribution of 3.1 billion euro in several big demonstration projects with an average EU contribution of EUR 10 to 15 million each, involving more than 400 cities in Europe and beyond. A large part of Horizon 2020 urban related funded projects (and a few FP7 projects) contributed through their activities to produce knowledge, technologies and solutions, thus advancing on targets which are key for the Horizon Europe Mission on Climate-neutral and Smart Cities such as achieving climate neutrality, innovative city planning, participatory governance, social innovation, urban integrated model of sustainable development and citizens' engagement. These projects promoted an integrated and systemic urban planning approach to climate change mitigation, adaptation and preparedness and improved urban health and well-being, while providing quantitative evidence base for decision makers, urban planners and practitioners.

The cities involved in these funded actions have achieved relevant targets that contributed to their preparedness towards transitioning to climate neutrality such as reduction of emissions, successful citizen engagement in the co-design of solutions, climate preparedness scenarios (e.g. for coastal cities), climate urban data for adaptation strategies, resource efficiency, development of sensors predicting CO2 emissions and NOX etc.

All the projects were carried out in real test sites in cities in a process of co-creation and co-implementation with their citizens of all ages, and delivered innovative and holistic solutions to address global challenges and up-scaled, replicated and deployed them in other cities at EU and international level.

In the area of **urban mobility,** projects contributed to:

1. significantly reducing harmful emissions and air pollution from transport;
2. improving quality of life by stimulating new behaviours and healthier lifestyles as cycling, jogging and walking;
3. Improving the environmental conditions, by proposing cleaner and more efficient transportation;
4. reducing traffic congestion, by lowering the number of private vehicles;
5. fostering social inclusion and innovation, by extending the public transportation to remote areas, improving connectivity;
6. creating new jobs and boosting economic growth, strengthening the competitiveness of European industry.

They also promoted citizens' engagement, involvement and social acceptance by giving a key role to users who define and are the main drivers for climate services, providing also knowledge (tools, methods, standards) and guidance to researchers and decision-makers for smart decisions to address impacts of climate change. They enhanced international cooperation aspects through launching of twinning actions between EU cities and urban regions and global organisations from around the world (e.g. US, South Korea, Australia, China, Japan, Singapore).

FP7 and H2020 projects of the CIVITAS Initiative helped cities as living labs to take an integrated and inclusive urban planning approach of all transport forms and ensure a high quality of urban space and sustainable and environment-friendly mobility to address climate change. Through these projects, the EC proposed that in Civitas cities by 2025, CO2 emissions from new vehicles should be 15% lower than 2019 and by 2030, these emissions should be at least 30% lower than 2019.

In the area of **Climate and water resilient smart and sustainable cities** several projects promoted innovative and systemic solutions that integrate technological, digital, cultural, social, financial innovations, having at the core of the approach solutions supported by nature. These solutions have been embedded in long term city planning and contribute to climate and water resilience, and provide social, environmental and economic benefits. They also deliver co-benefits such as improved

quality of life for all citizens, job creation, health and well-being. For instance, urban design including quality green spaces and waterways, provided inspiring solutions to major urban challenges, such as extreme weather events, flooding, heat stress, drought, poor air quality and create an attractive environment for citizens, visitors and investments. While creating awareness among citizens in the involved cities of the risks and of the need to create defences for the most damaging events, both in relation to temperature and flooding, these cities developed preventive scenarios and adaptive behaviours to build resilience to climate change. Other projects advanced the control of air quality and carbon emissions in European cities in the context of climate change, through passive air pollution remediation strategies actively involving citizens in the data gathering.

In the area of **Climate adaptation projects and urban health,** a number of projects focused on developing services and solutions to protect urban areas and traffic infrastructures that are linking such areas and are highly vulnerable to climate change. Activities ranged from integrating climate adaptation service tools for improving resilience measure efficiency, to providing operational cloud-based climate services to calculate and present the expected effects of climate change-induced and -amplified hazards at the level of risk, vulnerability and impact functions as well as translating the best available scientific urban climate data into relevant information for public and private end-users across a range of different sectors.

In the area of **coastal cities, regions and sea-level rise due to Climate Change, relevant** projects focused on developing co-design and co-implement climate services and social and economic scenarios for coastal adaptation to address damaging effects of sea-level rise on coastal pilot areas.

Through the **Smart Cities Marketplace** several lighthouse projects contributed to areas of interest for the Cities Mission ranging from e.g. developing a systemic approach for transforming European cities into sustainable, smart and resource-efficient urban environments and providing solutions that can be replicated throughout Europe in order to reduce energy demand and maximise renewable energy supply; retrofitting in buildings, integrating infrastructures, developing sustainable mobility and the intelligent use of Information and Communication Technologies; showcasing innovative solutions that integrate buildings with smart mobility and technologies to create energy; contribute to better preserve historic urban areas from hazards and risks, in particular from the effects of climate change.

The following tables provide a short overview of some of the projects funded in the areas mentioned above and the range of cities involved and benefitting from their activities.

Involved cities

1. Aachen
2. Karlsruhe
3. Mannheim
4. Rouen
5. Rennes
6. Trikala
7. Thessaloniki
8. Linköping
9. Tampere
10. BRNO
11. Turin
12. Lyon
13. Gothenburg
14. Bayonne
15. Helmond
16. Castejón
17. Gothenburg
18. Lyon
19. Senigallia
20. Koeln
21. Madrid
22. Utrecht
23. Den Haag Espoo
24. Brussels
25. Saragoza
26. Berlin
27. Santa Oliva
28. Graz
29. Frankfurt
30. Nairobi
31. Kingali
32. Hamburg
33. Santiago (Chile)
34. Ha Dong Vietnam)
35. Funchal
36. Bologna
37. Italy
38. Tallinn
39. Ultrecht
40. Gdansk
41. Bremen
42. Budapest
43. Barcelona
44. Curitiba
45. Hangzhou
46. Belo-Horizonte
47. Cochin
48. Leon
49. Guiyang
50. Kocaeli

Involved port cities

51. Stockholm
52. Madrid
53. Munich
54. Ruse
55. Turku
56. Constanta
57. Antwerp
58. Aberdeen
59. Trieste
60. Klaipeda
61. Aberdeen
62. Constanta
63. Trieste
64. Limassol
65. Valletta Region,
66. Madeira,
67. Elba
68. Las Palmas de Gran Canaria
69. Rethymno (Crete)

URBAN MOBILITY

Deployment of **electrified automated vehicles** (buses, trucks, vans)

H2020 SHOW project

Citizens' engagement Used by citizens of third age & people with disabilities (blind and elderly persons)

H2020 SHOW project

In all urban mobility projects H2020 cities twinning with cities in **US, South Korea, Australia, China, Japan, Singapore**

H2020 SOLUTIONSPlus project

e-mobility solutions for smart city mobility planning through interoperable, scalable high power charging (cost and energy efficient) infrastructures. CIVITAS DYN@MO project

Reduction of emissions thanks to deployment of a fleet of more than 70 SAE L4/L5 AVs of all types for passenger and cargo transport in dedicated lanes and mixed traffic, connected to a wide range of supporting infrastructure (5G, G5, IoT) and operating under traffic speeds ranging from 18 to over 50km/h. CiViTAS MIMOSA project

Madrid deployed 93 e-buses running in the city (project H2020 SolutionsPlus)

Hamburg deployed 50 e-scooter sharing system (co-funded by the project H2020 Solutions Plus and the city of Hamburg)

Development of sustainable urban mobility plans and **ports optimisation**

Impact on emissions reduction
by 2025, CO_2 emissions from new vehicles should be 15% lower than 2019 and by 2030, these emissions should be at least 30% lower than 2019.

URBAN MOBILITY

Citizens' engagement and societal acceptance Constanta organised several Mobility Forums to raise awareness of clean mobility solutions (e.g. H2020 project Portis-optimisation of mobility in port cities).

Urban mobility in port cities (e.g. **Antwerp)** was optimised with reduced motorized road movements (H2020 Portis) and port cities involved became more accessible and liveable (e.g.CIVITAS Projects ECCENTRIC, PORTIS, DESTINATIONS)

Port cities became accessible and liveable e.g. Antwerp, with reduced motorized road movements.

Involved cities

1. Stockholm
2. Madrid
3. Linz
4. Napoli
5. Antwerp
6. Barcelona
7. Bern
8. London
9. Rome
10. Vienna

Climate adaptation

Operational cloud-based climate services to calculate the expected effects of CC-induced and -amplified hazards at risk level and vulnerability (H2020 CLARITY).

Produced urban flood hazard maps for the involved cities, showing how each building, street or neighbourhood would be affected by the possible scenarios.

Barcelona Public Health Agency, created a spatially detailed socio-demographic overview of the effect of heat on their citizens.

Emergency Planning Services improved through (H2020 Climate-fit.City project) using the most reliable climate data available to predict changes in the frequency of extreme rain storms and pluvial floods.

H2020 Climate-fit.City has translated the best available scientific urban climate data into information for public and private end-users operating in **Antwerp, Barcelona, Bern, London, Rome, Vienna** across a range of different sectors.

Coastal cities (sea-level rise)

1. Bremen
2. Leeds
3. Bristol
4. Newcastle
5. UNI of Swansea,
6. UNI of Zurich,
7. UNI of Delft
8. CNRS
9. UNI of Liège
10. Ministry of ENV of Maldives
11. Education Institute of Greenland
12. Kings College London

H2020 PROTECT project promoted Sea-Level Rise (SLR) projections, coastal cities planning, and preparedness to address climate change effects.

H2020 PROTECT trained and brought together sea-level scientists, coastal urban planners, climatologists, municipality officers and citizens to co-design preparedness scenarios.

Citizens engagements: In the listed cities citizens, scientists, urban planners and authorities were engaged to co-design and co-implement climate services and social and economic scenarios to address damaging effects of sea-level rise on coastal pilot areas in France, Netherlands, Greenland and Maldives.

Involved cities

1. Manchester
2. Valencia
3. Brest
4. Wroclaw
5. Modena
6. Zadar
7. Wuhan
8. Valladolid
9. Liverpool
10. Mantova
11. Ludwigsburg
12. Aalborg
13. Bari
14. Bragança
15. Hegyvidék
16. Ioannina
17. Castelfranco Veneto
18. Esposende
19. Kladno
20. Lviv
21. Praia
22. Murcia
23. Oslo
24. Monterosso
25. Almo
26. Santa Pola
27. Tampere
28. Thessaloniki
29. Umea
30. Kladno
31. Athens
32. Vienna
33. Milano
34. Luxembourg
35. Nantes
36. Bologna
37. Bottrop
38. Dublin
39. Guildford
40. Hasselt
41. Vantaa
42. Bristol
43. Amsterdam
44. Ljubljana
45. Sosnowiec
46. Aveiro
47. Liguria
48. Genoa

Climate and Water Resilience

H2020 UrbanGreenup project created in the involved cities community spaces (urban gardens), green streets, shadings at tram stops, for the local people to socialise, and address heat waves.

Developed preventive scenarios and adaptive behaviours to build climate resilience and mitigate risk from flooding, heat stress, and pollution of waterbodies from combined sewer overflows (H2020 Grow Green project)

Vienna renovated public and private buildings using green façades to isolate buildings and supported pilot energy efficient private hotels ('Green hotels') towards energy positive buildings.

Manchester combined grey and green infrastructures and addressed risks from flooding in neighbourhoods near the city centre through storing rain and storm water and allowing it to soak into the ground, (H2020GrowGreen). Solutions adopted are multi–stakeholder, citizen co-designed, co-implemented practices.

In **Valencia a** mobile app helps local people to learn about innovative long-term planning, combining technological, digital, social, cultural and nature-based innovations. Valencia managed to rehabilitate gardens and urban forests, addressed heat waves, and achieved temperature regulation.

CLAIRCITY evaluated the approaches Cities take to Emission Footprints and City Carbon Initiatives with focus on middle sized European cities. H2020 iScape achieved control of air quality and carbon emissions in involved cities, through passive air pollution remediation strategies.

'Smart Citizen kit and Station' monitoring system and multiple sensors were developed to measure air pollutants and help citizens gather advanced air pollution data.

New storm water service regulations support the use of these combined measures grey & green solutions to **Brest**'s pilot projects to test how nature-based solutions can manage storm water and risk flooding (e.g. in the Kertatupage park that achieved urban biodiversity, new pathways and recreational access to citizens- H2020 GrowGreen).

Wroclaw addressed the summer heat waves (Olbin district- a dense urban area ranging from wealthy to socially deprived ones). A series of courtyards (swales and raingardens) between tenement buildings have been redesigned and renovated.

The above cities managed to address unemployment, motivate ageing population and renovate deteriorating infrastructure. Solutions were replicated in **China (Chengdu, Wuhan) and Colombia (Medellin), Izmir (Turkey), Sao Paolo (Brazil).**

In **Hasselt** citizens' behavioural changes were analysed by providing a dedicated app to a population sample to observe their travel patterns. The intervention included offering customised information to participants in relation to their exposure to pollutants, contribution in CO2 emissions and physical activity level.

Lighthouse projects-Smart Cities Marketplace

H2020 lighthouse project SmartEnCity developed systemic solutions for transforming European cities into sustainable, smart and resource-efficient, reduced energy demand, maximised renewable energy supply and replicated these solutions in other cities

1. **Vitoria-Gasteiz**
2. **Tartu Sonderborg**
3. **Lecce**
4. **Asenovgrad**
5. **Veszprem**
6. **Ostfildern**
7. **Stuttgart**
8. **Barcelona**
9. **Turin**
10. **Amsterdam**
11. **Bilbao**
12. **Bratislava**
13. **Budapest**
14. **Copenhagen**
15. **Krakow**
16. **Matosinhos**
17. **Riga**

Retrofitting of about 2,500 dwellings and over 165,000 m2 and benefits for 29,300 inhabitants and energy savings of about 30,000,000 kWh/y. For climate change mitigation the CO2 reduction of 19,000 Tn/y, use of renewable energy sources for heating, smart lighting concepts and innovative strategies for sustainable mobility (electric vehicles, bike and car sharing, biogas buses etc.)

H2020 SmartEnCity solutions were replicated in **Pervomaisk (Ukraine), Odessa Ukraine), Chortkiv (Ukraine), Tirana (Albania), Valga (Esthonia).**

Lighthouse demonstrators in **Vitoria-Gasteiz (Spain), Tartu (Estonia) and Sonderborg (Denmark)** and solutions were replicated in **Lecce (Italy), and Asenovgrad (Bulgaria).**

H2020 ATELIER generated in the project demonstrator cities an energy surplus of 1340 MWh of primary energy and **saved 1,7 kt of CO2 and 23 t of NOx-emissions.**

Energy Efficiency

1. Santiago de Compostela
2. Valencia
3. Rotterdam
4. Antwerp
5. Warsaw
6. Stockholm
7. Visby
8. Genoa

Improved energy efficiency and indoor climate in historic buildings. (FP7 EFFESUS) developed a "retrofit Investment Calculator" at Santiago de Compostela (PT) demonstrating that sufficient resources generate renewable energy for the whole city and provide 100% renewable energy to the historic centre. A retained surplus in 10 years could repay loans and investors.

EFFESUS Decision support system designed for urban planners, architects, engineers, proposed achieved a reduction of energy demand of 45% up to 72% for heritage protection degree 3-4.

EFFESUS Decision support system achieved a **reduction of CO2 emission of 91%** up to 95% for heritage protection degrees 3-4; savings of around 2.4 MIL € with regard to the total project cost .

ECODISTR-ICT & FASUDIR & CETIEB projects designed decision support tools at district level to improve energy efficiency in historic districts (since 1945), ensuring adequate indoor quality in retrofitted energy efficient buildings at **Valencia, Rotterdam, Antwerp, Warsaw, Stockholm.**

The positive impact in urban design and renovation of historic cities was demonstrated by EFFESUS through the development of a Decision Support System (DSS) implemented in **Santiago de Compostela, Visby and Genoa.**

ANNEX VII - Citizens engagement

The European Green Deal advocates for **public participation and "leaving no one behind"** as central parts of the EU's commitment to climate neutrality. It calls for meaningful and inclusive participation in terms of community perspectives and interests, accounting for difference in terms of gender, age and income, and including marginalised populations, in order to ensure **fair decision-making**.
Since the earlier stages of its design, the Mission aimed to strengthen and capitalise on the unique position of cities as the level of government that is closest to the citizens. Provisions are made for the **engagement of citizens throughout the mission policy cycle**, from the conceptualisation of the climate city contract, to its implementation and impact assessment.

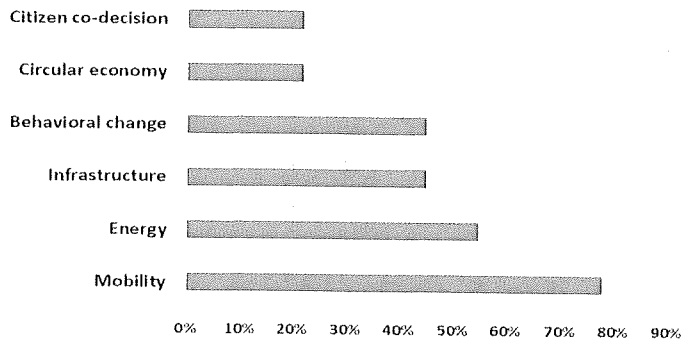
Citizen engagement events in support of mission design

As a preparatory step in this direction, the Commission organised **12 citizen engagement events across Europe** over a seven-month period, with the participation of Mission Board or Assembly members. Kick-started with a physical meeting in Cluj, Romania on 4 March 2019, the process continued mainly online until 16 September 2020. This timeline allowed for the findings to be reflected in the mission proposal delivered by the Mission Board on 22 September 2020.

CITIZEN ENGAGEMENT EVENTS

	Member State	City	Date	Format	Language
1	Romania	Cluj	4 March 2020	On-site	RO
2	Finland	Espoo	24 March 2020	Microsoft Teams	FI
3	Spain	Madrid	29 April 2020	Zoom + YouTube	ES
4	Estonia	Tartu	May 2020	Online survey	EE
5	Romania	Iasi	8 May 2020	Cisco WebEx	RO
6	Netherlands	Groningen	19 May 2020	Microsoft Teams	NL
7	France	Lille	28 May 2020	Cisco WebEx	FR
8	Italy	Venice	24 June 2020	Cisco WebEx	IT
9	Youth (EU-wide)	n/a	30 June 2020	Zoom	EN
10	Belgium	Brussels	10 September 2020	On-site	EN
11	Poland	Gdansk	11 September 2020	Zoom	PL
12	France	Le Havre	16 September 2020	Zoom	FR

The events gathered selected or random participants in an attempt to have **representative samples** across geographical, gender, age and professional categories. They featured **identical questions** about the key priorities of the participants for making their respective cities climate-neutral by 2030. The three most frequent answers per city were collected, allowing for a broad overview of people's most frequent top priorities (see figure below).



The events also served to **present and test the validity of the mission concept**, which was positively received across the board. In addition, they showcased that, despite social, political, ideological and cultural divides, climate action has the potential for an uplifting common goal that will bring everyone at the discussion table.
Therefore, the Cities Mission can not only **maintain and push forward a citizen-climate momentum**, but also **address democratic deficit**. It has the potential to signal civic respect, make local

governance more inclusive, and allow greater legitimacy to make hard choices, thereby enhancing trust in local authorities and by extension in the European institution. The Mission will also help **counteract disinformation** in the public in relation to climate change.

Citizen engagement in the mission process

The mission proposal is built around the involvement of citizens in their different roles as political agents, users, producers, consumers or visitors. In these capacities, citizens have a huge impact on the environment and climate, and they can take an active role to drive the transition to climate neutrality as co-designers, co-implementers and co-beneficiaries.

The cities that will commit to the objectives of the mission will need to commit equally to include citizens in their local governance model.

- during the **inception phase,** i.e. reparation of the Climate City Contracts, cities will prove their readiness to engage citizens on local decisions policies related to climate and will have already taken into account the citizens' feedback in their climate strategy;

- during the **deployment phase**, regardless of their level of preparedness, cities will implement citizen engagement activities for the roll-out of the Climate City Contract and will be evaluated against a specific inclusiveness criteria, with the support of JRC.

Support for cities on citizen engagement

The one-stop-shop mission platform will provide support to cities from the early stages of citizen engagement. Additional support will be provided through the activities of the Horizon 2020 European Green Deal platform under topic *LC-GD-10-3-2020: Enabling citizens to act on climate change, for sustainable development and environmental protection through education, citizen science, observation initiatives, and civic engagement*. Expertise will also be available via the framework of the EU Community of Practice on Cities[47].

Citizen engagement on climate action could also be achieved through innovative instruments such as the "climate alliances" in the city or through the European Climate Pact. Best practices will be widely shared of cities that have already engaged with their communities[48] to enable and empower them to take action towards a climate-neutral and climate-resilient society. Cities will also benefit from solutions for citizen engagement developed under the Horizon 2020 cluster on Science with and for Society (SwafS)[49].

[47] https://ec.europa.eu/jrc/communities/en/community/cop-cities

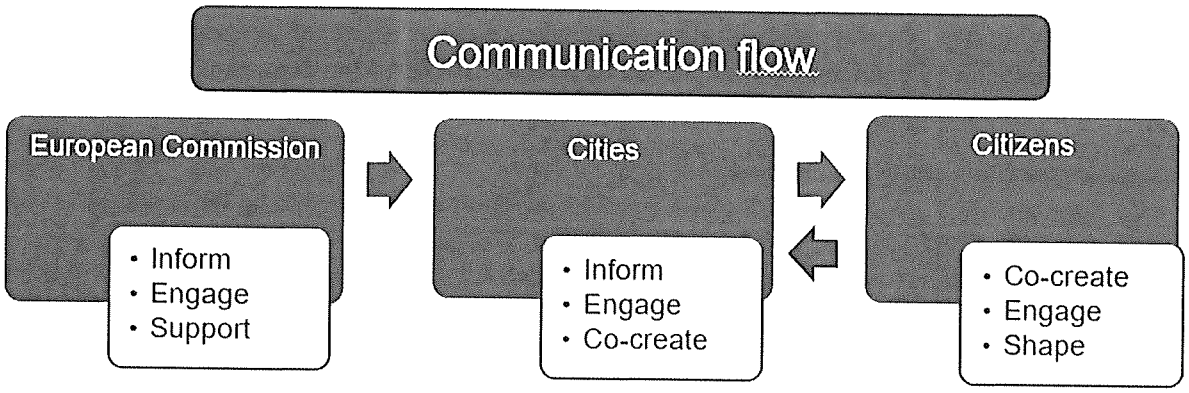
[48] Examples include the Leuven2030 initiative and the Ostbelgien Model.

[49] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society. For instance, project CIMULACT ran national "vision workshops" with over 1,000 participants all over Europe.

ANNEX VIII - Communication

Overall purpose

- To inform, engage and support cities in their endeavour to join the Mission
- To support cities to inform, engage and co-create with their citizens
- To actively involve citizens in their cities' development towards climate neutrality
- To make relevant information about the Mission easily available to all stakeholders
- To transparently communicate about the Cities Mission as a European Commission activity contributing to the European Green Deal objectives



Phase 1 – Call for expression of interest

At the launch of the Mission, the publication of the call for expression of interest will be accompanied by a communication strategy aiming to reach as many cities as possible across the EU. Cities will be informed of the opportunity, benefits, and process to express their interest in joining the Mission.

Outreach activities to inform cities of the opportunity of the call for expression of interest will be channelled via known multipliers, such as associations and networks of cities, as well as through existing bilateral relationships and communications channels.

This way, the greatest possible visibility, transparency and inclusivity can be achieved, eventually leading to a diverse pool of applicant cities.

Phase 2 – Creation of Climate City Contract

One of the specificities of the Cities Mission is that citizens, local and national authorities and relevant stakeholders, as well as the European Commission, work together to define tailor-made pathways for cities to become climate neutral.

During the phase of co-creation of the Climate City Contract, support will be provided to cities to reinforce both communication and citizens engagement activities, via the one-stop shop Mission platform.

This will lead to cities being able to inform, engage and co-create the Climate City Contract, together with it its citizens.

Phase 3 – Implementation of Climate City Contract

During the implementation of the Climate City Contract, cities, local and national authorities, and other stakeholders will take on the responsibility of primary communicators about the Mission. This will allow the genuine engagement of citizens within their respective cities, building sustained co-creation and engagement to shape cities' developments towards climate neutrality.

Public-facing Mission elements such as the "Mission label" will contribute to building a lasting understanding of the Mission as a cohesive European Commission activity contributing directly to the well-being of people in the EU.

The European Commission will continue to transparently inform stakeholders and the interested public about the progress of the Mission and its contribution to achieving the objectives of the European Green Deal.

ANNEX IX - Cities missions and Recovery and Resilience Plans

The national Recovery and Resilience Plans (RPRs) represent a great potential for implementing EU missions, due to their significant investments. At the same time, by committing to solve some of the greatest societal challenges missions offer directionality to spend RRF funds to help EU Member States "build back better". Not only R&I related investments can contribute to achieving the missions' objectives. Other types of investments such as infrastructural, educational, or deployment-related investments will serve that same aim.
A preliminary analysis of the content of the available national RRF plans and types of R&I and other mission-relevant investments per Member State is provided in the table below.

EU-MS	Topic of Investment/ Reform	Type of investment	Volume
AT	Renovation offensive: Ban on oil boiler eating, Promoting the exchange of oil and gas heating systems, Combating energy poverty Clean Transport: Mobility Masters Plan 2030 Introduction of the 123 climate tickets Promoting zero-emission buses and infrastructure Promotion of zero-emission vehicles and infrastructure	(infra)structure investment	EUR 25.000 average project vol. EUR 1921 million for the whole clean transport component EUR 450 million for the whole renovation offensive
BE	Renovation of buildings: Social housing renovation, Residential & private renovations, Public building renovations, Renovation Laboratory Cycling and walking infrastructure Modal shift in mobility Green road transport Circular construction and manufacturing	(infra)structure investment	cost overall: EUR 3.122 million EUR 1.154 million EUR 861 million EUR 698 million
BG	Low-carbon economy: Energy efficiency in building stock, Financing programme for single energy efficiency measures in single-dwelling buildings and multi-apartment buildings not connected to heat and gas networks Update of the strategic framework of the transport sector	(infra)structure investment	BGN 2 165.6 million BGN 33.3 million
CY	Upgrading renewable energy and smart grids testing infrastructure at the University of Cyprus	R&I, infrastructure investment	
CZ	Support for research and development in the field of transport	R&I investment	CZK 150 m
DE	Climate-friendly construction and renovation: Energy efficiency, building renovation, climate action, resource efficiency, circular economy, energy research, renewable heat Climate-friendly mobility: Climate policy and energy transition, environment policy, transport policy, taxation policy, economic policy	(infra)structure investment	Between EUR 20-2500 million per investment Between EUR 75-2500 million per investment

DK	Green fuels for transport and industry	(infra)structure investment	
EE	Energy efficiency of buildings Sustainable transport: Municipal investments in safe Cycling paths	(infra)structure investment	overall VOLUME: EUR 47,15 million
EL	Smart cities & digital transformation for municipalities	(infra)structure investment	200 EUR million
ES	Implementation of the Spanish Urban Agenda: Urban Rehabilitation and Regeneration Plan Electricity infrastructure, promotion of smart grids and deployment of flexibility and storage	Smart grids	Between EUR 20-3420 million per investment
FI	Environmental impact of the building stock: Development of legislation governing construction, with low-carbon construction and a digital knowledge base, Investment plan for the real estate and construction sector to address climate change challenges Natural solutions for communities and transport: Promoting the substitution of fossil fuels by supporting public infrastructure for the distribution and refuelling of transport electricity and biogas, Promoting the substitution of fossil fuels by supporting private charging infrastructure in house companies and workplaces	(infra)structure investment	EUR 40 million EUR 20 million EUR 20 million
FR	Energy retrofitting: Reform of the housing policy, Energy renovation of private housing Infrastructure and green mobility	(infra)structure investment	In total 6,7 Md€ In total 8,8 Md€
HR	Energy transition for a sustainable economy: Revitalising, building and digitising the energy system and supporting infrastructure to decarbonise the energy sector Development of a competitive, energy sustainable and efficient transport system: Improving public transport systems, Modernisation of tram infrastructure, Research, development and production of new mobility vehicles and supporting infrastructure for alternative fuels in road transport	(infra)structure investment	HRK 4 471 412 500 HRK 450 000000 HRK 1 545 000 000
HU	Sustainable green transport	(infra)structure investment	HUF 2000.1 billion
IE	Regional cities regional rail investment programme	(infra)structure investment	€472 million all regions combined
LU	Decarbonisation of transport Sustainable buildings	(infra)structure investment	EUR 40 million EUR 30 million
LV	Greening of the Riga metropolitan area transport system Improving energy efficiency	(infra)structure investment	295 482 000 EUR Between EUR 29-80 million per investment
MT	Addressing carbon-neutrality by decarbonising	(infra)structure	

	transport: Promoting further use of collective road public transport, Decarbonising the public service fleet.	investment	
PL	Increasing the use of environmentally friendly transport	(infra)structure investment	
	Supporting industry for a low-carbon economy		EUR 1,164 million
	Zero-emission collective transport		EUR 1,031 million
	Efficiency of residential buildings		EUR 3,201 million
	Development of transmission networks, smart electricity infrastructure		EUR 329 million
PT	Transport Ecosystem Reform	(infra)structure investment	
	Long Term Strategy for Building Renewal		

ANNEX X - Overview of EU R&I instruments and initiatives relevant for the Cities Mission

Colour code:
Green – initiative outputs considered to have potential to directly support mission objective. Suggest to explore whether to reference in the synergies/added value section of implementation plan.
Orange – Initiative outputs considered to have indirect links with mission objectives or outputs considered as ar enabler for mission(s). To be considered, but most likely no need to include in implementation plans.

	Cities Mission
EIT KICs	
EIT Digital KIC	
EIT CLIMATE KIC	
EIT Inno-Energy KIC	
EIT Heath KIC	
EIT Raw Materials KIC	
EIT Food KIC	
EIT Urban mobility KIC	
EIT Manufacturing	

	Cities Mission
Industry Alliance	
Circular Plastics Industrial Alliance	
Batteries Industrial Alliance	
Clean Hydrogen Industry Alliance	
Raw Materials Industry Alliance	
Low carbon industries Industry Alliance	
Industrial data and cloud Industry Alliance	

	Cities Mission
IPCEI	
Micro-electronics IPCEI	
Battery value chain IPCEI	
Hydrogen IPCEI	

	Cities Mission
EIPs	
EIP Agriculture	
EIP Smart Cities	
EIP Raw Materials	
EIP Healthy and active ageing	
EIP Water	
(discontinued)	

	Cities Mission
Horizon Europe Partnerships	
EDCTP 3	
Innovative Health Initiative	
Risk assessment for chemicals	
ERA for health	
Transformation of health care systems	
Personalised medicine	
Rare diseases	
One health – Antimicrobial resistance	
High performance computing	
Key digital technologies	
Smart networks and services	
AI, data and robotics	
Photonics	
Clean steel	
European metrology	
Made in Europe	
Processes4Planet	
Globally competitive space systems	
Europe's rail	
Single European Sky Air Traffic Management	
Clean aviation	
Clean hydrogen	
People centric sustainable built environment	
Towards zero emission road transport	
Connected and automated mobility	
Zero emissions waterborne transport	
Batteries industrial value chain	
Driving urban transitions to a sustainable future	
Clean energy transition	
Accelerating farming systems transition	
Animal health and welfare	
Agriculture of data	
Rescuing biodiversity to safeguard life on earth	
Climate neutral sustainable and productive blue economy	
Safe and sustainable food systems	
Circular bio-based Europe	
Water4all	
Pandemic preparedness	
European Open Science Cloud	
Innovative SMEs	

ANNEX XI - Definition of climate neutrality

Introduction

The Horizon Europe climate neutral cities mission (short mission) aims for 100 climate neutral cities by 2030. This requires a clear definition of climate neutrality and when a city can claim having achieved climate neutrality. While high-level definitions of climate neutrality exist, these need to be applied to the urban context. At this point no unanimously agreed definition exists of what climate neutrality means for a city.

Climate neutrality in the international and EU policy context

In order to limit global warming to 1.5 degrees Celsius, the Intergovernmental Panel for Climate Change (IPCC) emphasises that it is essential to reach carbon neutrality by the middle of the 21st century. The Paris Agreement, signed by 195 countries, including the EU, enshrines this target.

In 2018, the European Commission set out a vision of how to achieve climate neutrality by 2050. In December 2019, the European Commission presented the European Green Deal, its flagship plan that aims to make Europe climate neutral by 2050. The EU Climate Law, as part of the Green Deal, will enshrine the 2050 objective in EU legislation.

How is climate neutrality defined in the main policy context?

Climate neutrality is a rather new concept which is still evolving. Different definitions or concepts may have different implications in practice. As with the "net-zero emissions" wording, for which the IPCC is currently working on a definition, there is no definitive agreement on how these targets are put into practice. The major differences in the definition of neutrality can lead to very different climate ambitions and action (considering different gases, scopes and sectors). "Two net-zero commitments can be dramatically different, aiming for different timelines, covering different kinds of GHG emissions, and relying on offsets to varying extents." (NewClimate Institute, 2020)

Also, several terms are simultaneously used at the international/European level, including "carbon neutrality", "climate neutrality" as well as "zero carbon" and "net-zero". Despite their different implications in practice, these terms are often used interchangeably.

International definitions

This section reviews the main definitions of key terms which are relevant when discussing climate neutrality.

Box 1. Climate neutrality defined by the IPCC

"Concept of a state in which human activities result in no net effect on the climate system. Achieving such a state would require balancing of residual emissions with emission (carbon dioxide) removal as well as accounting for regional or local biogeophysical effects of human activities that, for example, affect surface albedo or local climate."

Source: IPCC, 2018

This is a general definition which has to be further specified to be applicable to an urban environment, i.e. what this means if applied within a city boundary.

Box 2. Other definitions from the IPCC, relevant for the concept of climate neutrality

Negative emissions: Removal of greenhouse gases (GHGs) from the atmosphere by deliberate human activities, i.e., in addition to the removal that would occur via natural carbon cycle processes.

Net zero CO2 emissions: Net zero carbon dioxide (CO2) emissions are achieved when anthropogenic CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period. Net zero CO2 emissions are also referred to as carbon neutrality.

Net zero emissions: Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).

Sink: A reservoir (natural or human, in soil, ocean, and plants) where a greenhouse gas, an aerosol or a precursor of a greenhouse gas is stored.

Source: IPCC, 2018

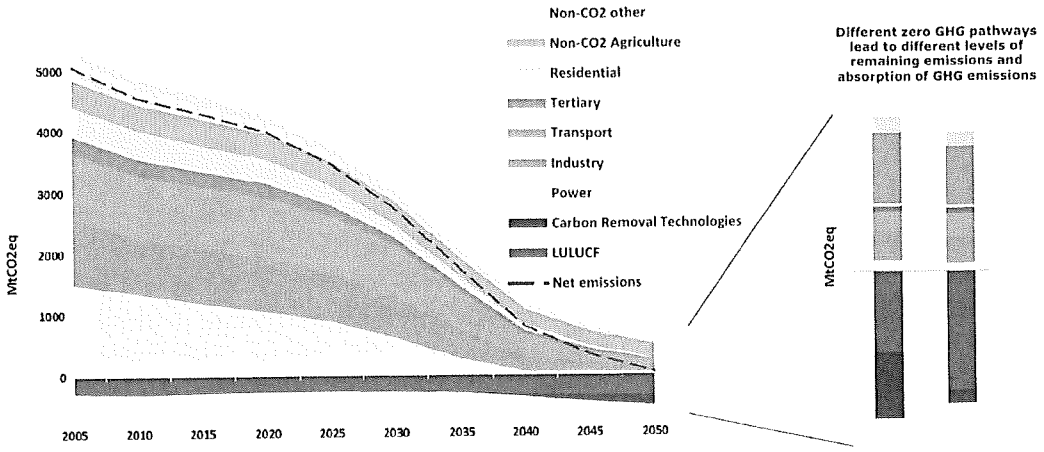
EU definitions

At EU level, the key documents presenting a vision and subsequently stating a commitment to climate neutrality are the Communication "A Clean Planet for all"[50], the "European Green Deal"[51] and, ultimately, the proposal for a regulation on a "European Climate Law"[52].

The **Communication "A Clean Planet for all"** from the European Commission (often referred to as the "long-term decarbonisation strategy") confirms Europe's commitment to lead in global climate action and presents a vision that can lead to achieving **net-zero greenhouse gas emissions by 2050** through a socially-fair transition in a cost-efficient manner. The in-depth analysis underpinning the long-term decarbonisation strategy presents eight different scenarios, all compatible with the Paris Agreement, that are based on different levels of ambition in terms of GHG emission reduction. Five of them push on different technology options (e.g. high electrification, high deployment of hydrogen), while three look at the combination of technologies and actions. Two out of the eight scenarios explore explicitly the interactions between technologies to assess how to reach greenhouse gas neutrality by 2050 and net negative emissions thereafter (***Figure 1***). In these two scenarios, called 1.5TECH and 1.5LIFE, remaining emissions that cannot be abated by 2050 need to be balanced out with negative emissions, including from the LULUCF[53] sink. The 1.5TECH scenario aims to further increase the contribution of all the technology options, and relies more heavily on the deployment of biomass associated with carbon capture and storage (BECCS). The 1.5LIFE scenario assesses the impact of a highly circular economy and of a change in consumer choices that are less carbon intensive. It also explores how to strengthen the land use sink.

Figure 1. GHG emissions trajectory in a 1.5°C scenario. Bars represent emissions in the two scenarios reaching net zero emissions in 2050.

[50] COM(2018)773 final
[51] COM(2019) 640 final
[52] COM(2020) 80 final
[53] Land use, land-use change and forestry



Source: Communication "A Clean Planet for all" – COM(2018)773

Following the Communication from the Commission, both the European Parliament (through its resolution of 14 March 2019 on climate change[54]) and the European Council (in its conclusions of 12 December 2019) endorsed the long-term EU climate-neutrality objective.

In the **"European Green Deal" Communication**, the Commission states the ambition *"[...] to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are **no net emissions of greenhouse gases in 2050** and where economic growth is decoupled from resource use"*. The Communication also announced the intention of the Commission to propose the first "European Climate Law", which would enshrine the 2050 climate neutrality objective in legislation.

The proposal for a **"European Climate Law"**, in Article 2, states the following climate neutrality objective: *"Union-wide emissions and removals of greenhouse gases regulated in Union law shall be balanced at the latest by 2050, thus reducing emissions to net zero by that date."* The explanatory memorandum accompanying the proposal states that *"This urgent challenge[55] calls for the EU to step up its action to show global leadership by becoming climate-neutral by 2050, covering all sectors of the economy and compensating, by 2050, not only any remaining CO2 but also any other remaining greenhouse gas emissions, as set out in the Communication 'A Clean Planet for all- A European strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy' and as confirmed by the 'European Green Deal' Communication."*

Box 3. EU climate neutrality definition (from recital 12 of the European Climate Law proposal)

The Union should aim to achieve a balance between anthropogenic economy-wide emissions and removals, through natural and technological solutions, of greenhouse gases domestically within the Union by 2050. [...]

The EU 2050 climate-neutrality objective covers **all sectors and all greenhouse gases** - not only CO2-, **and has to be achieved domestically within the Union**. While the priority is put on avoiding GHG emissions at source, removals of GHG will be needed to compensate for remaining GHG from sectors where decarbonisation is the most challenging. The **natural sinks should be maintained and further increased** and **carbon removal technologies**, such as carbon capture and storage and carbon capture and utilisation, **should be made cost-effective and deployed**.

[54] European Parliament resolution of 14 March 2019 on climate change (2019/2582(RSP))

[55] i.e. limiting temperature increase to 1.5 °C

What does the Mission Board report suggest?

The Mission Board report specifies the following goal as end-point against which the success of the mission will be measured: "Carbon neutrality, namely mitigating and offsetting all GHG (in CO2-eq) within a city is the target of the mission. The timelines of participating cities should converge to achieve this target by 2030, thus paving the road for a wider transformation in European urban areas and Europe in general by 2050." The level of allowable offsetting is left open, i.e. the report suggests that "a maximum percentage of offsetting will be later defined since the objective of the mission is to encourage real energy efficiency, transition and transformation and not accounting of emissions via certificates." To be more precise in the use of terminology and to reflect the mission title, it could further be suggested to replace the notion of carbon neutrality by climate neutrality in the overall goal definition (while certainly non-CO2 GHG emissions in EU cities are rather minor compared to CO2 emissions).

The report further suggests, based on the GPC methodology outlined below, to only consider scope 1 and 2 emissions within the 2030 timeline, and to start considering scope 3 emissions as of 2030. It also recommends excluding emissions from installations that fall under the EU emissions trading system (EU ETS).

From the emission reporting from cities under the Covenant of Mayors it can be roughly estimated that scope 1 and 2 emissions account on average for approximatively 60% of the actual GHG emissions occurring in cities (excluding large point sources covered by the EU ETS). It has to be noted that following this definition, a city can be considered climate neutral while for example still emitting via large point sources covered by the EU ETS (which do not form part of the inventory boundary) and causing emissions from sectors/sub-sectors not included in the target boundary (scope 3 emissions, i.e. GHG emissions that occur outside the city boundary as a result of activities taking place within the city).

Box 4. Indicators proposed by the Mission Board report

1. 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.

2. Scope 2 GHG emissions for the city (mandatory from the beginning of the mission). This indicator will be calculated based on the emissions from indirect emissions due to production/consumption of grid-supplied electricity within the geographic boundary and indirect emissions due to production/consumption of grid-supplied heat or cold within the geographic boundary.

3. Scope 3 GHG emissions for the city (recommended, to be adopted by 2030). This indicator will 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.

Source: Mission Board report (https://ec.europa.eu/info/publications/100-climate-neutral-cities-2030-and-citizens_en)

With reference to the definition of scope 2 provided by the Mission Board report, it should be noted that emissions from energy generation (production) should not be included therein. Scope 2 emissions refer to GHG emissions occurring as a consequence of the use of grid-supplied electricity, heat, steam and/or cooling within the city boundary. Including emissions from energy generation

would lead to double counting. Energy use in energy industries are included under scope 1 emissions.

Which definition is applied by other initiatives?

Several initiatives and campaigns emerging globally and in Europe in recent years focus their commitment and action on reaching climate neutrality, including in cities. This section illustrates in a few examples how climate neutrality is defined in these contexts.

C40

C40 is a network of the world's megacities committed to addressing climate change. It supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change. In its 2019 guidance on carbon neutrality in cities, C40 proposes the following definition of a 'carbon neutral' or 'emissions neutral' city:

"A city that has achieved and demonstrated in a given year (as a minimum):

- Net-zero greenhouse gas emissions from fuel use in buildings, transport, and industry (scope 1);
- Net-zero greenhouse gas emissions from the use of grid-supplied energy (scope 2);
- Net-zero greenhouse gas emissions from the treatment of waste generated within the city boundary (scope 1 and 3), and
- Where a city accounts for additional sectoral emissions in their GHG accounting boundary, net zero greenhouse gas emissions from all additional sectors in the GHG accounting boundary.

Alternatively, for cities that account for emissions using a consumption-based approach[56], a 'carbon neutral city' will have achieved and demonstrated net-zero greenhouse gas emissions from all sectors in the GHG accounting boundary." (C40, 2019)

To correctly interpret the fourth bullet above, it has to be specified that each city's emissions inventory "should include a quantification of emissions sources that are significant in the city. In most cities, this will include as a minimum stationary energy, transport, and waste. In some cities, agriculture, forestry, and other land use (AFOLU), or industrial process and product use (IPPU) may be significant too." (C40, 2019)

The main difference to the definition applied by the Mission Board lies in the inclusion of emissions from the treatment of waste generated within the city boundary (irrespective of whether the treatment takes place within or outside the city boundaries).

The definition outlined by C40 and quoted above is defined as the minimum ambition required for carbon neutrality. The guidance further specifies that "Where feasible, the definition of carbon neutrality should also include minimised greenhouse gas emissions occurring outside the city's geographic boundary because of goods and services consumed by city residents, businesses and government (scope 3)."

In a study undertaken for 79 global C40 member cities, it was concluded that scope 3 emissions account for about 40% of those cities' overall emissions (Wiedmann et al., 2020). It can be noted that the inclusion of scope 3 emissions adds complexity, the calculation of scope 3 emissions remains challenging and there are compatibility issues with the current IPCC accounting.

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[56] Consumption-based accounting "captures direct and life cycle GHG emissions for all goods and services consumed by residents of a city, i.e. GHG emissions are allocated to the final consumers of goods and services, rather than the original producers of those GHG emissions" (BSI, 2013; Harris et al. 2020).

Race to Zero

Race To Zero is a global campaign to rally leadership and support from businesses, cities, regions, investors for a healthy, resilient, zero carbon recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth. Participating cities commit to adopting a science-based emission reduction target consistent with constraining global temperature rise to 1.5°C, including a fair share of a 50% global reduction in emissions by 2030 and reaching zero carbon by 2050.

As outlined in the science-based climate targets guide for cities (Nov. 2020), a city level climate target can be considered science-based if it is in line with the goals of the Paris Agreement and Special Report on Global Warming of 1.5 °C. According to this approach, a city needs to set a target that encompasses the required emission reduction pathway to achieve climate neutrality by 2050 or at an earlier stage.

Science-based climate targets should adhere to the following principles: they must be science-driven, equitable, and complete. Complete in this context means that these targets are robust and comprehensive, taking into account city-wide emissions from a variety of sources but at least scopes 1 and 2 and all GHGs.

Sweden – Viable cities program

In 2017 Sweden adopted a new climate policy framework, consisting of a climate act, climate targets and a climate policy council. The long-term target for Sweden is zero net greenhouse gas emissions by 2045 at the latest. After 2045 Sweden is to achieve negative net emissions. Achieving zero net emissions of greenhouse gases means that the emissions of greenhouse gases from activities in Sweden shall be at least 85 per cent lower in 2045 compared to 1990. The remaining reductions down to zero can be achieved through supplementary measures, such as: increased uptake of carbon dioxide by forests as the result of additional measures; verified emission reductions carried out outside the Swedish borders; and carbon capture and storage based on the combustion of biomass (BECCS). Such measures can also contribute to negative net emissions after 2045.

One flagship programme, Viable Cities, is a strategic innovation programme focusing on climate-neutral and sustainable cities with the mission to accelerate the transition to climate-neutral cities by 2030. A definition of climate neutrality that is applied in this programme could not be identified at this point, but it can be assumed that the above definition and 85% reduction target applies to cities participating in the programme, however with a 2030 timeline.

EIT Climate-KIC's Healthy, Clean Cities

EIT Climate-KIC's Deep Demonstration of Healthy, Clean Cities supports municipalities and their stakeholders to shape a systemic approach to addressing climate change, focusing on the benefits this can bring to local people. The approach intends to enable cities to experiment with portfolios of transformative solutions, for a more rapid path to carbon neutrality. It is seen as a rolling programme, with the mission of making 100 cities carbon neutral by 2030. While the ambition of this initiative resembles the one of the cities' mission, an overall definition of carbon neutrality applicable to participating cities could not be identified at this point.

Side note: Some initiatives are targeting carbon neutrality, not climate neutrality. Even if these two concepts – carbon and climate neutrality - are sometimes used interchangeably, they do not mean the same. Climate Neutrality – in Art. 4 of the 2015 Paris Agreement - aims at limiting the increase of the temperature to 1.5°C with respect to pre-industrial levels, offsetting the negative impact that carbon emissions have played in the last decades. To achieve Climate Neutrality, negative CO2 emissions in certain sectors are required.

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