NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Action Plan

2030 Climate Neutrality Action Plan

Capital City of Podgorica

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Summary

Textual element
By joining the EU Mission 100 climate-neutral and smart cities by 2030, the Capital City of Podgorica and its stakeholders commit to work together towards achieving climate neutrality and becoming a smart city through actions that will result in reducing greenhouse gas emissions within its administrative area by at least 60% by 2030 compared to the 2019 GHG emission inventory, which includes buildings, transport, solid waste and wastewater. The Capital City of Podgorica, as the most important urban, administrative, and economic center of Montenegro, stands at the forefront of responding to the challenges of climate change and transitioning towards sustainable, low-carbon development. In the face of increasing climate risks and obligations undertaken through national strategic documents, Podgorica has defined an ambitious action plan and investment framework that integrates decarbonization and climate resilience for the benefit of the citizens. Key strategic sectoral priorities aimed at achieving city's climate target are the following: • Improvement of the energy performance of residential buildings (multi-apartment buildings) – continuation and upgrading of ongoing activities of the City enterprise Housing Agency (continuation and upgrading of activities related to the application of light-colored façades and reflective coatings). • Promotion and support for the thermal insulation of collective and individual housing buildings (installation of thermal insulation façades, roof insulation, replacement of external joinery). • Promotion and support for the replacement of existing inefficient heating and cooling systems with the installation of energy-efficient heating and cooling systems for natural and legal persons. • Support for the replacement of existing inefficient lighting with energy-efficient lighting in private facilities (for natural and legal persons). • Improvement of the energy performance of buildings owned by the Capital City – continuation of activities in line with the recommendations of energy audits. • Installation of photovoltaic systems on the roofs of buildings owned by local self-government. • Support for the installation of photovoltaic systems on the roofs of family houses and smaller residential buildings, as well as on commercial and service sector buildings. • Installation of energy-efficient lighting (in buildings owned by local self-government). • Thermal insulation of buildings owned by the State of Montenegro (installation of thermal insulation façades, roof insulation, replacement of external joinery) and installation of solar power plants and BESS (Battery Energy Storage Systems). • Promotional and educational campaigns (aimed at raising awareness of the importance of energy efficiency and the use of renewable energy sources). • Improvement of cycling infrastructure. • Promotion of the purchase of energy-efficient vehicles for legal entities and citizens. • Introduction of electric vehicles owned by local self-government and by enterprises established by the Capital City of Podgorica. • Introduction of electric vehicles in state authorities and institutions of Montenegro. • Improving solid waste management practices through separate collection, recycling, bio-waste diversion, landfill-gas capture and energy recovery, and digital waste-data

management.

- Improving wastewater management through completion and optimisation of wastewater collection and treatment infrastructure, energy-efficient operation of utility systems, and monitoring of treatment-related emissions and sludge management.
- Upgrade of the electricity distribution grid and systems;
- Green infrastructure and climate resilience;
- Climate resilience education, capacity building, and awareness rising;

The strategic goals of the CCC Action Plan for Capital City of Podgorica include:

- Energy renovation of state- and city-owned public buildings through initiatives focused on enhancing their energy efficiency and energy performance.
- Energy retrofit of residential buildings through implementation of initiatives aimed at improving the energy efficiency and performance of residential multiapartment building stock. This includes the implementation of measures to reduce energy consumption and ease the financial burden on households, especially those with limited economic opportunities.
- Energy retrofit of commercial buildings through implementation of initiatives aimed at improving the energy efficiency and performance of buildings used for commercial purposes.
- Providing support to development of renewable energy sources in public buildings through enhanced deployment of renewable energy technologies, such as photovoltaic systems and energy storage solutions, to reduce dependence on expensive and environmentally harmful fossil fuels.
- Promotion of fair access to energy through delivering of affordable and reliable energy services for all residents, including those living in marginalized communities or facing financial hardship. These activities include facilitating access to energy-efficient appliances, advocating energy-saving practices, and providing financial assistance or subsidies for energy costs.
- Providing support to citizens and SMEs (small and medium enterprises) through incentivising measures to improve energy efficiency and uptake of renewable energy sources, in cooperation with financial institutions.
- Scaling up deep renovation of municipal and state public buildings, together with clean-heating and heat-pump support for households, SMEs and social-housing beneficiaries, in cooperation with national energy-efficiency programmes and municipal co-financing mechanisms.
- Providing support to sustainable mobility programmes and activities through enhanced electrification of public transport system (bus and taxi transportation), electrification of the city's vehicle stock, including those used by city administration, institutions and companies, development of electric vehicles charging infrastructure, introducing smart traffic management, and uptake of cycling among citizens.
- Introducing electric buses, expanding public and municipal EV charging at strategic locations, and applying parking and traffic-management measures that support modal shift and lower transport emissions.
- Improving waste management practices aimed at reducing GHG emissions through development of bio-gas electricity production units and improvement of circular economy practices.
- Improving wastewater management practices aimed at reducing GHG emissions through wastewater collection and treatment upgrades, electricity-efficiency measures in utility operations, and improved sludge and process-emissions monitoring.

- Improving electricity distribution grid's capacities to integrate additional RES and provide enabling conditions for electrification of the transport sector and EV infrastructure.
- Improving green infrastructure and climate resilience through implementation of green roof and green facades initiatives, preserving and expanding green urban areas, nature protected areas, green tourism and utilizing nature-based solutions.
- Developing and curating community engagement, participation, capacity building and empowerment through awareness campaigns, educational activities and capacity building initiatives which will equip citizens with knowledge and skills related to energy efficiency and renewable energy sources.

Key numbers

- Measures to reduce GHG emissions and climate change mitigation: The document presents a quantified 24-action mitigation portfolio across buildings, public lighting, transport, solid waste and wastewater. The portfolio achieves 363,335.87 tCO_2e of reductions by 2030, equivalent to approximately 60% of the 2019 BEI of 605,545.56 tCO_2e.
- **Climate resilience and adaptation measures:** A comprehensive set of climate resilient and adaptation measures has been presented across sectors such as infrastructure, water management, tourism, agriculture, forestry and health.

Residual emissions strategy: Following implementation of the quantified 24-PaM portfolio, estimated residual emissions are approximately 242,209.69 tCO_2e/year. These residual emissions will be addressed through continued in-boundary mitigation, MRV strengthening, further grid and system decarbonisation, and separately reported compensating measures, including 30 ha of urban afforestation/green corridors and 250 ha of restoration of burnt, degraded and erosion-prone areas. The two compensating measures provide an indicative sink of 1,400 tCO_2e/year and are not counted inside the 24-PaM mitigation table.
EPBD/EED Roadmap alignment: The additional buildings-sector targets are further supported by the March 2026 Roadmap for the transposition of the Energy Performance of Buildings Directive (EPBD) and the Energy Efficiency Directive (EED) and for adoption of the National Building Renovation Plan. The roadmap strengthens the national delivery basis for public-building renovation, residential and commercial energy efficiency, clean heating and heat pumps, rooftop solar PV, building-level EV charging infrastructure and verified monitoring of energy savings.

Portfolio validation: The quantified 24-action portfolio is aligned with the 2019 BEI sector and sub-sector boundaries. Transport electrification is allocated without overlap between public transport, municipal-fleet and e-taxi/e-car measures. Heat-pump GHG savings are credited where the baseline system and the assumed COP result in a net emissions reduction, with biomass/firewood replacements reported as air-quality, comfort and energy-efficiency benefits unless a separate eligible GHG baseline is confirmed.

List of figures

The list of figures **identifies the titles and locations** (page numbers) of **all visual elements:** figures, drawings, photos, maps, etc. used in the CCC Action Plan.

List of tables

The list of tables **identifies the titles and locations** (page numbers) of **all tables** used in the CCC Action Plan.

Abbreviations and acronyms

The list of abbreviations and acronyms **identifies the abbreviations** (a shortened form of a word used in place of the full word) **and acronyms** (a word formed from the first letters of each of the words in a phrase of name) used in the CCC Action Plan.

Abbreviations and acronyms	Definition
AFOLU	Agriculture, Forestry and Other Land Use
BAU	Business As Usual
BESS	Battery Energy Storage System
CCC	Climate City Contract
CNAP	Climate Neutrality Action Plan
CO_2	Carbon Dioxide
DESCG	Decarbonization of Montenegro's Energy Sector Project
DTP	Danube Transnational Programme
EE	Energy Efficiency
EIB	European Investment Bank
EIT	European Institute of Innovation and Technology
EPCG	Elektroprivreda Crne Gore (Montenegrin Electric Power Company)
ERA	European Research Area
ESCO	Energy Service Company
EU	European Union
EUR	Euro
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HFCs	Hydrofluorocarbons
IMTM	Institute of Modern Technologies of Montenegro
INDC	Intended Nationally Determined Contribution
INCREASE	New Generation Infrastructure Integrated Photovoltaics Project
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial processes and product use
IPV	Infrastructure Photovoltaic
IRENA	International Renewable Energy Agency
IBRD	International Bank for Reconstruction and Development
LED	Light Emitting Diode
LTS	Long-Term Low-Carbon Development Strategy
LULUCF	Land Use, Land-Use Change and Forestry
LPG	Liquefied Petroleum Gas
MCC	Mission 100 Climate-Neutral and Smart Cities
MEEP 2	Energy Efficiency in Montenegro – Phase II Project
MICS	Mission on Climate-Neutral and Smart Cities
MICA	Mitigation of Climate Change Impacts on Human Health and Improvement of Well-being through One Health Approach
MRV	Monitoring, Reporting and Verification
MSW	Municipal Solid Waste
NAP	National Adaptation Plan

NCCS	National Climate Change Strategy
NDC	Nationally Determined Contribution
NECP	National Energy and Climate Plan
NF_3	Nitrogen Trifluoride
NGO	Non-Governmental Organization
NSSD	National Strategy for Sustainable Development
NBS	Nature-Based Solutions
NBS4RESILIENCE	Nature-Based Solutions for Climate Resilience Project
OPEX	Operational Expenditure
PFCs	Perfluorocarbons
PV	Photovoltaic
RAPTOR	Rapid Applications for Transport Project
RE	Renewable Energy
RES	Renewable Energy Sources
SDG	Sustainable Development Goal
SME	Small and Medium Enterprise
SoE	State-Owned Enterprise
SUMP	Sustainable Urban Mobility Plan
tCO_2	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank

1 Introduction

The introduction outlines the local geographic and policy context in which the city´s 2030 Climate Neutrality Action Plan is being developed and describes the gap it addresses in broad terms. It includes:

- The administrative territories included in the city´s 2030 climate neutrality target. Where applicable, any districts or emission sources within these administrative boundaries that are excluded from the target of climate neutrality by 2030[1]. Table I-1.1 summarizes this narrative in a snapshot.
- Key data on the administrative and political organisation of the city, its demographic and socio-economic characteristics, and climate-relevant sectors.
- A clear description of the relationship of this CCC Action Plan with existing climate policies and strategies (further detailed in Module A-2), and how it builds on them to address the gap (if any) to climate neutrality.
- Background information on the work process of developing the city's CCC Action Plan, highlighting its connection with the other Climate City Contract components (2030 Climate Neutrality Commitments and 2030 Climate Neutrality Investment Plan).
- A description of future steps planned timeline and milestones for future iterations for the continuous development of the CCC Action Plan.

Introduction
Podgorica is located in the northern part of the Zeta basin, in the center of Montenegro, at the intersection of several important road routes that lead from the sea to the continental part of the country. It is located at an altitude of 44.5 meters. The geographical position is determined by the coordinates of 42.26 degrees north latitude and 19.16 degrees east longitude. The fertile Zeta plain, the combination of the rivers Zeta and Ribnica with Morača, the immediate proximity of Lake Skadar and the Adriatic Sea, a favorable climate, communicative and strategic location, enabled Podgorica to grow into the largest urban agglomeration of Montenegro. It is not only a modern city, but a city that represents the administrative, political, economic, transport, scientific and educational - cultural center of Montenegro. Its prosperity in the post-war period accelerated the development of the City as a whole. Lake Skadar, proximity to the sea, altitude, relief, latitude, caused a different macro and micro climate in the area of the Podgorica basin. According to Keppen's climate classification, the Podgorica area belongs to the Csa climate, which is characterized by a moderately warm rainy climate with hot summers and a pronounced dry period. The average annual air temperature in Podgorica is 15.8ºC, the warmest month is July with an average air temperature of 26.8°C, and the coldest is January with an average air temperature of 5.4°C. The absolute maximum temperature measured in August was 44.8°C, and the absolute minimum temperature was -9.7°C in February. The average annual amount of precipitation in Podgorica is 1,632 l/m^2, the rainiest month is November with an average amount of precipitation of 246 l/m^2, and the driest is July with 27 l/m2. Average relative humidity is 63%. The climate of Podgorica is also characterized by relatively high insolation, with an average of 2,460 hours a year, most of it in July – 340 hours, when the daylight hours are the longest, and the least in December – 105 hours, when the day is the shortest. Based on the wind rose for Podgorica, it was established that the most frequent winds are from the north direction (17%), which have the highest speed, and from the south direction (13%). Maximum wind speeds reach over 40

[1] By default, the participating city would commit the whole city or entity to become climate-neutral. However, where duly justified, the city may propose to exclude one or more district(s) or sources of emissions 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. In this context, districts will be considered as neighbourhoods or zones of special interest of a city administered or governed by some type of "district council".

m/s. The average number of windy days is around 60. The south wind occurs with less force and mostly brings precipitation. Podgorica is located in an unstable area, with very pronounced seismic activity. The Podgorica area is potentially exposed to the effects of earthquakes. According to the seismic regionalization of Montenegro, the urban area of Podgorica is covered by 8 MCS scale. This means that the maximum expected earthquake effect in the area of the Capital City can cause effects described by the eighth degree of the macroseismic intensity scale. According to the official data from the 2023 census published by the Directorate for Statistics of Montenegro - Monstat, the population of Podgorica is 179,505, which is 28.78% of the total population of Montenegro (623,633). This continued the tendency of the population of the Capital City to grow, since between the two censuses, the population of Podgorica increased by 15.27%. The capital Podgorica covers an area of 1441 km^2. Podgorica is well connected by traffic with all urban settlements in Montenegro, as well as with all settlements in the capital city. The most important roads are: Jadranski put, the main road Tirana - Podgorica - Nikšić - Sarajevo, the main road Podgorica - Cetinje - Budva, and the most important is certainly the Sozina tunnel. Many regional and local roads are also of great importance, the railroad Belgrade - Podgorica - Bar, Podgorica - Nikšić and Podgorica – Skadar. Golubovci airport is located 12 km from the city.

The key elements of the CCC Climate Neutrality Action Plan of the Capital City Podgorica are the following:

- The scope of the intervention area of the CCC Climate Neutrality Action Plan of the Capital City of Podgorica refers to the entire administrative territory of the city.
- The time period for the Action Plan is until 2030.
- The reference/base year for the inventory of emissions of greenhouse gases, is 2019.
- The calculation of emissions is performed based on the standard Intergovernmental Panel on Climate Change (IPCC) emission factors, which are in accordance with the factors used by Montenegro in the preparation of the UNFCCC reports.
- The GHG emission scopes included in the inventory of emissions are:
  - Direct emissions, which are the result of energy consumption that physically takes place in the intervention area
  - Indirect emissions, which refer to the consumption of energy located outside the intervention area, but whose consumption takes place within its territory and
  - Emissions related to non-energy consumption, namely to the water supply sector
- Types of greenhouse gases considered: the city inventory covers CO_2 in the buildings and transport sectors, as well as CH_4- and N_2O-related emissions from solid waste and wastewater.
- The considered sectors include:
  - The sector of buildings, equipment or facilities, which included the buildings of the city administration, institutions and companies, commercial and service sector buildings, and residential buildings;
  - The transport sector, which includes city's urban mobility systems, energy consumption and fuel efficiency of city administration vehicles, city enterprises and institutions, public road transportation (city bus transport and taxi transport), and commercial and individual

transportation;

- The solid waste sector;
- The wastewater sector;
- Waste management and circular economy;
- Upgrade of the electricity distribution grid and systems;
- Green infrastructure and climate resilience;
- Climate resilience education, capacity building, and awareness rising.

AFOLU and IPPU remain temporarily outside the quantified boundary and the present numerical target only
due to the absence of a completed city-level inventory, but these sectors will be incorporated in the next CNAP revision once the inventory is completed and aligned with the national methodology in maximum 2 years from now.

Podgorica is highly vulnerable to the adverse impacts of climate change. Analysis of extreme events both as observed events in the past, as well as future events based on climate projections, show considerable climate change risks and negative impacts leading to losses and damages. Table 1 summarizes the existing and future risks, probability of occurrence and change in intensity that may lead to death, injuries and other health problems, damage to property, infrastructure, and other negative consequences. The time frame shows the expected time-period in which these changes are expected to happen. These are short-term – in 20 to 30 years, medium-term - after 2050 and long-term – until 2100s). The document before us is not legally binding, but in which the Capital City informs the Commission how it plans to further enhance sustainability and how the mission will be implemented at the local level. For the European Commission, this document is an important tool for assessing how European policies are applied at the local level. Also, the document is subject to change and is updated every two years, while the City will remain committed to carrying out its own monitoring and to further improving the system. Based on such monitoring, the priorities and objectives set out in the climate contract will be updated and adjusted accordingly.

Table 1. Climate Change Risks Relevant to Capital City Podgorica

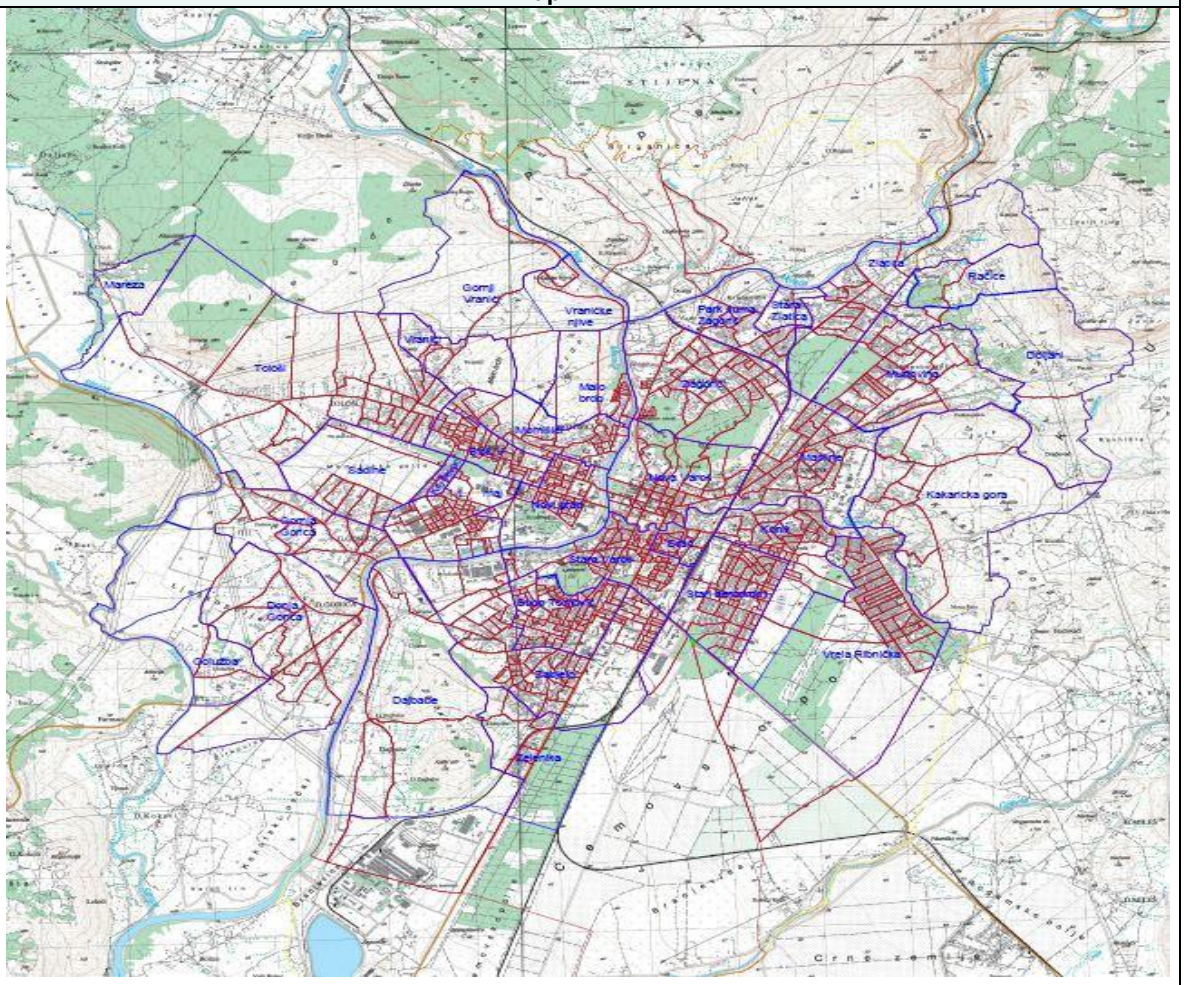
Climate hazard	Observed		Future		
	Probability of occurrence	Impacts	Expected change in intensity	Expected change in frequency	Time period
Extreme heat	High	High	Increase	Increase	Medium-term
Extreme cold	Low	Low	Decrease	Decrease	Medium-term
Heat waves	High	High	Increase	Increase	Medium-term
Extreme precipitation	Low	Low	Increase	Increase	Medium-term
Floods	High	Moderate	Increase	Increase	Medium-term
Snowfall	Low	Moderate	Decrease	Decrease	Medium-term
Droughts	High	Moderate	Increase	No change	Medium-term
Storms	High	Moderate	Increase	Increase	Medium-term
Forest fires	High	High	Increase	Increase	Long-term

As shown in Table 1, it is estimated that extremely high temperatures, droughts, heavy rains leading to floods, and storms have the highest level of risk in terms of occurrence and potential damages they cause. Also, climate projections indicate an increase in their intensity in the future.

Table I-1.1: Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
Stationary energy	Included	Included	
	Excluded Greenhouse gases: Methane (CH4), Nitrous oxide (N20), Fluorinated gases (HFCs/PFCs), and Sulphur hexafluoride (SF6)		
Transport	Included	Excluded	
	Excluded Greenhouse gases: Methane (CH4), Nitrous oxide (N20), Fluorinated gases (HFCs/PFCs), and Sulphur hexafluoride (SF6)		
Waste / wastewater	Included		
	Excluded Greenhouse gases: Carbon dioxide (CO2), Nitrous oxide (N20), Fluorinated gases (HFCs/PFCs), and Sulphur hexafluoride (SF6)		
IPPU	Excluded in the current revision; to be assessed in subsequent CCC iteration in maximum 2 years from now		
AFOLU	Temporarily excluded pending completion of the city-level agriculture and LULUCF inventory; planned for the next CCC revision in maximum 2 years from now		
Other			
Geographical boundary	**Same as city administrative boundary**	**Smaller than city administrative boundary**	**Larger than city administrative boundary**
(Tick correct option)	x□		

Specify excluded/additional areas			

Map



2 Part A – Current State of Climate Action

Part A "Current State of Climate Action" describes the point of departure of the city towards climate neutrality, including commitments and strategies of key local businesses, and informs the subsequent modules and the outlined pathways to accelerated climate action.

2.1 Module A-1 Greenhouse Gas Emissions Baseline Inventory

Module A-1 "Greenhouse Gas Emissions Baseline Inventory" details and describes the latest GHG inventory, where available from 2018 or more recent, referring to a clearly stated geographic boundary. The aim of this section is to establish the emission baseline and to establish the emissions gap to 2030 climate neutrality according to the inventory specifications defined in the Cities Mission's *Info Kit for Cities*[2] and the process outlined in the CCC Action Plan Guidance and Explanations. It includes:

- Definition of geographic boundary of the GHG inventory and, if applicable, excluded areas, sectors, scopes, sources, gases.
- An explanation of any (current) mismatch between the boundary of the GHG inventory and the climate-neutrality target, including actions planned to address the mismatch.
- Key data and visualisation of the latest GHG inventory (ideally not older than 2018), according to the coverage (source sectors, scopes, and gases) specified in the Mission's "Info Kit for Cities" to establish the emission baseline. If additional inventories are used in the CNAP, the same information should be provided for all inventories.
- Descriptive assessment of current GHG inventory, including a description of the current state of each emitting sector.
- Where a BAU scenario is used as baseline, a description of methodology and assumptions (for instance, which sectors/sources/gases are actually modelled; locally specific input variables vs. national or default data, etc.).

Sector / item	2019 activity / basis	Calculation	2019 emissions (tCO2e)
Buildings	BEI 2019	Based on activities and appropriate emission factors	239,350.54
Transport	BEI 2019	Based on activities and appropriate emission factors	251,361.52
Solid waste	BEI 2019	105,368 t collected waste 105,368 × 0.700402	73,800.00
Wastewater	BEI 2019	PG population share and higher sewerage connectivity National wastewater inventory allocation × 1.5 connectivity factor	41,033.50

[2] European Commission, 2021, *Info Kit for Cities*, European Commission. Further guidance is available also in: NZC, 2023, *Guidance on target setting and emissions inventories for the Climate-neutral and Smart Cities Mission*, NetZeroCities https://netzerocities.app/resource-3814

TOTAL BEI 2019	All included sectors	Buildings + transport + solid waste + wastewater	605,545.56

GhG Emissions Baseline inventory

Capital City Podgorica has prepared 2019 greenhouse-gas baseline inventory as part of its Climate City Contract / Climate Neutrality Action Plan submission. The inventory is based on the best available local energy, transport, waste and wastewater data. Capital City Podgorica has selected 2019 as the baseline year for GHG Emissions Baseline Inventory. The main criterion for the selection of the reference year was the availability and quality of the input data required for the calculation of CO_2e emissions.

The scope of the GHG Emissions Baseline Inventory in the CNAP covers buildings, transport, solid waste and wastewater, based on the city GHG inventory.

- Building sector
- Transport
- Solid waste
- Wastewater

The analysis of energy consumption was done in accordance with national statistical data and local data that were available. The calculation of CO_2e emissions was done in accordance with the IPCC 2006 guidelines.

The energy consumption of the Capital City of Podgorica was analysed for:

• **Buildings, equipment, facilities and industry:**

Buildings, equipment or facilities owned by the Capital City and state administration

Tertiary or commercial buildings, equipment or facilities

Residential buildings

• **Transport:**

City and state administration vehicles

Public and taxi transport

Vehicles for personal and commercial use.

In addition, waste management and waster water management have been considered:

• **Solid waste management:**

available 2019 Podgorica waste activity data: 70,527 t of collected municipal waste and 105,368 t of total collected waste, including municipal, plant/green, bulky and other waste.

• **Wastewater management:**

baseline is prepared using the national 2019 wastewater handling value allocated to Podgorica using the latest BEI population share of 30.348% and a connectivity correction factor of 1.5, resulting in 41,033.50 tCO_2e.

For the purpose of the CNAP preparation, the 2019 baseline includes: buildings 239,350.54 tCO_2e; transport 251,361.52 tCO_2e; solid waste 73,800.00 tCO_2e; and wastewater 41,033.50 tCO_2e, totalling 605,545.56 tCO_2e. The 2030 target is applied to this combined baseline, meaning that the required overall reduction by 2030 is 363,327.33 tCO_2e and the maximum remaining emissions after mitigation measures are 242,218.22 tCO_2e. The latest quantified 24-PaM portfolio delivers 363,335.87 tCO_2e of reductions, equivalent to approximately 60% of the 2019 BEI, resulting in estimated residual emissions of 242,209.69 tCO_2e/year before any separate compensation/removal measures. The 60% target is applied across all sectors, not separately to each individual sector.

According to citizens, the priority sectors that need to be addressed to turn the capital into a green, zero-carbon

city are as follows: waste and waste management; energy efficiency; the need to decrease use of private passenger vehicles; accessibility challenges faced by individuals with disabilities at bus stops; the demand for increased green spaces in new residential areas; challenges associated with digitization; more schools and better access to them. Air quality measurements indicated that pollution levels from household heating are higher than those from traffic. Still, data collected through national and local monitoring indicate certain pressures caused by traffic. Therefore, through project Raptor (a programme by EIT Urban Mobility, an initiative of the European Institute of Innovation and Technology), Podgorica will, between November 2025 and November 2026, receive reports on pollution trends forecasts and actionable recommendations, such as adjustable speed limits and traffic restrictions, at seven locations. Our participation in Raptor is a step closer to finding solutions for more sustainable traffic and reducing CO2 emissions.

Analysis of the energy consumption by buildings, equipment, facilities and industry

- **Energy consumption in buildings, equipment or facilities owned by the Capital City and the state administration**

The analysis of energy consumption included only public buildings managed by the local self-government, while buildings owned by the state (educational, health and social institutions, police, judiciary, tax administration and other state bodies) were omitted from the analysis.

The total consumption of electricity in public buildings in 2019 amounted 67,114.25 MWh. Based on data from the above-mentioned Energy Efficiency Improvement Program of the Capital City of Podgorica 2021-2023, the consumption of other energy sources (wood, coal, and oil) was not found to participate significantly in their energy consumption.

- **Energy consumption in tertiary or commercial buildings, by equipment or facilities**

Energy consumption in the commercial sector was calculated based on data on electricity consumption obtained from the Functional Unit Supply of EPCG (National electricity supply utility). The consumption of the commercial sector within the building sector is approximated at 219,676.66 MWh for the reference year 2019.

- **Energy consumption in Residential buildings**

The total consumption of electricity for the residential buildings in 2019 was obtained based on data from the Functional Unit Supply of EPCG for the "household" consumption category and amounts to 562,531.84 MWh.

Analysis of the energy consumption in the Transport sector

- **Energy consumption by vehicles owned by public administration**

According to the data on the number of registered vehicles at the disposal of public institutions and companies founded by the public administration, there were 2417 vehicles in 2019.

The total consumption of oil and oil derivatives for 2019, according to the above data, was 323,200 l of gasoline, 2,629,618 l of diesel and 202,007 l of LPG. Converted into energy values, they amount to 5,899.05 MWh for gasoline consumption, 26,285.66 MWh for diesel consumption and 1,335.67 MWh for LPG consumption, and the total energy consumption on this basis was 33,520.38 MWh.

- **Energy consumption by public and taxi transportation vehicles**

Assessment of the energy consumption of public transport was made based on the data of the number of city and suburban public transport lines, and the number of issued taxi licenses in the territory of the Capital City Podgorica in 2019.

When it comes to suburban transport, 16 lines were active on the territory of the Capital City in 2019, with the use of 13 buses with an average route length of 39.2 km and an average turnaround time of 87 minutes. The estimated annual fuel consumption was 356,910 litres of diesel.

In 2019, 11 bus lines were active on the territory of the Capital City, with the use of 36 buses with an average

route length of 18.38 km and an average turnaround time of 69 minutes. The estimated annual fuel consumption was 508,718 litres of diesel.

Based on the number of licenses issued for taxi vehicles in 2019, the estimated number of kilometres travelled is 300 km/day per vehicle, assuming that due to the economy of diesel units and the lower price of diesel compared to gasoline, they make up the absolute majority in the taxi transport sector, with note that the electrification of taxi transport on the territory of the Capital City has started, but that the relevant data on the consumption of these vehicles are not available, the total annual consumption was obtained from 7,824,600 litres of diesel.

Based on the number of licenses issued for taxi vehicles in 2019, the number of kilometres travelled per vehicle which was estimated at 300 km/day, with the assumption that due to the economy of diesel units and the lower price of diesel compared to gasoline, they make up the absolute majority in the taxi transport sector, the total annual consumption was 7,824,600 litres of diesel.

Considering the consumption of public suburban, city and taxi transport, the total consumption of diesel on the territory of the Capital City amounts to 8,690,228 litres of diesel, that is, converted into energy values amounts to 86,867,52 MWh.

- **Energy consumption by personal and commercial use vehicles**

Assessment of the consumption of oil and oil derivatives by personal and commercial use vehicles was carried out based on the Study of the structure of the road vehicle fleet in Montenegro and the data of the Statistics Authority on the consumption of oil derivatives for the year 2019. The calculated consumption of oil by personal and commercial use vehicles amounts to 14,497. 409 l of gasoline, 66,178,907 l of diesel and 6,533,990 l of LPG. Converted into energy values, the same amount is 132,303,354 MWh for gasoline consumption, 661,524,353 MWh for diesel consumption and 43,202,740 MWh for LPG consumption. The total energy consumption of motor vehicles for personal needs and commercial activities amounts to 837,030,447 MWh.

Analysis of the total energy consumption by Capital City Podgorica

An overview of total energy consumption in sectors and sub-sectors of consumption for the reference year 2019 is presented in Table 2

Table 2. Total energy consumption (MWh) for selected sectors in Capital City Podgorica

Buildings	Residential buildings	562,531.84	**849,322.75**
	Public buildings (city administration)	22,530.04	
	Public buildings (state administration)	44,584.21	
	Commercial buildings	219,676.66	
Transport	Vehicles owned by city administration	5.497,66	**957,418.35**
	Vehicles owned by state administration	28,022.73	
	Personal and commercial use vehicles	837.030,45	
	Public transportation	86.867,52	
TOTAL			**1,806,741.10**

- **Analysis of waste and wastewater management in Capital City Podgorica**

An overview of waste management and wastewater management activity data for the reference year 2019 is presented in Table 3. These sectors are expressed through activity-based indicators relevant for estimating CH_4 and N_2O emissions in accordance with IPCC methodology.

Table 3. Waste and wastewater activity data for Capital City Podgorica, 2019

Sector	Sub-sector / activity	2019 activity data	Total
Solid waste	Municipal waste collected	70,527 t	
	Total collected waste, including municipal, green/plant, bulky and other waste	105,368 t	105,368 t
Wastewater	Population basis for wastewater emissions estimate	189,260 inhabitants / population equivalent	189,260
	Wastewater collection and treatment	Population-based from national inventory	
TOTAL	Activity-based waste and wastewater reference	Used for BEI calculation	

The total collected waste quantity of 105,368 tonnes is used as the main 2019 activity basis for calculating solid waste management emissions, while the 70,527 tonnes of municipal waste is shown as a reference subset only and is not added separately, in order to avoid double counting.
Wastewater management emissions are estimated using a population-based allocation from the national greenhouse gas inventory, reflecting Podgorica's share of Montenegro's population. This approach is applied as an interim method until consolidated city-level wastewater flow, treatment, sludge and emission data are available.
These activity data form the basis for integrating solid waste and wastewater management into the 2019 Baseline Emissions Inventory. Their inclusion improves the completeness of the CNAP inventory and ensures that the overall 2030 target of 60% GHG reduction is applied to the combined baseline across buildings, transport, solid waste and wastewater, rather than separately to each sector.
The current quantified boundary does not yet include IPPU or AFOLU/LULUCF. These sectors are temporarily excluded because a complete city-level inventory is not yet available. They will be incorporated in future CNAP revisions once local activity data, emission/removal factors and national-methodology alignment are available, in maximum 2 years from now. This does not affect the present 2030 target calculation, which is applied to the integrated baseline for buildings, transport, solid waste and wastewater.

The available inventory is sufficiently complete for designing the first quantified mitigation portfolio and for assessing the emissions gap to 2030. The inventory applies IPCC-consistent methods, local activity data where available, and national inventory allocation methods for waste and wastewater where detailed city-level process data are not yet complete.

The 60% reduction target is applied to the 2019 baseline. Therefore, the required reduction by 2030 is 363,327.33 tCO_2e, leaving a maximum residual emission level of 242,218.22 tCO_2e before any separate compensation/removal measures. The 24-actions portfolio quantifies 363,335.87 tCO_2e of reductions, equivalent to approximately 60% of the BEI 2019.

The baseline directly informs the strategic priorities of the 2030 Climate Neutrality Commitment: deep renovation and clean heating in buildings, renewable energy deployment, electrification and demand management in transport, improved waste prevention and methane management, wastewater treatment optimisation, and stronger monitoring, reporting and verification of mitigation results.

The tables below present the completed baseline inventory information.

A-1.1: Final energy use by source sectors			
Base year	2019		
Unit	MWh for energy sectors; activity data for waste/wastewater		
	Scope 1	Scope 2	Scope 3
Buildings		849,322.75	
(Fuel type/ energy used)		Electricity	

Transport	957,418.35		
(Fuel type/ energy used)	Petrol, diesel and LPG		
Waste	105,368 t solid waste; 189,260 PE wastewater		
(Fuel type/ energy used)	Non-energy CH_4/N_2O sources; see activity table		
Industrial Process and ProductUse (IPPU)	Temporarily excluded; to be assessed in next CNAP revision in maximum 2 years from now		
(Fuel type/ energy used)	N/A		
Agriculture, Forestry and Land Use (AFOLU)	Temporarily excluded; to be assessed in next CNAP revision in maximum 2 years from now		
(Fuel type/ energy used)	N/A		

A-1.2: Activity by source sectors.			
Base year		2019	
	Scope 1	Scope 2	Scope 3
Sector: Buildings		849,322.75 MWh	
(Activity)		Electricity use in residential, commercial, municipal and state/public buildings.	
Sector: Transport	957,418.35 MWh		
(Activity)	Fuel use by municipal/state vehicles, public/taxi transport and private/commercial vehicles.		
Sector: Waste	105,368 t solid waste; 189,260 population equivalent wastewater		
(Activity)	Collection/disposal of solid waste and wastewater handling/treatment, estimated through activity and national-inventory allocation methods.		
Sector: Industrial Process and Product Use (IPPU)	Temporarily excluded		
(Activity)	IPPU inventory will be available in next CNAP revision in maximum 2 years from now.		
Sector: Agricultural, Forestry and Land Use (AFOLU)	Temporarily excluded		
(Activity)	AFOLU/LULUCF sources and sinks to be assessed in the future CNAP revision in maximum 2 years from now.		

A-1.3: Emission factors applied						
(Please specify for primary energy type and GHG emission factor according to methodology used).						
MWh for buildings/transport; tonnes and population equivalent for waste/wastewater						
IPCC 2006 / national inventory allocation / CNAP BEI methodology; electricity-related mitigation uses GEF 0.364 tCO_2/MWh						
Primary energy/ energy source	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	F-gases (hydrofluorocarbons and perfluorocarbons)	Sulphur hexafluoride (SF_6)	Nitrogen trifluoride (NF_3)
Electricity Transport fuels Solid waste Wastewater	CO_2: electricity GEF 0.364 tCO_2/MWh; transport fuel factors from IPCC	CH_4: solid waste and wastewater, IPCC/national inventory approach	N_2O: wastewater and combustion, IPCC/national factors	Not included	Not included	Not included
Please mark all gases accounted for in the inventory	x	X	x	N/A	N/A	N/A

A-1.4: GHG emissions by source sectors					
Base year		2019			
Unit		tCO_2e			
		Scope 1	Scope 2	Scope 3	Total
Buildings		—	239,350.54	—	239,350.54
Transport		251,361.52	—	—	251,361.52
Waste		114,833.50	—	—	114,833.50
Industrial Process and Product Use (IPPU)		Not included	—	—	Not included
Agricultural, Forestry and Land Use (AFOLU)	Sources (positive emissions)	Not included			Not included
	Sinks (negative emissions)	Not quantified			Not quantified
Total		366,195.02	239,350.54	—	**605,545.56**

2.2 Module A-2 Current Policies and Strategies Assessment

Module A-2 “Current Policies and Strategies” lists and assesses existing policies, strategies, initiatives, or regulation from local, regional, and national level, relevant to the city’s climate neutrality transition. This assessment contributes to identifying the gap (if any) between the emissions reduction due to existing initiatives and the city´s 2030 climate neutrality target. Filling this gap by identifying additional actions and levers to achieve the city´s emission reduction target is the focus of this Action Plan. The assessment of current policies and strategies offers hence a starting point for exploring the impact pathways (See Part C). The module includes:

- Comprehensive list of local relevant policies, strategies, concepts, as well as of regional and national legislation that impact local climate action.

- Descriptive assessment of the current climate-relevant policy context, summarising the objectives and implementation concepts, addressing e.g., spatial planning, energy, local economy, circular/bioeconomy, waste, transport, housing, urban greening/nature-based solutions).
- Quantification of the emissions gap (i.e., emissions reduction target minus reductions already addressed through existing climate action plans).

A-2.1: Description & assessment of policies

The current policy and regulatory framework on national and local level relevant to CCC AP, consists of:

National Strategy for Sustainable Development by 2030

The NSSD outlines a comprehensive approach to sustainable development. The NSSD is a key national strategic document drawing the pathway for economic and human development in Montenegro under the premise of sustainable and equitable development considerations.

The National Strategy of Sustainable Development to 2030 (NSSD) was prepared in 2016. Based on the principles outlined above, the NSSD defines objectives that can be grouped into several priority areas such as: (1) better management of water resources and demand; (2) improved rational use of energy, increased use from renewable sources, and mitigation of adaptation to climate change; (3) sustainable mobility through appropriate transport measures; (4) sustainable tourism as a leading economic sector; (5) sustainable agriculture and rural development; (6) sustainable urban development; and (7) sustainable management of marine, coastal, and marina resources. Agenda 2030 and the Sustainable Development Goals (SDG) are fully integrated into the national framework through the National Strategy for Sustainable Development 2030 (NSSD 2030).

Low-Carbon Development Strategy (LCDS)

Low-Carbon Development Strategy provides the national long-term framework for achieving climate neutrality by 2050 and translating Montenegro's updated climate commitments into sectoral decarbonisation pathways. The Strategy builds on the Law on Climate Change and Montenegro's updated NDC, which sets an economy-wide net GHG reduction target of at least 55% by 2030 and 60% by 2035 compared with 1990 levels. It is directly relevant for Podgorica's CCC Action Plan because it confirms the need for accelerated emission reductions in energy, buildings, transport, waste, industry and land-use related sectors, while also recognising the role of cities and local governments in implementing investments and policy measures on the ground. For Podgorica, the LCDS supports the Action Plan's focus on deep energy renovation of buildings, electrification of transport, deployment of renewable energy, improved waste and wastewater management, and stronger monitoring of mitigation results. It also provides the national policy context for aligning local climate action with Montenegro's EU accession process, the Green Agenda for the Western Balkans and the long-term objective of net-zero emissions by mid-century.

The State Waste Management Plan 2025–2029 provides the main national policy framework for improving waste management in Montenegro and is directly relevant for Podgorica's CCC Action Plan. The Plan supports the transition from a linear to a circular economy model, where waste is treated as a resource through prevention, reuse, recycling and recovery. It sets priorities including reduction of waste sent to landfills, increased recycling, reduction of biodegradable waste disposal, closure and remediation of non-sanitary dumpsites by 2030, and establishment of regional waste management centres, including one in Podgorica. For the CCC Action Plan, this framework supports measures such as separate collection, recycling system upgrade, bio-waste treatment, landfill gas capture and improved waste data monitoring.

The Wastewater Management Plan 2020–2035 provides the national framework for implementation of the EU Urban Wastewater Treatment Directive 91/271/EEC. The Plan identifies investment measures for wastewater collection, treatment, sludge management, industrial discharge control, monitoring and long-term financing, including priority infrastructure measures and implementation planning up to 2035. For Podgorica, this framework supports the expansion and optimisation of sewerage networks, full compliance of wastewater treatment infrastructure, improved energy efficiency of pumping and treatment systems, sustainable sludge management and potential

biogas/energy recovery. These measures are relevant for the CCC Action Plan because they reduce CH_4 and N_2O emissions from wastewater while improving environmental compliance and climate resilience.

National Energy and Climate Plan (NECP)

National Energy and Climate Plan provides the integrated national framework for energy and climate policy to 2030, covering greenhouse gas mitigation, renewable energy deployment, energy efficiency, energy security, internal energy market development and research/innovation. It is directly relevant for Podgorica's CCC Action Plan because it sets the national decarbonisation context within which local measures in buildings, transport, renewable energy, waste and wastewater should be implemented. The NECP targets a 55% reduction of total GHG emissions by 2030 compared with 1990, a 50% share of renewable energy in gross final energy consumption, and Energy Community-aligned energy-efficiency limits for primary and final energy consumption. For Podgorica, this supports scaling up deep energy renovation of public, residential and commercial buildings, rooftop PV deployment, electrification of public transport and vehicle fleets, charging infrastructure, smart grid reinforcement, and energy-efficient municipal utility operations. The NECP therefore acts as the main bridge between national commitments and Podgorica's local climate-neutrality pathway, ensuring that the city's 2030 mitigation portfolio contributes to Montenegro's EU accession process, Energy Community obligations and wider clean-energy transition.

Roadmap for transposition of EPBD and EED and adoption of the National Building Renovation Plan

In March 2026, the Ministry of Energy and Mining prepared the Roadmap for the transposition of Directive (EU) 2024/1275 on the energy performance of buildings (EPBD) and Directive (EU) 2023/1791 on energy efficiency (EED) in Montenegro, including the adoption of the National Building Renovation Plan. The roadmap was prepared in response to Montenegro's EU accession and Energy Community obligations and sets out the key legal, institutional and planning steps for transposition and implementation. It assumes adoption of amendments to the Law on Efficient Use of Energy by 31 March 2027, followed by adoption of the necessary bylaws and the National Building Renovation Plan by the end of 2027.

This roadmap is directly relevant for Podgorica's CNAP because it provides a national enabling framework for the additional buildings-sector actions and their 2030 targets. It supports quantified renovation pathways, minimum energy performance standards for existing buildings, zero-emission building requirements, public-sector energy savings, renovation of public buildings, solar-energy obligations, building renovation passports, restrictions on fossil-fuel heating support, sustainable mobility infrastructure in buildings and a stronger MRV system for verified energy savings. Therefore, the additional actions on public-building renovation, residential and commercial energy efficiency, heat pumps, rooftop PV and building-level EV charging are not treated only as voluntary municipal initiatives, but as actions aligned with the emerging national EPBD/EED implementation framework.

Law on Climate Change provides the updated legal framework for climate mitigation, adaptation, greenhouse-gas monitoring and alignment with the EU climate acquis. The Law regulates protection from the negative impacts of climate change, reduction of greenhouse-gas emissions, protection of the ozone layer and related climate-policy instruments and establishes the basis for cost-effective mitigation and adaptation action. It strengthens the legal foundation for local GHG inventories, sectoral mitigation measures, monitoring, reporting and verification (MRV), and future alignment of local climate action with national climate targets.

Law on Nature Protection governs the conditions and manner of protection and conservation of nature. Nature protection subjects include bodies of local self-government and local administrative authorities as stated in Article 7. Nature is defined as a unity of the geosphere and the biosphere,

including all species of wild plants, animals and fungi, and other natural resources distinguished by biological, geological, geomorphological and landscape diversity. Nature protection documents consist of: biodiversity strategy, management plans for protected natural resources and annual management programs for protected natural resources and local action plans for biodiversity. Art. 13 of this Law provides that the local action plan for biodiversity, for the purpose of implementing the strategy and conservation and protection of nature at the local level, shall be adopted by the competent authorities at the local self-government level. The local action plan for biodiversity is adopted for a period of five years. Furthermore, Art. 34 of this Law specifies that a nature park, a natural monument and landscape of exceptional features located on the territory of one local self-government unit shall be declared by the assembly of the local self-government unit. In cases where a nature park, a natural monument or a landscape of exceptional features spans the territory of multiple local self-government units, the declaration shall be made by the Government based on proposals by the respective local self-government units in whose territory they are located.

The Fourth National Communication and First Biannual Transparency Report has been developed in December 2024 and summarizes latest climate-related information concerning inventory of GHG emissions, progress in NDC implementation, account of climate resilience activities and other relevant climate information on national level.

Nationally Determined Contribution (NDC 3.0)

Montenegro submitted its intended nationally determined contribution (INDC) in September 2015. Montenegro's INDC became its NDC when it ratified the Paris Agreement on December 2017, with a target of 30% economy-wide reduction of greenhouse gas emissions - excluding the land use, land use change and forestry (LULUCF) sector, until 2030, compared to 1990 levels. In 2021, Montenegro endorsed a new and more ambitious target for 2030 of at least 35% economy-wide reduction of greenhouse gas emissions, excluding the LULUCF sector, and submitted it to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat as an updated and enhanced NDC. With the latest revision completed in March 2025, Montenegro has committed to a target of a domestic economy-wide reduction of net greenhouse gas (GHG) emissions by at least 55% and 60% compared to 1990, by 2030 and 2035 respectively. The scope of this commitment is net greenhouse gas emissions reduction considering all sectors of the national GHG inventory.

National Adaptation Plan by 2035

Through the project "Enhancing Montenegro's capacity to integrate climate change risks into planning", implemented by the UNDP Office in Montenegro with the support of the Green Climate Fund and in cooperation with the Government of Montenegro, Montenegro has developed the National Adaptation Plan until 2035. The document has been adopted by the Government in June 2025. Identified priority sectors in the process of adaptation to climate change in Montenegro include agriculture, water, health and tourism. Through the development of this document, Montenegro has strengthened its institutional and human capacities for medium- and long-term adaptation planning. It has also enhanced institutional coordination and technical capacity, integrated gender-sensitive adaptation solutions, and developed a strategy to secure financial resources for adaptation needs.

Disaster Risk Reduction Strategy 2025-2030 with Action Plan 2025-2026

The document aims to indicate the most important segments of disaster risk reduction at the local and national level. It draws on global frameworks such as the Sendai Framework, with a focus on activities of preventive action, raising the level of preparedness to reduce risk and avoid possible harmful consequences from disasters and it recognizes the importance of involving all relevant

actors of society where partnership is the basic principle of risk management. With the Disaster Risk Reduction Strategy (2025-2030), Montenegro creates a completely new perspective in this area and through its key segments (prevention of new risks and reduction of existing ones, through the implementation of integrated comprehensive economic, social, health, educational, environmental and other measures) prevents and reduces society exposure and vulnerability to disaster risk and increase preparedness for response and recovery. The document contains a detailed assessment of the most important risks in Montenegro, including geological risks such as earthquakes, climate risks, i.e. extreme weather events, along with other hazards that endanger people, infrastructure and the environment.

The key local documents in this domain are:

The Local Energy Plan of the Capital City 2015-2025 which provides an overview of the priorities in the energy sector, such as the development of a clean, efficient and safe energy supply, the promotion of environmentally friendly energy production, sustainable management of resources and the establishment of a socially responsible business environment.

Sustainable Development Action Plan for the Capital City of Podgorica

The Sustainable Development Action Plan for the Capital City defined local activities and associated actions that will contribute to the implementation of the National Sustainable Development Strategy (NSDS) Action Plan by 2030. The defined actions represent directly implementable initiatives and projects through which the Capital City takes an active role in the implementation of national sustainable development policy.

Capital City of Podgorica in 2016 adopted the Climate Change Adaptation Strategy.

The main goal of the Climate Change Adaptation Strategy was to introduce mechanisms for increasing the adaptation capacity and resilience of human, natural and built systems in the city area.

Analysis of current state of implementation of climate-relevant policies and measures

Based on the analysis of the current state of policies and strategies, Montenegro is progressively developing a comprehensive policy and regulatory framework to support its transition towards carbon neutrality by 2030 and full climate neutrality by 2050. Nationally, this framework is anchored in several strategic documents and legislative instruments, including the National Strategy for Sustainable Development (NSSD) 2030, National Energy and Climate Plan (NECP), Low Carbon Development Strategy (LCDS), the Law on Climate Change, and the updated Nationally Determined Contributions (NDCs) under the Paris Agreement. The latest version of Montenegro's NDC, finalized in March 2025, commits the country to a net greenhouse gas (GHG) emissions reduction of at least 55% by 2030 and 60% by 2035, compared to 1990 levels. These targets apply to the entire economy, including all sectors in the national GHG inventory. To support these ambitions beyond 2030, the Government has recently developed Low-Carbon Development Strategy (LCDS) through 2050, which serves as the national roadmap for achieving carbon neutrality by mid-century.

In parallel, Montenegro has finalized its first National Adaptation Plan (NAP) by 2030, which strengthens national adaptation planning, focusing on key sectors such as agriculture, water, health, and tourism. It also incorporates gender-sensitive measures and financial planning for climate resilience.

At the local level, considering its territory, population and economy, the Capital City of Podgorica plays a critical role in delivering on national climate objectives. However, policies and strategies on

the national level do not link their objectives and goals with the local level adequately, which represents a missed opportunity for undertaking more impactful and coordinated decarbonisation efforts in the country.

The analysis of emission sources and energy consumption in Podgorica covers multiple sectors including **public and residential buildings, commercial facilities, and transport**. **The 2019 data represent the baseline for the assessment.**

A summary of all subsectors within the building sector outlines the overall energy consumption balance. The total energy consumption in the baseline year amounted to 849,322.75 MWh. Typically, the **residential sector** accounts for the largest share of energy use (approximately 69%), followed by **commercial buildings** with 29%. **Public buildings** have the smallest share, around 44,584.21 MWh or 2%, and thus the lowest potential global impact from energy efficiency measures. However, due to their organizational structure, this subsector offers the most effective implementation of such measures, which is why interventions usually start here. Naturally, the greatest long-term global impact is achieved by engaging citizens in the implementation of measures on their own properties. As the most significant energy carrier, accounting for approximately 81% of total consumption, electricity is predominantly used in the residential sector (61%), followed by the commercial sector (36%), while the share of public buildings and enterprises founded by the Capital City of Podgorica corresponds to 3% of the total energy consumption in the building sector.

Energy consumption in the commercial sector was calculated by subtracting the total energy consumption of state administration, public buildings, and enterprises founded by the Capital City of Podgorica, as well as electricity consumption for public lighting, from “other consumption" category extracted from the electricity supplier records. In this way, an approximation of energy consumption in the commercial sector within the building sector is obtained, amounting to 219,676.66 MWh for the reference year 2019.

Analysis of the energy consumption in the transport sector shows that there were a total 2417 vehicles in 2019. Total fuel consumption for 2019 amounted to 203,155.84 litres of gasoline, 361,303.10 litres of diesel, and 4,850 litres of LPG. Converted into energy values, this corresponds to 1,854.000 MWh for gasoline, 3,611.586 MWh for diesel, and 32.072 MWh for LPG, resulting in a total energy consumption of 5,497.658 MWh for that year.

Energy consumption in public transport within the territory of the Capital City Podgorica in 2019 was calculated based on data regarding the number of urban and suburban public transport lines, as well as the number of taxi licenses issued. **For suburban transport**, in 2019 there were 16 active lines operating with 13 buses, with an average route length of 39.2 km and an average turnaround time of 87 minutes. Considering these parameters and the type of fuel used by the buses, the estimated annual fuel consumption amounted to 356,910 litres of diesel. **For urban public transport**, there were 11 active lines in 2019 operating with 36 buses, averaging 18.38 km per route and a turnaround time of 69 minutes. Based on these factors and the fuel type, the estimated annual fuel consumption amounted to 508,718 litres of diesel. Regarding taxi transport, based on the number of taxi licenses issued in 2019 and an estimated daily mileage of 300 km per vehicle and assuming that diesel-powered vehicles dominate the taxi sector due to fuel economy and lower diesel prices compared to gasoline—while noting that electrification of the taxi fleet has begun, but data on electric vehicle consumption is currently unavailable—the total annual fuel consumption for taxis is estimated at 7,824,600 litres of diesel. Considering the fuel consumption of suburban, urban, and taxi transport, the total diesel consumption in the territory of the Capital City amounts to 8,690,228 litres, which, when converted to energy values, corresponds to 86,867.517

MWh.

The energy consumption of vehicles for personal and commercial use was calculated by deducting the consumption of vehicles belonging to the city administration, public urban and suburban transport, taxi services within the Capital City, as well as state administration vehicles. The calculated fuel consumption of state administration vehicles amounts to 443,245 litres of gasoline, 2,268,315 litres of diesel, and 197,156 litres of LPG, which, converted into energy values, corresponds to 4,045.053 MWh for gasoline, 22,674.075 MWh for diesel, and 1,303.597 MWh for LPG. This results in a total energy consumption of 28,022.725 MWh. Based on the above, the calculated fuel consumption for vehicles used for personal and commercial purposes, amounts to 14,497,409 litres of gasoline, 66,178,907 litres of diesel, and 6,533,990 litres of LPG. When converted into energy values, this corresponds to:132,303.354 MWh for gasoline consumption, 661,524.353 MWh for diesel consumption, and 43,202.740 MWh for LPG consumption. Thus, the total energy consumption of motor vehicles for personal and commercial use amounts to 837,030.447 MWh.

Based on the total fuel consumption in the transport sector, it is evident that the dominant share of total consumption originates from the use of motor vehicles for personal and commercial purposes, amounting to 87,210,306 litres, or a weighted energy value of 837.030,45 MWh, which represents approximately 87% of total energy consumption in the transport sector. This is followed by the public transport sector (urban, suburban, and taxi vehicles), with fuel consumption of 8,690,228 litres, equivalent to 86,867.52 MWh, accounting for around 9% of the sector's total energy use. Fuel consumption by public administration vehicles and enterprises founded by the Capital City of Podgorica amounts to 569,310 litres, or 5,497.66 MWh, which makes up less than 1% of total energy consumption in the transport sector. Finally, fuel consumption by vehicles owned by the state administration amounts to 28,022.73 MWh which makes up approximately 3% of total energy consumption.

Further assessment of the historical and current climate-relative policy context up until 2025 shows that the Capital City of Podgorica is progressively and continuously formulating policies and measures to tackle climate impacts and increase resilience. Podgorica does that in alignment and synergy with a broad number of important stakeholders. Given the fact that Podgorica is an administrative centre, only in close cooperation with the Government and state institutions the full range of GHG emission reduction potential could be achieved. Consequently, Capital City of Podgorica has established good cooperation with, among others, state institutions, especially with the Ministry of Energy and Mining which is the competent institution for energy efficiency and RES policy implementation. Although the scope of EE and RES projects implemented by the Ministry of Energy and Mining is national, it's very important to assess and attribute relevant contributions and results achieved at the level of Capital City Podgorica. Only in synergy with these types of projects will the Capital City of Podgorica be able to achieve ambitious decarbonization goals.

In this context, when it comes to the buildings sector, currently the **Ministry of Energy and Mining** implements several dedicated projects for improving energy efficiency in public buildings, such as:

- Energy Efficiency in Montenegro - Phase II (MEEP 2)

The Government of Montenegro has secured a loan from the International Bank for Reconstruction and Development (IBRD) to finance the "Energy Efficiency in Montenegro - Phase II" project (hereinafter MEEP 2). The implementation of MEEP 2 began on September 1, 2018, and is scheduled to continue until June 30, 2025. The IBRD loan amounts to €6 million, with an additional €2.5 million co-financed by the Government of Montenegro. Activities planned under MEEP 2 include improving energy performance in 18 healthcare facilities, establishing a monitoring system for comfort levels in healthcare facilities, including monitoring of energy and water consumption, and creating a sustainable financing system for energy efficiency projects in the public sector. This

mechanism will enable future energy efficiency measures in additional healthcare facilities to be financed from savings achieved in the already retrofitted facilities. The Ministry of Energy and Mining and the Ministry of Health are responsible for project implementation. The Ministry of Health implements energy efficiency measures in healthcare institutions, while the Ministry of Energy and Mining coordinates the project and provides support. To date, work has been completed on 14 healthcare facilities, and construction is ongoing at the following 4 facilities, one being on the territory of Capital City Podgorica – the Health Center Podgorica-Konik.

- Decarbonization of Montenegro's Energy Sector (DESCG)

On December 18, 2024, the Government signed a loan agreement with the World Bank to implement the "Decarbonization of Montenegro's Energy Sector" project (DESCG). The goal is to improve energy efficiency in public buildings (including University of Montenegro facilities) and enhance the operational efficiency of the electricity distribution network. The project consists of three components:
Component 1: Energy efficiency improvements in 23 public buildings (16 university, 6 administrative, 1 healthcare).
Component 2: Upgrading operational efficiency of the electricity distribution network.
Component 3: Technical assistance and project implementation support.
The total project value is €33.8 million, financed by a €31 million World Bank loan and €2.8 million in national funds. Component 1, worth €10.8 million (€8 million loan + €2.8 million budget funds), will be implemented by the Ministry of Energy using a revolving mechanism funded by verified savings from MEEP 2. Implementation started in February 2025 and will continue until April 30, 2030.

- Support programs for energy efficiency in end-use sectors

Following successful interest-free loan programs for households, the Ministry of Energy launched four new support programs for households, tourism, and manufacturing, funded with €13 million from the EU budget support package.

- Household Energy Efficiency Support Program

Adopted on April 18, 2024, this program aims to increase EE in households, focusing on improving air quality in urban areas, especially in northern and central Montenegro. The Eco Fund is the implementing body, with technical support from UNDP. The program budget is €8.8 million. Activities include:
Component 1: EE measures in individual homes (€7.5 million budget; includes €1.7 million for Pljevlja)
Component 2: EE upgrades in apartment buildings in Pljevlja (€1.1 million budget).

- Energy Efficiency in the Tourism Sector

On May 30, 2024, the Government adopted a €3 million support program for hotel energy efficiency and a €500,000 program for rural tourism, both funded by the EU. The Eco Fund is the implementing agency. For hotels, 19 contractors and 15 subsidy agreements were finalized while for rural and household tourism, the evaluation of applications is ongoing.

- Innovation for Energy Efficiency in Industry

On September 26 2024, the Government adopted a program to promote energy efficiency innovations in industry. It is implemented by the Innovation Fund with a €2.3 million budget (from the national budget and remaining IPA III support). Grants range from €50,000 to €200,000, with 80% support. The call opened on October 1, 2024, and closed on November 11, 2024. Of 32 applications, 25 passed administrative review and 14 advanced to the second evaluation round.

The Capital City of Podgorica exercises full control over its strategic and operational decisions, ensuring alignment with its long-term goals of sustainability, urban modernisation and environmental stewardship. All the municipal companies, including key subsidiaries such as Vodovod i kanalizacija d.o.o. (Water Supply and Sewerage) and Deponija d.o.o. (Sanitary Landfill), are 100% owned by the Capital City. This ownership structure enables Podgorica to fully integrate municipal priorities into its operations, ensuring that sustainability remains at the core of its activities. The city's collaborative approach fosters innovative partnerships that enhance its ability to implement eco-friendly initiatives across various sectors, including energy systems, waste management and urban mobility, as outlined in the Capital City's Action and Investment Plan for Climate Neutrality.

The Capital City of Podgorica manages a diverse portfolio of municipal companies, each contributing to the city's sustainability agenda and aligning it with the Net Zero City (NZC) initiative

and the European Union's climate neutrality objectives. Below is a list of key subsidiaries, wholly owned by the Capital City, with a brief description of their core function:

Vodovod i kanalizacija d.o.o. (Water Supply and Sewerage): Manages the provision of clean water and wastewater treatment services, focusing on sustainable water resource management and climate-resilient infrastructure.

Deponija d.o.o. (Sanitary Landfill): Oversees waste management and landfill operations, driving initiatives such as biogas-to-electricity conversion to promote a circular economy and reduce emissions.

Agencija za stanovanje d.o.o. (Housing Agency): Facilitates the improvement of energy efficiency in residential buildings through renovations, including thermal insulation and window replacements.

Komunalne usluge d.o.o. (Municipal Services): Provides comprehensive municipal services, including waste management, street maintenance and public sanitation, contributing to a cleaner and more sustainable urban environment while supporting Podgorica's circular economy and climate neutrality goals.

Čistoća d.o.o. (City Sanitation): Ensures effective waste collection and street cleaning services, contributing to a cleaner urban environment and supporting recycling initiatives.

Housing Agency Podgorica implements energy retrofit of the existing residential building stock. Through two programs implemented in residential multiapartment buildings, from 2019 onwards, namely the "Beautiful face of Podgorica" and support program to improve energy performance of buildings through retrofit of facades, approximately 300 buildings have been retrofitted since, with more than 600 thousand square meters of facades refurbished. The total investment value of these activities was approximately € 6 million.

Environmental protection fund (Eko Fund), although a newly formed institution which started its operation only in 2021, has been increasingly providing support to the residential and commercial building sector. Most recently they have been providing support to improvement of energy performances of single apartment buildings, through façade retrofit, window and door replacement, instalment of efficient heating and cooling systems and heat pumps, and energy efficient house appliances. The total amount of funding for this program was approximately €106,000.

Beyond the existing measures, the CNAP expands the buildings portfolio in line with national energy-efficiency programmes. Priority additions include scaling up deep renovation of municipal and state public buildings through DESCG and MEEP-type programmes; broadening household and SME support for façades, windows and doors, heat pumps, efficient appliances and smart controls through Eko Fund and national support schemes; stronger promotion of rooftop PV, solar thermal and, where appropriate, battery storage; and progressive introduction of nZEB / zero-emission performance standards for new buildings and major renovations. The city will also consider reinvesting verified energy-cost savings from municipal buildings and public lighting into further EE projects in order to create a revolving pipeline of building-renovation investments.

When it comes to **public lighting**, **Komunalne usluge d.o.o. Podgorica** has, for several years now, been actively implementing numerous initiatives aimed at modernizing the infrastructure for public lighting, traffic signalization, and associated telecommunications systems. As a result, today the Capital City of Podgorica boasts a highly advanced infrastructure—whether in terms of public lighting, traffic lights, or a high-quality fiber-optic telecommunications network. Public lighting across the city is now covered by over 97% modern LED lighting, which has significantly minimized energy consumption while ensuring lighting quality that complies with applicable European standards. This not only enhances energy efficiency but also significantly improves the safety of users. The traffic signalization system is fully equipped with 100% LED light sources. In addition, optical links have been established between the data center and microprocessor-controlled traffic light devices at 48 intersections. This setup allows for continuous monitoring and detection of all irregularities or alarms within the traffic control devices and associated equipment. The rapid response to all types of

malfunctions and their swift resolution contributes greatly to traffic safety which is one of the primary objectives. Given the advancement of solar lighting technology and the city's favourable climate with a high number of sunny days, the continued installation of solar-powered LED lights is planned for 2025, which will further reduce electricity consumption. Activities of Komunalne usluge d.o.o. were supported by the Eko Fund as well.

The Renewable energy sources deployment in Capital City of Podgorica is gaining traction driven by favourable policy development at national level, increased funding opportunities, as well as climatic conditions i.e. insolation. The Capital City has recognized the potential and importance of transition toward green energy and has installed photovoltaic systems on several public buildings. In parallel, through projects "Solar 3 000 +" , "Solar 500 +" "Solar 5 000 +", Eco Fund in partnership with national electricity production company EPCG, provides support to citizens and the private sector in installing PV systems in their homes and businesses.

The Secretariat for Transport coordinates strategic and operational initiatives to enhance public transportation and overall mobility within the Capital City. At present, the Secretariat for Transport, in collaboration with the authorized carrier - the company "Putevi" d.o.o. Podgorica – is engaged in the collection of relevant data related to existing routes, user demographics, departure frequencies, load points, and other critical parameters essential for devising an optimized line transportation model. This data will form the basis for the development of a Sustainable Urban Mobility and Transport Strategy (the Transport strategy) aimed at establishing a fair, functional and rational network of routes, that meets contemporary population needs and adheres to sustainable mobility principles. The strategy will include of reducing the use of private cars and encouraging citizens to use sustainable forms of transportation. This strategy will also consider acquisition of new, modern and environmentally friendly means of transport - both electric buses and smaller vehicles that will be used to access hard-to-reach areas. It will also contain elements related to the digitization of the transportation system, such as the introduction of smart stops, electronic cards, travel planning applications and real-time vehicle tracking systems. This will enable more transparency and better information for users, which is crucial for establishing trust in public transport. A special attention will be paid to vulnerable groups of the population - the elderly, people with disabilities, children and people with limited mobility. The Strategy will also include measures to ensure the accessibility of vehicles, appropriate stop infrastructure and auxiliary equipment, thus contributing to the inclusiveness of the system. Additionally, the development of the Transport strategy is also aimed at improving intermodality, i.e. connecting different modes of transportation into a single, functional system. Thus, wherever possible, public transport lines will be aligned with cycle paths, bicycle parking spaces and car parking lots, in order to enable flexibility of movement and reduce pressure on city roads. It is expected the Strategy will result in an increase in the number of public transport users, a reduction in the emission of harmful gases, a better utilization of the capacity of existing resources, as well as a reduction in traffic jams. In summary the Transport strategy will assess 6 separate thematic sections:

a. Public urban transport,
b. Traffic infrastructure, traffic management and regulation,
c. Auto-taxi transport,
d. Stationary traffic (parking systems),
e. E-vehicle models in public transport (E-bus, E-bike, E-taxi, and E-charging stations),
f. Bicycle traffic and development of cycling corridors

Other important initiatives of the Capital City, and its partners include plans for electrification of the vehicle stock owned by the Capital City and its enterprises as well as support to electrification of vehicles for personal and commercial use, promotion of the cycling and improving cycling infrastructure. In this context, Eko Fund has been providing support to acquisition of electrical and hybrid vehicles by Capital City, commercial sector and individuals, in total 265 vehicles were procured so far (66 by public sector, 90 by commercial sector and 109 by individuals), while the total subsidy amount was around € 900,000. In Podgorica, significant emissions in the transport sector come from registered motor vehicles and trailers that burn gasoline and diesel. Therefore, the city administration has been trying to solve this issue for years, initially by purchasing new buses and promoting greater use of public transport (through free transportation), the "Smart Traffic Lights" project, cycling through the "Podgorica on Two Wheels" project hiking due to the favourable climate, and soon we will receive reports and trends on the status of CO2 emissions from transport through the Raptor project,

in which Podgorica is participating. Therefore, this administration is already implementing the necessary initiatives to promote electric mobility (it is important to mention that 870 taxis are registered in the territory of the Capital City, 150 of which are electric). In addition, work is underway to promote the transition from car traffic to more sustainable options through significant infrastructure improvements. Although these measures are being implemented, their impact in terms of achieving the necessary emission reductions is not guaranteed, as they must go hand in hand with voluntary behavioural changes and market trends. In order to achieve a significant reduction in emissions by 2030 through the maximum use of fully decarbonized electricity generation, a direct conversion would be necessary, i.e. the purchase of electric buses, which the Capital City has planned for the future. Market conditions, such as the price and availability of electric buses, must be shaped at the national and supranational policy level in such a way that they encourage the rapid introduction of electric vehicles while also encouraging more sustainable modes of transport such as walking and cycling.
The CNAP also expands the transport portfolio in line with national e-mobility support. Priority include phased introduction of electric buses and the required depot and charging infrastructure, rollout of public fast-charging points at strategic municipal and park-and-ride locations, stronger support for electrification of taxi and municipal fleets, digital ticketing and real-time passenger information, intermodal links between buses, cycling and walking, and demand-management measures such as adaptive traffic control and parking-management reform to reduce private-car dependence and create new revenue streams for sustainable mobility investments.

Concerning the promotion of cycling and cycling infrastructure Capital City of Podgorica has already built 22 kilometres of cycling corridors and has an open-ended program, renewed each year, for supporting citizens in purchasing bicycles which is called “Podgorica on two wheels”. The project “Podgorica on Two Wheels” was started with the aim of promoting environmental protection and affirming alternative modes of traffic. The project was launched in January 2019, and funds of €10,000 were allocated for its implementation, which were used to subsidise the purchasing of bicycles by citizens – for 50% of the price of a bicycle, up to a maximum of €100. The funds were sufficient to provide bicycles for about 100 citizens. The interest among citizens exceeded the expectations. This project is only part of the plan that the Capital City has been working on for years to improve the quality of life, with the aim of motivating individuals to change to a healthy lifestyle. “Podgorica on Two Wheels” was started as a pilot project, but when citizens welcomed it with enthusiasm and satisfaction, the City Management decided that it was necessary to continue it, so that as many of our citizens as possible would get a chance to buy a bicycle inexpensively, and with the support of the Capital City. The program with its 11 funding windows, from 2019 onwards, has provided subventions to 2,224 citizens in total amount of € 231,518,46. The 2025 Budget has foreseen € 60,000 for this purpose. Another challenge is poor traffic behaviour. In 2024, free transport was offered as part of European Mobility Week. As part of a solution, we are building a green centre. In the city centre, we will prevent motorised traffic, with the exception of alternative routes and footpaths. Means of transport have the option of uploading bus stops via GPS signals so that people with visual or hearing impairments can be informed which stop is coming next. Click Bus was the first application to have a positive impact, but it has not been updated. Streets have access to information about locations and transit times. According to the decision on transport, Putevi LLC is obliged to submit information on the results achieved to the Secretariat for Transport by the 10th of the month (the Secretariat exercises administrative supervision over Putevi). Now the buses are diesel-powered. The City Administration is moving toward purchasing electric buses as part of the construction of a green centre. According to data from Montenegro's Ministry of Internal Affairs, as of 21 February 2025, a total of 97,322 passenger motor vehicles were registered in Podgorica, which is 6,505 more vehicles compared to the figure from June 2024. Then, the purpose of the project for Adaptive Traffic Signal Management at the specified intersections is to provide, based on the analysis of traffic loads using installed detection resources (for vehicles and pedestrians) in real time, an optimal solution for managing traffic flows by applying adaptive management software at the micro level (intersection level) and the macro level (corridor or zone level). By implementing an adaptive management system, observed irregularities in traffic flows-based on vehicle data from traffic cameras and pedestrian crossing buttons-initiate adjustments to the basic control parameters (cycle length, green signal duration, etc.) in order to achieve optimal traffic flow management at individual intersections and along corridors. The aim is, for the second phase of upgrading and implementing the adaptive system, to cover 18 intersections, i.e. 3 zones. According to data from Montenegro's Ministry of Internal Affairs, as of 21 February 2025, a total of 97,322 passenger motor

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When it comes to waste management and circular economy, Landfills, Podgorica „Deponija“ d.o.o.is undertaking several activities which contribute to reduction of GHG emissions and support transition toward circular economy. Namely, in line with its mandate Deponija d.o.o. is enhancing its capacities to apply integrated waste management principles and transform waste into new resources through recycling. The company is also investigating a possibility of using biogas generated within landfill for electricity generation for own use and possible for export into electricity distribution grid for profit. Project proposals: the plant for converting biogas into electric energy represents a key investment in the modernisation and environmental sustainability of waste management. This project aims to utilise biogas generated from landfill cells 2, 3 and 4 (we have carried out a gas test which confirms that there are sufficient quantities of it in the existing cells) and, in the coming years, from cells 5 and 6, which are planned to be constructed, in order to generate clean, renewable energy. This energy can be used for the operational needs of the plant facility as well as for delivery to the electrical grid. At present, “Deponija” d.o.o. Podgorica carries out the capture and extraction/collection of landfill gas, which is transported by dedicated pipelines to a flare unit with a capacity of 800 Nm3/h, where it is combusted prior to being released into the atmosphere. As a result, “Deponija” d.o.o. is incurring losses of approximately €1.000-1.500 per day. The project would enable the production of electricity from waste, reduce reliance on fossil

fuels, and provide a sustainable source of energy for local communities. Why is modernisation necessary? The current automation system in the Recycling Center is based on technology that is more than 15 years old. The software and equipment are no longer supported by the manufacturer, spare parts are difficult to procure, and the system does not meet basic safety and functional operational standards. A single technical failure could completely halt the operation of the Recycling Center, representing a major business and operational risk.

At the same time, the waste management action framework of the Capital City is aligned explicitly with the current national legislative and planning framework. The Waste Management Law establishes the waste hierarchy, the polluter-pays principle, separate collection, treatment and planning obligations, while the State Waste Management Plan 2025–2029 sets a transition toward a circular economy, stronger separate collection and recycling, reduced biodegradable waste landfilling, regional waste-management centres, closure and remediation of non-sanitary dumpsites, and stronger digital records and inspection. For Podgorica, this means prioritising citywide separate collection, bio-waste diversion, recycling-centre optimisation, landfill-gas recovery, data digitisation and full integration of the Livade regional waste system with the new national planning framework.

The CNAP solid waste portfolio is in line with the Landfill Deponija plans for biogas a plant with a nominal power of 1.5MWe can be constructed. Primarily, a power of 0.99 MWe would be used, while in periods when a realistic gas quantity of over 700m3/h of landfill gas with approx. 50% CH4 is expected, another gas generator of 500kWe would be added. Besides, introducing modern recycling technologies, such as automatic optical separators, advanced sorting systems and digital process management, is possible to significantly increase the separation of packaging materials, reduce operational costs and improve worker safety. Finally, the plant for the treatment of construction waste with an estimated capacity of 50,000 tons per year has been envisaged, as well.

The wastewater sector should also be made explicit in the policy baseline and the action framework. The wastewater collection and treatment plant, associated sewerage improvements, and the operational optimisation of Vodovod i kanalizacija d.o.o. are both environmental-compliance and climate-mitigation measures. Priority actions include completion of the wastewater collection and treatment system, raising connection rates, improving pumping and treatment energy efficiency, considering photovoltaic self-consumption at utility facilities where feasible, and establishing sludge and process-emissions monitoring. New WWT system is consisting of three facilities: Wastewater Treatment Plant (WWTP), Sewage Sludge Treatment Plant (SSTP), Sewage Sludge Incineration Plant (SSIP).

Upgrade of the electricity distribution grid is a precondition for basically all initiatives related to electrification, since it significantly influences the capability of the grid to integrate new RES. As mentioned before, the Government of Montenegro signed a loan agreement with the World Bank to implement the "Decarbonization of Montenegro's Energy Sector" project (DESCG). One of the goals is to improve operational efficiency of the electricity distribution network. It is expected that this project contributes to improvement of the electricity distribution grid, however, further support is needed specifically for the electricity distribution grid on the territory of the Capital City.

Spatial planning has a very important role in energy and climate planning. The territory of the Capital City of Podgorica is covered by the Spatial-Urban Plan of the Capital City, which defines the basic spatial organization, the protection of natural, cultural, and historical values, the land use and zoning, as well as proposed conditions and measures for their regulation. It also includes more detailed planning documents, such as Detailed Urban Plans, Urban Projects, and Local Location Studies. In December 2024, the procedure for amending and supplementing the Spatial-Urban Plan of the Capital City of Podgorica was intensified, as this planning document was adopted in 2014. This is of particular importance for the Capital City, which has submitted several initiatives in line with its urgent needs. The amendments and supplements to this planning document are crucial for balanced and sustainable urban planning. In March 2025, the Parliament of Montenegro adopted a new legislative framework aimed at restoring decentralization, transparency, and alignment with the European Union in the areas of spatial planning and construction. This reform package includes the Law on Spatial Planning ("Official Gazette of Montenegro", No. 019/25 of 04.03.2025, 028/25 of 19.03.2025) and the Law on Construction of Structures ("Official Gazette of Montenegro", No. 019/25 of 04.03.2025), which officially replaced the 2017 Law on Spatial Planning and Construction of Structures that had centralized control over spatial development and significantly limited the competencies of local governments. The changes in the legal framework have created the legal preconditions for the Capital City of Podgorica to analyze and improve the planning documentation that regulates its territory in the coming period.

When it comes to climate resilience and adaptation to climate change, in previous period Capital City of Podgorica has been making strides in advancing initiatives that support adaptation to negative effects of climate change. In fact, Capital City of Podgorica is the only local self-government which produced a Climate Adaptation Strategy. In this context, several activities have been designed and implemented by various Secretariats and enterprises:

- Office of the Chief City Architect

- The project Mikro 020 - Creation of new green and public areas, adaptation and conversion of neglected "pockets". The project contributes to improvement and revitalization of spatially neglected and environmentally abandoned locations with clear benefits for the community. Aware of the fact that there are neglected areas in the capital city, the City Management decided to launch this project in order to breathe new life into these locations, and make them once again places where all the city's residents can gather. In cooperation with its partners and citizens, the desire of the City Management is for these areas to become green urban pockets of the city, where citizens will be happy to spend their spare time. The goal of this project is also for the citizens to become actively involved in making a symbolic contribution to the restoration through the selection of locations, in order to make them feel as if these micro spaces belong in fact to them, which will result in better maintenance and preservation of these areas. The first phase of the project involved determining and defining the locations. From the very start, a dozen or so locations were determined by our citizens via the city services. The second phase included the collection of funds, and the restoration of the areas, while the third phase was crucial – breathing life into the areas, and putting them to use. The first micro location was unveiled at the beginning of April 2019, in Princess Ksenija Street in Zabjelo. A remarkable three-dimensional sculpture of Princess Ksenija, created by Nikola Simanić, was later placed in this area. This gave the area an artistic value, in addition to its green vegetation. More than 15 micro locations have been already refurbished within this initiative.
- The greening plan for facades. By introducing vertical and horizontal greenery on existing buildings, the goal is to reduce the negative effects of high temperatures and thus increase the quality of life of citizens. The Capital City Budget has designated €80,000.00 for the implementation of the facade greening project for 2025.
- Garden community. Considering the climate change effects, urbanisation processes and the expansion of the city area, it is necessary to convert parts of the city into natural oases and create communal facilities that provide the possibility for leisure activities in these spaces. The core objective of this initiative is that, by engaging in volunteer work, fellow citizens can spend their free time in such designated areas, cultivating the land, assisting in the cultivation of various plant crops, and generally enjoying quality time in nature. One of the key features of this initiative is the establishment of a garden community, which invites all interested individuals to engage in urban agriculture and gardening. The urban garden encompasses not only arable land but also includes supporting facilities designed for maintenance, outdoor living, and storage of products and tools. The Capital City Budget has designated €35,000.00 for the implementation of projects within the Garden Community (construction of restrooms and pavilions) for 2025.
- The project „Green City Puls“ project represents the connection of the green oases of the city through different types of floor plan, which will enhance a large number of plant species, striving to connect them through different elements. It contains footpaths that will be marked with the logo of this project, movable and immovable urban furniture, plantings of all types of vegetation, spatial installations in the function of changing and connecting segments, painting buildings, roads, elements of urban furniture. The emphasis is on the greening of the city, the connection of already formed green structures with the provision of additional supporting contents, which represents an important segment for the preservation of the environment and the creation of a healthy and sustainable environment. The construction is planned in phases, with the first phase, approximately 5 km long.
- **City housing project -** The intervention area covers 18,673m^2 (1.86 ha). Housing

represents one of the basic human needs and directly affects the quality of life, social inclusion and economic opportunities of an individual. In modern urban environments, the issue of housing is becoming increasingly important due to rising real estate prices, lack of affordable housing units and changes in household structure. As the largest urban centre in Montenegro, the Capital City of Podgorica faces significant challenges in the field of housing: a considerable number of households do not have permanent housing solutions, high prices of new construction make access to housing limited for a large part of the population, while young people, single parents and large families are particularly vulnerable. By launching this project, the City aims to actively contribute to solving the housing issue through the construction of social and affordable housing, improving the quality of life of citizens and promoting social cohesion. The project brief defines the framework for the preparation, planning and implementation of a program that will enable adequate and affordable housing for vulnerable categories of the population, as well as all others, in accordance with the principles of sustainable urban development. The Mayor of the Capital City of Podgorica issued a Decision on announcing a competition for the conceptual urban-architectural design of a residential - commercial complex within the "City Apartment" project in Podgorica No. 01-018/25-5907 of 12 September 2025. The legal basis for the adoption of the Decision is contained in the provisions of Article 15, paragraphs 1 and 4 of the Law on Construction of Structures ("Official Gazette of Montenegro", Nos. 19/25 and 95/25), Article 6 of the Rulebook on the Manner and Procedure for Announcing and Conducting a Public Competition for a Conceptual Architectural Design ("Official Gazette of Montenegro", Nos. 19/18, 2/24 and 8/24), as well as Article 100, paragraph 1, item 20 of the Statute of the Capital City ("Official Gazette of Montenegro – consolidated text", Nos. 8/19, 20/21 and 49/22). The competition for the conceptual design is announced and conducted in accordance with the Rulebook on the Manner and Procedure for Announcing and Conducting a Public Competition for a Conceptual Architectural Design ("Official Gazette of Montenegro", Nos. 19/18, 2/24 and 8/24).

- **Water Supply and Sewerage, Podgorica**

Water Supply and Sewerage focuses its activities, among other, on protection of the water sources, springs and wells. The continuous measurements of water uptake indicate declining water abundances which can be attributed to changing climate. The Water Supply and Sewerage has taken important measures to protect and safeguard available water sources, including by implementing novel concepts such as Nature based solutions (greening of the area around water wells so it can provide protection from wildfires). In December 2025 one of the most important environmental projects not only in Podgorica but in the entire state - and that is construction on a new waste water treatment plant, started. The current facility was built in 1972 with capacities exceeded so the construction of the new one, characterized by modern technology, meeting strict environmental standards, was imperative.

- **Agency for protected areas management Podgorica**

The Agency manages the four protected areas under City's competence - two parks of nature and two monuments of nature and by its mandate also implements and promotes climate resilient activities. The focus of the work of the Agency in the future will be on expanding the protected areas within the territory of Capital City as well as serving the community by implementing Nature base solutions to adapt to adverse effects of climate change.

Additionally, **Capital City of Podgorica has a vibrant international cooperation and together with its partners undertake several complementary initiatives and projects.**

Podgorica is partner or member of several international projects/initiatives related to climate resilience, conducted by City's Secretariat for Spatial Planning and Sustainable Development with support by City's Office for International Cooperation and Partnerships, as following:

Within the **Horizon Europe Programme**:

- **INCREASE project – Effective advancements towards uptake of PV integrated in buildings & infrastructure**, which focuses on developing innovative solutions in the field of energy efficiency. Integrated solar panels will be installed on the administrative building and on the public garage. Partners from Spain and France have developed the solutions, the preparation of project documentation is currently underway, and installation is planned for the end of next year, in line with the project timeline.
- **ATMOPOLIS project – Air and Noise Pollution Mitigation through Integrated, Society-Centered Actions**, which aims to identify optimal solutions for reducing air and noise pollution in European cities. Project implementation began in January 2026

Within the **Danube Interreg Programme**:

- **Be Ready project – Urban Heat Islands Resilience, Preparedness and Mitigation Strategy**, which aims to mitigate the effects of urban heat islands. As part of this project, in addition to conducting analyses and implementing promotional and educational activities, a pilot project has been realized—a green roof installed on a bus stop in the City Quarter.
- **Sponge City project – Improving Urban Climate Change Adaptation Capacities by Testing and Promoting the "Sponge City" Methodology at Transnational Level**, which aims to prevent and mitigate the impacts of urban flooding. Within this project, no funding was obtained for pilot actions; instead, activities focused on knowledge transfer related to the "sponge city" concept (i.e., effective use of rainfall), as well as promotional and educational activities. An action plan for sponge cities is currently under development. The project will also include the preparation of a feasibility study for installing green roofs on residential buildings.
- **NBS4RESILIENCE project**, which aims to strengthen urban climate resilience through the application of nature-based solutions. We are currently developing a solution to mitigate the urban heat island effect using mobile plant-based installations, which will be placed in public squares identified as key heat islands in most cities.

Additionally, based on a positively evaluated application, last year Podgorica became a member of the international **RAPTOR programme**, within which we received support for implementing a pilot activity related to monitoring CO_2 emissions from the transport sector and traffic counting. The Italian company Tea Group developed sensors for monitoring the impact of traffic on air quality and for traffic counting, which were installed in November last year on seven major roads.

International initiative **"Making Cities Resilient 2030"**, of which we became a member in November 2024, aims to strengthen city capacities in disaster risk reduction, with a particular focus on climate change. Within this initiative, and with the support of UNDP, a **Local Disaster Risk Reduction Strategy with an Action Plan for the period 2026–2030** has been developed. A public consultation was conducted in January 2026, and the document will soon be submitted for adoption by the municipal assembly.

Complementary projects implemented by partner institutions

Faculty of Civil Engineering, University of Montenegro

- **Project 1Future** – This project (https://1future.feut.edu.al) focuses on strengthening the capacities of higher education institutions in the region, including Montenegro, to implement the objectives of the Green Deal, positioning them as drivers in connecting key stakeholders for building climate-resilient communities. The project involves collaboration with international partners and is implemented under the Erasmus+ programme, with the Faculty of Civil Engineering participating as a project partner.

- **Project SmartWB** – Faculty of Civil Engineering is the coordinator of the Erasmus+ project SmartWB (https://www.smartwb.ucg.ac.me/), which aims to enhance knowledge and skills in the field of smart cities. The project promotes the integration of innovative technologies that support sustainable development and climate neutrality.

Institute of Modern Technologies of Montenegro (IMTM)

- The **HARMONMISSIONS project** (https://harmonmissions.eu/) is being implemented under the Interreg programme, specifically the Interreg Danube Region Programme. The main objective of the project is to harmonize the implementation of EU Missions across the Danube Region, considering existing differences in understanding, organization, and implementation levels among countries in the region.

- The project focuses on two key EU Missions:
  - **Mission 1:** Adaptation to climate change
  - **Mission 4:** 100 climate-neutral and smart cities by 2030

- The ultimate outcome of the project will be the establishment of an effective governance model for EU Missions at the Danube regional level, thereby strengthening the region's role in the implementation of European environmental policies.

Institute for Public Health

Mitigation of climate change impacts on human health and improvement of well-being through one health approach (MICA)

The MICA project aims to mitigate the impacts of climate change on human health by adopting an integrated approach based on the One Health concept, which considers the interconnections between human, animal, and environmental health. The project focuses on implementing pilot actions in Italy, Albania, and Montenegro, with the goal of developing joint risk assessment strategies, decision-support tools, and policy guidelines to address climate change-related threats. One of the project's key activities includes the development of integrated risk maps through a Decision Support System (DSS). These maps will aid public administrations and technical staff in drafting prevention and adaptation plans for managing vulnerable areas. Data for the maps will be collected through the pilot actions across the three territories and via the MICA app, which is based on a citizen science approach, allowing citizens to actively contribute to data collection. Each pilot action will be tailored to the specific context of the participating territories, while ensuring cooperation among all partners. In Albania, the pilot will focus on monitoring hospital admissions in relation to extreme climate events, with careful handling of sensitive data. In Montenegro, the pilot will analyze threats from disease vectors, such as mosquitoes, associated with climate change. In Italy, participatory design workshops will be organized with local stakeholders to develop regional programs aimed at strengthening climate resilience. The project also includes a capacity-building

program, with training events in each territory to explain the operation of the DSS platform and the risk mapping process. In its final phase, the project will conclude with the signing of a Memorandum of Understanding (MoU), through which partners will formally commit to adopting the developed strategy and ensuring the sustainability of project outcomes through the establishment of a cross-border cooperation network.

Project duration: 30 months

Total budget: €1,266,500.00

Climate resilience education, capacity building, and awareness rising

Capital City of Podgorica has historically invested in educational, awareness raising and capacity building initiatives. In this context, priority themes included Energy Efficiency, waste management and nature protection. However, climate change impacts and resilience have gained prominence in recent years, and a clear need for deeper understanding of this issue has been identified. The Capital City of Podgorica will continue to design and implement initiatives and activities in the future which will contribute to enhancing knowledge, understanding and participation of citizens concerning climate change risks, impacts as well as climate change resilience.

To report the city´s emissions gap and residual emissions, you can use table A-2.1 and the associated definitions. You will have to refer to estimates from your iterations of Climate Neutrality Scenarios and Impact Pathways (Part C).

The ambition is set as a minimum 60% reduction by 2030 against the 2019 BEI. This target is applied to the combined total of all included sectors and not as a separate 60% target for each individual sector. On the baseline of 605,545.56 tCO_2e, the maximum 2030 emissions level consistent with an exact 60% reduction is 242,218.22 tCO_2e, while the required total reduction is 363,327.33 tCO_2e. The mitigation portfolio quantifies 169,167.74 tCO_2e of reductions from existing actions and 194,168.13 tCO_2e from additional buildings, transport, solid waste and wastewater actions, bringing total quantified reductions to 363,335.87 tCO_2e, equivalent to 60.0014% of the 2019 BEI and resulting in estimated final 2030 residual emissions of 242,209.69 tCO_2e/year before any separately reported compensation/removal measures.

Indicator	Value	Explanation
2019 baseline	605,545.56 tCO_2e	Buildings + transport + solid waste + wastewater
2030 target emissions	242,218.22 tCO_2e	40% of the baseline
GHG reduction by 2030	363,327.33 tCO_2e	60% of the baseline
Existing actions quantified reductions	169,167.74 tCO_2e	Reduction based on the existing actions (buildings + transport)
Additional actions quantified reductions	194,168.13 tCO_2e	Reduction based on the additional buildings, transport, solid waste and wastewater actions

Total quantified reductions	363,335.87 tCO_2e	Existing + additional actions

Table A2.1											
	(1) Baseline emissions	**(2) Emissions Reduction Target 2030**		**(3) Emission reduction through other Action Plans**		**(4) Emissions Gap**		**(5) Emissions reduction through the CCC Action Plan to address the Gap**		**(6) Residual emissions**	
	Baseline emissions (ideally not older than 2018) - referring to the inventory used for target setting	The emissions reduction target for 2030 ideally achieves a minimum 80% reduction from the baseline, as reported in Section 2 of the Commitments document of the CCC. The overall target should be absolute or net-zero (i.e. including the compensation of any residual emissions).		These are the emissions reductions that would be achieved through existing policies, and plans, outlined in Section A-2.1. Those actions are by definition not part of the action portfolio in section B. If they are fully or partially incorporated in module B-2, their associated reduction potential should be referenced in column (5) and not be included here. WARNING if the baseline is a BAU scenario: If the BAU modelling includes any of these existing measures, please also do not include the associated emissions reduction in this column as otherwise it would be double counted.		(4) = (2) – (3)		This column is used to present the already quantified emission reduction associated with the action portfolios outlined in module B-2. Ideally, this equals the gap. If the there is a difference between the reduction potential of the actions specified in module B-2 (for instance because their reduction potential has not been fully estimated or because additional measures will be identified in future iterations), the CCC AP should be explicit about this difference and explain how the difference will be closed. In principle, as long as the difference has not been addressed, it would be considered as part of the residual emissions.		(6) = (1) – (2)	
	(absolute) (specify units)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)
Buildings	239,351	143,610	60.0	96,549	40.3	47,061	19.7	86,465	36.1	56,336	23.5
Transport	251,362	150,817	60.0	72,619	28.9	78,198	31.1	64,699	25.7	114,044	45.4
Solid waste	73,800	44,280	60.0	0	0.0	44,280	60.0	21,506	29.1	52,294	70.9
Wastewater	41,033	24,620	60.0	0	0.0	24,620	60.0	21,495	52.4	19,538	47.6
Total	**605,546**	**363,327**	**60.0**	**169,168**	**27.9**	**192,865**	**31.8**	**194,165**	**32.1**	**242,213**	**40.0**

2.3 Module A-3 Systemic Barriers and Opportunities to 2030 Climate Neutrality

This module aims to document the conclusions of a systems and stakeholder mapping aimed at identifying systemic barriers and opportunities. In conjunction with the GHG inventory and the policy baseline analysis in the previous two modules of Part A, the analysis reported here serves as a basis for designing actions that address these barriers or exploit the underutilised opportunities in Part C. The results of this analysis as provided here include:

- A description of the main systems related to the city´s GHG emission domains, e.g., technological/infrastructural, institutional/ regulatory, organisational, financial, political, social and behavioural systems.
- A description of barriers and opportunities for each of the systems above. This includes gaps (infrastructural/ technological, institutional/ regulatory, organisational, political, financial, behavioural or social) as well as an evaluation of unexploited resources (e.g., renewable energy sources, digital technologies, etc) or circumstances.
- A map of stakeholders involved for each of the systems above. This includes relevant actors per systemic element at different levels of governance throughout the whole policy cycle, such as local, regional, national, and EU/supranational administrative bodies and agencies, civil society, non-governmental organisations (NGOs), academia, community-based organisations, social movements, steering groups, private sector actors etc.

A-3.1: Description of urban systems, systemic barriers, and opportunities

The systems analysis identifies the main urban systems that influence the 2030 climate-neutrality pathway and the conditions required for accelerated implementation. It focuses on the emission domains covered by the Action Plan, while also recognising the enabling role of governance, finance, data and citizen participation.

1. Governance, planning and delivery system

Description: Climate neutrality requires coordinated action across municipal departments responsible for spatial planning, energy, transport, waste, water, public buildings, procurement, finance and communication. The City administration is the central coordination actor, but implementation also depends on public companies, national ministries, regulators, utility providers, private investors, civil society and local communities.

Systemic barriers: fragmented responsibilities, limited cross-sectoral project preparation capacity, uneven data availability, limited use of common monitoring rules and the need for stronger alignment between the Action Plan, investment planning, spatial plans and annual municipal budgets.

Opportunities: the Climate City Contract can function as an umbrella framework for prioritising actions, assigning responsibilities, linking mitigation and adaptation co-benefits, and establishing a regular monitoring, evaluation and learning cycle. A dedicated cross-departmental coordination group can improve implementation readiness and reduce the risk of double counting between sectors.

2. Stationary energy and built-environment system

Description: The building stock, public lighting, municipal facilities, households and commercial buildings are major sources of final energy consumption and Scope 1 and Scope 2 emissions. The system is influenced by building renovation rates, heating and cooling technologies, electricity demand, rooftop solar potential, energy management and procurement practices.

Systemic barriers: high upfront investment needs, slow renovation cycles, insufficient energy-audit and design pipelines, limited capacity for energy performance contracting, split incentives in multi-apartment and commercial buildings, and the need for transparent ex-ante and ex-post calculation of energy and GHG savings.

Opportunities: deep renovation of public buildings, energy-efficiency programmes for residential and commercial buildings, heat pumps, rooftop PV, battery storage, improved energy management and EM&V can deliver large emission reductions, reduce energy costs, improve comfort and create a replicable municipal investment pipeline.

3. Mobility and transport system

Description: Transport emissions are driven by private car use, taxi fleets, public transport, municipal fleets, freight/service vehicles, traffic management and the quality of walking, cycling and public transport infrastructure.

Systemic barriers: car dependency, limited public-transport attractiveness, insufficient charging infrastructure, fragmented fleet data, need for better parking and traffic management, and behavioural barriers to modal shift.

Opportunities: electrification of public transport, taxi and municipal fleets, fast and destination charging, improved ticketing and priority measures, adaptive traffic and parking management, cycling corridors, pedestrian routes and compact mixed-use planning can reduce fuel consumption and improve air quality, safety and accessibility.

4. Waste, wastewater and circular-economy system

Description: Waste and wastewater emissions are linked to methane generation from landfilled biodegradable waste, wastewater treatment processes, sludge management, collection systems, recycling and recovery of energy from biogas/landfill gas.

Systemic barriers: limited source separation, high biodegradable fraction in residual waste, need for stronger material-flow data, investment requirements for treatment and recovery infrastructure, and risk of double counting between waste reduction, landfill-gas capture and energy generation measures.

Opportunities: separate collection, recycling, composting/bio-waste management, landfill-gas CHP, wastewater biogas and CHP, sludge management and circular public procurement can reduce methane, substitute grid electricity and support resource efficiency.

5. Green infrastructure, land-use and water system

Description: Urban green areas, street trees, green corridors, river corridors, peri-urban land, burnt areas and erosion-prone zones provide both carbon-removal and adaptation benefits. This system is directly relevant to residual-emissions compensation and climate resilience.

Systemic barriers: lack of a complete inventory of suitable public land and planting sites, uncertain survival rates, drought and heat stress, maintenance needs, wildfire risk in peri-urban areas, limited quantified sequestration data and the need to avoid over-crediting non-durable sinks.

Opportunities: structured urban tree planting, Mikro 020-style green pockets, green corridors, peri-urban afforestation, riparian restoration and restoration of burnt/degraded areas can increase natural sinks, reduce heat-island effects, improve stormwater retention, stabilise soils and strengthen biodiversity connectivity.

6. Finance, procurement and implementation market system

Description: Implementation depends on the ability to transform the Action Plan into bankable projects, municipal budget lines, donor/IFI pipelines, public-private partnerships and operational procurement packages.

Systemic barriers: limited project preparation resources, uncertainty over operating costs and maintenance responsibilities, competition with other municipal priorities, and the need for credible cost-per-tCO_2e estimates and lifecycle costing.

Opportunities: bundling similar interventions, using standardised technical designs, linking actions to national and international funding sources, establishing framework contracts for planting/maintenance and energy works, and integrating climate criteria into procurement can accelerate implementation.

7. Social, behavioural and citizen-participation system

Description: Climate neutrality requires active participation by citizens, businesses, public institutions, schools, NGOs and neighbourhood communities, especially for behavioural change, green-space maintenance, waste separation and mobility choices.

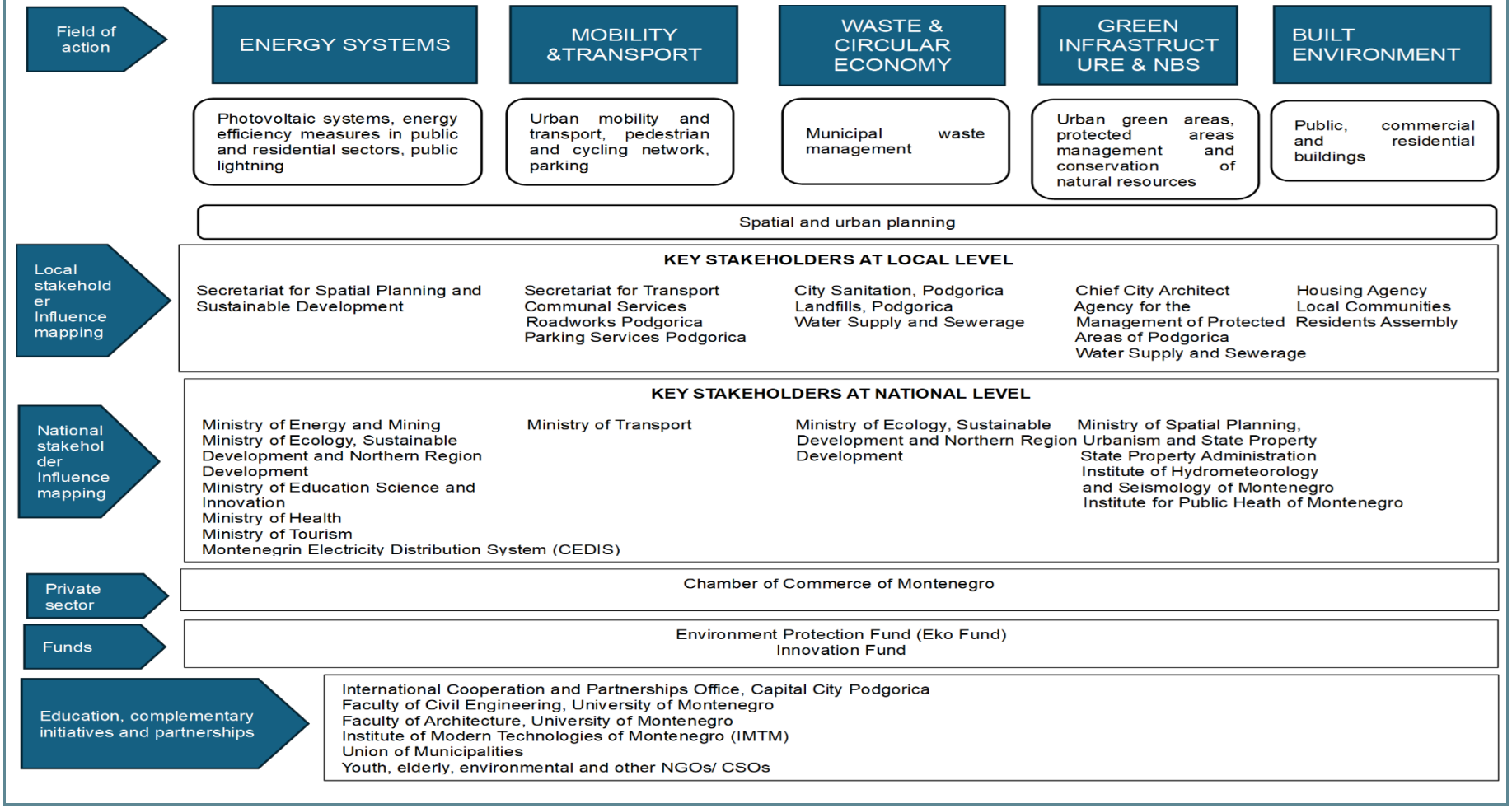
Systemic barriers: low awareness of quantified climate benefits, limited ownership of local actions, potential resistance to changes in parking/traffic regimes and limited capacity of communities to maintain small green interventions.

Opportunities: community planting, school greening, citizen reporting, public dashboards, neighbourhood challenges, local business participation and transparent communication on co-benefits can build ownership and make climate action visible and tangible.

Overall assessment

The main cross-cutting barriers are implementation capacity, financing, data quality, long-term maintenance and coordination across sectors. The main opportunities are the existence of a quantified 2030 pathway, the possibility to combine mitigation with adaptation and liveability benefits, and the use of nature-based measures to compensate a limited share of residual emissions. Priority should be given to actions with clear ownership, transparent calculation formulae, measurable indicators and credible monitoring arrangements.

A-3.2: Systems & stakeholder mapping



Capital City Podgorica stands at a critical juncture as it works toward achieving its decarbonisation targets by 2030. This ambition hinges on the transformation of five key urban systems—Built Environment, Energy Systems, Mobility and Transport, Waste and Circular Economy, Green Infrastructure & Nature-Based Solutions (NBS), and the Spatial and Urban Planning as a key horizontal theme. Given the complexity, transformation of these systems depends heavily on the effectiveness of stakeholder collaboration across local and national levels. Achieving climate neutrality requires a common understanding of involved stakeholders on primarily the magnitude of the challenge that lies ahead of the already in many ways strained local government, followed by the realisation of the necessary change that needs to happen in strategic and daily operation of the key stakeholders to achieve coordinated and synergistic action. Concretely, at the municipal level, sectoral secretariats and agencies must shift from operating in silos to a mode of systemic governance. For instance, the Secretariat for Spatial Planning and Sustainable Development sets spatial parameters and policy measures that affect energy efficiency (built environment) but also designs and implements nature protection and climate adaptation measures that heavily influence city's green infrastructure and green space availability and allocation (NBS). Housing Agency and Residents' Assemblies are essential intermediaries between city plans and building-level action. Without their engagement, retrofitting programs risk stalling due to low uptake or administrative bottlenecks. Water and Waste Utilities must integrate circular practices while coordinating with planning and public health entities to align infrastructural investments with sustainability targets. These linkages require formal coordination mechanisms and leadership. The Secretariat for Spatial Planning and Sustainable Development has taken significant steps to provide an institutional space for dialogue, alignment, and leadership in driving the Capital City of Podgorica towards climate neutrality targets by 2030 and beyond.

Stakeholders at national level are uniquely important as well since national government sets the legal and financial frameworks for climate neutrality. Ministries are responsible for setting of the national targets, implementation of the polices and funding programs and technical standards that enable (or humper) local action. National institutes, such as the Institute for Hydrometeorology and Seismology and Institute of Public Health, provide data that underpin vulnerability assessments and climate modelling which are essential for evidence-based planning.

Academic, Civil, and Private Sector contributions are essential to secure transparency and inclusiveness of different social groups while aiming toward climate neutrality. Universities and research institutes serve as knowledge partners, ensuring innovation and evaluating impacts. The University of Montenegro through its Faculty of Civil Engineering, among others, can spearhead collaboration and direct support to municipal climate planning. Civil society organisations, on the other hand, are key for connecting policy and citizens and ensuring translation of strategies and planning in livelihood and wellbeing priorities. CSOs advocating for youth, elderly, and environmental justice ensure that the transition is fair, inclusive, and responsive to citizen needs. The private sector, guided by frameworks embedded in the Chamber of Commerce, is a crucial driver of technological adoption and investment. Public-private partnerships, particularly in areas like renewable energy and mobility services could be instrumental as Capital City Podgorica is moving forward on its climate neutrality path. Podgorica's climate neutrality targets by 2030 will not be realized through isolated interventions, but rather through creation of a process rooted in a cross-sector collaboration at the local level, vertical coordination with national and EU institutions, engaged and empowered communities, and informed decision-making through close collaboration with science, research and education partners. This process is not solely a technical challenge it requires a new paradigm and governance transformation which will be carefully planned and implemented over the next few years.

Podgorica's ambition to reduce its greenhouse gas emissions by at least 60% by 2030 is constrained by several systemic barriers deeply embedded in its urban infrastructure, institutional design, and socio-economic dynamics. One of the central challenges lies in the fragmented governance and siloed institutional coordination, where different sectoral departments, such as urban planning, energy, transport, and environment, operate independently, limiting cross-sector synergies. The lack of integrated governance makes it difficult to implement systemic actions in an adequate magnitude and scale, leaving transformative actions and initiatives isolated and with limited scope. Also, one of the fundamental barriers to achieving climate neutrality targets by 2030 is the limited institutional and operational control that the Capital City of Podgorica has over the sources of greenhouse gas (GHG)

emissions within its administrative boundaries. The municipal administration directly manages or influences a limited portion of the total emissions, primarily through assets such as municipal buildings, public lighting, and the city's own vehicle fleet. This is severely restricting the city's ability to independently drive deep decarbonization. The dominant share of emissions originates from sectors and actors outside of the city's direct authority which renders Podgorica highly dependent on external actors for emission reductions. While the city can set ambitious targets and lead by example, it cannot reach its goals alone. Therefore, decarbonization in Podgorica must be reimagined as a citywide, cross-sectoral mission that goes far beyond the scope of municipal control.

Data gaps and weak monitoring systems hinder evidence-based policymaking and tracking of emissions reductions. Many of the available statistics are outdated or aggregated at the national level, offering little support for fine-grained, localized interventions. For instance, **these deficiencies have a direct impact on the ability to account for all greenhouse gases and therefore it cripples the efforts of comprehensive decarbonization planning. Technological and infrastructural limitations** also pose hurdles. For example, the electricity distribution grid is outdated and insufficiently prepared to accommodate expanded renewable energy production or electrified transport. Likewise, the building stock—particularly private residential and commercial units—is inefficient, fragmented, and often lacks clear ownership structures or legal frameworks that enable joint energy renovation. Although there is an evident improvement in citizens' engagement in recent years in renovation of the building stock, through their housing assemblies, this still represents a significant barrier when such interventions are implemented, especially in dwellings with vulnerable demographic groups. At the national level, **insufficient vertical integration** between central government and local self-governments prevents effective localization of national climate policies. Although Montenegro's updated NDC and upcoming NECP set progressive targets, their alignment with local capacities, responsibilities, and financial instruments remains weak.

Another major barrier is the **financial constraint**, especially at the municipal level, which limits the city's ability to co-finance projects, attract private investment, or ensure continuity in implementing large-scale renewable energy and efficiency programs. Although some national programs exist, they are not sufficiently localized or tailored to Podgorica's needs.

From a **social and behavioral perspective**, low awareness among citizens, and resistance to change, especially in the building and transport sector, limit uptake of green measures. The absence of programmatic approaches and community engagement mechanisms further compounds this challenge, especially when faced with system-level transformative processes needed to achieve ambitious decarbonization targets.

Finally, **limited human resource capacities** within the city administration constrain its ability to lead climate transformation. **The newly emerging mission teams and governance innovations need time, resources, and political support to become operational and impactful**.

A-3.2: Systems & stakeholder mapping			
System	**Stakeholders**	**Influence on the city´s climate neutrality ambition**	**Interest in the city´s climate neutrality ambition**

1. Climate governance, coordination and public administration	Mayor's Office; Secretariat for spatial planning and sustainable development; Secretariat for finance; sectoral municipal secretariats; municipal enterprises; local assemblies; national ministries responsible for ecology, energy, transport, spatial planning and finance; Eco-Fund and EU/IFI partners.	Very high. This system defines mandates, budget allocations, procurement rules, ownership of actions, reporting duties and the cross-sector coordination needed to implement the Climate City Contract. It can remove institutional barriers, avoid fragmented implementation and ensure that mitigation and sink measures are mainstreamed into annual programmes and capital budgets.	High. The stakeholders have a direct mandate to deliver climate-neutrality commitments, comply with national and EU-aligned policy requirements, improve public services and attract external financing. Interest is strongest where responsibilities, budgets and reporting obligations are clearly assigned.
2. Energy systems and municipal/building energy management	Municipal facility managers; public institutions; CEDIS and EPCG/energy suppliers; Ministry responsible for energy; Eco-Fund; ESCOs; building owners and managers; schools, health and social facilities; private sector and households.	Very high. Electricity and thermal energy use in buildings are major sources of urban emissions. The system influences renewable electricity uptake, heat-pump deployment, energy-efficiency retrofits, building-level metering, energy management and electrification measures that reduce Scope 1 and Scope 2 emissions.	High. Public authorities and building users benefit from lower energy costs, better comfort and improved service quality. Energy utilities and ESCOs have an interest in grid readiness, demand management and investment opportunities. Households and SMEs require affordable financing and technical support.
3. Mobility and transport system	Secretariat responsible for transport and roads; public transport operators; taxi operators; parking company; municipal fleet managers; road and traffic authorities; police; schools and employers; cycling/pedestrian associations; citizens and commuters.	Very high. Transport determines a large share of local fossil-fuel consumption. Stakeholders influence public transport electrification, taxi and municipal fleet transition, traffic management, parking policy, cycling and walking infrastructure, charging infrastructure and behavioural change.	High. Public operators and municipal fleet managers have a direct operational interest. Citizens and employers are affected through accessibility, air quality, congestion and transport costs. Interest can be strengthened through reliable public transport, safe active-mobility routes and visible air-quality benefits.
4. Waste, wastewater and circular-economy system	Čistoća d.o.o.; Deponija d.o.o. Podgorica/Livade landfill; recycling and collection operators; Vodovod i kanalizacija d.o.o.; wastewater treatment project entities; households and businesses; hospitality and retail sector; Ministry responsible for waste and environment; inspection authorities.	Very high. Waste and wastewater actions can reduce methane and energy-related emissions through landfill-gas management, separate collection, recycling, composting, sludge and biogas management, wastewater treatment and circular-economy measures. The system also determines data quality for monitoring reductions.	High. Municipal companies and regulators have direct implementation responsibilities. Households and businesses are essential for source separation and behavioural change. Interest increases when measures reduce odours, improve public cleanliness, reduce landfill pressure and create local resource-recovery value.
5. Land-use planning, development control and urban regeneration	Spatial planning authorities; cadastral and property bodies; municipal land-management units; developers; architects and engineers; utility companies; neighbourhood councils; Ministry responsible for spatial planning; civil society and professional associations.	High. Planning decisions influence urban density, location of development, green-space protection, transport demand, building performance, soil sealing, stormwater management and availability of land for nature-based solutions and carbon sinks.	Medium to high. Public authorities and developers are interested where planning rules are predictable and aligned with investment. Citizens are highly interested in liveability, public space and protection from heat and flooding. Stronger incentives and standards are needed to convert interest into implementation.

6. Urban green infrastructure, tree planting, green corridors and green pockets	Municipal greenery/communal services; Secretariat for spatial planning and environment; local communities; Mikro 020 initiative; schools and kindergartens; NGOs; citizen groups; businesses sponsoring greening; maintenance contractors; property owners.	High. This system delivers visible climate action in the urban core through street trees, shaded pedestrian and cycling routes, pocket parks, schoolyard greening and green corridors. It contributes to residual-emission compensation through small but measurable CO_2 removals and provides strong adaptation benefits.	Very high. Citizens, schools and local communities have strong interest due to shade, public-space improvement and heat reduction. Municipal services are interested where long-term maintenance responsibilities and budgets are secured. Businesses may support greening through sponsorship or corporate social responsibility.
7. Peri-urban afforestation, riparian restoration and burnt-area recovery	Capital City land-management units; Forestry Administration; Environmental Protection Agency; water and river-basin authorities; fire-protection and emergency services; NGOs; universities and ecological experts; local communities; public landowners; volunteers.	High. This system provides the strongest local natural-sink potential in the action portfolio by restoring degraded peri-urban land, river corridors, erosion-prone areas and burnt areas. It also reduces climate risks by improving water retention, slope stability, ecological connectivity and wildfire recovery.	High. Public authorities are interested in erosion control, flood-risk reduction, landscape restoration and carbon-sink creation. Local communities and NGOs are interested in biodiversity, recreation and fire recovery. Interest depends on land availability, species selection, survival rates and maintenance capacity.
8. Water, stormwater and climate-risk management	Vodovod i kanalizacija d.o.o.; drainage and road-maintenance services; emergency management/civil protection; hydro-meteorological and water authorities; urban planners; neighbourhood councils; infrastructure operators; citizens in flood- or heat-exposed areas.	Medium to high. The system supports adaptation and enables mitigation measures by integrating green infrastructure, permeable surfaces, riparian buffers and flood-risk reduction into urban planning and infrastructure maintenance. It reduces losses and improves resilience of climate investments.	High. Public utilities and emergency services have direct interest in reducing flood damage and service disruptions. Citizens and businesses are interested in reduced local flooding, better comfort and public-space quality. Long-term interest depends on linking maintenance budgets with climate-risk planning.
9. Finance, investment, procurement and donor coordination	Municipal finance department; procurement units; national Eco-Fund; EU programmes; IFIs and donors; commercial banks; private investors; ESCOs; public enterprises; project-preparation teams.	Very high. Financing determines whether actions move from planning to implementation. This system influences access to grants, concessional loans, performance-based contracts, green procurement, project bundling, co-financing and monitoring of cost effectiveness per tCO_2e reduced or compensated.	High. Municipal institutions and public enterprises need feasible funding pipelines. Donors and IFIs are interested in bankable, measurable and policy-aligned projects. Private finance interest increases when projects have predictable revenues, clear risk allocation and reliable monitoring.
10. Data, monitoring, reporting and citizen engagement	Municipal climate/energy team; GIS and statistics units; public enterprises; universities and experts; NGOs; schools; community groups; CDP/Covenant of Mayors or similar reporting platforms; citizens providing feedback and local observations.	High. Reliable data is essential for tracking emissions, energy savings, CO_2 removals, tree survival, restored areas, costs and co-benefits. This system enables transparent monitoring, learning, course correction and public accountability under the Climate City Contract.	Medium to high. Technical stakeholders have a strong interest in data quality and reporting. Citizens and civil society are interested when monitoring is understandable and linked to visible improvements. Interest can be strengthened through open dashboards, participatory mapping and annual progress reporting.

3 Part B – Pathways towards Climate Neutrality by 2030

Part B represents the core of the CCC Action Plan, shaped by local authorities, local businesses, and stakeholders, comprising of the most essential elements: scenarios, strategic objectives, impacts, action portfolios and indicators for monitoring, evaluation, and learning.

3.1 Module B-1 Climate Neutrality Scenarios and Impact Pathways

Module B-1 "Climate Neutrality Scenarios and Impact Pathways" lists and describes impact pathways, early and late outcomes and direct and indirect impacts[3] (co-benefits) according to and adapted from the NetZeroCities Theory of Change and the CCC Action Plan Guidance – clustered by fields of action.

- List of impact pathways, selected from or inspired by the NetZeroCities Theory of Change, including early and late outcomes (strategic objectives) and levers of change structured along the fields of action.
- Descriptions of the impact pathways, summarising their relationship with key priorities and strategic interventions and with the analysis developed in Part A

B-1.1: Impact Pathways					
Fields of action	**Systemic levers**	**Early changes (1-2 years)**	**Late outcomes (3-4 years)**	**Direct impacts (emission reductions)**	**Indirect impacts (co-benefits)**
Energy systems	Renewable electricity, rooftop PV/BESS, heat pumps, energy management, public lighting optimisation and low-carbon procurement.	Energy audits and project pipeline prepared; PV/heat-pump/public-lighting priorities screened; EM&V rules agreed.	Higher renewable share, lower fossil heating and more efficient municipal energy use.	Lower Scope 1 fuel use and Scope 2 electricity emissions; MWh saved/generated and tCO_2e avoided.	Lower energy bills, improved comfort, energy security, green jobs and transparent municipal performance.
Mobility & transport	Public-transport electrification, e-taxi/e-car transition, municipal fleet conversion, charging network, parking/traffic management, cycling and pedestrian corridors.	Charging and fleet-conversion plan prepared; priority routes, chargers and active-mobility corridors defined.	Reduced car/fuel dependency; more attractive low-emission public transport and active mobility.	Reduced diesel and petrol consumption and lower Scope 1 transport CO_2e emissions.	Cleaner air, less noise, safer streets, improved accessibility, lower congestion and healthier mobility.
Waste & circular economy	Separate collection, recycling, composting/bio-waste diversion, landfill-gas CHP, wastewater biogas/CHP and circular procurement.	Priority material streams and service areas defined; gas/energy monitoring and investment assumptions confirmed.	Lower biodegradable waste to landfill, higher material recovery and useful energy from methane/biogas.	Reduced CH4 emissions; substituted electricity/heat; quantified tCO2e savings from waste and wastewater.	Resource efficiency, cleaner neighbourhoods, landfill capacity protection, odour control and operational resilience.
Green infrastructure & nature-based solutions	Urban tree planting, green corridors, Mikro 020-style green pockets, peri-urban afforestation, riparian restoration and restoration of burnt/degraded public land.	Planting/restoration sites mapped; priority heat-exposed streets, river corridors and public land selected; maintenance responsibilities assigned.	Verified natural sinks established with improved survival, restored land and ecological connectivity.	Conservative CO_2 removals credited for surviving trees/shrubs and restored hectares; lower initial crediting for burnt areas until verified.	Heat-island reduction, shade, stormwater retention, erosion control, flood resilience, biodiversity and liveability.
Built environment	Deep renovation, residential/commercial efficiency programmes, efficient heating/cooling, heat pumps, building-level PV/BESS and climate-resilient standards.	Audits, design packages and financing sources prepared; priority buildings and procurement standards confirmed.	Renovated buildings use less final energy and shift away from fossil fuels for heating/cooling.	Reduced final energy use and CO_2e emissions from buildings relative to the 2019 baseline.	Better indoor comfort, reduced energy poverty risk, public-service quality, heat resilience and stronger local supply chains.

B-1.2: Description of impact pathways
The selected impact pathways translate the 2030 climate-neutrality objective into integrated action across

[3] The NetZeroCities Indicator Framework, a set of indicators for monitoring direct and indirect impacts of the impact pathways may be useful when selecting impacts, as can the numerous Factsheets available in the Knowledge Repository on the NZC Portal.

energy systems, mobility and transport, waste and circular economy, green infrastructure and nature-based solutions, and the built environment. The pathways combine direct emission reductions with residual-emissions compensation through natural sinks. They are designed to be mutually reinforcing: building renovation and renewable energy reduce electricity and fuel demand; mobility measures reduce fossil-fuel use; waste and wastewater measures reduce methane and recover energy; and green infrastructure provides conservative carbon removals while strengthening adaptation and urban liveability.

Strategic rationale

The main rationale for these pathways is that no single sector can deliver the 2030 target alone. The city therefore needs a balanced portfolio of high-impact mitigation measures, enabling governance and finance actions, and a limited, transparent compensation strategy for residual emissions that remain hard to abate by 2030. Priority is given to actions that are measurable, implementation-ready, compatible with existing municipal responsibilities and capable of producing visible co-benefits for residents.

Energy systems pathway

The energy pathway focuses on reducing final energy demand and lowering the carbon intensity of consumed electricity and heat. Early changes include energy audits, project preparation, PV and heat-pump screening, public lighting optimisation and establishment of EM&V rules. Late outcomes include a scaled municipal and community renewable-energy pipeline, increased self-consumption, reduced fossil-fuel use and lower operating costs. Direct impacts are measured through MWh saved or generated and tCO_2e avoided.

Mobility and transport pathway

The mobility pathway combines vehicle electrification with demand management and modal shift. Early changes include identifying bus, taxi and municipal-fleet conversion priorities, planning fast/depot charging, improving traffic and parking management and prioritising safe walking and cycling corridors. Late outcomes include reduced diesel and petrol consumption, more attractive public transport, improved active mobility and lower congestion. The pathway also delivers strong health, air-quality and safety benefits.

Waste and circular-economy pathway

The waste pathway addresses methane and resource losses by reducing biodegradable waste sent to landfill, increasing separate collection and recycling, improving composting/bio-waste management and recovering energy from landfill gas and wastewater biogas. Early changes relate to data, service planning, communication and technical preparation. Late outcomes include lower methane generation, better material recovery and useful energy production. Calculation rules should avoid double counting between waste diversion, methane capture and energy substitution.

Green infrastructure and nature-based solutions pathway

The green-infrastructure pathway links mitigation and adaptation. Urban tree planting, green corridors and green pockets provide localised CO_2 removals, shade and heat reduction in the dense urban area. Peri-urban afforestation, riparian restoration and restoration of burnt/degraded public land provide larger-area carbon-sink potential and resilience benefits. Removals should be credited conservatively, based on surviving vegetation, restored area, verified establishment and lower initial crediting for burnt areas until restoration success is confirmed.

Built-environment pathway

The built-environment pathway focuses on deep renovation, efficient heating and cooling, heat pumps, PV/BESS integration and climate-resilient building standards. Early changes include audits, design packages, financing preparation and procurement standards. Late outcomes include lower energy demand, better indoor comfort, lower energy poverty risk and reduced exposure to heat. The pathway is closely linked to the energy pathway and should be monitored using consistent energy and GHG factors.

Short-term and long-term priorities

In the first one to two years, the emphasis should be on data consolidation, governance arrangements, project preparation, pilot implementation, financing preparation and monitoring systems. By 2027-2030, the focus should shift to scaled implementation, verified savings and removals, course correction based on monitoring results and integration of the measures into annual municipal budgets and investment plans.

Monitoring and learning

All pathways require transparent indicators, baseline values, target values and responsible data owners. The B-3 indicators should be used to track both outputs and outcomes, including energy saved, renewable energy generated, fuel displaced, waste diverted, methane captured, restored green area, tree survival rates and verified CO_2 removals. Monitoring should also capture co-benefits such as heat reduction, air quality, biodiversity, accessibility and public acceptance.

3.2 Module B-2 Climate Neutrality Portfolio Design

Module B-2 "Climate Neutrality Portfolio Design" contains a project description for **each action planned** in the CCC Action Plan. These actions include interventions targeted at creating/enhancing carbon sinks to address residual emissions.

The actions described here **should not repeat** the actions resulted from existing policies, and plans, outlined in Section A-2.1. Those actions are, by definition, not part of the proposed action portfolio.

- A table of planned interventions grouped per field of action, including interventions by local businesses and industry (B-2.1).
- An outline of each action. The table contains all information for implementation (e.g., topic, kind of intervention, emission sector, scope, allocation, responsible actors, GHG reduction by gases and estimated costs), including interventions aimed at addressing residual emissions (incl. carbon sinks) (B-2.2).
- A summary of the actions and impact planned to address residual emissions (B-2.3).

The additional actions strengthen the pathway towards the combined 60% target and include DESCG/MEEP2-type public building renovation, accelerated residential/commercial energy-efficiency support, e-bus and e-taxi transition, fast-charging infrastructure, adaptive traffic management, waste diversion/LFG CHP and the Botun SPOV wastewater/sludge/energy recovery measure. The quantified portfolio reaches 363,335.87 tCO_2e of reductions by 2030, equivalent to 60.0014% of the BEI 2019.

The final PaM quantification is checked against the 2019 BEI sector and sub-sector boundaries. In transport, e-bus, municipal-fleet and e-taxi/e-car benefits are allocated to distinct activity groups. In buildings, the heat-pump action credits GHG savings only where the replaced baseline system and the assumed seasonal performance (COP 3.0) produce a net emissions reduction under the CNAP emission-factor methodology.

Alignment of additional action targets with the EPBD/EED Roadmap

The additional-action targets in the buildings and energy-systems portfolio are aligned with the national EPBD/EED Roadmap and the planned National Building Renovation Plan. This alignment improves the credibility and implementability of the 2030 targets because the CNAP actions are supported by forthcoming national obligations on public-sector energy savings, annual public-building renovation, minimum energy performance standards, zero-emission buildings, solar-energy deployment, renovation passports, energy-savings verification and sustainable mobility infrastructure in buildings.

CNAP additional action area	Roadmap support	How this strengthens the target
Public-building renovation	Public-sector energy savings, annual public-building renovation and programme-based renovation planning.	Provides a national legal and programme basis for scaling Action 15 and for verifying MWh and tCO_2e savings.
Residential and commercial energy efficiency	National Building Renovation Plan, MEPS, energy certificates, renovation passports and energy-poverty measures.	Supports Action 16 by creating a structured renovation pipeline and measurable indicators for households, SMEs and commercial buildings.
Heat pumps and clean heating	Restriction of fossil-fuel boiler support and progressive decarbonisation of heating and cooling systems.	Supports Action 20 by linking heat-pump deployment with national clean-heating and building-renovation policy.
Rooftop PV and solar-ready buildings	Solar obligations for new and renovated buildings where technically and economically feasible.	Supports Action 21 by strengthening the policy basis for rooftop PV on public, residential and commercial buildings.
EV charging infrastructure in buildings	Requirements for sustainable mobility infrastructure, EV chargers and pre-cabling in buildings.	Supports the e-mobility actions by connecting transport electrification with building and parking infrastructure.
MRV and data systems	Central monitoring, energy-performance certificates, registries and verification of energy savings.	Improves target tracking and reduces the risk of over- or double-counting emission reductions.

No.	Type of action	Sector	Indicative 2030 reduction (tCO_2e)	MRV indicator
15	Additional	Buildings	Deep energy renovation of public buildings through DESCG/MEEP2-type models	1,294.79
16	Additional	Buildings	Accelerated energy-efficiency programme for residential and commercial buildings	48,770.18
17	Additional	Transport	Electrification of public transport	2,328.98
18	Additional	Transport	E-taxi/e-car, fast chargers and municipal fleet electrification	21,022.91
19	Additional	Transport	Adaptive traffic management, parking policy, parking pricing policy, cycling corridors and pedestrian routes	24,646.68
20	Additional	Buildings	Residential and SME heat-pump acceleration programme	17,093.44
21	Additional	Buildings	Rooftop PV self-consumption programme for households, SMEs and public buildings	21,840.00
22	Additional	Transport	Parking pricing reform and private-car modal-shift package	14,170.00
23	Additional	Solid waste	LFG CHP, CH_4 flaring, separate collection, recycling, composting/bio-waste, recycling-centre modernisation and reduced disposal of organic fraction	21,506.15
24	Additional	Wastewater	SPOV/WWTP, biogas/energy recovery, energy-efficient wastewater treatment and sludge management	21,495.00
TOTAL	additional	All sectors	Subtotal additional actions 15–24	**194,168.13**

B-2.1: Description of action portfolios - textual or visual		
Fields of action	Portfolio description	
	List of actions	Descriptions
Energy systems	Improvement of the energy	Housing Agency. „Agencija za stanovanje“ d.o.o.

	performance of residential buildings (multi-apartment buildings) – continuation of ongoing activities of the Housing Agency (continuation of activities related to the application of light-colored façades and reflective coatings).	Podgorica implements energy retrofit of the existing residential building stock. Through two programs implemented in residential multiapartment buildings, from 2015 onwards, namely the "Beautiful face of Podgorica" and support program to improve energy performance of facades, more than 300 buildings have been retrofitted, with more than 630 thousand square meters of facades refurbished. This activity will build on previous work and extend it through 2030.
	Promotion and support for the thermal insulation of collective and individual housing buildings (installation of thermal insulation façades, roof insulation, replacement of external joinery).	This measure aims to provide financial support to citizens to replace energy inefficient insulation façades, roofs, and replacement of external joinery.
	Promotion and support for the replacement of existing inefficient heating and cooling systems with the installation of energy-efficient heating and cooling systems for natural and legal persons.	This measure aims to provide financial support to citizens and businesses for replacing existing inefficient heating and cooling systems with modern, energy-efficient technologies. To implement the measure, partnership with Eco Fund and Ministry of Energy and Mining is envisaged.
	Support in replacing existing inefficient lighting with energy-efficient lighting in private buildings (natural and legal entities)	The measure aims to encourage the replacement of existing inefficient lighting with energy-efficient lighting in private buildings, whether owned by natural or legal persons. The focus is on improving energy efficiency, reducing electricity consumption, and consequently lowering CO_2 emissions. Implementation of the measure is currently underway and should be carried out in cooperation with the Eco Fund. The target is to replace all inefficient lighting by the end of 2030
	Introduction of NZEB standards Replacement of the existing household heating systems with sustainable alternatives Reduction of the UHI effect in newer neighborhoods Conduction of energy audits Introduction of a smart heat measurement system	To institutionalize sustainability, nearly zero-energy building (NZEB) standards will be introduced for all new construction and major renovations, alongside incentives for using low-carbon construction materials and methods. In collaboration with the Eco-Fund, existing household heating systems (wood- and coal-fired stoves and boilers) will be replaced with sustainable alternatives, such as pellet stoves and heat pumps. A transition to clean heating will be promoted through the development of a district heating system based on geothermal heat pumps, with a biomass plant as a backup energy source. Additionally, the integration of sustainable energy solutions will be encouraged, including rooftop solar photovoltaic systems for shared building needs, with special attention to airflow and ventilation within urban blocks, avoidance of enclosed urban "pockets," and reduction of the urban heat island effect in newer neighborhoods in Podgorica. Energy audits will be conducted for all buildings owned by the Capital City. A smart heat measurement system will be introduced to improve energy efficiency in district heating systems. This project aims to modernize the district heating system through the introduction of smart heat meters that allow real-time monitoring of energy consumption. The current system is outdated and does not provide precise measurements, resulting in energy (and water) losses. The introduction of this new solution will enable accurate billing based on actual consumption, thereby reducing unnecessary energy waste and increasing transparency. At the same time, it will improve the efficiency, reliability, and sustainability of the district heating system, resulting in energy savings and greater

		user satisfaction.
	Improvement of the energy performance of buildings owned by the Capital City	The measure aims to improve energy performance of buildings owned by the Capital City in line with the recommendations provided by energy audits
	Installation of photovoltaic systems on the roofs of buildings owned by local self-government.	The measure aims to generate a portion of electricity for own consumption by installing solar panels on suitable roofs of local self-government buildings.
	Installation of energy-efficient lighting (in local government buildings)	This measure focuses on the installation of energy-efficient lighting in municipal buildings. The main objective is to improve lighting quality, reduce electricity consumption and maintenance costs, and contribute to the sustainability of the local community. The implementation of the measure is underway and should be carried out in cooperation with the Eco Fund. It is assumed that by the end of 2030, all inefficient lighting in local self-government buildings will be replaced.
	Thermal insulation of buildings owned by the State of Montenegro (installation of thermal insulation façades, roof insulation, replacement of external joinery) and installation of solar power plants and BESS (Battery Energy Storage Systems).	The measure aims to improve energy performance of buildings owned by the state administration, located on the territory of Capital City, in line with the recommendations provided by energy audits, and coupled with solar power plants and BESS system to support generation of electricity for own consumption.
	Installation of energy-efficient lighting (in local government buildings)	This measure focuses on the installation of energy-efficient lighting in municipal buildings. The main objective is to improve lighting quality, reduce electricity consumption and maintenance costs, and contribute to the sustainability of the local community. The implementation of the measure is underway and should be carried out in cooperation with the Eco Fund. It is assumed that by the end of 2030, all inefficient lighting in local self-government buildings will be replaced.
Energy systems	Expanded support for households and SMEs for heat pumps, efficient appliances, solar thermal / PV and smart energy management	The measure scales up support to households and SMEs for comprehensive building decarbonisation: façade and roof insulation, efficient windows and doors, heat pumps, high-efficiency appliances, rooftop PV, solar thermal solutions and smart controls. Implementation should be coordinated with Eko Fund and other national support programmes so that municipal outreach and co-financing accelerate uptake in Podgorica.
Energy systems	Scaling up deep renovation of municipal and state public buildings through DESCG / MEEP-type programmes and reinvestment of verified savings	This measure expands the building-renovation pipeline by combining municipal audits and investment planning with national public-building programmes such as DESCG and MEEP-type interventions. It also introduces the principle that verified energy-cost savings from renovated municipal buildings and public lighting should be progressively reinvested in further EE projects, helping to build a revolving implementation pipeline in line with the Investment Plan.
Mobility & transport	Improvement of cycling infrastructure and use of cycling as a transportation modality	This measure aims to improve cycling infrastructure in the Capital City through the construction of new bicycle lanes and the continuous maintenance of existing ones. Also, it includes continuation of activities undertaken by Capital City of Podgorica aimed at subsidizing sourcing of bicycles for private citizens. It is assumed that this measure will reduce final energy consumption in road transport by 5%. The Transport Strategy in the Capital City of Podgorica is a comprehensive document for the development of traffic, transport and mobility, in correlation with the traffic, transport and mobility system of Montenegro. The

		Study will encompass and take into account all the previous development studies, both of the Capital City and of Montenegro as a whole. The Study should assess the development of the traffic and transport system in accordance with the medium-term and long-term development plans of the Capital City. Its development will be finalized by the end of 2026. It will include guidelines for the procurement of an additional number of buses, with a particular emphasis on electric buses. Regarding the planning of the development of cycling infrastructure and projects related to this area, the Cycling Development Study – "Bike sharing" will be introduced for the first time, allowing citizens to use bicycle transport as an ideal mobility solution in the Capital City. As part of the Study, an analysis of existing traffic flows was conducted and data on the existing cycling infrastructure were collected. A particular focus of the Study was the identification of potential locations suitable for the installation of environmentally sustainable stations powered by solar panels. In line with this, based on the analyses and results of the Study, new cycling lanes connecting key urban points (schools, business zones, parks) will be planned, with integration into the existing public transport network. In addition, during the current year, the installation of stations powered by solar energy for self-sustainability is planned; these stations will be adapted for both standard and electric bicycles. The stations will also enable secure parking for conventional bicycles and charging of electric bicycles. As a result, cycling infrastructure will be more accessible and better integrated within the sustainable mobility framework.
	Support to uptake electric vehicles by legal entities and citizens	The objective of this measure is to promote the procurement of zero-emission vehicles for the vehicle fleets of legal and natural persons within the city territory. To enable the implementation of the measure and increase the penetration of electric vehicles, it is advisable to adopt a municipal decision introducing differentiated parking fees for public parking spaces—so that fossil fuel vehicles pay significantly higher hourly rates (e.g., at least twice the rate by 2030). For the implementation of this measure, funding is available through the Eco Fund, which has an established co-financing program for the purchase of electric and hybrid vehicles. It is assumed that by 2030, due to a greater share of low- and zero-emission vehicles and improved vehicle energy efficiency.
	Introduction of electric vehicles into the fleet of the local self-government and publicly owned companies established by the Capital City of Podgorica.	The objective of this measure is to promote the procurement of zero-emission vehicles for the vehicle fleet of the local self-government and public companies established by the Capital City. To implement this measure, a detailed assessment of the existing vehicle fleet of the local self-government and public enterprises founded by the Capital City must be conducted. This assessment should identify suitable candidates for fleet electrification, considering factors such as usage patterns, range requirements, and the availability of charging infrastructure. Furthermore, during public procurement procedures for the renewal of the local government's and associated companies' fleets, passenger vehicles must be electric-powered in cases where such a choice is justified by the vehicle's intended use and operational patterns.
	Introduction of electric vehicles	The objective of this measure is to promote the

	into the fleet of state administration	procurement of zero-emission vehicles for the vehicle fleet of the state administration and state-owned companies.
	Implementation of the MISSION project	The MISSION (Multi-modal Inclusive Smart urban mobility SolutIONs) project aims to improve urban mobility by integrating public transport services with car sharing, cycling, and walking, making moving around the city more appealing and efficient. The project started on 1 September 2024 and brings together partners from several countries across the Adriatic-Ionian region. Within the project, the NGO Biciklo.me is an associate partner of the Capital City of Podgorica. This collaboration stems from their close cooperation on the development of the Sustainable Urban Mobility Plan (SUMP) and other joint initiatives. The MISSION project, which will run for 30 months, is supported by the Interreg IPA ADRION Programme through Interreg funds (European Regional Development Fund and IPA III), with a total budget of €1,478,765.64, of which €1,256,950.79 is financed from Interreg funds. One of the key outcomes of the project will be the development of a smart app that provides users with optimal door-to-door travel solutions and information, including service quality and safety levels. The app will be tested in several cities across the Adriatic-Ionian region, with active participation of citizens and transport providers. The MISSION project is expected to make a significant contribution to improving sustainable urban mobility in the region, offering citizens more efficient and environmentally friendly solutions for daily movement.
Mobility & transport	Introduction of electric buses and supporting depot / charging infrastructure	This measure adds phased procurement of electric buses, the development of depot and on-route charging infrastructure, and route optimisation to maximise service reliability and emissions reduction. It should be implemented together with the transport-strategy process and with preparation of the technical and financial documentation needed for future investment rounds.
Mobility & transport	Deployment of a public EV charging network and intermodal park-and-ride / mobility hubs	The measure supports installation of public fast-charging points at strategic municipal locations, mobility hubs and park-and-ride sites, together with safe bicycle parking and links to public transport. The objective is to support electrification while simultaneously strengthening intermodality and reducing pressure from private-car traffic in the urban core.
Mobility & transport	Demand-management and digital mobility measures: adaptive traffic control, parking management, ticketing and real-time information	This measure complements fleet electrification with modal-shift and demand-management actions. It includes adaptive traffic-signal management, progressive parking-management reform, digital ticketing, real-time passenger information, and better integration of buses, cycling and walking. In line with the Investment Plan, part of the parking-management reform can also create dedicated revenue streams for sustainable mobility investments.
Waste and wastewater management	Citywide separate collection, recycling and bio-waste diversion	This measure introduces or expands citywide separate collection of paper, metal, plastic, glass and bio-waste, with progressive service coverage increase, stronger sorting at source, and reduced biodegradable waste disposal. It is aligned with the Waste Management Law and the State Waste Management Plan 2025–2029.
Waste and wastewater management	Regional waste-system upgrade at Livade: recycling-centre optimisation, composting / MBT development, landfill-gas recovery and digital waste-data	The measure develops the Podgorica regional waste system around the existing Livade sanitary landfill and recycling centre, together with composting and MBT-type treatment options, stronger weighing and digital records, and improved landfill-gas recovery moving beyond flaring

	management	only wherever technically and financially feasible.
Waste and wastewater management	Completion and optimisation of wastewater collection, treatment and energy management	This measure covers wastewater collection and treatment infrastructure, raising connection rates, process optimisation, energy-efficient pumping and treatment, electricity monitoring, solar self-consumption where feasible, and systematic sludge and process-emissions tracking. It links climate mitigation with environmental compliance and utility modernisation.
Green infrastructure & nature-based solutions	Greening plan for facades and roofs	By introducing vertical and horizontal greenery on existing buildings, this measure will reduce the negative effects of high temperatures and thus increase the quality of life of citizens.
	The project Green City Puls	The realization of the "Green City Pulse" project represents the connection of the green oases of the city through different types of floor plan, which will enhance many plant species, striving to connect them through different elements
	Garden community	Considering the climate change effects, urbanization processes and the expansion of the city area, it is necessary to convert parts of the city into natural oases and create communal facilities that provide the possibility for leisure activities in these spaces. The core objective of this initiative is that, by engaging in volunteer work, fellow citizens can spend their free time in such designated areas, cultivating the land, assisting in the cultivation of various plant crops, and generally enjoying quality time in nature.
	Conservation of water resources and enhanced climate resilience of the water supply	Water Supply and Sewerage d.o.o. focuses its activities, among other, on protection of the water sources, springs and wells. The continuous measurements of water uptake indicate declining water abundance which can be attributed to changing climate. The Water Supply and Sewerage will undertake measures to protect and safeguard available water sources, including by implementing novel concepts such as Nature based solutions.
	Climate resilient protected area management and Nature based solutions	Agency for protected areas management oversees the protected areas located in Capital City Podgorica and by its mandate implements and promotes climate resilient activities. The focus of the work of the Agency in the future will be on expanding the protected areas within the territory of Capital City as well as serving the community by implementing Nature base solutions to adapt to adverse effects of climate change.
Air quality improvement	Local air quality monitoring	The emissions inventory shows that air pollution in Podgorica is mainly driven by local sources. Road transport is the primary source of NO_2 and a major contributor to particulate matter, linked to traffic intensity and vehicle characteristics. Residential heating is a key source of PM emissions, especially in winter. Additional contributions come from construction activities, road dust resuspension, and occasional open burning of biomass and agricultural residues. Industrial emissions play a smaller role. Local sources dominate $PM_{2.5}$, PM_{10}, and NO_2 levels, while long-range transport, including transboundary pollution and Saharan dust, contributes to short-term PM increases. Ozone (O_3) is also relevant during summer.Air quality is managed in accordance with national legislation aligned with EU requirements, supported by continuous monitoring and implementation of relevant measures. In addition, the city conducts local air quality monitoring through four seasonal campaigns of 14-day measurements, carried out by an accredited laboratory in line with EU legislation. The monitoring

		locations are selected to represent the most heavily trafficked areas in both urban and suburban parts of the city. Based on results from the last five years, air quality shows consistent patterns: SO_2, O_3, CO, benzene, and heavy metals remain below prescribed limit values. NO_2 hourly averages are within limits, while PM_{10} records periodic daily exceedances. Apart from a state air quality network established by state authorities, Capital City has been developing annual air quality monitoring since 2014 in order to have a more comprehensive overview of the air quality and more profound bases for development and implementation of relevant activities. Even though monitoring results indicate still rather preserved air quality there is always need and room for improvement. For instance, in the following period the City will expand the local monitoring network in order to include new residential areas. CO2 emissions are not covered within state and local air quality monitoring. Monitoring of these emissions has been established within Podgorica's participation in the international RAPTOR program which we became the part of upon affirmatively evaluated application. In line with our request, experienced Italian company, selected within mentioned program, has developed sensors for monitoring the impact of traffic on air quality (including CO2 emissions) and counting traffic, which are installed on seven busy roads in November 2025.
Citizen participation	Creation of centralised platform for citizen's greater involvement Strengthening of local community councils role in every city settlement	The Capital City is further advancing its social policy and entrepreneurship initiatives. The City has developed and adopted a local Decision on Participation of Local Residents in Exercising Public Affairs (in 2019), which is applied on all procedures related to development of strategic documents. In this regard, the City organizes public consultations, hearings and workshops with the aim to hear opinions and suggestions of various stakeholders – citizens, scientific community, NGOs, businesses. All remarks are taken into account, reports on the consultations and hearings are developed and published with detailed reasoning for every acceptance or rejection. Additionally, within implementation of international projects in which participates as the partner, mentioned stakeholders are being actively involved, as partners or participants at workshops and other promotional or educational activities. Furthermore, The Decision on Subsidizing Part of the Costs of Extended-Daycare Services for Children within the Capital City has been drafted and is currently under consideration. Through this Decision, the Capital City administration aims to provide concrete support to parents in a transparent and responsible manner, while also enhancing the extended-daycare sector by improving service quality and standards. Entrepreneurship is promoted through various programs, including support for women entrepreneurs, development of traditional crafts, free accounting services for newly established companies in the territory of Podgorica, support for self-employment, and initiatives for tourism and hospitality, among others. When it comes to the enhanced citizen participation which is currently active through local community councils, and decision-making transparency at a high level, the City's determination is to create a centralized platform, while at the same time integration of data between institutions and the public is being

		improved through digitalization. This platform will further encourage citizen involvement in local policies and projects, increase transparency, facilitate access to information, and enable more efficient communication between citizens and authorities. Moreover, the platform will accelerate the implementation of citizen proposals, encouraging more direct and effective participation in decision-making processes.
Educational campaigns	Marking of important ecological dates Round tables and workshops Establishment of thematic forums for different stakeholders Organization of Mobility Week Organization of Energy days of Podgorica Competition for scholars	The capital city has a long-term tradition of marking important dates through organization of various events such as round tables, workshops, development and distribution of educational and promotional materials. Particularly important are the number of planting actions conducted in various urban and suburban areas of Podgorica in cooperation with local communities and youth. Also bodies and enterprises of the Capital City on a regular basis organize visits to primary and high schools with the aim to raise awareness among the kids about importance of various topics such as waste management, urban mobility, energy efficiency, green spaces, etc.

B-2.2: Individual action outlines		
Action 15 of 24 – Additional action		
Action outline	**Action name**	Deep energy renovation of public buildings through DESCG/MEEP2-type models
	Action type	Additional mitigation action; public-building energy-efficiency renovation and energy-management measure.
	Action description	Prepare and implement bundled deep-renovation packages for priority public buildings, using DESCG/MEEP2-type delivery models. Measures include thermal-envelope improvement, efficient windows, HVAC optimisation, LED lighting, controls, improved operation and maintenance, and energy monitoring. Priority should be given to high-consumption buildings and facilities used by children, elderly people and other vulnerable groups.
Reference to impact pathway	**Field of action**	Built environment; Energy systems; Public assets.
	Systemic lever	Public procurement; energy audits; investment bundling; energy management and measurement, reporting and verification (MRV/EM&V); coordination with national/Eco Fund/IFI financing.
	Outcome (according to module B-1.1)	Early changes: building audits, priority pipeline, financing/procurement model and EM&V methodology prepared. Late outcomes: lower public-sector final energy demand, lower electricity/heat costs, improved comfort and reduced stationary-energy emissions.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; municipal departments responsible for public buildings and energy/climate coordination; facility managers; national EE/Eco Fund institutions; financing partners; ESCOs/contractors.
	Action scale & addressed entities	Municipal and public buildings within the city: schools, kindergartens, administration, cultural, sport and social facilities.
	Involved stakeholders	Building users, school and kindergarten communities, public institutions, maintenance companies, construction/ESCO market, national authorities, donors/IFIs.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: audits, prioritisation and financing model. 2026-2028: first renovation bundles. 2028-2030: additional renovation packages and operational optimisation. Milestones: m² renovated, MWh saved, tCO_2e avoided and energy-intensity reduction.
Impact & cost	**Generated renewable energy (if applicable)**	Applicable only where PV/solar thermal is included in the renovation package; report renewable generation separately from efficiency savings.
	Removed/substituted energy, volume, or fuel type	3 557.125 MWh/year of final energy savings reported in the action list. Electricity-related savings are calculated with 0.364 tCO_2e/MWh; fuel savings use fuel-specific factors where applicable.
	GHG emissions reduction estimate (total) per emission source sector	Indicative estimate: 3 557.125 MWh/year × 0.364 tCO_2e/MWh = 1 294.79 tCO_2e/year under stationary energy/buildings. Final value to be confirmed through audits and EM&V.

	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a natural or technological sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Cost per tCO_2e = eligible investment and incremental O&M divided by cumulative verified tCO_2e savings to 2030 and/or over asset lifetime.

B-2.2: Individual action outlines		
Action 16 of 24 – Additional action		
Action outline	**Action name**	Accelerated energy-efficiency programme for residential and commercial buildings
	Action type	Additional mitigation and market-activation action; demand reduction in residential, commercial and service buildings.
	Action description	Scale up building energy-efficiency improvements in residential and commercial premises through insulation, efficient windows, efficient lighting/appliances, improved cooling/heating systems, smart controls and targeted support packages. The measure should function as a city-level accelerator, linking citizens and SMEs to national programmes, banks, ESCOs and installers, with attention to vulnerable households.
Reference to impact pathway	**Field of action**	Built environment; Energy systems; Households; Commercial and service sector.
	Systemic lever	Financial incentives, one-stop-shop advisory support, demand aggregation, contractor-market development, awareness campaigns and social targeting.
	Outcome (according to module B-1.1)	Early changes: support mechanism and communication package established; first pilot households/SMEs supported. Late outcomes: large-scale reduction in final energy demand and energy bills in residential/commercial buildings.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; national energy-efficiency institutions; Eco Fund; banks; housing associations; business associations; installers and ESCOs.
	Action scale & addressed entities	Private residential buildings, apartment blocks, commercial premises and SMEs across the city.
	Involved stakeholders	Homeowners, tenants, apartment-owner associations, SMEs, commercial operators, banks, installers, vulnerable households, NGOs and neighbourhood communities.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025: programme design and financing alignment. 2026-2027: pilot support packages. 2028-2030: scale-up to priority neighbourhoods and commercial segments. Milestones: number of supported buildings/units, MWh saved and verified tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	Only if combined with rooftop PV/solar thermal; otherwise primarily energy savings.
	Removed/substituted energy, volume, or fuel type	133 984 MWh/year of final energy savings reported in the action list. Electricity savings use 0.364 tCO_2e/MWh; combustion-fuel savings use approved fuel-specific emission factors.
	GHG emissions reduction estimate (total) per emission source sector	Indicative estimate: 133 984 MWh/year × 0.364 tCO_2e/MWh = 48 770.18 tCO_2e/year where savings are electricity-equivalent. Final calculation should split savings by carrier to improve accuracy.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Public cost should be separated from total private investment. Cost per tCO_2e to be calculated using verified savings and measure lifetimes.

B-2.2: Individual action outlines		
Action 17 of 24 – Additional action		
Action outline	**Action name**	Electrification of public transport
	Action type	Additional mitigation action; public-transport electrification and service-quality improvement.
	Action description	Replace diesel buses with electric buses in phases and install the required depot/opportunity charging infrastructure. The action should be combined with route optimisation, priority measures, better ticketing and passenger information so that electrification also improves public-transport attractiveness and supports modal shift.
Reference to	**Field of action**	Mobility & transport; Energy systems; Public transport.

impact pathway	**Systemic lever**	Fleet procurement, charging infrastructure, public-service contracting, route planning, operational data and passenger-service improvements.
	Outcome (according to module B-1.1)	Early changes: e-bus fleet plan, charging design and operational baseline. Late outcomes: diesel displacement, lower local air pollution and reduced public-transport GHG emissions, with improved service quality.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; municipal transport/traffic departments; public transport operators; charging-infrastructure providers; distribution-system operator; financing partners.
	Action scale & addressed entities	Urban bus routes and associated depot/charging infrastructure, prioritising high-mileage routes and buses nearing replacement.
	Involved stakeholders	Bus operators, passengers, drivers, electricity distribution/operator, charging companies, national transport authorities, finance partners and citizens.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: fleet and charging plan, procurement preparation. 2026-2028: first e-bus and charging phase. 2028-2030: fleet expansion and route optimisation. Milestones: e-buses procured, diesel litres avoided, electricity consumed and tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	Not directly applicable unless electricity is supplied by additional renewable generation or certified renewable procurement.
	Removed/substituted energy, volume, or fuel type	9 097.57 MWh/year of transport energy/activity savings reported in the action list; diesel fuel is substituted by electricity for e-buses.
	GHG emissions reduction estimate (total) per emission source sector	GHG reduction should be calculated as avoided diesel emissions minus electricity-related emissions. The uploaded action list links this action to external input parameters; the final value should therefore be confirmed from actual diesel displaced, bus-km, electricity consumption and the applicable factors. Indicative estimate can be reported once those inputs are linked.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include e-bus CAPEX, chargers, depot/grid upgrades, battery replacement allowance and O&M effects. Cost per tCO_2e should be calculated over the useful life and to 2030.

B-2.2: Individual action outlines		
Action 18 of 24 – Additional action		
Action outline	**Action name**	E-taxi/e-car, fast chargers and municipal fleet electrification
	Action type	Additional mitigation action; vehicle electrification, charging network and low-emission municipal procurement.
	Action description	Accelerate electrification of taxis, municipal vehicles and selected high-mileage private/commercial vehicles through targeted charging infrastructure, fast chargers at strategic locations, municipal fleet replacement rules, taxi-sector incentives/standards and cooperation with charging-service providers. Priority should be given to high-annual-mileage vehicles where fuel displacement is greatest.
Reference to impact pathway	**Field of action**	Mobility & transport; Energy systems; Municipal procurement.
	Systemic lever	Charging infrastructure, clean procurement, market incentives, taxi regulation, public-private partnerships and awareness/behaviour change.
	Outcome (according to module B-1.1)	Early changes: charging-network plan, municipal fleet replacement schedule and taxi/EV incentive design. Late outcomes: accelerated EV uptake, lower petrol/diesel use and reduced road-transport emissions.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; municipal fleet managers; taxi regulators/operators; charging-infrastructure providers; electricity distribution/operator; national authorities; banks/leasing providers.
	Action scale & addressed entities	Municipal fleet, taxi fleet, high-mileage commercial and private vehicles, and public/fast-charging locations across the city.
	Involved stakeholders	Taxi operators, municipal companies, EV users, parking/traffic authorities, electricity operators, charging companies, private fleet owners and citizens.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: charging map, fleet audit and procurement rules. 2026-2028: first fast chargers and municipal/taxi fleet transition. 2028-2030: wider expansion. Milestones: EVs deployed, chargers installed, fuel avoided, MWh electricity consumed and tCO_2e avoided, with activity allocated consistently across the transport-electrification actions.
Impact & cost	**Generated renewable energy (if applicable)**	Not directly applicable unless chargers are supplied by additional renewable electricity or linked to PV/BESS systems.

	Removed/substituted energy, volume, or fuel type	Petrol/diesel use in taxis, selected high-mileage vehicles and municipal vehicles within the transport baseline. The quantified activity for this action is 82,442.78 MWh/year and covers EV transition and charging activity.
	GHG emissions reduction estimate (total) per emission source sector	GHG reduction = avoided petrol/diesel emissions minus electricity-related emissions from EV charging. The final 2030 quantified contribution is 21,022.91 tCO_2e/year. The calculation remains within the 2019 BEI physical boundary for the relevant transport sub-sectors and is monitored through EV uptake, charger operation, km travelled, charging electricity and displaced fuel use.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include chargers, grid connection, municipal vehicle replacement, incentives and O&M effects. Cost per tCO_2e should distinguish public expenditure from private fleet investment.

B-2.2: Individual action outlines		
Action 19 of 24 – Additional action		
Action outline	**Action name**	Adaptive traffic management, parking policy, parking pricing policy, cycling corridors and pedestrian routes
	Action type	Additional mitigation and behavioural action; demand management, modal shift and traffic-efficiency improvement.
	Action description	Introduce adaptive traffic management, signal optimisation, parking policy and pricing reforms, continuous cycling corridors, safer pedestrian routes and shaded active-mobility links. The measure reduces avoidable car travel, congestion and idling while improving the attractiveness of walking, cycling and public transport.
Reference to impact pathway	**Field of action**	Mobility & transport; Green infrastructure; Urban planning.
	Systemic lever	Digital traffic management, parking regulation/pricing, street redesign, active-mobility infrastructure, behavioural change and enforcement.
	Outcome (according to module B-1.1)	Early changes: priority corridors, parking-policy package and traffic-management plan prepared. Late outcomes: lower car-km, reduced congestion, increased walking/cycling and lower transport emissions.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; traffic/transport department; parking company; police/enforcement bodies; urban planning department; public works/road maintenance services.
	Action scale & addressed entities	City-level street network, central/parking-demand zones, cycling corridors, pedestrian corridors and school/neighbourhood access routes.
	Involved stakeholders	Residents, commuters, businesses, schools, cyclists, pedestrians, public transport operators, parking users, NGOs and vulnerable road users.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: traffic and parking diagnostics, corridor prioritisation. 2026-2028: first adaptive systems and corridor upgrades. 2028-2030: expansion and enforcement. Milestones: km of corridors, parking zones reformed, vehicle-km avoided and tCO_2e saved.
Impact & cost	**Generated renewable energy (if applicable)**	Not applicable.
	Removed/substituted energy, volume, or fuel type	41 085 MWh/year of transport activity/energy saving reported in the action list through reduced vehicle use, congestion and parking-related demand.
	GHG emissions reduction estimate (total) per emission source sector	The action list reports 24 646.675 tCO_2e/year for this combined traffic/parking/active-mobility package. Final monitoring should avoid double counting with Action 22 if parking-pricing benefits are reported separately.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include ITS/adaptive signals, road-space redesign, cycling/pedestrian infrastructure, signage, enforcement and communication. Cost per tCO_2e should include both direct GHG savings and wider co-benefits qualitatively.

B-2.2: Individual action outlines		
Action 20 of 24 – Additional action		
Action outline	**Action name**	Residential and SME heat-pump acceleration programme

	Action type	Additional mitigation action; electrification of heating/cooling and replacement of inefficient systems.
	Action description	Support replacement of inefficient heating and cooling systems in households and SMEs with efficient heat pumps, linked where possible with insulation, rooftop PV and advisory support. The programme should prioritise buildings where heat pumps deliver clear GHG savings, improved comfort and reduced local air pollution, while considering affordability for vulnerable households.
Reference to impact pathway	**Field of action**	Built environment; Energy systems; Households and SMEs.
	Systemic lever	Incentives, one-stop-shop guidance, installer-market development, financing packages, quality standards and protection of vulnerable groups.
	Outcome (according to module B-1.1)	Early changes: eligibility criteria, technology standards, financing/incentive package and installer guidance. Late outcomes: reduced use of inefficient heating fuels and lower heating/cooling emissions in residential and SME buildings.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; national energy-efficiency/Eco Fund institutions; banks; installers; SMEs; housing associations; social-services actors for vulnerable households.
	Action scale & addressed entities	Residential buildings and SMEs with inefficient heating/cooling systems and suitable technical conditions for heat pumps.
	Involved stakeholders	Households, SMEs, installers, banks, electricity suppliers/distribution operator, vulnerable households, NGOs and energy advisors.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025: programme design and technology/eligibility criteria. 2026-2027: pilot support. 2028-2030: scale-up to 11,740 supported heat-pump installations. Milestones: heat pumps installed, baseline systems replaced, useful heat supplied, electricity consumed, MWh saved and tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	Not counted as renewable generation unless combined with PV/solar systems; heat pumps are accounted as high-efficiency electrification.
	Removed/substituted energy, volume, or fuel type	Inefficient electric-resistance heating, inefficient electric heating/cooling systems and fossil-fuel heating systems where the baseline energy carrier is documented. Credited programme scale: 11,740 heat pumps × 6 MWh useful heat/cooling demand per unit/year = 70,440 MWh useful demand. At COP 3.0, post-installation electricity consumption is 23,480 MWh/year and net electricity saving against an inefficient electric baseline is 46,960 MWh/year. Biomass/firewood replacement is not credited as GHG saving in this CNAP cycle where the BEI applies EF=0, but may be reported for air-quality, comfort and energy-efficiency benefits.
	GHG emissions reduction estimate (total) per emission source sector	GHG reduction = baseline fuel/electricity emissions minus post-installation electricity emissions. Final quantified GHG reduction: 17,093.44 tCO_2e/year. Formula for the electric-baseline component: (70,440 MWh baseline electricity − 23,480 MWh heat-pump electricity) × 0.364 tCO_2/MWh = 17,093.44 tCO_2e/year. The assumed COP of 3.0 produces a net emissions reduction for inefficient electric-resistance and eligible fossil-fuel baselines.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include incentives, technical assistance, installation costs and possible electrical upgrades. Cost per tCO_2e depends strongly on baseline fuel and heat-pump performance.

B-2.2: Individual action outlines		
Action 21 of 24 – Additional action		
Action outline	**Action name**	Rooftop PV self-consumption programme for households, SMEs and public buildings
	Action type	Additional mitigation action; distributed renewable electricity and self-consumption.
	Action description	Scale rooftop PV self-consumption for households, SMEs and public buildings through technical guidance, aggregation, permitting support, information campaigns and linkage with financing/incentive schemes. Public buildings should demonstrate good practice, while household and SME participation expands distributed renewable generation.
Reference to impact pathway	**Field of action**	Energy systems; Built environment; Households, SMEs and public buildings.
	Systemic lever	Prosumer support, financing facilitation, permitting/grid-connection

		coordination, public-sector leadership and citizen/business participation.
	Outcome (according to module B-1.1)	Early changes: programme design, roof-screening guidance and first project pipeline. Late outcomes: significant distributed PV generation, reduced grid electricity consumption and increased participation in climate neutrality.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; national energy institutions; distribution-system operator; public building managers; banks; installers; housing/business associations.
	Action scale & addressed entities	Households, SMEs, commercial/service buildings and selected public buildings within the city.
	Involved stakeholders	Households, SMEs, public institutions, installers, banks, distribution-system operator, energy communities and citizens.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: programme design and pipeline creation. 2026-2028: first large wave of installations. 2028-2030: scale-up. Milestones: kWp installed, MWh generated, share self-consumed and tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	60 000 MWh/year of renewable electricity generation/self-consumption reported in the action list.
	Removed/substituted energy, volume, or fuel type	Grid electricity consumption. GHG reduction = 60 000 MWh/year × 0.364 tCO_2e/MWh, adjusted for any double counting with other PV actions.
	GHG emissions reduction estimate (total) per emission source sector	Indicative estimate: 21 840.00 tCO_2e/year under stationary energy/electricity. Final calculation should distinguish public-building PV from household/SME PV and self-consumption from exports.
	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Most CAPEX is private/public-building investment; city cost may include technical assistance and co-financing. Cost per tCO_2e = total or public investment divided by cumulative electricity-related savings.

B-2.2: Individual action outlines		
Action 22 of 24 – Additional action		
Action outline	**Action name**	Parking pricing reform, private-car modal-shift package
	Action type	Additional mitigation and behavioural action; parking-demand management and modal shift from private cars.
	Action description	Introduce a structured parking-pricing and demand-management package to reduce private-car dependence, especially in high-demand urban zones. The action should be integrated with improved public transport, cycling corridors, pedestrian routes, enforcement, communication and social safeguards for accessibility needs.
Reference to impact pathway	**Field of action**	Mobility & transport; Urban planning; Behaviour change.
	Systemic lever	Parking regulation and pricing, enforcement, revenue recycling into sustainable mobility, behavioural incentives and communication.
	Outcome (according to module B-1.1)	Early changes: parking baseline, pricing zones and communication package prepared. Late outcomes: reduced private-car trips, lower parking search traffic, higher use of public transport/active mobility and reduced road-transport emissions.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; parking company; transport/traffic department; municipal assembly/regulatory bodies; enforcement bodies; public transport operators.
	Action scale & addressed entities	High-demand parking zones, central urban areas, public parking facilities and corridors where modal shift alternatives are available.
	Involved stakeholders	Residents, commuters, businesses, parking users, public transport users, cyclists, pedestrians, vulnerable groups and NGOs.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: parking study and tariff/zoning proposal. 2026-2028: phased reform and enforcement. 2028-2030: extension and optimisation. Milestones: parking zones reformed, car-km avoided, modal-share changes and tCO_2e saved.
Impact & cost	**Generated renewable energy (if applicable)**	Not applicable.
	Removed/substituted energy, volume, or fuel type	25 110.9135 MWh/year of transport activity/energy saving reported in the action list through reduced private-car use and parking-search traffic.
	GHG emissions reduction estimate (total) per emission source sector	GHG reduction should be calculated from avoided vehicle-km/fuel use using the transport factor in the CNAP workbook. The calculation must be coordinated with Action 19 to prevent double counting of parking-policy impacts.

	GHG emissions compensated (natural or technological sinks)	Not applicable; mitigation action, not a sink.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include signage, payment systems, enforcement, communication and complementary sustainable-mobility investments. Revenue impacts should be reported separately from CAPEX/OPEX.

B-2.2: Individual action outlines		
Action 23 of 24 – Additional action		
Action outline	**Action name**	LFG CHP, CH_4 flaring, separate collection, recycling, composting/bio-waste, recycling-centre modernisation and reduced disposal of organic fraction
	Action type	Additional mitigation action; solid-waste methane reduction, circular economy and landfill-gas energy recovery.
	Action description	Reduce emissions from solid waste through improved landfill-gas capture and CHP/flaring, expanded separate collection, recycling, composting and bio-waste diversion, recycling-centre modernisation and reduced landfilling of biodegradable/organic fractions. The action combines infrastructure, operational change and citizen/business participation.
Reference to impact pathway	**Field of action**	Waste & circular economy; Energy systems; Municipal services.
	Systemic lever	Waste-service reform, landfill operation, methane capture, source separation, circular-economy infrastructure, public communication and tariff/service incentives.
	Outcome (according to module B-1.1)	Early changes: waste-flow baseline, LFG/CHP design, separate-collection plan and recycling/composting expansion plan. Late outcomes: lower CH_4 generation/emissions, renewable energy recovery and increased recycling/bio-waste diversion.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; Deponija d.o.o.; Čistoća/communal services; waste-management departments; private recyclers; national waste authorities; financing partners.
	Action scale & addressed entities	Municipal solid-waste system, Livade landfill/service area, recycling and bio-waste collection streams, households and commercial waste generators.
	Involved stakeholders	Households, businesses, waste operators, recyclers, composting operators, NGOs, schools, market operators, national authorities and IFI/donor partners.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: detailed waste-flow assessment, LFG/CHP and separate-collection planning. 2026-2028: infrastructure and service roll-out. 2028-2030: optimisation and monitoring. Milestones: tonnes separately collected, tonnes organic waste diverted, MWh generated, CH_4 captured/flared and tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	10 656.54 MWh/year of energy production/recovery reported in the action list for LFG/CHP-related energy generation.
	Removed/substituted energy, volume, or fuel type	10 656.54 MWh/year energy production plus avoided methane from improved LFG capture, flaring and reduced biodegradable waste disposal. Electricity-related component uses 0.364 tCO_2e/MWh.
	GHG emissions reduction estimate (total) per emission source sector	Indicative estimate from the action list formula: 17 627.1692 tCO_2e/year methane/waste-management component + 10 656.54 MWh/year × 0.364 tCO_2e/MWh = 21 506.15 tCO_2e/year. Final value should follow IPCC/national waste methodology and avoid double counting between diversion and gas capture.
	GHG emissions compensated (natural or technological sinks)	Not applicable as a sink; this action reduces emissions and recovers energy. It should not be counted as residual-emission compensation.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include LFG capture/CHP/flaring, collection infrastructure, recycling-centre upgrades, composting/bio-waste systems, communication and O&M. Cost per tCO_2e should separate methane-reduction benefits from energy-generation benefits.

B-2.2: Individual action outlines		
Action 24 of 24 – Additional action		
Action outline	**Action name**	SPOV/WWTP, biogas/energy recovery, energy-efficient wastewater treatment and sludge management
	Action type	Additional mitigation action; wastewater treatment modernisation,

		process-emission control and energy recovery.
	Action description	Integrate climate-performance requirements into the wastewater treatment system, including efficient treatment processes, biogas capture and CHP/energy recovery, energy-efficient pumping and aeration, sludge treatment and systematic monitoring of energy use, energy generation and process emissions. The measure supports compliance, water quality and climate neutrality.
Reference to impact pathway	**Field of action**	Waste & circular economy; Wastewater; Energy systems; Municipal utilities.
	Systemic lever	Infrastructure investment, utility performance management, process optimisation, biogas recovery, energy-efficient equipment, sludge-management planning and operational monitoring.
	Outcome (according to module B-1.1)	Early changes: climate-performance parameters, monitoring plan and operational data requirements included in project/utility management. Late outcomes: reduced wastewater-sector CH_4/N_2O and energy emissions, useful energy recovery and improved wastewater service quality.
Implementation	**Responsible bodies/person for implementation**	Capital City Podgorica; Vodovod i kanalizacija/WWTP operator; project implementation unit; environmental/water authorities; technology contractors; financing partners.
	Action scale & addressed entities	New/modernised WWTP/SPOV, sludge treatment and energy-recovery components, pumping systems and connected wastewater service area.
	Involved stakeholders	Utility operator, households and businesses connected to sewerage, environmental regulators, technology suppliers, sludge-management operators, local communities and financing institutions.
	Comments on implementation – consider mentioning resources, timelines, milestones	2025-2026: finalise climate-relevant design/monitoring parameters. 2026-2028: construction/commissioning and operational training. 2028-2030: optimisation and annual GHG reporting. Milestones: m³ treated, MWh generated, MWh saved, sludge treated and tCO_2e avoided.
Impact & cost	**Generated renewable energy (if applicable)**	2 415.7525 MWh/year of biogas/energy recovery or energy production reported in the action list.
	Removed/substituted energy, volume, or fuel type	Grid electricity and wastewater/sludge process emissions. Energy component = 2 415.7525 MWh/year × 0.364 tCO_2e/MWh; process-emission component should be calculated from the linked wastewater Inputs sheet using CH_4/N_2O methodology.
	GHG emissions reduction estimate (total) per emission source sector	Minimum electricity/energy-recovery component: 879.33 tCO_2e/year. The uploaded action list links the total GHG estimate to an external Inputs value, so the final total should include verified CH_4/N_2O/process-emission effects and be taken from the full CNAP calculation workbook.
	GHG emissions compensated (natural or technological sinks)	Not applicable as a sink; this action is an emissions-reduction and energy-recovery measure.
	Total costs and costs by CO2e unit	To be costed in the Investment Plan. Include WWTP energy-efficiency components, biogas/CHP, monitoring systems and sludge-management investments. Cost per tCO_2e should be calculated after final CAPEX/OPEX and process-emission savings are confirmed.

B-2.3: Summary strategy for residual emissions

Following implementation of the quantified 24-action mitigation portfolio, the Capital City of Podgorica is expected to achieve 363,335.87 tCO_2e of reductions by 2030. This is slightly above the minimum 60% reduction target applied to the updated 2019 Baseline Emissions Inventory of 605,545.56 tCO_2e. The remaining emissions after the quantified mitigation portfolio are estimated at approximately 242,209.69 tCO_2e/year. These residual emissions are not treated as unmanaged emissions, but as the remaining decarbonisation challenge to be addressed through continued mitigation, system transformation, further grid decarbonisation, circular-economy measures, sink enhancement and, where necessary, credible compensation or removal measures.

The residual emissions strategy follows a mitigation hierarchy. First, Podgorica will prioritise further in-boundary emission reductions, especially in sectors where remaining emissions are structurally significant: residential and commercial buildings, private and commercial transport, waste management and wastewater. In the buildings sector, the residual emissions strategy will focus on further expansion of deep renovation, heat-pump deployment, efficient cooling, rooftop PV, prosumer models, and progressive reduction of fossil and inefficient electric heating demand. In transport, the focus will be on reducing private-car dependence through improved public transport, e-mobility, parking-management reform, cycling and walking infrastructure, intermodality and demand-management measures. In the solid-waste sector, residual emissions will be addressed through waste prevention, separate collection, recycling, bio-waste diversion, landfill-gas capture

and improved methane monitoring. In the wastewater sector, further reductions will be pursued through completion and optimisation of treatment infrastructure, energy-efficient operation, sludge management, biogas/energy recovery and monitoring of CH_4 and N_2O emissions.

Second, Podgorica will address residual emissions through enabling-system measures that reduce future emissions beyond the directly quantified PaMs. These include improved MRV systems, digital municipal data platforms, energy management systems, sustainable procurement, circular-economy standards, climate criteria in spatial planning, public-private financing mechanisms and continued alignment with national energy, transport, waste and wastewater programmes.

Third, Podgorica will progressively develop a local carbon-sink and residual-emissions compensation framework. This framework will not replace direct emission reductions and is not counted within the quantified 24-PaM mitigation table. It will address emissions that are technically, economically or behaviourally difficult to eliminate by 2030, prioritising measures within the administrative territory of Podgorica, including urban afforestation, restoration of degraded and burnt land, protection and expansion of green corridors, soil-carbon enhancement on public land and nature-based solutions that also improve adaptation, heat-stress reduction, stormwater retention and biodiversity.

The residual emissions strategy will be reviewed in future CNAP revisions. AFOLU and LULUCF are currently not fully quantified within the city-level inventory and are therefore not used to claim reductions in the present mitigation table. These sectors will be incorporated once the local inventory is completed and aligned with the national methodology.

Indicator	Value	Interpretation
BEI 2019	605,545.56 tCO_2e	Buildings + transport + solid waste + wastewater
60% reduction target	363,327.33 tCO_2e	Reduction against BEI 2019
Quantified 24-PaM reductions	363,332.59 tCO_2e	Direct mitigation portfolio; slightly above the 60% threshold
Reduction achieved	60%	Achieved before separate compensation/removal measures
Residual emissions before compensation/removals	242,212.97 tCO_2e/year	Remaining emissions to be addressed through further mitigation and residual-emissions strategy

Compensating measures and sink calculations

Two compensating measures are identified for addressing part of the residual emissions after implementation of the quantified 24-PaM mitigation portfolio. They are reported separately from the 24 PaMs and are not included in the direct mitigation total of 363,332.59 tCO_2e. The calculations use a conservative planning-level net sink factor of 5.0 tCO_2e/ha/year. The factor is applied only as an indicative value pending detailed land mapping, planting/restoration plans, survival-rate monitoring and carbon-stock assessment.

No.	Compensating measure	Area	Net sink factor	Calculation	Indicative annual sink
CM-1	Urban tree planting, green corridors and “green pocket” programme	30 ha	5.0 tCO_2e/ha/year	30 × 5.0	150 tCO_2e/year
CM-2	Peri-urban afforestation, restoration and revegetation of burnt, degraded and erosion-prone areas	250 ha	5.0 tCO_2e/ha/year	250 × 5.0	1,250 tCO_2e/year
	Total compensating sink potential	280 ha		150 + 1,250	1,400 tCO_2e/year
Survival rate / Restoration-success / MRV discount factor 80%					
	Indicative cumulative effect 2027-2030, if implemented from 2027			1,400 × 0.8 x 4 years	4,480 tCO_2e

Urban tree planting, green corridors and green-pocket programme will establish a structured and measurable urban greening programme for Podgorica. The action will build on existing planting initiatives and the Mikro 020 concept by scaling up tree planting, creating continuous green corridors and converting small underused urban spaces into shaded, permeable and planted public areas. The programme will focus on streets, schools, public buildings, residential neighbourhoods, pedestrian and cycling corridors and heat-exposed urban zones. In addition to limited but measurable CO_2 removals, the measure will provide significant adaptation benefits through heat reduction, shading, improved stormwater management, biodiversity support and better urban liveability. Carbon-removal benefits will be calculated only for surviving trees and shrubs, using conservative sequestration factors and periodic monitoring.

This measure is a city-wide urban greening programme aimed at increasing carbon removals while also reducing urban heat-island effects, improving air quality, enhancing public space and strengthening climate resilience in densely built areas of Podgorica. The measure builds on existing municipal planting actions,

community-based greening activities and the Mikro 020 urban-pocket initiative, but upgrades them into a more systematic programme with quantified targets, monitoring and linkage to the overall residual-emissions compensation framework. By 2030, the Capital City will transform an even greater number of public spaces into parks, green corridors and Micro 020 spaces (20 implemented to date), i.e. areas that lower high temperatures during the summer, improve air quality, support local biodiversity and enhance rainwater retention in order to mitigate the urban heat island effect.

The measure includes: street tree planting such as planting along main roads, neighbourhood streets, pedestrian routes and cycling corridors; priority for streets with high heat exposure, limited shade and high pedestrian use; use of drought-resistant, locally appropriate tree species, green corridors, such as creation or reinforcement of continuous green links between parks, schools, public institutions, residential areas and river corridors; planting of trees and shrubs along mobility corridors to improve shade, comfort and walkability; integration with sustainable urban mobility measures, especially pedestrian and cycling routes; urban green pockets / Mikro 020 - small-scale greening of underused municipal spaces, courtyards, road islands, parking edges and neighbourhood plots; conversion of paved or degraded micro-locations into shaded, permeable and planted public areas; involvement of local communities, schools, NGOs and businesses in planting and maintenance, public-institution greening, such as planting around schools, kindergartens, health centres, administrative buildings and sports facilities; prioritisation of facilities used by vulnerable groups, especially children and elderly citizens.

Urban trees and shrubs remove CO_2 from the atmosphere through biomass accumulation - climate mitigation role. Although the mitigation effect per tree is moderate compared with large-scale afforestation, the measure is important because it is directly linked to urban climate action, visible to citizens and delivers strong adaptation co-benefits.

This measure should also be justified as an adaptation and urban-resilience benefits measure because it:

- reduces urban heat-island effects;
- provides shade for pedestrians, cyclists and public transport users;
- improves stormwater infiltration where combined with permeable surfaces;
- reduces surface temperatures in paved urban areas;
- improves air quality and local microclimate;
- strengthens biodiversity and ecological connectivity;
- improves quality of life in dense neighbourhoods.

Peri-urban afforestation, restoration and revegetation of burnt, degraded and erosion-prone areas will establish a targeted carbon-sink and adaptation programme on suitable publicly owned and degraded land in the wider Podgorica area. Having in mind that Podgorica suffered severe fires in 2025, the Ministry of Ecology, Sustainable Development and Northern Region Development, in cooperation with the Capital City and civil sector conducts a reforestation campaign in wildfire-affected areas through the project “Čuvaj da te čuva” (“Protect it, so it protects you”). The measure will focus on river corridors, erosion-prone land, burnt areas, degraded peri-urban zones and other municipal or state-owned plots where tree and shrub planting can provide both carbon-removal and climate-resilience benefits. Priority will be given to native and climate-resilient species, mixed planting structures and areas where restoration can reduce erosion, improve water retention, stabilise riverbanks and support biodiversity. Carbon-removal estimates will be calculated on an area basis, using conservative sequestration factors, survival-rate adjustments and lower initial crediting for burnt areas until restoration success is verified.

This measure is a larger-scale carbon-removal and adaptation programme focused on land outside the dense urban core, including river corridors, erosion-prone zones, burnt areas, degraded land and publicly owned plots suitable for tree and shrub planting. Compared with the urban-tree measure, this action has a stronger potential for measurable carbon removals because planting can be carried out over larger areas and can include forest-style planting, mixed woodland, shrubland restoration and riparian vegetation. The measure includes: peri-urban afforestation, such as planting on publicly owned land around the urban area; use of native and climate-resilient species; creation of green buffer zones around settlements, roads, industrial areas and infrastructure, restoration of vegetation along riverbanks, streams and drainage corridors; planting of trees, shrubs and grasses to stabilise banks and reduce erosion; strengthening ecological corridors along watercourses, erosion-prone land restoration, such as planting on unstable, degraded or erosion-sensitive slopes; use of mixed vegetation to stabilise soil; integration with erosion-control and flood-risk-reduction measures, restoration of burnt areas such as targeted replanting of areas affected by wildfires; use of assisted natural regeneration where appropriate; planting intensity adjusted to ecological conditions and fire-risk management; carbon-removal estimates should be conservative, reflecting partial recovery, survival rates and fire risk, public land carbon-sink programme, such as identification of municipal and state-owned land suitable for long-term carbon sinks; establishment of a land registry for eligible planting areas; linkage with monitoring, maintenance and carbon-removal accounting.

This measure provides carbon removals through biomass growth and, over time, soil-carbon improvement - climate mitigation role. It is better suited for compensating residual emissions because it can cover larger areas and generate more measurable sink benefits than dispersed urban tree planting.

The measure has strong adaptation and resilience benefits, because it:

- reduces erosion and land degradation;

- stabilises riverbanks and drainage corridors;
- contributes to flood-risk reduction;
- improves water retention and infiltration;
- restores degraded and fire-affected land;
- reduces heat and dust in peri-urban areas;
- increases biodiversity and ecological connectivity;
- creates natural buffers around settlements and infrastructure.

After applying the two indicative compensating measures, the residual-emissions balance would be reduced from 242,212.22 tCO_2e/year to approximately 237,732.22 tCO_2e/year. This adjusted figure is presented only as an indicative residual-emissions strategy result and not as part of the 24-PaM mitigation target. The quantified 60% target is already achieved through direct mitigation; compensating measures are therefore used only as an additional residual-emissions management instrument.

AFOLU and LULUCF are currently not quantified within the city-level inventory and are therefore not used to claim reductions in the present 24-PaM mitigation table. These sectors will be progressively incorporated in future CNAP revisions once the local inventory is completed and aligned with national methodology. This will allow Podgorica to distinguish more robustly between direct mitigation, removals and compensation in future reporting.

3.3. Module B-3 Indicators for Monitoring, Evaluation and Learning

Module B-3 “Indicators for Monitoring, Evaluation and Learning” contains a selection of indicators to monitor and evaluate progress along the selected impacts pathways and fields of action described in Module B-1. as well as a monitoring and evaluation plan, i.e., metadata on each indicator selected, in addition to milestones and timeline. More specifically:

- An overview table listing the indicators selected per outcome and impact including targets and evaluation points (B-3.1);
- A metadata table for each indicator selected (B-3.2).

B-3.1: Impact Pathways

Outcomes/ impacts addressed	Action/ project	Indicator No.	Indicator name	Target values 2025	Target values 2027	Target values 2030
B-1 Built environment / Energy systems: public buildings reduce final energy demand and Scope 1/2 emissions.	Action 15 – Public-building deep renovation	**B1-BE-01**	Public-building energy savings		Priority renovation package under implementation; ≥1 500 MWh/year verified savings achieved.	3 557.125 MWh/year; 1 294.79 tCO_2e/year
B-1 Built environment: households, SMEs and commercial premises reduce final energy demand.	Action 16 – Residential/commercial EE programme	**B1-BE-02**	Residential/commercial energy savings		Programme operational for households/SMEs/commercial users; ≥50 000 MWh/year savings tracked.	133 984 MWh/year; 48 770.18 tCO_2e/year
B-1 Mobility: e-buses reduce diesel use and improve low-emission public transport.	Action 17 – Public transport electrification	**B1-MT-01**	E-buses and diesel displacement		First e-bus package operational and	9 097.57 MWh/year transport energy/acti

					monitored; ≥2 300 MWh/year diesel/transport energy displaced.	vity saving; 2 328.98 tCO_2e/year
B-1 Mobility / Energy systems: EV charging and fleet transition reduce petrol/diesel dependency.	Action 18 – E-taxi/e-car, fast chargers and municipal fleet	**B1-MT-02**	EV chargers, e-taxi/e-car and municipal fleet uptake		First fast chargers and municipal/taxi EV pilots operational; ≥30% of priority charging/fleet-transition package implemented.	82,442.78 MWh/year transport activity; 21,022.91 tCO_2e/year
B-1 Mobility: traffic optimisation and active mobility reduce car-km and congestion.	Action 19 – Adaptive traffic, parking policy, cycling/pedestrian routes	**B1-MT-03**	Traffic, active mobility and integrated parking package		First adaptive-traffic, parking and active-mobility corridors implemented; ≥15 000 MWh/year transport activity saving monitored.	41 085 MWh/year and 24 646.675 tCO_2e/year, avoiding double counting with Action 22
B-1 Built environment / Energy systems: efficient electrification reduces heating/cooling emissions.	Action 20 – Residential and SME heat-pump acceleration	**B1-BE-03**	Heat pumps and baseline systems replaced		Pilot heat-pump support implemented; ≥30% of supported installations/fuel-displacement package achieved and monitored.	11,740 heat pumps; 46,960 MWh/year net electricity saving; 17,093.44 tCO_2e/year
B-1 Energy systems: distributed PV increases renewable electricity and reduces Scope 2 emissions.	Action 21 – Rooftop PV self-consumption programme	**B1-EN-01**	Rooftop PV capacity and generation		Rooftop PV pipeline operational; ≥20 000 MWh/year generation tracked.	60 000 MWh/year; 21 840 tCO_2e/year
B-1 Mobility: parking demand management reduces private-car dependence where alternatives exist.	Action 22 – Parking pricing and private-car modal shift	**B1-MT-04**	Parking reform and private-car modal shift		First priority parking zones reformed; ≥8 000 MWh/year private-car activity saving monitored.	25 110.9135 MWh/year transport activity saving

B-1 Waste/circular economy: lower CH_4, higher diversion/recycling and useful LFG energy.	Action 23 – Solid waste methane reduction and LFG energy	**B1-WC-01**	Waste methane reduction and LFG energy recovery		First LFG/diversion/recycling expansion phase implemented; ≥3 500 MWh/year LFG/useful-energy recovery and interim CH_4 reductions verified.	10 656.54 MWh/year LFG energy; indicative 21 506.15 tCO_2e/year total
B-1 Waste/circular economy / Energy systems: wastewater energy recovery and efficient treatment reduce emissions.	Action 24 – WWTP/SPOV energy recovery and process optimisation	**B1-WC-02**	Wastewater energy recovery and GHG reduction		Commissioning/operational monitoring established; ≥800 MWh/year energy recovery/process-optimisation benefit verified.	2 415.7525 MWh/year; ≥879.33 tCO_2e/year energy component plus process savings

B-3.2: Indicator Metadata – B1-BE-01	
For indicator B1-BE-01 – Action 15 – Public-building deep renovation	
Indicator Name	Verified final energy savings from renovated public buildings
Indicator Unit	MWh/year saved; tCO_2e/year avoided; m² renovated
Definition	Measures the reduction in final energy use achieved through deep energy renovation of municipal/public buildings compared with the pre-renovation baseline.
Calculation	Annual saving = weather/operation-adjusted baseline final energy consumption minus measured post-renovation final energy consumption. GHG reduction = energy savings by carrier × applicable emission factor; electricity savings use 0.364 tCO_2e/MWh.
Indicator Context	Directly monitors the B-1 built-environment pathway, where public assets demonstrate demand reduction, lower energy costs and transparent municipal performance.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Stationary energy / buildings; municipal/public buildings; Scope 1 and Scope 2 depending on energy carrier.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Improved comfort, lower operating costs, better public-service quality, reduced heat/cold stress and local green jobs.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 15 and the B-1 Built environment and Energy systems pathways. Relevant B-1 outcome: B-1 Built environment / Energy systems: public buildings reduce final energy demand and Scope 1/2 emissions.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes/partly – compatible with SECAP/Covenant of Mayors and CDP-ICLEI energy-efficiency reporting.
Data requirements	Building inventory, floor area, baseline bills, energy-audit results, post-renovation metering/bills, weather/occupancy adjustment method and completion records.
Expected data source	Capital City Podgorica, public-building managers, energy audits, ESCO/contractor reports, utility bills and CNAP calculation workbook.
Is the data source local or regional/national?	Local data, with national/electricity emission factor as applicable.
Expected availability	Audit and baseline data from 2025; verified performance data after each renovation bundle.

Suggested collection interval	Quarterly during works; annual verification and CNAP reporting.
References	B-1 Built environment and Energy systems pathways; B-2.2 Action 15; CNAP calculation workbook.
Deliverables describing the indicator	Public-building renovation pipeline, energy-audit reports, EM&V reports, annual MWh and tCO_2e savings table.
Other indicator systems using this indicator	SECAP/Covenant of Mayors monitoring; CDP-ICLEI Track; municipal energy-management system.
B-3.2: Indicator Metadata – B1-BE-02	
For indicator B1-BE-02 – Action 16 – Residential/commercial EE programme	
Indicator Name	Final energy savings in residential and commercial buildings supported by the city programme
Indicator Unit	MWh/year saved; number of supported units/buildings; tCO_2e/year avoided
Definition	Measures annual final energy savings achieved in private residential, service and commercial buildings participating in the city-supported efficiency programme.
Calculation	Savings = baseline final energy consumption or deemed savings by measure minus post-intervention consumption. GHG reduction = savings by energy carrier × emission factor. Where only electricity-equivalent savings are available, use 0.364 tCO_2e/MWh and flag the calculation as indicative.
Indicator Context	Monitors the B-1 late outcome that renovated/efficient buildings use less energy and reduce emissions relative to the 2019 baseline.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Stationary energy / residential, commercial and service buildings.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Lower energy bills, lower energy-poverty risk, improved comfort, healthier indoor environments and market development for local installers.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 16 and the B-1 Built environment pathway. Relevant B-1 outcome: B-1 Built environment: households, SMEs and commercial premises reduce final energy demand.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes/partly – compatible with SECAP/Covenant of Mayors building-efficiency monitoring; programme-level details remain local.
Data requirements	Participant registry, measure type, building/use type, baseline and post-intervention consumption or deemed savings, subsidy/loan data and emission factors.
Expected data source	Capital City programme records, Eco Fund/national programme data, banks/ESCOs/installers, utility bills where available and CNAP workbook.
Is the data source local or regional/national?	Local programme data supplemented by national finance/programme data.
Expected availability	Programme records from 2025; annual savings after installation/implementation.
Suggested collection interval	Semi-annual programme update; annual GHG aggregation.
References	B-1 Built environment pathway; B-2.2 Action 16; CNAP calculation workbook.
Deliverables describing the indicator	Programme registry, annual implementation report, MWh and tCO_2e savings statement.
Other indicator systems using this indicator	SECAP/Covenant of Mayors monitoring; CDP-ICLEI Track; national EE programme reporting where applicable.
B-3.2: Indicator Metadata – B1-MT-01	
For indicator B1-MT-01 – Action 17 – Public transport electrification	
Indicator Name	Electric buses deployed and diesel bus fuel/activity displaced
Indicator Unit	Number of e-buses; bus-km; litres diesel avoided; MWh electricity used; tCO_2e/year avoided
Definition	Tracks deployment and operation of electric buses and the resulting displacement of diesel consumption on public-transport routes.
Calculation	Avoided diesel = baseline litres/km × comparable bus-km shifted to e-buses. Net GHG reduction = avoided diesel emissions − electricity consumption for e-bus charging × 0.364 tCO_2e/MWh, unless certified/additional renewable electricity is credited separately.
Indicator Context	Corresponds to the B-1 mobility pathway in which public-transport electrification reduces fuel dependency and local pollution while supporting modal shift.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source	Transport; public bus fleet; Scope 1 diesel reduction and Scope 2 electricity use for

sectors does it measure?	charging.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Cleaner air, lower noise, better passenger experience, lower exposure to diesel-price volatility and improved service quality.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 17 and the B-1 Mobility & transport pathway. Relevant B-1 outcome: B-1 Mobility: e-buses reduce diesel use and improve low-emission public transport.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – compatible with SECAP/CDP-ICLEI low-emission fleet and transport-emissions indicators.
Data requirements	Fleet inventory, route-km, bus-km, baseline diesel litres, e-bus electricity use, charging records, service frequency and emission factors.
Expected data source	Transport department, bus operators, depot/charging systems, fuel and electricity invoices, CNAP workbook.
Is the data source local or regional/national?	Local operational data with national/electricity factor.
Expected availability	Baseline and procurement data in 2025; operational data after e-bus deployment.
Suggested collection interval	Monthly operational data; annual GHG reporting.
References	B-1 Mobility & transport pathway; B-2.2 Action 17; CNAP calculation workbook.
Deliverables describing the indicator	E-bus deployment report, charging report, annual diesel-displacement and GHG report.
Other indicator systems using this indicator	SECAP/Covenant of Mayors mobility monitoring; CDP-ICLEI Track transport reporting.
B-3.2: Indicator Metadata – B1-MT-02	
For indicator B1-MT-02 – Action 18 – E-taxi/e-car, fast chargers and municipal fleet	
Indicator Name	Charging network and municipal/taxi/light-duty EV uptake
Indicator Unit	Number of public/fast chargers; number of EVs; MWh charged; litres fuel avoided; tCO_2e/year avoided
Definition	Measures charging infrastructure deployment and monitored transition of municipal, taxi and selected high-mileage vehicles to electric mobility.
Calculation	Fuel displacement is estimated from baseline vehicle-km and fuel economy or from monitored EV km/charging data. Net GHG reduction = avoided petrol/diesel emissions − EV charging electricity × 0.364 tCO_2e/MWh. The final allocation covers 82,442.78 MWh/year of transport activity and 21,022.91 tCO_2e/year, without overlap with public-transport electrification under Action 17 or existing municipal EV uptake under Action 13.
Indicator Context	Reflects the B-1 mobility late outcome of reduced car/fuel dependency and the energy-system lever of electrification supported by infrastructure.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes, for vehicles and chargers attributable to the action.
If yes, which emission source sectors does it measure?	Transport; municipal fleet, taxis and light-duty vehicles; electricity for charging.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Lower urban air pollution, lower noise, improved EV market confidence, better municipal fleet performance and innovation in taxi services.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 18 and the B-1 Mobility & transport pathway. Relevant B-1 outcome: B-1 Mobility / Energy systems: EV charging and fleet transition reduce petrol/diesel dependency.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – EV infrastructure and low-emission fleets can be reported in SECAP/CDP-ICLEI; detailed utilisation remains local.
Data requirements	Charger inventory, charger utilisation, EV fleet records, vehicle-km, fuel baseline, electricity consumption and emission factors.
Expected data source	Capital City Podgorica, charging operators, taxi associations, municipal fleet managers, electricity invoices and CNAP workbook.
Is the data source local or regional/national?	Local; may use national vehicle-registration data where available.
Expected availability	Infrastructure/fleet data from 2025; utilisation data after commissioning.
Suggested collection interval	Quarterly infrastructure/fleet update; annual GHG reporting.

References	B-1 Mobility & transport and Energy systems pathways; B-2.2 Action 18; CNAP calculation workbook.
Deliverables describing the indicator	Charging-network map, fleet electrification report, annual EV utilisation and GHG savings table.
Other indicator systems using this indicator	SECAP/Covenant of Mayors mobility indicators; CDP-ICLEI Track transport reporting.
B-3.2: Indicator Metadata – B1-MT-03	
For indicator B1-MT-03 – Action 19 – Adaptive traffic, parking policy, cycling/pedestrian routes	
Indicator Name	Adaptive traffic, active-mobility and integrated parking-management package implemented
Indicator Unit	km of cycling/pedestrian corridors; number of adaptive junctions/sites; MWh/year transport activity saving; tCO_2e/year avoided
Definition	Tracks delivery and impact of traffic-management, parking-policy, cycling-corridor and pedestrian-route interventions that reduce private-car travel and congestion.
Calculation	Implementation outputs are counted directly. Emissions are estimated from traffic counts, vehicle-km changes, modal-shift surveys, parking data and vehicle/fuel emission factors. Where the workbook provides a combined estimate, report it with clear attribution boundaries against Action 22.
Indicator Context	This indicator monitors the B-1 direct impact of reduced diesel/petrol consumption and indirect benefits of safer, cleaner and healthier mobility.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes, where vehicle-km/fuel savings are quantified robustly.
If yes, which emission source sectors does it measure?	Transport; passenger mobility and urban traffic.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced congestion, road safety, better public space, healthier mobility, air-quality improvement and accessibility.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 19 and the B-1 Mobility & transport pathway. Relevant B-1 outcome: B-1 Mobility: traffic optimisation and active mobility reduce car-km and congestion.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – modal-share and transport-emissions information can be reported through SECAP/CDP-ICLEI; local ITS data remain municipal.
Data requirements	Traffic counts, junction data, corridor length, parking occupancy, modal-share surveys, public-transport use, vehicle emission factors and workbook attribution rules.
Expected data source	Transport/traffic department, parking company, police/enforcement data, mobility surveys, ITS operators and CNAP workbook.
Is the data source local or regional/national?	Local.
Expected availability	Diagnostics in 2025; operating and use data after implementation.
Suggested collection interval	Quarterly implementation tracking; annual mobility/GHG evaluation.
References	B-1 Mobility & transport pathway; B-2.2 Action 19; CNAP calculation workbook.
Deliverables describing the indicator	Traffic-management and active-mobility implementation report; annual mobility-impact and GHG report.
Other indicator systems using this indicator	SECAP/Covenant of Mayors mobility indicators; SUMP monitoring; CDP-ICLEI Track.
B-3.2: Indicator Metadata – B1-BE-03	
For indicator B1-BE-03 – Action 20 – Residential and SME heat-pump acceleration	
Indicator Name	Heat pumps installed and baseline heating/cooling systems replaced
Indicator Unit	Number of heat pumps; useful heat/cooling supplied; MWh/year fuel/electricity displaced; tCO_2e/year avoided
Definition	Measures uptake of efficient heat pumps and the resulting reduction in emissions from inefficient heating/cooling systems in households and SMEs.
Calculation	GHG reduction = baseline heating/cooling emissions − post-installation electricity emissions. The final calculation applies 11,740 supported heat pumps × 6 MWh useful demand = 70,440 MWh/year; post-installation electricity = 70,440 ÷ COP 3.0 = 23,480 MWh/year; net electricity saving = 46,960 MWh/year; GHG saving = 46,960 × 0.364 = 17,093.44 tCO_2 e/year. GHG savings are credited where heat pumps replace inefficient electric systems or fossil-fuel heating with a documented baseline. Biomass/firewood replacements are reported as air-quality, comfort and energy-efficiency benefits unless a separate eligible GHG baseline is confirmed.
Indicator Context	Links to the B-1 built-environment late outcome of shifting away from fossil/inefficient

	systems and reducing building-sector emissions.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Stationary energy / residential and SME buildings; Scope 1 fuel reduction and Scope 2 electricity use.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Improved thermal comfort, lower local air pollution, lower energy poverty where properly targeted and development of qualified installer market.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 20 and the B-1 Built environment and Energy systems pathways. Relevant B-1 outcome: B-1 Built environment / Energy systems: efficient electrification reduces heating/cooling emissions.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – heat-pump/efficient-heating measures can be reported under SECAP/CDP-ICLEI building actions.
Data requirements	Number and type of installations, baseline heating system/fuel, heat demand, seasonal performance factor, electricity use, subsidy/finance data and emission factors.
Expected data source	City programme records, Eco Fund/national EE programmes, installers, households/SMEs, utility data where available and CNAP workbook.
Is the data source local or regional/national?	Local programme data; national support-programme data where applicable.
Expected availability	Programme design from 2025; installation and monitoring data after roll-out.
Suggested collection interval	Semi-annual programme reporting; annual GHG calculation.
References	B-1 Built environment and Energy systems pathways; B-2.2 Action 20; CNAP calculation workbook.
Deliverables describing the indicator	Heat-pump support registry, installation verification, annual fuel-substitution and GHG report.
Other indicator systems using this indicator	SECAP/Covenant of Mayors monitoring; national EE programme monitoring; CDP-ICLEI Track.
B-3.2: Indicator Metadata – B1-EN-01	
For indicator B1-EN-01 – Action 21 – Rooftop PV self-consumption programme	
Indicator Name	Rooftop PV capacity installed and renewable electricity generated/self-consumed
Indicator Unit	kWp installed; MWh/year generated; MWh/year self-consumed; tCO_2e/year avoided
Definition	Measures installed rooftop PV capacity and annual renewable electricity generated and self-consumed by households, SMEs and public buildings.
Calculation	Annual GHG reduction = MWh of grid electricity displaced by PV self-consumption × 0.364 tCO_2e/MWh. Exports should be reported separately unless the CNAP accounting method credits exported renewable electricity.
Indicator Context	Tracks the B-1 energy-system pathway toward higher renewable share, lower Scope 2 emissions and stronger citizen/business participation.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Stationary energy / electricity use in buildings; Scope 2 emission reduction.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Lower electricity bills, energy security, local installer jobs, citizen/business engagement and public-sector demonstration.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 21 and the B-1 Energy systems pathway. Relevant B-1 outcome: B-1 Energy systems: distributed PV increases renewable electricity and reduces Scope 2 emissions.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes/partly – renewable energy generation and self-consumption can be included in SECAP/CDP-ICLEI reporting.
Data requirements	PV installation registry, kWp, commissioning date, generation meter data, self-consumption/export split, owner type and emission factor.
Expected data source	Capital City programme records, public-building managers, distribution-system operator, prosumer records, installers and CNAP workbook.

Is the data source local or regional/national?	Local with utility/national electricity-system data.
Expected availability	Pipeline data from 2025; generation data after commissioning.
Suggested collection interval	Quarterly capacity update; annual generation and GHG reporting.
References	B-1 Energy systems pathway; B-2.2 Action 21; CNAP calculation workbook.
Deliverables describing the indicator	PV pipeline and installation register, annual renewable generation and CO_2 savings report.
Other indicator systems using this indicator	SECAP/Covenant of Mayors energy monitoring; CDP-ICLEI Track; prosumer/DSO records.
B-3.2: Indicator Metadata – B1-MT-04	
For indicator B1-MT-04 – Action 22 – Parking pricing and private-car modal shift	
Indicator Name	Parking-demand management and private-car modal-shift impact
Indicator Unit	Parking zones reformed; parking occupancy/turnover; vehicle-km avoided; MWh/year transport activity saving; tCO_2e/year avoided
Definition	Measures implementation and transport impact of parking-pricing and demand-management reforms designed to reduce private-car trips and parking-search traffic.
Calculation	Impacts are estimated from parking occupancy/turnover, payment/enforcement data, traffic counts, modal-shift surveys and vehicle-km/fuel savings. GHG reduction = avoided fuel/activity × relevant transport emission factor. Clearly separate from Action 19 attribution.
Indicator Context	Supports the B-1 mobility late outcome of reduced car/fuel dependency and increased use of public transport and active mobility.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes, where avoided vehicle-km/fuel use are quantified.
If yes, which emission source sectors does it measure?	Transport; private passenger cars and parking-search traffic.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced congestion, better parking management, improved public space, revenue for sustainable mobility and lower air/noise pollution.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 22 and the B-1 Mobility & transport pathway. Relevant B-1 outcome: B-1 Mobility: parking demand management reduces private-car dependence where alternatives exist.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – transport-emissions and modal-shift indicators can be reported through SECAP/CDP-ICLEI; detailed parking metrics remain local.
Data requirements	Parking inventory, tariffs, occupancy/turnover, enforcement/payment data, traffic counts, modal-share surveys, vehicle emission factors and attribution rules.
Expected data source	Parking company, transport department, enforcement data, mobility surveys and CNAP workbook.
Is the data source local or regional/national?	Local.
Expected availability	Baseline data from 2025; impact data after phased implementation.
Suggested collection interval	Quarterly parking monitoring; annual transport/GHG reporting.
References	B-1 Mobility & transport pathway; B-2.2 Action 22; CNAP calculation workbook.
Deliverables describing the indicator	Parking reform implementation report, modal-shift assessment, annual GHG impact table.
Other indicator systems using this indicator	SUMP monitoring; SECAP/Covenant of Mayors mobility monitoring; CDP-ICLEI Track.
B-3.2: Indicator Metadata – B1-WC-01	
For indicator B1-WC-01 – Action 23 – Solid waste methane reduction and LFG energy	
Indicator Name	Solid-waste methane reduction, circular diversion and LFG energy recovery
Indicator Unit	t waste diverted; t organic waste diverted; CH_4 captured/flared; MWh/year generated; tCO_2e/year avoided
Definition	Measures emissions reduction from landfill-gas capture/flaring/CHP, recycling, separate collection, composting/bio-waste diversion and reduced landfilling of biodegradable fractions.
Calculation	GHG reduction = avoided CH_4 from improved landfill-gas capture/diversion + electricity/heat substitution from LFG energy. Energy component = MWh generated × 0.364 tCO_2e/MWh. Avoid double counting between organic-waste diversion and LFG capture.
Indicator Context	Directly monitors the B-1 waste pathway of lower CH_4 emissions, material recovery and

	useful methane/biogas energy.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Waste and circular economy; solid waste; energy systems for recovered energy.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Cleaner neighbourhoods, lower odour, resource efficiency, landfill capacity protection, recycling-market development and citizen participation.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 23 and the B-1 Waste & circular economy pathway. Relevant B-1 outcome: B-1 Waste/circular economy: lower CH_4, higher diversion/recycling and useful LFG energy.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes/partly – waste emissions, recycling and methane-reduction actions can be reported through SECAP/CDP-ICLEI; detailed LFG/CH_4 modelling remains local/national methodology.
Data requirements	Waste quantities by stream, organic fraction, collection coverage, recycling/composting tonnages, landfill-gas capture/flaring/CHP data, MWh generated and emission/methane factors.
Expected data source	Deponija d.o.o., Čistoća/communal services, recyclers, landfill monitoring system, waste-flow studies and CNAP workbook.
Is the data source local or regional/national?	Local utility/operator data with national/IPCC methodology inputs.
Expected availability	Waste-flow baseline and project data from 2025; operational data after implementation.
Suggested collection interval	Monthly operational data; annual GHG and waste-flow report.
References	B-1 Waste & circular economy pathway; B-2.2 Action 23; CNAP calculation workbook.
Deliverables describing the indicator	Waste-flow baseline, LFG/CHP monitoring report, separate-collection/recycling/bio-waste report, annual tCO_2e reduction table.
Other indicator systems using this indicator	SECAP/Covenant of Mayors waste monitoring; CDP-ICLEI Track; national waste reporting where applicable.
B-3.2: Indicator Metadata – B1-WC-02	
For indicator B1-WC-02 – Action 24 – WWTP/SPOV energy recovery and process optimisation	
Indicator Name	Wastewater treatment energy recovery, process optimisation and GHG reduction
Indicator Unit	m^3 wastewater treated; MWh/year generated/saved; sludge treated; tCO_2e/year avoided
Definition	Measures energy recovery/efficiency and process-emission reductions from the wastewater treatment system, including biogas/CHP, pumping/aeration efficiency, sludge management and CH_4/N_2O monitoring.
Calculation	Energy component = MWh recovered or saved × 0.364 tCO_2e/MWh. Process-emission component = baseline CH_4/N_2O emissions minus post-implementation emissions using approved wastewater methodology and activity data. Report total only when linked workbook inputs are complete.
Indicator Context	Monitors the B-1 waste/circular-economy late outcome of useful energy from biogas and lower wastewater-sector emissions, with service-quality and water-quality co-benefits.
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Wastewater; waste and circular economy; energy systems for electricity/heat recovery.
Does the indicator measure indirect impacts (i.e., co-benefits)?	Yes
If yes, which co-benefit does it measure?	Improved water quality, better odour control, resilient utility operation, lower energy costs and compliance with wastewater standards.
Is the indicator useful for monitoring the output/impact of action(s)?	Yes.
If yes, which action and impact pathway is it relevant for?	Action 24 and the B-1 Waste & circular economy pathway. Relevant B-1 outcome: B-1 Waste/circular economy / Energy systems: wastewater energy recovery and efficient treatment reduce emissions.
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Partly – wastewater emissions and energy data can be reported in SECAP/CDP-ICLEI; detailed CH_4/N_2O calculations use local/national methods.
Data requirements	Wastewater volume, BOD/COD/load, treatment process, electricity use, energy generated, biogas produced/used/flared, sludge treatment, CH_4/N_2O factors and

	operating data.
Expected data source	Vodovod i kanalizacija/WWTP operator, project implementation unit, SCADA/utility records, energy invoices and CNAP workbook.
Is the data source local or regional/national?	Local utility data with national/IPCC methodology inputs.
Expected availability	Design/monitoring data from 2025; operational data after commissioning.
Suggested collection interval	Monthly operational data; annual GHG and energy-performance reporting.
References	B-1 Waste & circular economy and Energy systems pathways; B-2.2 Action 24; CNAP calculation workbook.
Deliverables describing the indicator	WWTP energy and biogas monitoring report, sludge-management report, annual wastewater GHG table.
Other indicator systems using this indicator	SECAP/Covenant of Mayors waste/wastewater monitoring; CDP-ICLEI Track; national water/wastewater reporting.

EPBD/EED-aligned monitoring indicators for additional action targets

The B-3 monitoring framework should explicitly link the buildings-related additional actions to the indicators introduced or enabled by the EPBD/EED Roadmap and the future National Building Renovation Plan. This will help Podgorica track not only final MWh and tCO_2 e reductions, but also the policy-delivery variables that determine whether the 2030 additional-action targets are achievable.

Additional monitoring indicator	CNAP action supported	Suggested use in B-3 targets
Annual renovated public-building floor area (m²/year or %/year)	Action 15 – Public-building deep renovation	Track progress against the future public-building renovation programme and 2030 savings target.
Annual public-sector final energy reduction (%)	Action 15 and municipal/state public-sector energy management	Track the public-sector contribution to the buildings-sector reduction pathway.
Number/area of residential and commercial buildings renovated	Action 16 – Residential/commercial EE programme	Track delivery of the renovation pipeline and link building-level outputs to MWh savings.
Number of heat pumps installed and baseline systems replaced	Action 20 – Heat-pump acceleration	Track clean-heating deployment and avoided inefficient/fossil heating demand.
Installed rooftop PV capacity and annual generation on buildings	Action 21 – Rooftop PV programme	Track solar obligations and self-consumption contributions to Scope 2 reductions.
Number of buildings with EV chargers or pre-cabling	Transport electrification and EV infrastructure actions	Track the enabling infrastructure needed for e-taxi, e-car and municipal fleet electrification.
Energy certificates, renovation passports and verified savings records	All buildings-sector additional actions	Strengthen MRV, verification and evidence for future CNAP iterations and financing.

4 Part C – Enabling Climate Neutrality by 2030

Part C "Enabling Climate Neutrality by 2030" aims to outline any enabling interventions, i.e., regarding organizational setting or collaborative governance models or related to social innovations – designed to support the climate action portfolios (Module B-2) as well as aiming to achieve co-benefits outlined in the impact pathway (Module B-1). These interventions also address the identified opportunities, gaps and barriers identified Module A-2 and A-3.

4.1 Module C-1 Governance Innovation Interventions

This module details the city´s governance innovations for achieving city climate neutrality by 2030, describing innovations in institutional design, in leadership, and in collaborative and outreach processes, whether they are inter-organisational or internal to the key organisations responsible for the city´s climate neutrality target. It also describes expected outcomes, for example how these governance innovations enable climate actions and their co-benefits (outlined in Modules B-1 and B-2), and how they address the opportunities, gaps and barriers identified in Modules A-2 and A-3. This content aims to include:

- Descriptions or/and visualisations of a participatory / collaborative governance model to facilitate the city´s climate neutrality target, including institutional design (horizontal links among city institutions, vertical links to other levels of government, roles, responsibilities, ground rules, processes). Building on the systems and stakeholder mapping in module A-3, it highlights the relations and processes established or planned to facilitate joint climate action among stakeholders and systems at relevant levels (e.g., showcasing new organisations, partnerships, alliances, networks, or processes), as well as mechanisms of citizen involvement.
- Descriptions of how the governance innovations introduced or planned to reach climate neutrality address some (or all) systemic barriers and opportunities (Module A-3) and contribute to NZC impact pathways (Module B-1), e.g., through improving organisational settings and interorganisational models – horizontally within municipal administration and across local stakeholders in the city ecosystem, as well as vertically at regional and national levels.

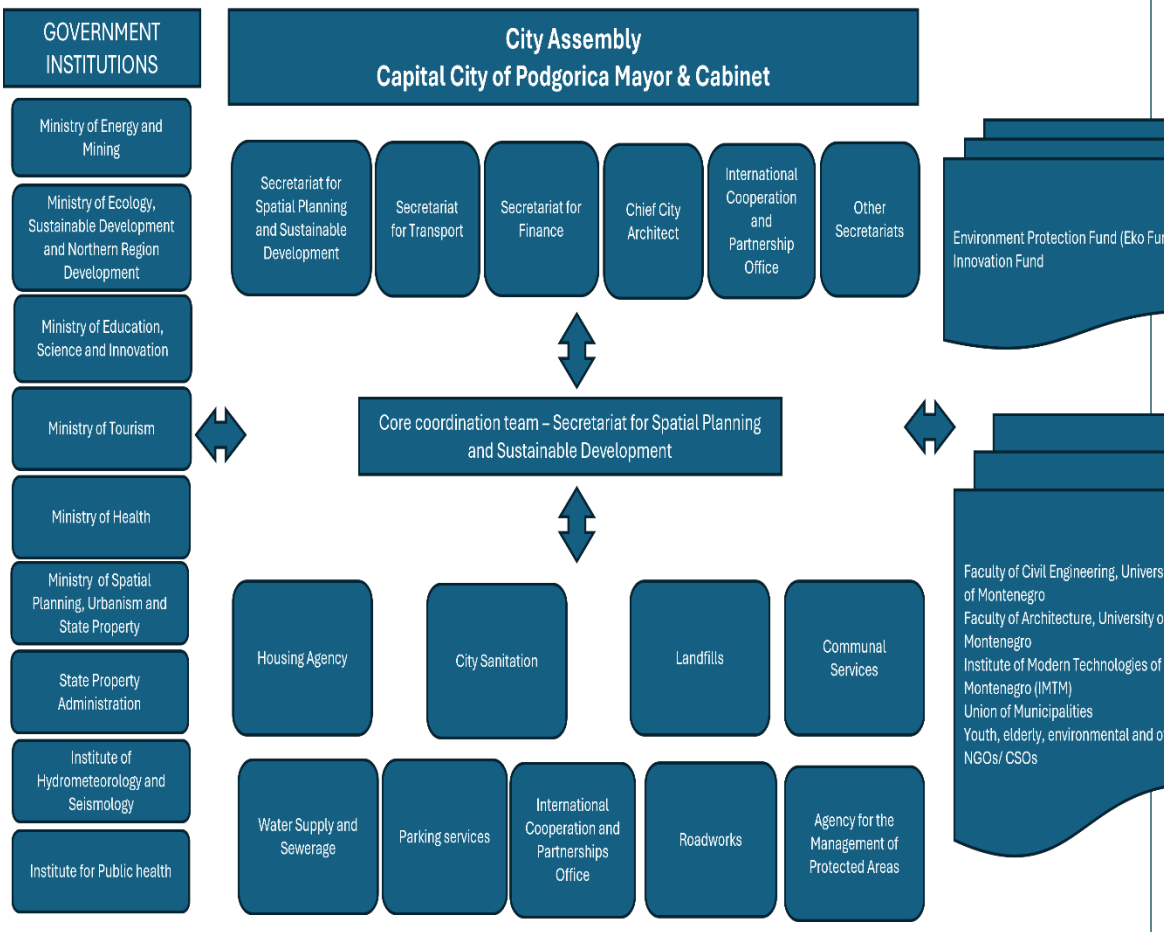
C-1.1: Description or visualisation of the participatory governance model for climate neutrality
Achieving climate neutrality in the Capital City of Podgorica by 2030 and beyond requires a governance model that is inclusive, multi-level and participatory, ensuring that decisions are informed by the expertise, interests and needs of all stakeholders. The current governance model consists of the City Assembly and the mayor and their cabinet to provide leadership, political vision and strategic directions. Furthermore, it brings together government institutions, public agencies and utilities which are directly responsible for implementing operational measures in the built environment, waste management, mobility and energy systems. However, the Capital City fo Podgorica recognises that achieving climate neutrality by 2030 is not only a technical challenge but also requires a comprehensive governance transformation. It requires an inclusive, transparent and collaborative decision-making process that actively involves all relevant stakeholders. Such a participatory governance model would ensure that climate action is integrated across sectors and is socially equitable, reflecting the needs and aspirations of the community. As a first step towards this change, Podgorica's climate governance within its own administration is evolving to support systemic transformation with the **Department for Environmental Protection and Sustainable Development leading and playing a central coordinating role for climate and environmental policy**. The city is moving toward cross-sectoral coordination involving the departments for urban

planning, transport, energy and utilities, though further institutionalisation of integrated planning is still under development. Planned reforms to achieve better horizontal and vertical climate governance integration include:

- Establishment of a dedicated climate/mission team or office within the city's administration.
- Strengthening capacities for climate data management, monitoring and reporting.

Podgorica's climate actions are deeply influenced by national and regional frameworks. The Government of Montenegro, particularly through the Ministry of Ecology, Sustainable Development and Northern Region Development, the Ministry of Spatial Planning, Urbanism and State Property, and the Ministry of Energy and Mining, sets policy and regulatory frameworks relevant to urban development, energy transition and climate resilience. The Figure 1 shows the City's participatory governance model for climate neutrality:

Figure 1. Capital City of Podgorica climate neutrality governance model



The governance structure/model is organized at three levels:

Strategic/political level (City Assembly and mayor)

- **City Assembly** – the legislative body that adopts the budget, strategic development plans, climate action plans and regulatory decisions relevant to sustainability.
- **Mayor** – the executive authority responsible for decisionmaking, overall leadership and execution of strategic policies.

Operation level

- The **Secretariat for Spatial Planning and Sustainable Development** acts as the **core coordination team**, ensuring that climate objectives are embedded into **urban planning, energy strategies, transport systems**.
- Key supporting departments and administration include:
  Secretariat for Transport – leading sustainable mobility initiatives.

  Secretariat for Finance – aligning financial frameworks with green investments.

  Chief City Architect – ensuring that urban design integrates energy efficiency, green infrastructure, and nature-based solutions (NBS).

  Other secretariats and administration units

These core bodies ensure that the **city's climate neutrality target is mainstreamed across all relevant sectors**. The system of the Capital City has around 4,000 employees, of whom 1,137 work in the local administration, and 2,800 work in 15 companies founded by the Capital City.

Implementation level

The Implementation level consists of professionals from key institutions responsible to prepare and deliver individual actions in close cooperation with all relevant stakeholders. Operational implementation of climate measures is driven by municipal agencies such as:

- **City Sanitation, Landfills, and Communal Services** – leading waste reduction and circular economy initiatives.
- **Water Supply and Sewerage** – integrating energy-efficient water infrastructure.
- **Parking Services and Roadworks Podgorica** – modernizing mobility infrastructure and promoting low-carbon transport.
- **Greenery** - managing and maintaining urban green areas as one of the main mechanisms of fighting climate changes and making the city more resilient in this regard.
- **Agency for the Management of Protected Areas** – safeguarding protected areas and enhancing climate resilience.

Capital City of Podgorica neutrality partnership network consists of a broader ecosystem which includes:

Knowledge and Innovation Partners

The **University of Montenegro's Faculty of Civil Engineering and Faculty of Architecture**, alongside the **Institute of Modern Technologies of Montenegro (IMTM)**, provide **research, innovation, and technical expertise**. These institutions serve as incubators for **pilot projects** on energy efficiency, renewable energy, and sustainable urban design.The **Innovation Fund** further supports **entrepreneurial solutions and private sector initiatives**, creating new business models for renewable energy deployment, waste valorization, and smart mobility.

Civil Society and Local Communities

A cornerstone of this governance model is **community empowerment and citizen engagement**. **NGOs and CSOs** including youth, environmental, and community-based organizations—ensure that climate actions are inclusive, fair, and socially accepted. **Local residents' assemblies** actively participate in co-creating solutions, particularly in areas such as building retrofits, renewable energy

adoption, and neighborhood greening.

Climate and Energy Efficiency Measures Funding

The **Environment Protection Fund (Eko Fund)** serves as a strategic financial and implementation instrument for advancing environmental and climate goals in Montenegro, including Podgorica's ambition to achieve climate neutrality targets by 2030. Its mandate and funding mechanisms make it a pivotal partner in accelerating the city's transition to a low-carbon and climate-resilient urban system.

Participatory tools, practices and principles

In view of a recognized transformational change required to achieve 2030 climate neutrality targets, Capital City Podgorica will make use of established stakeholder participation tools and methods while simultaneously introducing new and modernized ways of citizens' engagement. These tools consist of:

- **Stakeholder Platforms** – Regular multi-stakeholder roundtables (municipal agencies, academia, NGOs, and businesses) facilitative dialogue, knowledge exchange, and tools that facilitate coordinated action. The Climate City Contract process is expected to serve as a platform for structured stakeholder engagement, co-creation, and social buy-in.

- **Participatory Planning** – Public consultations, co-design workshops, and community pilot projects to ensure citizen input in policy design.

The design of the presented networked governance ecosystem will ensure that all relevant actors have a clear role in achieving the 2030 climate neutrality targets. By combining strong political leadership with shared ownership of climate goals, Podgorica creates synergies between sectors—energy, mobility, waste, and green spaces—while ensuring that transition measures are socially fair and technically robust.

The participatory governance model for the 2030 climate-neutrality agenda will be organised as a cross-sectoral and multi-level coordination system led by the Capital City administration and implemented with municipal departments, public enterprises, national institutions, civil society, local communities and the private sector. This model is particularly important for the nature-based and residual-emissions portfolio, because urban tree planting, green corridors, riparian restoration and peri-urban afforestation require coordinated decisions on land ownership, spatial planning, utility corridors, water management, biodiversity, fire risk, maintenance and monitoring.

The model combines four layers: (i) political oversight through the city leadership and the 2030 climate-neutrality commitment process; (ii) a technical coordination platform covering climate, spatial planning, communal services, transport, water, environment and finance; (iii) implementation partnerships with city-owned companies, schools, NGOs, universities, local communities and businesses; and (iv) monitoring, reporting and verification linked to Module B-3 indicators. The same structure should coordinate the two compensating measures defined in Module B-2: the urban tree planting, green corridors and green-pocket programme, and the peri-urban afforestation and riparian restoration programme.

Within the city administration, a climate-neutrality coordination function or working group should maintain the action pipeline, confirm land eligibility, coordinate permits and designs, assign maintenance responsibilities, consolidate annual monitoring data and avoid double counting of CO2 removals. Vertical coordination with national environment, forestry, water, spatial-planning and

disaster-risk institutions is required for river corridors, public land and restoration of burnt or erosion-prone areas. Horizontal coordination inside the municipality is needed to align greening with road works, drainage, parking, public-space management and urban development.

Citizen and stakeholder engagement should be organised through public calls for green-pocket locations, neighbourhood consultations, school and community planting days, NGO participation in biodiversity and survival monitoring, and local-business partnerships for financing and maintenance. This approach builds ownership, improves survival rates and helps prioritise heat-exposed neighbourhoods, schoolyards, pedestrian corridors and public spaces where adaptation co-benefits are highest. The model directly addresses the barriers identified: fragmented responsibilities, limited land and tree-inventory data, insufficient maintenance budgets, weak integration of climate objectives into spatial planning, and the need for credible carbon-removal monitoring.
EPBD/EED coordination requirement: Implementation of the buildings-related CNAP additional actions should be coordinated with the Ministry of Energy and Mining and the national EPBD/EED implementation structures. This coordination should cover the National Building Renovation Plan, public-sector renovation programmes, energy-performance standards, building registries, renovation passports, solar and EV-infrastructure requirements, financing instruments and the national MRV system for verified energy savings.

C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways

Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
CNAP Steering Board and annual delivery mandate	Establish a senior coordination body chaired by city leadership to approve annual CNAP priorities, resolve cross-sectoral issues, connect the action portfolio with the budget and capital investment programme, and report progress to the Municipal Assembly and public.	Addresses fragmented leadership, weak ownership of cross-sectoral actions and insufficient integration of climate objectives into annual planning. Builds on the opportunity to use the CCC/CNAP as an umbrella for existing and additional measures.	Mayor's Office; Municipal Assembly; Secretariat for finance; climate/environment, spatial planning, transport, communal services and investment units; directors of relevant public companies.	Gives formal authority to the B-2 action portfolio and ensures that measures 15-24 and nature-based compensation actions have named owners, milestones and budget links.	Stronger accountability, clearer public communication, faster decision-making and improved investor/donor confidence.
CNAP technical coordination unit / delivery office	Create a small technical function within the municipal administration to maintain the portfolio tracker, coordinate departments, prepare implementation templates, collect monitoring data, and manage annual updates.	Addresses limited administrative capacity, data fragmentation and weak continuity between planning, implementation and monitoring. Uses Module A stakeholder mapping to connect all relevant systems.	Designated climate coordinator; sectoral focal points; municipal data/GIS functions; public companies; external technical support where needed.	Converts impact pathways into implementable workplans and provides one operational point for follow-up on buildings, mobility, waste/wastewater, energy and green-infrastructure actions.	Improved institutional memory, reduced double counting, better evidence for future CCC iterations and stronger coordination with financiers.

Thematic implementation workstreams	Organise four delivery workstreams: buildings and energy; mobility and transport; waste/wastewater and circular economy; green infrastructure, land restoration and carbon sinks. Each workstream prepares annual implementation plans and reports progress against B-3 indicators.	Addresses siloed implementation and the need for sector-specific technical expertise. Uses the opportunity to align energy, transport, waste and land-use systems with the selected Module B impact pathways.	Lead secretariats and municipal companies per workstream; EPCG/CEDIS and energy-service providers; public transport and parking operators; Čistoća, Deponija, Vodovod i kanalizacija; green-space and land-management services; NGOs and academia.	Provides delivery capacity for Actions 15-24 and residual-emission compensation actions, ensuring that each pathway has an implementation mechanism and data owner.	Better sequencing of works, stronger technical quality, lower implementation risk and better integration of adaptation co-benefits.
Integrated climate-budgeting and investment-pipeline mechanism	Embed CNAP actions into the annual municipal budget, medium-term capital investment programme, donor pipeline and public-procurement planning. Each action should have a budget line, financing source, preparation status and next milestone.	Addresses financing gaps, unclear project maturity and weak linkage between plans and investment execution. Uses the opportunity to combine municipal budget, Eco Fund, IFI, donor, private-sector and CSR finance.	Finance Secretariat; investment/project preparation units; Mayor's Office; public companies; national funds; donors/IFIs; private-sector partners.	Moves additional measures from policy statements to investable projects, especially renovation, PV/heat pumps, chargers, e-buses, waste/wastewater energy recovery and restoration measures.	Higher project readiness, better absorption of external finance, more predictable procurement and improved cost-effectiveness.
Multi-level coordination protocol for utilities, permits and national alignment	Set up a standing protocol for issues requiring national or utility cooperation: grid connection, energy regulation, transport rules, waste/wastewater approvals, forestry/water/environment permissions and public-land use.	Addresses slow permitting, shared mandates, missing data and dependence on national institutions and utilities. Builds on the opportunity to align the city portfolio with national energy, climate, waste and adaptation frameworks.	Capital City departments; relevant ministries; EPCG/CEDIS; Energy and Water regulators where relevant; Environmental Protection Agency; forestry and water authorities; road and transport bodies.	Reduces bottlenecks for PV/BESS, fast chargers, fleet electrification, landfill/WWTP energy recovery and riparian/peri-urban restoration.	Regulatory clarity, lower implementation delay, improved technical compliance and stronger vertical governance.
CNAP MRV system, data dashboard and quality assurance	Develop a common annual MRV process and dashboard covering energy, fuel, transport activity, waste/wastewater, green infrastructure and natural-sink data. Data should be checked against B-3 metadata and calculation formulas before reporting.	Addresses weak data continuity, inconsistent sectoral reporting and the risk of overestimating emission reductions or removals. Uses the B-3 indicator framework as the accountability backbone.	CNAP technical unit; sectoral data owners; public companies; utilities; schools/public institutions; GIS/data staff; independent experts or universities for QA where needed.	Enables annual tracking of MWh saved/generated, fuel displaced, vehicles deployed, waste diverted, gas recovered, restored areas, tree survival and CO_2e impacts.	Transparent reporting, adaptive management, improved credibility of climate claims and better evidence for financing applications.

Participatory neighbourhood and stakeholder engagement process	Institutionalise structured engagement through public calls, workshops, mobility consultations, energy-advice channels, green-neighbourhood mapping, school participation and feedback on waste-sorting and public-space measures.	Addresses behavioural barriers, low public ownership and unequal access to climate benefits. Uses the opportunity to connect citizens with visible co-benefits such as lower energy bills, cleaner air, safer streets and shaded public spaces.	Local communities; citizens; vulnerable groups; NGOs; schools and universities; business associations; public transport users; building managers; municipal communication teams.	Supports uptake of residential/commercial EE, heat pumps, recycling, modal shift, parking reform, active mobility and community greening.	Social acceptance, inclusion, behaviour change, climate literacy, reduced resistance to change and improved maintenance of local measures.
Climate-compatible procurement and implementation standards	Introduce procurement and technical standards for renovation quality, EM&V, chargers, electric fleet specifications, low-carbon materials where relevant, tree species, planting quality, survival monitoring and maintenance obligations.	Addresses inconsistent technical quality, maintenance gaps and risk that actions are delivered without verifiable climate impact. Builds on the opportunity to use public procurement as a systemic lever.	Procurement units; technical departments; public companies; external designers/contractors; environmental and maintenance services; auditors/EM&V specialists.	Ensures that B-2 actions deliver measurable reductions/removals and that contracts include data, performance and maintenance requirements.	Better value for money, longer asset life, resilience to heat and drought, lower operational costs and fewer corrective works.

4.2 Module C-2 Social Innovation Interventions

This module lists the actions taken by the city to support and foster social innovation initiatives or non-technological innovation more broadly (e.g., in entrepreneurship, social economy, social awareness & mobilization, social cohesion and solidarity, etc) aimed to address the systemic barriers and leverage the opportunities identified in Module A-3[4]. It also includes:

- A description of the innovations (what do they innovate?).
- Systemic barriers /opportunities addressed by these innovations (from Module A-3).
- Stakeholders involved in the innovation.
- Additional enabling levers (e.g., technical, policy/ regulatory, democracy/ participatory, fiscal/ financial; learning and capabilities, behaviour change).
- Foreseen impact on climate neutrality and co-benefits.

C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways					
Intervention name	**Description**	**Systemic barriers / opportunities addressed**	**Leadership and stakeholders involved**	**Enabling impact**	**Co-benefits**

[4] For more guidance on social innovation, please refer to the NetZeroCities Quick Read on Social Innovation,to the NetZeroCities Report on indicators & assessment methods for social innovation action plans and the Social Innovation Toolkit. Social innovation case studies are also available on the NetZeroCities website.

Energy renovation one-stop-shop and advisory hub	A practical advisory service for households, SMEs and public institutions on energy audits, renovation steps, heat pumps, rooftop PV, BESS, incentives and contractor coordination. It supports the building-sector actions in Module B.	Addresses financing, information and capacity barriers identified in Module A: fragmented support, limited technical knowledge, low uptake of renovation and uncertainty on investment choices.	Capital City coordination team, energy/communal departments, Housing Agency, Eco Fund/financing partners, chambers/SME associations, condominium managers, energy auditors and citizens.	Increases uptake of deep renovation, accelerated residential/commercial EE, heat pumps and rooftop PV by converting technical measures into accessible household and SME decisions.	Lower bills, improved comfort, reduced energy poverty risk, local contractor market development and better quality of renovation works.
Public-building climate champions and user engagement	Nomination and training of climate champions in schools, kindergartens, health centres and municipal buildings to support energy-management behaviour, reporting, and post-renovation performance.	Responds to organisational and behavioural barriers: weak energy-management culture, limited ownership by building users and risk that renovated buildings do not achieve expected savings.	Municipal property/energy units, school and public-building managers, teachers, technical staff, users of public buildings and youth organisations.	Supports public-building renovation, efficient lighting, PV deployment and EM&V by ensuring that building users understand and maintain low-energy operation.	Educational value, healthier indoor conditions, reduced operating costs, youth engagement and replication of good practices in households.
E-mobility transition support and user-feedback programme	Information, demonstration and feedback programme for e-buses, e-taxis, municipal fleet electrification, fast chargers and e-car uptake, including driver training and charging-use feedback.	Addresses acceptance, skills and service-quality barriers for transport electrification, including concern over reliability, charging access and operational changes.	City transport units, public transport operator, taxi associations, municipal fleet managers, charging operators, electricity utility, businesses and users.	Improves the adoption and operational performance of electrified public transport, taxi/fleet transition and fast-charging infrastructure in Module B.	Cleaner air, quieter streets, better user confidence, reduced fuel costs and visibility of the climate-neutrality transition.
Participatory mobility and parking reform pilots	Neighbourhood-level pilots and consultations to test parking pricing, traffic-management changes, cycling corridors, pedestrian routes and car-use reduction measures before wider roll-out.	Addresses political and behavioural barriers to modal shift: resistance to parking reform, low trust in traffic changes and insufficient participation in street redesign.	Transport and spatial-planning departments, parking company, public transport provider, cycling groups, schools, businesses, vulnerable users and neighbourhood communities.	Improves legitimacy and implementation of adaptive traffic management, parking reform, cycling corridors and pedestrian-route actions.	Safer streets, improved walkability, accessibility for children/elderly, reduced congestion, better public-space quality and local air-quality benefits.
Circular neighbourhoods: separation, reuse, composting and bio-waste engagement	Community-based circular-economy programme combining waste separation guidance, composting/bio-waste pilots, reuse/repair initiatives and feedback on recycling performance.	Addresses social and behavioural barriers to waste-sector mitigation: low separation rates, limited awareness, weak household feedback and dependence on landfill disposal.	Waste-management company, local communities, schools, NGOs, building managers, markets, businesses, recycling centre, composting operators and municipal environmental services.	Supports the solid-waste action package: separate collection, recycling, composting/bio-waste, recycling-centre modernisation and reduced organic disposal.	Less waste to landfill, cleaner neighbourhoods, reduced methane, local green jobs, awareness and circular-economy culture.

Water-energy awareness for SPOV/WWTP and sludge/biogas recovery	Public information and stakeholder engagement around the wastewater treatment system, biogas/energy recovery, sludge management, odour prevention and responsible water use.	Addresses acceptance and knowledge gaps around wastewater infrastructure and links wastewater treatment with energy recovery and climate action.	Water and wastewater utility, municipal services, WWTP operator, affected communities, environmental authorities, schools and civil society organisations.	Improves social acceptance and understanding of the wastewater action, including energy-efficient treatment, sludge management and biogas/energy recovery.	Water protection, odour-risk awareness, improved environmental literacy, public trust and better link between infrastructure and climate benefits.
Community green corridors, green pockets and stewardship	Scale community greening and Mikro 020-type urban-pocket initiatives into a citywide stewardship model for tree planting, green corridors, watering, damage reporting and survival checks.	Addresses lack of shade, heat exposure, limited green space, maintenance gaps and weak community ownership of green-infrastructure investments.	Capital City, public green-space company, schools, neighbourhood communities, NGOs, businesses, universities and volunteers.	Enables implementation and monitoring of urban tree planting, green corridors, green pockets and residual-emission compensation actions.	Heat reduction, biodiversity, stormwater infiltration, social cohesion, public-space quality and higher tree survival rates.
Citizen climate-data and progress dashboard	A transparent digital and communication tool that publishes progress on Module B actions and Module B-3 indicators, with citizen reporting channels for problems and opportunities.	Addresses data-continuity and accountability barriers: fragmented monitoring, low visibility of progress and limited feedback loops between citizens and implementers.	CNAP coordination unit, IT/data team, public companies, municipal departments, universities, NGOs, schools, businesses and citizens.	Strengthens monitoring, evaluation and learning by linking B-3 indicators with public accountability and corrective action.	Transparency, trust, faster problem solving, better maintenance, civic learning and evidence-based future CCC iterations.

C-2.2: Description of social innovation interventions

The social innovation interventions are designed to close the implementation gap between the technical action portfolio in Module B and the systemic barriers identified in Module A. Module A highlights that the transition to climate neutrality is constrained not only by infrastructure and finance, but also by fragmented information, limited institutional and household capacity, behavioural barriers, uneven access to support mechanisms, insufficient public ownership, weak data continuity and the need for stronger cooperation with businesses, public institutions, schools and local communities. For this reason, the C-2 interventions are organised around participation, advisory support, behaviour change, citizen monitoring and practical uptake mechanisms.

For the built environment and energy systems pathway, social innovation should focus on making energy renovation, heat pumps, rooftop PV and BESS accessible and understandable for households, SMEs and public institutions. A municipal one-stop-shop or advisory hub can translate complex technical and financing requirements into a clear sequence of steps: diagnosis, energy audit, selection of measures, contractor engagement, financing options, quality control and monitoring of achieved savings. This directly supports the B-2 actions on deep public-building renovation, accelerated residential and commercial energy efficiency, heat-pump acceleration and rooftop PV self-consumption. It also reduces the risk that only better-informed or higher-income groups benefit from the transition. Outreach should therefore include condominium managers, vulnerable households, small businesses and public-building users.

For public buildings, social innovation should include climate champions and user-engagement mechanisms. Renovation and equipment investments will only achieve their full impact if building users understand how to operate renovated buildings, manage heating and cooling efficiently, report faults and support energy-management procedures. Schools, kindergartens, health facilities and municipal buildings can become demonstration sites that combine energy performance, comfort, education and public visibility. This intervention also links the climate-neutrality agenda with children and young people, who can transfer awareness from public institutions to households.

For the mobility and transport pathway, participation is essential because electrification, parking reform, traffic management, cycling corridors and pedestrian routes directly affect daily routines. The proposed e-mobility support programme should combine user information, driver training, charging-use feedback and demonstrations for e-buses, e-taxis, municipal fleets and private users. In parallel, participatory mobility and parking pilots should allow neighbourhoods, schools, businesses, persons with reduced mobility, cyclists and public-transport users to test and comment on street-space changes before citywide roll-out. This will improve legitimacy, reduce resistance and ensure that modal-shift measures are implemented with attention to safety and accessibility.

For waste, wastewater and circular economy actions, social innovation should focus on household and business behaviour. Separate collection, recycling, composting/bio-waste and reduced disposal of organic waste depend on clear instructions, convenient systems and visible feedback. Circular neighbourhood activities, reuse and repair initiatives, school campaigns and performance feedback can increase participation and reduce contamination of recyclable streams. For wastewater infrastructure, public information on treatment, sludge management, biogas/energy recovery and water protection can build acceptance and explain why the investment contributes to both environmental protection and climate-neutrality objectives.

For green infrastructure and residual-emission compensation, community-based greening should build on existing planting actions and the Mikro 020 urban-pocket approach. Social innovation consists of involving communities in identifying locations, selecting priority heat-exposed or underserved areas, supporting watering and maintenance, reporting damage and contributing to survival monitoring. This is important because the carbon-removal value of tree planting and restoration depends on survival, maintenance and long-term stewardship. Community green corridors, school greening and adopt-a-tree models should therefore be integrated with the B-3 indicators on trees planted, survival rate, restored area, green-pocket area and verified CO2 removals.

Across all fields of action, the citizen climate-data and progress dashboard should provide a common accountability mechanism. The dashboard should publish annual progress against the B-3 indicators, present simplified explanations of energy and GHG results, and allow residents and stakeholders to report implementation issues or propose locations for interventions. This creates a learning loop between Module B implementation and future CCC iterations. The social innovation package therefore supports climate neutrality by improving uptake, reducing resistance, widening participation, improving maintenance, strengthening data quality and making the transition benefits visible in everyday urban life.

5 Outlook and next steps

This section should draw any necessary conclusions on the CCC Action Plan above and highlight next steps and plans for refining the CCC Action Plan as part of the Climate City Contract in future iterations.

Plans for next CCC and CCC Action Plan iteration
The Capital City Podgorica's 2030 Climate Neutrality Action Plan outlines ambitious measures in the fields of energy systems, sustainable mobility, waste and circular economy, green infrastructure and nature-based solutions, and the built environment. Achieving the city's target of at least 60% reduction in GHG emissions by 2030 will require sustained political will, coordinated action, and the mobilisation of all relevant stakeholders. Failure to implement any of the critical measures could jeopardize the set decarbonization pathway and require one or more of the following mitigation responses: **- Ongoing adaptation** of individual actions if the proposed approach proves unfeasible or superior solutions become available; **- Modification of the Action Plan**, with a revision recommended after the in-depth mid-term review in 2026, following the 2025 GHG inventory; and/or **- Extension of target years** for certain actions, if delays are unavoidable. To maintain momentum, the City Administration, its emerging Climate/Mission Team, and the Strategic Council for Climate Neutrality should take the following priority steps in the period 2025–2026: 1. **Engage, instruct, and coordinate** all bodies responsible for implementing individual measures, ensuring clarity of roles and responsibilities. 2. Focus on high-impact actions with significant CO_2 reduction potential, setting up operational task forces, increasing human resources, and preparing the necessary technical documentation and permits. Critical measures include: 2.1 Deployment of photovoltaic systems on municipal, residential, and commercial buildings; 2.2 Completion of public lighting modernization and integration of smart controls; 2.3 Electrification of public and municipal vehicle fleets and expansion of EV charging infrastructure; 2.4 Comprehensive building retrofit programmes for residential and public buildings; 2.5 Introduction of sustainable urban mobility solutions and implementation of the new Transport Strategy; 2.6 Biogas-to-electricity conversion at the sanitary landfill, scaling up recycling and bio-waste diversion capacity, and commissioning of the Botun SPOV wastewater/sludge/energy-recovery package. 3. **Strengthen the commitment, capacities, and skills** of the city administration and major stakeholders to integrate climate-neutral principles into regular operations. 4. **Accelerate and broaden citizen participation** by preparing a participation strategy, establishing a one-stop-shop for climate-related services, expanding the partner network, and launching communication campaigns targeting behavioral change in priority areas such as mobility, building retrofits, and renewable energy uptake. 5. **Secure Government of Montenegro support** by engaging key ministries to align national funding mechanisms and regulatory frameworks with Podgorica's climate neutrality objectives. 6. **Integrate CCCAP measures into the City's Capital Budget** to ensure stable funding for implementation. 7. **Develop a Smart Podgorica platform** to support citizen engagement, project implementation tracking, and MRV (monitoring, reporting, and verification) processes. 8. **Implement annual monitoring and reporting** to the Strategic Council, with regular GHG inventories. 9. **Maintain strong engagement with the business sector and financial institutions**, developing concrete joint initiatives in renewable energy, mobility services, and circular economy projects. 10. **Revise or adapt existing city strategies and sectoral plans**—including the Spatial-Urban Plan, Local Energy Plan, Sustainable Urban Mobility Plan, and nature protection strategies—to align fully with the Action Plan's targets.

11. **Leverage Podgorica's role in the EU Mission for 100 Climate Neutral and Smart Cities** to strengthen links with EU policy development, funding opportunities, and knowledge exchange platforms.

Through these steps, Podgorica can transform its ambitious Climate City Contract into measurable progress, establishing itself as a leader in Montenegro's low-carbon transition and as a regional example of effective, inclusive, and science-driven climate action.

6 Annexes

The annexes contain any textual or **visual material** to the 2030 Climate Neutrality Action Plan as necessary.

NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Commitments

Climate Neutrality Commitments of the Capital City of Podgorica

Capital City of Podgorica

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Content

Introduction

The Capital City of Podgorica, as the most important urban, administrative, and economic centre of Montenegro, stands at the forefront of responding to the challenges of climate change and transitioning towards sustainable, low-carbon development. In the face of increasing climate risks and obligations undertaken through national strategic documents, Podgorica has defined an action plan and investment framework that integrates decarbonization and climate resilience for the benefit of the citizens.

By joining the EU Mission 100 climate neutral and smart cities by 2030 the Capital City Podgorica and its stakeholders commit to work together towards achieving climate neutrality and becoming a smart city through actions that will result in reducing greenhouse gas emissions within its administrative area for at least 60% by 2030 compared to the city's 2019 GHG emission inventory.

Achieving these objectives by 2030 is a challenging and innovative task, which requires new competences, technologies, and changes. The Capital city Podgorica is aware that the goal can only be achieved by strong internal commitment, citizens' and other stakeholders' involvement in the planning and implementation processes, cutting-edge knowledge, and exchange of practices between participating our and other European cities.

1 Goal: Climate neutrality by 2030

Participation in the Mission has been challenging, primarily in terms of developing Climate City Contract that would represent comprehensive basis for further journey toward climate neutrality. But still being the Mission member is valuable concept for Podgorica, in terms of strengthening own capacities, establishing new ones and strengthening existing international cooperation, considering challenging in relation to climate changes and defining mechanisms to overcome them.

The minimum requirement of the NetZero Cities mission for a reduction of at least 80% represents rather significant challenge. But the Mission has enabled us to accelerate our ambition of climate neutrality and to involve different stakeholder in order to participate and support the City with their actions in achieving the goal of climate neutrality by 2030. However, we decided to set realistic goals. It has been recognized that the largest number of emissions comes from the building sector, followed by traffic, while great progress has been made in the field of public lighting (even 99.7% LED lighting coverage). We are aware that the goal we set – at least 60% reduction can be considered as modest, we still find significant that climate neutrality is being mainstreamed and becoming topic of particular importance, with concrete activities initiated, expanding pull of relevant stakeholders providing support to Podgorica on our way toward climate neutrality.

In this regard we consider Climate City Contract as the living climate platform that will gather other relevant strategies, action plans, stakeholder, taking particularly into account further spatial documents to be developed by local authorities.

2 Key priorities

The Capital City has analyzed the current situation based on data collected from local and national institutions, as well as assessments developed within the Climate City Contract documentation process. As a result, four key priorities have been identified among the proposed actions as urgently necessary to address in order to achieve the climate neutrality objective by 2030.

1. Improvement of the energy performance of buildings (public, residential, and commercial sectors);
2. Sustainable development of transport and promotion of e-mobility;
3. The solid waste sector;
4. The wastewater sector;
5. Green infrastructure development;
6. Awareness-raising and educational activities, with the main goal of increasing public understanding of energy efficiency and renewable energy use.

These priorities are expected to deliver tangible and measurable reductions in greenhouse gas emissions. In line with their respective expertise and mandates, all signatories will contribute to the implementation of the above strategic interventions. They will provide technical and professional support to the Capital City and act as partners in various local projects, jointly contributing to the achievement of the shared vision of climate neutrality.

3 Principles and processes

Shortly after the Capital City Podgorica joined the EU Mission 100 Climate-Neutral and Smart Cities by 2030 in April 2022, an informal coordination team composed of representatives of the City administration and relevant national institutions, together with external experts, was established to initiate the preparation of the Climate City Contract and the related responsibilities arising from it, with the aim of achieving the climate neutrality ambition. An optimal course of action towards 2030 was defined, based on data collection, transparency, more ambitious planning, a flexible and innovative approach, participation in international projects, a cross-sectoral and citizen-oriented approach, as well as continuous monitoring and joint action.

In the long term, the Climate City Contract, together with the Climate Action Plan 2030 and the accompanying Investment Plan, will undergo iterative revision processes, as the Capital City considers these documents to be living instruments. Accordingly, the implementation of proposed interventions will be continuously monitored, with annual review sessions in order to introduce necessary adjustments in line with the evolving local context and new European and national climate-related policies and directives.

[3] Learnings from monitoring your progress towards climate neutrality should be processed and shared with your transition team and stakeholders, in order to build a common understanding of how your Climate City Contract can be improved in future iterations.
[4] CapaCities runs from October 2022 to September 2024 – more information available here: https://dutpartnership.eu/capacities/

Signatories

Name of the institution	Sector / area	Legal form	Name of the responsible person	Position of the responsible person
Capital city Podgorica	Local self-government	Capital city	Prof. dr Saša Mujović	Mayor
University of Montenegro	Academy	University	Prof. dr Vladimir Božović	Rector
Chamber of Economy of Montenegro	Commercial	Independent organization	dr Nina Drakić	President
Institute of Modern Technologies of Montenegro (IMTM)	Research, IT technologies, international projects	Private research institution	Ivan Petrović	Director
Institute of Hydrometeorology and Seismology	Hydrometeorology and seismology	State administrative body	Dušica Brnović	Director
Union of Municipalities of Montenegro	Legislation focused on local self-governments	National association of local communities in Montenegro	Mišela Manojlović	Secretary General
Ministry of Education, Science and Innovation	Education, science and innovation	State authority	Prof. dr. Anđela Jakšić - Stojanović	Minister
Ministry of Ecology, Sustainable Development and Northern Region Development	Environmental legislation development and implementation, international projects	State authority	Damjan Ćulafić	Minister
Centre for Ecotoxicological Research	Environmental protection	Public institution	Dr. Nikola Svrkota	Executive director
Eco-fund	Environmental funding	Public institution	Draško Boljević	Executive director
Center for Climate Change, Natural Resources and Energy, UDG	Environmental protection	Research and educational institution	Ivana Vojinović	Director
Env-pro	Environmental protection and energy efficiency	NGO	Ana Katnić	Executive director and founder
Green Home	Environmental protection	NGO	Sanja Orlandić	General secretary
Biciklo.me	Public transport	NGO	Blažo Crvenica	Director