NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Action Plan

2030 Climate Neutrality Action Plan of the City of Kranj

CITY OF KRANJ

NetZeroCities has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.

Table of Contents

Summary

An abstract **summarizes the content** of the 2030 Climate Neutrality Action Plan (CCC Action Plan) that is developed jointly by local authorities, local businesses, and other stakeholders.

Textual element

The City of Kranj is the third largest city in Slovenia with the population of 57,171 (2023) and area of 151 km^2. It is characterised by its strategic transit and central location, and technological and Alpine cultural background. Since the adoption of the City of Kranj's Integrated Sustainable Urban Development Strategy 2030 (ISUDS) in 2016, which was followed by several climate related sectoral plans, the city has been pursuing the sustainable development goals (SDG) and intensively introducing smart city, renewable energy, sustainable mobility and building regeneration measures in practice.

Being selected as one of the EU Cities Mission cities in 2022, the city and its partners have accelerated the joint ambitious towards becoming **the first smart and climate neutral city in Slovenia by 2030.** While the effort is supported by the decision of the Kranj City Council and numerous partners signing the Climate Neutrality Commitments, the decarbonisation pathway is outlined in this 2030 Climate Neutrality Action Plan and its supporting Investment Plan.

The total Greenhouse Gas (GHG) Emissions Baseline of the City of Kranj, calculated for the year 2018 in accordance with the Cities Mission's guidelines, accounted 238.832 t CO_2eq. The main contributors of the city's GHG emissions are transport (29%) and buildings (28%), followed by agriculture, forestry and land use (21%), industry (11%) and waste sector (11%).

While the impact of the city is limited with respect to the transport on TEN-T highway corridor crossing the city and nearby national airport, the high dependence on fossil fuels for heating and daily commuting by car is the City's core decarbonisation challenge. Although the industry is a major source of emissions, a large part of them is deducted due to EU Emission Trading Scheme and the use of green energy produced locally by a large Hydro Power station HE Mavčiče. More than half of the city territory is covered by forests. Due to the severe natural disasters in period prior the 2018, no sequestration has been observed.

Considering the overall context, the division of the responsibilities between the governance levels in Slovenia and the estimated private interest, at least 80% reduction of CO_2eq emissions is envisaged by 2030 compared to 2018. Thus, this Action Plan proposes an intervention framework combining the existing national strategies measures (33%) and a set of hard and soft climate actions of the City of Kranj and its local public and private partners (47%) in all five sectors: energy systems, mobility and transport, waste and circular economy, green infrastructure and nature-based solutions as well as built environment.

The main actions anticipate a transition to 90% renewable energy sources in the city district heating supply, increased solar energy production in the scope of 55.000 MWh, achieving "one car by household" target, and a decrease of daily car commuting by 30% enabled by setting a smart multimodal public transport system, circular and smart waste management, improved green infrastructure management and integrated energy-efficiency programme in the remaining not yet retrofitted public and residential buildings. In many actions, the role of the City will be to take the initiative as to demonstrate benefits and raise commitment of other stakeholders.

A comprehensive Smart Kranj Platform – city data digital platform and education and governance measures are already supporting the design, implementation and acceptance of the climate actions among the citizens and enterprises. The setting and running of one-stop shop for climate neutral and smart city with citizens participation activities is being prepared and coordinated as part of the UP-SCALE NetZeroCities Pilot Programme.

In this way the City of Kranj will achieve climate neutrality and continue to contribute to the overall Slovenian National Climate strategy and the European Green Deal targets.

List of figures

List of tables

Abbreviations and acronyms

Abbreviations and acronyms	Definition
AFOLU	Agricultural, Forestry and Land Use
AP	Action Plan
BAU	Business as usual
BSC	Business Support Centre Kranj (Regional Development Agency of Gorenjska region)
CAP	Common Agriculture Policy
CCC	Climate City Contract
CHP	Cogeneration or combined heat and power
CoKA	City of Kranj Administration
CTM	Centre for Sustainable Mobility
CTRP	Centre for Sustainable Rural Development Kranj
DHC	District heating and cooling
DNSH	Do no significant harm principle
DRSI	Slovenia Infrastructure Agency
DRSV	Slovenian Water Agency
EF	Eco Fund, Slovenian Environmental Public Fund
ETS	Emission trading scheme
EV	Electric Vehicles
FMC	15 minute city planning concept
FOD	The First Order of Decay
FUA	Functional Urban Area
GFP	High School/ Gymnasium France Prešeren
GHG	Greenhouse Gas
HE	Hydro Energy Power Plant
HFCV	Hydrogen Fuel Cell Vehicle
HWP	Harvested wood product
IJS	IJS Institute Jožef Stefan
IP	Investment Plan
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Process and Product Use
ISUDS	Integrated Sustainable Urban Development Strategy - City of Kranj 2030
ITI	Integrated Teritorial Investment – EU mechanism applied in urban development (CTN)
JS	Joint-stock company
KGZS-KGZ	Chamber of Agriculture and Forestry of Slovenia – Institute for Agriculture and Forestry
KPI	Key Performance Indicator
KR	Kranj
KS	Local community
LEAG	Local Energy Agency of Gorenjska
LEC	Local Energy Concept
LLC	Limited liability company
LSU	Livestock size unit
LULUCF	Land Use, Land-Use Change and Forestry
MEL	Monitoring Evaluation & Learning
MOK	City of Kranj
MRV	Monitoring Reporting Verification
MWh	Megawatt-Hour
N/A	Not Applicable
NECP	The Integrated National Energy and Climate Plan
NGO	Non-governmental Organization
NIJZ	National Institute for Public Health
NOO	Recovery and Resilience Plan
NUTs	Nomenclatory of Territorial Unit for Statistics
NZC	NetZeroCities
NZEB	Nearly zero-energy buildings
OPSI	Open Data of the Republic of Slovenia
PJ	Petajoule (a unit of measurement of energy consumption)
PLDP	Annual average daily traffic
PPP	Public-private partnership
PURES	Rules on efficient use of energy in buildings
PV	Photovoltaics
R&D	Research and Development
RDA Gorenjska	Regional Development Agency of Gorenjska
ReDPS50	Resolution on Slovenia's Long-term Climate Strategy until 2050
RES	Renewable Energy Sources
RESHUB	RESilience HUB Network
RS	Republic of Slovenia
RTP	Distribution transformer station

Abbreviations and acronyms	Definition
SCCNCC	Strategic Council for Climate Neutral and Smart Community of the City of Kranj
ŠCKR	School centre Kranj
SDG	Sustainable Development Goals
SECAP	Sustainable Energy and Climate Action Plan
SID	Slovenian Development and Export Promotion Bank
SODO	Slovenian Electricity distribution operator
SORS	Statistical Office of Republic of Slovenia
SUMP	Sustainable Urban Mobility Plan
T / t CO_2	Tonnes / tonnes Carbon dioxide
TEN-T	Trans-European Transport Network
TT	Transition Team
UHI	Urban heat island
WWTP	Waste Water Treatment Plant
WP	Work Package
ZGS	Slovenia Forest Service
ZRSVN	Institute of the Republic of Slovenia for Nature Conservation
ZTKK	Institute for Tourism and Culture
ZMOS	The Association of Urban Municipalities of Slovenia

1 Introduction

Introduction

The City of Kranj defined an overarching vision to become a city of opportunities, a sustainable, progressive, and vibrant urban centre of Gorenjska Region by 2030 in the Integrated Sustainable Urban Development Strategy - City of Kranj 2030. The strategy was adopted in 2016. Since then, the City has increased its ambition to becoming the first smart and climate neutral city in Slovenia based on the sustainable development principles, innovative economic ecosystem and inclusive and adaptable society. As of 2013 the City of Kranj is also a member of the Covenant of Mayors. Regional Sustainable Energy and Climate Action Plan (SECAP) for Gorenjska was adopted in 2018 with the target of 40% GHG emission reduction by 2030 compared to the base year 2005.

GHG inventory for the year 2018 and in-depth analyses of GHG emissions by sectors and scopes for the City of Kranj were defined in the Local Energy Concept (LEC) of the City of Kranj and are relevant for the entire administrative boundaries of the City of Kranj (NUTS 5), the area of 143 km^2 and population of 57.171 (2023) of which 75% lives in urban areas and 25% in rural areas.

The GHG inventory 2018 included emissions from stationary energy, transport, IPPU (ETS and non ETS sector) and emissions generated from public lighting. The total emissions amounted to 295.053 t CO_2eq. Significant emissions are sourced from IPPU sector – 129.592 t CO_2eq, 43,9% of all emissions, most of which are registered in the Emission Trading Scheme (EU ETS). The calculations from 2018 GHG inventories were included in Cities Mission Expression of Interest.

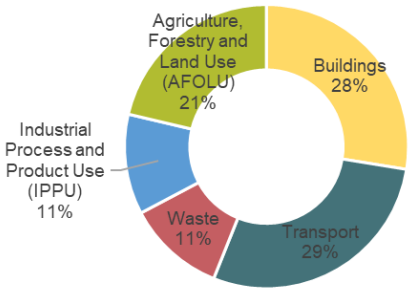


Figure 1: City of Kranj, GHG emissions by sectors, baseline 2018

For preparation of this Action Plan (AP) the LEC 2018 GHG emissions inventory was completed according to the methodology recommended in Climate City Contract (CCC), consequently including Waste and AFOLU[1] sectors in the calculations and excluding emissions registered in ETS.

According to the new methodology, the numbers show that transport is the main sector of GHG emissions with a share of 29%, followed by built environment (28%), AFOLU (21%), industry (11%), and waste sector (11%). All sectors accounted to 238.832 t CO_2eq in 2018 as the baseline of this AP.

Figure 2: Green investments – City of Kranj

In the period from 2018 to 2022, the City of Kranj has taken on many sustainable measures introducing strategies in digital, energy, sustainable mobility and waste sectors. Green investments were significant: car and bike sharing system, public transport, piloting smart and comprehensive energy management solutions in the first neighbourhood – the Smart Mlaka project. 52% of city premises and 90% of multi-unit residential dwelling have been energy retrofitted, the city has been replacing the existing municipal vehicle fleet and public

[1] *Elaborated by The Agricultural Institute of Slovenia and Slovenian Forestry Institute.*

transport bus fleet with e-cars and e-busses. New cycling paths and e-charging infrastructure have been built. Smart LED lighting has been installed.

As citizens benefit from sustainable improvements in the city, the actions have been favourably accepted among them. The importance of sustainable practices, circular economy, innovative technologies, processes and renewable energy sources is steadily penetrating throughout industry and transport, growing the awareness among citizens, although the critical scope is not yet reached.

Activities in recent years have reduced GHG emissions, especially in the building, energy and waste sector. With this Action Plan, the city is encouraged to address the climate gap in the fields that are the largest sources of emissions, have the greatest potential for reduction and where the city has the biggest power to act and influence the transition to carbon neutrality by 2030. This approach is reflected in the action plan portfolio and supported by the investment plan. Accordingly, the Integrated Sustainable Urban Development Strategy City of Kranj 2030 and other major municipal sector plans (SUMP, LEC, spatial plan, digital strategy) will be revised and adopted in the following years with measures, activities and required budget aligned with the Cities Mission 2030 targets.

The challenges of capacities and competences, limited influence on emissions from industry and transport sources, pre-existing national policy environment, limited budgets, and long-term capital projects are addressed by intensive stakeholder engagement throughout the planning processes, work processes built on the EU green goals, strong local partnership, and joint commitment.

Thus, the Action Plan is a result of an effective participatory process coordinated by the City of Kranj Administration (CoKA), Office for the Development and Smart Community and its operational body - Transition Team (TT) throughout the 2023. A comprehensive governance structure with a 21-member City of Kranj Strategic Council for Climate Neutral and Smart Community (SCCNSC) lead by the mayor was set up, succeeding previous Smart City Strategy Council, bringing together representatives of policy, business, academia, NGOs and key city implementing partners. SCCNSC represents the central think-tank and partnership body for the City of Kranj Climate City Contract.

In parallel, an open dialog with citizens in the form of an online survey (April and May 2023, N=507) and series of accompanying workshops and technical meetings with different sectors and target groups took place, which provided inputs for the design and adjustments of the intervention framework. See Figure 3 below. Detailed report on the co-creative and participatory process is attached as Annex 2.

Considering the limited financial and human resources, the CoK defined the implementation framework including monitoring, evaluation and learning indicator scheme (NZC MEL). All these allowed the City of Kranj to present an internally consistent and ambitious plan that provides a sound basis for the investment plan. The plan was fine-tuned after NetZeroCities review and consultations between January and March 2024.

The AP is understood as a dynamic document that guides the Transition Team though implementation, its regular ongoing monitoring and risk management. Major mid-term review of the progress made in the period 2018-2025 and update of the GHG inventory is foreseen in 2026 followed by planned revision of the Action Plan.

Figure 3: City of Kranj CCC participatory planning process

Table 1: I-1.1: Climate Neutrality Target by 2030

Table I-1.1: Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
Stationary energy (Buildings)	Included: GHG emissions due to combustion of natural gas, heating oil and other fossil fuels, district heating.	Included: GHG emissions from purchased electricity, produced from non-renewable resources.	Optional information
	Excluded: GHG Emissions of F-gases from HVAC systems.		Optional information
Transport	Included: GHG Emissions due to combustion of gasoline, LPG, diesel and other fossil fuels.	Included: GHG emissions from purchased electricity, produced from non-renewable resources.	Optional information
			Optional information
Waste/ wastewater	Included: GHG emissions from wastewater treatment and disposal of waste within the city boundary.	Not applicable	Included: GHG emissions from treatment and disposal of waste out of the city boundary.
		Not applicable	
IPPU	Included: GHG emissions due to combustion of natural gas, heating oil and other fossil fuels, district heating.	Not applicable	Optional information
	Excluded: GHG emissions out of industrial facilities located within the city boundary which are registered under the EU Emissions Trading Scheme.	Not applicable	Optional information
AFOLU	Included: GHG emissions/sinks of land use (forests, cropland, grassland, settlements and HWP). GHG from agriculture livestock production, crop residues and fertilization (CH4, N_20, CO_2, including indirect N_2O emissions)	Not applicable	Optional information
		Not applicable	Optional information
Other	/	/	/
Geographical boundary	**Same as city administrative boundary**	**Smaller than city administrative boundary**	**Larger than city administrative boundary**
(Tick correct option)	✓		
Specify excluded/ additional areas	-	All areas smaller than the city already included within the city administrative boundaries.	Disposal of waste treatment – different locations incineration providers out of the city.

Map

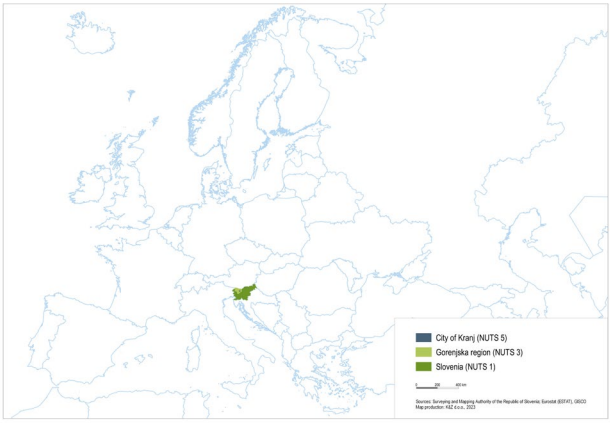


Figure 4: City of Kranj macro-location in Europe

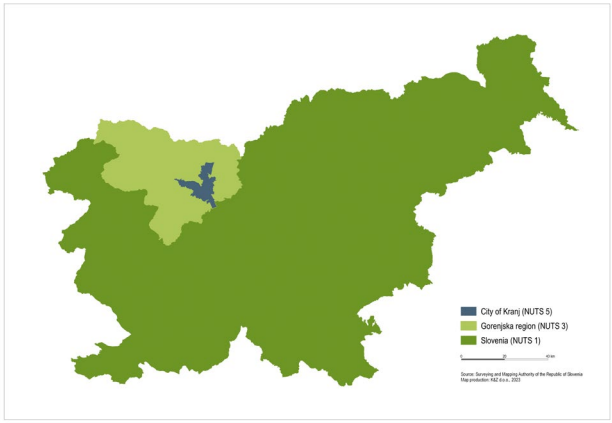


Figure 5: City of Kranj in Gorenjska region and Slovenia

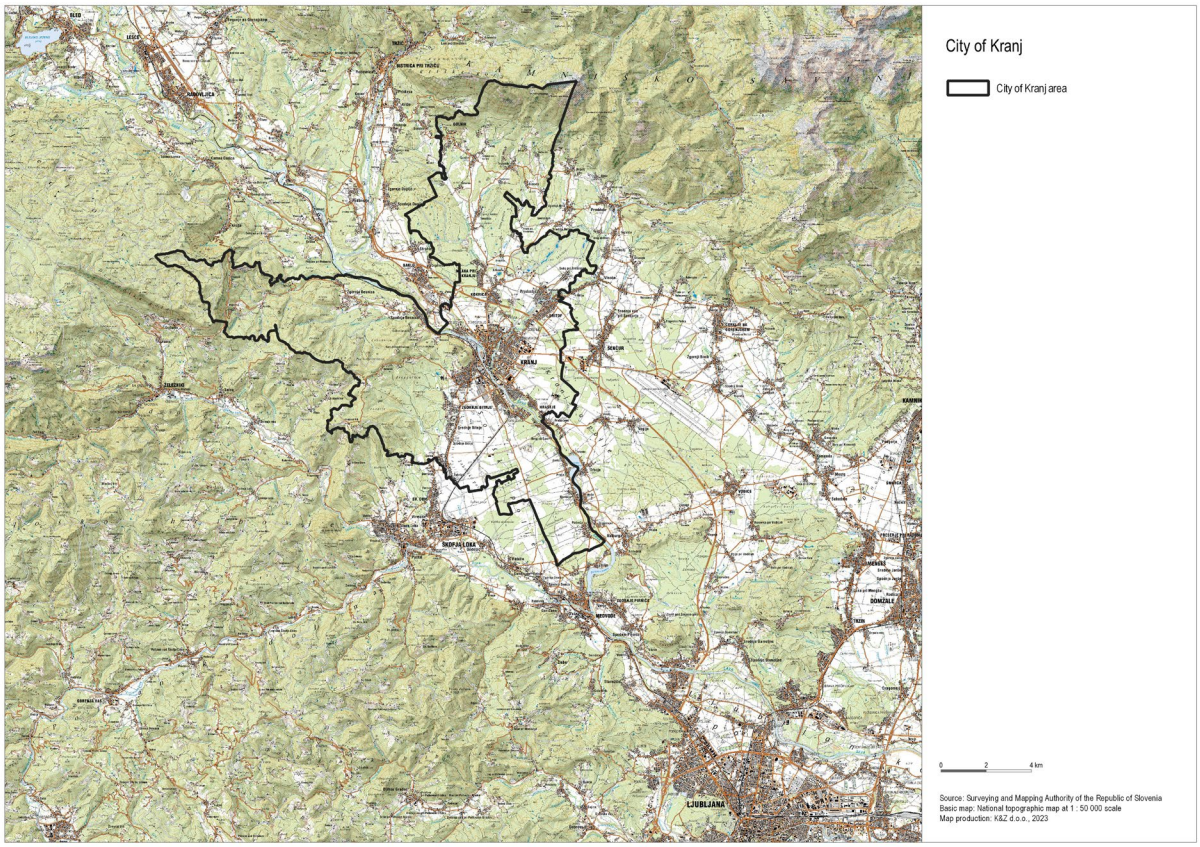


Figure 6: City of Kranj administrative boundary

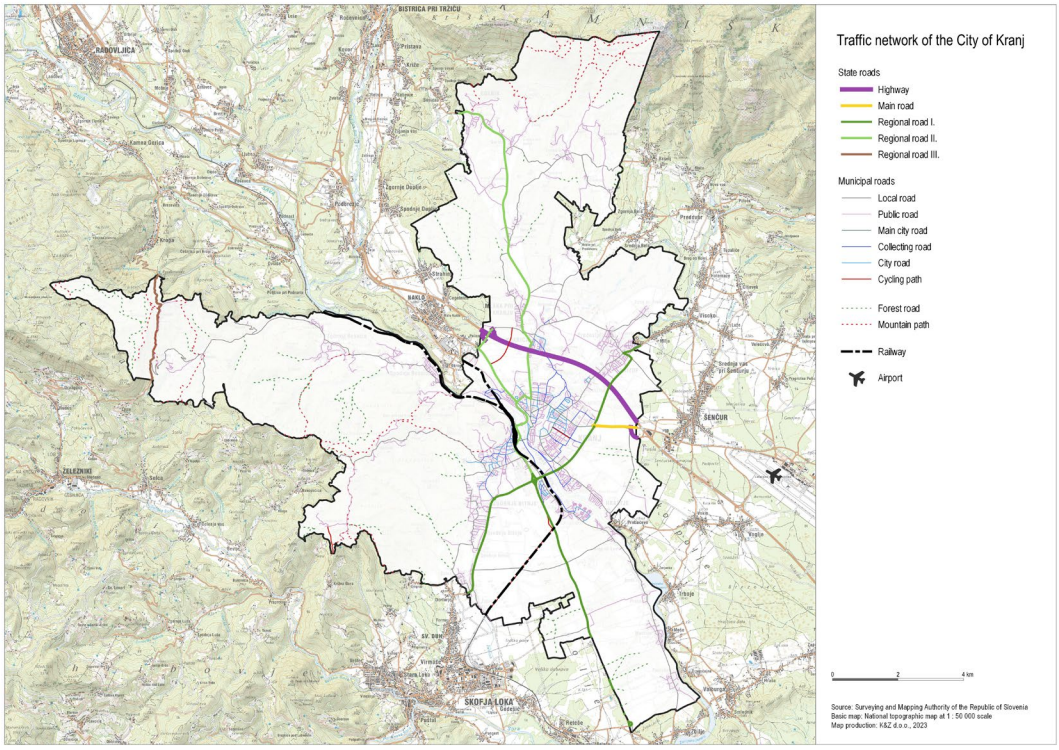


Figure 7: City of Kranj traffic network

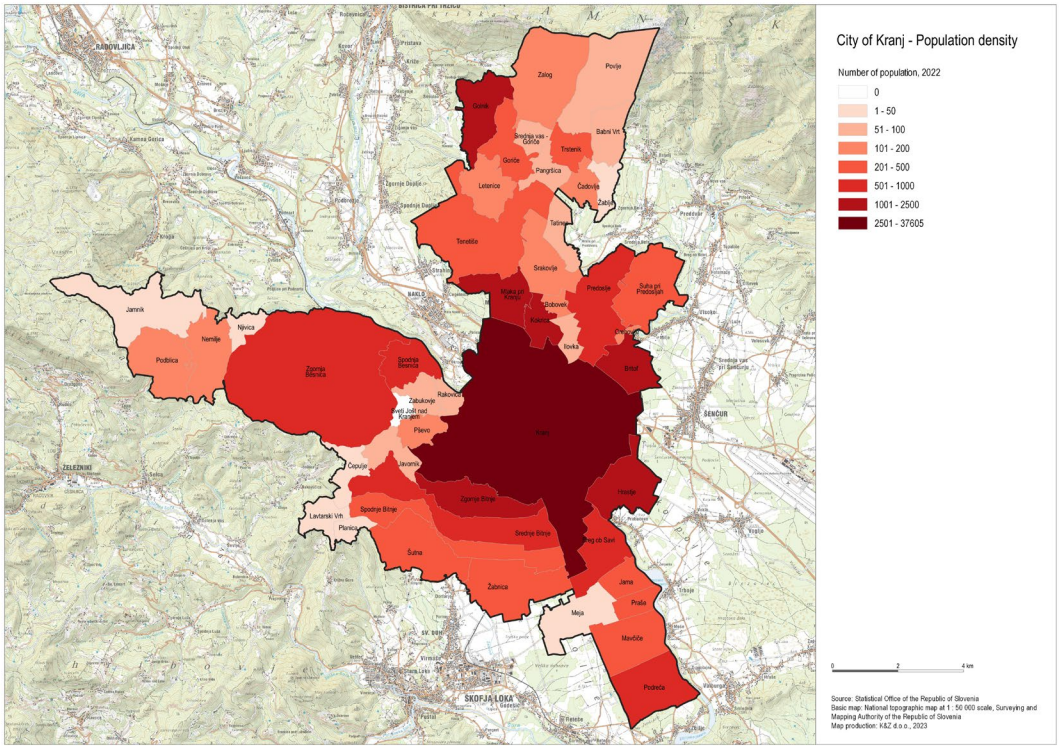


Figure 8: City of Kranj population density by settlement

City of Kranj socio-economic background

Location: With 57,171 (2023) inhabitants, the City of Kranj (NUTS 5) is the third largest municipality in Slovenia and serves as an economic, commercial, transport, sports, and educational hub of the Gorenjska region (NUTS 3). Nestled at the foothill of picturesque Alps, between two rivers, along the European transport corridor and in the immediate vicinity of the national airport, and only 30 minutes away from Ljubljana, the city embraces favourable location for life and business. Further to the index of the development of Slovene municipalities the City is placed as 17. among 212 municipalities.

Territory and environment: The administrative area of the city covers over 151 km^2 and 49 settlements. 54% of the territory are forests, 3% agriculture area, 1% water areas, while 15% of the territory is urbanised. 19,4% of the city area is designated as Natura 2000 and 15% identified as natural values. The naturally protected Kokra River gorge is stretching through the very urban centre of the city. The rural lowlands are favourable for agriculture production and livestock farming, while mountain hinterland provides quality spring water supply and various outdoor recreation possibilities. Sava River is exploited for production of hydro energy. With the completion of the sewage network and improvement of wastewater treatment facilities in the city and the region, the quality of rivers is found in good ecological condition. So is the air quality, as none of the measurements indicated exceedances of the permissible limits in 2022 in all 6 measuring points in 2022.

Demographics: Over the last decade the population of the city is slightly growing (0,1% annually, 55.527 population in 2013). The growth is a result of economic immigration, mainly young families from the Republic of Kosovo and other countries of the SE Europe as well as construction of new residential areas. Still, the overall population is aging. In 2023, 16% of Kranj residents were younger than 15 years, 64% of age 15-64 and 19,6% over 65. Average citizen age in 2023 was 43,1 years comparing to 41,4 in 2013. 75% of the city population lives in the urban areas and 25% in rural areas. Balancing rural-urban needs, integration of newcomers into the society and aging are trends addressed by different city policies.

History: The city of Kranj holds significant historical importance. It was the first capital of the Slovenes, serving as the centre of the Slavic principality of Carniola from the 8th century onwards. The old town has preserved its historic character and is designated as a national cultural monument since 1983.

Economy: The industrialisation from the 19th to the end of 20th century significantly influenced the current socio-economic picture of the City of Kranj. In Yugoslavia, Kranj was one of the most powerful and growing industrial and technological centres (electro, rubber, textile, shoe industry), which influenced the rapid immigration of labour force from various parts of the Balkan and urbanization of vast neighbourhoods and industrial sites around the historic centre. Planina, with more than 15.000 ihnabitants and several thousands of apartments is still the largest residential urban neighbourhood in Slovenia. Slovenian independence in 1991 and globalization seriously affected the labour-intensive industry, caused its decline, redundancy, loss of traditional working places, and occurrence of derelict industrial sites. The separation of certain rural areas from the City of Kranj and formation of many independent municipalities, as part of the national reform of local self-government, resulted in decrease of some of its vital business areas and functional territories.

This determined the recent economic, spatial, environment and living situation and perspectives of the city. From the past strong industries - the electronic, telecommunication and rubber industries survived, many successfully by merging with global corporations. Hence, the traditional engineering background remains and is nowadays reflected in the dynamic entrepreneurship and SMEs ecosystem in IT sector and their collaboration with the Smart Kranj Platform. In 2022, the average gross monthly salary of a resident was 2.253 EUR which is 3% higher than national average. In 2022, there were 11.981 jobs in Kranj, while 14.382 residents commute daily to Ljubljana and neighbouring business areas. Daily commuting and traffic transit on the highway and to nearby Škofja Loka and Naklo generates high traffic and daily congestions in the city, reaching 20.000 vehicles per day at some of the entrance roads. Opening new high-quality job opportunities in Kranj remains a primary goal for the new Business Park Hrastje, currently in the development stage.

During the last decades, Kranj has been transforming from industrial city into an urban centre with diverse cultural, social, educational, sports and green areas providing an active, healthy and sustainable living space.

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.

GHG Emissions Baseline inventory

The results of the City of Kranj GHG Emissions Baseline inventory are provided below in total and by sectors.

TOTAL GHG emissions for the base year – 2018

In determining the baseline for greenhouse gas (GHG) emissions, the year 2018 has been selected. This decision is anchored by the robust dataset on emissions stemming from energy consumption, predominantly from fossil fuels, as detailed in the Local Energy Concept of the City of Kranj (LEC). The Concept, which provides an in-depth analysis of the city's energy dynamics, was ratified by the Kranj City Council in 2020 and forms the cornerstone of our GHG inventory. The adoption of 2018 as the baseline year allows for the utilization of this vetted data, ensuring that our inventory is both accurate and aligned with established local energy policies.

BASE YEAR 2018:

TOTAL CO_2 EMISSIONS:

238.832 t CO_2

TOTAL ENERGY USE:

654.720 MWh/year

The GHG inventory for the City of Kranj has been diligently formulated based on the guidelines set forth by the Intergovernmental Panel on Climate Change (IPCC). By adopting the IPCC guidelines, the City of Kranj aligns its reporting practices with international standards. This approach not only enhances the credibility of the data presented but also ensures its comparability on a global scale.

Total CO_2 emissions in 2018: 238.832 t CO_2
Total energy consumption: 654.720 MWh/year

Buildings sector

For the 2018 energy consumption data within the building sector in Kranj, sourcing was carried out from various local and national stakeholders. The primary electricity provider and grid operator in the region,

[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

Elektro Gorenjska d.d., provided the data on electricity consumption. The consumption figures for natural gas were provided by Domplan d.d., the gas distribution system operator for the area. Complementing these primary sources, the Statistical Office of the Republic of Slovenia (SURS) also contributed significant insights. This was further supplemented with other publicly available data, ensuring a holistic understanding of the sector's emissions.

BUILDING SECTOR

BASE YEAR 2018:

TOTAL CO_2 EMISSIONS:

65.831 t CO_2

TOTAL ENERGY USE:

274.107 MWh/year

In terms of the overall energy consumption for the year, direct emissions from sources within Kranj of residential, public and commercial buildings amounted to 205.307 MWh/year. Indirect emissions from the generation of purchased electricity consumed by the city reached 68.579 MWh/year. Thus, the combined energy consumption of residential, public and commercial buildings in Kranj for 2018 stood at 274.107 MWh/year.

Heating oil consumption was reported at 42.178 MWh/year. Biomass consumption in the sector was recorded at 43.158 MWh/year, while natural gas amounted to a consumption of 70.851MWh/year. Buildings in Kranj consumed non-renewable electrical energy amounting to 68.579 MWh/year, and district heating consumption was registered at 49.341MWh/year.

- → Direct emissions (Scope 1): 41.280t CO_2 equivalent/year
- → Indirect emissions from purchased electricity, produced from non-renewable resources (Scope 2): 24.551 t CO_2 equivalent/year

Total Emissions:65.831 t CO_2 equivalent/year

Transport sector

Kranj, strategically situated in Slovenia, has seen a consistent rise in its transport energy consumption. Precisely analysing the energy utilization within transport for a municipality like Kranj, is a challenge, mainly due to the complexity of the calculations and the lack of comprehensive data. Importantly, a significant amount of motor fuels, both consumed and acquired, originate beyond the municipal boundaries.

TRANSPORT SECTOR

BASE YEAR 2018

TOTAL CO_2 EMISSIONS:

68.068 t CO_2

TOTAL ENERGY USE:

257.989 MWh/year

The methodology to deduce energy consumption in transport leveraged publicly accessible data, concentrating on variables such as the number of registered vehicles, the total driving kilometres, and an estimated measure of distance traversed within Kranj. This estimation was obtained from the Slovenian Infrastructure Agency's traffic counters.

The data shows that cars are the primary energy consumers in transport, followed by trucks and buses. Rail transport, although a significant mode, has a lesser energy footprint due to its limited expanse (about 14 km railways in Kranj). The emissions calculation also accounted for aircraft operations at Jože Pučnik Airport Ljubljana. This inclusion recognizes the emissions from airplanes during their landing and take-off cycles, acknowledging the airport's integral role in Kranj's transport dynamics and its environmental impact. Predominantly, the energy source for transport remains fossil fuels. Diesel occupies a dominant 77% share, followed by gasoline at 20%. The remaining energy consumption is catered by electricity and other fuels. The push towards greener energy sources in transport is still in its early stages in Kranj.

In 2018, Kranj's transport sector reported an energy consumption of 257.989 MWh/year. Broken down, diesel contributed a substantial 200.496 MWh/year, gasoline 55.477 MWh/year, and electrical energy 2.016 MWh/year.

- → Direct emissions (Scope 1): 67.346 t CO_2 equivalent/year
- → Indirect emissions from purchased electricity, produced from non-renewable resources (Scope 2): 722 t CO_2 equivalent/year

Total emissions: 68.068 t CO_2 equivalent/year

Waste sector

In the City of Kranj, the waste sector is a significant contributor to the greenhouse gas emissions. For assessing GHG emissions from waste The First Order of Decay (FOD) method was applied in this assessment, offering a nuanced understanding of emissions over time, especially from waste, undergoing decomposition in landfills.

The primary data source for this analysis was Komunala Kranj d.o.o., the company responsible for waste and wastewater management in the city. Supplementary data regarding industrial waste was provided by the Slovenian Environment Agency (ARSO).

For the specified year, energy consumption in the waste sector of Kranj was as follows: diesel consumption was 1.785 MWh, and the indirect energy consumed from electrical energy was 1.085 MWh. Considerable emissions in the form of methane are being released from closed Tenetiše landfill. This data is under the consistent surveillance of the National Laboratory of Health, Environment and Food, ensuring its accuracy and yearly revision.

WASTE SECTOR

BASE YEAR 2018

TOTAL CO_2 EMISSIONS:

26.754 t CO_2

TOTAL ENERGY USE:

2.870 MWh/year

In conclusion, while waste management in Kranj is commendably efficient, its environmental impact indicates areas for further improvement. The adoption of more sustainable energy sources and advanced waste management techniques could significantly reduce the sector's GHG emissions.

- → Direct emissions (Scope 1): 20.655 t CO_2 equivalent/year
- → Indirect emissions from purchased electricity, produced from non-renewable resources (Scope 2): 388 t CO_2 equivalent/year
- → Indirect emissions out of City Boundary (Scope 3): 5.711 t CO_2 equivalent/year

Total Emissions: 26.754 t CO_2 equivalent/year

Industrial Processes and Product Use sector

For the calculation of greenhouse gas emissions from the Industrial Process and Product Use (IPPU) sector, we utilized energy consumption data from the year 2018, provided by Statistical Office of the Republic of Slovenia (SURS), Elektro Gorenjska d.d., Domplan d.d. and data from questionnaires that were distrubited to various enterprises. This data was further refined using actual measured figures, especially concerning gas and heating oil. The consumption pattern in this sector mirrors the observations in buildings sector, with the dominant energy source being natural gas. Notably, energy consumption attributed to Goodyear Slovenija d.o.o., a company enrolled in the EU Emissions Trading System (ETS), was excluded from this evaluation. Additionally, we excluded electricity consumption that falls under Scope 2. In terms of energy consumption specifics, the IPPU sector recorded a total consumption of 119.754 MWh. Heating oil usage was at 31.752 MWh, natural gas consumption registered at 79.655 MWh, and district heating usage was registered at 8.347 MWh.

IPPU SECTOR

BASE YEAR 2018

TOTAL CO_2 EMISSIONS:

27.256 t CO_2

TOTAL ENERGY USE:

119.754 MWh/year

→ Direct Emissions (Scope 1): 27.256 t CO_2 equivalent/year

Total Emissions: 27.256 t CO_2 equivalent/year

Agriculture, Forestry and Land Use

Forestry and Land Use

Standard methods were used to estimate baseline net emissions in 2018 for the land use sector in accordance with the 2006 IPCC Guidelines. Spatially-explicit land-use conversion data (Approach 3) were obtained on a systematic grid of 500 m x 500 m using a point sampling method with digital orthophotos as the basis for photo interpretation of land use. Emissions and removals in forest land were estimated using the stock-change method based on municipality-specific forest management data provided by the Slovenia Forest Service. For other land categories, emissions and removals were estimated by applying country-specific or default emission factors according to generic methodologies (IPCC, 2006, 2019). Emissions and removals for harvested wood products (HWP) were calculated using a ratio method in which the national net emissions for HWP from 2018 was used and the amount of felling in the City of Kranj was used as proxy data for the weight.

AFOLU SECTOR

BASE YEAR 2018

TOTAL CO_2 EMISSIONS:

Agriculture:

40.667

t CO_2

Forestry and Land Use:

10.256 t CO_2

AFOLU = 50.923 t CO_2

The estimates for the land sector showed that forests were a net source of emissions amounting to 14.901 t CO_2 eq. in 2018. We assume that the growing stock in the forests has decreased mainly due to natural disasters (ice storm, bark beetles and windbreak) that have devastated the forests of the City of Kranj in the last decade. Other categories such as cropland, grassland, settlements and HWP acted as a net sink, which amounted to -4.645 t CO_2eq. in 2018. Indirect N_2O emissions from N leaching and runoff were not estimated, nor were emissions from forest fires, as there are no records for 2018.

Agriculture

To calculate greenhouse gas emissions from agriculture in the territory of the City of Kranj, data on livestock production, including the number of animals and body masses of cattle, and the area of agricultural land used for individual crops were gathered. Information on the numbers and body mass of cattle was sourced from the Central Data Repository for Cattle maintained by the Agricultural Institute of Slovenia (KIS). As the

specific data for the City of Kranj was lacking, national-level milk production data were used as an approximation. Data on the numbers of other livestock species and details on crop areas were obtained from subsidy application forms submitted to the Agency for Agricultural Markets and Rural Development.

To calculate GHG emissions, we applied the IPCC methods (2006, 2019) and factors for converting the greenhouse effect of methane and nitrous oxide according to AR5 (28 for methane and 265 for nitrous oxide). Enteric methane emissions from cattle were estimated using a detailed Tier 2 methodology, while emissions from pigs, horses, sheep, and goats were calculated using Tier 1, where the number of animals was multiplied by the corresponding emission factor. Methane from manure management, as well as direct and indirect emissions of nitrous oxide from manure management and managed soils, were calculated using Tier 1 (IPCC, 2019). The calculations consider the number of animals, annual average volatile solid excretion per head of animals, fraction of total annual volatile solids for each livestock species/category, emission factor, and manure management system. Emissions from crop residues were estimated using agricultural land areas from subsidy applications.

To calculate nitrous oxide emissions, data on nitrogen excretion were required, and this was determined using the default nitrogen excretion rate in a typical animal mass. When calculating emissions from fertilization, we considered the area of crops from subsidy application forms and the consumption of mineral fertilizers, which were estimated based on national statistics.

In the year 2018, there were a total of 40.667 tons of CO_2 equivalent emissions, including 21.368,9 tons from enteric methane, 7.977,6 tons from manure management, 11.172,6 tons from managed soils, 11,9 tons from lime application, and 70,4 tons from urea application. In terms of emissions, there were 25.796 tons of CO_2 equivalent emissions of methane, 14.723 tons of CO_2 equivalent emissions of nitrous oxide, and 148 tons of carbon dioxide.

Forestry and Land Use

- → Direct Emissions (Scope 1): 10.255 t CO_2 equivalent/year
- → **Total Emissions: 10.256 t CO_2 equivalent/year**

Agriculture

- → Direct Emissions (Scope 1): 29.117 t CO_2 equivalent/year
- → **Total Emissions: 40.667 t CO_2 equivalent/year**

AFOLU:

- → Direct Emissions (Scope 1): 50.923 t CO_2 equivalent/year
- → **Total Emissions: 50.923 t CO_2 equivalent/year**

Table 2 : A-1.1: Final energy use by source sectors

A-1.1: Final energy use by source sectors				
Base year	2018			
Unit	MWh/year			
	Scope 1	Scope 2	Scope 3	Total
Buildings	**205.528**	**68.579**	**-**	**274.107**
Heating oil	42.178	-	-	42.178
Biomass	43.158	-	-	43.158
Natural gas	70.851	-	-	70.851
Electrical energy	-	68.579	-	68.579
District heating	49.341	-	-	49.341
Transport	**255.973**	**2.016**	**-**	**257.989**
Diesel	200.496	-	-	200.496
Gasoline	55.477	-	-	55.477
Electrical energy	-	2.016	-	2.016
Waste	**1.785**	**1.085**	**-**	**2.870**
Diesel	1.785	-	-	1.785
Electrical energy	-	1.085	-	1.085
Industrial Process and Product[1] Use (IPPU)	**119.754**	**-**	**-**	**119.754**
Heating oil	31.752	-	-	31.752
Natural gas	79.655	-	-	79.655
District heating	8.347	-	-	8.347
Agricultural, Forestry and Land Use[2] (AFOLU)	n.a	n.a	n.a	n.a

Table 3 : A-1.2: Emission factors applied

A-1.2: Emission factors applied						
(Please specify for primary energy type and GHG emission factor according to methodology used).						
For calculation in t or MWh of primary energy						
(Please indicate method used, e.g., GPC, IPCC, CRF, national etc.) **Method used:** IPCC 2006, national factors as provided by PURES, IJS Institute Jožef Stefan						
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)**
Electrical energy	0,358	N/A	N/A	N/A	N/A	N/A
Natural gas	0,205	N/A	N/A	N/A	N/A	N/A
Diesel	0,267	N/A	N/A	N/A	N/A	N/A
Gasoline	0,249	N/A	N/A	N/A	N/A	N/A
District heating	0,320	N/A	N/A	N/A	N/A	N/A
Heating oil	0,26	N/A	N/A	N/A	N/A	N/A
Renewable energy	0	N/A	N/A	N/A	N/A	N/A
Agriculture*	N/A	28*	265*	N/A	N/A	N/A

*1t of methane = 28 t of CO_2, 1 t of N_20 = 265 t of CO_2

Table 4 : A-1.3: GHG emissions by source sectors

A-1.3: GHG emissions by source sectors					
Base year		2018			
Unit		T CO_2 equivalent / year			
		Scope 1	**Scope 2**	**Scope 3**	**Total**
Buildings		**41.280**	**24.551**	**-**	**65.831**
Transport		**67.346**	**722**	**-**	**68.068**
Waste		**20.655**	**388**	**5.711**	**26.754**
Industrial Process and Product Use (IPPU)		**27.256**	**-**	**-**	**27.256**
Agricultural, Forestry and Land Use (AFOLU)	Sources (positive emissions)	**55.568**	**-**	**-**	**55.568**
	Sinks (negative emissions)	**- 4.645**	**-**	**-**	**- 4.645**
Total		**207.460**	**25.661**	**5.711**	**238.832**

Table 5: A-1.4: Activity by source sectors

A-1.4: Activity by source sectors			
Base year		**2018**	
	Scope 1	**Scope 2**	**Scope 3**
Sector: Buildings	**41.280**	**24.551**	**-**
Public	4.176	2.111	
Residential	30.224	15.280	
Commercial	6.880	7.160	
Sector: Transport	**67.346**	**722**	
Cars	40.336	660	
Trucks and buses	22.281	-	
Railway	635	62	
Airplanes	4.094	-	
Sector: Waste	**20.655**	**388**	**5.711**
Solid waste	20.655	-	5.711
Wastewater	-	388	
Sector: Industrial Process and Product Use (IPPU)	**27.256**	**-**	**-**
IPPU	**27.256**	**-**	**-**
Sector: Agricultural, Forestry and Land Use (AFOLU)	**50.923**		
Agriculture*	**40.667**	-	-
Forestry and Land Use	**10.256**	-	-

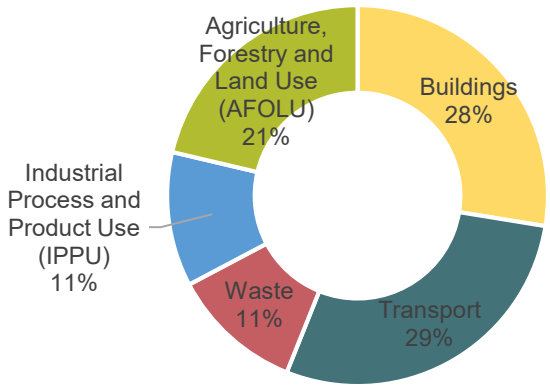


Figure 9: City of Kranj, GHG emissions baseline structure by source sector, t CO_2, 2018

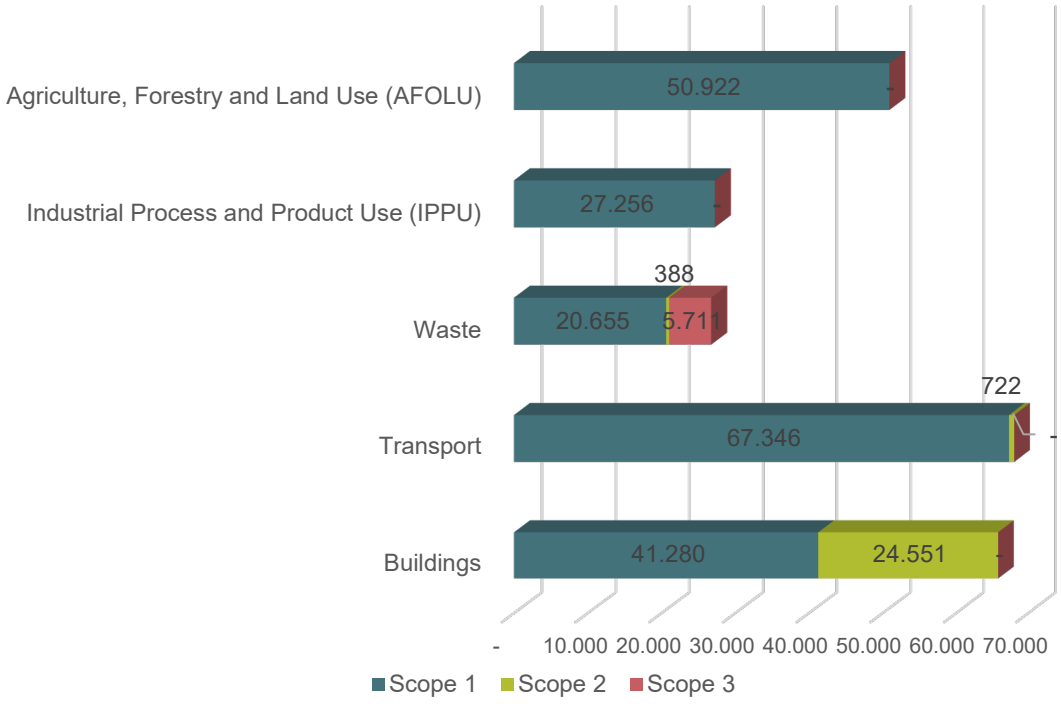


Figure 10: City of Kranj, GHG emissions baseline by source sectors and scopes, t CO_2, 2018

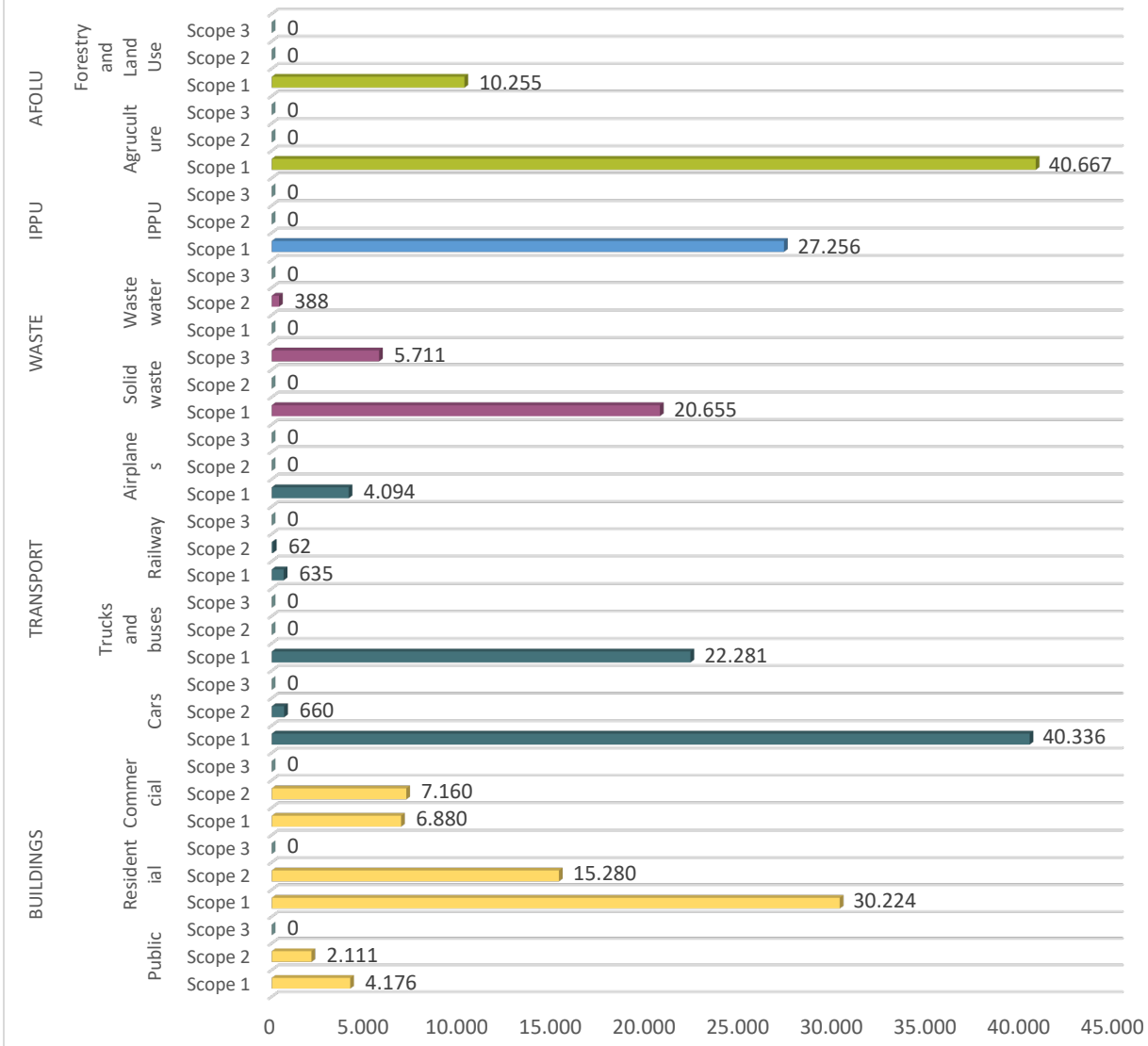


Figure 11: City of Kranj, GHG emissions baseline by source sectors, activities and scopes, t CO_2, 2018

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).

A-2.1: Description & assessment of policies

Strategies, acts and action plans are listed in respect of a strong strategic dimension with aligned objectives that already support the implementation of ongoing (BAU) and planned activities to achieve climate neutrality by 2030. They are selected according to:

- vertical hierarchy to bridge national, regional, and local priorities, programmes, targets and projects;
- horizontal cooperation among crucial policy areas to reach climate neutrality, especially on the local level, and
- territorial cooperation in the region and to transcend administrative boundaries.

National level:

Resolution on Slovenia's Long-term Climate Strategy until 2050 (ReDPS50) as a strategy summarises key guidelines and measures of **The Integrated National Energy and Climate Plan (NECP)**, which is the Climate Strategy's action plan. Both were adopted in 2020, drafted in coordination and both GHG emissions targets are identical. NECP policies and measures for achieving the targets are classified and presented by sectors (energy, industry, transport and mobility, buildings, agriculture, land use, land-use change and forestry (LULUCF), and waste) in separate dimensions even though some actions impact multiple dimensions. According to energy scenario a reduction of sectoral GHG emissions by 2030 compared to 2018 (base year) assess an impact by at least:

→ 15% in transport and mobility,
→ 41% from waste,
→ 27% in industry (non ETS),
→ 53% from wide use (improving energy efficiency and reduce energy consumption),
→ 0% from Agriculture,
→ LULUCF sector will not produce net emissions by 2030 (emissions in the sector will not exceed sinks).

National targets present national emission reduction intervention framework and are considered as existing strategy impact. Update of The Integrated National Energy and Climate Plan (NECP UPDATE) is in progress and new targets are more ambitious as existing one. Draft NECP targets are presented in the Annex 1 and should support activities and interventions of the CCC Action and Investment plan.

Measures and policies from NECP are contained in action plans and other strategies and operational documents which are not individually listed and described. Particularly exposed are four documents which were adopted after NECP ratification and have a significant impact on GHG emission reduction.

1. **Long-term Strategy for Energy Renovation of Buildings until 2050 (DSEPS)** (adopted in March 2021),
2. **Act on Siting of Installations for Generation of Electricity from renewable energy sources** (adopted in July 2023) and

3. **Strategy on the Deployment of Alternative Fuels Infrastructure** (adopted in May 2023) which affects new measures to support NECP objective,
4. **Slovenia's Common Agricultural Policy (CAP) Strategic Plan** (adopted in September 2023).

Their relevance to the CCC Action Plan is defined in the following table - List of relevant policies, strategies & regulations.

Regional level:

Territorial cooperation that addresses challenges to the transition to a climate neutral society and jointly develops potentials of Gorenjska region are defined in Regional Development Program of Gorenjska Region 2021 – 2027 (RDPG) and Sustainable Energy and Climate Action Plan of Gorenjska Region (SECAP).

Regional Development Program of Gorenjska sets the sustainable development strategy for the NUTS 3 region among others also measures to mitigate and adopt to climate changes through six development priorities:

→ **Integrated development and effective governance** to reduce development disparities (urban / rural areas) which outlines needs for coordinated approach towards regional spatial planning, defines Kranj as urban centre of Gorenjska Region in terms of economic, social, governmental and other public services, addresses tourism development across the Region as sustainable tourist destination.
→ **Innovative and sustainable business environment** - "Smart Gorenjska" to develop smart communities, smart countryside, and competences, promote knowledge and new technologies as well as promote and support economic development through financial initiatives and special purpose funds.
→ **Raising the quality of life, social and demographic development opportunities** through development of social infrastructure, sport and leisure infrastructure for the citizens aiming better health and quality of living environment. It supports systems to promote local food supply and to increase territorial food self-sufficiency.
→ **Energy efficient and clean Region** - Green Gorenjska, accelerating low-carbon projects in Gorenjska: Zero waste, wastewater management, Center for energy efficiency, sustainability and circle economy, green infrastructure, and forests, degradable – grey / brownfield development, energy system digitalisation.
→ **Accessible, connected and traffic/road safe Gorenjska** to promote and enable sustainable transport and mobility systems and infrastructure.

Sustainable Energy and Climate Action Plan of Gorenjska Region (SECAP) is based on methodology of Covenant of Mayors for Climate Change and Energy and is supporting climate transition taking into consideration climate changing trends, anticipated climate changes and risks, exposures, and resilience of selected sectors. List of measures and activities from action plan are coordinated with the set targets by sectors and dimensions in the National Energy and Climate Plan (NECP). With set target to **reduce GHG emissions by at least 40% by 2030 (base year 2005)** measurements and activities related to

→ development of new renewable energy sources,
→ increased energy efficiency and renovation of public buildings,
→ sustainable transport and mobility,
→ establishment of smart networks and services,
→ an inclusive and tailored communication and engagement strategy,
→ promotion of energy efficiency and climate friendly society,

→ tackling energy poverty locally.

List of projects refers to hard and soft infrastructure of which some are already in progress or planned for the following years, though some priorities should be updated to the current climate challenges.

Local level:

Listed strategies and action plans on the local level are documents with the focus on the climate change and climate transition to net zero emission society.

Integrated Sustainable Development / Urban Strategy - City Kranj 2030 is overarching strategy of City Kranj adopted in 2016 with the defined vision: Kranj 2030 – city of opportunities - sustainable, progressive, and lively urban centre of Gorenjska. Development principles are focusing on innovative social and economic environment, sustainable development, inclusiveness, adaptability, and competitiveness. Sustainability and climate transition toward net zero emissions have been addressed through horizontal policy and projects across seven strategic sectors. In respect of the 100 Climate-Neutral and Smart Cities Mission, the monitoring and evaluation of Sustainable Development/Urban Strategy implementation has been initiated by the Transition Team. The Strategy is being revised and completed according to the EU Cities Mission goals by 2030.

The most important sectoral policies, strategies and action plans which support implementation of overarching objectives, and zero emission transitions are summarised in the chart.

INTEGRATED SUSTAINABLE URBAN DEVELOPMENT STRATEGY - CITY OF KRANJ 2030

INTEGRATED SUSTAINABLE URBAN DEVELOPMENT STRATEGY - CITY OF KRANJ 2030 – REVISION, DRAFT 2023

Local Energy Concept	Integrated Sustainable Urban Mobility Plan	Digital and Smart Development Strategy	Zero Waste Strategy	Municipal Spatial Plan	Municipal Environ. Protection Programme	Strategy on development of EV charging network
Strategy is following objectives and sectoral targets from National Energy and Climate Plan and is being applied through measures and projects on the local level, supporting sustainable development of City of Kranj. Concept is aligned with the Gorenjska Region SECAP as well.	Transport strategy is crucial for transport and mobility transition toward climate neutrality, promoting e-mobility and smart mobility, public transport, healthier modes of mobility (walking, cycling) and infrastructure. Importance of infrastructural network for the City and Regional development promotes sustainable practices towards GHG emission reductions.	Strategy gives guidance to digital transformation of the City of Kranj to become “Digital & Smart City”, implementing digital tools for in-time data management in mobility, energy management, learning processes, reporting and to effectively mitigate gaps and risks in all sectors.	Strategy emphasises possibilities and opportunities to shift toward waste and emission free society by raising awareness and changing consumer behaviour, reduce waste, improve material efficiency by circular economy and apply technologies and practices to waste management.	Overarching document with guidelines and conditions for landscaping, settlement development, buildable area density and its use definition, public service infrastructure and arrangements which directly and indirectly have significant effect on the environment and emissions.	Strategy explicates environmental impacts emerging in the City of Kranj or/and have significant impact on the environment and citizens of the City. Its guidelines and measures are important baseline for planned activities in Kranj.	Strategy defines local measures and locations of e-charging stations and activities to promote e-mobility among citizens and businesses.

Figure 12: Overview of the most relevant policy documents of the City of Kranj

Table 6: List of relevant policies, strategies & regulations

List of relevant policies, strategies & regulations					
Type (regulation/ policy/ strategy/ action plan)	**Level** (local, regional, national, EU)	**Name & Title** (Name of policy/ strategy/ plans)	**Description** (Description of policy/ strategy/ plans)	**Relevance** (Describe relevance/ impact on climate neutrality ambition)	**Need for action** (list any suggested action in relation – to be further picked in Module C-1)
Strategy	National	Resolution on the Slovenia's Long-Term Climate Strategy Until 2050 (ReDPS50)	The National Climate Strategy sets the vision and a clear objective to attain net zero emissions – climate neutrality by 2050 and strategic sectoral objectives until 2030.	Strategic objectives, measures, and reduction targets by 2030 set by sectors (Energy, Industry, Transport and mobility, Buildings, Land use change and forestry and Waste) that support the implementation of needed activities to reach neutrality by 2030 and are considered as existing strategy basics. IMPACT: Intervention framework for existing activities (BAU) and CCC Action Plan.	Kranj actions shall adapt to more ambitious measures that support intensive transition toward neutrality by 2030.
Action Plan	National	Integrated National Energy and Climate Plan of the Republic of Slovenia (NECP)	Action plan has been coordinated with the National Climate Strategy and sets key objectives measures and targets by 2030 through five defined dimensions: decarbonisation, energy efficiency, energy security, internal energy market, R&D, and competitiveness.	Key objectives and sectoral targets with relevant impacts on climate neutrality ambition by envisaged scenario. In NECP update draft, which is currently under preparation, the set targets are even more ambitiuous than the ones, listed below. Scenario considers a reduction of sectoral GHG emissions by 2030 compared to 2018 (base year) by at least: → 15% in transport and mobility, → 41% from waste, → 27% in industry (non ETS), → 53% from wide use (improving energy efficiency and reduce energy consumption), → 0% from agriculture, → LULUCF sector will not produce net emissions by 2030 (emissions in the sector will not exceed sinks).	Increasing the ambition of existing GHG reductions by sectoral targets in NECP update which is being prepared.

				IMPACT: Targets for activities of existing strategies (BAU) Key relevant measures are also: → Implementation of pilot projects to produce synthetic methane and hydrogen (the indicative target is a 10% share of renewable methane or hydrogen in the transmission and distribution network by 2030), → at least 75% of electricity supply from sources in Slovenia by 2030, → increasing electricity distribution network resilience to disruptions. **IMPACT:** • **Targets for existing activities (BAU) – national interventions and activities.** • **Compliance with the national framework for interventions and activities in the CCC Action Plan.**	
Strategy	National	Long-term Strategy for Energy Renovation of Buildings Until 2050	Strategy defines the approaches and policies for decarbonising national building stock by 2050 and lists the measures supporting the building headline targets set in the National Energy and Climate Plan of the Republic of Slovenia	Targets set (2030) for households, public sector and private service to ensure reduction of GHG emissions in buildings by at least 70% compared to 2005 and consider renewable energy sources (RES) for at least 2/3 of energy consumption in buildings (share of use of RES in final use of energy products excluding electricity and district heating; considering prohibition of sale and installation of new boilers using fuel oil after 2022). **IMPACT:** • **Compliance with the national framework for interventions and activities in the CCC Action Plan.**	Targets to be considered in AP.

Strategy & Action Plan	National	Strategy on the Deployment of Alternative Fuels Infrastructure and Action Plans for Deployment of Alternative Fuels (2020-2021, 2022-2023)	Strategy sets mandatory national targets for the deployment of the alternative fuels' infrastructure for road vehicles, trains, vessels and stationary aircraft. Action plans define measures, activities and financing in respect of strategy targets.	Measures to promote: → E-mobility: e-vehicles, environmentally friendly freight transport (electric and hydrogen), e-public transport (buses, vans, etc.) and charging infrastructure. → Use of hydrogen and fuel cell vehicles, liquefied petroleum gas (LPG), compressed natural gas (CNG) and liquefied natural gas (LNG) and the use of biofuels. → Normative regulations. → Research projects and innovations. **IMPACT:** • **Compliance with the national framework for interventions and activities in the CCC Action Plan.**	Enables accelerated implementation of e- and hydrogen mobility at the local level.
	National	Act on the Siting of Installations for Generation of Electricity from Renewable Energy Sources	Act regulates priority areas for the siting of photovoltaic and wind energy installations in general (such as rooftops, service buildings, areas of former mines and quarries, and certain landfills). These (potential) priority areas will be further regulated by a National Spatial Act and Strategies – **NECP update.**	Spatial priority areas (buildings, paved areas, public road facilities, areas of closed landfills) and conditions for the photovoltaics: → For newly built areas and reconstructions: roofs and paved parking areas with a floor area of at least 1.000 m2; → For existing buildings and paved areas with a floor area of at least 1.700 m2. **IMPACT:** • **Compliance with the national framework for interventions and activities in the CCC Action Plan.**	/
Strategy	National	Slovenia's Common Agricultural	Slovenia's CAP SP is focused on sustainable technologically advanced and competitive	Environmental and climate objectives in rural development:	Accelerate introduction of CAP

		Plan (CAP) Strategic Plan 2023-2027	agriculture with an emphasis on digitalization. It promotes solutions to move towards a circular economy and achieve higher added value throughout the production chain. In addition to the strategic function of food production, Slovenian agriculture is also a sector of significant spatial and environmental importance. The SP 2023-2027 seeks to use technologies and production methods that have the least negative impact on natural resources, while preserving the diversity of animal and plant species.	→ Adapting agricultural holdings to implement above-standard animal welfare requirements, heating of stables using renewable energy sources and the regulation of storage capacities for livestock manure; → Preservation of biodiversity; → Training and advisory activities, with a focus on the transition to green, digital and climate-neutral agriculture. Training of agricultural and forestry advisors, who are key stakeholders in the knowledge transfer system. **IMPACT: Targets for activities of existing strategies in AFOLU Sector (important national framework and national and EU funding scheme).**	climate measures among local farmers
Action Plan	Regional	Sustainable Energy and Climate Action Plan of Gorenjska Region (SECAP, 2018)	Joint SECAP is defined within territorial cooperation of Gorenjska Region which includes 18 municipalities. The largest of them is Kranj, aiming to kick-off a long-term process of identifying and implementing energy efficient actions; to provide citizens with access to safe, sustainable, and affordable energy; and to adapt to the impacts of climate change. Document presents the Covenant of Mayors commitments document.	Target of reducing GHG emissions by at least 40% by 2030 compared to the base year 2005 and key measurements: → Development of new renewable energy sources; → Increased energy efficiency and renovation of public buildings; → Sustainable transport and mobility; → Establishment of smart networks and services; → An inclusive and tailored communication and engagement strategy; → Promotion of energy efficiency and climate friendly society; → Tackling energy poverty locally.	Assessing the SECAP implementation effectiveness and revise the possibility to adjust regional targets to City of Kranj targets

				IMPACT: • **Regional targets that support interventions and activities in the CCC Action Plan.**	
Strategy and Action Plan	Regional	Regional Development Program of Gorenjska Region 2021 - 2027	The Regional Development Program is basic strategic document at the regional level. It defines development advantages of the region and determines priorities, activities and investment needs to raise the quality of life for all generations in connected, sustainable, energy efficient and clean Alpine Region.	Relevant objectives, measurements and projects are defined through six development priorities: → Coherent development and effective governance to reduce development disparities (urban / rural areas); → Innovative and sustainable business environment - "Smart Gorenjska"; → Raising the quality of life, social and demographic development opportunities; → Energy efficient and clean Region - Green, low-carbon Gorenjska; → Accessible, connected and traffic/road-safe Gorenjska; → ANGorenjska open to European territorial cooperation. **IMPACT:** • **Regional targets that support interventions and activities in the CCC Action Plan.**	Disseminating the City of Kranj decarbonisation measures and practices to its wider functional area, in particular in the field of mobility.
Strategy and Action Plan	Local	Integrated Sustainable Urban Development Strategy - City of Kranj 2030 (ISUDS)	The sustainable development strategy is fundamental strategic document on local level. Economic, demographic, social and environmental situations are defined considering future challenges and activation of the City's untapped internal potential. It also sets comprehensive measures to	Strategy is directly applicable and related to climate neutrality action plan. Implementation of measurement and activities has been assessed and all required updates of activities, projects, budgeting are coordinated and in alignment with the EU Cities Mission. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	Strategy revision to meet the CCC Action Plan targets, measures, commitments, and Investment Plan.

			stimulate economic growth and improve the quality of living in Kranj.		
Strategy & Action Plan	Local	Local Energy Concept (LEC) - City of Kranj	Local energy policy is based on the LEC - long-term local energy policy plan. It encompasses ways in which local communities can tailor solutions for efficient, economical, and environmentally friendly energy services in households, businesses, and public institutions.	The document lists actual effects that the local community can achieve by carrying out activities and measures from the LEC. Based on LEC, the spatial and economic development of the local community is planned, the development of local energy utilities, the efficient use of energy and its saving, the use of renewable energy sources and the improvement of air quality in the local community. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	Assessing the implementation effectiveness and adapt targets and measurements to the new climate and governance challenges as set by this Action Plan.
Strategy & Action Plan	Local	Integrated Sustainable Urban Mobility Plan - City Kranj (2017) (SUMP)	Integrated Sustainable Urban Mobility Plan contributes to the development of urban transport and mobility, to establish a sustainable and smart transport system, improve mobility and accessibility, supply to the economy, traffic safety and protection, reduce use of energy, costs to users and operators, and to reduce environmental impacts.	Comprehensive transport planning, promotion of walking and cycling as well as its infrastructure, attractive and accessible public transport and reducing impact and congestions of motorised (individual) transport are addressed as key areas and priorities – activities are defined to achieve long-term strategic objectives. Targets lag behind the climate neutrality goals of the City of Kranj to 2030. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	New SUMP envisaged in 2024 to support AP targets and propose effective implementation of mobility measures.
Strategy	Local	Digital and Smart Development Strategy – City of Kranj	Strategic document to emphasise awareness of the importance of digital transformation in all segments – society, public sector, and the economy and accelerate digital	Defined priorities and measurements which address the biggest development gaps and opportunities in public services, smart mobility, smart grid/energy management, smart and efficient energy management in	New strategy to enhance the digitisation support of actions set in this AP.

			transformation to become “Digital and Smart City”.	households, agriculture, retail, education, data management and reporting and informing. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	
Strategy & Action Plan	Local	Municipal Spatial Plan – City Kranj	Municipal spatial planning documents (strategic and implementation) are an important basis for the rational and sustainable spatial and urban planning of all activities which affect the physical environment in the municipality and for ensuring quality living conditions for the life and work of its inhabitants.	Determines the land use and regulatory framework for settlement development, landscaping, development of the public infrastructure, and social infrastructure. Includes spatial arrangements of local significance and determines the intended land use strategy and spatial implementation conditions for the planned activities/ constructions which affect the environment (a required share of green roofs and green areas, areas for urban gardens, standards for rainwater collection, preservation and protection of suburban forest areas). **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	Next revision of the spatial plan to adopt green spatial measures to align new developments and redevelopments to the new climate and governance goals – net zero emissions by 2030.
Strategy	Local	Municipal Environment Protection Programme (2023)	An environmental impact assessment is made for activities that are part of City’s mandatory plans and programmes. It also represents a framework for development and selection of relevant projects.	Strategic assessment is directly applicable and contributes to the planning of activities, commitments, and investments to mitigate and avoid GHG emissions. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	NA Measures already adjusted to the net zero emission 2030 targets.
Strategy & Action Plan	Local	Zero Waste Strategy (2021)	Strategy defines steps and activities to shift toward a waste free society and environmental justice for the	Relevant measures, incentives and solutions to reduce amount of waste generation at the source, to change	Zero waste targets considered in the AP.

			benefit of people, the planet and competitive business environment.	resource management from linear to circular economy, to change consumer behaviour and exchanging good practices, enhance know how and promote knowledge dissemination. **IMPACT:** • **Supporting interventions and activities in the CCC Action Plan.**	
Strategy and Action plan	Local	Strategy on Development of EV Charging Network (2019)	Strategy defined local measures, locations of e-charging stations and operational costs to promote city's transition to electro mobility.	The strategy proposes a network of EV charging locations and 4 measures: - Implementation of the proposed network; - Promotion of e-mobility among citizens and businesses; - Promotion and information actions; - Proposals for municipal urban plan. **IMPACT:** - **Supporting interventions and activities in the CCC Action Plan.**	Strategy to be significantly updated to new technologies and EU Cities Mission targets by 2030.

Table 7: City´s baseline emissions, emissions gap, emissions reduction and residual emissions

A-2.1 Emission Gap	**(1) Baseline emissions (2018)**	**(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	65.831	52.665	80%	34.825	53%	17.840	27%	7.980		13.166	20%
Transport	68.068	54.454	80%	10.210	15%	44.244	65%	35.899		13.614	20%
Waste	26.754	21.403	80%	10.889	41%	10.514	39%	14.823		5.351	20%
Industrial Process and Product Use (IPPU)	27.256	21.805	80%	7.386	27%	14.418	53%		47 %**	5.451	20%
Agricultural, Forestry and Land Use (AFOLU)	50.923	40.738	80%	14.492	28%	26.246	52%	8.300		10.185	20%
*Energy systems**								*46.263*			
Total	**238.832**	**191.066**	**80%**	**77.802**	**33%**	**113.263**	**47%**	**113.265**	**47 %**	**47.766**	**20%**

* Energy systems (as field of action) is added in the table as to comply with the structure of the Action Portfolio. ** The values in column 5 stand for estimated and quantified emissions resulting from the concrete actions presented by fields of intervention from the Action Portfolio in Part 3.

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

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

The urban system, systemic barriers and opportunities related to the city's GHG domains largely derive from the Slovenian national regulatory framework. Being a small country, governance systems in Slovenia are centralised to a high degree and thus, the responsibilities of the municipalities, as defined by the Local Self-Government Act, are rather limited. This is reflected in a high influence of national strategies on the city's emission gap and in the necessity for close collaboration of the City of Kranj with the climate relevant national bodies and implementing agencies. Furthermore, the Slovenian municipalities organise their major utility services in the form of municipal public companies or though concessions which rises the number of stakeholders relevant to deal with. While the City is responsible for the local roads, city's public transport, district heating, urban planning, municipal waste, water and sewage systems, many of climate important systems fall under the national authority or are of a business character (railway, regional public transport, main roads, electric distribution, financial schemes, higher education).

A comprehensive stakeholder mapping by urban systems is presented in the Figure 13 and described in detail in Table 8 while an in-depth analysis of systemic barriers and opportunities is given in the Table 9 at the end of the chapter. The most relevant urban systems and stakeholders for addressing the identified GHG gap, system barriers and opportunities for Kranj climate naturality are:

- **Infrastructure systems,** in particular national transport infrastructure and energy distribution operators, municipal utility company Komunala Kranj with a wide range of environment related services and several city's concessioners for specific services. Active coordination between the City of Kranj and all relevant national /local operators is necessary to minimise the barriers deriving from shared responsibilities, incoherent priorities and operational deficiency.
- **Service systems** with a set of new mobility service providers can seize the city's need and citizens' potential for sustainable commuting.
- **Building system** with dispersed ownership (including the Government of RS), facility managers and residential heating boards can help unlock private capital in energy efficiency and RES.
- **Industrial and business processes** representing largest industrial, service or trading sector employers with high interest and influence on the City of Kranj's climate neutrality.
- **Alliances, social processes, capacities:** educational and upbringing systems representing mainly local institutions and NGOs having direct access to different target groups and thus enabling a significant impact on the knowledge base and behavioural change of citizens.
- **Funding systems,** including the three biggest national financial institutions supporting sustainable development (Eco Fund, Climate fund, SID Bank – national promotional development bank) that shall release their capacities to better support EU Cities Mission.

In order to monitor the above systems and engage them for joint interventions, the most relevant stakeholders were invited in the City of Kranj Strategic Council for Climate Neutral and Smart Community (e.g. Ministry of the Environment, Climate and Energy, Forest Service of Slovenia, public utility providers ..) while others are approached individually, through workshops or specific actions proposed in the AP portfolio and its cross-cutting measures. At the operational level, the City of Kranj Administration has also established continuous working relationships with several Ministries and their implementing bodies which are additionally strengthened by the CCC process.

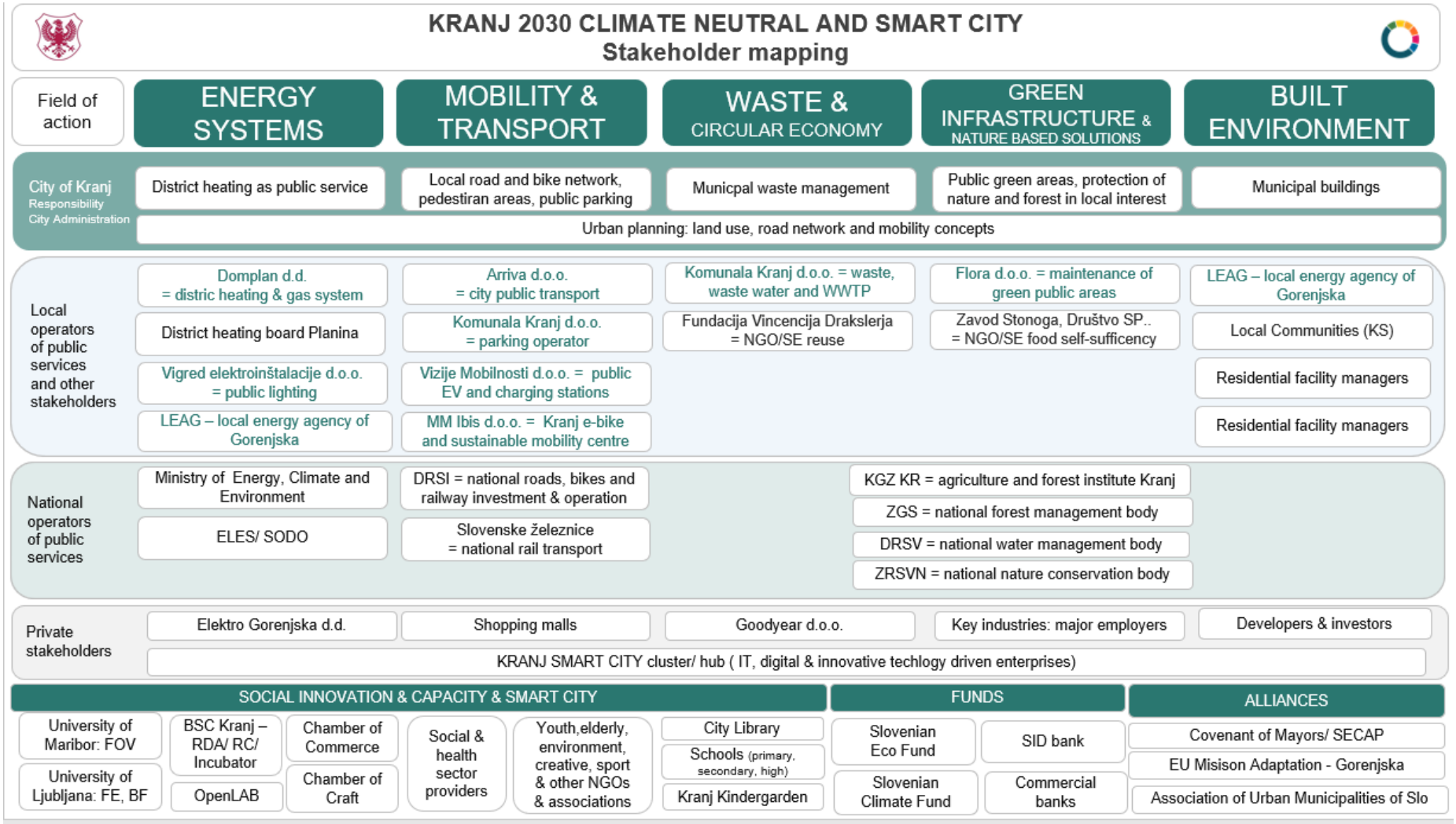


Figure 13: Stakeholder Mapping

Table 8: A-3.2: Systems & stakeholder mapping

A-3.2: Systems & stakeholder mapping				
System	Stakeholders	Network	Influence on the city´s climate neutrality ambition	Interest
INFRASTRUCTURE – road, rail, bike and pedestrian network - and operation	**The City of Kranj - City Administration** - Office for Economic Affairs and Traffic, Department for Traffic - Joint Office for Urban planning	Local Authority	According to the Local Self-Government Act, the Municipality is responsible for local road, bike and pedestrian network planning, maintenance and operation. The mayor of Kranj has set up and leads the Strategic Council for Climate Neutral and Smart City of Kranj (SCCNSC) whereas all City Administration departments have nominated their staff in the Transition Team (TT) and participate in the Action Plan design and implementation. **Influence on city climate neutrality by 2030**: Local roads – **high** Sustainable mobility - cycling and walking – **high** The City has defined its future road network policy in the Municipal Spatial Plan (2014, 4th amendment preparation is underway) emphasizing the reduction and calming of the traffic in the city centre and improvement of the city ring and entrance roads. Both interventions are much interlinked in terms of improved traffic management. However, the ring roads (incl. cycling network) are of regional character and thus investments and operation fall under the national jurisdiction. In this respect, the City's influence on the overall traffic flows through infrastructure is limited. The City therefore focuses on the sustainable mobility measures where its impact is higher. Further to the Integrated S*ustainable Mobility Strategy of City of Kranj (2017)* and *Comprehensive Study of Cycling Connections, Stationary Traffic and One-Way Connections with a Proposal for Sustainable Mobility Measures in the City of Kranj (2023), actions such as* rearrangement of the inner road network into one-way streets, broadening of the spaces for pedestrians and bikers, completing the cycling network and building the missing bridging facilities are proposed. Regardless the municipal jurisdiction, the lack of funds, time consuming planning and citizens' acceptance jeopardize the mobility goals of the city.	**High** While noise and daily traffic congestions impede citizens' life quality, transport also contributes the most to the City's GHG emissions. It is of City of Kranj's high interest to address the traffic infrastructure and management challenges.

	Slovenia Infrastructure Agency (DRSI) - Road Investments Division - Railway Investments Division	National Body	According to the Slovenian legislation, the State is responsible for construction, restoration and maintenance of the public national and regional roads and railway. In City of Kranj, several key investments in ring and entry roads from the Corridor X. highway with major impact on the city future traffic management are in designing stage, yet the timing of investments in roads is uncertain. On the other hand, second track (new railway line) connecting Ljubljana and Kranj is in development stage, while the funding is foreseen by the Connecting Europe Facility (part of TEN-T). Thus, influence of DRSI in the field of future road traffic improvements on the Kranj climate neutrality goals is assessed as medium whereas high in case of railway. **Influence on city climate neutrality by 2030**: Regional and national roads – **high** Railway **– high** There is a regular communication established between the City and the responsible Slovenia Infrastructure Agency (DRSI).	**Medium** The recent floods disaster will require major investment in reconstruction of devastated infrastructure in affected regions of Eastern Slovenia. Most likely, this will affect the shift of national investment priorities and jeopardize investment dynamic in roads in the territory of the City of Kranj.
INFRASTRUCTURE – district heating network and distribution – gas network and distribution	**Domplan,** JSCo	Municipal concessioner for district heating public service	Further to the municipal Act on the Implementation of Public Utility Services - public district heating network and operation as well as gas network and distribution are provided by concession. The current concessioner for both services is Domplan d.d., one of the leading and most experienced, innovative and powerful Slovenian district heating management companies and thus a valuable and proactive partner of the SCCNSC and TT. Their experts are already preparing major investments in shifting district heating system from gas to RES fuel as well as initiating future innovative symbiosis projects in use of waste heat from industry and commercial providers. Projects for the capture of bio-methane and use in the gas network are under verification. Respective district heating boards of apartment owners have been set up in the major urban district – Planina. **Influence on city climate neutrality by 2030**: **high**	**High** Efficient, modern, secure and low emission district heating system is of high and interest for the concessioner (sustainable long-term business and best practice for the other cities) and in particular its clients – citizens.
	District heating boards of apartment owners	Informal network		

INFRASTRUCTURE – waste management	**Komunala Kranj, public utility company**, LLC	Municipal utility company	According to the municipal Act on the Implementation of Public Utility Services - waste management is provided by municipal public utility company. With more than 235 employees and 24,5 mio EUR of income (2022), Komunala Kranj is one of the most important stakeholders of the City of Kranj CCC. Their management and experts are members of the SCCNSC and the extended TT. Komunala Kranj is strongly committed to zero waste and circular economy principles and thus coordinates measures of *Kranj Zero Waste Strategy* (2021) which is an important action of this document. As the former landfill is closed and under controlled rehabilitation until 2040, the current residual waste is incinerated out of the city. Direct city responsibility for waste management gives the utility company authority to instigate changes in this field of action. Investments are a responsibility of the City of Kranj. **Influence on city climate neutrality by 2030**: **high**	**High** Strong competences, available resources, digitalization efforts, clear strategy and projects in pipeline, assure high impact of Komunala Kranj on the GHG reduction in waste management.
INFRASTRUCTURE – water supply and waste water management	**Komunala Kranj, public utility company,** LLC	Municipal utility company	Further to the municipal Act on the Implementation of Public Utility Services - water supply and wastewater management is provided by municipal public utility company. With more than 235 employees and 24,5 mio EUR of income (2022) Komunala Kranj is one of the most important stakeholders of the City of Kranj's CCC. Their management and experts are members of the SCCNSC and the extended TT. While the City of Kranj is responsible for investing in the completion of sewage system (in suburban areas), Komunala Kranj maintains and operates the sewage network, including modern in 2015 fully reconstructed wastewater management treatment (WWTP, 95.000 PE). Thus, the WWTP processes are already optimised, the challenge stays in improving the water supply energy efficiency. **Influence on city climate neutrality by 2030**: **low**	**High** Lower GHG emissions, reduced environmental footprint and cost savings are of high interest of Komunala Kranj as well as its clients – citizens (lower costs) and the City of Kranj.
INFRASTRUCTURE – public lighting	**Vigred,** elektroinstalacije LLC	Municipal concessioner for public lighting	Further to the municipal Act on the Implementation of Public Utility Services, public lighting operations and maintenance is provided by the concessioner. The company operates and maintains public lighting of roads, public areas, selected buildings, town light decoration and traffic lights in the municipal area. The investments and the development policy of the public lighting is the responsibility of the City of Kranj. The concessioner follows the strategy and the annual plans. As evident from the analysis, the city lighting is nearly fully optimized and in line with the	**Medium** Due to recent investments, most of the system is in line with the regulation, current interest for short-term re-investments in smart solutions is conditioned

			regulation. The challenge remains in securing the funds for specific solutions in historic centre and introduction of recently piloted smart lighting solutions in similar compact and new city districts. **Influence on city climate neutrality by 2030**: **medium**	by availability of external funding opportunities.
INFRASTRUCTURE – EV and hydrogen charging network	**The City of Kranj - City Administration** - Office for Economic Affairs and Traffic, Department of Traffic - Joint Office for Spatial planning	Local Authority	E-mobility is high on the City of Kranj agenda. In PPP partnership with Vizije Mobilnosti LLC, the City of Kranj is setting up a network of public EV charging stations (Strategy on Development of EV Charging Network, 2019). As part of the Strategy, the existing municipal fuel vehicles are being replaced with electric ones. With respective urban planning the City is assuring spatial conditions for future development of high-speed charging parks. However, the ambitious goals are jeopardized by the grid and transformers' capacities, whose development and upgrades are a sole responsibility of national electricity system distributor. The respective City Administration employees are engaged in the Transition Team, the private partner is committed to contribute to the city's climate neutrality actions in the field of mobility and transport. **Influence on city climate neutrality by 2030**: **high**	**High** Transport accounts at most to GHG in the city, accelerated transition to e-mobility is of high interest for the City of Kranj and its private partner.
	Vizije Mobilnosti LLC	City PPP partner for charging network		
	Ministry of the Environment, Climate and Energy	National Authority	**Being responsible for the regulatory framework, policy and the support programmes in the** key sectors for Kranj and Slovenia's green transition (efficient energy supply, introduction of modern energy policies, with an emphasis on increasing the share of RES, public passenger transport, sustainable mobility and transport) the ministry is our main partner at the government level and member of the SC. **Influence on city climate neutrality by 2030**: **high**	**High** Assuring appropriate legal framework and embedding EU Cities Mission objectives in the national funding schemes.
	Arriva LLC	Municipal concessioner for urban transport	Elektro Gorenjska Group is a regional distributor of electricity and producer of green electrical energy. Arriva LLC is one of the two major Slovenian private transport companies providing passenger transport at urban and national scale. Both companies are based in Kranj, with significant resources and innovative sustainable business visions, they are of strategic importance in supporting city's green transition. They are vital CCC partners in the Strategic Council for Climate Neutral and Smart	**High** Green transition in transport, testing of pilot charging technological and business model solutions in the home-based territory and
	Elektro Gorenjska JS	Electricity distribution &		

	SODO Electricity distribution operator	production company	City and Transition Team. Together, in a joint partnership, they are preparing an investment project in Kranj for the first high-capacity and speed EV charging hub. **Influence on city climate neutrality by 2030**: **high**	opportunity to penetrate new green markets are high interest for Elektro Gorenjska and Arriva.
	Ministry of Defence Directorate for Logistic	National Authority	The Military unit Petra Petriča in Kranj, a part of the Slovenian Armed Forces of the Ministry of Defence, is an innovation driven public partner with ambitious pilot RESHUB project investing in energy self-sufficient military infrastructure hub based on renewable, mostly hydrogen powered sources. Kranj, as a progressive, sustainable and smart city, was chosen as the first location in Slovenia to serve as a pilot project for cooperation between the defence system and local communities. The future RESHUB will significantly release the city grid network, act as a pilot project for other strategic infrastructure (city health centre, education.) and will be open to the local community, the Ministry of Defence acts as a strategic stakeholder in the CCC process in Kranj. **Influence on city climate neutrality by 2030**: **high**	**High** The RESHUB project in the Military unit Petra Petriča in Kranj is a pilot investment of the EU pan-European project RESHUB Network.
INFRASTRUCTURE Parking and pedestrian areas	**The City of Kranj – City Administration** Office for Economic Affairs and Traffic, Department for Traffic	Local Authority	Further to the Local Self-Government Act the municipality (Department of Transport of the City of Kranj Administration) is responsible for public parking/pedestrian areas and parking policy while its operation and maintenance is trusted to public utility company Komunala Kranj. Both bodies are actively involved in CCC structures and processes. Since 2017, the City of Kranj has been regulating parking system with the Decree on Road Traffic Rule. According to it, the City has designated public parking areas and parking fee and/or other parking regime in individual zones 1, 2 and 3. Parking policy is an important municipal tool for reduction of traffic, however with limited impact as only 15% of the parking space is in the city ownership while the rest belongs to the residents. Citizen's resistance to changes in parking policy is high. **Influence on city climate neutrality by 2030**: **high**	**High** Transport is a large contributor to the GHG emissions in the City, while noise and daily congestions impede citizens' life quality. It is of City's high interest to adjust the existing parking policy and extend pedestrian areas.
	Komunala Kranj, public utility company	Municipal utility company		
INFRASTRUCTURE Green and blue areas	**The City of Kranj – City Administration**	Local Authority	Further to the Local Self-Government Act, the municipality (Office for Economic Activities and Transport of the City of Kranj Administration) is in charge for public green areas while the maintenance based is trusted to the concessioner Flora LCC. Through spatial planning the City determines the land use and thus preserves agriculturual land, forests	**High** Substantial green areas of the City of Kranj territory provide potential for CO_2

	Office for Economic Affairs and Traffic Joint Office for Urban Planning Joint Office for Environment Protection		and other green and water areas. In addition, sectoral laws enable the local self-government to designate nature protected areas of local importance and protect urban forests relevant for the city's well-being. Regional Unit of Slovenia Forest Service in Kranj assures owners are managing their forests in a sustainable manner, while the Institute for Agriculture and Forestry Kranj implements agriculture policy measures among local farmers. Regional office of the Institute for Nature Conservation Kranj coordinates and monitors nature protection measures in the territory of the City of Kranj. Water and bodies of water (rivers, lakes etc.) are natural public good and thus owned and managed by the state – Slovenian Water Agency. All stakeholders, important for improvement of green and blue infrastructure, have been involved in CCC processes through workshops and individual interviews. The Slovenia Forest Service and the Institute for Agriculture are also members of the SCCNSC. **Influence on city climate neutrality by 2030**: **medium**	sequestration and offer various ecosystem services. As expressed through the citizen survey in March 2023, preservation of green spaces, including forests and agriculture land is of high importance for the citizens. Maintenance and protection of the green and blue infrastructure is of high interest for the City of Kranj and all involved stakeholders.
	Flora d.o.o. Flora LLC	Municipal conce-ssioner		
	Slovenia Forest Service (ZGS)	National Body		
	Institute of the Republic of Slovenia for Nature Conservation (ZRSVN)	National Body		
	Chamber of Agriculture and Forestry of Slovenia – Institute for Agriculture and Forestry Kranj (KGZS-KGZ)	Chamber/ Institute		
	Slovenian Water Agency	National Body		
SERVICES Public transport and sustainable mobility	**The City of Kranj - City Administration** Office for Economic Affairs and Traffic, Department for Traffic	Local Authority	Local public transport is a public service in the responsibility of the City. The City of Kranj invests in replacement of fossil fuel buses by electric ones, determines the policy and scope of urban transport to be financed by the municipal budget. According to the municipal Act on the Implementation of Public Utility Services - city public transport is provided as concession, currently by Arriva d.o.o. Arriva LLC as one of two major Slovenian private transport companies also provides passenger transport on the regional and national bus routes in Kranj	**High** Developing a modern and multi-modal urban transport system, adjusted to the citizens' needs is of high interest of all involved stakeholders, although

	Arriva LLC	Municipal conce-ssioner for urban transport	territory. Therefore, Arriva is present at the SCCNSC and the extended TT. The public transport is complemented by city's bike service KRskolesom. Important role in the promotion of the multimodal use plays the Centre for Sustainable Mobility (CTM) set up in 2021 by the City of Kranj in Planina, the most densely populated Kranj urban district. Both services are operated by MM Ibis d.o.o. who brings in expertise and competences in designing and implementing mobility measures of the CCC. **Influence on city climate neutrality by 2030**: **high**	the use of public transport is currently insufficient.
	MM Ibis d.o.o.	Municipal partner in e-bike and CTM		
	Avant2Go **GreenGo**	City partner in car sharing	Easy and affordable access to different mobility services is crucial in promoting the sustainable mobility. In this respect, the City of Kranj has enabled two 100% electric car-sharing providers to develop and expand car sharing of e-cars in the territory of the city. Currently there are 5 locations with e-cars available. **Influence on city climate neutrality by 2030**: **high**	**High** Advanced car-sharing network and usage can substantially contribute to the city's GHG targets.
BUILDINGS Municipal buildings	**The City of Kranj - City Administration** Office for Economic Affairs and Traffic, Department for Economic Affairs	Local Authority	The City of Kranj property includes buildings of kindergartens, primary schools, sports and cultural facilities, local community centres with firefighter brigade stations and administration buildings. The property management is shared between the City Administration and individual user organizations. Over the last decade, the City has been systematically investing in energy-efficiency of its facilities following the PPP model. Energy monitoring and accountings is established by LEAG which already proofs direct impact on carbon footprint. The implementation of measures has an indirect impact on the education and behaviour change of citizens of different groups by using these facilities. The experts of City administration and LEAG are all members of Kranj Transition Team and key partners of future One-stop-shop for Climate neutrality. **Influence on city climate neutrality by 2030**: **high**	**High** Reducing GHG emissions and energy savings are of high interest for both, the City of Kranj and users of the facilities who implement relevant measures.
	LEAG – Local Energy Agency of Gorenjska	Public institute		
BUILDINGS Private multi-apartment residential buildings	**Residential facility managers** (e.g. Domplan, JS, etc)	Joint stock company	There are predominantly around 500 private multi-unit residential buildings. Following the Housing Act, owners need to nominate a facility management organization. In Kranj, 90% of the residential budlings is managed by Domplan.	**High** Improved life quality and energy savings are of high interest for apartment owners, while

			The facility managers have been promoting energy retrofit of the residential building for the last decade. Energy efficiency and renewal measures have been co-financed by the Slovenia Eco Fund. Thus, the relevant competences and business model established between individual facility manager and the residential heating boards (owners) are already in place. **Influence on city climate neutrality by 2030**: **high**	distance managed energy systems and well maintained facilities are important for the facility operator.
	Residential heating boards of apartment owners	Informal network		
ALIANCESS EU wide	**Covenant of Mayors –** Gorenjska region alliance	EU initiative	The City of Kranj is a Covenant signatory from 2013 and committed to adopting an integrated approach to climate change mitigation and adaptation. In 2018 the City has, together with other municipalities of Gorenjska region, adopted Strategic Energy and Climate Action Plan (SECAP) with and individual Action Plan aiming of cutting CO_2 emissions and increasing resilience to climate change. Covenant of Mayors is the basis for the higher targets set by the CCC. **Influence on city climate neutrality by 2030**: **medium**	NA
	EU Mission Adaptation to Climate Change – Gorenjska region alliance	EU initiative	As a regional centre, the City of Kranj plays an important role in the region of Gorenjska alliance for the EU Mission on Adaptation and Climate Change. The process of Mission Adaptation shall fully complement the Cities Mission objectives. **Influence on city climate neutrality by 2030**: **medium**	**High** There is high interest of both alliances to coordinate and exploit synergies to avoid overlapping.
ALIANCESS national	**Association of Urban Municipalities of Slovenia** (ZMOS)	National association	The Association of Urban Municipalities of Slovenia is the only representative association of urban municipalities in Slovenia that exclusively represents the interests of 12 urban municipalities. Among others it manages EU Cohesion programme for urban development and fosters exchange of best practices between urban municipalities in tackling the various challenges. The Integrated Territorial Investments (ITI) funds for the period 2021–2028 have vital importance for implementation of actions proposed by this document thus tight alliance with ZMOS is crucial. **Influence on city climate neutrality by 2030**: **medium**	**High** ZMOS is familiarized with the CCC process as 3 of 12 members are part of EU Cities Mission. Transfer of experience and practices from/to Kranj to/from other Slovenian city municipalities is of high interest.
ALLIANCESS Local	**Smart Kranj / IT group**	Local	Developing Kranj smart city concept and its practical implementation over the years has brought together various experts from research and Kranj IT business community. The EU Cities Mission addresses new	**High** Ambitious city ecosystem is welcomed

		innovation ecosystem & private sector	perspectives for the IT cluster dynamic and other Kranj based SMEs to add new climate related contents and technological solutions to the existing platform. Some of the cluster members (SMEs, researchers) are actively engaged in the SC. **Influence on city climate neutrality by 2030**: **medium**	by the dynamic SMEs although administrative barriers – procurement - often limit the direct collaboration of SMES in public projects.
CAPACITIES & LEARNING	**University of Maribor,** Faculty of Organizational Sciences	Faculty	Faculty of Organizational Sciences, a member of the University of Maribor, is located in Kranj and has 64 employees and around 1.000 enrolled students. They offer under- and post-graduate studies in fields of enterprise engineering, management of human resources, informational systems, sport management, education and health systems, including crisis management and provide an important professional background to support the City of Kranj in promotion of social innovation and of public institutions and enterprises for green transition. Therefore, the Faculty is a member of the SCCNSC and one of the signatories of the CCC commitment. **Influence on city climate neutrality by 2030**: **medium**	**High** The faculty is open to provide expertise in climate actions as well as initiate new study programmes associated with expanding opportunities in green economies.
	University of Ljubljana Faculty of Electrical Engineering, Biotechnical Faculty, Institute for Innovation and Development of the University of Ljubljana	Faculty R&D	**Faculty of Electrical Engineering** is a part of the University of Ljubljana and has been a long-lasting partner and one of major drivers of Kranj Smart City cluster. In Kranj, the Faculty runs an OPEN LAB space promoting innovation and technical skills among youth through series of workshops and innovative projects in public interest. Being a strong research, technology and competent stakeholder, the Faculty of Electrical Engineering can make and important contribution to the Kranj smart platform, to support climate transition and in the transfer and demonstration of new approaches and technologies in the Kranj pilot actions and investments. Faculty is running programmes at OPEN LAB Kranj, a technological hub for youngsters. **Biotechnical Faculty** as part of the University is the central national higher and postgraduate and scientific-research body in the field of natural resources, their sustainable management and challenges of climate change in living nature, agriculture, forestry, landscaping, related production technologies (biotechnology, wood and food science). Therefore, the Faculty‘s representative is a deputy lead of Kranj’s SCCNSC and a valuable partner in guiding the city towards climate neutrality.	**High** Partners are open to provide research and expertise necessary to support the city’s and enterprise’s transition to climate neutrality. The OPENLAB acts as a catalyst for change among young generations.

			Institute implements interdisciplinary scientific research, development and professional projects aiming to transfer of cutting-edge knowledge and innovative solutions to the Slovenian industry and society. Both faculties are members of the SCCNSC and signatories of the CCC commitment. **Influence on city climate neutrality by 2030**: **medium**	
	Secondary schools	Schools	There are several upper secondary schools in Kranj with more than 3.500 students in gymnasium as well as technological, biotechnological, service and business fields. Students aged 15-18 participated in workshops during the CCC preparation and shared their visions and concrete solutions on Kranj becoming a climate neutral city with the Transition Team and the mayor. The collaboration proved successful and the youth and schools will get a strong role in the city climate communication and dissemination actions. Individual secondary schools expressed their commitment to the Kranj CCC. **Influence on city climate neutrality by 2030**: **high**	**High** Schools and youth have shown high interest and commitment to climate actions during the CCC process.
	BSC Business support centre Kranj	LLC – regional development agency	Business Support Centre Kranj is an authorized regional development agency and is responsible for balanced regional development within the Gorenjska region, including the City of Kranj. As a facilitator of individual EU Cohesion funds, manager of the incubation/ co-working infrastructure of the City of Kranj and competent EU project design partner, BSC Kranj is expected to foster climate neutrality project development and fund raising for the benefit of the City of Kranj an its nearby functional area. Therefore, BSC is actively involved in the CCC process and a member of the SC. **Influence on city climate neutrality by 2030**: **medium**	**High** The Gorenjska regional development strategy 2021-2027 sets sustainability and green transition in the centre thus the development agency has high interest in success of Kranj climate neutral goals**.**
	Kranj Tourism and Culture Destination Management Organisation (ZTK)	Public institute	ZTK is an authorised city tourism destination management organisation. Following its sustainable tourism strategy, tourism board has been promoting local supply in restaurants (annual local long table event), green measures in hospitality businesses and zero waste tourism events. As such, the destination has been granted Gold certificate for Green Destination and selected as the European Destinations of Excellence in 2023. Although tourism is still a minor economic sector,	**High** Tourism is a growing economy in the area thus ZTK is directing newcomers into introducing green standards from early start up.

			ZTK is a key promotor of climate neutrality measures among tourism providers and visitors. **Influence on city climate neutrality by 2030**: **medium**	
	Kranj City Library	City public institute	Kranj City Library is a proactive, dynamic and cultural organisation, located in the heart of the city. With more than 19.000 members and offering diverse programme of cultural and educational events, the library presents a signifcant information and participatory hub in local community. Due to its reach capacity and ability to design and implement targeted programme, City Library is an important innovation, communication and education partner in the Kranj CCC ecosystem for awareness rising and behavioural change. **Influence on city climate neutrality by 2030**: **high**	**High** Library's mission is contributing to the citizens quality of life and cities' strategies.
	Chamber of Commerce Gorenjska **Chamber of Craft Kranj**	Chamber	As representative interest organisations of local companies, the two chambers have direct access to majority of Kranj based industrial, craft and service businesses. It is of great interest to the City of Kranj that the Chambers support the decarbonisation of economy and proactively provide their members needed guidance, information and trainings. Therefore, chambers are actively involved in the CCC process as partners in city's ecosystem for climate neutrality. **Influence on city climate neutrality by 2030**: **high**	**High** Progressive and innovative business environment is of high interest for both chambers.
INDUSTRIAL & BUSSINESS PROCESS	**Goodyear d.o.o.** **Supernova Group** **JGZ Brdo** **Wolt Slovenia** **Kontron d.o.o.** **Iskra ISD d.o.o.** **Iskraemeco, d.d.**	Private stakeholders	Listed private stakeholders are large industrial / trading or service companies in Kranj whose economic influence is significant in several sectors (industry, energy, transport, waste). They play an important role as partners in partnership projects, as investors and as promoters of sustainable behaviour and practises towards their employees, customers, suppliers, and the wider business environment. → **Goodyear** (tire and rubber manufacturing company) is the largest company and employer in Kranj. Although Goodyear participates in the Emission Trading Scheme, it is the key stakeholder in the pilot project for waste heat utilisation for district heating and cooling in the city, which has crucial impact on emission reduction.	**Medium** Investments cost/benefit effectiveness, sustainable standards and requirements from the financial institutions and customers and legislation (including the required Corporate Sustainable Reporting Directive), stimulate companies to make sustainable investments, adopt new business

			→ **Kontron, Iskra ISD and Iskraemeco** are technological global companies, important local employers, all committed to innovation, smart and sustainable community. → **Supernova Group** is the owner of the three largest shopping centres in Kranj, which are also areas of large heat islands in Kranj. In addition to its direct emission reduction activities related to energy efficiency and renewable energy, it plays an important role in the promotional activities to shopping centres' visitors, tenants, and suppliers. → **Wolt Slovenia** as growing global player in food delivery has expressed the interest to pilot new climate neutral delivery services in cooperation with the City. Although the City of Kranj has limited influence on investment decisions of the industrial/commercial sector related to climate neutrality, the scope of sustainable investments is increasing. **Their influence on the city climate neutrality is high** and therefore the City's role is to support their sustainable activities through spatial planning, municipal regulation and improvement of infrastructure and services under its responsibility (environment infrastructure, local road, cycling network...).	models and social innovations. Though companies balance and compare their climate neutral investments and activities with their impacts through financial cost-benefits and focus on their core business.
SOCIAL PROCESSES	**Vincenc Draksler Fundation** (Rehabilitation & re-use centres) **Association for rural development** Sorško Polje **Stonoga** (Local food self-sufficiency) **Želva** (Rehabilitation and employment of disabled) **Carnus** (Urban cultre and creativity) **Zveza tabornikov Kranj/ Kranj Scouts associaiton** **CTRP Kranj (**Centre for sustainable rural development)	NGOs and social enterprises	The civil sector and initiatives can play important role in engaging or disengaging the local community for climate neutrality. There are over 350 different NGOs registered in the City of Kranj, majority in sports, culture, firefighter brigades while some of them have uptaken new approaches and trends and transformed to social enterprises. Some of them are offering rehabilitation and participatory programmes for citizens and different vulnerable groups in re-use, urban creativity, local food supply chains, greening and regeneration projects play a vibrant part of the emerging city climate neutrality network. They can contribute in initiating new solutions in mobility, circular economy as well as in engaging the communities. **Influence on city climate neutrality by 2030**: **medium**	**Medium** NGOs climate neutral targets most likely match with their organisation's mission although they are not necessarily their first priority.

	KrArh (Association of local architects and urban planner)			
	Kranj Health Centre **Kranj Kindergarten** **Elderly home Kranj**	Social, health and sport sector providers	Due to offering essential public services to wider population, their influence is high: → Direct access to target groups, including disadvantaged; → High generators of daily traffic (GHG emissions); → Influential roles in community (e.g. doctors, sport coaches, nurses etc.); → Influence of climate change on their operation (e.g. emergency services). **Influence on city climate neutrality by 2030**: **high**	**Medium** Due to significant challenges and lack of resources in the provision of basic services the climate neutral targets are not their highest priority.
FUNDS national	**Slovenian Environmental Public Fund (Eco Fund)**	Funds	The main purpose of Eco Fund is to promote development in the field of environmental protection by offering financial incentives such as soft loans and grants for various environmental investment projects aiming GHG emission reduction. In year 2021 Eco Fund approved loans totalling 54,8 million € and grants totalling 73,5 million €. Subsidies are directed to various beneficiaries for investments in residential buildings, construction of nearly zero-energy buildings and for electric vehicles, legal entities for electric vehicles, energy audits and energy efficiency investments, and municipalities for environmentally friendly public passenger buses in degraded areas, for charging stations for electric cars in Natura 2000 and protected areas, and for the construction of nearly zero-energy buildings and energy renovation of buildings owned by municipalities. Eco fund is crucial as financial stakeholder. **Influence on city climate neutrality by 2030**: **high**	**High** Effects which simultaneously contribute to the fight against the environmental crisis and GHG emissions and benefit the economy point to a positive role of Eco Fund in the process of green growth and development in Slovenia.
	Climate Change Fund	Funds	The purpose of the Climate Fund is to finance measures to mitigate and adapt to the effects of climate change. Its incomes is generated by selling ETS allowances and is allocated for reduction of GHG emissions, mitigations and adaptations to the effects of climate change, demonstration projects, development of renewable energy sources, energy efficiency and clean technologies, measured to prevent deforestation, carbon, promotion of the transition to low-emission transport and public transport. For the years 2022 and 2023, allocation	**High** Effectively mitigate and adapt to climate change, maximise greenhouse gas emissions reductions to become climate neutral.

			of budget totalling 65 million was planned. Climate Change fund is crucial as financial stakeholder for innovative and soft interventions. **Influence on city climate neutrality by 2030**: **high**	
	SID Bank	Funds	SID Bank is a state owned bank promoting development and provide long-term financial services to promote sustainable development and improve the competitiveness of the Slovene economy. It has several programmes to complement commercial banks with financial instruments and loans in market gaps related to: → development and innovations, → environmental protection, energy efficiency and climate change, → regional development, → economic and public infrastructure. Financing market gaps which are not preferred by commercial banks is crucial to accelerate activities with long-term effect. **Influence on city climate neutrality by 2030**: **medium**	**Medium** Perform financial services to accelerate and promote sustainable and balanced economic and environmental development, higher competitiveness of economy, creating new jobs and sustainable development of Slovenia.

Table 9: Analysis of systemic barriers and opportunities

	Barriers	Opportunities
Infrastructure	**National, not local, responsibility for investments and regulations that determine Kranj key climate challenges** in energy (grid capacity) and transport (national road and railway, transit traffic, airport management, regulation, investments). *Possible solutions: inviting national partners to join SC, following and influencing changes of national plans and budgets, political pressure.* **Long-lasting preparation of major investments** (land use, land ownership, planning, permits.). *Possible solutions: on-time and professional project design and management.* National policies that determine investment priorities and allocation of funds are **rigid to change** and **require competition between cities** for national / EU funds. *Possible solutions: strengthening joint approach and better positioning of the Slovenian Mission cities within the government structures and policies.* **Large financial investments required** that can have an impact over a long period of time, lack of municipal as well as citizen financial sources. *Possible solutions: levering city budget by loans, PPP investments. Promotion of benefits for private climate investments in housing, mobility, businesses.* **Citizen's energy poverty and exclusion –** major share of citizens living in multi-residential buildings. *Possible solutions: setting up tailor made financial schemes for low-income citizens in collaboration with financial institutions, including technical support.*	**Active coordination of planned activities between the City of Kranj and the relevant national administration** (Ministry of Infrastructure, Ministry of Defence, Infrastructure Agency) to support and accelerate initiated national projects (second railway track, ResHub). *Possible approach: transfer of best collaboration practices to other sectors.* **Openness of the City of Kranj** for new business models, public-private collaboration, demonstration projects. *Possible approach: identification and direct promotion of actions, project and fields in business and financial community.* **Promotion of benefits for businesses** to investment in climate neutrality. *Possible approach: applied in general communication and participation model.* **Awareness raising and introduction of benefits for citizens** as investors, participators in cooperatives. *Possible approach: applied in general communication and participation model.* **New Law on Climate Change** in pipeline *Possible approach: exploit the moment of adoption for acceleration of certain City of Kranj measures.*
Capacities	**Limited HR capacities:** Key senior staff of City of Kranj Administration working on several tasks and could not be fully dedicated to CCC. *Possible solutions: improve organisational capacities and enhance operational efficiency to support CCC activities - governance interventions.* **Lack of state of art knowledge and skills** related to climate neutral transition activities, change management and stakeholder facilitation. *Possible solutions: relevant measures to be taken as part of the CCC governance interventions.*	**Professional and competent municipal public service providers** and knowledge partners and stakeholders. *Possible approach: involve them in the Transition Team.* **Involve universities** and institutes and develop new climate related education programmes *Possible approach: involve them in SCCNSC and individual actions* **Exchange of expertise,** good practices, knowledge and lessons learnt with other cities in the EU Cities Mission.

	Barriers	Opportunities
	Excessive bureaucratisation. *Possible solutions: use of Smart Kranj digital solutions wherever possible.* **Long lasting procedures** to update and adjust spatial plan. *Possible solutions: exploit the current Kranj spatial plan revision procedure to introduce climate neutrality principles and measures.* **Responsibilities shared among several stakeholders** to achieve set goals through established partnerships and their management. *Possible solutions: clear roles and priorities of certain actions to be agreed on individual basis.*	**Enhance operational performance** and efficient **coordination** of city services *Possible approach: integration of CCC actions and decarbonisation principles in regular City operation.* **Capacities of Kranj smart city platform** potentials for increased digitalisation of services and use of real-time data *Possible solutions: CCC monitoring and citizens engagement (one stop shop) tools to be digitalised as a priority.* **Competent and empowered transition team,** partner network and project/action management teams *Possible solutions: exploit the leadership capacities for motivation of key people for driving the change.*
Processes	**Political changes,** controversy or rejection of implementing measures by city council *Possible solutions: continuous dialog and reporting to with the City Council.* Citizens can create **uncertain policy-making environments.** *Possible solutions: accelerate citizens participation activities and improved and timely public consultation of individual actions/projects/solutions.* **National regulation in certain areas prevents effective introduction of certain measures** (e.g. employment legislation guarantees compensation of travel to work costs). *Possible solutions: introduce pilot solutions with stakeholders open to experiment, supporting initiative for legislation changes.*	**Develop advanced communication and collaboration capabilities** in a multi-stakeholder setting. *Possible solutions: relevant measures taken as part of the CCC social innovation and governance interventions.* **Deep and ongoing citizen engagement** to ensure continued citizens acceptance of climate actions. Broaden participation of local society in decision making processes. *Possible solutions: relevant measures taken as part of the CCC social innovation and governance interventions.*

	Barriers	Opportunities
Alliances	**Complexity of stakeholder's environment** to establish trust and common understanding required for firm long-term partnership and collaboration required for the CCC. *Possible solutions: Strategic Council set up as a platform for co-ordination.* **Facilitation of permanent dialogue** between local initiatives, administrative and government bodies and non-state, private actors at all levels. *Possible solutions: gradual building of city-wide partnership ecosystem for climate neutral and smart city.*	**Citizens, investors, and governments better understanding how climate neutral** activities substantially contribute and what criteria they have to meet to be considered as sustainable investments. *Possible solutions: one stop shop with an awareness rising programme envisaged to support individual sector interventions.* **Customised access** to the best available research, expertise, tools, technologies, and best practices. *Possible solutions: further project-based cooperation with institutes and universities.*
Funds	**Limited financial city budget capacities** for the development as 80% of the budget is predefined with operational costs of city services. *Possible solutions: gradual building of city-wide partnership ecosystem for climate neutral and smart city.* **Lack of financial instruments** and earmarking funds for planned measures and activities. *Possible solutions: joint and direct dialog of Slovenian EU Cities Mission cities with financial institutions to develop tailor made products and/or mechanisms.* **Reallocation of national** funds for investments in other less developed regions in Slovenia and regions affected by recent floods in august 2023. *Possible solutions: better positioning of the Slovenian Mission cities within the government structures and policies.* **Increase costs and risks** for long-term capital projects. *Possible solutions: decide on prior cost-benefit analyses prior investments considering future costs savings, introduce more strategic budget capital planning. Regular assessments and reporting to mitigate risks and uncertainties of the projects.* **Rigidness of legislation jeopardises innovation and flexibility in the City's operation**. City is limited and slow in response to investors initiatives and entry into new collaborative business models with private sector. *Possible solutions: develop new models supporting climate neutral investments, in particular in addressing larger private redevelopment and regeneration sites.*	**Attract equity investments and loans** from European sustainable investment funds and EU grant financing. *Possible solutions: select and prepare bankable projects.* **Engagement of private local and international capital**. **Possible solutions:** *prepare a portfolio of projects and fields for private investments. Clear understanding of funding roles and results expectations of private and public sources. Work on demonstration projects.*

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 (co-benefits) according to and adapted from the NetZeroCities Theory of Change and the CCC Action Plan Guidance – clustered by fields of action.

Table 10: B-1.1: Impact Pathways

B-1.1: Impact Pathways					
Fields of action	Systemic levers	**Early changes (1-2 years)** Up to 2025	**Late outcomes (3-4 years)** 2026-2030	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
Energy systems	Technology & infrastructure	**30%** of **district heating and cooling** running primarily on RES (biomass, CHP) and waste heat	**90%** of **district heating and cooling** running primarily on RES (biomass, CHP) and waste heat	Reduce CO_2eq emissions by 24.192 t	Urban heat island (UHI) effect reduced
					Increased energy self - sufficiency and security
		Increased green energy - **solar electricity - production (20.000 MWh)**	Increased green energy - **solar electricity - production** (**55.000 MWh)**	Reduce CO_2eq emissions by 19.815 t	Increased energy self - sufficiency and security
					Cost savings (potentially revenue generation)
		Increased green energy - **hydro electricity - production** for **0,35 MWh**	Increased green energy - **hydro electricity - production** for **0,35 MWh**		Increased energy self - sufficiency and security
		90% public lighting network is energy efficient & remotely managed	**100% public lighting network** is energy efficient & remotely managed	Reduce CO_2 emissions by 286 t	Cost savings
	Social Innovation		**1 energy co-operative** in place	Reduce CO_2 emissions by 1.969 t	Citizen & community participation
Mobility & transport	Democracy & participation	**"One car by household"** programme designed and tested	**"One car by household"** programme in place (- 8.000 cars)	Reduce CO_2 emissions by 16.342 t	Improved air quality
	Governance & policy				Increased quality of life
	Social Innovation				Reduced transport costs for citizens
	Governance & policy	**Reduced motorized daily commuting** in Kranj functional area by integration of of new mobility forms into smart multi-modal transport system	**30% reduced motorized daily commuting** in Kranj functional area by implementation of smart multi-modal transport system, new passanger multimodal terminal	Reduce CO_2 emissions by 4.797 t	Reduced congestions
	Technology & infrastructure				Road safety
					Reduced noise pollution

B-1.1: Impact Pathways					
Fields of action	Systemic levers	**Early changes (1-2 years)** Up to 2025	**Late outcomes (3-4 years)** 2026-2030	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
	Technology & infrastructure	**Expanded and redeveloped infrastructure friendly to cyclists and walkers in the urban area** (70 km of cycling network, car-free and shared spaced piloted, one-way streets...)	**Expanded and redeveloped infrastructure friendly to cyclists and walkers in the urban area** (92 km of cycling network, car free and shared spaced piloted, one-way streets...)	Reduce CO_2 emissions by 451 t	Improved air quality
	Technology & infrastructure	**Expansion of EV public charging stations**	**Deployment of large-scale technologies in high-speed** EV and hydrogen powered charging hubs and network for citizens and business shift to EV/HFCV leading to 20% of EV on the main city roads	Reduce CO_2 emissions by 11.612 t	Reduced noise pollution
		EV and hydrogen powdered vehicles in municipal public transport, social services and utility fleet (60% of EV)	**EV and hydrogen powdered vehicles in municipal public transport, social services and utility fleet** (100% of EV)		Improved air quality
	Technology & infrastructure	/	**Reduced transit traffic to Škofja Loka** (- 6.854 vehicles per day one way)	Reduce CO_2 emissions by 2.699 t	Improved air quality
Waste & circular economy	Learnings & capabilities	**Accelerated Zero-waste programme** for increased awareness and capacities of circular economy principles, practices and benefits among key implementers and citizens is leading to **5% reduction of waste per capita** and **78% recycled waste**	**Increased capacities of circular economy** principles, practices and benefits among implementers and citizens is leading to **12% reduction of waste per capita** and **80% recycled or re-used waste** (material efficiency)	Reduce CO_2 emissions by 14.899 t	Waste management efficiency – reduced waste quantities, increased rate of recycling
	Democracy & participation				
	Technology & infrastructure	**Digitalization of waste management** – truck tracker and route optimisation	**Optimised transport of waste collection and distribution** by smart solutions and new location of transfer station – reduced transport distance		Local deployment of material cycles
		New technologies for energy and resource efficiency water supply system implemented – reduction to max 25% leakages	**New technologies for energy and resource efficiency in water supply system implemented** – reduction to max 15% leakages		Water savings – reduced leakages
					Cost savings
	Learnings & capabilities	**Centre for Circular Economy Zarta** – re-cycle, re-use and circular solution demonstration one stop shop in place	**Centre for Circular Economy Zarta** – re-cycle, re-use and circular solution demonstration one stop shop in operation		New green jobs generation

B-1.1: Impact Pathways					
Fields of action	Systemic levers	**Early changes (1-2 years)** Up to 2025	**Late outcomes (3-4 years)** 2026-2030	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
	Social innovation	**Initiation and support provided to circular economy** private -public partnership solutions in industries, SMEs, pubic services, farming and their value chains	**Innovative local based circular economy solutions**, actions, symbiosis and initiatives jointly developed by industry, farmers, the City, NGOs and citizens implemented		Local deployment of material cycle
Green infrastruc-ture and nature-based solutions	Governance & Policy	**Protected and better managed urban green** infrastructure in the surface of 4 km^2	**Protected and better managed urban green infrastructure** in the surface of 12 km^2	Sequestration of 7.628 t of CO_2	Land use management practices
					Urban heat island (UHI) effect reduced
	Learning & capabilities	**Upskilling & standards for green and climate neutral urban planning and construction**	**Green Spatial Plan** enforcing climate neutral measures adopted and implemented		Increased quality of life
					Liveability and attractiveness and aesthetics of the built environment
	Technology & infrastructure	**Additional and improved green areas and green roofs** installed in the urban areas total surface of approx. 10.000 m2	**Additional and improved green areas and green roofs** installed in the urban area total surface of approx. 50.000 m2		Biodiversity preservation
	Democracy & participation	**Urban agriculture programme**	**Community based urban agriculture projects**	Reduce CO_2 emissions by 672 t	Sustainable local food production
	Social innovation				Improved citizen health
	Technology & infrastructure		**Farmers introducing local plant and low-emission livestock practices and production**		Cost savings
Built enviro-nment	Technology & infrastructure	**Energy-efficiency renovation of major public** buildings completed (40 or all municipal and 1 state building)	**Energy-efficiency renovation of major public** buildings completed (40 or all municipal and 6 state buildings)	Reduce CO_2 emissions by 2.685 t	Costs savings
		85% of multi-unit residential buildings undergone energy efficiency rehabilitation (50 of remaining 140)	**90%** of multi-unit residential buildings undergone energy efficiency rehabilitation (70 of remaining 140)	Reduce CO_2 emissions by 5.092 t	Increased social cohesion, gender, equality and equity
		900 individual houses undergone energy efficiency rehabilitation and change of fuel source	**2.500** (900+1600) individual houses undergone energy efficiency rehabilitation and change of fuel source		Increased quality of life
		30.000 m2 of brownfields regenerated including energy-efficiency renovation	**150.000 m2** of brownfields regenerated including energy-efficiency renovation	Reduce CO_2 emissions by 203 t	Liveability and attractiveness and aesthetics
					Land use management practices

B-1.2: Description of impact pathways

Following the results of the emissions inventory, in-depth stakeholder analysis, current national, regional and local strategies, current best practices and successful measures, climate neutrality goals and priorities defined in the Climate Neutrality Commitments and results from the citizens survey, an impact pathway addressing the identified emission gap was elaborated in close consultation with the Strategic Council, focus groups, experts from research institutes and public utility services. The strategy taken to address the emission gap of 113.263 t CO_2eq is:

- primarily focusing on the sectors with the highest emission gap (transport, buildings),
- secondarily focusing on the actions with greatest impact on GHG reduction (renewable energy production, sustainable mobility) and
- thirdly focusing on actions under direct or indirect influence of the City of Kranj (energy systems, transport and mobility, waste & circular economy). Nevertheless, the pathway addresses also other areas with lower impact on GHG emissions reduction but of greater benefit for awareness rising and well-being of citizens life (green infrastructure, urban agriculture.). The portfolio includes also upgrade of electric grid which has no direct GHG impact but it is a pre-condition for achieving the solar energy and green mobility targets.

The logical intervention pathway is presented in the overview diagram below (Figure 14 and 15) and defines actions, their early changes (2025) and late outcomes (strategic objectives) as well as direct and indirect impacts (co-benefits) by each field of action. Following the set targets (outcomes) the direct impact of all actions on CO_2eq is estimated, being a reduction or sequestration.

The connection between the proposed Action Portfolio and the source of emission from table A2.1 is given in Figure 16. The figure explains how the identified emission gap is addressed by concrete fields of actions. As evident, the proposed interventions directly reduce GHG emissions in all sectors, except IPPU. The Energy field (*not counting under any of the emission sectors of the emission inventory*) contributes to almost 41% of the total emission gap. In fact, due to the character of the interventions, energy actions help addressing emissions in several sectors: building sector (e.g. new energy source of district heating, RES electricity generation etc) as well as indirectly in the IPPU sector (e.g. use of industrial waste heat). From this and other reasons mentioned further on in the Action portfolio, built environment accounts only 7% to the reduction of the total GHG emission gap. On the other hand, transport generates nearly 40% of the emission gap whereas the proposed actions contribute to 32% of the emission gap reduction which corresponds the scope of City responsibility in the transport policy. The Action Portfolio fully addresses the emissions in waste sector while the city's contribution in the AFOLU is limited to the interventions in green infrastructure and urban agriculture programme.

In addition, Figure 17 clearly shows the importance of 6 actions that contribute to 80% of the emission gap reduction and shall be kept in the focus of the City and CCC stakeholders: solar electricity production (1.3), one car by household (2.1), phase out fossil fuels in the district heating (1.1.), centre for circular economy (3.3), electric and hydrogen charging infrastructure (2.5) and utilisation of waste heat from industrial and commercial facilities (1.2).

The portfolio of actions considers all six levers while its scale depends on the type of action, local needs, existing interventions and the capacities of the City of Kranj governance structures and its stakeholders as follows:

- → TECHNOLOGY/ INFRASTRUCTURE: Majority of actions require hard investment being purely technological (e.g., PV), purely infrastructural (e.g. cycling network) or combined (e.g. district heating). State of the art technologies (e.g., hydrogen) are pursued while infrastructure supporting the green transition shall respect DNSH principle. Digital solutions supporting technology or infrastructure actions and their integration into the Smart Kranj Platform are strongly encouraged as a cross-cutting governance and social innovation intervention. Whenever possible and reasonable, citizen participation, social innovation, other levers are combined with this lever.

- → GOVERNANCE LEVERS: While climate neutral performance of all city structures is considered a horizontal lever, the introduction of new specific governance models is a prerequisite for success of several actions, in particular in the field of mobility (e.g., setting up governance structures supporting the “one car by household” programme) and green infrastructure (e.g. implementing green spatial plan in the City administration).

- → POLICY AND REGULATION LEVERS: Achieving climate neutrality goals requires an increase in the current regulatory standards and regulations defined by the city regulatory framework, particularly in the field of mobility (e.g. reduced transit traffic, waste management).

- → SOCIAL INNOVATION AND ECOSYSTEM INTEGRATION: Whenever possible, the Action Plan builds on existing local initiatives, non-government or expert partners to add value to the identified actions. Depending on the local institutional capacities at individual fields, actions foster participative solutions such as energy co-operatives and pilot irrigation system for vegetable production or provide opportunities to stimulate social innovation though new schemes like Kranj Circular City, Urban agriculture programme or One car by household.

- → DEMOCRACY AND PARTICIPATION: Without an open approach and vast citizens engagement, the climate neutrality by 2030 is not possible. The lever is thus considered a principle and embedded through the climate neutrality process. However, there are some actions which fully depend on citizen engagement and involvement (one car by households, zero waste, energy-efficiency of residential buildings) and require distinct approach and care.

- → LEARNING & CAPABILITIES: The lack of particular skills is addressed at two levels: general citizen level through some individual actions (e.g. Centre for circular economy Zarta educating on consumption changes, One stop shop rising general awareness and practical tips) and horizontal level providing learning opportunities for technical and management staff of the city structures.

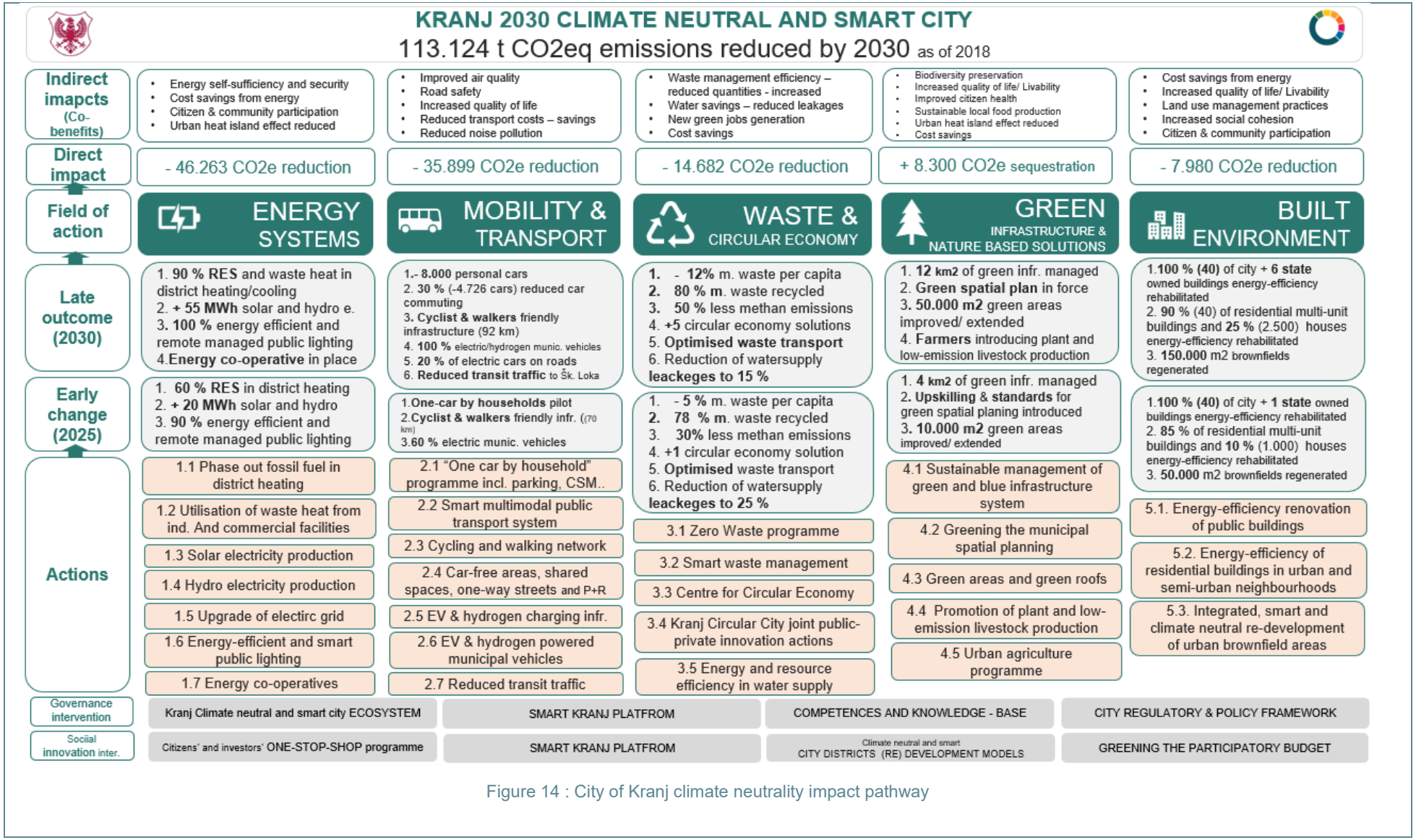


Figure 14 : City of Kranj climate neutrality impact pathway

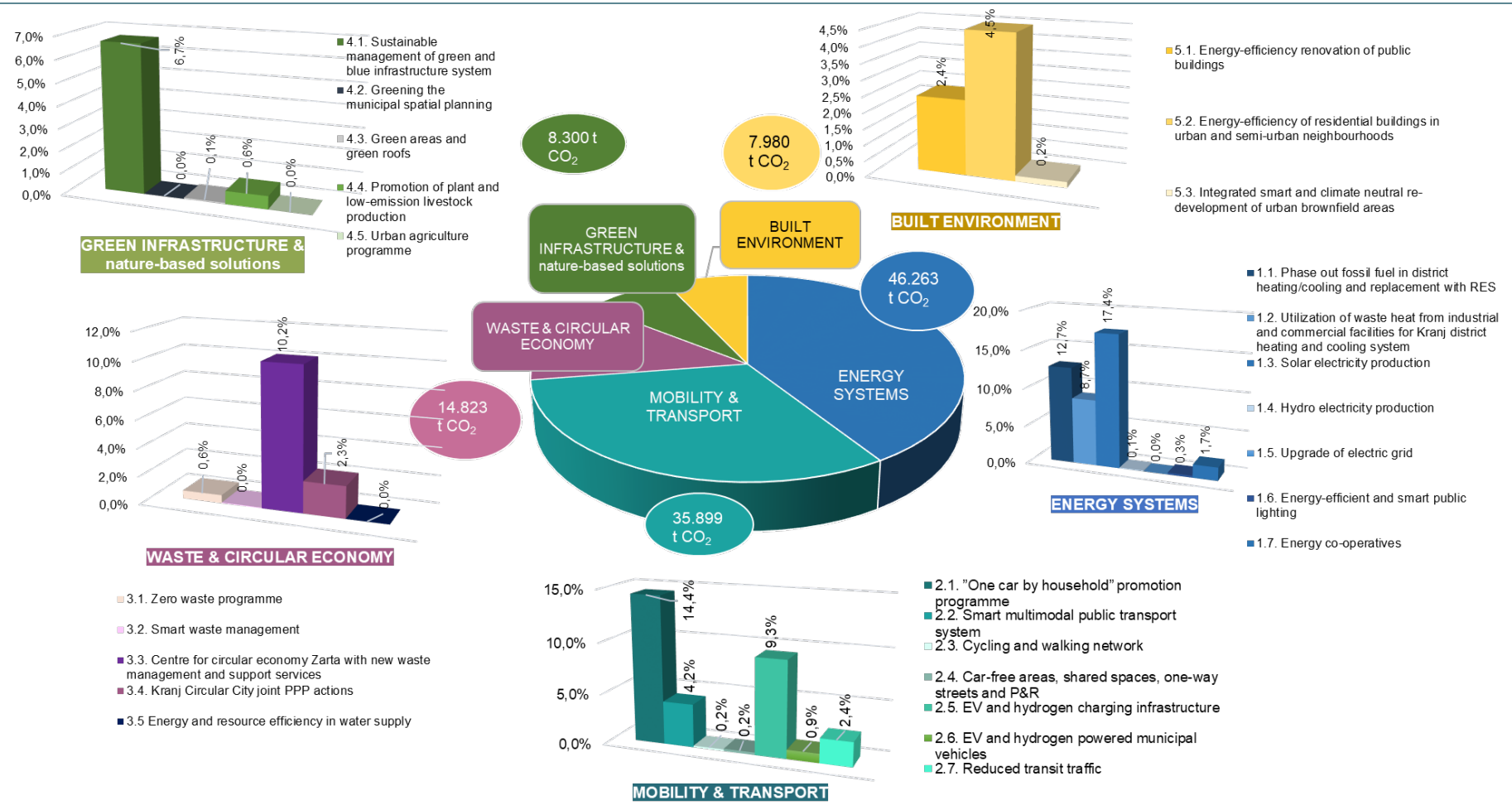


Figure 15: Structure of City of Kranj Climate neutrality actions – tCO_2eq

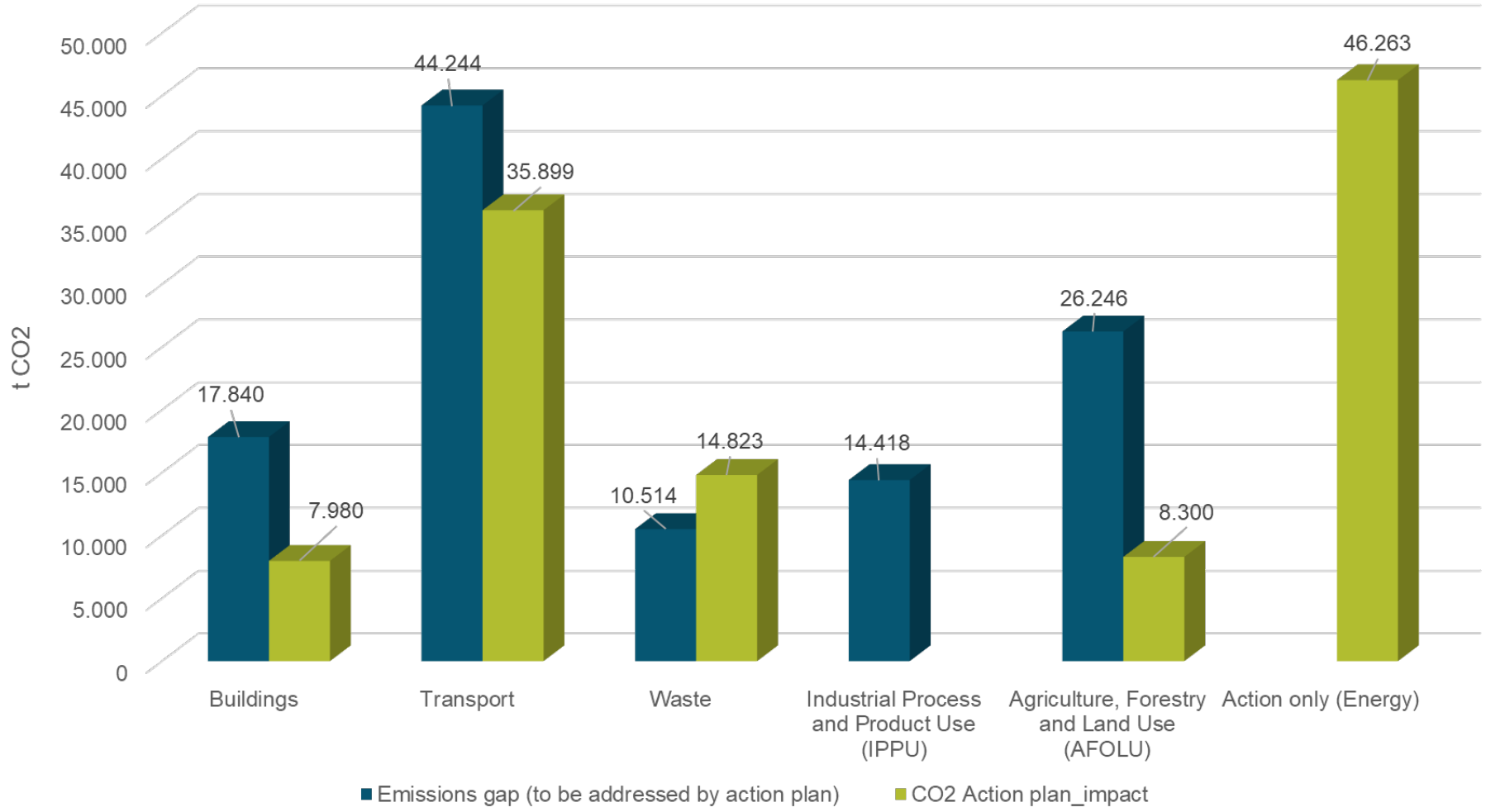


Figure 16: Emission gap and Emission reduction through the CCC Action Plan to address the Gap

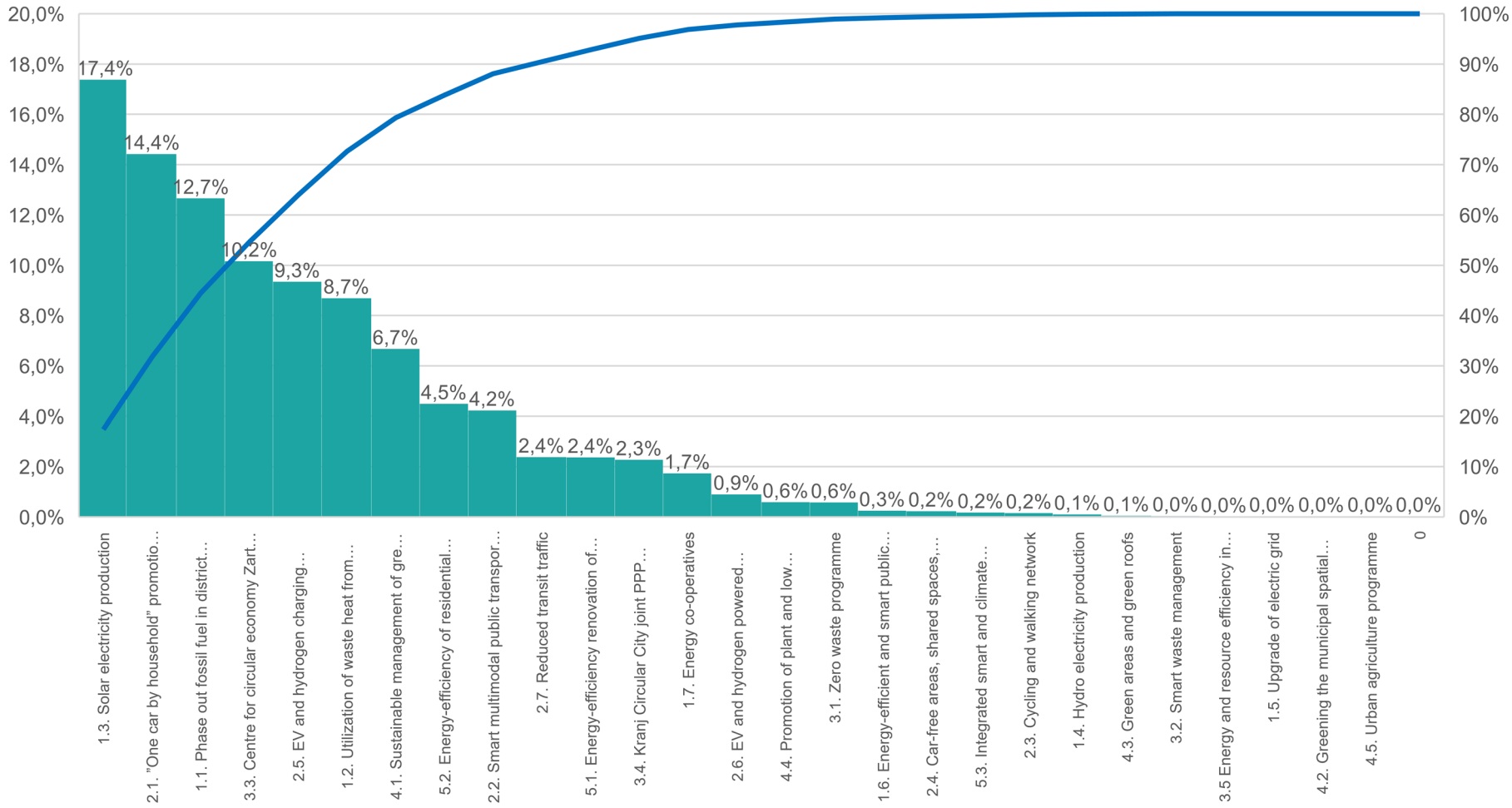


Figure 17: Activities by t CO_2 neutrality impact

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. This includes interventions targeted at creating/enhancing carbon sinks to address residual emissions.

Table 11: B-2.1: Description of action portfolios

B-2.1: Description of action portfolios - textual or visual		
Fields of action	Portfolio description	
	List of actions	Descriptions
Energy systems	1.1. Phase out fossil fuel in district heating/cooling and replacement with RES 1.2. Utilization of waste heat from industrial and commercial facilities for Kranj district heating and cooling system 1.3. Solar electricity production 1.4. Hydro electricity production 1.5. Upgrade of electric grid 1.6. Energy-efficient and smart public lighting 1.7. Energy co-operatives	The actions in district heating systems and green energy production are essential for the City of Kranj as they represent 41% of its decarbonisation targets. Replacement of fossil fuels with RES systems including potential usage of waste heat from industry in the city district heating and yet non-existing cooling system, are major technological interventions, all requiring innovative approaches and sound business model agreed between the City of Kranj, public district heating service provider, citizens and the private business partners. Actions in photovoltaic (PV) at municipal, commercial and individual buildings, hydro energy as well as public lighting represent significant upscale and technological modernisation to increase green energy production and efficiency (e.g. smart solutions, batteries). Piloting of a social innovation measure – energy co-operatives – will assure equal opportunities for people living in multi-unit residential areas in access to green energy. Further investments in solarisation and innovative energy solutions are conditioned by investment in grid capacity.
Mobility & transport	2.1. "One car by household" promotion programme 2.2. Smart multimodal public transport system 2.3. Cycling and walking network 2.4. Car-free areas, shared space, one-way streets and P&R 2.5. EV and hydrogen charging infrastructure 2.6. EV and hydrogen powered municipal vehicles 2.7 Reduced transit traffic	Being located on the X. trans-European corridor (TEN-T) and in the gravitation area of the national airport and capital city Ljubljana, the City's influence on the emissions from transport is very limited. Thus, the actions focus primarily on fostering the citizens mobility modal shift – decreasing the volume of carbon intensive daily motorized commuting and short distance traffic to more sustainable modes of travel. Ambitious actions combining physical investments in modern multimodal passenger hub, cycling and PV/hydrogen charging infrastructure supported by Smart Kranj digital solutions, diversity of new mobility services, improved city traffic management and awareness programme shall motivate citizens, commuters and visitors changing their traditional patterns when traveling to, within and out of Kranj.

		The combined mobility and transport measures shall contribute to 32% of Kranj's decarbonisation targets.
Waste & circular economy	3.1. Zero waste programme 3.2. Smart waste management 3.3. Centre for circular economy Zarta with new waste management and support services 3.4. Kranj Circular City joint public-private innovation actions 3.5 Energy and resource efficiency in water supply	As major technological interventions in waste and wastewater management (including CHP facilities) have been completed before 2018, the remaining emissions deriving from waste are manageable. Existing approaches reducing the scope and recycling efficiency of the communal waste, controlled closing of the landfill (methane) and investments in water supply efficiency will continue the realization of Zero waste strategy. Hence, the decarbonisation attention is centred to tangible circular economy solutions that will be developed by the city public utility company and pilot public-private innovative projects while offered to citizens, local SMEs, farmers. In this respect the action demonstrates 13% contribution to city's decarbonisation goals.
Green infrastructure & nature-based solutions	4.1. Sustainable management of green and blue infrastructure system 4.2. Greening municipal spatial planning 4.3. Green areas and green roofs 4.4. Promotion of plant and low emission livestock production 4.5. Urban agriculture programme	Even though the city of Kranj is surrounded by forests and agricultural areas, the latter are a source of emissions due to ice and windstorms in the past decade (from 2014) and consequent bark beetle attacks. Forests and agriculture land are constantly under urbanization pressures. The City, in cooperation with the regional offices of forestry, agriculture and nature protection services and landowners, will designate significant area of forests as special urban forests, improve their management and accelerate maintenance and expansion of other green infrastructure. All possible green spatial planning mechanisms and urban agriculture programme promoting plant and low emission livestock production will be tested to turn the emissions trends. 7% sequestration contribution to the city decarbonization targets is estimated.
Built environment	5.1. Energy-efficiency renovation of public buildings 5.2. Energy-efficiency of residential buildings in urban and suburban neighbourhoods 5.3. Integrated smart and climate neutral re-development of urban brownfield areas	Due to long-lasting national funding scheme, the energy efficiency of most multi-unit residential buildings and many municipal buildings were energy retrofitted before 2018. As a result, the proposed actions target the remaining public and private buildings emphasising integrated renovation as well as replacement of fossil fuel to RES, where possible, connection to the RES district heating. Special attention will be given to poorly insulated and fossil fuel depending individual

		houses, owned by vulnerable groups, both in urban and suburban residential areas. In order to protect the urbanisation of agricultural land and forest, the City will support and participate in integrated regeneration project by investors with the aim to become climate neutral and smart zones. In this way, the results of implemented Smart Mlaka pilot project district will be implemented and upscaled in other neighbourhoods, new mixed zones and business parks. These actions will make a direct contribution of 7% to the city overall decarbonisation target.

Table 12: B-2.2: Individual action outlines

Energy systems

B-2.2: Individual action outlines		
Action outline	Action name	**1.1 Phase out fossil fuel in district heating/cooling and replacement with RES**
	Action type	Hard intervention (infrastructure)
	Action description	Today's Kranj district heating energy sources are: - 45% gas and - 55% heat from cogeneration (CHP) unit. This action refers to a cluster of projects aiming at increasing the DH efficiency and decreasing the dependency on gas and heating oil by introducing a combination of RES energy sources (biomass, heat pumps, solar thermal system, cogeneration engines; in the future combined also by hydrogen) in three existing and several new district heating plants and their respective network. Investments in existing district heating systems (all 90% RES): - **(1) Zlato polje** (Education district with faculty, dormitory, two upper secondary schools, sports hall) with annual heat production av. 2.000 MWh. - **(2) Vodovodni stolp** residential district with annual heat production av. 4.000 MWh. - **(3) Planina** residential district with annual heat production av. 40.000 MWh. New district heating and cooling (DHC) systems - **(4) new DHC** (district heating and cooling**) Zlato polje** of installed power of 2 MW, expected annual heat production 3.000 MWh and with corresponding network connecting partly existing and partly newly planned development replacing gas (90% RES).

		- **(5) new DH systems in residential sub-urban and rural neighbourhoods** with total heat production of 16.000 MWh (100% RES).
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	90% of district heating/cooling system running primarily on RES by 2030
Implementation	Responsible bodies/person for implementation	City of Kranj Public Heating Service Operator
	Action scale & addressed entities	Priority given to high density populated districts and districts with anticipated new residential and business area developments
	Involved stakeholders	Local district communities (KS) Large energy consumers in the areas (Elderly home, health, education and commercial centres) Heating boards of apartment owners
	Comments on implementation – consider mentioning resources, timelines, milestones	Implementation in the largest neighbourhood Planina is a complex intervention with numerous owners of the district heating system involved and affected. Intensive management and citizen's collaboration are needed.
Impact & cost	Generated renewable energy (if applicable)	60.100 MWh/year
	Removed/substituted energy, volume, or fuel type	Natural gas: - 49.000 MWh/year Diesel/heating oil/: - 16.000 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	14.342 tonnes CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 21.827.000 € 1.522 /t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.2 Utilization of waste heat from industry and commercial facilities for Kranj district heating and cooling system**
	Action type	Hard intervention (infrastructure)
	Action description	The major industrial area in Kranj (Labore) annually generates significant residual heat from rubber technological processes although the enterprises continuously invest in new technologies and energy measures. Further potential of waste heat is also observed at other commercial areas. The studies made so far anticipate that utilization of waste heat from these sources for the purpose of Kranj district heating and cooling is feasible. Thus, the action envisages implementation of: - 1 plant with annual production of av. 40.000 MWh and - corresponding transporting network.

Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	90% of district heating/cooling system running primarily on RES
Implementation	Responsible bodies/person for implementation	Public heating service operator or other selected concessioners Enterprises providing residual heat
	Action scale & addressed entities	High density populated districts and districts with anticipated new developments.
	Involved stakeholders	City of Kranj Other enterprises in the industrial park Landowners Major developers of new residential areas
	Comments on implementation – consider mentioning resources, timelines, milestones	A new business model assuring a long-term stability of the supply of waste heat on one hand and enterprise competitiveness on the other needs to be agreed between the district heating operator and the heat provider.
Impact & cost	Generated renewable energy (if applicable)	40.000 MWh/year
	Removed/substituted energy, volume, or fuel type	Diesel/ heating oil: - 15.000 MWh/year Natural gas: - 25.000 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	9.850 tonnes CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 6.000.000 € 609 /t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.3 Solar electricity production**
	Action type	Hard intervention (infrastructure)
	Action description	With more than 1.900 sunshine hours per year in the area of Kranj, generation and storage of solar energy is of high priority for the City on its path towards climate neutrality. Thus, the action includes investments by different stakeholders and individuals in photovoltaic (PV) and its storage in the total av. 50 MW of installed power: - **(1) City of Kranj:** installation of 20 PV and respective battery storage, 15.000 m2, estimated total capacity 3.300 kW (PPP). - **(2) Komunala Kranj (Public Utility Company):** installation of PV and respective battery storage in Tenetiše, Zarica and magazine facility in the total capacity of 3.423 kW. - **(3) Larger solar parks and smaller self-sufficient PV installations of individual and private investors:** installation of PV and respective battery storage system in total capacity 43.277 MW with 335.000 m2 surface of brownfield premises /roof space at

		RTP Labore, RTP Primskovo and RTP Zlato Polje further to the study.[3]
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Increased electricity production from RES - PV, + 55.000 MWh.
Implementation	Responsible bodies/person for implementation	City of Kranj Komunala Kranj (public utility company) Private investors
	Action scale & addressed entities	Phased approach.
	Involved stakeholders	Private investment partner (PPP)
	Comments on implementation – consider mentioning resources, timelines, milestones	Full implementation is subject to development of grid system as envisaged in the above-mentioned study and the distributor's plans.
Impact & cost	Generated renewable energy (if applicable)	Solar energy generated: 55.000 MWh/year
	Removed/substituted energy, volume, or fuel type	Electrical energy: 55.000 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	19.690 tonnes CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 53.073.000 € 2.695 /t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.4 Hydro electricity production**
	Action type	Hard intervention (infrastructure)
	Action description	There are 5 hydroelectric power plants in the territory of Kranj city: one large HE Mavčiče on Sava River (installed power 1.700 kW, active power 90 kW, average annual production 340 MWh) and several smaller on Sava and Kokra River. Minor upgrades and renovations for higher efficiency are foreseen at existing small hydro power plants with a total estimated production increase of 0,4 MWh per year. - **(1) Renovation HE Sava** - **(2) Renovation HE Standard KR** - **(3) Renovation of HE Kokra**
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Increased electricity production from RES – hydro: + 0,35 MWh
Implementation	Responsible bodies/person for implementation	Private investor (Gorenjske elektrarne d.o.o.)
	Action scale & addressed entities	NA
	Involved stakeholders	/

[3] Opportunity assessment for installation of larger PV in the RTP 110 kv/SN electric distribution system of Slovenia/ slo. Pregled možnosti vključitve večjih sončnih elektrarn na distribucijski sistem električne energije v Sloveniji v RTP 110 kv/SN, avgust 2022)

	Comments on implementation – consider mentioning resources, timelines, milestones	/
Impact & cost	Generated renewable energy (if applicable)	Hydro energy produced: + 0,4 MWh/ year
	Removed/substituted energy, volume, or fuel type	Electrical energy: - 0,4 MWh/ year
	GHG emissions reduction estimate (total) per emission source sector	125 tonnes CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 1.000.000 - total cost € 7.981/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.5 Upgrade of electricity grid**
	Action type	Hard intervention (infrastructure)
	Action description	Existing electric grid network in the territory of the City of Kranj and its broader Gorenjska region does not allow accelerated transition and represents a major barrier towards achieving the set decarbonisation goals. Thus, the action, further to the Development plan of the distribution system of electrical energy in the Republic of Slovenia from 2023 to 2032 (SODO d.o.o, November 2022, pg. 232) involves renovations and replacement of transformers and primary/ secondary equipment in RTP Zlato Polje, RTP Primskovo and RTP Labore: - Reconstruction of DV 2x110 kv RTP Primskovo – RTP Labore (5,1 km). - Reconstruction of DV 2x110 kv RTP Zlato polje – RTP Primskovo (56 km). - Reconstruction 110/20 kv Zlato Polje. - Reconstruction RTP Primskovo 110/20 kv - Reconstruction RTP 110/20 KV Labore. - Other primary and secondary investments, equipment, construction works.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Increased electricity production from RES.
Implementation	Responsible bodies/person for implementation	Electricity System Distribution Operator
	Action scale & addressed entities	Urgent implementation required.
	Involved stakeholders	Republic of Slovenia, Ministry of the Environment, Climate and Energy City of Kranj Gorenjska Regional Council of Mayors
	Comments on implementation – consider	Precondition for full implementation of actions 1.3, 1.7, 2.5 and 2.6.

	mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	NA
	GHG emissions reduction estimate (total) per emission source sector	0 Indirect impact on CO_2 emissions
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 40.000.000,00 EUR € 0/t CO_2 (Indirect impact)

B-2.2: Individual action outlines		
Action outline	Action name	**1.6 Energy-efficient and smart public lighting**
	Action type	Hard intervention (infrastructure)
	Action description	The City of Kranj public lighting involves lighting of roads, public areas, selected buildings, decorations and traffic lights. 70% of roads (229,4 km of 327,6 km) has public lighting. In 2018 there were 6.806 lights with 617 kW installed power and annual 2.468 MWh/year electricity consumption. 4.857 or 71,4% of lamps were in line with the Regulation on the Limited Values of Light Pollutions. 248 or 3,6% of all lamps were in LED technology. In 2022 there were 6.994 lights with 501 kW installed power and annual 2.004 MWh/year electricity consumption. 6874 or 90,1% of lamps is in line with the Regulation on the Limited Values of Light Pollutions of the environment while the remaining fall under specific conservation measures or other circumstances (e.g. underpasses, sport area reflectors). 2.236 or 23,9% of all lamps is in LED technology. In 2021 the first pilot smart public lighting with sensorics was introduced in Mlaka neighbourhood. In 2023 70% of the whole system is already remotely managed and the lighting reduced in the night-time. Energy consumption is regularly monitored and optimized. By this action the City intends to further increase the efficiency of the lighting system: - **(1) Assure appropriate technologies, solutions and funding** for lighting in historic centre and in special areas (underpasses, sports areas).

		- **(2) Extend smart public lighting** including smart bulbs, sensors, dimmers to at least 1 more applicable neighbourhood. - **(3)** Introduction of **smart traffic lighting** and **signalization** (pilot). - **(4)** Introduction of **smart lighting in schools** and similar public facilities. - **(5)** New construction and regular maintenance increased use of LED lamps and extend remote management.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	100% efficient, compliant and remotely managed public lighting
Implementation	Responsible bodies/person for implementation	City Municipality Kranj
	Action scale & addressed entities	NA
	Involved stakeholders	Concessioner District local communities (KS)
	Comments on implementation – consider mentioning resources, timelines, milestones	/
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Electrical energy: 800 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	286 tonnes CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 2.500.000 € 8.729 /t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.8. Energy co-operatives**
	Action type	Soft intervention (business model) Hard intervention (pilot project implementation)
	Action description	More than 50% of Kranj residents live in residential multi-flat buildings which does not enable them equal participation in renewable energy projects. Thus, the action aims at setting up co-operatives or similar democratic type of citizen initiatives, provide support in access to public or private unused premises and land and facilitate cooperation within the pilot investments. At least 1 energy co-operative with an investment in RES plant in the capacity of 5 MW is anticipated by 2030.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Social Innovation
	Outcome (according to module B-1.1)	Increased electricity production from RES – PV + 5.500 MWh

Implementation	Responsible bodies/person for implementation	LEAG Local Energy Agency of Gorenjska
	Action scale & addressed entities	NA
	Involved stakeholders	BSC Kranj – RDA Gorenjska City of Kranj NGOs
	Comments on implementation – consider mentioning resources, timelines, milestones	Due to limited available roof or other space in ownership of the City other spaces are to be negotiated a.s.a.p with potential partners (RS, commercial areas).
Impact & cost	Generated renewable energy (if applicable)	New installed power: + 5 MW Energy produced: 5.500 MWh
	Removed/substituted energy, volume, or fuel type	Electrical energy: - 5.500 MWh
	GHG emissions reduction estimate (total) per emission source sector	1.969 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 5.000.000 - total cost € 2.539 /t CO_2

Mobility & Transport

B-2.2: Individual action outlines		
Action outline	Action name	**2.1. "One car by household" promotion programme**
	Action type	Soft intervention (business model, behaviour change, awareness rising)
	Action description	To decrease volume of daily use of fossil fuel motor vehicles for short distance traffic within the city and accelerate the modal split shift to sustainable urban mobility, a substantial local policy measures and citizen behaviour change is needed. There were 22.014 households and 30.064 personal fossil fuel powered motor vehicles in the municipality in 2018. At the same time shortage of 7.000 parking spaces for citizens and visitors is observed by recent studies (Lot 6: ELENA Mobility Slovenia – Sustainable mobility programme in Slovenia, Number of project: 22_1060 ELENA Kranj Contract: »Mobility study of the City of Kranj - lot 6: Comprehensive study of cycling connections, stationary traffic and one-way connections with a proposal for sustainable mobility measures in the City of Kranj« No. 371-0020/2022-12, PNZ and luz, January 2023). An average household in Kranj has more than 1 car (1,37 car/household, 2018, SORS). Families usually use the second car for short distance travel within the city (e.g. driving kids to after-school activities, shopping, health centre etc.). An ambitious programme aiming at decreasing the number of fossil fuel powered cars to one per household by 2030 is envisaged, meaning a reduction of 8.050 cars.

		The programme complements planned interventions in the city public transport (Action 2.2) and includes governance, policy and promotional measures which would help reduce the need for the second car in the households such as:
		
		- "one car household benefit basket"
		  ○ free city bus,
		  ○ free city bike and other emerging urban mobility services,
		  ○ priority access to public parking.
		- Piloting "1-car multi-apartment facility" supported by e-car sharing lot etc.
		- Piloting digitalised shared mobility service (e.g. e-van), in particular for vulnerable groups (elderly visits to health centre, children's' after-school activities).
		- Commuting application – personalized travel planning.
		- School and kindergarten travel planning:
		  ○ safety measures (safe school walking and biking paths, bike/ scooter parking lots…);
		  ○ actions to help children walk, cycle or carpool to school and kindergarten.
		- Arrangements and joint actions with larger employers and traffic generator commercial centres:
		  ○ benefits for bikers and walkers;
		  ○ modern walking, biking, car sharing and bus support facilities as part of the business and commercial parks, districts, education and health centres;
		  ○ parking charge system;
		  ○ promotion of remote jobs.
		- Campaigns, education, awareness actions.
		- Centre for Sustainable Mobility – upgrade and extension of citizen mobility support and advice services.

Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Governance & policy Social innovation Democracy & participation
	Outcome (according to module B-1.1)	One car by household (- 8.000 personal cars by 2030) reducing short-distance car traveling within the city of Kranj
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	The action shall be first piloted, evaluated and then upscaled.
	Involved stakeholders	Kranj Centre for Sustainable Mobility (CTM) Local district communities (KS) Major employers and traffic generation public service providers (schools, health, sports and cultural centres..)

		Komunala Kranj (manager of parking areas) Urban transport concessioner/ provider BSC Kranj – Regional Development Agency of Gorenjska
	Comments on implementation – consider mentioning resources, timelines, milestones	City capacities in the field of sustainable mobility management to be increased. The action requires development of several new mobility services and adaptation of different city policies.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: - 56.350 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	16.342 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 2.700.000 EUR € 165/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**2.2. Smart multimodal public transport system**
	Action type	Soft intervention (change management) Digitalization
	Action description	25.601 persons commutes to, within and outward Kranj (towards Ljubljana and neighbouring business parks) for work, majority of them using personal cars (SORS, 2018). To make use of public transport attractive to citizens, and in particular daily commuters, further improvements and expansion of public bus transport and different mobility services is foreseen, together with their integration and digitization into a single smart multi-modal city public transport management system. **The following is planned:** - **(1) Central passenger multimodal terminal – mobility hub Kranj:** Integration of main train and bus terminal and other mobility services at one single hub - location at the current Kranj train station is foreseen. The action involves construction of a bus passenger terminal next to the train station, supported by other micro mobility services and park & ride facilities at the total area of 23.000 m2, currently derelict site. In 2023, a comprehensive master plan for the location is being designed in the cooperation of the Government and the City of Kranj. With improved and frequent city bus lines the new terminal will be

		linked to the city centre and major city residential and business districts. By 2030 the terminal will be complemented with a second railway track between Kranj and Ljubljana, an investment run by the Republic of Slovenia. This shall increase rail capacity, train frequency and shorten the travel time between Kranj and Ljubljana. - **(2) Kranj routing system**: extension of public bus lines and bus frequency adjusted to the needs of commuters, daily users and major generators of hot spots (business and commercial parks, education, social and health centres...) within the urban area of Kranj - **(3) Expansion of car-sharing** including social innovation initiatives with unused car-fleet of municipality, businesses, schools, clubs etc. - **(4) Further extension of city e-bike system** from current 29 bike stations with 330 lockers and 200 bikes (125 classical, 75 e-bikes, 2 e-cargo bikes). https://www.krskolesom.si/ - **(5) Digital integration** of urban mobility modes into one single product providing optimisation of routing system, commuting application, smart parking system etc. (MaaS application).
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Governance & policy Technology/infrastructure
	Outcome (according to module B-1.1)	**30% reduced motorized daily commuting to, within and outward the city of Kranj** The action shall considerably influence the reduction of motorized daily commuting between Kranj and Ljubljana as well as within other functional areas along the railway Jesenice-Kranj-Škofja Loka-Ljubljana.
Implementation	Responsible bodies/person for implementation	City of Kranj Republic of Slovenia, Ministry of Infrastructure
	Action scale & addressed entities	Full implementation required.
	Involved stakeholders	- Urban bus transport concessioner/provider (Arriva d.o.o.) - E-mobility and car sharing solutions provider (Vizije Mobilnosti d.o.o.) - Centre for sustainable mobility (CTM) - BSC Kranj – RDA Gorenjska - Neighbouring municipalities and their major business parks in Kranj functional urban area (FUA), in particular Naklo (business park, school centre), Šenčur (Busines park) and Cerklje na Gorenjskem (National Airport, business park)

	Comments on implementation – consider mentioning resources, timelines, milestones	City capacities in the field of sustainable mobility management should be increased immediately. The action requires coordinated approach between the City, central government and mobility providers. MaaS application for optimisation of public transport is already under development and demonstration in 2023-2025 as part of the EU funded NZC UP-SCALE project.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: -16.541 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	4.797 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 14.338.000 EUR € 4.797/t CO_2

B-2.2: Individual action outlines		
Action outline	**Action name**	**2.3 Cycling and walking network**
	Action type	Hard intervention (infrastructure)
	Action description	The relatively flat territory of the Kranj urban area and up to 5 km distances between major functional areas provide favourable conditions for mobility shift towards cycling and walking. In 2018, there were 32,8 km of cycling paths (71 km, 01/ 2023) and 79,226 km (2022) of sidewalks and walking paths (note: excluding hiking and mountain biking trails). This action thus focuses on elimination of key barriers in the city's cycling and walking network as identified in the recent study[4]. - **(1) Completion of the gaps in the cycling and walking network** within the urban area of Kranj. - **(2) Bridging facilities over the rivers Sava and Kokra** to better connect river banks for cyclists and walkers and to overcome the elevation between the valley bottom and the city. - **(3) Improving cycling and pedestrian connections and safety between Kranj centre, business parks, suburbs** in the outer ring of the city and **rural hinterland.**

[4] Lot 6: ELENA Mobility Slovenia – Sustainable mobility programme in Slovenia, Number of project: 22_1060 ELENA Kranj Contract: »Mobility study of the City of Kranj - lot 6: Comprehensive study of cycling connections, stationary traffic and one-way connections with a proposal for sustainable mobility measures in the City of Kranj« No. 371-0020/2022-12, PNZ and luz, January 2023)

		In total 60 km of additional cycling network is foreseen, reaching 92 km of cycling network by 2030. Improvement of the walking infrastructure runs in parallel with cycling investments. Length of cycling network, 2017: 32,857 km (Analiza obstoječega kolesarskega omrežja v Mestni občini Kranj, Elaborat, št. PR329-IDZ-CE-F1, Provia d.o.o., Matjaž Brezavšček, Naklo, avgust, 2017)
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	**92 km of cycling network (+ 60 km as of 2018)** in the urban area incl. bridging facilities shall increase the number of cyclists in average + 3.000 daily.
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach
	Involved stakeholders	CTM Centre for Sustainable mobility Kranj Republic of Slovenia, Ministry of Infrastructure
	Comments on implementation – consider mentioning resources, timelines, milestones	Critical factor is funding of expensive bridging facilities and timely acquisition of land for cycling network.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: - 630 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	183 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 7.250.000 EUR € 39.683/t CO_2

B-2.2: Individual action outlines		
Action outline	**Action name**	**2.4 Car-free areas, shared spaces, one-way streets and P&R**
	Action type	Hard intervention (infrastructure)
	Action description	City of Kranj is still car-centred city, cars dominate the urban centre. There are no entirely car-free areas. Even the historic centre allows car access for residents, owners and under certain conditions also business units. All other central areas are not yet favouring pedestrians and bikers. While on average 18.000 vehicles daily cross one of the city centre main roads (2018, 18.155 PLDP, Kidričeva KR Zlato polje) there are only 90 bikers counted on average per day on the same road (Koroška cesta, 2023). There is no data available on pedestrians. Therefore, the pressure on new parking areas is high. Further to recent studies and current demand, the city lacks approx. 7.000 parking

		spaces if no changes in the modal split are introduced.
		
		Shift in urban and traffic planning in the central urban areas towards more sustainable and car-limiting solutions, together with correspondingly adjusted parking policy, is inevitable to improve the quality of life and reduce emissions from the traffic. The action involves introduction of:
		
		- **(1) Car free** or **shared spaces** or **traffic limited zones** with reconstructions and greening in the anticipated surface of approx. 35.000 m^2 such as:
		  ○ Ravnikarjeva ploščad and Slovenski trg (approx. 15.000 m^2),
		  ○ Kranj historic centre (approx. 12.000 m^2),
		  ○ Planina district and/or other (approx. 8.000 m^2).
		- **(2) One-way road system** with speed limits, greening and additional space for pedestrians and cyclists in the city districts.
		- **(3) Park and Ride and Park and Bike/Walk facilities** with min 300 PM
		  ○ P+R Zlato polje,
		  ○ P+R in eastern part of the city.

Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	**30% reduced motorized daily commuting to, within and outward the city of Kranj** (contributes with - 300 cars less daily by 2030)
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach
	Involved stakeholders	Local communities (KS) Komunala Kranj (public parking manager)
	Comments on implementation – consider mentioning resources, timelines, milestones	The action is very sensitive due to resistance of citizens on limited or no car access. Construction of P+R is jeopardized by lack of municipal land and interest of private investors.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: - 924 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	268 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 1.750.000EUR € 6.531/t CO_2
B-2.2: Individual action outlines		
Action outline	Action name	**2.5 EV and hydrogen charging infrastructure**
	Action type	Hard intervention (infrastructure)

	Action description	To promote substantial citizen and business shift from fossil fuel to electric and gradually also hydrogen powered vehicles, the following actions into the open charging infrastructure are envisaged: **(1) Municipal public EV charging network** - 2018-2022: 15 public charging stations, - 2023-2030: 35 public charging stations. **(2) High-speed EV charging hubs.** The City of Kranj is enabling appropriate spatial regulations and locations for private and PPP investments in publicly accessible high-speed EV charging hubs in the period 2023-2030, such as: - **EV hub Primskovo 1** for cca 10 e-buses/e-trucks and e-cars (6–10 MW), - **EV hub Primskovo 2** for additional 20 -30 e-buses/e-trucks and e-cars (10–15 MW), - **RESHUB** (Resilience Hub Network in Europe) as a pilot hydrogen hub in Kranj military facility area including: PV, electrolyser for conversion of green energy to hydrogen, hydrogen storage tank, hydrogen fuel cell for CHP, battery for smoothing energy, hydrogen charging station for defence and civil lighter and heavier vehicles. In addition to increased resilience of the military operation, the hub will support the city in the event of natural disasters and other crisis situations. It will be open to public and thus help greening the Kranj public and private transport. **(3) Other E-charging stations** combined by PV (Action 1.3) in the larger parking areas not exploited overnight (e.g. commercial and business parks) to service also nearby dense residential areas and/or large traffic generation hot spots.
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Accessible charging network across municipality and several high-speed EV charging hubs will enable that at least **20% of Kranj car traffic and 5% truck traffic on major roads will be electric or hydrogen powered** (Note: state traffic counting points Polica/Kidričevo and Primskovo considered, DRSI, 2018.)
Implementation	Responsible bodies/person for implementation	City of Kranj Electricity System Distribution Operator Ministry of Defense
	Action scale & addressed entities	Phased approach
	Involved stakeholders	Republic of Slovenia PPP partners - private investors
	Comments on implementation – consider	Full implementation depends on action 1.5.

	mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Diesel: -36.500 MWh/year *(* electric power needed for production of electricity deducted)*
	GHG emissions reduction estimate (total) per emission source sector	10.585 t CO_2/year from Transport *(* emissions of the electricity production deducted)*
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 19.488.260 EUR € 1.841/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**2.6 EV and hydrogen powered municipal vehicles**
	Action type	Hard intervention (infrastructure)
	Action description	The City of Kranj intends to replace entire fossil-fuel public vehicle fleet in use for public transport, administration, education, sport, social services and utilities with electric vehicles and when possible, also with hydrogen powered vehicles. **(1) 18 e-buses for public** transport; **(2) 100 diverse e-vehicles** for municipal social, educational and other services; **(3) 4 special technical e-vehicles** for Komunala Kranj utility company.
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Accessible charging network across municipality and several high-speed EV charging hubs
Implementation	Responsible bodies/person for implementation	City of Kranj Vizije Mobilnosti (PPP partner)
	Action scale & addressed entities	Phased approach
	Involved stakeholders	Private investors
	Comments on implementation – consider mentioning resources, timelines, milestones	Municipal e-cars are co-shared between municipal organisations or integrated in the new mobility services when not in use for primary purpose.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Diesel: 3.540 MWh/year *(* electric power needed for production of electricity deducted)*
	GHG emissions reduction estimate (total) per emission source sector	1.027 t CO_2/year from transport *(* emissions of the electricity production deducted)*
	GHG emissions compensated (natural or technological sinks)	/

	Total costs and costs by CO_2eq unit	€ 14.900.000 - total cost € 14.514/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**2.7 Reduced transit traffic**
	Action type	Hard intervention (infrastructure)
	Action description	City of Kranj crosses an important regional road connecting neighbouring municipality Škofja Loka (population 23.799, 2023) to the A2 highway. In 2018, there were 13.708 vehicles measured on average at counting point Dorfarje on the road R1 Kranj -Škofja Loka. A direct connecting road from Škofja Loka to Meja (City of Kranj) and further to highway is envisaged as part of the so-called 4th Slovenian Development Axis. The road is being planned in both municipal spatial plans while investment is negotiated with the Government of Slovenia. The direct road would reduce traffic and air pollution in the City of Kranj as well as reduce travel distance for the transiting lorries and cars for 4 km.
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology/ Infrastructure Policy & Regulation
	Outcome (according to module B-1.1)	Reduced transit traffic to Škofja Loka (-50 % less car and -90 % less truck PLDP at counting point Dorfarje representing 6.854 vehicles)
Implementation	Responsible bodies/person for implementation	City of Kranj The Ministry of Infrastructure
	Action scale & addressed entities	Full implementation needed to achieve the set targets.
	Involved stakeholders	Municipality of Škofja Loka DRSI
	Comments on implementation – consider mentioning resources, timelines, milestones	Accelerated adoption of municipal master plans in both municipalities required.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Diesel: 9.306 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	2.699 t CO_2/year from Transport
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 12.000.000 - total cost (Estimation based on similar bypass road investment projects) € 4.446/t CO_2

Waste & Circular Economy

B-2.2: Individual action outlines		
(Fill out one sheet per intervention/project)		
Action outline	Action name	**3.1. Zero waste programme**
	Action type	Soft intervention (behaviour change, change management, awareness rising)
	Action description	Action follows the *ZERO Waste Strategy 2021 – 2031 of the City of Kranj and its functional area (Naklo, Preddvor, Šenčur and Jezersko)* adopted by Kranj City Council on 20. 10. 2021. It aims not only at reduction of communal waste quantity but also at reducing the use of materials and energy, change of life patterns and regulations necessary for building up circular economy. The action is a long-lasting programme including measures related to: - **(1) Waste management communication by the public utility company Komunala Kranj**: strategic communication with public campaigns, citizens guidance, education, public events and monitoring - **(2) Public administration:** introduction of zero waste / circular economy principles in public procurement and investments in all municipal organizations, internal measures and education, citizens surveys and awareness rising campaigns, pilot initiatives, public tap water fountains, washable nappies in elderly and nursing, zero waste events, communication. - **(3) Education:** internal measures and teachers' education, initiatives and actions on waste food, exchange of toys, books..., tap water, zero-waste school kitchens, washable nappies in kindergartens. - **(4) Households:** home and community composting, buying locally and with no/less packages, zero waste households' campaigns, stop to printed commercials. - **(5) Tourism and events:** implementing Slovenia green standards for Kranj as tourism destination, zero waste events. - **(6) Commercial providers:** joint campaigns and demonstration actions for no/less packaging in daily use and consumption.
Reference to impact pathway	Field of action	Waste & circular economy
	Systemic lever	Governance & policy Democracy & participation
	Outcome (according to module B-1.1)	**Reduction of municipal waste produced per capita for 12%** (from 334 kg/capita in 2018 to 293 kg/ capita in 2030) of which 80% will be recycled or reused (material efficiency). **2018 (Source: Komunala Kranj)** (1) All communal waste collected: 18.661.000 kg (2) Target population included in the waste management system: 55.950*

		(3) Waste collected per capita: 334 kg/p (4) Waste recycled/collected separately: 14.603.060 kg = 78% recycled (5) Deposited/incinerated waste: 4.057.940 kg **Target 2030** (1) 12% reduction of waste per capita (further to the Zero waste strategy) = 293 kg/p (2) Assumed target population included in the waste management system: 2030: =2018 (3) All waste collected: 17.305.188 kg (4) Waste recycled/collected separately: 13.844.160 kg = 80% recycled (5) Deposited/incinerated waste: 3.284.336 kg (Reduced need for incineration for 773.604 kg)
Implementation	Responsible bodies/person for implementation	Komunala Kranj – Public Utility Company
	Action scale & addressed entities	Phased approach Existing Zero waste governance structures
	Involved stakeholders	City of Kranj Social enterprises Major shopping centres – commercial sector Schools and kindergartens Elderly home Hospitals in Kranj and Golnik Kranj Tourism Board Kranj City Library Sport & culture centres and associations Local media
	Comments on implementation – consider mentioning resources, timelines, milestones	The waste reduction targets as of 2018 are jeopardised by distance purchase and delivery models accelerated by Covid-19. In 2025 assessment of targets is recommended.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Diesel: 221 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	64 t CO_2/year from transport 594 t CO_2/year less from incineration
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 350.000 total cost € 532/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**3.2. Smart waste management**
	Action type	Digitalization Hard intervention (infrastructure)
	Action description	Aiming at reducing carbon emission (from driving distance) and improving the waste management efficiency in collecting and re-distributing waste, digitization of Kranj waste management system and reallocation of waste transfer station is foreseen. The action involves: - (1) **Digitization** of waste transport ○ container tracking, intelligent routing and collection planning…,

		○ smart bins with sensors to monitor fill level in waste containers, ○ smart waste platform as integral part of the Kranj Smart City platform to support monitoring, planning and management. - (2) **Transfer station** – reallocation from urban centre closer to highway, investment. - (3) **Small infrastructure - eco/collecting points**: optimization and greening of waste collecting and eco-points, presses for packages, cooking oil collecting points etc.
Reference to impact pathway	Field of action	Waste & Circular economy
	Systemic lever	Governance & policy
	Outcome (according to module B-1.1)	**Optimized transport of waste collection and distribution -** reduced total transport distance, 183.000 **km less transport routes**
Implementation	Responsible bodies/person for implementation	Komunala Kranj – Public Utility Company
	Action scale & addressed entities	
	Involved stakeholders	City of Kranj Local communities
	Comments on implementation – consider mentioning resources, timelines, milestones	On-going action in digitalization. Phased approach in investments into modernisation of logistic and collecting facilities.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Diesel: 183 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	53 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 4.000.000 - total cost € 75.372 /t CO_2 (note: investment with an indirect impact)

B-2.2: Individual action outlines		
Action outline	Action name	**3.3. Centre for Circular Economy Zarta** with new waste management and support services
	Action type	Hard intervention (infrastructure, pilot project implementation)
	Action description	City's solid waste landfill in Tenetiše has been closed since 2009 and is under emission (methane) monitoring until 2046. A large solar plant is foreseen to be installed at the rehabilitated site (part of action 1.3) while recycling has already been in place for over two decades. Aiming at promoting Kranj towards efficient local circular waste and material management, an investment into ZARTA Centre for Circular Economy is

		foreseen in the vicinity of the WWTP by redevelopment of currently derelict industrial area. Within new ZARTA centre, all existing and future city waste and material management services will be concentrated at one place. Thus, the action involves:
		
		- **(1) Further closing process** with the emission monitoring at ex-landfill Tenetiše;
		- **(2)** Investment into **ZARTA Circular Economy Centre** involving services like:
		  ○ **One-stop shop for waste management and circular economy** including citizens and education centre, re-use workshops and tool exchange, extension of re-use and zero-waste shop and local food restaurant, green roof.
		  ○ **Public parking area with e-charging stations for cars and e-bikes.**
		  ○ **Car cleaning facility** using wastewater from WWTP.
		  ○ **Glass cleaning facility** for local farmers (packaging) and event organizers.
		  ○ **Green recreation area with education points:** education trail, "forest classroom", demonstration area of circular solutions for citizens (e.g composting, urban gardening, usage of drain water, circular materials and principles in construction..).

Reference to impact pathway	Field of action	Waste & Circular economy
	Systemic lever	Technology/ Infrastructure Learning and capabilities
	Outcome (according to module B-1.1)	Reduction of municipal waste produced per capita for 12% (from 334 kg/capita in 2018 to 293 kg/ capita in 2030) of which 80% will be recycled or reused (material efficiency).
Implementation	Responsible bodies/person for implementation	Komunala Kranj – Public Utility Company
	Action scale & addressed entities	Phased approach.
	Involved stakeholders	City of Kranj Local community Drulovka
	Comments on implementation – consider mentioning resources, timelines, milestones	Landfill closing: on-going process. Zarta centre: phased approach.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Bio-fuel: 1170 MWh/year (Methane)
	GHG emissions reduction estimate (total) per emission source sector	11.512 t CO_2 (Methane from closed landfill)
	GHG emissions compensated (natural or technological sinks)	/

	Total costs and costs by CO_2eq unit	€ 5.142.000 – total costs € 447/t CO_2
B-2.2: Individual action outlines		
Action outline	Action name	**3.4. Kranj Circular City public-private innovation actions**
	Action type	Soft intervention (business models) Hard intervention (pilot project implementation)
	Action description	Aiming at accelerating the circular economy in different fields of citizens' life and business operation, the city will promote, support and/or participate in different projects bringing together different business and public actors in piloting and demonstrating concrete circular solutions. Some initiatives have already been identified during the participatory process but are not exhaustive: - **(1) Circular technologies and business models in farming –** collaboration of farms in utilization of side products such as livestock secretions and plant residuals for energy, soil fertilization, packaging ... - **(2) Re-use of industrial and construction waste** - **(3) Removal of invasive species** and utilization of its biomass in new services and products. - **(4) Zero emission and zero waste solutions in local goods and food** delivery (e.g. joined food + books from library delivery). - **(5) Use of drain water** for irrigation of green areas, gardening, car washing … - **(6) Material (food, waste...) and energy efficient kitchens and similar operations in resource intensive public institutions** (e.g. kindergardens, homes for elderly …).
Reference to impact pathway	Field of action	Waste & Circular economy
	Systemic lever	Social innovation
	Outcome (according to module B-1.1)	Circular economy solutions in Kranj industrial, commercial, service, public or farming value-chains demonstrated (5 pilot actions)
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach following the maturity of the initiatives.
	Involved stakeholders	BSC Kranj – Regional Development Agency of Gorenjska Agriculture and Forestry Chamber of Slovenia/ Agriculture and Forestry Institute Kranj Komunala Kranj – Municipal Utility Company Industrial and construction companies Social enterprises NGO-s Local communities
	Comments on implementation – consider	One action per year to be identified, developed and initiated from 2024 on.

	mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	8.000 MWh
	Removed/substituted energy, volume, or fuel type	Diesel: 409 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	2.579 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 800.000 - total cost € 310/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**3.5 Energy and resource efficiency in water supply**
	Action type	Hard intervention (infrastructure) Digitalization
	Action description	Kranj water system extends over 302 km (210 km in City of Kranj) and supplies 50.265 residents of the City of Kranj and 10.733 residents of neighbouring municipalities. In 2019, the system produced and distributed 5.686.161 m^3 (4.586.507 m^3 in the City of Kranj) of drinkable water. In addition, there are four other local water supply systems in the territory of the city. There are 6 major water sources, all located in the mountain area outside the city territory. Although there were significant investments in the system over the last decade, reducing of water leakages, increasing of energy efficiency of the water facilities and assuring supply and cyber security are of vital importance. Thus, this action includes: - Reconstruction of existing water supply system to reduce water losses.
Reference to impact pathway	Field of action	Waste
	Systemic lever	Technology/Infrastructure
	Outcome (according to module B-1.1)	Reduction of water losses to 25% by 2025 and 15% by 2030 (600.000 m^3 water savings per year)
Implementation	Responsible bodies/person for implementation	City of Kranj Komunala Kranj – Public Utility Company
	Action scale & addressed entities	Phased approach
	Involved stakeholders	City of Kranj Komunala Kranj – Public Utility Company
	Comments on implementation – consider mentioning resources, timelines, milestones	Investment subject to funding availability
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Electrical energy: - 52 MWh/year

	GHG emissions reduction estimate (total) per emission source sector	20 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 8.885.360 – total cost € 22.221/t CO_2

Green infrastructure & nature-based solutions

B-2.2: Individual action outlines		
(Fill out one sheet per intervention/project)		
Action outline	Action name	**4.1. Sustainable management of green and blue infrastructure system**
	Action type	Soft intervention (change management of natural resources) – compensation measure
	Action description	The objective of the action is to introduce strategic and operational management of the green and blue infrastructure in the City of Kranj and strengthen its biodiversity. There are 54,3% (81,9 km^2) of forests and 1% (1,5 km^2) of water areas; 6,1% (9,3 km^2) of the territory is protected nature, 15% identified as nature value sites, 19,4% designated as Natura 2000 (29,3 km^2), and 20,9% recognized as ecological important area and, their management is left to landowners and the respective national/ regional bodies. Furthermore, the analysis shows that forests in Kranj are in poor condition which results in net total GHG emissions. As urban forests, waters and biodiversity are important value for the city's sustainable future, their vitality shall be improved, therefore the actions involve: - **(1) Definition of the management system**, including classification and the ecosystem services they provide; - **(2) Integration** and implementation of the system within the **City's Green Spatial Plan;** - **(3)** Definition and **protection of sub-urban forests** as forests with special purpose (recreational and social function); - **(4) Management plan** for the green and blue infrastructure system emphasizing the appropriate forest management and biodiversity (incl. nature protected areas) in urban and suburban areas as to assure their CO_2 sink capacity and adapting the system to climate change; - **(5) Property management** aiming to increase municipal or state ownership of green areas near urban centre; - **(6) Establishing quality operational management of municipal forests** (City

		as a role model for sustainable forest management for other passive owners); - **(7) Local promotion campaigns for active sustainable forest management** among private forest owners.
Reference to impact pathway	Field of action	Green infrastructure & Nature based solutions
	Systemic lever	Governance & policy
	Outcome (according to module B-1.1)	Protected and better managed urban green infrastructure in the surface of 12 km^2 - Protected urban forests – average 4 km^2 - Nature protected areas – average 8 km^2 Sequestration as a result of this local action estimated at 5,6 km^2 of forests by 2030.
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Accelerated sustainable management of forests in the City ownership
	Involved stakeholders	Slovenia Forest Service (ZGS) Slovenian Water Agency Agriculture and Forestry Chamber of Slovenia/ Agriculture and Forestry Institute Kranj Institute of the Republic of Slovenia for Nature Conservation (ZRSVN) Komunala Kranj - Public Utility Company Concessioner for maintenance of green areas Local communities
	Comments on implementation – consider mentioning resources, timelines, milestones	Proactive and coordinated approach of all stakeholders needed
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	7.560 t CO_2/year (sequestration estimated at 5,6 km^2 of urban forests)
	Total costs and costs by CO_2eq unit	€ 770.000 – total cost € 102/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**4.2 Greening the municipal spatial planning**
	Action type	Soft intervention (change management of natural resources) – compensation measure
	Action description	Spatial planning is one of the key municipal regulatory tools for embedding climate neutral objectives into the urban development of both, future public and private investors. Therefore, the action is promoting and introducing diverse green standards that go beyond the existing regulations, into the municipal spatial planning procedures and plans such as:

		- Efficient land use: redevelopment of brownfield as a priority, preservation of urban forest, green and blue areas;
		- Mandatory green roofs (for new constructions of certain surface);
		- Mandatory drain water collection and use for sanitary purposes in new constructions;
		- Urban gardens (new locations);
		- No-car zones or shared zones;
		- New urban developments (spatial master plans) following:
		  ○ 15-minutes city planning concept (FMC);
		  ○ Larger share of green areas;
		  ○ Revised standards for parking space, requirements for charging stations and energy storage;
		- Circular principles in material use – use of re-cycled construction materials.
		
		As the implementation of final target – zero-emission construction requires wide consensus of stakeholders and citizens, a gradual approach is foreseen, involving:
		
		- **(1)** Setting the **standards for green spatial planning** at the territory of the City of Kranj;
		- **(2)** Preparation **guidelines for zero-emission construction** and green spatial master plans (for implementation see action 5.3);
		- **(3) Awareness rising, promotion and education** on green solutions in the new developments and regeneration projects;
		- **(4) Green municipal spatial plan**: full introduction of green and climate neutral concepts in the new generation of spatial plan or in the next amendment of the existing spatial plan;
		- **(5)** Introducing green and climate neutral concepts in the wider functional area - greening of **Regional Spatial Plan of Gorenjska region.**
		
		The action is strongly supported by the Environment Preservation Operational Programme of the City of Kranj (2023).

Reference to impact pathway	Field of action	Green infrastructure & Nature based solutions
	Systemic lever	Governance, policy and regulation Capacities & learning
	Outcome (according to module B-1.1)	Green Spatial Plan enforcing climate neutral measures, adopted
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach.
	Involved stakeholders	National institutions responsible for spatial planning

		BSC Kranj - Regional Development Agency of Gorenjska (regional spatial plan)
	Comments on implementation – consider mentioning resources, timelines, milestones	First measures to be introduced in the currently on-going revision process of the Spatial Plan, major changes to follow with the next revision after 2025.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Indirect impact.
	GHG emissions reduction estimate (total) per emission source sector	0 t CO_2/year – Indirect impact on emission reduction assessed through all other actions
	GHG emissions compensated (natural or technological sinks)	0 t CO_2/year – Indirect sequestration impact assessed through other actions
	Total costs and costs by CO_2eq unit	€ 500.000 – total cost € 0/tonnes CO_2 (Indirect impact)

B-2.2: Individual action outlines		
Action outline	Action name	**4.3. Green areas and green roofs**
	Action type	Hard intervention (infrastructure) – compensation measure

	Action description	In ambition to sustain and where possible, increase the carbon sequestration capacity of the urban green and blue areas, while at the same time contribute to the citizens well-being, reducing heat islands and improve connectivity of habitats, the action foresees:
		
		- **(1)** Implementation of **green-roof concept and solutions among private and public investors** on buildings with larger roofs (mandatory when revised municipal spatial plan is adopted) in the estimated total area of 30.000 m2 of green roofs (10 new major buildings per year x 600 m2 x 5 years), including municipal new constructions.
		
		- **(2) Improvements and extensions of public green and blue areas** in the total estimated area of 20.000 m^2. The priority shall be given to the areas in municipal ownership and those located within up to 15 minutes walking distance from major residential areas and heat islands.
		
		- **(3)** Improvements of **major green and nature protected areas** with relevant ecosystem service potential, such as:
		  ○ **Bleiweis park**;
		  ○ **Kokra River canyon,** the second deepest urban gorge in Europe and green area inside the city. Further preservation, visitor and recreation management incl. visitor infrastructure and bio- and

		geodiversity rehabilitation is foreseen.
		- **(4) Extending green areas,** including rehabilitation of derelict urbanized sites
		  ○ Green & demonstration areas Zarta Centre;
		  ○ Greening of old town centre;
		  ○ Sava River and its banks – renaturation of abandoned areas.
		- **(5) New approach in maintenance of green public areas**: multi-layer planting, trees along streets, greening of historic and other highly urbanised areas, arranging green spots and green shelters in vicinity of heat islands and major public institutions.
		- **(6) Nature-based solutions** for increased biodiversity, sequestration and flood prevention in the areas such as restoration of wetland areas of Milka stream.

Reference to impact pathway	Field of action	Green infrastructure & Nature based solutions
	Systemic lever	Governance & Policy Technology and Infrastructure
	Outcome (according to module B-1.1)	50.000 m2 of additional and improved green areas and green roofs (20.000 m2 open public green areas + 30.000 m2 new green roofs)
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach
	Involved stakeholders	Private investors Local communities NGOs Institute of the Republic of Slovenia for Nature Conservation (ZRSVN) Kranj Tourism Board Slovenia Forest Service Slovenian Water Agency Komunala Kranj – Public Utility Company Concessioner for maintenance of green areas BSC Kranj - Regional Development Agency of Gorenjska
	Comments on implementation – consider mentioning resources, timelines, milestones	Accelerated approach to green roofs is a subject to adoption of proposed amendments of the current municipal spatial plan.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	68 t CO_2/year sequestration
	Total costs and costs by CO_2eq unit	Total costs: € 5.000.000

		€ 74.074/t CO_2 (note: investment with major co-direct benefits for citizens' quality of life)

B-2.2: Individual action outlines		
Action outline	Action name	**4.4 Promotion of plant and low-emission livestock production**
	Action type	Soft intervention (change management in agriculture production) Hard intervention (infrastructure)

	Action description	Further to Agriculture Census as of 2020, there are 448 farms in the City of Kranj which are in comparison to the EU of small size. The farms manage in total 9.122 ha of land, of which 4.938 ha is arable and 3.901 ha forests. The average farm has 11 ha of arable land and 8,7 ha of forests. 57% of farms raise livestock for meat or milk (18,6 livestock per farm), 15% have mixed production (mostly self-sufficient farming) and 21% are specialized in plant production. Due to predominant livestock farming, the estimated GHG from agriculture (above all methane from enteric fermentation and manure management) are relatively high. On the other hand, vegetable production is locally far undersupplied.
		
		In addition to the national climate measures of the CAP Strategic Plan, the City of Kranj will invest in promotion of plant production and reduction of emissions from the livestock sector. The action includes measures such as:
		
		- **(1) Accelerated local promotion and farmers' competences in:**
		  ○ Local vegetable production and local vegetable supply chains.
		  ○ CAP measures: optimizing animal feeding, using additives to reduce enteric methane emissions, and fertilization practices that reduce ammonia emissions into the air. Through promotion, we will achieve that the implementation of these measures in the area of the City of Kranj will be greater than at the national level.
		  ○ Nutritional strategies to mitigate emissions of methane from enteric fermentation, including the use of methane inhibitors.
		  ○ Practices to improve the utilization of nitrogen from animal manure and mineral fertilizers.
		- (**2) Setting up a pilot communal irrigation system** in the surface of 100 ha in Sorško polje, the SW lowland area of Kranj municipality, including a new

		business model – farmers irrigation community. This shall enable plant production and to a certain degree consequently influence the restructuring of livestock farms.
Reference to impact pathway	Field of action	Green infrastructure & Nature based solutions
	Systemic lever	Technology/Infrastructure Social innovation
	Outcome (according to module B-1.1)	Farmers introducing local plant and low-emission livestock practices and production (Estimation 20% of dairy cows applying methane inhibitors)
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Phased approach
	Involved stakeholders	Komunala Kranj – Municipal Utility Company Agriculture and Forestry Chamber of Slovenia/ Agriculture and Forestry Institute Kranj Farmers NGOs Sorško polje
	Comments on implementation – consider mentioning resources, timelines, milestones	Proactive and coordinated approach of all stakeholders needed
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	NA
	GHG emissions reduction estimate (total) per emission source sector	672 t CO_2eq /year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 1.210.000 EUR – total cost € 1.801/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**4.5. Urban agriculture programme**
	Action type	Hard intervention (pilot /demo project implementation) Soft intervention (raising awareness, education, change management)
	Action description	Out of 448 farm units (SURS, 2020), 236 farmers are self-employed (SURS, 12/2018), assuming the rest 48% being small and self-sustained farmers in less favourable mountain areas practicing sustainable farming. Due to predominately livestock production, the local vegetable and fruit production is rather low and far below the needs of the citizens and city public services, whereas small farms, being of significant importance for preservation of cultural landscape and biodiversity, are at risk of abandoning the farming.

		In addition, there are 22 locations of urban gardens covering 8,7 ha (87.787 m2) of the territory of the City of Kranj[5]. However, none of them is managed, while only 16,63% comply with the City Spatial Plan determined land use.
		
		Aiming at increasing local food self-sufficiency rate, preserving small substance suburban farming and more efficiently exploiting urban green and abandoned areas for food production, an urban agriculture programme is going to be designed and demonstrated. Some initiatives have already been identified during the CCC participatory process but are not exhaustive:
		
		- **(1) Urban gardening:**
		  ○ Extended areas for community gardens;
		  ○ Guidelines for common garden design;
		  ○ Adjustments of the municipal regulatory and spatial planning framework;
		  ○ Promotion, demonstrations and education on composting, drain water collection, use of (organic) fertilizers.
		- **(2) "Farm to Fork"** programme for daily distribution of local food to consumers.
		- **(3) Joint dynamic digital public procurement system** of all municipal public services for forecasting and purchasing of local food for schools.
		- **(4) Public local food cool vending machines** supplied by local farmers, digitally supported, installed at P+R, etc.
		- **(5) Financial support for innovative farms' projects,** preferably ecological farms run by young farmers.
		- **(6) Experimental food production** in abandoned industrial and commercial facilities and roofs.
		- **(7) Urban beekeeping** initiatives.
		- **(8) Donations for preserving subsistence farming, landscape and biodiversity –** investors and businesses plant indigenous and traditional (fruit) trees and varieties of plants.

-Reference to impact pathway	Field of action	Green infrastructure & Nature based solutions
	Systemic lever	Social innovation Democracy & participation
	Outcome (according to module B-1.1)	Farmers introducing local plant and low-emission livestock practices and production
Implementation	Responsible bodies/person for implementation	City of Kranj
	Action scale & addressed entities	Upscaling, digitalization and further innovation of exiting initiatives.
	Involved stakeholders	Local communities

[5] *Report on gardening, april 2023*

		Public service institutions (schools, elderly home, kindergartens) Local restaurants and hotels NGOs Sorško polje, Beekeeping associations, Komunala Kranj – Municipal Utility Company Concessioner for maintenance of green areas CTRP Kranj BSC Kranj – RDA Gorenjska
	Comments on implementation – consider mentioning resources, timelines, milestones	/
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	NA
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	Partly considered above in 4.1 and 4.3.
	Total costs and costs by CO_2eq unit	€ 4.194.000 – total costs € 0/t CO_2 (Indirect impact with significant co-benefits)

Built Environment

B-2.2: Individual action outlines		
Action outline	Action name	**5.1. Energy-efficiency renovation of public buildings**
	Action type	Hard intervention (infrastructure)
	Action description	The integrated energy-efficiency renovation programme of public buildings at the territory of City of Kranj includes: **(1) Energy-efficiency renovation of 40 municipal buildings following a PPP business model** (2018-2022: 21, 2023-2024: 19). Wherever possible energy-efficiency measures are complemented by other measures improving the property lifespan, climate and earthquake safety, accessibility and greening. **(2) Energy-efficiency renovation of state-owned buildings in the territory of Kranj** In the period 2018-2022 major energy-efficiency renovations were undertaken in the education district Zlato polje contributing to 1.000.000 kWh savings per year. Further to national investment plan, the Government foresees energy-retrofit of 6 state owned premisses located in Kranj between 2023-2030: maternity hospital, NLZOH laboratories, Vocational upper-secondary school, Regional Court, Cultural

		Heritage Institute and police station in Kranj) in total area of 27.528 m2.
Reference to impact pathway	Field of action	Built environment
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Energy-efficiency renovation of major municipal and state-owned buildings competed
Implementation	Responsible bodies/person for implementation	City of Kranj Republic of Slovenia
	Action scale & addressed entities	Phased approach as per the budget plans of the City and the Government of the RS
	Involved stakeholders	Private promotors/investors
	Comments on implementation – consider mentioning resources, timelines, milestones	/
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Heating oil (diesel): 4.179 MWh/year Natural gas: 1.200 MWh/year Electrical energy: 3.378 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	2.685 t CO_2/year
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 40.682.440 total cost € 15.149/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**5.2. Energy-efficiency renovation of residential buildings in** urban and suburban neighbourhoods
	Action type	Hard intervention (infrastructure)
	Action description	In 2018 there were 20.984 apartments in the City of Kranj: - 49,4% or 10.360 in the multi-apartment buildings with average size of 54,7 m2; - 47,3% or 9.935 in single or two-flat houses with average size of 106,6 m2; - 3,3% or 689 in other buildings. 84% of the residential buildings in Kranj City were constructed before 1990 with low energy efficiency. Thus, action aims at energy-efficiency renovation, including shift of energy source from fossil fuel to RES (biomass, heat pumps) of: - Multi-apartment buildings in high dense urban residential urban neighbourhoods – 90% of all to be renovated; - Individual houses in urban and suburban neighbourhoods – 25% of all to be renovated.

		A. Multi-apartment facilities 487 multi-unit buildings in several densely populated Kranj urban districts are managed by the major facility managing company. 65% of the buildings in their management have undergone energy-efficiency rehabilitation by 2018. Thus, this action refers to renovation of approx. 140 of remaining multi-unit residential buildings with approx. 2.400 apartments to reach the approx. 90% goal = 120 buildings): - 50 buildings x 20 = 1.000 apartments (total 367 = 7.500 app) between 2018-2022 - 70 buildings x 20 = 1.400 apartments (total 437= 8.900 apartments) between 2023-2030 Wherever possible, energy-efficiency measures are complemented by measures improving the property life-span, climate and earthquake safety, accessibility and green areas. **B. Individual houses** There are 9.695 individual residential units with one (8728) or two flats (967) in the area of Kranj city predominantly constructed 40-50 years ago. According to LEC, majority of them still use fossil fuel (light fuel oil). To accelerate their transition to RES or one of the planned district heating systems (see action 1.1), the City intends to collaborate with LEAG and Slovenia Eco Fund or other financial partner developing special programme to provide engineering support and subsidies to individual house owners, in particular low-income owners and elderly, to undertake the energy-efficiency measures. The target is for 2.500 individual houses to be renovated. - 807 houses between 2018-2022 - 1.700 houses between 2023-2030
Reference to impact pathway	Field of action	Built environment
	Systemic lever	Technology/ Infrastructure
	Outcome (according to module B-1.1)	Improved energy-efficiency of at least 90% of multi-residential buildings and 25% individual homes
Implementation	Responsible bodies/person for implementation	Apartment owners Heating boards of multi-apartment buildings
	Action scale & addressed entities	High density areas built before 1990. The most interested owners have already undergone the rehabilitation investments thus the implementation of the remaining buildings requires additional awareness rising, citizens dialog and facilitation by the facility managers.
	Involved stakeholders	Authorized facility/ building managers
	Comments on implementation – consider	The action requires immediate design of a special scheme coordinated between the city,

	mentioning resources, timelines, milestones	Slovenian Eco Fund and team of energy rehabilitation experts of LEAG.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Heating oil (diesel): 7.049 MWh/year Natural gas: 8.048 MWh/year Electrical energy: 3.567 MWh/year
	GHG emissions reduction estimate (total) per emission source sector	5.092 t CO_2/year from Buildings
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO_2eq unit	€ 78.500.000 - total cost € 15.417/t CO_2

B-2.2: Individual action outlines		
(Fill out one sheet per intervention/project)		
Action outline	Action name	**5.3. Integrated smart and climate neutral re-development of urban brownfield areas**
	Action type	Hard intervention (pilot /demo implementation)

	Action description	In the City of Kranj, there are more than 212,21 ha non-revitalized areas, of which 160,69 ha are classified as brownfields (derelict) sites *(Faculty for architecture, 2016).* Most of them are in private ownerships. Nevertheless, the City of Kranj intends to further invest in re-development of its own empty building as well as stimulate investors into re-development projects following the climate neutral and smart principles. Thus, the action involves re-development of 150.000 m2 of derelict sites and consequent preservation of the corresponding forested areas.
		
		- **(1) Further integrated re-development and energy-efficiency rehabilitation of the municipal premises** for public use such
		  ○ Kindergarten/school J. Puharja (3.473 m2), Cankarjeva 2 (1.840 m2), Incubator Kovačnica (1.740m2);
		  ○ Potential premises for local farmers market.
		- **(2) Investor guidance** for re-developing of derelict sites into zero-emission areas, preferably of sustainable mixed use.
		- **(3) Climate-neutral pilot brownfield areas** to be re-developed by 2030 in collaboration of the municipality of Kranj
		  ○ Planika industrial site;
		  ○ Stražišče residential facility for elderly;
		  ○ Kranjska Iskrica residential area;
		  ○ Primskovo district brownfield re-development (mixed use);
		  ○ Ob Savi residential area.

Reference to impact pathway	Field of action	Built environment
	Systemic lever	Technology/ Infrastructure

	Outcome (according to module B-1.1)	150.000 m2 of brownfields regenerated, including energy-efficiency renovation
Implementation	Responsible bodies/person for implementation	City of Kranj Private developers
	Action scale & addressed entities	Investments in the pipeline
	Involved stakeholders	Private developers Housing Fund of the Republic of Slovenia
	Comments on implementation – consider mentioning resources, timelines, milestones	Immediate climate proofing of planned private investments needed.
Impact & cost	Generated renewable energy (if applicable)	NA
	Removed/substituted energy, volume, or fuel type	Land use – preservation of 150.000 m2 (= 15 ha)
	GHG emissions reduction estimate (total) per emission source sector	
	GHG emissions compensated (natural or technological sinks)	203 t CO_2/year (sequestration due to preservation of green areas – forests)
	Total costs and costs by CO_2eq unit	€ 5.260.000 total cost € 25.975 t CO_2

Summary strategy for residual emission

Total residual emissions: 46.334 tonnes CO_2/year (20,00%)

The City of Kranj has laid down an ambitious strategy for transition into a carbon-neutral entity by the year 2030. This commitment is anchored in a multi-sectoral approach that addresses the unique challenges and opportunities within each sector. The Climate Action Framework outlines a series of interventions, policies, and projects that are designed to collectively bring about a significant reduction in greenhouse gas (GHG) emissions, pushing towards the overarching goal of climate neutrality.

Despite the robust strategies in place, it is acknowledged that some level of residual emissions will persist. These emissions, which will remain after all feasible measures have been implemented, present the final barrier to achieving complete neutrality. The quantification of these residual emissions allows for the identification of offsets and the development of additional strategies to mitigate the remaining carbon footprint.

Given all the challenges, City of Kranj, like many other cities, aims to minimize GHG emissions as much as possible. Once minimized, the city would then balance the remaining emissions with offsetting initiatives such as investing in renewable energy projects, reforestation, or other carbon capture efforts. The purchasing of certified renewable energy can also contribute to offsetting by ensuring that the energy the city consumes is being produced by renewable sources of energy.

In summary, while City of Kranj will strive to reduce their emissions to the lowest feasible level, some residual emissions are expected due to current technological, economic, and behavioural limitations. It is these residual emissions that the city plans to compensate for through credible offsetting strategies and renewable energy purchases to achieve their net-zero targets.

Buildings

Residual emissions after implementation of proposed actions: 13.166 tonnes CO_2
Residual emissions in the building sector, post-implementation of proposed actions, are estimated at 13.166 tonnes of CO_2. This figure encapsulates emissions from both public and private buildings,

which are often the most challenging to mitigate due to the nature of built infrastructure, historical preservation, and the need for balancing modernization with community acceptance. Reasons for residual emissions:

- **Heritage conservation**: City of Kranj, with its historical buildings, faces challenges in retrofitting these structures to high energy efficiency standards without compromising their architectural integrity.
- **Investment limitations**: Full-scale investment to upgrade all residential and commercial buildings to zero emissions or energy-plus status is beyond current budgetary provisions.
- **Adoption rates**: Uptake of energy-efficient technologies by residents and businesses can be slower than needed due to various factors including costs, lack of awareness, or resistance to change.
- **Innovative technologies**: The city is exploring advanced solutions such as smart building technologies, but full deployment and optimization are still in progress.
- **District heating systems energy security**: In Kranj, energy security is of pivotal concern when considering the transition from natural gas to renewable energy sources in the district heating systems. The systems, currently reliant on natural gas, offers stability and rapid responsiveness to demand fluctuations. The planned integration of biomass, which will enhance sustainability but maintaining at least 10% natural gas baseline, is a strategic measure to ensure uninterrupted heat supply. This approach safeguards against supply disruptions and extreme weather, guaranteeing continuous service provision. It also mitigates risks associated with the variability of biomass supplies.

Strategy:

- **Influencing changes of national regulations and subsidies criteria for energy efficiency rehabilitation of heritage buildings –** in collaboration with the Association of Historic Towns of Slovenia.
- **Initiation of an open dialog with citizens** on the potential and eventual acceptance of incineration of commercial waste for district heating – renewable energy production.
- **Accelerated engagement** of residents, property owners and investors who will not follow the rehabilitation and climate neutral construction by 2030 as envisaged by the actions.

Transport

Residual emissions after implementation of proposed actions: 13.614 tonnes CO_2/year
Kranj is working on modernization and decarbonization of its transport system through the promotion of non-motorized mobility, the electrification of public and private transport, and the development of smarter urban planning that reduces the need for vehicular travel. Despite these efforts, the transport sector will still contribute to the city's residual emissions. To address this, Kranj will be looking into offsetting projects that focus on advanced low-carbon mobility solutions and improving the efficiency of existing transport systems. Reasons for residual emissions:

- **Transition time**: It takes time for public and private transport fleets to transition to zero-emissions vehicles due to the lifespan of existing vehicles and the pace of infrastructure development for alternative fuels.
- **Aviation**: Some transport sectors, like aviation, have limited low-carbon alternatives available at present.
- **Technological development**: Electric vehicles and hydrogen vehicles are still evolving, and the technologies to fully replace conventional combustion engines are not yet completely mature or universally adopted.
- **Consumer choices**: Despite incentives, the rate at which citizens move towards using sustainable transport options like cycling, public transport, or electric vehicles may not be rapid enough to eliminate all emissions by the target year.

Strategy:

- **Initiating regional approach to sustainable mobility**: design and adoption of a Sustianable Regional Mobility Strategy of Gorenjska region and setting up joint centre for promotion of sustainable mobility at BSC Kranj - Regional development Agency of Gorenjska.
- **Alignment of SUMPS in Kranj functional area:** coordination of envisaged new SUMPS with neighbouring municipalities and the City of Ljubljana as a major commuting destination for Kranj residents.
- **Extension of Kranj city bus lines** to Kranj's functional areas, in particular business parks, education centres and residential areas in neighbouring municipalities of Naklo, Šenčur, Preddvor, Tržič and in the direction Škofja Loka – Ljubljana.
- **Engagement of commuters and large traffic generators** who will keep traditional commuting practices.

Waste

Residual emissions after implementation of proposed actions: 5.351 tonnes CO_2/year
Waste management is a critical aspect of Kranj's environmental strategy. By enhancing selective waste collection, increasing recycling rates, and educating the public on waste minimization, significant improvements are expected. Nonetheless, waste processes inherently produce residual emissions. To counteract these, Kranj will invest in projects that enable the circular use of resources. Reasons for residual emissions:

- **Biodegradable waste:** Even with comprehensive recycling and waste reduction programs, some biodegradable waste will still decompose and produce methane, a potent GHG.
- **Technical challenges:** Complete capture and utilization of gases from waste, particularly in existing landfills is technologically complex.
- **Consumer behaviour:** Not all individuals or businesses may comply with recycling and composting schemes, leading to higher amounts of GHG-emitting waste.

Strategy:

- Initiating an open dialog with citizens on the potential and eventual acceptance of incineration of commercial waste for district heating – renewable energy production.

Industrial Processes and Product Use (IPPU)

Residual emissions after implementation of proposed actions: 5.451 tonnes CO_2/year
In the IPPU sector, City of Kranj will face residual emissions from industrial processes that are hard to reduce with current technology. While the City will continue to foster innovation and cleaner industrial processes, it will also support offsetting through mechanisms that support industry-related environmental projects. These projects will not only help offset emissions but will also stimulate local economic growth and industrial modernization. Reasons for residual emissions:

- **Process emissions:** Certain industrial processes inherently emit GHG as a by-product of chemical reactions, not just from energy use.
- **Technological constraints:** Some industries may not yet have viable commercial-scale technologies for capturing or eliminating emissions.
- **Economic factors:** High costs associated with transitioning to low-emission processes can be a significant barrier, especially for small and medium-sized enterprises.
- **Composting schemes**: The schemes are leading to higher amounts of GHG-emitting waste.

Strategy:

- Promoting piloting carbon storage technologies in industrial processes, in particular in rubber processing industry.

Agriculture, Forestry and Land Use (AFOLU)

Residual emissions after implementation of proposed actions: 10.185 tonnes CO_2/year
There are significant externalities that influence the future emissions in the AFOLU sector and impact the estimated residual emissions:

- **Restoration of forests takes more than 10 years:** After facing extreme natural disasters before 2018, the forests in the city areas are steadily recovering which shall together with sustainable management and conservative felling gradually increase their sequestration potential however the whole process might take beyond 2030.
- **Slow uptake of CAP climate measures among farmers:** Although National Rural Development Plan provides subsidies and agriculture service to promote the transition to decarbonisation agriculture practices, their penetration among majority of farmers might be slower as expected.
- **Methodologies** in AFLOU require longer observation periods.

Strategy:

- Anticipated changes in IPCC methodologies will most likely impact the reduction of GHG emissions from agriculture.
- Restoration of forests with new tree species (higher emphasise on leaves instead of conifers) more efficient as envisaged by actions – consequently higher sequestration from forests as anticipated.

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.

Table 13: B-3.1: Impact Pathways

B-3.1: Impact Pathways							
Outcomes/ impacts addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values		
OVERALL					2025	2027	2030
OVERALL OUTCOME: Reduction of CO_2 emissions from 2018 baseline Emissions gap	All actions in the Action Plan	OI 0.1	CO_2eq emissions		20%	40%	80%
ENERGY SYSTEMS					2025	2027	2030
OUTCOME: District heating and cooling system running primarily on RES and waste heat	1.1, 1.2	OI 1.1 II 1.1	RES and waste heat in city district heating (annual %)		60%	70%	90%
IMAPCT: Energy self-sufficiency and security		II 1.1					
IMPACT: Urban heat island effect reduced		II 1.4	Temperature at detected heat islands (°C)				↘
OUTCOME: Increased energy production from RES	1.3, 1.4, 1.5, 1.7	OI 1.2	Production of green electricity (MWh)		20.000	30.000	55.000
OUTCOME: Energy co-operatives in place							
IMAPCT: Energy self-sufficiency and security		II 1.1					
OUTCOME: Energy efficient and remote managed public lighting	1.6	OI 1.3	Public lighting energy consumption per lamp (KWH/year)		280	270	250
IMPACT: Costs savings - from energy	1.2, 1.4, 1.7	II 1.2	Cost savings - from energy (EUR)				18 mio €
IMAPCT: Citizen's participation in green energy	1.7	II 1.3	PV households (number)		400	550	800
MOBILITY & TRANSPORT					2025	2027	2030
OUTCOME: One car by household	2.1, 2.2	OI 2.1	(Fossil fuel) cars by households (average)		1,3	1,2	1
OUTCOME: Reduced car commuting	2.2, 2.4	OI 2.2	Average daily traffic on key city roads (%)		-5%	-15%	-30%
OUTCOME: Cyclist friendly infrastructure available	2.3	OI 2.3	Total length of cycling tracks (km)		70	80	92
OUTCOME: Climate neutral city public transport and city services vehicles	2.5, 2.6	OI 2.4	Municipal e- or hydrogen powered vehicles (%)		60%	80%	100%
OUTCOME: Reduced transit traffic	2.7	OI 2.5	Average daily traffic on bypass road (%)		↘	↘	-50%
IMAPCT: Improved air quality	all	II 2.1	Days exceeding the PM10 critical values (number)		↘	↘	↘
IMAPCT: Road safety	2.2, 2.3, 2.4, 2.7	II 2.2	Traffic accidents (number)		↘	↘	↘
IMAPCT: Increased quality of life	all	II 2.3	Citizen's satisfaction (average score)		↗	↗	↗

B-3.1: Impact Pathways							
Outcomes/ impacts addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values		
IMPACT: Cost savings - reduced transport costs for citizens	all	II 1.2	Estimation (EUR)				17,8 mio €
IMPACT: Reduced noise pollution	all	II 2.4	Noise pollution - days exceeding the critical values (number)		↘	↘	↘
WASTE & CIRCULAR ECONOMY					2025	2027	2030
OUTCOME: Communal waste reduced	3.1, 3.2	OI 3.1	Communal waste per capita (%)		6%	8%	12%
IMAPCT: Waste management efficiency		II 3.1					
OUTCOME: Recycling increased	3.1, 3.2, 3.3	OI 3.2	Communal waste recycling rate		79%	80%	80%
IMAPCT: Increased rate of recycling		II 3.2					
OUTCOME: Methane emissions from landfill reduced	3.3	OI 3.3	Methane emissions from landfill		-30%	-40%	-50%
OUTCOME: Public-private circular solutions piloted	3.4	OI 3.4	Pilot solutions (number)		1	3	5
IMAPCT: Water savings – reduced leakages	3.5	II 2.2	Water savings – leakages (%)		25%	20%	15%
IMAPCT: New green jobs generation	3.6	II3.3	Green jobs (number)		15%	20%	25%
IMPACT: Cost savings	3.2, 3.4, 3.5	II 1.2	Estimation (EUR)				0,03 mio €
GREEN INFRASTRUCTURE AND NATURE BASED SOLUTIONS					2025	2027	2030
OUTCOME: Protected and better managed urban green infrastructure	4.1, 4.2	OI 4.1	Urban forests and protected areas (km^2)		8	10	12
IMPACT: Biodiversity preservation		II 4.1					
OUTCOME: Green areas improved or extended	4.2, 4.3	OI 4.2	Green areas (km^2)		0,01	0,025	0,05
OUTCOME: Farmers introducing plant and low-emission livestock production	4.4, 4.5	OI 4.3	Agriculture land for vegetable production (ha)		270	300	320
IMPACT: Sustainable local food production		II 4.2					
IMPACT: Improved citizens' health	4.1, 4.3, 4.5	II 4.3	Mortality from cardiovascular disease in the age 0-74 (%)		↘	↘	↘
BUILT ENVIRONMENT					2025	2027	2030
OUTCOME: Energy-efficiency renovation of major municipal and state-owned buildings	5.1	OI 5.1	Municipal buildings rehabilitated (%)		100%	100%	100%
OUTCOME: Improved energy-efficiency of multi-unit residential buildings and individual homes	5.2	OI 5.2	Residential buildings rehabilitated: multi-unit (%)		85%	88%	90%
		OI 5.3	Residential buildings rehabilitated: individual homes (%)		10%	14%	25%
IMPACT: Increased social cohesion	5.2	II 5.1	Citizens applying for Eco Fund grants (number)		1000	1400	2500
OUTCOME: Brownfields regenerated	5.3	OI 5.4	Regenerated urban area (km^2)		0,10	0,12	0,15
IMPACT: Land use management practices		II 5.2					
IMPACT: Costs savings from energy	5.1, 5.2	II 5.3	Cost savings from energy (EUR)				2 mio €

Table 14: B-3.2: Indicator Metadata

B-3.2: Indicator Metadata	
Indicator Name	**OI 0.1 CO_2eq emissions reduction**
Indicator Unit	%
Definition	Share of reduction of CO_2eq emissions from 2018 baseline emissions gap
Calculation	Detailed assessment by sectors as described in Action Plan for relevant year Baseline 2018: TOTAL 113.124 t CO_2eq
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it impact?	All: Buildings, Transport, Waste, IPPU and AFLOUY
Does the indicator measure indirect impacts (i.e., co- benefits)?	No
If yes, which co-benefit does it measure?	/
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	All, except 1.5, 4.2 and 4.5
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	Different Comprehensive monitoring report for the respective year.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

ENERGY SYSTEMS

B-3.2: Indicator Metadata	
Indicator Name	**OI 1.1 , II.1.1 RES and waste heat in city district heating**
Indicator Unit	%
Definition	Share of RES and waste heat annual production in the city district heating and cooling in the territory of the city
Calculation	= SUM (MWh of RES + waste heat) / total MWh. Baseline: 55 %
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	IPPU Buildings
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Energy self-sufficiency and security
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Energy systems - District heating and cooling system running primarily in RES and waste heat
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	District heating and cooling system operator (Domplan)
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	

Deliverables describing the indicator	Annual report of the District heating /cooling system operator City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 1.4 Temperature at detected heat islands**
Indicator Unit	°C
Definition	Temperature of surface land in summer in the territory of Industrial Park Labore and Commercial Centre Planina
Calculation	Urban island effect (UHI) is earth surface temperature (LST) representing a difference between the area of the city and its surrounding rural area in the summer. Baseline 2023: Industrial Park Labore – summer 38,2°C, winter 38,2°C Commercial centre Planina, summer 35°C, winter NA
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Urban heat island effect reduced
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Urban heat island effect reduced
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Different
Is the data source local or regional/national?	Local
Expected availability	No, survey to be commissioned
Suggested collection interval	2022, 2030
References	
Deliverables describing the indicator	Study - Urban heat islands of the City of Kran, Zavita, d.o.o., April 2023 City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 1.2 , II.1.1 Production of green electricity**
Indicator Unit	MWH
Definition	Total annual production of green electricity in the territory of the City of Kranj
Calculation	OI 1.2. = solar MWh + hydro MWh + other RES electricity MWh II.1.1 = % = SUM (MWh of green energy production in district heating systema + MWh of green electricity production) / total energy and electricity consumption in City of Kranj * 100
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	IPPU Buildings
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Energy self-sufficiency and security
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Energy systems – Increased green energy production

Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	Grid operator reports (Elektro Gorenjska)
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	Grid operator reports, City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 1.3 Public lighting energy consumption**
Indicator Unit	KWH/year
Definition	Average annual energy consumption per lamp in kWh/year
Calculation	= total energy consumption in kWh per year / number of lamps in the respective year
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes (input data)
If yes, which co-benefit does it measure?	Cost savings
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Energy systems – energy efficient and remote managed public lighting Cost savings
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	The public lighting concessioner of the City of Kranj
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	Annual report of the public lighting concessioner City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 1.2 Cost savings**
Indicator Unit	EUR
Definition	Savings from implementation of AP green actions
Calculation	Different calculation methods for each action (part of Investment plan and final MEL) Baseline – plan 2030: total 38,3 mio EUR
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Cost savings from energy, mobility, waste and material efficiency, green energy, buildings
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Energy systems, Mobility and Transport, Waste and Circular Economy, Built Environment

Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Final financial monitoring and evaluation report
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2030
References	
Deliverables describing the indicator	City of Kranj, MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 1.3 PV installed by households**
Indicator Unit	Number/ share
Definition	Households obtaining subsidy of Eco Fund for investments in the individual RES electricity production
Calculation	Total number = cumulative value of households obtained subsidy Share % = cumulative value of households obtained subsidy /all households in the city
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Energy
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Citizen participation in green energy
Is the indicator useful for monitoring the output/impact of action(s)?	Yes (input data)
If yes, which action and impact pathway is it relevant for?	Energy systems: Production of green energy Citizen participation in green energy
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Slovenia Eco Fund
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

MOBILITY AND TRANSPORT

B-3.2: Indicator Metadata	
Indicator Name	**OI 2.1 (Fossil fuel) personal cars by households**
Indicator Unit	Number
Definition	Number of registered (fossil fuel) personal cars by households per households in the City of Kranj
Calculation	Number of all (fossil fuel) personal cars/ number of households in a year
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Transport and Mobility
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes (input data)
If yes, which co-benefit does it measure?	Reduced transport costs for citizens
Is the indicator useful for monitoring the output/impact of action(s)?	Yes

If yes, which action and impact pathway is it relevant for?	Mobility and Transport: One car by households Reduced transport costs for citizens
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	SORS – Data Base Administrative unit Kranj (Motor vehicle registration)
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 2.2 Average daily traffic on key city roads**
Indicator Unit	% of reduction
Definition	Average daily traffic of all vehicles on major counting points at main city entrance state-owned roads: Primskovo (counting point KR Primskovo2, no. 244) and Polica/Kidričeva road (counting point KR Zlato polje, no. 718).
Calculation	Annual average number of all vehicles per day at counting point 1 + annual average number of all vehicles per day at counting point 2 (total number, both directions, all types of vehicles). Annual value. Reduction= annual value Yn/annual value 2018 X100 Baseline annual average daily value for 2018 is 37.408 (19.498 Primskovo + 18.155 Zlato polje) vehicles.
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Transport and Mobility
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced congestions
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Mobility and Transport: Reduced car commuting Reduced congestions
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	OPSI Open Data Slovenia (Traffic report)
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 2.3 Length of cycling tracks**
Indicator Unit	Km
Definition	Total length of cycling network in the territory of the City of Kranj registered in the city cadastre as part of transport infrastructure.
Calculation	Cumulative value
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No

If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	No
If yes, which co-benefit does it measure?	/
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Mobility and Transport: Extended and redeveloped infrastructure friendly to cyclists and walkers
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Cycling network cadastre
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 2.4 Municipal e- or hydrogen powered vehicles**
Indicator Unit	Share (%)
Definition	Share of electric or hydrogen powered vehicles in use of City Administration, city's public institutions and utility companies (City Administration, Komunala Kranj, City Library, Health Centre Kranj, Kindergarten Kranj, all primary schools, Institute for sport, elderly mobility service and mobile elderly home care service) and). All types of vehicles considered (personal, mini vans, buses, technical).
Calculation	Number of e-/hydrogen powered vehicles/ All municipal vehicles in use
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Transport and Mobility
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced transport costs
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Mobility and Transport: Expansion of EV and hydrogen powered vehicles in municipal transport, social services and utility fleet Reduced transport costs
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 2.5 Average daily traffic on bypass road**
Indicator Unit	Rate of decline/increase (%)

Definition	Rate of decline/increase (%) of annual average daily traffic of all vehicles at counting point Dorfarje at the state-owned road Kranj-Škofja Loka (no. 111)
Calculation	Annual average daily traffic of all vehicles for current year/ Annual average daily traffic of all vehicles in 2018 (= 13.708) X 100
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Transport and Mobility
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced congestions, Reduced 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?	Mobility and Transport: Reduced transit traffic Reduced congestions, Reduced noise pollution
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	OPSI Open Data Slovenia (Traffic report)
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.1 Days exceeding the critical values of PM10**
Indicator Unit	Number
Definition	Number of days exceeding the critical daily concertation of PM_{10} (daily 50 µg/m^3) at the monitoring points in city territory. Further to the regulation the daily concentration can be exceeded max 35 x in a year.
Calculation	Direct monitoring data (Laze, Health Centre, Planina, Mlaka, Orehek). https://www.kranj.si/podrocja-mok/kakovost-zraka
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Improved air quality, Improved citizens health
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Improved air quality, Improved citizens health
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report from direct monitoring.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.2 Traffic accidents**
Indicator Unit	Number of accidents (number)
Definition	Accidents on roads within the territory of the city reported per year
Calculation	Total number of all reported road accidents per year
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Road safety
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Road safety
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Accident atlas of the Slovenian Traffic Safety Agency http://nesrece.avp-rs.si/
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.3 Citizen's satisfaction**
Indicator Unit	Average score from 1 (lowest) to 4 (highest)
Definition	Average score appointed by respondents of an online citizen survey on the question: How satisfied are you with the City of Kranj as a place to live in?
Calculation	All scores appointed/ Total number of respondents
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Increased quality of life/ Livability
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Increased quality of life/ Livability
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj, On-line citizens survey report
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2023, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.4 Noise pollution – days exceeding critical values**
Indicator Unit	Number of days/nights

Definition	Number of day/nights exceeding the critical noise value. Different critical values depending on the location of monitoring point.
Calculation	Direct monitoring data (Laze, Health Centre, Planina, Mlaka, Orehek). https://www.kranj.si/podrocja-mok/kakovost-zraka
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Reduced 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?	Mobility and Transport: Reduced noise pollution Improved citizens health
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report from direct monitoring.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 3.1, II 3.1 Communal waste per capita**
Indicator Unit	%
Definition	Reduction of municipal waste produced per capita compared to 2018
Calculation	Share = waste collected per capita in Yn/ waste collected per capita in 2018 (334 kg/capita) x 100
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Waste & Circular economy
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Waste management efficiency
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: Increased capacities of circular economy and reduction of waste
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report of the City utility company Komunala Kranj.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 3.2 / II 3.2 Communal waste recycling rate**
Indicator Unit	%

Definition	Increase of recycling of communal waste per year comparing to 2018
Calculation	Share of separately collected communal waste in Yn/ 78 %
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Increased rate of recycling
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: Increased capacities of circular economy, reduction of waste and recycled or reused waste/ Increased rate of recycling
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report of the City utility company Komunala Kranj.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 3.3 Methane emissions from landfill**
Indicator Unit	%
Definition	Decrease of methane emissions from landfill Tenetiše in closure process in year comparing to 2018
Calculation	Methane emission in Yn/ Methane emission in 2018
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it impact?	Waste and Circular Economy
Does the indicator measure indirect impacts (i.e., co- benefits)?	No
If yes, which co-benefit does it measure?	/
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: Centre for circular economy Zarta
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report of the City utility company Komunala Kranj.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 3.4 Pilot solutions**
Indicator Unit	Number
Definition	Number of pilot circular economy-based solutions deriving from local partnership actions, projects or initiatives implemented between 2018-2030
Calculation	Cumulative value

Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	No
If yes, which co-benefit does it measure?	/
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: Innovative local based circular economy solutions
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.2 Water savings – reduced leakages**
Indicator Unit	%
Definition	Share of water leakages in the City of Kranj water supply system
Calculation	% = supplied/produced water in m^3 per year
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Waste and Circular Economy
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Water savings – reduced leakages
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: Energy and resource efficiency in water supply Water savings – reduced leakages
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Annual report of the City utility company Komunala Kranj.
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 2.3 Green jobs**
Indicator Unit	Number
Definition	Number of jobs in agriculture (farmers + A01 agriculture), A02 forestry, c 16 and C31 wood-processing, D energy, E waste and water management, N 81.1 and N 81.3 maintenance, C33 repair, H 49.310 public transport and social enterprises as registered in business register.
Calculation	% growth = Number of green jobs Yn/Number of green jobs in 2018

	Baseline 2018: 961
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	New green jobs generation
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Waste and Circular Economy: New green jobs generation
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	AJPES, SURS.
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

GREEN INFRASTRUCTURE AND NATURE BASED SOLUTIONS

B-3.2: Indicator Metadata	
Indicator Name	**OI 4.1 / II 4.1 Urban forests and protected areas**
Indicator Unit	Km^2
Definition	Area of protected urban forests and nature values and biodiversity of local interest under sustainable management
Calculation	Area, cumulative value
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes - sequestration
If yes, which emission source sectors does it impact?	Green infrastructure and nature-based solutions
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Biodiversity preservation
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Green infrastructure and nature-based solutions: Protected and better managed urban green infrastructure Biodiversity preservation
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 4.2 Green areas**
Indicator Unit	Km^2
Definition	Area of urban green areas (green roofs, parks, urban gardens ...) improved or extended
Calculation	Area, cumulative value
Indicator Context	

Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes - sequestration
If yes, which emission source sectors does it impact?	Green infrastructure and nature-based solutions
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Urban heat island effect reduced Increased quality of life/ Livability
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Green infrastructure and nature-based solutions: Green areas and green roofs, Greening the municipal spatial plan Urban heat island effect reduced Increased quality of life/ Livability
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 4.3/ II 4.2 Agriculture land under vegetable production**
Indicator Unit	Ha
Definition	Surface of land of farming households used for production of vegetable (SURS 1.1.1.1.0.7 Zelenjadnice)
Calculation	Value by year
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Land use management practices Sustainable local food production
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Green infrastructure and nature-based solutions: Promotion of plant and low-emission livestock production Urban agriculture programme Land use management practices Sustainable local food production
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	SORS (Agriculture census)
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2020, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 4.3 Mortality from cardiovascular diseases**
Indicator Unit	% per 100.000 population

Definition	Mortality rate due to cardiovascular diseases per 100.000 population in a year
Calculation	Baseline 2018 (= average 2016-2020, published in 2022): 55,8
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Improved citizen health
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Green infrastructure and nature-based solutions: all actions Improved citizen health
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	NIJZ
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	National Health Institute, K5.2 https://obcine.nijz.si/kazalniki/K5.2

BUILT ENVIRONMENT

B-3.2: Indicator Metadata	
Indicator Name	**OI 5.1 Municipal buildings rehabilitated**
Indicator Unit	%
Definition	Rate of appropriate buildings in ownership of the City of Kranj energy-efficiency rehabilitated
Calculation	Cumulative share, Number of rehabilitated buildings per year/ all buildings in 2018; Baseline 2018: 40
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Cost savings from energy Increased quality of life/ Livability
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Built environment: Energy-efficiency renovation of public buildings + above co-benefits = impacts
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 5.2 Residential buildings rehabilitated – multi-unit**
Indicator Unit	%
Definition	Rate of all multi-unit residential buildings in the City of Kranj rehabilitated
Calculation	Cumulative share, number of rehabilitated buildings so far/all buildings, Baseline 2018: 487
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Cost savings from energy Increased quality of life/ Livability Increased social cohesion
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Built environment: Energy-efficiency of residential buildings in urban and semi-urban neighbourhoods + above co-benefits
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	City of Kranj Administration, Domplan – facility manager
Is the data source local or regional/national?	Local
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 5.3 Residential buildings rehabilitated – individual houses**
Indicator Unit	%
Definition	Rate of all individual houses in the City of Kranj energy-efficiency rehabilitated
Calculation	Cumulative share, number of rehabilitated houses so far/all buildings, Baseline 2018: 9.695
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Cost savings from energy Increased quality of life/ Livability Increased social cohesion
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Built environment: Energy-efficiency of residential buildings in urban and semi-urban neighbourhoods + above co-benefits/impacts
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Eco Fund
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030

References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**II 5.1 Citizens participating in grants**
Indicator Unit	Number
Definition	Number of citizens of the City of Kranj benefiting from energy-efficiency rehabilitation grants
Calculation	Cumulative number, Baseline 2018: 0
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it impact?	/
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Increased social cohesion
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Built environment: Energy-efficiency of residential buildings in urban and semi-urban neighbourhoods + above co-benefits/impacts
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Eco Fund
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

B-3.2: Indicator Metadata	
Indicator Name	**OI 5.4 / II 5.2 Regenerated urban area**
Indicator Unit	Km^2
Definition	Surface of derelict sites regenerated in order to preserve forests and agriculture land
Calculation	Cumulative value, Baseline 2018: 0
Indicator Context	
Does the indicator measure direct impacts (i.e., reduction in greenhouse gas emissions?)	Yes (input data)
If yes, which emission source sectors does it impact?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	Yes
If yes, which co-benefit does it measure?	Land use management practices
Is the indicator useful for monitoring the output/impact of action(s)?	Yes
If yes, which action and impact pathway is it relevant for?	Built environment: Energy-efficiency of residential buildings in urban and semi-urban neighbourhoods + above co-benefits
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	No
Data requirements	
Expected data source	Eco Fund
Is the data source local or regional/national?	National
Expected availability	Yes
Suggested collection interval	2018, 2022, 2025, 2027, 2030
References	
Deliverables describing the indicator	City of Kranj MEL tool
Other indicator systems using this indicator	/

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.

C-1.1: Description or visualisation of the participatory governance model for climate neutrality

The City of Kranj climate neutrality commitment is a joint effort, thus it has been designed from the start as a participatory change process for all, the City, its citizens, businesses, public institutions and civil society. The proposed model builds on the existing City's participatory tools and the networks as well as identified gaps in the CCC co-creative process running over last two years.

The participatory process is based on engagement of all relevant stakeholders considering their mission, expertise, influence and interest, detailed stakeholder mapping presented in the chapter A.3.1 and motivation of target groups for decarbonisation – gradual abandonment of some traditional habits and replacing them with more sustainable ones. The participatory principles are embedded in three main pillars of the model: governance structure, partnership network and set of participation tools (see also Figure 18). The intensity of participation grows gradually along with the planning and implementation processes, starting inside within the governance structure and extending outwards to specific and general public.

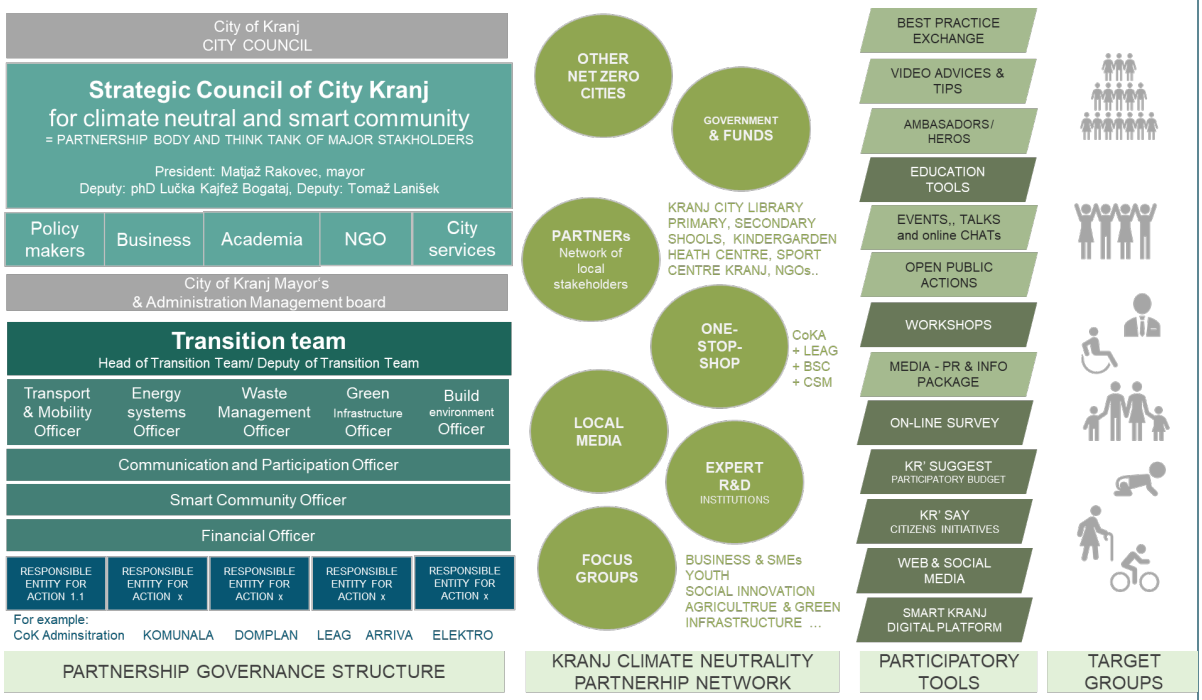


Figure 18: City of Kranj participatory model/ ecosystem for climate neutrality

→ **Partnership governance structure** organised at three levels:

- *The strategic level* represented by the Strategic Council of City of Kranj for Climate Neutral and Smart Community representing key partnership body and think thank of most relevant stakeholders from various fields and sectors; the council follows the previous strategic board

for smart city. SCCNSC is continuously open to partners who have significant impact on Kranj climate targets.

- *Operational level* represented by the TT composed by officers from the relevant city administration departments under the coordination of the Department for Green Transition.
- *The implementing level* representing professionals from key institutions responsible to prepare and deliver individual actions in close cooperation with TT. They mainly come from municipal administration departments, municipal public service providers, utility companies and implementing agencies and represent an extended professional platform of the TT.

All of the above structures are in place, mentioned stakeholders involved in the planning process and agree in further cooperation.

→ **Kranj Climate neutrality partnership network** representing broader ecosystem:

- *Local dissemination partners* including envisaged One-stop shop for citizens, institutional dissemination partners (library, schools ...) and media who can significantly reach out towards specific target groups as well as motivate and advice broader public citizens and businesses in up-taking the climate neutral habits and solutions or participate in concrete actions.
- *Consultation and expertise* partners such as local ad hoc focus groups, research, expertise and finance organisations from and outside the city and other Cities Misssion cities who have the specific expertise, initiatives and funds to support the TT and implementing entities of the AP.

Most of the 'extended partners' have been approached during the planning phase while the concept of partners and one-stop-shop need to be further elaborated and its facilitation agreed.

→ **Participatory tools, practices and principles,** many of which are already in place, have been successfully applied by the CoK over the past decades and need to be adapted to communicate the Kranj climate neutrality mission, goals and actions. However, Smart Kranj Platform remains the backbone of the communication and collaboration with citizens. The list of key communication and participatory tools extends from providing of information to provision of citizens participation opportunities. The list of tools is not fixed and exhaustive. They shall develop along with the process.

- *Information & communication*: web & social media, climate neutral & PR
- *Awareness & education*: education tools, events, best practice exchange, video tips, product specific apps such as KR'bike
- *Active participation*: KR'say app, KR'suggest app, on-line survey, workshops, open public actions, ambassadors & heroes, one stop shop

Following the outline of the participatory model, a detailed communication and participatory plan will be elaborated in 2024, focusing on the mobility challenges in the city. For its implementation, a participation and communication officer has been employed in the Department for Green Transition. Additional external support, preferably NGOs will be engaged for management of the process on a larger scale. See also more detailed report on the co-creative process and a preliminary framework for the future in Annex 2.

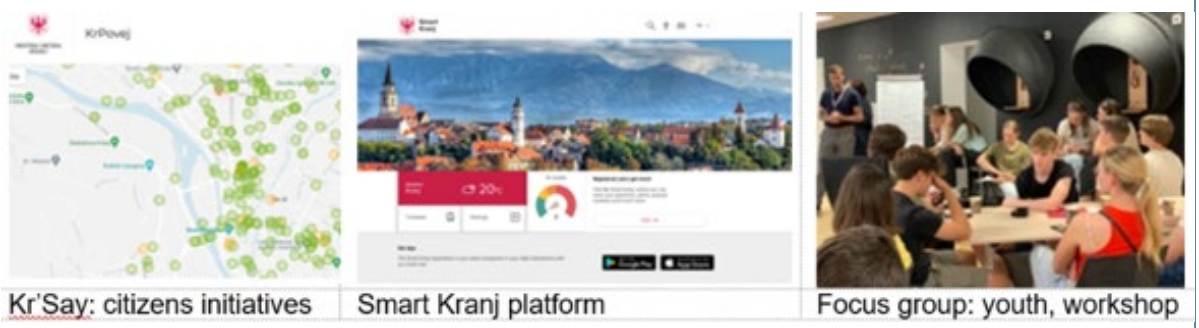


Figure 19: Participatory tools in place

Table 15: C.1.2: Relations between governance innovations, systems, and impact pathways

C.1.2: Relations between governance innovations, systems, and impact pathways						
Intervention name	Description	Systemic barriers / opportunities addressed	Responsible entity/ dept./*	Leadership and stakeholders involved	Enabling impact	Co-benefits
(Indicate name of intervention)	(Describe the substance of the intervention)	(Refer to barriers and opportunities identified in Module A-3)	(Indicate responsible)	(List leaders and all stakeholder involved and affected,	(Describe how intervention enables climate neutrality)	(Indicate how intervention helps achieve impact listed in Module B-1)
Kranj Climate neutral and smart city ecosystem for management and monitoring the transition to climate neutrality	Formalisation of key governance structures and enhancing their capacities Kranj Strategic Council for Climate Neutral and Smart City Transition Team City administration departments One-stop shop CCC supporters – network of local partners and media	Roles, priorities and responsibilities shared among national/local level and diverse stakeholders Political changes Active coordination City-Government Engagement of citizens and private stakeholders and their capital	CoKA, Office for the Development and Smart Community, Department for Green Transition	City Council City and state public institutions active in Kranj Major local businesses Major knowledge partners Key NGOs Media	Coordinated climate neutral goal-oriented approach Smooth and efficient implementation of actions Risk management and agreement on corrective measures	Sustained commitment at institutional and policy level Dissemination Improved citizens and business awareness → **Co-benefits:** Citizens & community participation Increased social cohesion
Competences, commitment and knowledge - base for management and monitoring the transition to climate neutrality	Equipping key municipal public servants and persons responsible for individual actions with specific technical and soft skills as well as tools and mechanisms needed to carry out investments and introduce policy measures in compliance with climate neutral targets and new climate related EU regulations and guidelines.	Limited HR capacities Lack of climate relevant state-of-the-art skills Improve organisational capacities and efficiency Involve professionals from utility companies Involve Universities Exchange within NZC	CoKA, Office for the Development and Smart Community, Department for Green Transition	Key public servants Promotors of CCC actions	Timely and professional action/ project and policy design Participatory planning Smooth and efficient implementation of actions	Holistic approach with indirect benefits considered in the planning stage Increased acceptance of changes among citizens → **Co-benefits:** Increased quality of life Increased social cohesion
City regulatory framework interventions	Adjusting city's main regulations, current sector strategies and its	Long lasting procedures for spatial planning	CoKA, Office for the Development	City Council	Promoting major system changes	Role models for other state and private investors – dissemination impact

C.1.2: Relations between governance innovations, systems, and impact pathways						
Intervention name	Description	Systemic barriers / opportunities addressed	Responsible entity/ dept./*	Leadership and stakeholders involved	Enabling impact	Co-benefits
to accelerate pathway to climate neutrality	implementation practices to climate neutral goal, emphasising climate neutral investments, purchases, regimes and behaviour in the sectors under City's responsibility.	Some of city sector strategies lag behind the AP targets Deep and ongoing citizens engagement Rigidness of legislation jeopardises innovation and flexibility in the City's operation	and Smart Community, Department for Green Transition	Other City Administration offices and departments Investors Key NGOs/Citizens		→ **Co-benefits:** Increased quality of life Increased social cohesion Liveability and attractiveness
Smart Kranj – integrated digital platform, collaboration and implementation tool, monitoring and evaluation of climate targets	Smart Kranj digital platform is a backbone of city digitalization of its services, collaboration and transition management. When data exchange with all relevant public service providers and national bodies will be assured, a module/ tool for monitoring and evaluation of this action plan will be set up. *(See detailed information in C-2.2.)*	Advanced collaboration and communication Excessive bureaucratisation Smart city platform to enable digitalization of city services and use of real-time data Regular assessments and reporting to mitigate risks and uncertainties of the projects	CoKA, Office for the Development and Smart Community, Department for Smart Community	City and state public institutions Promotors of CCC actions	Efficient monitoring and evaluation Data-based decision making and future planning Risk management and ability to respond	Communication and awareness rising supported by local data Ability to reach out wider and more targeted audiences → **Co-benefits:** Cost savings

**The information has been kept from the previous template model as it is relevant for the implementation.*

C-1.3: Description of organisation and governance interventions – textual and visual elements* **The information has been kept from the previous template since relevant.*

The City of Kranj has determined four inter-related building blocks for the efficient organisation and governance of the city's transition to smart operation and climate neutrality as evident from the chart below.

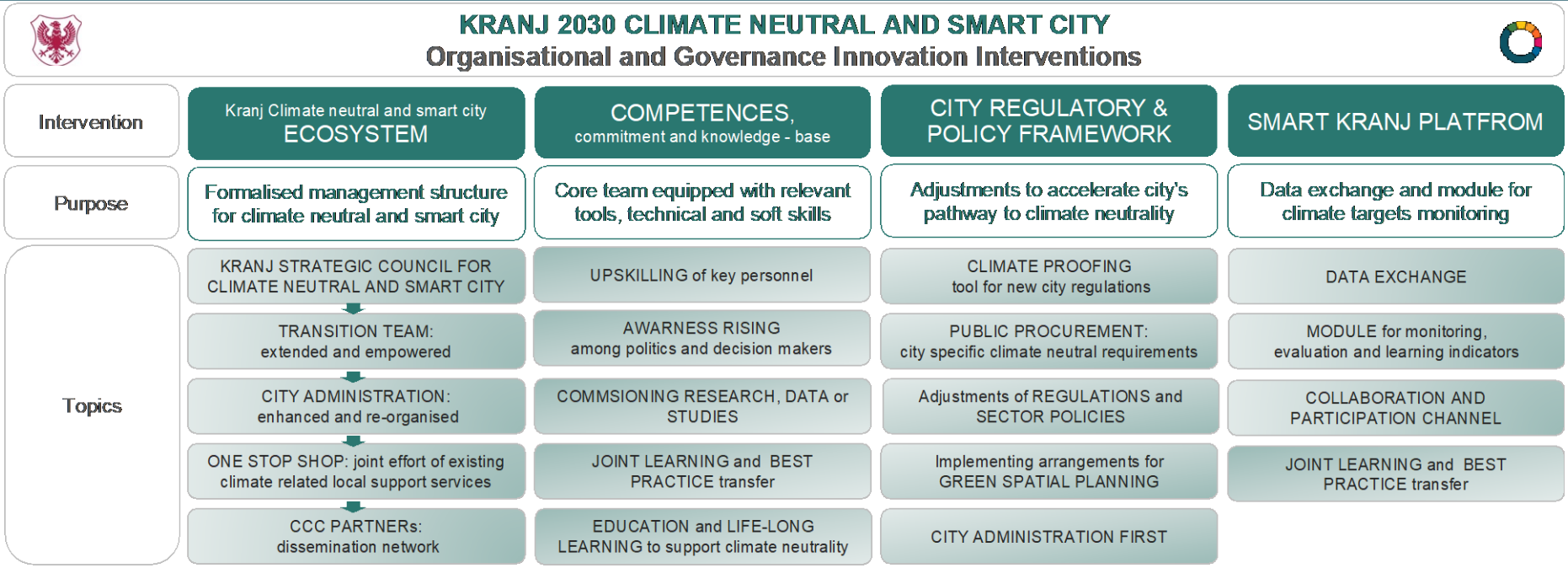


Figure 20: Organisation and governance innovation intervention framework

KRANJ CLIMATE NEUTRAL AND SMART CITY ECOSYSTEM is agreed to assure sound management, implementation and monitoring of the agreed targets and implementation of actions proposed in this document. Formalising key governance structures, established through the planning process and enhancing of capacities of certain municipal departments, is crucial. The City of Kranj ecosystem integrates key City's climate neutrality drivers: from decision-makers, implementers to disseminators and citizens supporting bodies.

- KRANJ STRATEGIC COUNCIL FOR CLIMATE NEUTRAL AND SMART CITY as key strategic and monitoring stakeholder is formalised and will continue its mission, presumabily even after 2030.
- TRANSITION TEAM to be re-shaped with competent persons and institutions responsible for implementation of individual action and improve inter-department information flows. Coordinated by Department for Green Transition.
- CITY ADMINISTRATION adjustments and increase of capacities:
    - Setting up Department for Green Transition (responsible for CCC implementation and coordination) and Department for Environment Protection;
    - Enhancing Office for Economic Affairs and Traffic.
- KRANJ CLIMATE NEUTRALITY ONE STOP SHOP as collaborative network of key institutional local partners with existing and new climate related services.

- CokA, LEAG, RDA BSC, CTM developing a joint and updated services, single entrance point for citizens and businesses with climate action initiatives.
- CCC PARTNER NETWORK comprising of local partners relevant to disseminate and help implement the actions such as media, schools, libraries, sport and culture centres, health centre, elderly organisations and various NGOs (e.g fire brigades, sport, culture, humanitarian, social enterprises).

COMPETENCES, COMMITMENT AND KNOWLEDE - BASE of core team and key stakeholders responsible for carrying the transition process play a major success factor. A systematic approach towards continuous learning and strengthening the city's knowledge-base is necessary.

- UPSKILLING of key personnel of the City Administration, city public service providers and major clients with specific technical (building standards, regulations, solutions, new business models, financial instruments ...) and soft skills (participatory processes, district /area change management, demand analysis ..) enabling them to implement actions into practice or introduce new policy measures.
- AWARNESS RISING for understanding the mission, mechanism and trends among city politics decision makers in the city institutions.
- COMMSIONING RESEARCH, DATA or STUDIES, needed to plan, assess, benchmark new solutions.
- JOINT LEARNING AND BEST PRACTICE TRANSFER through internal learning system and City's membership in national and EU platforms.
- Systematic adaptation and modernisation of EDUCATION and LIFE-LONG LEARNING LOCAL SYSTEM, including implementation of trainings supporting transition to climate neutrality while tailored to the needs of specific target groups (youth, elderly, farmers..) and extension of integrated multimedia learning environment (project ZLaTI Kranj) with the learning tools and apps for penetration of climate actions to daily life of citizens.

CITY REGULATORY FRAMEWORK shall be adjusted to accelerate City's pathway to climate neutrality beyond the current practices and set standards. Among others, the following fields call for assessment, introduction or improvement:

- CLIMATE PROOFING tool of new city regulations;
- PUBLIC PROCUREMENT – specific guidelines for climate neutral requirements;
- Adjustments of REGULATIONS and SECTOR POLICIES;
- IMPLEMENTING ARRANGEMENTS FOR GREEN / CLIMATE NEUTRAL SPATIAL PLANNING in daily practice though better aligned existing official procedures under responsibility of different City departments and public service providers. Guidelines for investors and citizens;
- CITY ADMINISTRATION FIRST: recommendations for city public servants travelling modes, local food supply, re-use …

SMART KRANJ PLATFORM is a backbone of City of Kranj digitalisation with technologies that enable connection and data usage of various utility and service providers (transport, waste, natural disasters, air quality, energy consumption, events, health, citizens participation, household and financial data, surveys.) for management and monitoring of city green transition, including public carbon footprint dashboard, and introducing different policy measures and related behavioural changes and interactions in the community. In this way, Smart Kranj Platform, city digital platform, when integrated with all relevant data providers, shall help auditing the City's progress to climate neutrality.

- DATA EXCHANGE with public institutions and service providers necessary to monitoring of the climate neutrality indicators;
- DEVELOPMENT OF A MODULE to support monitoring, evaluation and learning indicators as of this AP;
- STAKEHOLDER, PARTNER AND COMMUNICATION TOOL.

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[6].

Table 16: C.2.1: Relations between social innovations, systems, and impact pathways

C.2.1: Relations between social innovations, systems, and impact pathways						
Intervention name	Description	Systemic barriers / opportunities addressed	Responsible entity/ dept./ person*	Leadership and stakeholders involved	Enabling impact	Co-benefits
(Indicate name of intervention)	(Describe the substance of the intervention)	(Refer to barriers and opportunities identified in Module A-3)	(Indicate responsible)	(List leaders and all stakeholder involved and affected, referring to the stakeholders mapped in Module A3)	(Describe how intervention enables climate neutrality)	(Indicate how intervention helps achieve impact listed in Module B-1)
Citizens' and investors' ONE-STOP-SHOP and support PROGRAMME for climate neutral and smart city	Setting up citizens and investors one-stop-shop by combining, adjusting and modernising existing centres for energy, mobility and business innovation in two phases: 1. Digital one-stop-shop 2. Physical in person one-stop-shop. In parallel, the Department for Green Transition will, in partnership with one-stop-shop, design and implement a comprehensive support, awareness rising, communication and participation programme for engaging citizens for climate neutrality actions.	Awareness raising and introduction of benefits for citizens, businesses and investors. Limited financial sources for major investments, bot at the city as well as citizens level Deep and ongoing citizen engagement to ensure acceptance of climate actions Broaden participation of local society in decision making processes.	CoKA, Office for the Development and Smart Community, Department for Green Transition	LEAG BSC CTM ZTK CCC partner network Target group: Businesses Farmers Citizens NGOs Social enterprises Media	Increased community and citizens participation in the change and innovation process Greater understanding of the climate neutrality Accelerated acceptance of measures and behaviour change	Climate neutral future initiatives → **Co-benefits:** Citizens & community participation Increased quality of life Increased social cohesion Livability and attractiveness Cost savings

[6] 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.

C.2.1: Relations between social innovations, systems, and impact pathways						
Intervention name	Description	Systemic barriers / opportunities addressed	Responsible entity/ dept./ person*	Leadership and stakeholders involved	Enabling impact	Co-benefits
SMART KRANJ – integrated digital platform for climate transition management and citizen services	Smart Kranj integrated digital platform is a backbone of city digitalization and a single digital environment to support city's transition to climate neutrality. Thus, its technologies enable gradual development of digital management, monitoring and citizens services in all 5 fields of actions: energy systems, mobility and transport, waste and circular economy, green infrastructure and NBS and built environment. Horizontally, the platform provides the major communication and participatory tool as well as governance.	Advanced collaboration and communication Capacities of Kranj smart city platform potentials for increased digitalisation of services and use of real-time data Excessive bureaucratisation	CoKA, Office for the Development and Smart Community, Department for Smart Community	CCC Governance structure (strategic council, TT, One stop shop, CCC partners) City public service providers SORS IT SMEs End users: Businesses, farmers, Citizens, NGOs, media	Smart - more efficient management and provision of transport, waste, energy … city's public services Capacity to integrate other and/or develop new digital services for citizens Targeted reach out and direct interaction with groups of users	Climate neutral operation and behaviour Smart city services in place → **Co-benefits:** Citizens & community participation Livability and attractiveness Increased quality of life Cost savings
Climate neutral and smart CITY DISTRICTS DEVELOPMENT AND/OR REGENERATION MODEL	Introduction and promotion of climate neutral and smart solutions in major new developments and regeneration projects based on agreed tailor made development models between investors, City Administration and local residents/ business.	Long-lasting preparation of major investments Large financial investments required Increased costs and risks for long-term capital projects. Long lasting procedures to update and adjust spatial plan Engagement of private local and international capital	CoKA, Office for the Development and Smart Community, Department for Smart Community Department for Green Transition Joint Office for Spatial Planning	Investors -landowners Public institutions engaged in urban planning Local community (KS) Financial institutions Residents	Integrated simultaneous implementation of set of climate actions and smart solutions in a functional city territory Practices and capacities available to upscale the implementation	Climate neutral and smart city major investments Climate neutral living → **Co-benefits:** Livability and attractiveness Increased quality of life Increased social cohesion

C.2.1: Relations between social innovations, systems, and impact pathways						
Intervention name	Description	Systemic barriers / opportunities addressed	Responsible entity/ dept./ person*	Leadership and stakeholders involved	Enabling impact	Co-benefits
GREENING THE PARTICIPATORY BUDGET	The City of Kranj will keep and improve the mechanism of the participatory budget planning, increase visibility and participation as well as promote its potential to better address also the climate neutral vision of the city.	Deep and ongoing citizen engagement to ensure acceptance of climate actions Broaden participation of local society in decision making processes.	CoKA, Mayor's Cabinet Sector for Finances and General Affairs	CCC partner network Citizens	Increased community and citizens participation in the change and innovation process Greater understanding of the climate neutrality Accelerated acceptance of measures	Climate neutral operation and behaviour → **Co-benefits:** Citizens & community participation Increased quality of life Increased social cohesion Livability and attractiveness

**The information has been kept from the previous template model as it is relevant for the implementation.*

C-2.2: Description of social innovation interventions

Openness to innovation, being of social, digital/ technological or governance character, is embedded in the City of Kranj climate neutral and smart city development vision as a horizontal principle and its daily modus operandi. There are four main but complex intervention areas each of them supporting or integrating sectoral actions and addressing identified barriers and opportunities in module A-3. See also Figure 19 below.

CITIZENS' AND INVESTORS' ONE-STOP-SHOP AND SUPPORT PROGRAMME for climate neutral and smart city

Shift to climate neutral city is a common goal of all, thus engaging wider public and facilitation of the inclusive change process is the central task of the social innovation interventions. It involves setting up of the 'point' and continued delivery of its participation and awareness rising programme.

- Innovative **Climate neutral and smart city One-stop shop** as an open, participatory and coordinated tool for citizen groups, businesses and investors. Two stage approach is foreseen: at first digital (through Smart Kranj Platform and mobile app Maas) and later as an public open space/office offering a meeting point and digital education tools - video/VR/real, infographics.
- Providing citizens access to **practical advice** of different experts / institutions at **one spot** (energy-efficiency, mobility planning, reconstruction, gardening.) through digital and face-to-face assistance in cooperation with experts and existing public, PPP and educational institutions (EnSvet, LEAG, Vizije mobilnosti, CTM, BSC, RAS, CTRP and NGOs engaged in climate actions etc.)
- Open and participatory **communication** based on specific mission identity, strong encouraging messages and existing multiple communication channels: **website** to provide detailed information, FAQs with quick answers to common questions, tips, best practices and articles explaining the concepts of climate neutrality and smart city technologies etc.), citizens **interactive tool** of the digital platform, **screens** all over the city, **social media, local and community newspapers**, regular community meetings, radio and television.

- **Learning programme and tools** supported by digital education tools, demonstration actions and concrete initiatives.
- Enhanced **cooperation with Kranj kindergartens and primary schools** to provide them with materials/work on climate topics to support existing events (Eco day, Earth Day…) and develop new climate neutrality related programmes.
- **Setting up a network of Kranj climate neutral partner organisations and individual supporters such as heroes** or **ambassadors** – competent, informed and inspiring young/elderly, creating inspiring videos with them, presenting best climate mitigation practices etc.
- Tailor **made events and awareness rising actions in collaboration with local CCC partners** (Kranj City Library, Kranj Sports Centre, museums, Health centre, Adult education and life-long learning centre, business incubator and co-working, tourism board, NGOs): e.g. workshops, experiencing actions - riding e-bikes, e-cars, signs on the roads to encourage sustainable mobility, zero waste pop-up stands and heroes on large events, education on what is P+R, webinars, café round tables, conference to engage and educate citizens, businesses and investors.

SMART KRANJ – INTEGRATED DIGITAL PLATFORM for climate transition management and citizen services

After the adoption of Integrated Sustainable Urban Development Strategy of Kranj in 2016 and supported by Kranj Digital Strategy in 2020, the City of Kranj has been systematically building up and connecting processes, platforms, data and services into a single digital environment to support management of the smart city functions, improving the quality of life of citizens and visitors, provide better and more efficient services for the citizens as well as to support city's transition to climate neutrality. The intervention is thus cantered around three main components:

- **Smart Kranj Digital Platform** with technologies that enable connection and data usage of various utility and service providers (transport, waste, natural disasters, air quality, energy consumption, events, health, citizens participation, household and financial data, surveys) for management and monitoring of city green transition, including public carbon footprint dashboard, and introducing different policy measures and related behavioural changes and interactions in the community.

- **MaaS App – providing new services for citizens,** primarily those easing the transition to climate neutrality for citizens (city public transport route planner, smart parking, smart waste, smart cycling etc.) or enabling incentives for behavioural changes and proactive interaction with users (benefits for one-car households, walkers and bikers etc.).

- **Kranj Smart City Card – top of wallet card –** connecting all city services and public services with an integrated loyalty system. By using the city card and rewarding system, the city intends to influence changes in the behaviour and lifestyle of citizens.

CLIMATE NEUTRAL AND SMART CITY DISTRICTS DEVELOPMENT AND /OR REGENERATION MODEL

One of Kranj's major challenges is the ability to promote climate neutral and smart solutions within the major developments, being the new mixed districts, business parks, residential areas or brownfield regeneration projects. In this way the energy, mobility, waste, green space and building measures can be simultaneously integrated and implemented in a concrete territory.

While a smart concept has already been piloted in one of the existing residential areas of individual houses (Smart Mlaka district), its upscale with additional emphasise of climate neutrality measures needs to be introduced in a larger scale. Prior evaluation and analyses of interest among other local districts is necessary.

On the other hand, for larger areas there is an evident lack of technological, planning, governance, financial and operational competences and practices in Slovenia, including absence of financial schemes and cost-benefit. Thus, an appropriate and more comprehensive development models need to be prepared and agreed in close cooperation between the investors, city administration planners, financial institutions and in participation of residents/businesses, on case-by-case basis such as:

- PLAN TO UP-SCALE SMART MLAKA MODEL to other residential neighbourhood's concept following prior evaluation and improvements;
- CLIMATE NEUTRAL AND SMART BUSINESS PARK DEVELOPMENT MODEL (demonstration case Business park Hrastje);
- CLIMATE NEUTRAL AND SMART URBAN REGENERATION MODEL (demonstration case urban district Primskovo regeneration).

GREENING THE PARTICIPATORY BUDGET

The City of Kranj has dedicated part of its budget to be planned and voted by citizens through an open process called KR PREDLAGAJ/ KR SUGGEST which proved to be well accepted mechanism among the residents. More than 100 citizens' proposals are submitted anually, and over 30 accepted for funding. Thus, the City of Kranj will keep the mechanism, increase visibility and participation as well as to link the scheme to CCC process as to better exploit its potential to address the city's climate neutral targets.

- ADJUSTMENTS of the mechanism
- PROMOTION OF IMPLEMENTED CITIZEN INITAITVES SUPPORTING CLIMATE NEUTRALITY TARGETS
- Strengthened CO-ORDINATED PROMOTION of PARTICIPATORU BUDGET and CCC process and goals

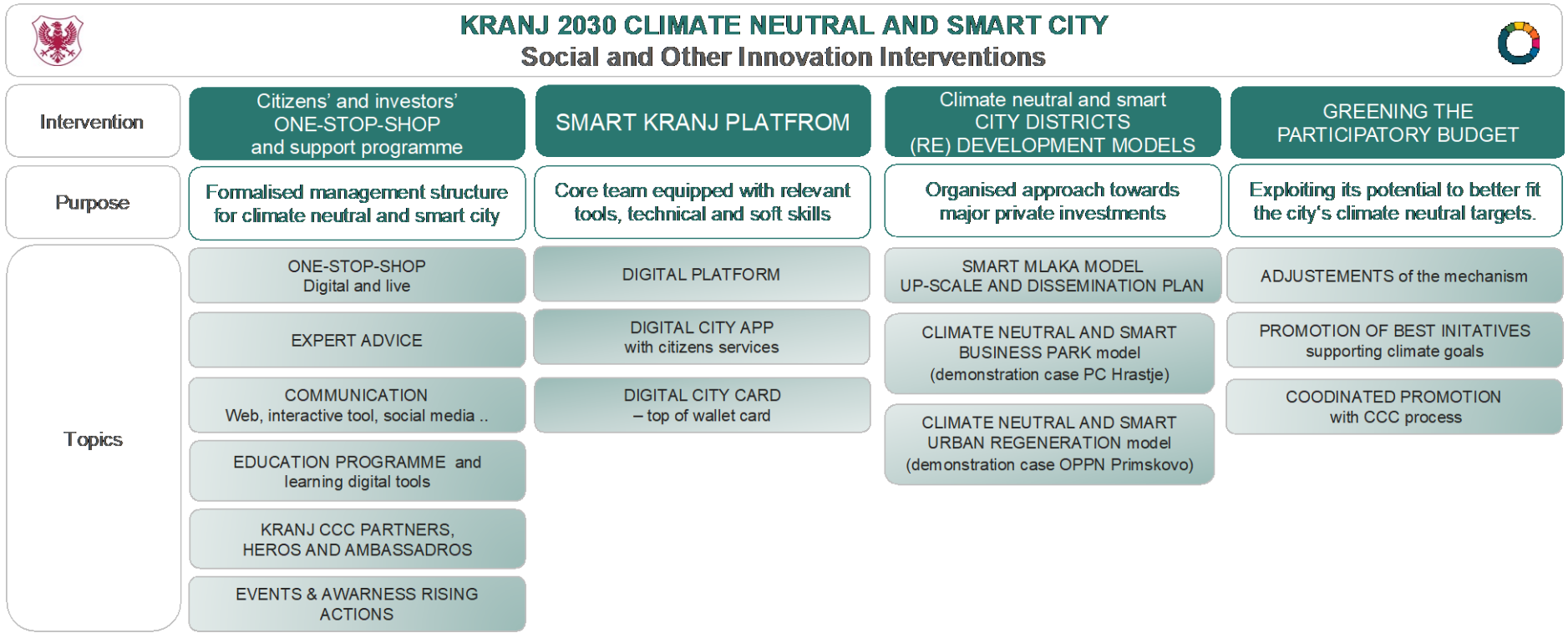


Figure 21: Social, smart city and other innovation interventions

4.3 Module C-3 Financing of Action Portfolio

Module C-3 "Financing of Action Portfolio" should contain the list of action portfolios and interventions outlined in Modules B-2, and those from C-1 and C-2 with cost implication to provide a summary list of interventions that need to be unpacked in the Investment Plan. **The information has been kept from the previous template since relevant.*

C-3.1: Summary of interventions with cost implication (to be unpacked in Investment Plan)

Action/ intervention name	Responsible entity and person	Start/end date	Field of action	Impact (in t CO_2eq)	Total cost estimated (2018-2030)
1.1. Phase out fossil fuel in district heating/ cooling and replacement with RES	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Public Heating Service Operator or other selected concessioners	2018-2030	Energy systems	14.342 t	21.827.000
1.2. Utilization of waste heat from industrial and commercial facilities for Kranj district heating and cooling system	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Public Heating Service Operator or other selected concessioners Enterprises providing residual heat	2023-2030	Energy systems	9.850 t	6.000.000
1.3. Solar electricity production	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Komunala Kranj (public utility company) Private investors	2018-2030	Energy systems	19.690 t	53.073.000
1.4. Hydro electricity production	Private investor (Gorenjske elektrarne d.o.o.)	2018-2030	Energy systems	125 t	1.000.000
1.5. Upgrade of electric grid	Distribution company Elektro Gorenjska d.d.	2023-2030	Energy systems	/ Support action.	40.000.000
1.6. Energy-efficient and smart public lighting	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Concessioner	2018-2030	Energy systems	286 t	2.500.000
1.7. Energy co-operatives	LEAG BSC Kranj	2023-2028	Energy systems	1.969 t	5.000.000
2.1. "One car by household" promotion programme	CoKA, Office for Economic Affairs and Traffic, Department of Traffic CTM Centre for Sustainable Mobility	2024-2030	Mobility & transport	16.342 t	2.700.000
2.2. Smart multimodal public transport system	CoKA, Office for Economic Affairs and Traffic, Department of Traffic Joint Office for Spatial planning CoKA, Project Office Republic of Slovenia, Ministry of Infrastructure Concessioners	2018-2030	Mobility & transport	4.797 t	14.093.000
2.3. Cycling and walking network	CoKA, Office for Economic Affairs and Traffic, Department of Traffic	2018-2030	Mobility & transport	183 t	7.250.000

C-3.1: Summary of interventions with cost implication (to be unpacked in Investment Plan)					
Action/ intervention name	Responsible entity and person	Start/end date	Field of action	Impact (in t CO_2eq)	Total cost estimated (2018-2030)
	CTM Centre for Sustainable Mobility Kranj				
2.4. Car-free areas, shared spaces, one-way streets and P&R	CoKA, Office for Economic Affairs and Traffic, Department of Traffic Komunala Kranj (public utility company)	2018-2030	Mobility & transport	268 t	1.750.000
2.5. EV and hydrogen charging infrastructure	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Concessioners Ministry of Defence Private investors	2018-2030	Mobility & transport	10.585 t	19.488.260
2.6. EV and hydrogen powered municipal vehicles	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Concessioner	2018-2030	Mobility & transport	1.027 t	14.900.000
2.7. Reduced transit traffic	CoKA, Office for Economic Affairs and Traffic, Joint Office for Spatial planning Republic of Slovenia, Ministry of Infrastructure	2023-2030	Mobility & transport	2.699 t	12.000.000
3.1. Zero waste programme	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Komunala Kranj (public utility company)	2018-2030	Mobility & transport	658 t	350.000
3.2. Smart waste management	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs Komunala Kranj (public utility company)	2018-2030	Waste & circular economy	53 t	4.000.000
3.3. Centre for Circular Economy Zarta with new waste management and support services	Komunala Kranj (public utility company)	2023-2026	Waste & circular economy	11.512 t	5.142.000
3.4. Kranj Circular City joint public-private innovation actions	CoKA, Office for the development and smart community, Department for Green Transition	2023-2030	Waste & circular economy	2.579 t	800.000
3.5 Energy and resource efficiency in water supply	CoKA, Project Office Komunala Kranj (public utility company)	2018-2030	Waste & circular economy	20 t	8.885.360
4.1. Sustainable management of green and blue infrastructure system	CoKA, Joint Office for Environment protection	2023-2028	Green infrastructure & nature-based solutions	7.560 t	770.000
4.2. Greening the municipal spatial planning	CoKA, Joint Office for Spatial planning	2023-2028	Green infrastructure & nature-based solutions	/ Support action.	500.000
4.3. Green areas and green roofs	CoKA, Project Office CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs	2023-2030	Green infrastructure & nature-based solutions	68 t	5.000.000

C-3.1: Summary of interventions with cost implication (to be unpacked in Investment Plan)					
Action/ intervention name	Responsible entity and person	Start/end date	Field of action	Impact (in t CO_2eq)	Total cost estimated (2018-2030)
4.4. Promotion of plant and low-emission livestock production	City of Kranj Administration, Project Office Office for the development and smart community Office for Economic Affairs and Traffic, Department of Economic Affairs	2023-2030	Green infrastructure & nature-based solutions	672 t	1.210.000
4.5. Urban agriculture programme	CoKA, Office for the development and smart community and Office for Economic Affairs and Traffic, Department of Economic Affairs	2018-2030	Green infrastructure & nature-based solutions	0 t	4.194.000
5.1. Energy-efficiency renovation of public buildings	CoKA, Office for Economic Affairs and Traffic, Department of Economic Affairs (municipal buildings) Republic of Slovenia (state owned buildings)	2018-2030	Built environment	2.685 t	40.682.440
5.2. Energy-efficiency of residential buildings in urban and semi-urban neighbourhoods	CoKA, Office for the development and smart community, Department for Green Transition LEAG	2018-2030	Built environment	5.092 t	78.500.000
5.3. Integrated smart and climate neutral re-development of urban brownfield areas	CoKA, Joint Office for Spatial planning	2018-2030	Built environment	203 t	5.260.000
0.1 Organisational and Governance Innovation interventions	CoKA, Office for the development and smart community	2018-2030	Built environment	/ Support action.	700.000
0.2 Social, digital and other Innovation interventions	CoKA, Office for the development and smart community	2018-2030	Built environment	/ Support action.	8.135.975
TOTAL				**EUR**	**366.006.039**

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 City of Kranj 2030 Climate Neutrality Action Plan **depicts various actions needed** in the field of energy systems, sustainable mobility, waste and circular economy, green infrastructure and built environment **for reaching the climate neutrality by 2030**. Failure in implementation any of the action would jeopardise the set decarbonisation targets and **require response of one of the following key mitigation measures:**

- → ongoing adaptation of individual actions if the proposed approach is not feasible or new or better solutions emerge;
- → modification of the Action Plan (a revision is recommended after the in-depth mid-term monitoring in 2026 following the 2025 GHG inventory) and/or
- → continuation and strenghtening of planned activities and actions after 2030.

It is off utmost importance for the City of Kranj and its Transition Team and Strategic Council to exploit the positive momentum and take the following **further steps in the period 2024-2025:**

1. **Engage, instruct and coordinate all bodies responsible** for implementing the individual actions.
2. **Focus on critical actions.** Increase human resources and set up operational teams (e.g. Task force) for the most critical actions with significant impact on the CO_2eq targets, prepare necessary technical, investment documentations and permits:
   1.1 District heating and 1.2 Utilisation of waste heat from industrial and commercial facilities,
   1.3 Solar electricity production and 1.7 Energy co-operatives,
   2.1 One car by households and 2.1. Smart multimodal transport system,
   5.2 Energy-efficiency of residential buildings in urban and suburban neighbourhoods.
3. **Assure commitment, capacities and skills of the city administration** and major stakeholders to integrate climate neutral principles in their regular operation.
4. **Accelerate citizen participation.** Prepare participation strategy, set up one stop shop, engage wider partner network, launch communication and participation programme, focusing on the priority fields of action where major citizens' actions and behaviour changes are required (e.g. mobility).
5. **Assure government support.** Get on board different ministries to release funds for Cities Mission projects. Strengthen collaborative approach of the Slovenain Mission cities towards the Slovenian Government for system support.
6. **City of Kranj Capital Budget** shall integrate actions in the current budget plan.
7. **Smart Kranj digital platform.** Prepare the platform to be ready to support actions in AP, citizens participation and AP monitoring and evaluation system.
8. **Assure annual monitoring and reporting to the Strategic Council** and conduct CO_2 inventory based on data for 2022.
9. **Keep interest of business sector and financial institutions** for participation in the AP implementation. Further develop concrete action related working relationships.
10. **Revise or adapt existing city strategies and sector** plans to the Action plan targets, at least ISDS, spatial plan, LEC, SUMP.
11. **NetZeroCities Programme:** After the successful launch of the programme and Climate City Contract 2030 activities in the first phase, in the iterative phase of the Cities Mission process, broader connection with EU policy development will be established.

6 Annexes

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

ANNEX 1: THE DEFINED MEASURES AND TARGETS BY 2030 BY SECTORS ON THE NATIONAL LEVEL

ANNEX 2: CLIMATE CITY CONTRACT CO-CREATIVE PARTICPATORY PROCESS OF THE CITY OF KRANJ

ANNEX 1: THE DEFINED MEASURES AND TARGETS BY 2030 BY SECTORS ON THE NATIONAL LEVEL

Table 17: Analyses of national climate neutrality measures and targets by sectors by 2030

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
1. ENERGY		Reducing GHG emissions by 2030 by at least 20% DRAFT NECP (28-31%) compared to 2005, by achieving sectoral targets: → transport: + 12 %, DRAFT NECP +3% → wide use: — 76 %, DRAFT NECP -74% → agriculture: — 1 %, DRAFT NECP -1% → waste management: — 65 %, DRAFT NECP -67% → industry*: — 43 %, DRAFT NECP -55% → energy*: — 34 %. DRAFT NECP -48% **only the part of the non-ETS sector* Increase investment in R&D - at least 3% of GDP by 2030 (of which 1% of GDP is public funding), DRAFT NECP -3,5% of GDP
1.1 Energy efficiency	→ improving energy efficiency and reducing the final consumption (sustainable use and local energy supply), → decarbonisation and expansion of district heating systems, → development of basic energy infrastructure systems and grids towards greater flexibility and integration os system sectors, → construction of new systems for electricity storage and other energies, → improving material efficiency and implementing circular economy in all sectors including energy suplly, → sustainable practices, promoting awareness and enhancing relevant knowledge.	→ Improve energy efficiency by at least 35% compared to the 2007 baseline (in line with the Energy Efficiency Directive). DRAFT NECP : in line with the target set in the new Energy Efficiency Directive → Reduce final energy consumption in buildings by 20% by 2030 compared to 2005 and ensure the reduction of GHG emissions in buildings by at least 70% by 2030 compared to 2005. DRAFT NECP: no changes
1.2 Renewable energy resources (RES)	→ promote and encourage the use of renewables (solar enery, hydro energy, wood biomass, biogas and renewable heating and cooling (including waste heat and cold),	Achieve a share of at least 27% of RES (DRAFT NECP 30-35%) in final energy use by 2030. → Achieve at least 2/3 of energy use in RES buildings (share of use of RES in final use of

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	→ increase the share of renewables in final consumption.	energy products excluding electricity and district heat), prohibition of sale and installation of new boilers using fuel oil after 2022. (DRAFT NECP no changes) → At least 30 % share of RES (including waste heat) in industry, (DRAFT NECP no changes) → at least 43 % share of RES in electricity generation, (DRAFT NECP 52%) → at least 41 % share of RES in heating and cooling, (DRAFT NECP 41%) → at least 21 % share of RES in transport (share of biofuels of at least 11%), (DRAFT NECP 26%) → Implementation of pilot projects to produce synthetic methane and hydrogen (the indicative target is a 10% share of renewable methane or hydrogen in the transmission and distribution network by 2030). (DRAFT NECP no changes) DRAFT NECP → an annual increase of at least 2-3 % in the share of RES and waste heat and cold in district heating and cooling systems and achieving at least 25-40 % of that production by 2030
1.3 Energy Security	→ ensure a reliable, secure and competitive energy supply → increasing distribution network resistance to disruption → development of energy storage technologies, infrastructure and services → accelerated development of the electricity transmission and distribution network including its digitalisation → development of system services and client's inclusion	→ at least 75% of electricity supply from sources in Slovenia by 2030 DRAFT NECP (85%) → Increasing electricity distribution network resilience to disruptions – increase the share of the underground medium-voltage network from the current 35% to at least 50 %; (DRAFT NECP no changes) DRAFT NECP → at least 80% of the power demand in critical hours of electricity transmission network loads with domestic generation

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
		capacity by 2030 and maintaining at least 80% of the power demand beyond 2033
2. INDUSTRY	→ enhancement of the transition to a low-carbon circular economy → establishment of incentives which will help companies to update production processes; → establishment of an efficient support environment for pilot project implementation, targeted incentives for small and medium-sized enterprises relating to the transition to a low-carbon and digitalised economy (by eliminating administrative barriers), improvement of access to various financial sources; → development, production and introduction of new sustainable products and services and business models (energy and material efficient technological solutions), establishment of a support environment for the development of an offer of comprehensive services for energy management; → support for the development of a market for technologies with low emissions with the introduction of various mechanisms (e.g. a product's lower carbon footprint as a criterion in the public procurement procedure); → harmonisation between the implementation of a low-carbon transition in energy and industry, particularly from the aspect of ensuring a sufficient proportion of fuels from renewable sources for industry use, such as synthetic gas and hydrogen; → increase in efficiency of energy use, use of effective technologies with maximum efficiency (best available technologies – BAT), increase in the exploitation of RES and excess heat and integration with district heating systems; → competitiveness of low-carbon energy products; → establishment of infrastructure and suitable legislative framework for	→ For industry (only for the part of the sector not included in the emissions trading system), the NECP anticipates a 43% reduction in GHG emissions by 2030 (as per the base year of 2005). → Increase to at least a 30-per cent share of RES in the industry sector while observing the exploitation of excess heat, whereby it also anticipates a 1.3% annual increase of RES share in heating and cooling in industry, including waste heat and cold. (DRAFT NECP no changes)

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	the use of synthetic gas and hydrogen; → promotion of digitalisation in companies and the introduction of Industry 4.0. which also enables the transition to a low-carbon circular economy.	
3. TRANSPORT AND MOBILITY	*Transport is the sector with the largest share of GHG emissions in Slovenia. GHG emissions in the transport sector have been increasing in recent decades because of economic development. Rail transport and measures of sustainable mobility are put to the forefront, which will reduce GHG emissions in the transport sector and reduce traffic density.*	
	→ Upgrade the railway infrastructure (preparation by 2025, implementation by 2030); upgrade and enhance capacities on the corridor Ljubljana–Kranj (double track); → further develop integrated public transport (harmonisation of timetables, integration of urban transport, establishment of a single/suitable public passenger transport operator, development of shared mobility, introduction of prioritisation of public transport vehicles, integration of cableway installations); → promote sustainable modes of transport within the calculation of travel costs; → reduce the needs for personal vehicle usage (work from home, change in parking policy, etc.): this will improve the integration of spatial and transport planning (legal arrangements of comprehensive planning, reduce the suburbanisation trend, improve the management of daily migrations in broader urban areas and other functionally linked areas, enhance the compactness of towns, enhance the renovation and reactivation of poorly utilised or degraded areas in rural settlements for activities enabling an increase in local employment and a reduction in daily migrations to towns) and accordingly arrange micromobility hubs on city arterial roads and along motorways; → actively promote the construction of an infrastructure for walking and cycling for daily users, including	→ Transport emissions may only increase by 12 per cent by 2030. DRAFT NECP +3% → at least 21% share of RES in transport (share of biofuels of at least 11%). (DRAFT NECP 26%)

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	suitable infrastructure for charging stations and promotion of the use of electric bicycles; → provide suitable support environment for the use of alternative fuels such as electricity, liquefied and compressed natural gas, which will be gradually replaced by synthetic gas (syngas), hydrogen (H2) and liquefied petroleum gas (LPG) which is of transitory nature, and biofuels, and → simplify administrative procedures in transport electrification; → integration of sustainable mobility into spatial, transport and building legislation; → integrated spatial and transport planning which promotes concentration of settlements and mixed use of space, and ensures accessibility standards with sustainable mobility, etc.; → incentive measures for sustainable mobility (e.g. tax relief, soft measures, technological measures) and restrictive measures for reducing personal motor transport (e.g. parking policy, travel costs).	
4. BUILDINGS **Measures and targets from Long-term Strategy for Energy Renovation of Buildings until 2050**	→ Environmental commitments, implementation of measures for efficient energy use → introduction of a nearly zero-energy building and incorporation of a sustainable evaluation of buildings, which will impact the scope of renovations and energy efficiency of buildings; → switching to more efficient technologies exploiting renewable sources (replacement of fuel oil); → emphasis on technologies and increase investments in centralised heating systems in densely populated areas; → introduction of sustainable construction criteria when building and renovating that focuses on reduction of the carbon footprint of the materials used and a positive impact of the circular construction concept on the emissions; → financial incentives to promote overall renovation of buildings,	→ Reducing greenhouse gas (GHG) emissions in buildings by at least 70% compared to 2005. → Renewable energy sources (RES) account for at least 2/3 of energy uses in buildings (share of RES use in final energy use excluding electricity and district heat). Relevant targets by 2030 set in DSEPS for the households, public buildings and private service sector: 1. HAUSEHOLDS → Final energy consumption is reduced by 25 % and CO_2 emissions by 45 %. → Annual renovation of total floor area for single-apartment buildings is 3.5-4.0% and 5.0-5.5% for multi-apartment buildings.

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	which will ensure greater efficiency of investments.	→ Energy consumption will be reduced by 6.05 PJ or 26%, with 36% of NZEBs. 2. PUBLIC BUILDINGS → Energy savings and reduction of CO_2 emissions - final energy consumption is reduced by 7% and CO_2 emissions by 57%. → Annual 3% of total floor area of public buildings will be renovated. → Energy consumption will be reduced by 0.7 PJ or 20%, with 26% of NZEBs. 3. PRIVATE SERVICE SECTOR BUILDINGS → Energy end-use increases by 1% and CO_2 emissions are reduced by 51%. → Annual 3,3% of total floor area of private service sector buildings will be renovated. → Energy consumption will be reduced by 3.7 PJ or 16%, with 24% of NZEBs.
5. AGRICULTURE	→ Emissions reduction with simultaneous improvement of self-sufficiency in food, which means a reduction of emissions per unit of food produced; → intensify the efforts in the field of efficient animal production; → increase carbon sinks will be supported in the environment and climate schemes from direct payments; → improvement of food safety; → investments in buildings and equipment which contribute to the reduction of GHG emissions and the quantity of food waste in primary production; → the promotion of agricultural practices, which contribute to the reduction of methane and nitrous oxide emissions while observing the principles of a circular economy and including the techniques of precision agriculture and digital technology; → enhancement of supply chains with local food of plant origin, which will enable a gradual transition from cattle farming to plant production	→ 1% reduction in GHG emissions compared to 2005. The objectives will be attained with the reduction of methane emissions by approximately 33% and nitrous oxide by 1%. Emissions from livestock will be reduced by approximately 31%. Despite measures to improve nitrogen circulation, emissions in crop production will remain at the level of 2005 due to an increase in physical scope of production. DRAFT NECP no changes

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	with high added value in areas with favourable agricultural conditions; → motivate and educate young generations of farmers and provide lifelong learning for heads of agricultural holdings; → systematically finance jobs in the field of GHG emissions in agricultural education, research organisations and public agricultural advisory service based on plans and targets.	
6. LAND USE, LAND USE CHANGE AND FORESTRY (LULUCF)	→ Enhancement of forest resilience by optimising age structure and tree composition of forests, including the converting of spruce monocultures, protection of forest soil and removal of invasive alien species; → prevention of deforestation in suburban and agricultural landscapes; → smart spatial planning, including the observance of land quality; → implement agricultural practices which contribute to the increase of sinks and the reduction of carbon dioxide and nitrous oxide emissions while observing food safety; → enhancement of natural climate solutions by identifying reserves, eco-cells and habitat trees, and the conservation of water biotopes in forests; → use of agricultural land which ensures resilient and biodiverse ecosystems ; → investments in agricultural technologies and modernisation of farming systems for efficient use of nutrients and improvement of agricultural resilience to climate change (e.g. erosion reduction, irrigation systems, precision farming by optimising the application of fertilisers and plant protection products); → substitution of carbon-intensive materials with wood (e.g. construction with wood) and production of new and sustainable biological products, such as biochemicals (e.g. textile, bioplastics and composite materials);	→ Sector will not produce net emissions by 2030 (emissions in the sector will not exceed sinks). DRAFT NECP : LULUCF emissions do not exceed sinks in the period from 2021 to 2025 and that a sink in the LULUCF sector is at least -146 kt CO_2e in 2030.

SECTOR	MEASUREMENTS	TARGETS 2030 – COMPARED TO 2005 AND DRAFT NECP (update in progress)
	→ protection of wetlands and revitalisation of wet meadows which are not managed.	
7. WASTE	→ Reduction of the quantity of waste generated, its maximum reuse; → cessation of disposal of biodegradable waste; → reduced emissions by households' connection to the sewage network with wastewater treatment plants and replacement of septic tanks with small wastewater treatment plants; → increased capacities of thermal treatment of the remaining waste for energy purposes, resulting in lower emissions due to fuel combustion because of fossil fuels replacement and in emissions linked to waste transport.	→ 65% reduction in GHG emissions compared to 2005 DRAFT NECP 67%

ANNEX 2: Climate City Contract Co-creative Participatory Process of the City of Kranj

This document supports the information provided in the Commitment document, Action and Investment Plans, outlining stakeholders' and citizens' engagement in the City's climate neutrality co-creative processes. The following pages outline the structures organised for the preparation and implementation of CCC, detailed description of the past co-creative planning process, the approach to public participation and use of existing tools, a short summary of the citizen survey, existing synergies with Pilot Cities Programme UP-SCALE project as well as an indicative outlook of the envisaged steps in engaging the residents in climate actions, behaviour change and climate investment.

GOVERNANCE STRUCTURES FOR CCC MANAGEMENT AND CONSULTATION

The City of Kranj is aware that achieving climate neutrality by 2030 requires changes in management, communication and day-to-day way of work. It was crucial from the start to understand that the success of the process heavily depends on involvement and engagement of a broad network of stakeholders and citizens who will have a pivotal role in making these changes a reality. Having that in mind, a stakeholder mapping of public and private organisations was carried out in early 2023, followed by the activation of partners in important sectors (energy, transport, green infrastructure, built environment etc.). A two-level partnership structure has been set up and relevant individuals and stakeholders have been invited into the CCC planning process. The structure and placement within the existing City governance system is given in the chart below.

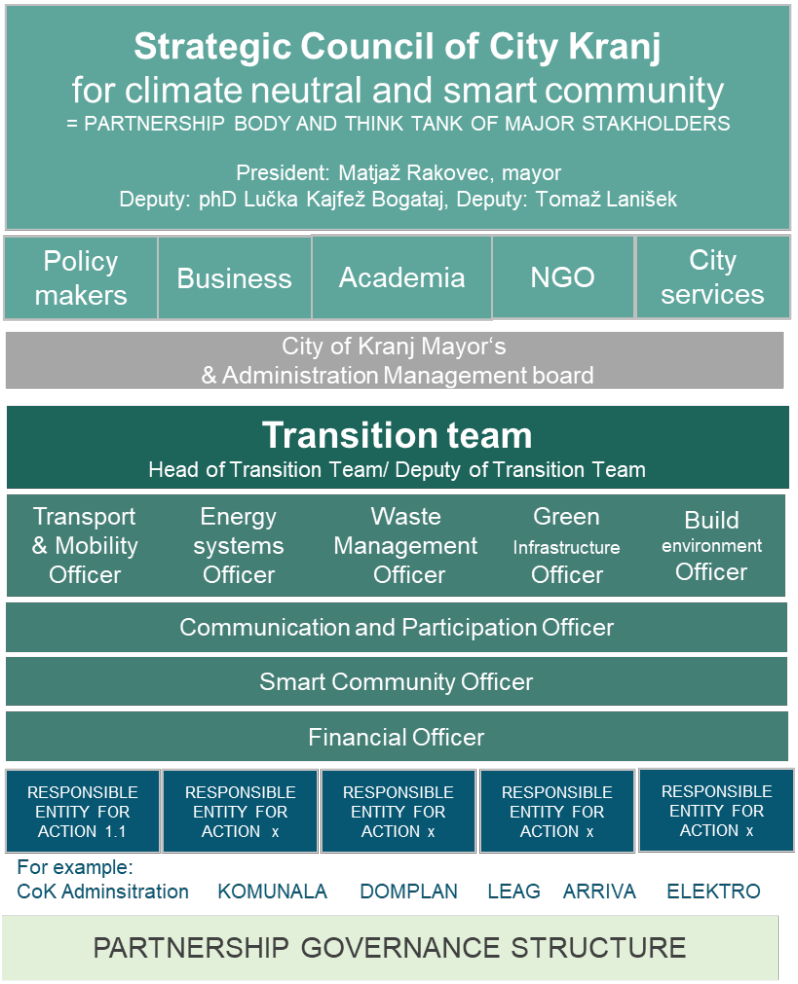


Figure 1: City of Kranj CCC partnership governance structure

Members of the Strategic Council of City of Kranj for Climate Neutral and Smart Community

Policy and city administration

- → mayor
- → 7 members

Utility companies

- → Public utility company Komunala Kranj
- → Domplan, engineering, real estate, urban planning, and Energy company

National and regional bodies/agencies/ units

- → LEAG - Local energy agency of Gorenjska
- → BSC, Regional Development Agency of Gorenjska
- → ZGS - The Slovenia Forest Service
- → KGZS, Chamber of Agriculture and Forestry of Slovenia
- → ZTTK, Institute for Tourism and Culture Kranj
- → ZD Kranj - Health Center Kranj

Research and knowledge institutions

- → University of Ljubljana
- → University of Maribor
- → University of Ljubljana - Ministry of the Environment, Climate and Energy
- → University of Ljubljana - Faculty of Biotechnology

NGOs

- → Social enterprise Stonoga

Industry and SMEs

- → Goodyear (industry)
- → Elektro Gorenjska (industry)
- → Arriva (industry – public transport)
- → SME (development, consulting and support)
- → Elektro Gorenjska (industry)
- → SMEs (planet, systems and consulting)

Members of the Transition Team

- → **Head of City administration**
- → **Office for the Development and Smart Community**
- → **Department for Green Transition**
- → **Department for Transport**
- → **Department for Economic Affairs**
- → **Joint Office for Environment Protection**
- → **Joint Office for Spatial Planning**
- → **Office for Social Affairs**
- → **Office for City Council and Local Communities**
- → **Department for Finance**

On the strategic level, the main partnership body and think thank bringing together 27 leaders and senior experts, representing stakeholders, most relevant for reducing the GHG emissions in the city in all 5 fields of action, is the **Strategic Council of the City of Kranj for Climate Neutral and Smart Community (SCCNSC)**. Stakeholders, represented in the Council, are also signatories to the City's Climate Commitment document. The SCCNSC origins lie in the former City Strategic Council for Smart Community, the current structure representing an extended version of the original group. In this way, we can better exploit the resources and make synergies between smart and climate actions. The SCCNSC is chaired by the mayor of the City of Kranj. It is co-chaired by two persons, the best climate expert in Slovenia, also a resident of the City of Kranj, and a Head of Office for Development and Smart Community of the City of Kranj (CoK). So far, the extended SCCNSC has met three times (twice in person and once on-line). Other relevant individuals and experts were individually involved in thematic focus groups or individual consultations.

Operational level is represented by the Transition Team (TT), composed of 20 senior officers from the relevant city administration departments and coordinated by the Office for Development and Smart Community, Department for Green Transition. So far, the TT has met four times, while individual members were involved on a daily basis, especially in providing and analysing data, attending thematic workshops and individual consultations needed to close the emission gap. Further on in the implementation stage, the TT will be extended by the professionals responsible for preparation and implementation of individual actions. They are mainly employees of municipal administration departments, municipal public service providers, and utility companies and implementing agencies.

These governance structures will remain in function throughout the CCC implementation period. If necessary, the membership will be enhanced with stakeholders and professionals in the fields that might appear as a gap (representatives of the government, representatives of certain most affected communities, NGOs etc.).

THE CCC CO-CREATION PARTICIPATIVE PROCESSES

The Climate Commitment process and document is a result of a joint effort. From the start, it has been designed as a co-creative and participatory process, running form the beginning of 2023 until recently (February 2024). As climate neutrality is rather a new topic to address among the stakeholders, citizens and CoKA, the initial activation was needed. The process was designed in a way to systematically target different groups using different approaches. The engagement started within CoKA, setting new governance structures, and was gradually extended externally in the following order:

1) Firstly, stakeholders with direct impact on the reduction of GHG emissions were approached and invited to join the SCCNSC, individual interviews and thematic workshops were conducted (for those not included in the SCCNSC, in particular governmental bodies) and technical meetings with utility providers were executed.
2) Secondly, stakeholders with targeted specialised competences and knowledge base in green transitions by participation were engaged in the focus group workshops and consultation meetings (e.g. institutes, university, high schools).
3) Thirdly, stakeholders with greater reach to general public such as the main city library, health centre, schools, sport centre, kindergartens were engaged in tailor made workshops and presentations.
4) Finally, citizens and specific target groups (the youth, businesses) were addressed through open survey, focus group workshops, communication activities, and organisation of joint public events.

The stakeholder engagement process was incorporated into the CCC planning process to enable co-creativity along each planning step. The process was managed by the Department for Green Transition in support with Local Energy Agency and team of external experts. For the process flow and the dates of key workshops and meetings see Figure 2. The intensity of participation grew gradually along with the planning and will be further extended and adjusted to specific target groups/areas during the implementation of individual actions.

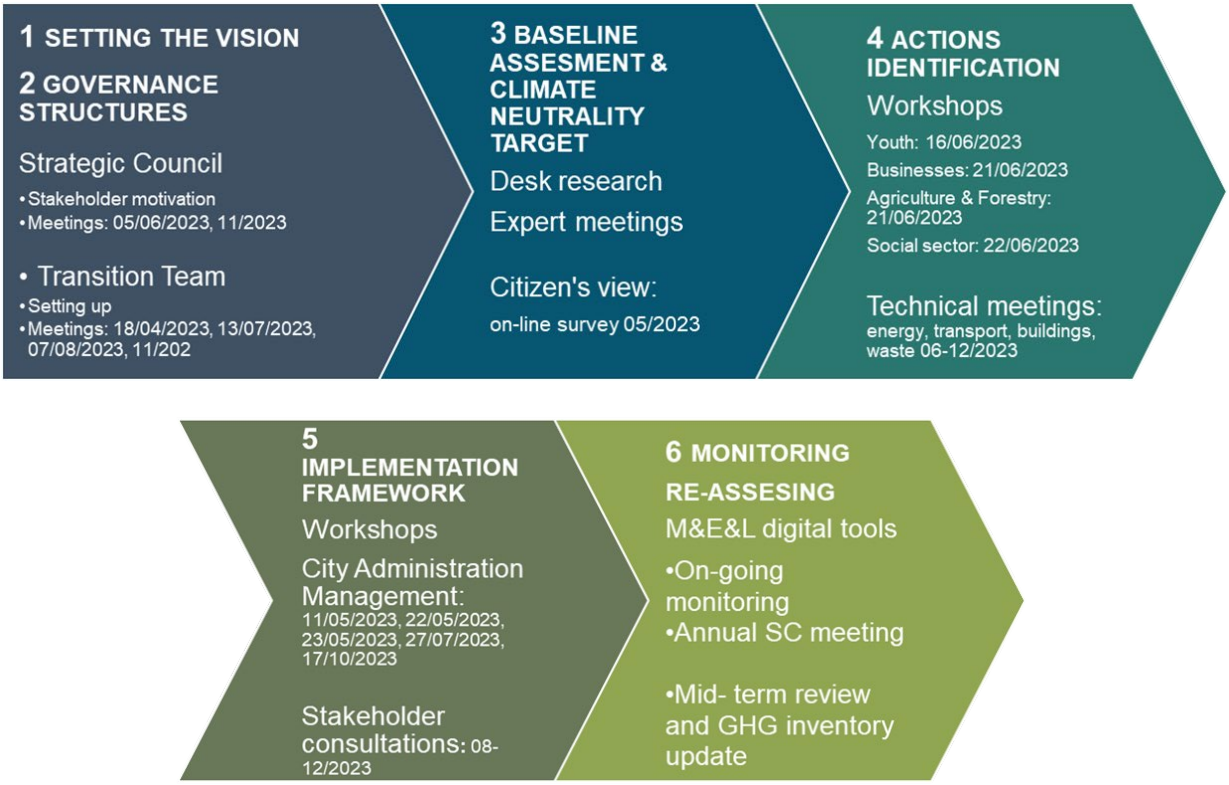


Figure 2: The CCC City of Kranj co-creative and planning process

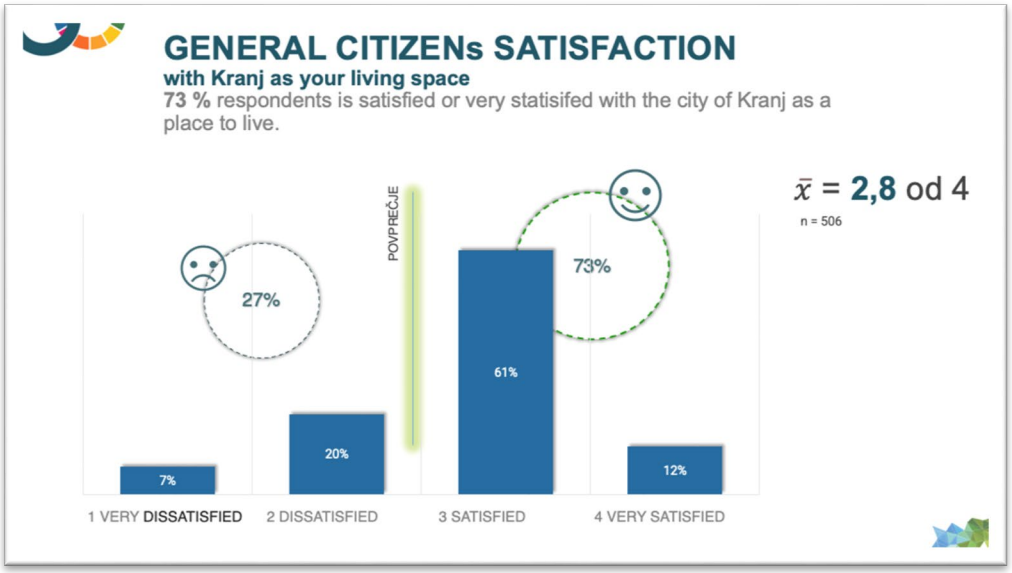

NET ZERO CITIES
MESTNA OBČINA KRANJ
STRATEŠKI SVET
ZA PODNEBNO NEVTRALNOST IN PAMETNO SKUPNOST
1. seja

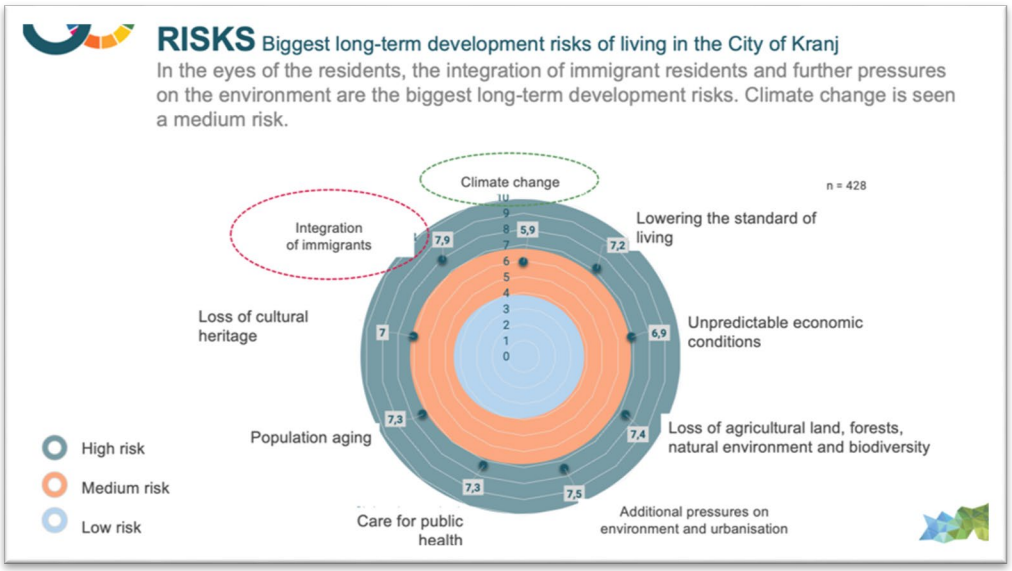
CITIZENS and ORGANISATION SURVEYs

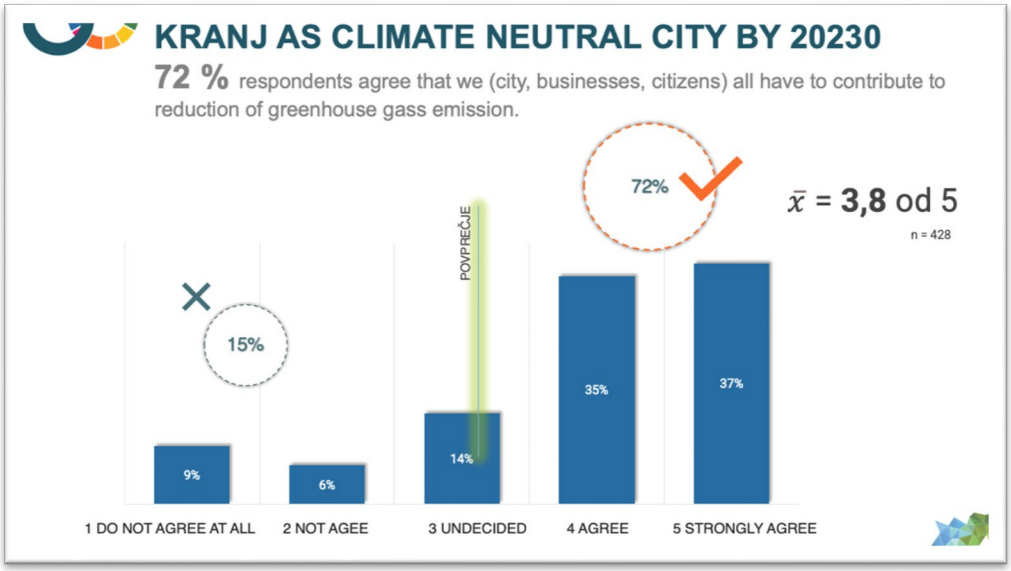
Two surveys were conducted in the course of the process: i) a comprehensive survey among citizens of the City of Kranj and ii) a targeted thematic survey among most relevant climate neutral related business units and state institutions operating in Kranj.

Between April and May 2023 citizens survey was launched aiming to get insight into current Sustainable Strategy directions and assess and motivate citizens for taking climate actions. The survey was announced and introduced to the general public in advance news articles in local media and on website. The goal was to reach out to the general public and to engage as many citizens as possible, thus the survey was also promoted through social media and partners' institutional network. Both, digital and paper version were available.

Results of the survey were considered within the design of the decarbonisation pathway and published on the city's website. Most indicative answers are presented below.







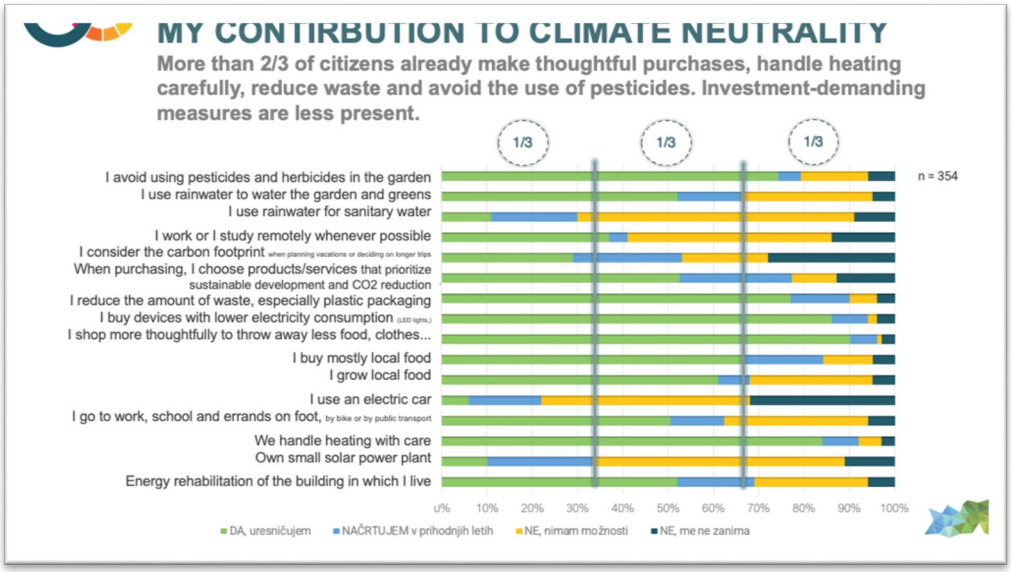


Figure 4: Examples from the citizens survey, Kranj, May–April 2023

COMMUNICATING THE CCC

We have been communicating the EU Cities Mission goals and objectives since the selection of the City of Kranj into the elite group of Mission cities through established communication channels:

- CoK website;
- CoK Meta profile (FB) was used to share each step of the process about
  - the Mission;
  - signing the Commitment for cooperation with other two Slovenian Mission cities, Ljubljana and Velenje;
  - the Cities Mission kick-off event in Brussels;
  - sending out invitation to citizens to fill in the survey in the process of the CCC preparation;
  - sharing the information about the establishment of the Strategic Council for Climate Neutral and Smart Community and its meetings;
  - the visit of Mr. Child in Ljubljana;

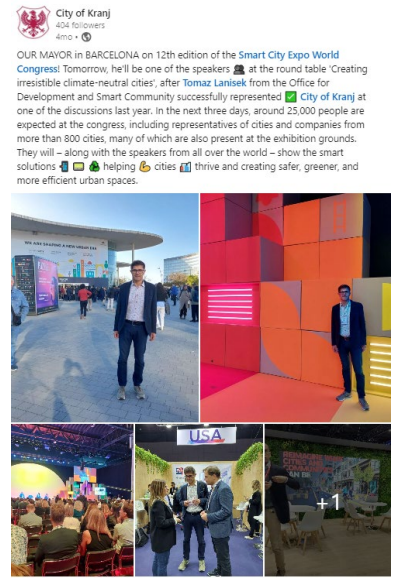
- signing the Climate Neutrality Commitments with stakeholders.

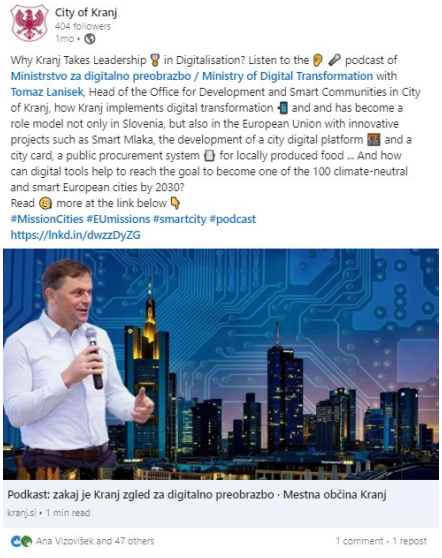
The Cities Mission and efforts of Kranj to achieve the climate neutrality goals were also a major topic at the *Think Green, Go Sustainable* press conference. An article about the conference was published in the news section online and in the municipal newspaper Kranjske novice.

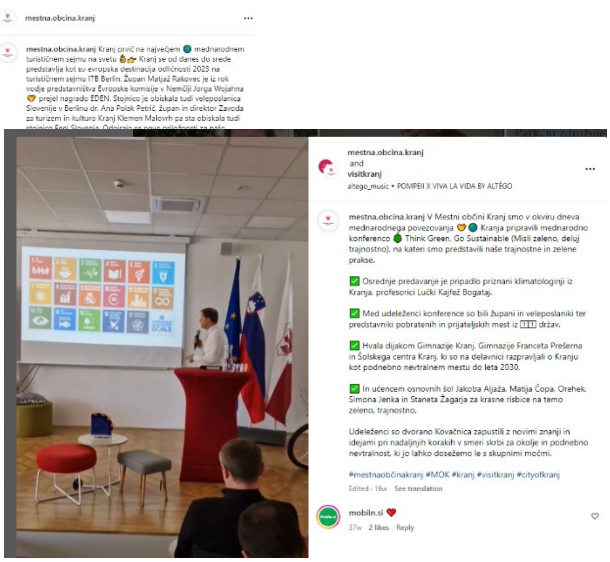
Since Kranj became a Mission city, the Mayor of the CoK has been communicating the Cities Mission objectives and the steps the City has been taking, the goals and plans, at topic related events, round tables, congresses and conferences (Bridge for Cities, UNIDO; Smart City Expo World Congress 2023; Forum of Mayors, UNECE). The general public learns about these events through sharing the news on City's website, Meta profile, LinkedIN, Instagram.

The City has been building societal acceptance by dissemination of topical news, educational content, and advice on sustainable living in connection with the Mission.

The engagement of the citizens will also be supported by the help of digital tools, such as Smart City Card (CeKR) and Smart City Digital Platform, the first one in the phase of launching to the general public and the later already in operation (Digital transformation in Kranj can be a model; The CeKR city card will be among the most advanced in the world).







CITIZENS' ENGAGEMENT: THE USE OF EXISTING CITY TOOLS, PLATFORMS AND PARTICIPATION PROCESSES

Participative processes and citizens' engagement are not new formats for the City of Kranj. Besides regulatory requirements for public consultation on all city acts, including the Annual Budget and Spatial Plan, the City of Kranj uses several tools and platforms that enable residents to express themselves, participate or influence the City's policies. The most innovative ones are listed below:

- Digital participatory tools for active participation: a platform for suggestions, ideas, initiatives, (critical) comments etc. **KR povej** (KR'say) (Figure 1)
- Participatory budget called **KR predlagaj** (KR'suggest)
- Forums, committees and stakeholder groups
    - Existing Strategic Council for Climate Neutrality and Smart Community has been defined as the appropriate platform to address climate related topics on a strategic level.

The so far CCC preparation process exploited all of the mentioned tools and networks and taken into account citizens' initiatives which were proposed though different existing channels. In this respect, through **KR povej,** altogether 826 initiatives of the citizens were assessed (412 in 2022 and 414 in 2023. Approximately **90%** of them were addressing the area of public lighting, roads, civil protection, open space and green areas, urbanism, communal waste, ecology, water supply and parking. **KR predlagaj,** the platform for participatory budget, offered an interesting insight in the various small scale needs of citizens. Out of 269 initiatives received from 2022 to 2024, **45%** (122) are reflected in the proposed CCC Actions portfolio.

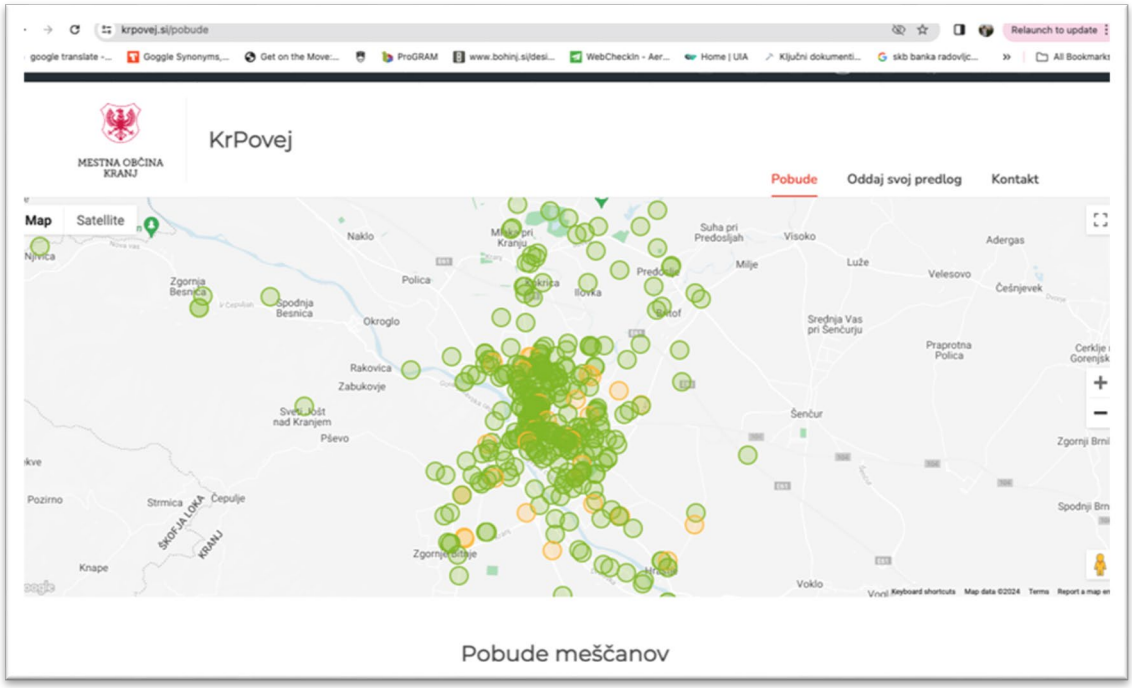


Figure 4: KR'POVEJ distribution of citizens initiatives in the territory

Beyond the Strategic Council for Climate Neutral and Smart Community the existing forums were used to disseminate the information and raise the awareness on climate neutrality, in particularly during regular annual meetings with leaders and residents of local district communities.

Besides, all city strategies (e.g. Sustainable Urban Mobility Plan, Tourism Strategy, Rural Development Programme) are being prepared in a way to open the process to the general public and/or focuse on the stakeholder and citizen groups or territories most affected by certain policy. So, workshops, surveys, focus group meetings, forums, actions and similar participative forms are running continuously.

It was important for the CCC approach not to overlap with other processes and not to overburden the stakeholders. In parallel with the CCC process, the Department for Spatial Planning and Environment was conducting the Environment Operation Plan and revision of Spatial Plan, therefore the two departments merged efforts and synced the processes.

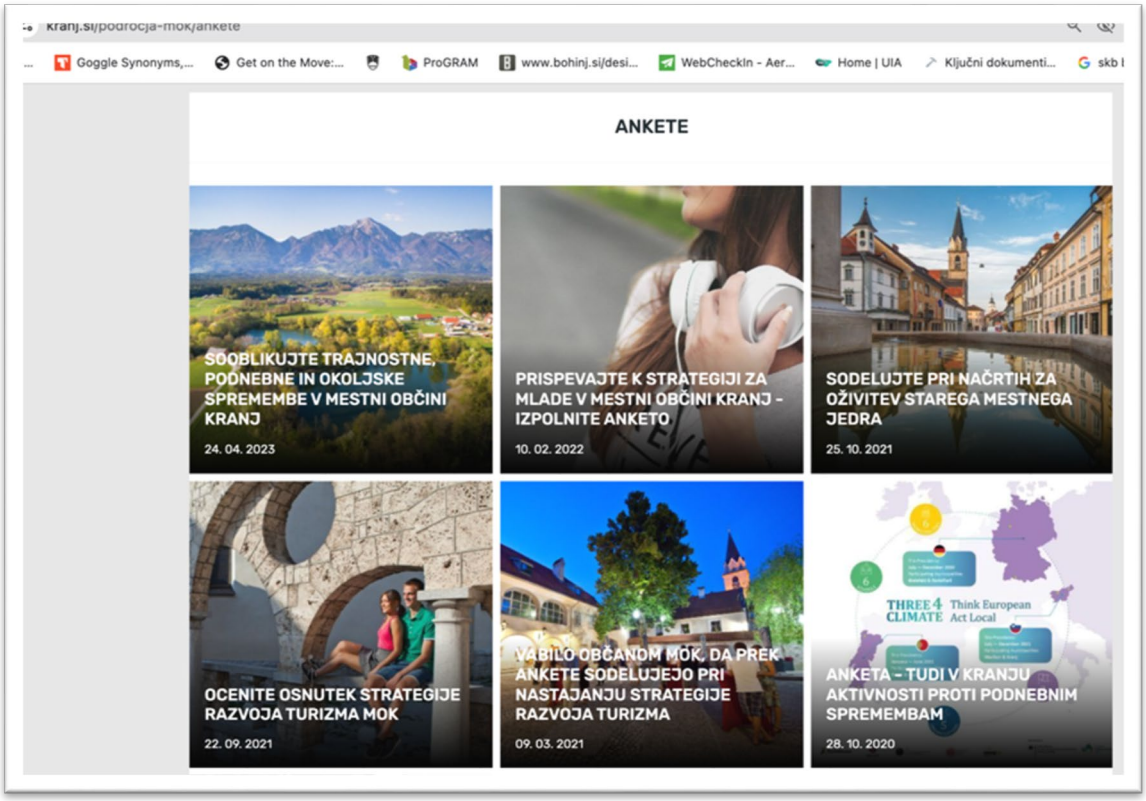


Figure 5: Overview of the citizens surveys in the period 2020-2023

SYNERGIES WITH UPSCALE PROJECT

As part of the NZC Pilot Cities Programme UP-SCALE project, which will test and promote sustainable mobility solutions in the City of Kranj, we are establishing MaaS (Mobility as a Service) application. The App will be integrated into the Smart Kranj Platform and will strive to optimize public transportation.

During the project implementation, various communication activities including raising awareness encouraging citizens to change their habits, will be used. In addition, educational campaigns and awareness initiatives involving residents in creating and testing solutions will be used. Co-creating workshops for all generations are planned engaging schools and kindergartens, the elderly, public library members, Intergenerational Centre visitors, local community groups, NGOs etc. The workshops will also be an opportunity to educate citizens about using the sustainable mobility options and their benefits.

All useful information will be available as informational brochures and through communication channels. More important, in the long term, the Smart City Digital Platform is to become the key channel for their participation as it will enable interactive communication and decision-making.

FUTURE STRATEGY ON COMMUNITY ENGAGEMENT

The transition between planning and implementation requires scaling the current participatory action to broader scale. The City is aware that design and management of the transition to climate change require skills and capacities that the Transition Team is lacking. Therefore, it is envisaged to:

→ Prepare communication and participatory plan that will address the general communication, and branding of the transition process but more specifically focus on engaging citizens of actions under the Mobility and Transport and in the field of Built environment (rehabilitation and change of energy sources). The following target groups will be in focus:

Mobility & Transport	Built environment

- Daily commuters from Kranj to Ljubljana and from nearby towns to Kranj
- Residents in high density urban neighbourhoods in need for daily community on short distance (families with children, elderly)
- Stakeholders – large traffic generators (business parks, shopping centres, hospital, schools.), local community councils
- Multi-apartment housing boards and owners who have not yet retrofitted their buildings, in particularly low-income residents
- Owners of individual houses, in densely populated individual housing districts, in particular elderly owners
- Stakeholder – local community councils, facility managers

Activate the youth as co-creators and ambassadors of green transition.

→ Find appropriate external support, most likely among NGOs. The most relevant ones have already signed Climate Commitment.

→ Activate Kranj Climate Neutrality Partnership network representing broader ecosystem:

- Local dissemination partners,
- Consultation and expertise.

→ Exploit existing and develop new participatory tools, practices and principles, using the Smart Kranj Digital Platform as the backbone for the collaboration with citizens and stakeholders.

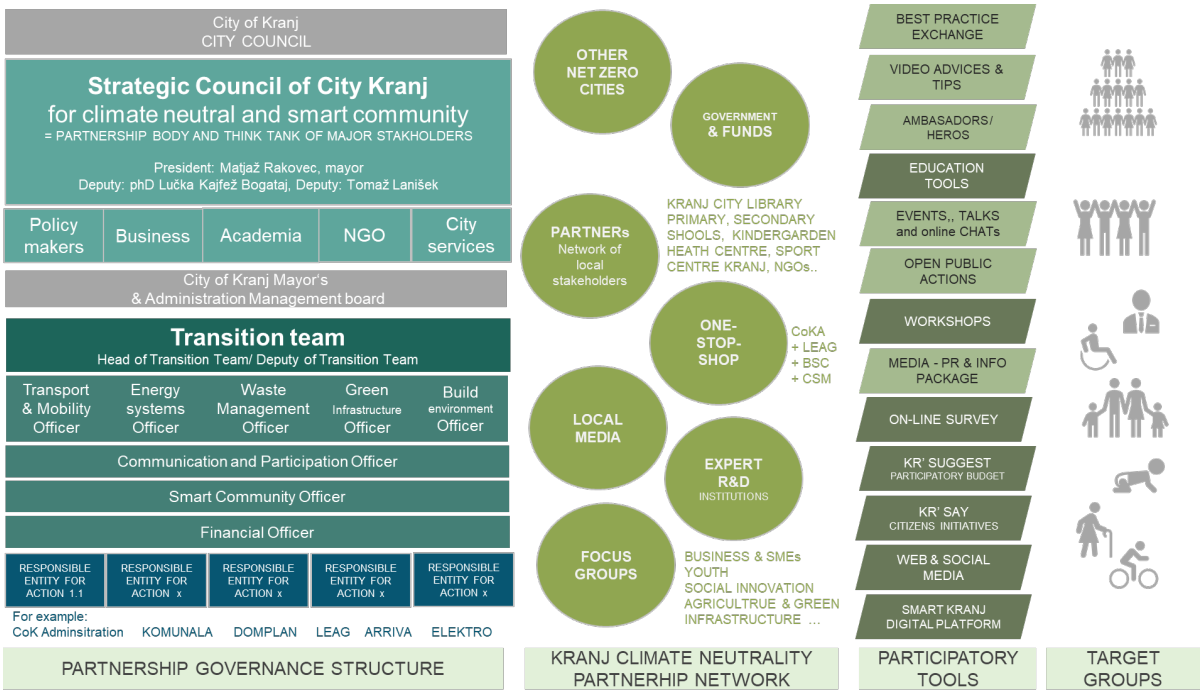


Figure 1: City of Kranj participatory ecosystem for climate neutrality

NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Commitments

Climate Neutrality Commitments of the City of KRANJ

CITY OF KRANJ

NetZeroCities has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.

Table of contents

1 Introduction

This opening section explains the city's motivation to join the EU Mission "100 climate-neutral and smart cities by 2030" and highlights the city's present commitments to climate action.

Introduction

The City of Kranj is the third largest city in Slovenia with the population of 57,171 (2023) and area of 151 km2. Characterised by strategic transit location, technological and Alpine cultural background, Kranj has been committed to following the **sustainable development** principles and **goals (SDG)**.

City's earliest climate action initiatives originate in successful implementation of the **Local Energy Concept since 2008** in buildings and public lighting. In May 2013 the City Council adopted a decision to join the **Covenant of Mayors** to be a part of the group of advanced European local governments practicing measures to mitigate the impact of climate change at the local level. Consequently, the City of Kranj **Sustainable Energy Action Plan** (SEAP, February 2014) set the city's first climate related targets - 21% reduction of Greenhouse Gas (GHG) emissions by 2020 as of 2006. SEAP also introduced the strategy for intensified investments into energy-efficiency of public, state and private residential buildings, introduction of renewable sources of energy, public lighting, new mobility schemes, and awareness rising.

The climate and sustainable energy goals have been included in **Sustainable Urban Development Strategy Kranj 2030** (2016). Aiming to become a sustainable, progressive, and vibrant city of diverse opportunities and high life quality for all, the new city strategy focused on new cross-sectoral priorities, among them also sustainable and smart development of the city.

In the following years **Sustainable Urban Mobility Plan (2017)** and **Digital and Smart City Development Strategy (2020)** were adopted, both promoting investments, demonstration projects, digital transformation, and engagement of partners, businesses and citizens to ensure the implementation of necessary changes.

The City of Kranj, as the regional centre, actively supported and adopted Sustainable Energy and Climate Action Plan for Gorenjska region (SECAP, 2018). The review of the SECAP showed that the measures and investments helped to reduce the emissions in the energy sector, but not yet in transport and other sectors. Based on these facts and supported by tangible smart city practices, new business models and e-services have been introduced over the last years, joining the **EU Mission 100 climate-neutral and smart cities** in 2022 as a logical next step. The City of Kranj is ready to respond to the needs of its citizens for active, healthy and creative lifestyles, future sustainable urban development and climate goals.

Becoming climate neutral city by 2030 is a challenging and innovative task, which requires new competences, technologies, and changes. The City of Kranj 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 Slovenian and European cities. In the survey in 2023, more than 70% of the citizens agreed that addressing the climate change is a joint responsibility. During the Climate City Contract (CCC) preparation workshops, it was made clear that the young generation will most likely be the driving force of city's green transition.

Kranj intends to extend its decarbonisation efforts to neighbouring municipalities in the functional and whole NUTS 3 Gorenjska region and, as an important partner, join efforts and synergies with the region in the framework of the EU Climate Change Adaptation Mission. The City of Kranj provides a sound basis for accelerating progress towards carbon neutrality in all sectors, supported by a strong local private-public partnerships, motivated institutions, non-governmental organisations (NGO), and individuals. **The Strategic Council for Climate Neutral and Smart Community** of the City of Kranj, chaired by the Mayor, will be a partnering body in this process. Its members are city administration employees, relevant stakeholders and individuals from the business sector, academia, and public and non-governmental sectors who have expressed interest in supporting the city's ambitious goals. 2030 Climate Neutrality Commitment expresses the joint intention of the City of Kranj and its key

stakeholders to act individually and collectively as a community towards the climate neutrality of the city by 2030.

2 Goal: Climate neutrality by 2030

This section aims to summarise:

- The city´s 2030 climate neutrality target, referencing the city´s Mission Expression of Interest and any further thinking since then.
- The administrative territories included in the city´s 2030 target.
- Where applicable, any districts or emission sources, sectors or gases within these administrative boundaries that are excluded from the target of climate neutrality by 2030[1].
- An overview of co-benefits[2] that the city will experience from increasing climate action and reducing its reliance on fossil fuels.

.

Goal

By joining the Mission 100 climate neutral and smart cities the City of Kranj and its stakeholders commit

→ **To act proactively together towards the climate neutrality and smart city on reducing greenhouse gas emissions within the municipal administrative area for 80% by 2030 compared to the city's 2018 GHG emission inventory.**

The initial baseline GHG emission inventory referred to in the Cities Mission Expression of Interest (2022) was updated with missing sectors (waste; agriculture, forestry, and other land use (AFOLU)) and revised according to the Net Zero Cities Mission Guidelines. Emissions Trading System (ETS) facilities located within the city's geographical boundary were excluded from the inventory, resulting in a new 2018 GHG baseline as of **238.832 t CO2eq.**

In order to achieve the decarbonisation target, the City of Kranj aims to adjust current strategies and actions, introduce new measures, fully exploit its Smart Kranj Platform – city data digital platform, scale up the city support ecosystem, and engage multiple various stakeholders to join the effort, as envisaged in 2030 Climate Neutrality Action Plan. This commitment is anchored in a multi-sectoral approach that addresses the unique city's challenges and opportunities within energy sector, mobility and transport, waste and circular economy, green infrastructure including nature-based solutions, and built environment. Despite the robust strategies in place, the remaining 20% of the residual emissions require the identification of offsets and the development of additional strategies to mitigate the remaining carbon footprint.

The implementation of various projects, the introduction of new public services and resilient urban planning approaches shall bring significant environmental, economic and social benefits to the daily life and well-being of citizens. Improved energy and local food security, road safety with less traffic, better public transport, liveable urban neighbourhoods, and reduced energy costs shall all add value to the quality of life in Kranj and the preservation of the surrounding green belt. We believe that the City of Kranj's path to climate neutrality, which represents a collection of tangible actions, is beneficial for the city and its citizens, and contributes to the global climate and sustainable development goals.

This is an invitation to everyone, citizens, institutions, organisations, and businesses to contribute to our common goals, each according to their own abilities. The City of Kranj and its associated entities

[1] If existing, these exclusions are documented in the introduction to the city´s 2030 Climate Neutrality Action Plan.
[2] Climate policies and measures that promote co-benefits (i.e., policies and measures that tackle emissions whilst also delivering on other priorities) can increase support from local stakeholders, funders, as well as the wider public. Measurable co-benefits of working towards climate neutrality for the city could range from improved air quality and increased access to green spaces and related health benefits to increased job opportunities, local innovation, energy independence, and financial savings.

will take the lead, set an example and provide guidance and support to others. Yet, we approach the decarbonisation process responsibly and with due diligence. The city's ambition to be climate neutral by 2030 is supported by the decision of the City of Kranj Council to join the Cities Mission and the official introduction of the Climate City Contract to the members in February 2024.

3 Strategic priorities

This section of the Commitments document summarises at least 3 or 4 strategic systemic priorities[3] that need to be implemented in the city to become climate-neutral by 2030. The annexed 2030 Climate Neutrality Action Plan aims to describe in detail the expected pathways and actions (Part B) and enabling interventions (Part C) needed to achieve these priorities and how the city plans to implement them. The annexed 2030 Climate Neutrality Investment Plan further details the funding and financing for the expected pathways and actions. The individual commitments between the city and signatories (see Appendix 1) strive to address these key priorities and contribute to reaching them.

Strategic priorities

Considering the existing strategic framework and the identified emission gap, the main priorities for the City of Kranj to become climate neutral by 2030 are investments in technologically innovative projects and systemic shifts in **energy and mobility** while the other three areas (waste management, green infrastructure and built environment) will contribute to the decarbonisation targets through up-scaling and innovation of existing interventions.

City's One-Stop Shop with integrated citizen participation programme and the comprehensive Smart Kranj City Data Digital Platform are the two overarching social interventions supporting the essential behavioural and systemic changes in the City of Kranj's transition to carbon neutrality. A brief summary of the interventions by strategic priority is provided below:

- → **Energy system:** The interventions in district heating systems and green energy production are essential for the City of Kranj as they account for 41% of its decarbonisation targets. It is planned to replace fossil fuels with renewable energy sources, including potential use of waste heat from industry and introduction of a cooling system in the current and extended district heating system of the city. The production and storage of solar energy on municipal, commercial and private buildings and large parking lots will be significantly intensified. The piloting of a social innovation measure – energy co-operatives – will assure equal access to green energy for people living in multi-unit residential areas. Investment in the grid capacity is a prerequisite for further investments in solarisation and green energy production.

- → **Mobility and transport:** Located on the X. trans-European corridor (TEN-T) and in the gravitational area of the national airport and the capital Ljubljana, the city's influence on transport emissions is very limited. Thus, the city's priority is to foster the mobility modal shift – reducing the daily volume of carbon-intensive motorised commuting and short-distance transport to using of more sustainable modes of travel. Ambitious actions combining investments in modern multimodal passenger hub, cycling infrastructure and photovoltaic/hydrogen charging hubs supported by Smart Kranj digital mobility solutions, a variety of new mobility services, improved city traffic management, and an awareness programme will motivate citizens, commuters and visitors to change their traditional patterns of traveling to, within and out of Kranj. The combined mobility and transport measures are expected to contribute to 32% of Kranj's decarbonisation targets.

- → **Waste & circular economy:** As major technological interventions in waste and wastewater management (including cogeneration facilities) have been completed before 2018, the remaining emissions from waste are manageable. Existing approaches to reduce the scope and recycling efficiency of the communal waste, controlled closure of the landfill (methane)

[3] Strategic systemic priorities are meaningful changes that will have a profound impact on reducing GHG emissions in the city, such as decarbonising the heating system in the city or generating 100% energy from renewables.

and investments in water supply efficiency will continue towards a Zero Waste Strategy. Hence, the decarbonisation attention is focused on tangible circular economy solutions that will be developed by the city public utility company and innovative public-private pilot projects, while offered to citizens, local SMEs and relevant interested public. The priority area contributes 13% to the city's decarbonisation goals.

→ **Green infrastructure & nature based solutions**: Although the city of Kranj is surrounded by agricultural land and forests, the latter are a source of GHG emissions due to ice and wind storms in the last decade (from 2014) and the consequent bark beetle infestation. Furthermore, the green belt around the city is under constant pressure from urbanization. The city, in cooperation with the respective national bodies and landowners, will designate significant areas of forests as forests with special purpose, improve their management and accelerate the maintenance and expansion of other green infrastructure. All possible mechanisms for green spatial planning and urban agriculture, promoting a partial shift from cattle to vegetable production, will be tested to reverse the trend from being the source of emissions to becoming GHG sinks. A 7% sequestration contribution to the city's decarbonisation targets is estimated.

→ **Built environment:** Due to long-lasting national scheme, the energy efficiency of most multi-unit residential and municipal buildings was completed before 2018. Therefore, the main focus will be on the remaining residential buildings and state owned premises, emphasising integrated renovation, replacement of fossil fuels with renewable energy sources (RES) and where possible, connection to district heating. Special attention will be given to poorly insulated and fossil fuel dependent individual houses, owned by vulnerable groups. In addition, the City intends to extend the results of the pilot project Smart Mlaka to integrated regeneration projects of private developers with the aim to make them climate neutral and smart zones. The priority will directly contribute 7% to the city's overall decarbonisation target.

4 Process and principles

This section aims to briefly describe:

- The systemic process[4] the city will undertake to achieve its 2030 climate neutrality target.
- The provisions for monitoring and joint learning[5], including the intentions for updating the Climate City Contract.
- The key principles that will guide the implementation of its Climate City Contract, such as climate justice, co-creation, multi-level governance approaches, stakeholder and citizen engagement.

Process and principles

As stressed above, becoming climate neutral city by 2030 is a challenging and responsible task, which requires new competences, technologies, and changes. The City of Kranj 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 Slovenian and European cities. During the preparation of the CCC, the City of Kranj has already facilitated an effective participatory and co-creative process for the transition to climate neutral and smart city and is also determined to do so in the future, on a professional and systemic manner.

In this respect, a 21-member multi-actor partnership – **Strategic Council for Climate Neutral and Smart Community** representing all key strategic stakeholders from local and national policy level, major businesses, academia, NGOs and key city implementing institutions, is set up to guide the

[4] Concrete actions to implement these processes are described in the annexed 2030 Climate Neutrality Action Plan (section C).
[5] 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.

process. The Strategic Council is led by the Mayor and co-lead by the two experts from the field of climate change and innovation management.

Orchestration of the process, operative tasks, day-to-day implementation and monitoring is assigned to the **Transition Team,** coordinated by the Unit for Development and Smart Community. The Transition Team consists of employees from the relevant city administration departments (green transition, digital transformation, traffic and economic affairs/activities, energy, environment, spatial planning, finance, social affairs), communication officer and professionals from the city utility companies.

Together with a wide diversity of partners such as the city library, schools, health centre, sports organisations, local media, business incubator, research and development institutions, focus groups and other Mission cities, they form a comprehensive participatory city ecosystem for climate neutrality.

Within the CCC preparation phase, from early 2023 until February 2024, the Unit for Development and Smart Community organised 3 meetings of the Strategic Council and more than 30 different workshops and focus group meetings involving different stakeholders and partners from local, regional and national level. Altogether, more than 600 persons participated in different participatory activities.

The following principles guide all bodies involved in carrying out this Climate City Contract:

- → **Accountability and competences** – ensuring that all parties involved are competent, committed and held responsible for meeting their commitments and achieving their actions and goals in reducing emissions.

- → **Democracy** – opening up the process to the public, strengthening the involvement of key stakeholders in the process and encouraging them to take ownership of the process and specific initiatives for change.

- → **Co-creation, innovation, smart community and technology** – engaging research & development organisations, academia, innovative businesses, start-ups, social enterprises, educational sector and others in the process to help design and implement interventions that promote the progress outside the standard solutions and governance practices (business as usual).

- → **Multi-sector and multi-actor approach** – the involvement of different governmental and territorial levels (local, regional, national), different sectors (i.e. mobility - industry - communities) and actors (i.e. public - private - NGOs - banks) in the process is crucial to address and implement the necessary complex interventions.

- → **Systemic and demand driven** – ensuring that meaningful changes proposed by the Climate City Contract are reflected in the city's overall systems (operations, planning, construction, service delivery), regulations (spatial plan, budget, etc.) and sector strategies, and are driven by the needs and priorities of citizens and stakeholders.

- → **Monitoring, evaluation and learning** – ensuring regular monitoring and evaluation of the Climate City Contract implementation and sensemaking for future modifications and improvements.

These cross-cutting principles represent a common ground for the design and execution of the portfolio of actions as well as the governance and social innovation interventions elaborated in the Action Plan and will be further enhanced during the implementation process. The Climate City Contract, consisting of this document, the 2030 Climate Neutrality Action Plan and the related Investment Plan, will pass through recurring phases of iteration as the City of Kranj perceives them all as living documents. Thus, periodic monitoring with in-depth inventory analysis for 2022, 2025, 2027 and 2030 will provide a framework for the Transition Team, the Strategic Council and the City

Council to propose and adapt necessary updates and revisions, depending on the evolution of the city context, adopted national and EU directives, the global macro-economic trends, and other external risks.

5 Signatories

The table below enlists the signatories[6] who are committing to this CCC, and thereby to help the city achieve its goal to reach climate neutrality by 2030. Specific agreements that articulate the details of the climate action(s) between the municipality and signatories are added to the individual contracts in Appendix 1 (see sample in section 6). The number and relevance of signatories' commitments is likely to increase over time.

Name of the institution	Sector / Domain / Level of operation[7]	Legal form	Name of the responsible person	Position of the responsible person
City of Kranj	Sector: energy systems, mobility and transport/ waste and circular economy, green infrastructure and nature-based solutions - AFOLU/ built environment/ governance & policy Level: policy, management, implementation, monitoring	Local Authority	**Matjaž Rakovec**	**Mayor**
Ameba Holding, d.o.o. and 3FS NORDIC SI d.o.o.	Sector: smart city Level: implementation, expertise	Limited liability company – city partners in smart development	Andraž Logar	CEO
Arriva d.o.o.	Sector: mobility and transport Level: implementation	Limited liability company – city and national public transport concessioner	Bo Erik Stig Karlsson	CEO
Biotehnical Centre Naklo	Sector: green infrastructure and nature-based solutions / learning & capabilities Level: knowledge-base, engagement	Educational, research and development centre	dr. Marijan Pogačnik	Director

[6] Climate City Contract signatories may be individuals or organisations. They ideally include national and/or regional governments, for example concrete agreements/ commitments made through the multi-level governance engagement processes supported by NetZeroCities, CapaCities, and other emerging national level initiatives.
[7] Please mention if the organisation is active at local, regional, national, or international level.

Name of the institution	Sector / Domain / Level of operation[7]	Legal form	Name of the responsible person	Position of the responsible person
BSC, Regional Development Agency of Gorenjska	Sector: all sectors, learning & capabilities, social innovation, funding	Limited liability company – regional development agency	Franja Gabrovšek Schmidt	Director
CER Sustainable Business Network Slovenia	Sector: all sectors Level: implementation, expertise	Institute	Ana Bregar Struna	Director
Chamber of Agriculture and Forestry of Slovenia, Agricultural Forestry Institute Kranj	Sector: green infrastructure and nature-based solutions – AFOLU, capacity building Level: implementation, funding, expertise	Chamber of agriculture and forestry – agriculture advisory service	Mitja Kadoič	Director
City of Kranj Scouts Association	Sector: learning & capabilities Level: engagement, implementation	NGO	Danijel Kodrič	Representative
Cultural Art Association SubArt	Sector: learning & capabilities Level: engagement, implementation	NGO	Darjan Kruševac	Representative
Cultural Association Prostorož	Sector: learning & capabilities Level: engagement, implementation	NGO	Maša Cvetko	Representative
Domplan, engineering, real estate, urban planning, and Energy company, d.d.	Sector: energy systems, built environment Level: implementation	Joint-stock company – city concessioner for district heating	Saša Krč	CEO
Elektro Gorenjska, d.d.	Sector: energy systems, mobility & transport Level: implementation	Joint-stock company – electricity distribution and production company	Dr. Ivan Šmon, MBA	CEO
GENIS d.o.o.	Sector: smart city Level: implementation, expertise	Limited liability company – city partners in smart development	Janko Štefančič	CEO
Goodyear Slovenija, d.o.o.	Sector: industrial processes and product use Level: implementation	Limited liability company	Matej Zavrl	Procurator

Name of the institution	Sector / Domain / Level of operation[7]	Legal form	Name of the responsible person	Position of the responsible person
Gorenjska Banka d.d.	Sector: finance Level: implementation, expertise	Public limited company	Mario Henjak	President of the Management Board
Institute for Innovation and Development of University of Ljubljana	Sector: all sectors, learning & capabilities Level: multi-sector knowledgebase, research & innovation facilitation	Institute	izr. prof. dr. Andrej F. Gubina	Director
Institute for Spatial Policies, IPOP	Sector: learning & capabilities Level: engagement, implementation	NGO	Marko Peterlin	Director
Institute for Tourism and Culture Kranj	Sector: waste and circular economy, capacity building, social innovation Level: implementation, expertise, engagement	Public institute – tourism destination management organisation	Klemen Malovrh	Director
Institute of the Republic of Slovenia for Nature Conservation	Sector: green infrastructure and nature-based solutions - AFOLU Level: policy, implementation	National public body – institute for nature conservation	Teo Hrvoje Oršanič	Director
Iskraemeco, d.d.	Sector: industrial processes and product use/ smart city/ energy Level: implementation	Joint-stock company	Luis Goncalves	CEO
JGZ Brdo	Sector: green infrastructure and nature-based solutions Level: implementation	Public company	Maja Križmančič	Director
Jožef Stefan Institute	Sector: all sectors, learning & capabilities, Level: multi-sector knowledgebase, research & innovation facilitation	Institute	Matjaž Logar	Director
Komunala Kranj, javno podjetje, d.o.o.	Sector: waste and circular economy Level: implementation	Limited liability company - public utility company	Matjaž Berčon	CEO

Name of the institution	Sector / Domain / Level of operation[7]	Legal form	Name of the responsible person	Position of the responsible person
Kontron, d.o.o.	Sector: industrial processes and product use, smart city Level: implementation	Limited liability company	Robert Kuzmič,	CEO
Kranj City Library	Sector: all sectors, learning & capabilities, social innovation Sector: learning & capabilities	Public institute - library	Maja Vunšek	Director
Lanicon business consultation	Sector: smart city Level: implementation, expertise	Sole-trader	Matej Potokar	CEO
LEAG – Local energy agency of Gorenjska	Sector: energy systems, built environment, learning & capabilities, social innovation, funding Level: implementation, monitoring, expertise, funding	Public institute – regional energy agency	Črtomir Kurnik	Director
MM IBIS, d.o.o.	Sector: mobility and transport Level: implementation, expertise	Limited liability company – city partner in managing Centre for sustainable mobility Kranj	Miha Hrženjak	CEO
Rekono d.o.o.	Sector: smart city Level: implementation, expertise	Limited liability company – city partners in smart development	Janko Jager	CEO
School Centre Kranj	Sector: energy/ mobility/ learning & capabilities Level: knowledge-base, engagement	Educational, research and development centre	Jože Drenovec	Director
T-2 d.o.o.	Sector: smart city Level: implementation, expertise	Limited liability company – city partners in smart development	Jurij Krč	CEO
T2 ROTALAB d.o.o.	Sector: mobility and transport Level: implementation	Limited liability company – city partners in sustainable mobility	Jožef Zrimšek	CEO

Name of the institution	Sector / Domain / Level of operation[7]	Legal form	Name of the responsible person	Position of the responsible person
University of Ljubljana, Faculty of Electrical Engineering	Sector: learning & capabilities, energy systems, smart city Level: knowledgebase, research & innovation	Faculty – electrical engineering	prof. dr. Marko Topič	Dean
University of Maribor, Faculty of Organisational Sciences	Sector: learning & capabilities, social innovation, smart city Level: knowledgebase, research & innovation	Faculty – organisational sciences	red. prof. dr. Iztok Podbregar	Dean
VIGRED, d.o.o.	Sector: energy systems Level: implementation	Limited liability company – city concessioner for public lighting	Tomaž Logar	CEO
Vincenc Draksler Foundation so.p.	Sector: waste and circular economy, social innovation Level: implementation, engagement	Social enterprise	Nada Bogataj Kržan	Director
VIZIJE MOBILNOSTI, d.o.o.	Sector: mobility and transport Level: implementation, expertise	Limited liability company – city concessioner for e-mobility	Blaženka Pospiš Perpar	CEO
Wolt d.o.o. Ljubljana	Sector: mobility and transport Level: implementation	Limited liability company	Clemens Brugger	CEO
Zavod Center Stonoga so.p.	Sector: waste and circular economy/ social innovation, smart city, local food supply Level: implementation, expertise, engagement	Social enterprise - NGO	Primož Slavec	Director

6 Sample contract with signatures

Express joint commitment / agreement for all parties who sign this 2030 Climate Neutrality Commitments document[8].

We, the undersigned, hereby commit to help make the City of Kranj climate neutral by 2030. We agree on the joint ambition and commitments, as formulated in the City of Kranj's Climate City Contract.

Date of signature Name Signature

_____

Mayor of City X

_____

President, City X Development Agency

_____

Provost, University of City X

_____

CEO, Utility X

[8] Individual signatory commitments are concrete actions that will contribute to the overall climate neutrality target in line with the strategic priorities. The commitments aim to be as specific and targeted as possible. However, a signatory´s commitment can start as a broader agreement that gets refined and sharpened in each Climate City Contract iteration.

Appendix 1: Individual Signatory Commitments

(to be added before submitting the Climate City Contract)

NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Commitments 2

Climate Neutrality Commitments of the City of KRANJ

CITY OF KRANJ

NetZeroCities has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.

1 Signatories

The table below enlists the signatories[1] who are committing to this CCC, and thereby to help the city achieve its goal to reach climate neutrality by 2030. Specific agreements that articulate the details of the climate action(s) between the municipality and signatories are added to the individual contracts in Appendix 1 (see sample in section 6). The number and relevance of signatories' commitments is likely to increase over time.

Name of the institution	Sector / Domain / Level of operation[2]	Legal form	Name of the responsible person	Position of the responsible person
Adult Education Centre Kranj	*Sector*: learning & capabilities, social innovation *Level:* implementation	Adult education centre	Mateja Šmid	Director
Association Rekreatur	*Sector*: sport and tourism *Level:* implementation	Association – NGO	Andrej Zalokar	President
Association Sorško polje	Sector: social innovation, local food supply *Level:* implementation, expertise, engagement	Association – NGO	Matjaž Jerala	President
Chamber of Craft and Small Businesses, Regional Chamber Kranj	*Sector*: craft and SMEs *Level:* implementation, funding, expertise	Chamber of Craft and Small Businesses	Janja Erjavec	Director
FLORA SPORT d.o.o.	*Sector*: green infrastructure and nature-based solutions *Level:* implementation	Limited liability company – city concessioner for green areas management	Matjaž Kumer	Procurator

[1] Climate City Contract signatories may be individuals or organisations. They ideally include national and/or regional governments, for example concrete agreements/ commitments made through the multi-level governance engagement processes supported by NetZeroCities, CapaCities, and other emerging national level initiatives.
[2] Please mention if the organisation is active at local, regional, national, or international level.

Name of the institution	Sector / Domain / Level of operation[2]	Legal form	Name of the responsible person	Position of the responsible person
Fragmenti, so.p.	Sector: cultural and natural protection, social innovation Level: implementation, engagement	Social enterprise – NGO	Mateja Zore	Director
LIDL Slovenija d.o.o. k.d.	*Sector*: retail *Level:* implementation	Limited liability company, Limited partnership	Ivan Udiljak Metka Šilar Šturm	CEO Procurator
Marles hiše Maribor d. o. o	Sector: built environment *Level:* implementation, expertise	Limited liability company	Tadej Gosak	Director
Prešeren Theatre Kranj	*Sector*: culture *Level:* implementation	Public institute	Jure Novak	Director
Retirement Home Kranj	Sector: social care and health Level: implementation, engagement	Social care institution	Nadja Gantar	Director
Slovenia Forest Service	*Sector*: green infrastructure management *Level:* implementation, funding, expertise	Public institution – national forest service	Martin Umek under delegated authority	Head of Regional Unit

2 Sample contract with signatures

Express joint commitment / agreement for all parties who sign this 2030 Climate Neutrality Commitments document[3].

We, the undersigned, hereby commit to help make the City of Kranj climate neutral by 2030. We agree on the joint ambition and commitments, as formulated in the City of Kranj's Climate City Contract.

Date of signature Name Signature

_____

Mayor of City X

_____

President, City X Development Agency

_____

Provost, University of City X

_____

CEO, Utility X

[3] Individual signatory commitments are concrete actions that will contribute to the overall climate neutrality target in line with the strategic priorities. The commitments aim to be as specific and targeted as possible. However, a signatory´s commitment can start as a broader agreement that gets refined and sharpened in each Climate City Contract iteration.

NetZeroCities has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.

Appendix 1: Individual Signatory Commitments

(to be added before submitting the Climate City Contract)