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 Velenje

MESTNA OBČINA VELENJE

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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 Velenje is one of the 112 cities selected under the Horizon Europe EU Mission "100 Climate-neutral and Smart Cities by 2030". Cities were invited to develop Climate City Contracts, which outline an overall plan for achieving climate neutrality across various sectors, such as energy and buildings, transport, waste management, green infrastructure and nature-based solutions. The City Administration has invited local, regional and national stakeholders, as well as citizens in the process of co-creation of pathways to close the climate neutrality gap by 2030.

The City of Velenje officially set its green ambitions back in 2010 when it joined the Covenant of Mayors. Its efforts and achievements related to mitigation have been recognised by the 2024 Green Leaf award. The City aims at achieving climate neutrality by 2030, aligning its efforts with the coal-phase out and just transition of the Šaleška valley.

Located in the eastern part of the Šaleška valley in Slovenia, the City covers an area of 83.5 km^2 and has 33,675 (2023) inhabitants, which makes it the 8th largest municipality in Slovenia. The modern city of Velenje was planned and built in 1950s as a response to increased energy demand. Lignite mining altered the city's spatial structure, resulting in a high level of urbanisation (18%). The City has grown into an important economic, employment, educational, administrative and cultural centre of the SAŠA sub-region. Phasing out the lignite for electricity production and for heating in the Savinjsko-Šaleška sub-region presents both a challenge and an opportunity for the City to pursue its ambitious climate neutrality goals.

The City of Velenje stands again at a pivotal moment in history, having been given the opportunity to chart new, greener and climate-neutral pathways. The GHG inventory baseline was calculated for 2018 and amounted to 171,276 t CO_2eq. The highest share of GHG emissions comes from buildings, in particular Scope 2 emissions from purchased electricity and heat, produced from non-renewable sources.

The City's climate target for 2030 is to reduce GHG emissions by 80% from 2018 baseline which amounts to 137,443 t CO_2eq. The most critical element of the CCC Action Plan concerns the energy sector and buildings. Transforming the district heating system and replacing fossil fuel with renewables is the main strategy to achieving climate neutrality, along with increasing energy efficiency and energy renovation of buildings. Significant contributions are also expected from promoting sustainable mobility, decarbonising public transport. The CCC Action Plan also foresees a range of soft measures aimed at raising citizen awareness and generating knowledge, which will be integrated in the Climate and Energy Office. Local regulations and governance measures support these transformation processes, including the development of the Smart city and community digital platform.

The City Administration will oversee the monitoring and updating of both the CCC Action Plan and Investment Plan. A Strategic Council will be appointed to provide strategic guidance and support for the implementation of CCC.

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Abbreviations and acronyms

Abbreviations and acronyms	Definition
AFOLU	Agriculture, Forestry and Other Land Use
ARSO	Slovenian Environment Agency
AUMS	Association of Urban Municipalities of Slovenia
CCC	Climate City Contract
CHP	Combined heat and power
DARS	Motorway Company in the Republic of Slovenia
DRSI	Slovenian Infrastructure Agency
EE	Energy Efficiency
EIB	European Investment Bank
ELENA	European Local Energy Assistance
EU	European Union
EV	Electric Vehicle
FOD	First Order Decay
GHG	Green House Gas
IPPU	Industrial Process and Product Use
KSSENA	Local Energy Agency for the Savinjska, Šaleška and Koroška regions
LEC	Local Energy Concept
NECP	National Energy and Climate Plan
NUTS	Nomenclature of territorial units for statistics
NZC	NetZeroCities
OPN	Municipal spatial plan
ORC	Organic Rankine Cycle
PV	Photo Voltaic
RES	Renewable Energy Sources
SAŠA	Savinjsko-Šaleška region
SOPO	Environmental and climate scheme
SUMP	Sustainable Urban Mobility Plan
SURS	Statistical Office of the Republic of Slovenia
TPP	Thermal Power Plant
TT	Transition Team

1 Introduction

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

Introduction

The **City of Velenje** is located in the eastern part of the Šaleška valley, Slovenia, covering an area of 83.5 km^2. Administratively, the city is part of the Savinjska region (NUTS 3) and the cohesion region of Eastern Slovenia (NUTS 2).

With a population of 33,675 (2023), Velenje is the 8th largest municipality in Slovenia, with 75% of its residents living in the urban settlement of Velenje.

Figure 1: City of Velenje, photo by Matej Vranič

The City of Velenje officially set its green ambitions back in 2010 when it joined the Covenant of Mayors. Its efforts and achievements related to mitigation have been recognised by the **2024 Green Leaf award.** The vision of the City to become climate neutral by 2030 coincides with the coal-phase out and just transition of the Šaleška valley, which falls within the **EU coal regions**.

The Velenje Coal Mine is the last operating coal mine in Slovenia, supplying lignite to the Šoštanj Thermal Power Plant (TPP) in the neighbouring Municipality of Šoštanj. The Šoštanj TPP produces around one third of electricity in Slovenia. In January 2022, the Government of the Republic of Slovenia adopted a coal-phase out strategy, stating that the Velenje Coal Mine will cease operations by 2033 at the latest. Phasing out the lignite for electricity production and for heating in the Savinjsko-Šaleška sub-region (SAŠA region) presents both a challenge and an opportunity for the City to pursue its ambitious climate neutrality goals.

The City of Velenje stands again at a pivotal moment in history, having been given the opportunity to chart new, greener and climate-neutral pathways. Many have recently already been initiated.

The city extended its **urban cycling network**, which safely and comfortably connects residential areas with workplaces, schools, employment and service centres. Velenje's size and topography are well-suited for covering daily distances by bicycle.

A BICY **public bike rental system** was set up linking Velenje with the neighbouring town of Šoštanj. Free public passenger transport has also been available since 2008.
However, dense transit through the city centre and heavy commuter traffic remains a challenge.

In recent years, the Public utility company has already invested in renewable energy generation to increase self-sufficiency for the operation of water supply and waste-water treatment networks and appliances. Partial progress has also been made in the energy renovation of public and multi-dwelling residential buildings and energy efficiency of the district heating system.

Municipal waste separation was introduced as early as in 1992. Since 2018, the quantity of waste from households has increased, in particular during the Covid-19 epidemic. On average, the communal waste generated per capita is higher than national average, while waste collected by public service is lower. The percentage of landfilled waste was 17.6% in 2023, up from 14.5% in 2018.

The preparation of the CCC Action Plan highlighted the need to further increase awareness among citizens on how they can contribute to decreasing GHG emissions. There remains considerable potential for reducing waste generation, improving waste separation, promoting circular practices, and encouraging more citizens to walk, cycle and use public transportation.

However, **the key priority and challenge for reducing GHG emissions is securing renewable energy for the city district heating system**. The system covers three municipalities and serves around 40,000 users and 650 industrial clients. The majority of the distribution network lies within the territory of the City of Velenje. Built in 1959, the system has been instrumental in improving air quality in the SAŠA region.

The city's assets include a relatively **large share of forest area** (51% of total territory), which provides carbon sinks but has become increasingly vulnerable to extreme weather. The urban planning concept of the city is based on the vision of 'the city in the park', providing extensive green areas. The city's spatial plan also provides for the **urban protection forest**. Agricultural land make up 29% of the territory, while two lakes, formed as a result of mining activities, cover 2.2% of the city'y territory.

The CCC Action Plan includes the entire administrative territory of the City of Velenje,
with no districts within these administrative boundaries being excluded from the target of achieving climate neutrality by 2030.

The baseline year for GHG inventory is 2018, with calculated GHG emissions of **171,276 t CO2eq** and total energy consumption of **502,464 MWh/year.** All sectors are covered, however in the waste sector (Scope 3) emissions from wastewater treatment are not included as data could not be delimited between the three municipalities.

The city climate target for 2030 is to reduce GHG emissions by 80% from the 2018 baseline which amounts to **137,443 t CO_2 eq** (as per methodology, residual emissions of 20% are accounted for). **The m**ajority of emissions reduction (96%) is included in the CCC Action Plan while further reductions are expected through measures implemented under existing strategies in the 2018–2023 period.

The most critical element of the CCC Action Plan is linked to the **energy sector and buildings**. The main strategy for achieving climate neutrality involves transforming the district heating system and replacing fossil fuel with renewables. The action requires close cooperation and coordination between the City Administration, the public utility company, energy experts, different authorities, investors and funders. A phased approach has been planned.

This CCC Action plan covers key actions necessary for reaching climate neutrality. Its future iterations will consider further renovations of buildings, new technologies enabling energy efficiency and potential new RES.

Socio-economic and geographical characteristics of the City of Velenje
The modern city of Velenje was planned and built in 1950s as a response to increased energy demand. The city has grown into an important economic, employment, educational, administrative and cultural centre of the SAŠA sub-region. Lignite mining altered the city's spatial structure resulting in a high level of urbanisation (18%).

Demography
In 2023 the **population of Velenje was 33,500** (2023) and has seen a slight increase since 2018 when it stood at 32,800. Demographic studies indicate a stabilisation of the city population, a decrease in immigration and changes in the age structure. The population today is relatively vital, with an ageing index of 123 – 20 index points below the national average.

The active population has increased from 13,650 in 2018 to 14,591 in 2023. The City is characterised by significant commuting that has increased since 2018. The main destinations for outbound commuters are: Ljubljana (1,680), Celje (803), Žalec (424), Nazarje (301), Maribor (281) and Slovenj Gradec (276). Inbound commuters mainly come from neighbouring municipalities and regions: Šoštanj (1,689), Žalec (596), Celje (563), Mislinja (482), Šmartno ob Paki (457), Slovenj Gradec (358), Polzela (288), Mozirje (291).

Economic profile
Even today, the City's economy and employment are concentrated in **few larger enterprises**, with Hisense Gorenje, the producer of household appliances, and Velenje coal mine being the largest ones, employing over 4,000 employees in total.

The City is characterised by its **predominantly industrial structure** (processing, mining, and energy sector). The SME sector is relatively well developed. In recent years, there has been a strong focus on sustainable tourism development. Velenje is a proud recipient of the Slovenia Green, Green&Safe, and Slovenia Green Accommodation gold signs. The City's key tourism products include active outdoor activities and festivals, leveraging the recreational cycling network, hiking trails and the newly Vista built infrastructure by Lake Velenje. The city promotes zero-waste concept for organisation of public events.

There are around **355 farm holdings** in the area (2020), all located in less favoured areas (LFA). Main activities are livestock breeding and dairy production (around 3,000 livestock), with only smaller surfaces being dedicated to vegetable and fruit production. The farms are small (average 5.6 ha of arable land), with very fey supplementary activities (33 in 2024).

The just transition actions are expected to **create more green and higher value-added jobs** (the SAŠA incubator, the development of new technologies, the renovation of an old industrial heritage building – the power plant – for educational and community activities). There is also a potential for the revitalisation of degraded areas. The city is investing in the development of business zones and has designated areas available for new residential development.

Geography
As part of the Šaleška Valley, Velenje is a pre-alpine valley along the middle reaches of the Paka River, with an altitude of around 400 metres above sea level. The average temperature in the 1991–2019 period was around 10 °C (mid-July temperature is around 19.5 °C and mid-January around 0 °C).

In terms of geographical characteristics, land use, transport location and development to date, the area of Velenje has several areas with distinct common features:

- → Urbanised area of the City of Velenje and suburbs in the south-eastern part of the municipality along the Paka River
- → Area impacted by lignite mining on the western outskirts of the city
- → Area of dispersed settlement as an indigenous pattern in the hilly north-eastern part
- → Predominantly agricultural, rural areas in the southern part of the municipality

→ Dispersed settlement in the area of Vinska Gora in the eastern part of the municipality, which is also the suburban area of the city of Velenje.

Background information on the CCC Action Plan development process

The CCC Action Plan is a result of a multi-stakeholder participatory process. The City of Velenje appointed a Transition Team (TT), consisting of the representatives of key municipal departments, the public utility company and local energy agency. The TT is an operational body overseeing the entire process of the preparation of the CCC documents.

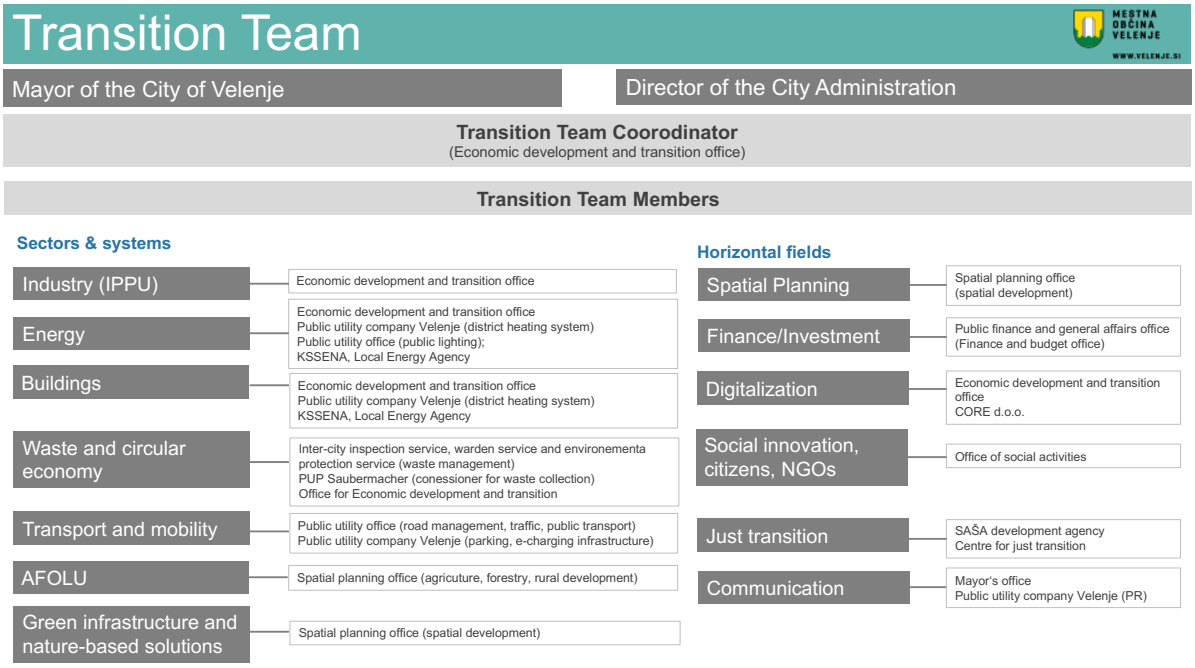


Figure 2: Composition of the Transition Team

Following the elaboration of the GHG emissions inventory and analysis of the strategies and action plan and identification of stakeholders, an indicative stakeholder engagement plan was made. A series of technical meetings and focus groups were held, including concessionaires for waste treatment and public transport, public service institutions, key enterprises, and multi-dwelling managers. These meetings and focus groups were complemented by open events, such as the Green Leaf opening conference, a youth hackathon, and business sector gatherings. It needs to be highlighted that the City Administration has already established sound relations with key stakeholders during the preparation of the Territorial Just Transition Plan for the SAŠA coal region. Both processes are very much connected and the just transition activities accelerated the CCC process and identification of actions.

Specific aspects of the situation, challenges, plans and opportunities in different sectors, as well as the potential for creating synergies in co-creating impact pathways and actions were addressed in different ways. Analytical activities included establishing the GHG baseline, conducting a detailed analysis of the City Administration budget, identifying implemented and future investments, and screening project ideas identified during the preparation of the regional and subregional development plan.
The results of stakeholder engagement in the preparation of the sustainable urban strategy (survey for citizens), the municipal environmental programme (workshops), and the just transition process were considered. A short survey targeting businesses was conducted with over 100 businesses directly invited to participate. The findings of the survey were used for follow-up meetings.

The City of Velenje, the Centre for Just Transition and the SAŠA incubator jointly organised a 2-day hackathon for secondary school students. The participants worked on three identified challenges: reducing waste generation, enhancing sustainable mobility and improving energy efficiency of the district heating system. They focused on developing creative solutions to raise citizens' awareness of these issues and to promote a behavioural change.

The City Administration has also been active in providing opportunities for expert exchange and awareness raising on approaches and solutions, especially the ones related to decarbonisation of the district heating system and energy efficiency. An overview of recent activities is illustrated in Figure 3. The preparation of the CCC Investment Plan was largely carried out in parallel with the Action Plan.

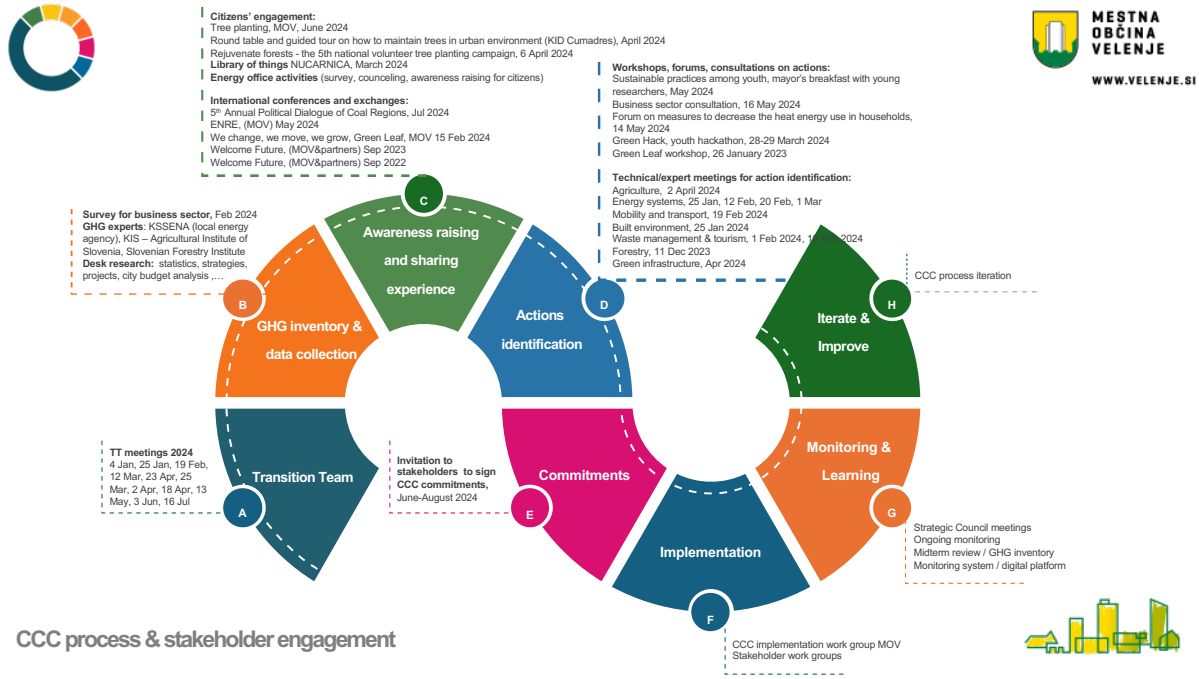


Figure 3: Overview of the CCC process

A **Strategic Council** will be appointed to oversee the CCC implementation process, consult on strategic decisions and to support the engagement of stakeholders in future activities.

The first draft of the CCC Action Plan and Investment Plan will be presented to the **City Council**.

The CCC Action Plan is understood as a **live document**. It will be regularly monitored by the TT. The progress will be assessed in the mid-term review in 2026, including the update of the GHG inventory. The CCC Action plan will be adjusted on a need basis.

Table 1: Climate neutrality targets by 2030

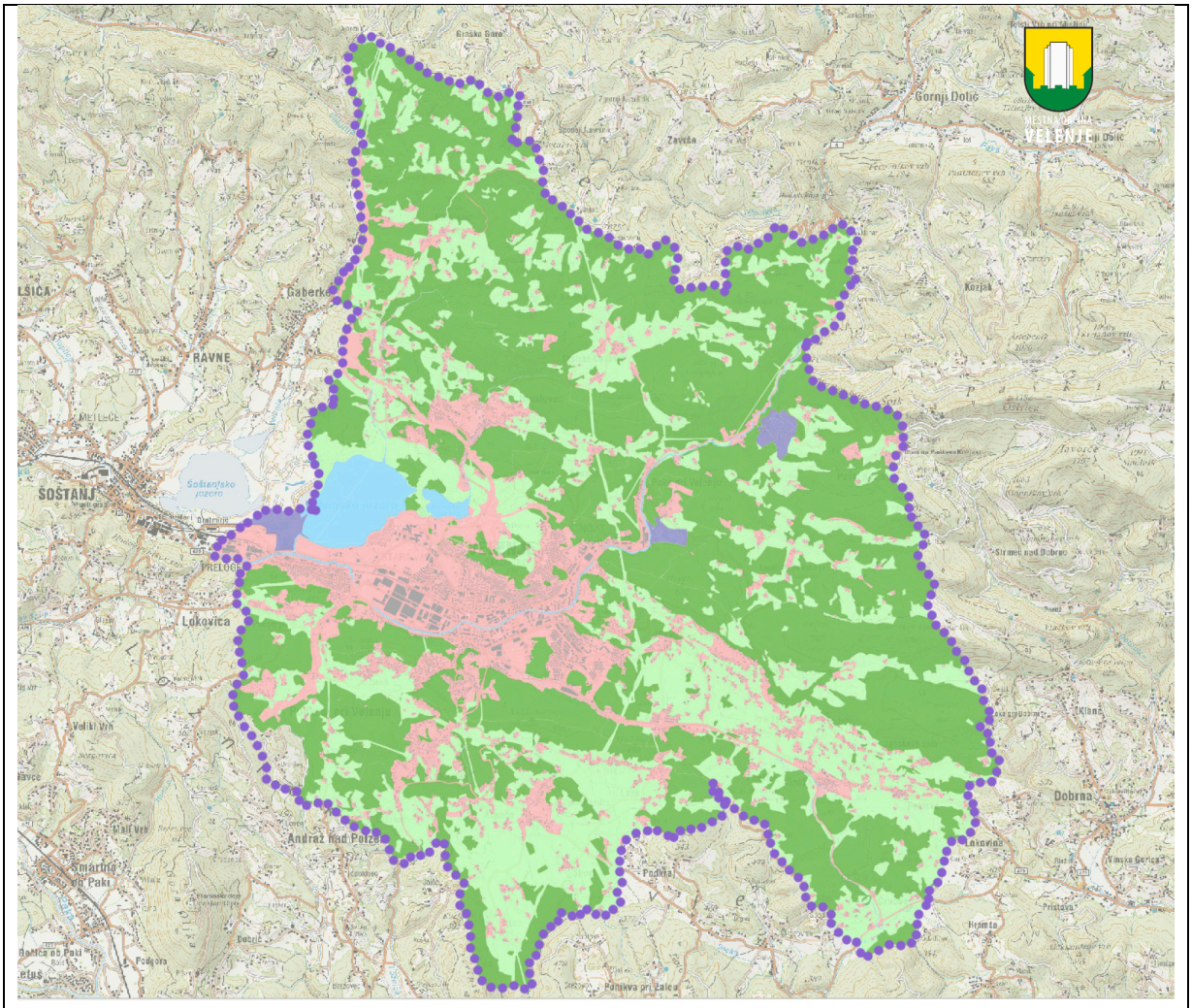
Table I-1.1: Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
Stationary energy	Scope 1, covers the following sub-sectors: residential buildings, commercial buildings and facilities, institutional buildings and facilities, manufacturing industries and civil engineering, and energy generation. The following energy sources are included: natural gas, extra light fuel oil, liquefied petroleum gas, wood biomass and electricity generation (small individual self-sufficiency in electricity)	Scope 2, covers the following sub-sectors: residential buildings, commercial buildings and facilities, institutional buildings and facilities, manufacturing industries and civil engineering and public lighting. The following energy sources are included: grid-supplied district heating and electricity (also for e-mobility)	Not applicable

Table I-1.1: Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
	Without exclusion	Without exclusion	Not applicable
Transport	Scope 1 includes on-road transportation and railway, with the following energy sources being included: diesel, gasoline, natural gas, liquefied petroleum gas and biodiesel	Without exclusion	Not included
	Without exclusion	Electricity use for mobility is included in the stationary energy sector (in line with the electric district system operator – there is no specific measurements for EV)	Not applicable
Waste/wastewater	Not applicable	Not applicable	Scope 3 includes GHG emissions from solid waste disposal
	Not applicable	Not applicable	Wastewater is collected and processed in a neighbouring municipality (the scope of processing cannot be delimited between municipalities). A methodology will be developed and used in the follow-up GHG inventory preparation.
IPPU	Scope 1 includes emissions generated by the industry and processes using the following energy sources: diesel, extra light fuel oil, liquefied petroleum gas	Not applicable	Not applicable
	The use of the heat from the »district heat grid« and of the natural gas from the grid are evaluated under the stationary energy sector. The City of Velenje does not have industrial facilities that produce CO_2 or other greenhouse gas emissions through processes like mineral, chemical, or metal production. Hence, these emissions have not been accounted for	Not applicable	Not applicable
AFOLU	Scope 1 includes non-energy emissions in agriculture, such as those from livestock (enteric fermentation, manure management) and agricultural land management (liming, urea application, fertilization, and cultivation of agricultural land). The sector also includes CO_2 emissions and sinks resulting	Not applicable	Not applicable

Table I-1.1: Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
	from land use and land use changes		
	Without exclusion.	Not applicable	Not applicable
Other	No - all considered emissions are already categorized within the above-mentioned sectors	No - all considered emissions are already categorized within the above-mentioned sectors	Not applicable
Geographical boundary	**Same as city administrative boundary**	**Smaller than city administrative boundary**	**Larger than city administrative boundary**
(Tick correct option)	X		
Specify excluded/additional areas	Without exclusion	-	-

Map

Figure 4: City of Velenje on the map of Slovenia



MOV - Urad za urejanje prostora, marec 2024

OPN - Osnovna namenska raba zemljišč

Buildings	**Stavbna zemljišča:** 15,324143 km^2
Arable land	**Kmetijska zemljišča:** 23,905531 km^2
Forest	**Gozdna zemljišča:** 41,870588 km^2
Water	**Vode:** 1,819453 km^2
Other	**Druga zemljišča:** 0,645782 km^2

Figure 5: City of Velenje land use (Municipal spatial plan)

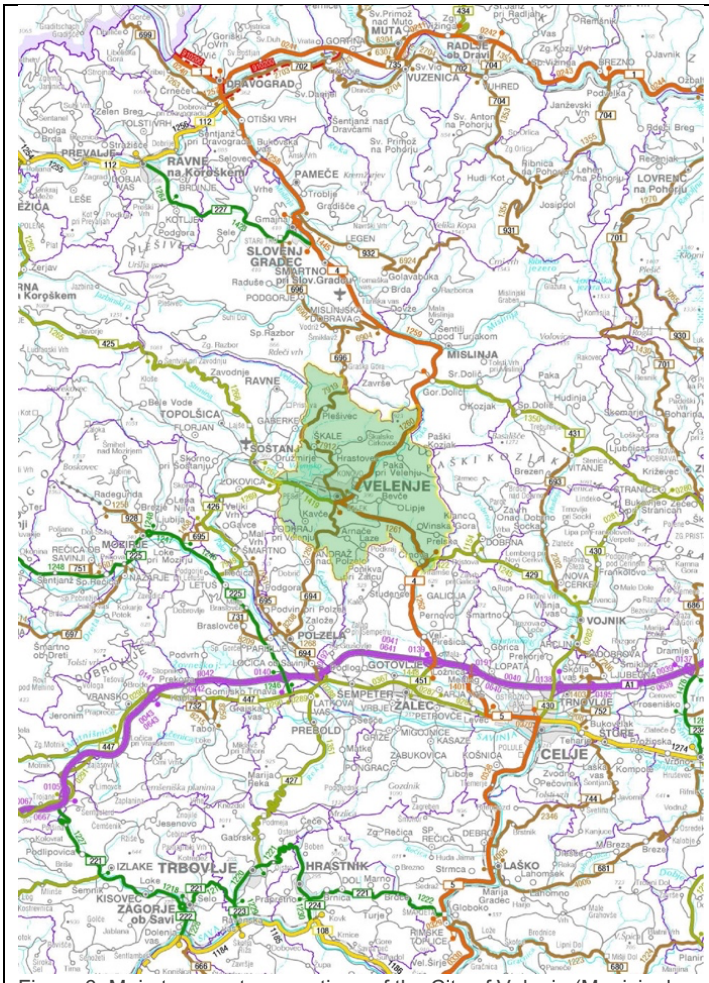


Figure 6: Main transport connections of the City of Velenje (Municipal spatial plan)

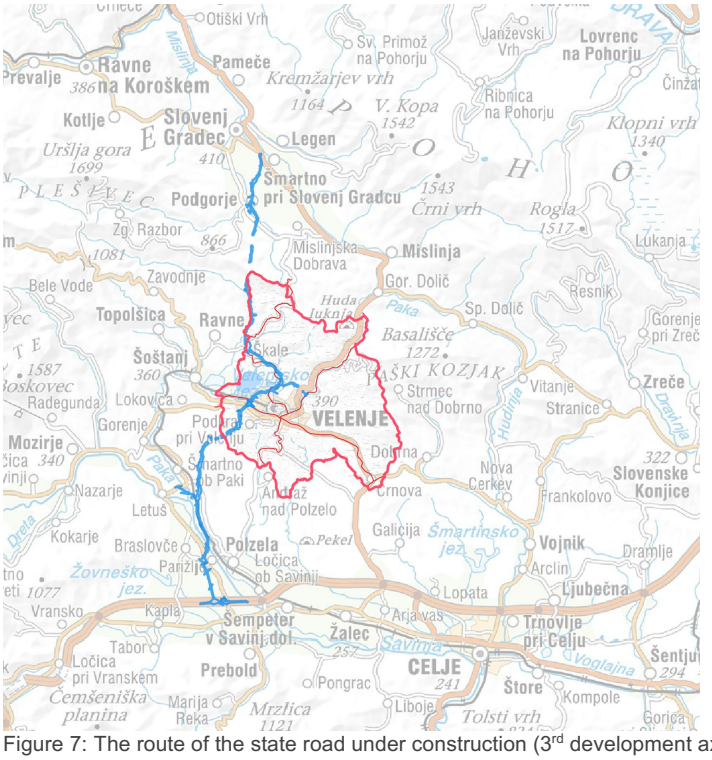


Figure 7: The route of the state road under construction (3rd development axis)

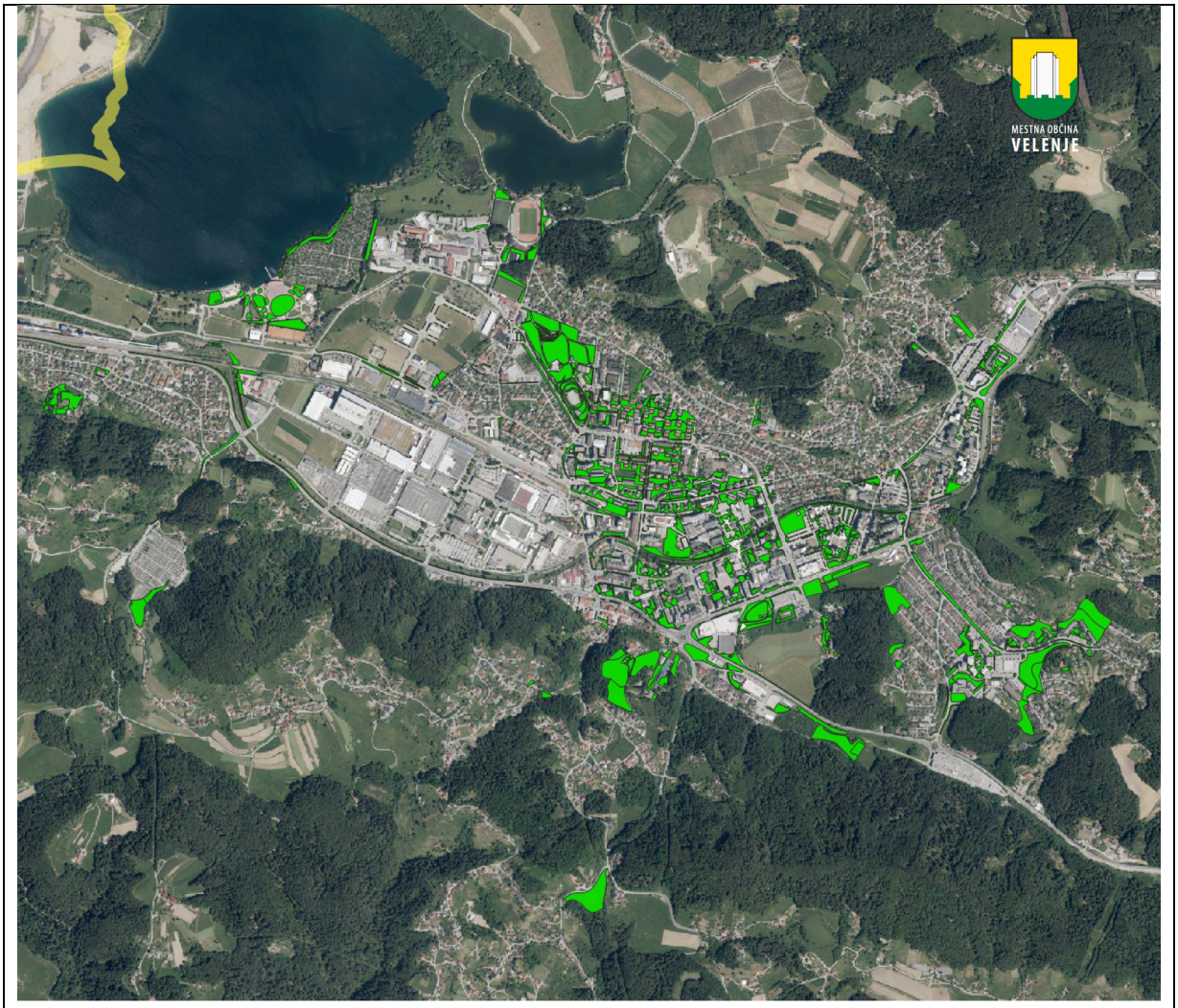


Figure 8: City of Velenje, green areas maintained (Municipal spatial plan)

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

GhG Emissions Baseline inventory

The results of the City of Velenje GHG Emissions Baseline inventory for 2018 are provided both in total and by sectors.

TOTAL GHG EMISSIONS FOR BASE YEAR 2018

Year 2018 was selected as the baseline for greenhouse gas (GHG) emissions. This decision is anchored by on a sufficiently extensive set of emissions stemming from energy consumption, predominantly from district heating system, electricity and fossil fuels, as detailed in the Local Energy Concept of the City of Velenje (LEC). The Concept, which provides an in-depth analysis of the City's energy dynamics, was ratified by the Velenje City Council in 2022 and forms the cornerstone of our GHG inventory. The adoption of 2018 as the baseline year allows for the use of this vetted data, ensuring that our inventory is both accurate and aligned with established local energy policies.

The GHG inventory for the City of Velenje has been meticulously developed according to the guidelines set forth by the Intergovernmental Panel on Climate Change (IPCC). By adopting the IPCC guidelines, the City of Velenje ensures its reporting practices are aligned 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: 171,276 t CO_2 equivalent/year**
→ **Total energy consumption: 502,464 MWh/year**

BUILDINGS SECTOR

For the 2018 energy consumption data within the buildings sector in Velenje, sourcing was carried out through various local and national stakeholders. The primary electricity provider and grid operator in the region, i.e., Elektro Celje d.d., provided data on electricity consumption. The consumption figures for natural gas and heat from district heating system were provided by the public utility company KP Velenje, which manages both the gas and district heating distribution system in the area. Complementing these primary sources, the Statistical Office of the Republic of Slovenia (SURS) also contributed significant insights. These were further complemented with other publicly available data, ensuring a comprehensive understanding of the sector's emissions.

In terms of the overall energy consumption for the year, direct emissions from sources of residential, public and commercial buildings within Velenje amounted to 50,877 MWh/year. Indirect emissions from the generation of purchased electricity consumed and heat consumption from the district heat system by the city reached 345,393 MWh/year. Thus, the combined energy consumption for residential, public and commercial buildings in Velenje for 2018 amounted to 396,270 MWh/year.

Heating oil consumption was reported at 7,283 MWh/year. Biomass consumption in the sector was recorded at 38,336 MWh/year, while natural gas saw a consumption of 4,950 MWh/year. Buildings in Velenje consumed non-renewable electrical energy amounting to 140,467 MWh/year (including industry buildings and IPPU, public lighting and e-mobility), and district heating consumption was registered at 204,926 MWh/year.

→ Direct emissions (Scope 1): **3,094 t CO_2** equivalent/year
→ Indirect emissions from purchased electricity/heat, produced from non-renewable resources (Scope 2): **135,146 t CO_2** equivalent/year
→ **Total emissions: 138,240 t CO_2 equivalent/year**

TRANSPORT SECTOR

Strategically, Velenje is located in the area of the third development and transport axis, which is still under construction. Precisely analysing the energy consumption within the transport sector for a specific municipality, like Velenje, presents challenges, mainly due to the complexity of the calculations and the lack of comprehensive data. A significant amount of motor fuels, both consumed and acquired, originates outside the municipal boundaries.

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 Velenje. The estimate was obtained from the traffic counters of the Slovenian Infrastructure Agency.

The data shows that cars are the primary energy consumers in transport, followed by trucks, with buses coming next. Rail transport, while notable, has a smaller energy footprint due to its limited extent (about 3 km of non-electrified railways in Velenje). Fossil fuels remain a predominant energy source for transport, With diesel accounting for 64% of consumption and gasoline for 36%. The shift to greener energy sources in transport is still in its early stages in Velenje.

In 2018, the City of Velenje's transport sector reported an energy consumption of 92,831 MWh/year. Of this, diesel accounted for a substantial 59,737 MWh/year, gasoline for 33,094 MWh/year, while electrical energy for EV, included within the buildings sector, contributed an almost insignificant proportion.

→ Direct emissions (Scope 1): **24,190 t CO_2** equivalent/year
→ Indirect emissions from purchased electricity, produced from non-renewable resources (Scope 2): included in buildings sector
→ **Total emissions: 24,190 t CO_2 equivalent/year**

WASTE SECTOR

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

The primary data source for this analysis was PUP-Saubermacher, the company responsible for municipal waste management in Velenje. Additionally, data regarding solid waste was provided by ARSO, the Slovenian Environment Agency.

For the specified year, the waste sector of Velenje demonstrated the following details: diesel consumption was account for under the IPPU, while the indirect energy consumed from electrical energy was accounted for under the buildings sector. Considerable emissions in the form of methane and CO_2 emissions are released from the regional collection centre ReCero, which handles sorting, recycling and disposal of solid waste (Scope 3, located in another municipality within the region). The National Environment Agency monitors this data consistently

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

→ Indirect emissions (Scope 3): **316 t CO_2** equivalent/year
→ Indirect emissions from purchased electricity, produced from non-renewable resources (Scope 2): included under the buildings sector
→ Indirect emissions in of City Boundary (Scope 1): included under the IPPU and the transport sector
→ **Total emissions: 316 t CO_2 equivalent/year**

INDUSTRIAL PROCESSES AND PRODUCT USE SECTOR

For the calculation of GHG emissions from the Industrial Process and Product Use (IPPU) sector, we used the energy consumption data from year 2018, provided by the Statistical Office of the Republic of Slovenia (SURS). This data was further refined using actual measured figures, especially concerning diesel, extra light fuel oil and liquefied petroleum gas. The consumption pattern in this sector mirrors that observed in the buildings sector, with the dominant energy sources being heat from district heating system and electricity consumption. Additionally, we excluded electricity consumption that falls under Scope 2 within the buildings sector. In terms of energy consumption specifics, the IPPU sector recorded a total consumption of 13,363 MWh. This included 11,088 MWh from heating oil and 2,275 MWh from LPG. District heating consumption was accounted for under Scope 2 in the buildings sector.

→ Direct emissions (Scope 1): **3,477 t CO_2** equivalent/year
→ **Total emissions: 3,477 t CO_2 equivalent/year**

AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU)

- **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) was 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).

The estimates for the land sector showed that arable land and grassland were a net source of emissions amounting to 1,605 t CO2 eq in 2018. Other categories such as cropland, grassland, settlements and forestland acted as a net sink, which amounted to – 6,407 t CO2 eq. 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 GHG emissions from agriculture in the territory of the City of Velenje, data was collected on livestock production, including the number of animals and body masses of cattle, as well as the area of agricultural land used for various crops. Information on the number and body mass of cattle was sourced from the Central Data Repository for Cattle maintained by the Agricultural Institute of Slovenia. Owing to the lack of specific data for the City of Velenje, national-level milk production data were used as an approximation. Data on the number of other livestock species and details on crop areas was 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, which involves multiplying the number of animals by the corresponding emission factor. Methane from manure management, as along with direct and indirect emissions of nitrous oxide from manure management and managed soils, were calculated using Tier 1 (IPCC, 2019). This involved considering the number of animals, annual average volatile solid excretion per head of species, 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 was required. 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 2018, there were a total of 9,855 tons of CO_2 equivalent emissions from agriculture, including 5,131 tons from enteric methane, 1,816 tons from manure management, 2,882 tons from managed soils, 14 tons from lime application, and 8 tons from urea application. In terms of emissions, there were 6,181 tons of CO_2 equivalent emissions of methane, 3,649 tons of CO_2 equivalent emissions of nitrous oxide, and 22 tons of carbon dioxide.

Forestry and Land Use

→ Direct Emissions – net sink (Scope 1): **- 4,802 t CO_2** equivalent/year

→ **Total Emissions – net sink: - 4,802 t CO2 equivalent/year**

Agriculture

→ Direct Emissions (Scope 1): 9,855 t CO_2 equivalent/year

→ **Total Emissions: 9,855 t CO2 equivalent/year**

AFOLU:

→ Direct Emissions (Scope 1): 5,053 t CO_2 equivalent/year

→ **Total Emissions: 5,053 t CO_2 equivalent/year**

Table 2: 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
Buildings	**50,877.43**	**345,392.94**	**NO**
Extra light fuel oil	7,283.07	NO	NO
Liquefied petroleum gas	307.43	NO	NO
Wood biomass	38,336.43	NO	NO
District heat		204,925.78	NO
Natural gas	4,950.49	NO	NO
Electricity	NO	140,467.16	NO
Transport	**92,830.84**	**NO**	**NO**
Gasoline	33,094.00	NO	NO
Diesel	59,438.00	NO	NO
Diesel - railway traffic	298.84	NO	NO
Waste	**IE**	**IE**	**IE**
Energy used	IE	IE	IE
Industrial Process and Product Use (IPPU)	**13.362,67**	**NO**	**NO**
Diesel	11,087.83	NO	NO
Liquefied petroleum gas	2,274.84	NO	NO

Agricultural, Forestry and Land Use (AFOLU)	**IE**	**IE**	**NO**
energy used	IE	IE	IE

NO = not occurring
IE = included elsewhere

Table 3: 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

Method used: IPCC 2006, national factors as provided by PURES, IJS (Jožef Štefan Institute)

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)
Extra light fuel oil	0.267	/	/	/	/	/
Liquefied petroleum gas	0.227	/	/	/	/	/
Wood biomass	0*	/	/	/	/	/
District heat	0.362	/	/	/	/	/
Natural gas	0.202	/	/	/	/	/
Electricity	0.434	/	/	/	/	/
Gasoline	0.249	/		/	/	/
Diesel	0.267	/	/	/	/	/
Agriculture**	/	28**	265**	/	/	/

* a zero CO_2 emission factor is applied to wood biomass, biogas, and biofuels
** 1 t of methane = 28 t of CO_2, 1 t of N_20= 265 t of CO_2

Table 4: 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		3,094.16	135,145.88	NO	138,240.04
Transport		24,190.14	NO	NO	24,190.14
Waste		IE	NO	315.93	315.93
Industrial Process and Product Use (IPPU)		13,362.67	IE	NO	13,362.67
Agriculture, Forestry and Other Land Use (AFOLU)	Sources (positive emissions)	9,855.30	IE	NO	9,855.30
	Sinks (negative emissions)	- 4,802.00	IE	NO	- 4,802.00
Total		**35,814.44**	**135,145.88**	**315.93**	**171,276.25**

Most emissions (79%) fall under Scope 2, indicating that reducing total emissions should primarily focus on the district heating system and grid-supplied electricity.

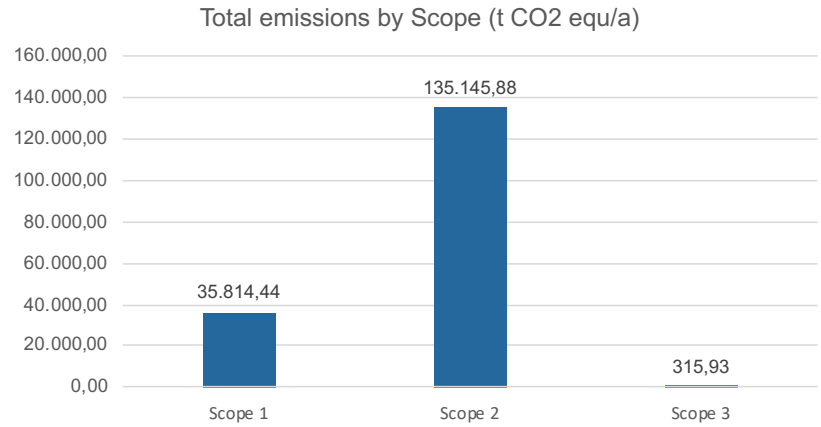


Figure 9: Total GHG emission by scope

Table 5: Activity by source sectors

A-1.4: Activity by source sectors.			
Base year		2018	
	Scope 1	Scope 2	Scope 3
Sector: Buildings	**3,094.16**	**135,145.88**	**NO**
Public buildings and other uses	58.88	13,230.32	NO
Residential buildings	2,542.52	64,611.99	NO
Industry	492.76	56,906.85	NO
Public lighting	NO	396.72	NO
Sector: Transport	**24,190.14**	**NO**	**NO**
On road transportation	24,110.14	NO	NO
Diesel - railway traffic	80.00	NO	NO
Sector: Waste	**IE**	**NO**	**315.93**
Solid waste	IE	NO	315.93
Sector: Industrial Process and Product Use (IPPU)	**13,362.67**	**IE**	**NO**
IPPU	13,362.67	IE	NO
Sector: Agriculture, Forestry and Other Land Use (AFOLU)	**5,053.30**	**IE**	**NO**
agriculture, forestry	- 4,802.00	IE	NO
livestock farming	9,855.30	IE	NO

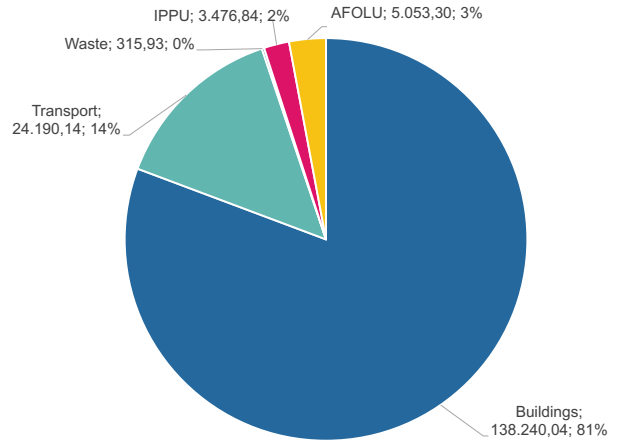


Figure 10: GHG emissions per sectors, t CO_2eq per year, baseline 2018

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

List of analysed documents

The following existing policies, strategies, programmes, and regulations impacting directly or indirectly the 2030 climate neutrality ambition of the City of Velenje were analysed:

Table 6: List of examined strategies and action plans

Type and level	Name
European	
Strategy	The European Green Deal
Strategy	Sustainable and Smart Mobility Strategy – putting European transport on track for the future, COM(2020) 789 final, 9.12. 2020
Regulation	Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (European Climate Law)
Regulation	Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources and repealing Council Directive (EU) 2015/652 (Renewable Energy Directive); Directive (EU) 2023/2413 amending the Directive (EU) 2021/119 (revised Renewable energy directive).
Regulation	Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast) (Text with EEA relevance) Energy Efficiency Directive
Regulation	Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles - Clean Vehicles Directive
Action Plan	Circular Economy Action Plan for cleaner and more competitive Europe, COM(2020) 98 final
Regulation	Regulation (EU) 2024/1735 of the European Parliament and of the Council of 13 June 2024 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724
National	

Strategy	Slovenian Development Strategy 2030
Strategy	Resolution on the Slovenian Long-term Climate Strategy 2050 (ReDPS50, July 2021)
Action plan	Integrated National Energy and Climate Plan of the Republic of Slovenia (NECP)
Strategy	Long-term strategy of energy renovation of buildings until 2050 (February 2021)
Strategy	National Strategy for the Phasing-Out of Coal and the Restructuring of Coal Regions in Accordance with the Principles of a Just Transition (January 2022)
Strategy	National Environment Protection Programme with programmes of measures until 2030
Action plan	Resolution on the National Programme for the Development of Transport in the Republic of Slovenia until 2030 (November 2016)
Action plan	Action Programme for Alternative Fuels in Transport for 2022 and 2023, Government of the Republic of Slovenia (December 2021)
Strategy	Strategy for market development for the deployment of an alternative fuels infrastructure in the transport sector of the Republic of Slovenia (October 2017)
Regional and sub-regional	
Strategy& action plan	Regional Development Programme of the Savinjska region 2021–2027 (March 2022)
Sub-regional strategy and action plan	Territorial Development Programme of the Savinjsko-Šaleška region 2021–2027 (March 2021)
Sub-regional strategy and action plan	Territorial Just Transition Plan of the Savinjsko-Šaleška coal region, version 2.0, 2nd draft
Action plan	Action Plan for the Savinjsko-Šaleška Coal Region in Transition (May 2021)
Sub-regional strategy	Strategy for Tourism Development and Marketing of Velenje and Šoštanj 2022–2027 (March 2022)
Sub-regional action plan	Action Plan for the Transformation of District Heating System in the Šaleška valley (2023)
Local	
Strategy	Sustainable Urban Strategy of the City of Velenje 2030 – on the mission to climate neutrality (TUS, June 2022)
Strategy and action plan	Local Energy Concept of the City of Velenje (LEC, April 2022)
Strategy	Municipal Environment Protection Programme 2021–2025 (October 2020)
Strategy and action plan	Sustainable Urban Mobility Plan 2017-2022 (SUMP, 2017)
Strategy	Digital Development Strategy of the Smart City and Community of the City of Velenje 2022–2030 (May 2022)
Strategy and action plan	Municipal Spatial Plan – City of Velenje (2020)

Description of strategies and policies and their relevance for the climate neutrality of the City of Velenje

EU level

The following strategic documents form the basis for embarking on the path to climate neutrality:

The **European Green Deal:** The European Commission has adopted a set of proposals to make the EU's climate, energy, transport and taxation **policies fit for reducing net greenhouse gas emissions by at least 55% by 2030**, compared to 1990 levels.

The **European Climate Law** writes into law the goal set out in the European Green Deal to become climate-neutral by 2050. The law sets the intermediate target of reducing net GHG emissions by at least 55% by 2030, compared to 1990 levels.

The revised **Renewable Energy Directive EU/2023/2413** sets an overall renewable energy target of at least 42.5% binding at EU level by 2030 but aiming at 45%.

The **Energy Efficiency Directive EU/2/23/1791** significantly raises the EU's ambition on energy efficiency. It establishes 'energy efficiency first' as a fundamental principle of EU energy policy, giving it legal-standing for the first time. The 2023 revised directive raises the EU energy efficiency target, making it binding for EU countries to collectively ensure an additional **11.7% reduction in energy consumption by 2030**, compared to the 2020 reference scenario projections. To ensure a fully decarbonised district heating and cooling supply by 2050, the definition of efficient district heating and

cooling is revised and minimum requirements will be gradually changed to allow for a progressive integration of renewable energy and waste heat and cold in the system.

The **Clean Vehicles Directive** promotes clean mobility solutions in public procurement tenders, providing a solid boost to the demand and further deployment of low- and zero-emission vehicles. It sets national targets for procuring clean vehicles. Slovenia has to meet at least half of the procurement targets for clean buses, which is **22% by 2025 and equally 22% by 2030**.

The **Circular Economy Action Plan** provides a future-oriented agenda for achieving a cleaner and more competitive Europe in co-creation with economic actors, consumers, citizens and civil society organisations. It aims at reducing consumption footprint and double its circular material use rate in the coming decade. It focuses on designing sustainable products, empowering consumers and public buyers and promotes circularity in production processes.

Above strategies and regulations provide strategic framework and targets that need to be integrated in national legal frameworks, also in view of increased climate ambitions.

National level

The **Slovenian Development Strategy 2030** sets *a high quality of life for all* as its primary objective. One of the strategy's key targets is to achieve **27% share of renewable energy** in gross final consumption by 2030. It sets 12 development goals, two of which are particularly relevant. *Goal 8 – Low Carbon Economy* clearly supports replacing fossil fuels through promotion of energy efficiency and renewable energy in all areas of energy use, ensuring that infrastructure and energy use in transport support the shift to low-carbon economy and sustainable mobility, and using spatial planning to design new nodes for the low-carbon circular economy. *Goal 9 – Sustainable Natural Resources Management* introduces an ecosystem-based approach to managing natural resources by harmonising cross-cutting areas of water – food – energy – eco-systems ensuring sustainable development of forests, strengthening ecosystems services, preserving high-quality farmland, and promoting adaptation to climate change.

The **Resolution on the Slovenian Long-term Climate Strategy 2050** (ReDPS50, July 2021) sets a vision for Slovenia to become climate neutral and climate resilient society by 2050. Strategic objectives focus on reducing GHG emissions and increasing sinks, enhancing energy efficiency and promoting renewable energy. Sectoral targets are defined in a table below along with those of the NECP, which serves as the Action Plan for this strategy. The climate strategy and the NECPs have been developed in a coordinated manner, i.e. the same GHG projections are used for both documents. Slovenia intends to further tighten these targets to align with the new EU targets by 2030.

Table 7: Sectoral targets of the Long-term Climate Strategy 2050 and NECP 2030

Sector	GHG emissions [kt CO_2 equivalent per year]		Long-term strategy 2050 targets based on 2005 levels	NECP 2030 targets based on 2005 levels	NECP 2030 proposed update for 2024[1] based on 2005 levels
	2005	2018			
Transport	4,416.5	5,824.0	90–99%	+ 12%	- 1%
Energy	6,974.5	5,189.6	90–99%	- 34% *	- 35% *
Industry	3,912.5	3,014.4	80–87%	- 43% *	- 40% *
Agriculture	1,732.8	1,721.7	5–22%	- 1%	-2,8%
Widespread use	2,680.0	1,310.8	87–96%	- 76%	- 69%
Waste management	740.5	441.7	75–83%	- 65%	- 65%
Total	20,456.8	17,502.1	80–90%	- 20%	- 55%

[1] https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn_2024_pos_v4.2_maj2024.pdf; consultation process just launched.

LULUCF	- 7,120.8	243	Sinks at least - 2,500 kt CO_2 eq	No net emissions	Sinks at least 146 kt CO2eq
TOTAL	**13,336.0**	**17,745.1**	**Net zero GHG emissions**		* non-ETS sector

The **Integrated National Energy and Climate Plan of the Republic of Slovenia (NECP)** aims at improving energy and material efficiency across all sectors (and thus reducing energy consumption and use of other natural resources). It covers five dimensions: decarbonisation, energy efficiency, energy security, internal energy market, and research, innovation and competitiveness.
In addition to overall sectoral targets in the above table, the following are particularly relevant for Velenje:

- **Reducing the use of fossil fuel energy sources** and the dependence on their imports by phasing out coal by at least 30% by 2030 according to principles of just transition. The proposed adjustment to NECP 2030 envisages that the coal production will, following just transition principles, terminate by 2033 at the latest (closing of the coal mine Velenje).
- Reaching at least **27% share of renewable energy in end-use**, with at least 2/3 buildings using energy from RES, i.e., 41% in the heating and cooling sector, and 30% in industry.
- Improving **energy efficiency across all sectors** by at least 35% compared to 2007 baseline.
- Reducing **final energy use in buildings by 20%** by 2030 compared to 2005, and ensuring a reduction of **GHG emissions in buildings by at least 70%** by 2030 compared to 2005.

The most recently proposed update to the NEPN in 2024, which is being submitted for consultation, lists the following targets that are relevant for the City of Velenje:

- Reducing GHG emissions in buildings by least **70%** by 2030 compared to 2005
- Reducing all incentives for fossil fuel use by 2030
- Reaching at least **33%** share of renewable energy in end-use, with specific targets:
  - Ensure that 2/3 of energy use in building comes from RES
  - Attain a 30% share of renewable energy in the industrial sector
  - Increase the share of RES for district heating and cooling by at least 2–3 %, and by at least 25–40% by 2030
  - Attain at least a 55% share of RES in electricity production
  - Attain at least 45% share of RES in the heating and cooling sector
  - Attain at least a 26% share of RES in transport.
- Promoting the identification of facilities location
- Promoting solar energy generation on public buildings.

The **Long-term energy renovation strategy for 2050** is aligned with the NECP 2030 targets. The objective is to move towards net zero emissions by 2050, by:

- Maintaining large volumes of energy renovations of buildings with low-carbon and renewable materials and focusing on heating with RES technologies and centralised renewable heating systems.
- Steering new construction and energy renovation towards achieving nearly zero lifetime emissions. Wider building renovations are encouraged to ensure safety, health, well-being and productivity of users. The construction and renovation of buildings will be a priority area for the transition to a low-carbon circular economy.

Reducing GHG emissions and final energy use in buildings (households, public buildings and private sector) is of strategic relevance for Velenje both in terms of heating and increased energy renovation of its existing building stock as well of its future development. The pace of renovation towards net zero emissions needs to be set more ambitiously than national target (2050).

The **National Strategy for the Phasing-Out of Coal and the Restructuring of Coal Regions in Accordance with the Principles of a Just Transition** addresses two coal regions: the Savinjsko-Šaleška region and the Zasavska region. The vision for SAŠA region is based on four key elements: energy, environment, economy, human resources and social infrastructure. Five strategic objectives and related operational objectives that directly or indirectly relevant for the climate neutrality of Velenje are as follows:

- **Strategic objective 1**: *Just transition for Slovenia and the SAŠA region.* This objective promotes the rearrangement of the energy-generating location using the best technologies for the generation and storage of electricity and other energy products, sustainable energy production, especially green hydrogen production and storage thereof, and maximising the potential of RES in the region, pilot projects for synthetic methane and green hydrogen production, increasing energy efficiency and improving the energy and emission intensity of the industrial sector, and the renovation of buildings.
- **Strategic objective 2:** *Gradual rehabilitation and revitalisation of spatially and environmentally degraded areas.* This objective foresees, among other things, the conversion of land and the creation of new green areas that were previously affected by mining activities or where the abandoned mining infrastructure is located.
- **Strategic objective 3:** *Additional regional connectivity and sustainable mobility.* This objective focuses on the finalisation of the state road infrastructure, promotion of sustainable mobility and improved connectivity of the region with neighbouring regions and countries.
- **Strategic objective 4:** *Sustainable, resilient and diversified economic development.* This objective addresses the economic transition in different ways. It focuses on wood processing and value chains, support to R&I for efficient and sustainable energy solutions, circular approaches, digitalisation, as well as on adapting agriculture and industry to climate change.
- **Strategic objective 5:** *Employment and skills* are relevant, in particular in view of introducing circular economy content into formal and informal education, as well as in view of sustainable civil engineering projects and comprehensive energy renewal of buildings, and the participatory decision-making on just transition.

The national strategy, territorial just transition plan, and action plan provide a comprehensive framework for priority investments of the city and key stakeholders, addressing environmental, energy and socio-economic transition of the region. The national strategy for the SAŠA region outlines an important milestone, i.e., ensuring that an adequate energy generating *solution (providing 400 GWh per year) for the district heating system is in place by 2031*.

The **National Environment Protection Programme, which includes programmes of measures until 2030,** defines guidelines, objectives, tasks and measures in the areas of environment protection, biodiversity, and water management. It also provides guidance for other sectors impacting the environment. The measures for shifting to low-carbon society aim at reducing GHG emissions in line with international commitments as well as at making progress in the prevention of waste generation. They promote re-use, recycling and processing of waste, while reducing the use of material and enhancing energy efficiency. Targets on reducing GHG emissions are set in the NECP. For waste management, the 2030 targets are to achieve **at least 60% re-use or recycling of municipal waste** and 70% for waste packaging by mass.

The **Resolution on the National Programme for the Development of Transport in the Republic of Slovenia until 2030** (November 2016) outlines activities for the comprehensive development of transport and transport infrastructure. It is based on the National Transport Strategy 2030, the vision defined therein (ensuring sustainable mobility of the citizens and supply of economic sector) and six objectives: improving mobility and accessibility, improving the supply of economic sector, improving traffic safety and security, reducing energy use, reducing costs for users and managers, reducing environmental burden. The programme comprises a total of 108 measures, of which 22 measures relate to the City (urban networks). For the City of Velenje, which is an important employment hub, a key priority includes increasing the use of public transport for commuting, developing the state cycling network and constructing the connection from the Koroška region to state highways. This connection, known as the 3rd development axis, will traverse the territory of the City of Velenje.

Regional and sub-regional level

The **Regional development programme of the Savinjska region 2021– 2027** (RDP, March 2022) is a basic development document at NUTS 3 level. It defines development strengths, sets

development priorities, and identifies measures and investments. The following six objectives are directly or indirectly relevant for achieving climate neutrality:

- **Objective 1: Smart Savinjska region** (innovation, digitalisation, economic transition, and support to SMEs)
- **Objective 2: Green Savinjska region** (energy efficiency, access to quality water supply, smart energy systems and networks, energy storage, measures aimed at adapting to climate change, wastewater management, circular economy, biodiversity)
- **Objective 3: Connected Savinjska region** (broadband, road network, public transport, cycling, urban multimodal mobility, smart city, improved connectivity and accessibility)
- **Objective 4: Savinjska region for people** (social equality, employment, education, inclusion, youth, culture, sport…)
- **Objective 5: Integrated territorial development and governance of the Savinjska region** (sustainable urban development (ITI approach), regional spatial planning, CLLD, problem border regions)
- **Objective 6: Just transition of the SAŠA coal region** (just energy transition, revitalisation of spatially and environmentally degraded areas, regional connectivity, sustainable and diversified economy, employment and skills).

The **Territorial Development Programme of the Savinjsko-Šaleška region 2021–2027** (March 2021) has been developed for a territory of 10 municipalities constituting a sub-regional development partnership. Its priorities are included in the regional development programme and comprise:

- 1 – Smarter and sustainable SAŠA (competitiveness, competence, business support, international cooperation, digitalisation)
- 2 – Low-carbon, green and connected SAŠA (energy efficiency, RES, climate change resilience, environment, circular economy, green environment, sustainable mobility)
- 3 – Social SAŠA (employment, education, social inclusion and social services, social infrastructure)
- 4 – SAŠA for sustainable and integrated development (integrated urban development, CLLD, mountainous, remote and border problem areas, local self-sufficiency, sustainable tourism).
- 5 – Just transition of SAŠA (as above).

The **Territorial Just Transition Plan of the Savinjsko-Šaleška (SAŠA) coal region, version 2.0, 2nd draft** is linked to the national coal phase-out strategy. The actions aim to deliver results under the following strategic objectives: employment and skills for all; sustainable, flexible and diversified economic development; regional connectivity and sustainable mobility; the gradual restoration and revitalisation of spatially and environmentally degraded areas; and a just energy transition for the region. The plan is particularly relevant for the transformation of district heating and cooling system, RES, energy efficiency and regional mobility.

The **Action Plan for the Savinjsko-Šaleška Coal Region in Transition** (May 2021) assesses challenges related to transition and identifies the needs and objectives for achieving climate neutrality by 2030. They relate to energy transition, transition of human capital, social infrastructure, economy, and environment. Most relevant operational objectives: *Objective 1* includes the use of best available technologies, sustainable and affordable end-user energy source for district heating and cooling, clean energy production and maximising RES potentials, incentives for production of synthetic methane and green hydrogen, increasing energy efficiency, increasing material efficiency and energy efficiency in production processes, renovation of buildings and reduction of energy consumption. *Objective 3* addresses regional connectivity and sustainable mobility through promotion of local public transport and green personal mobility infrastructure. The objective also recognizes that mobility demand is likely to increase as a result of economic restructuring.
Key operations include transforming the district heating system to sustainable and affordable energy sources, establishing a RES community, developing green energy-based transportation infrastructure, investing in the region's electrotechnology R&D and production capacities, promoting the wood chain and wood processing industry.

The **Action Plan for the Transformation of the District Heating System in the Šaleška valley (2022)**

Securing a stable and sustainable heat supply is one of the essential pillars in the just transition process of the SAŠA region. The action plan addresses pathways to transformation of the district heating system in the Šaleška valley to become economically and environmentally efficient, acceptable and completely independent of coal. In the long term, the Plan envisages using solar energy, energy stored in lakes, energy from the thermal treatment of organic matter or biomass gasification, and preferably geothermal energy.

Apart from investing in the most appropriate and flexible combinations of renewable energy sources, it is also necessary to upgrade the existing energy infrastructure of the district heating system (distribution network, heat stations and take-off points). One of the critical points is to implement measures to reduce heat consumption by customers, thereby increasing the overall efficiency of the system, ensuring a sustainable price for heat and thus restoring reputation and confidence in the district heating system in the long run.

The **Strategy of Tourism Development and Marketing of Velenje and Šoštanj 2022–2027** (March 2022) is significant for its sustainable commitments to destination development. Velenje has already been awarded several labels, such as Slovenia Green Destination Silver label, Slovenia Green Destination Gold label, Green & Safe label, and Slovenia Green Accommodation label, demonstrating its commitment to sustainability. The strategy includes several measures, including digitalising mobility (green public transport initiative, digitalisation of cycling and walking routes, and development of sustainability initiatives).

Velenje is known for its festivals which attract visitors from outside the city and contribute to emissions from transport and waste generation. To address this, guidelines for sustainable organisation of events have already been adopted.

Local level

The **Sustainable Urban Strategy of the City of Velenje 2030 – on the mission to climate neutrality** (2022) constitutes an overarching strategic development and policy framework of the city. It analyses spatial, demographic, social, economic, transport and environmental situation and identifies development challenges and opportunities. Four out of five development priorities are of direct relevance for the city's climate neutrality path:

- **Priority 1 – Smart Velenje** defines measures to support the development of R&I capacity, promote advanced technologies and digital transformation, including smart city and community, and smart digital public services.
- **Priority 2 –Green Velenje** includes several measures with direct impact on reducing GHG emissions, such as energy renovation of buildings, renovation of the district heating system, integration of RES into the generation of electric energy and heat for heating, circular economy and circular innovation processes, sustainable mobility infrastructure, promoting the use of alternative fuels in the City, investments in the walking and cycling infrastructure, and preserving habitats. It also supports energy and climate advisory services for citizens and the establishment of energy communities.
- **Priority 5 – Just Transition** emphasizes the sustainable transformation of the energy sector and energy-generating locations. It aims to build a diversified and resilient economy based on sustainable development and circular economy. It also supports smart technological advances and the restoration of degraded areas which are also of crucial imporance for the CCC process.
- **Priority 4 – Integrated & sustainable Velenje** focuses on sustainable urban and rural development aspects with both direct and indirect impact on climate actions (e.g. sustainable tourism).
- Strategy also identifies two important horizontal themes: **digitalisation and resilience.**

The **Local Energy Concept of the City of Velenje** (LEC) provides a long-term guidance and sets a basis for developing and implementing relevant environmental and energy policies. It also constitutes an expert basis for the preparation of the municipal spatial plan. LEC comprehensively analyses the use of energy and GHG emissions in key sectors, the energy supply, and its main weaknesses. It provides guidance and sets energy planning objectives, including an analysis of possible energy

efficiency measures. Its Action plan proposes measures concerning households, public buildings, public lighting, transport and other fields, and also provides an estimate of possible impact of related activities on energy savings and energy production from RES.
LEC defines six long-term objectives by 2031, primarily focused on households and public buildings:

- **Objective 1:** Reduce the total energy consumption for heating in non-economic sector buildings by 12% by 2031 compared to the 2020 levels.
- **Objective 2:** Cut electricity consumption in public buildings and for public lighting by 5% by 2031 compared to the 2020 levels.
- **Objective 3:** Increase the use of renewable energy in non-economic sectors by 3% by 2031 compared to the 2020 levels.
- **Objective 4:** Reduce GHG emissions in transport by 6% by 2031 compared to the 2020 levels.
- **Objective 5:** Raise awareness among key stakeholders and promote energy efficiency.
- **Objective 6:** Reduce CO_2 emissions resulting from the use of heating energy and electricity in non-economic sectors.

The **Sustainable Urban Mobility Plan of the City of Velenje (SUMP)** was elaborated in 2017 to initiate a long-term process of sustainable transport planning and implementation. Sustainable mobility became one of key strands of the city's quality of life. SUMP aims at increasing traffic safety and health of citizens, increasing the accessibility for different groups of citizens, supporting local and regional economy and increasing the quality of environment. Its pillars comprise: comprehensive sustainable mobility planning, promotion of walking and cycling, attractive public transport, changing habits of users of motorised traffic, which are all relevant for achieving climate neutrality of the city. Within each pillar, a set of measures is proposed until 2022. The strategy will be updated and aligned with the targets of the CCC Action Plan in 2024/2025.

The **Municipal Environmental Protection Programme 2021–-2025** provides an expert basis for the spatial, economic and social development of the City. It analyses sources of environmental burdens and the state of environment. The objectives and measures are set following a consultation with key stakeholders. The programme is of high relevance for the climate neutrality, in particular regarding measures to reduce GHG from transport, individual heating appliances, industry and energy sector; efficient treatment of waste and promotion of circular approaches, promotion of Zero Waste principles; revitalisation of environmentally degraded areas, promotion of local self-sufficiency, sustainable mobility and sustainable management of green areas and forests.

The **Digital Development Strategy of the Smart City and Community Velenje 2022–2030** (May 2022) proposes seven strategic objectives and considers digitalisation needs of sectoral strategies and plans. The following objectives are of specific relevance for the CCC Action Plan:

- Improving mechanisms for sustainable and efficient governance in spatial management, buildings, mobility and energy (energy bookkeeping, mobility, management of buildings, multi-modal mobility, public lighting, transport systems, energy systems).
- Improving restructuring and development of economic sector (business zone management – mobility, energy use, waste).
- Improving transparency of public entities, conditions for cooperation and coordinated digitalisation within community (platform of smart city and community of Velenje, digitalisation of public services).

The strategic part of the **Municipal Spatial Plan – City of Velenje (OPN, 2019)** contains guidelines for spatial development of the municipality, especially for the development of settlements, landscape management and development of economic public infrastructure and social infrastructure of local importance. It defines sustainable spatial development objectives of the municipality: rational use of space, citizens' safety, quality development of the city and its local centres, rational use of natural resources, conservation of cultural and natural heritage areas and objects, environment protection and protection against natural and other disasters, balanced development of the municipality within the region and its connectivity with other urban centres, and sustainable tourism.

In the implementation part, common and detailed spatial implementation conditions are set for the specific spatial management units and land use, which are of key relevance for the further

development of key sectors having impact on the GHG emissions. In view of climate neutrality, most important frameworks and conditions relate to new residential buildings, sustainable mobility, urban green systems, and renewable energy production. The city will be affected by the new state road infrastructure (known as the 3rd development axis, for which a state spatial plan exists).

The **Public Lighting Plan** of the City of Velenje (January 2023) shows that a total of 93.5 km of municipal and state roads are lighted with 4,098 lights of which 340 are still inadequate.

Assessment of the strategies and plans and identified needs:

- The proposed policies, strategies and plans of Velenje are coherent with the EU and national strategies and plans. Since Velenje intends to become climate neutral by 2030, emission reduction targets at local level will need to be set more ambitiously with the CCC Action Plan.
- Presented strategies, action plans and other documents at a local level already provide a comprehensive strategic basis and guidance outlining actions relevant to the City's climate neutrality.
- Sustainable urban strategy of the City of Velenje comprehensively covers measures relevant for climate neutrality paths, whereas its present 2025 vision requires an update to clearly reflect its climate neutrality by 2030.
- The implementation of the Local Energy Concept Action plan is expected to impact mainly the public sector and households. The CCC Action Plan needs to better consider the potential contributions of economic sector.
- The Sustainable urban mobility Plan and the Municipal environmental programme need to be updated. Possible measures for accelerating the path to net zero emissions should be considered.
- Just transition objectives and measures, which were prepared in close cooperation of all levels and in participation of main stakeholders, are coherent across all levels, from national to local. Identified actions and provided funds are an important element for achieving net zero GHG emissions, the transition of the district heating system being the key one.

Actions from existing strategies and plans are included in the CCC Action Plan, wher any double counting is avoided (existing strategies only include implementation by the end of 2023).

The assessment of current policies and actions has shown **further needs** to be considered in the CCC Action Plan:

- A comprehensive monitoring system on GHG emissions and climate neutrality objectives is needed for the City Administration and stakeholders to take informed decisions. Specific attention should be given within the planned digitalisation of the City's public services and the setting up of the digital platform.
- Exploring potentials for engaging economic sector as an important stakeholder contributing to reduction of GHG emissions.
- Possibilities to stimulate preservation and upgrade the green and blue infrastructure and to promote sustainable development principles in new construction projects.
- Exploring measures to enhance energy renovation of private individual and multi-dwelling buildings.
- Improved governance and further stakeholder engagement at all levels.

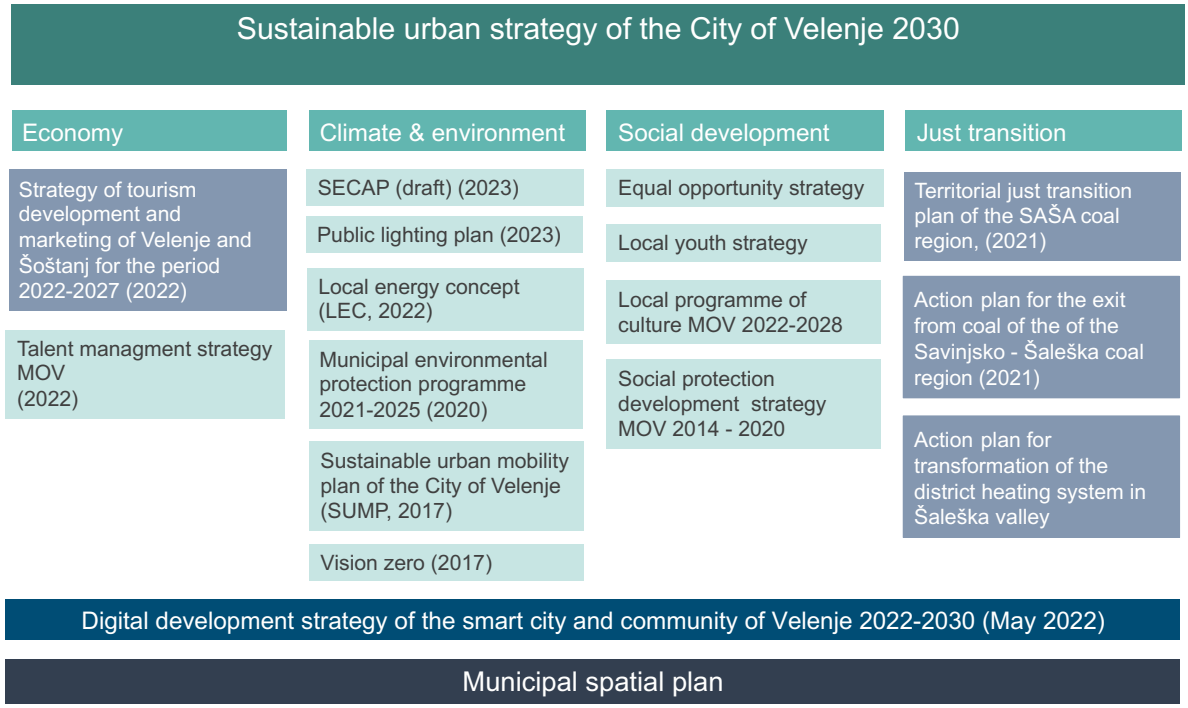


Figure 11: Overview of the key local and sub-regional strategic documents and action plans

Existing policies and plans contributing to the reduction of emissions are derived from the implementation of the Local Energy Concept under the buildings and transport. The gap is addressed with the current CCC Action Plan (see table below).

Baseline emissions in 2018 amounted to 171,276 t CO_2eq. Considering a 20% share of residual emissions, the emissions reduction target for 2030 is 136,061 t CO_2eq. The emission reduction target includes contribution of the implementation in the period 2018–2023. The CCC Action Plan has ambitious targets that are still to be meet, primarily in the energy sector.

	(1) Baseline emissions		(2) Emissions Reduction Target 2030		(3) Emission reduction through other Action Plans		(4) Emissions Gap		(5) Emissions reduction through the CCC Action Plan to address the Gap		(6) Residual emissions	
	Baseline emissions (ideally not older than 2018) - referring to the inventory used for target setting		The emissions reduction target for 2030 ideally achieves a minimum 80% reduction from the baseline, as reported in Section 2 of the Commitments document of the CCC. The overall target should be absolute or net-zero (i.e. including the compensation of any residual emissions).		These are the emissions reductions that would be achieved through existing policies, and plans, outlined in Section A-2.1. Those actions are by definition not part of the action portfolio in section B. If they are fully or partially incorporated in module B-2, their associated reduction potential should be referenced in column (5) and not be included here. WARNING if the baseline is a BAU scenario: If the BAU modelling includes any of these existing measures, please also do not include the associated emissions reduction in this column as otherwise it would be double counted.		(4) = (2) – (3)		This column is used to present the already quantified emission reduction associated with the action portfolios outlined in module B-2. Ideally, this equals the gap. If the there is a difference between the reduction potential of the actions specified in module B-2 (for instance because their reduction potential has not been fully estimated or because additional measures will be identified in future iterations), the CCC AP should be explicit about this difference and explain how the difference will be closed. In principle, as long as the difference has not been addressed, it would be considered as part of the residual emissions.		(6) = (1) – (2)	
	(absolute) (CO_2eq/year)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)
Buildings	138,240	81	111,974	81	882	1	111,093	80	18,592	14	26,266	19
Transport	24,190	14	**19,352**	80	463	2	18,889	78	15,610	12	4,838	20
Waste	316	0	253	80		0	253	80	145	0	63	20
Industrial Process and Product Use (IPPU)	3,447	2	2,781	80		0	2,781	80		0	695	20
Agriculture, Forestry and Other Land Use (AFOLU)	5,053	3	**3,082**	61	0	0	3,082	61		0	1,971	39
forestry, agriculture	- 4,802		- 4,802				- 4,802				0	
livestock breeding	9,855		7,884				7,884				1,971	
Energy (action only)					5,792		-5,792		95,959	74		
Total	**171,276**	**100**	**137,443**	**80**	**7,137**	**4**	**130,306**	**76**	**130,306**	**100**	**33,833**	**20**

Table 8: Emissions gap

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

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

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

The **most relevant systems** for the City's climate neutrality target include:

- **Technology/infrastructure system** is of vital importance for climate neutrality especially in the *energy and built environment* sectors. Improving energy efficiency of the district heating system and replacing fossil fuel with local renewable energy combined with energy renovations of the building stock is the key building block for the City's climate neutrality path.

  The City Administration and the City Council, municipal utility company KP Velenje, local energy agency KSSENA, design engineers and other experts need to select the most appropriate technologies and define the steps of the transformation. A project group has been set up. For energy renovation of multi-dwelling buildings, a working group was formed to collect data, analyse current state, and establish priorities for the energy renovation of the building stock.

  Furthermore, technology and infrastructure systems are relevant for the *transport and mobility*. A cooperation is established between the City Administration and the Ministry of Infrastructure and their agencies for the construction of the expressway connecting the northern part of Slovenia with the south-eastern part, which will significantly reduce transit through the City centre. The missing links in the urban cycling network and walking infrastructure need to be completed. Replacing fossil fuels in the city public transport and energy efficient industrial processes are another area of actions within this system. The City Administration invited most relevant businesses to share ambitions regarding technology or organisational improvements for mitigation of GHG emissions and to take part in the CCC.

- **Financial system** stakeholders are of critical importance for reaching climate neutrality targets. For strategic projects preparation, a cooperation with EIB is ongoing. The Slovenian Climate Fund, Eco Fund and EU Cohesion policy funds are of key relevance for the implementation of strategic investments in the transformation of the district heating system, renewable energy generation, and increased energy efficiency in buildings.

- **Institutional/regulatory systems** are relevant especially regarding spatial planning and sustainable land use, regulations and incentives related to mobility, environment, social and economic development and regulations governing other areas which are adopted at local level. In view of institutional systems, the City Administration and its Transition Team as the primary actor and motivator towards the climate neutrality will need to be re-organised in view of systematic consideration of GHG effects of investments and practices and creation of synergies between them.

- **Social and behavioural systems** turned out to be highly relevant for the city to effectively reduce GHG emissions. This requires cooperation and joint actions of the City Administration, their utility services/concessionaires, just transition centre, NGOs, citizen groups, and educational institutions towards raising awareness of the citizens and contributing to behavioural change.

More detailed presentation of stakeholders is presented in A-3.2.

Description of barriers and opportunities:

Technology/infrastructure systems:
Barriers:

- Needs for investment in infrastructure are substantial, especially for the transformation of the district heating system and energy renovation of buildings.
- Decarbonisation of the district heating system is a complex process. It requires both the adaptation of the existing infrastructure and investment in an appropriate combination of local renewable energy sources.
- It is essential that users of the district heating are kept to maintain its future efficiency; some households disconnected and changed to alternative sources (e.g. heat pumps).
- Energy renovation of cultural heritage buildings has limited possibilities.
- When partial energy renovation of public buildings has already been made, full renovation is not cost-efficient.

Opportunities:

- Creation of synergies within the SAŠA region just transition process for integrated climate actions related to district heating and renewable energy based on local resources (solar, biomass, water, geothermal).
- Strengthened multi-level coordination in setting priorities and making synergies between stakeholders at different levels (ministries, local government, national agencies) can accelerate the implementation of climate actions.
- New energy efficient technologies will help reduce energy needs in business sector/industry.

Institutional/regulatory systems:
Barriers:

- Long and burdensome administrative procedures (spatial planning, obtaining permissions and permits involve many stakeholders/authorities) often hinder the pace of transition.
- Incomplete or missing information at local level, dispersed information within different administration departments and other service providers (e.g. state of EE renovation in private residential buildings or business sector, lack of a comprehensive system to monitor climate effects of investments) hinder informed decisions.
- The capacity of the City Administration to manage strategic transition processes is limited in view of regular tasks and obligations. In some areas, direct influence on accelerating the transition to climate neutrality is limited due to shared responsibilities at different levels (e.g. roads, cycling network, water management…).
- Certain regulations and provisions slow or inhibit climate actions (e.g. according to the national packaging regulation, the waste packaging is delivered by the concessionaire to the packaging collection company in a percentage set by the ministry with no compensation. Increased transport costs of the concessionaire are borne by citizens).

Opportunities:

- Regular and joint coordination of the City Administration departments related to climate actions through Transition Team and forming a CCC Strategic Council involving external stakeholders is a foundation for an accelerated approach.
- Setting up an integrated digital information platform for the key climate neutrality related systems can support informed decisions.
- Proactive approach in analysing and improving regulations/incentives at local level to better support climate neutrality paths and actions (e.g. on preserving green areas, zero-waste events, low-emission farming…), advocacy for integration of relevant incentives into the national regulatory framework.
- Actively participation of the City Administration and local stakeholders in the development of the Act on the restructuring of the SAŠA coal region (in progress).
- Some regulations promote climate actions (e.g. compulsory installations of photovoltaic on roofs of newly built buildings covering an area of at least 1,000 m^2, new parking spaces with a floor area of at least 1,000 m^2.
- Capacity building activities for local administration and stakeholders as well as exchanges with the City of Ljubljana and City of Kranj and other members of NetZeroCities focusing on solutions and possible actions of joint interest.

Political/organisational systems:
Barriers:

- For the City Administration, limited capacity for active engagement in networks and alliances can be a barrier for transfer of knowledge and strategic cooperation.
- At political level, there may be different views of city councillors regarding the priorities; critical issues and challenges may overshadow strategical ones.
- At the regional level, competitive views on priority investments to be supported through regional instrument 'Agreement for the Development of Regions' can arise.
- Political changes in wider national environment affecting the Šaleška valley and the City as current energy-generating location are also possible barriers.

Opportunities:

- Engaging all critical stakeholders and advancing dialogue is necessary.

Political bodies need to be clearly informed about the risks associated with inaction
Social and behavioural systems:
Barriers:

- Citizen awareness of the needs and opportunities for making changes in their own behaviour and practices is rather low, not followed by actions.
- The potential for citizen engagement, cross-sectoral co-creation and innovation processes have not yet been sufficiently exploited, although competence and experience exist. Often certain decisions need to be taken in a relatively short time, thus not allowing for a more substantial stakeholder engagement.

Opportunities:

- Promoting social innovation and participation of stakeholders, greater engagement of youth in co-creation of transition pathways and promoting climate neutrality practices is seen as good opportunity.
- Actions towards strengthening the one stop shop for households, incentives for the citizens to engage in changing habits (e.g. climate & energy office supported by Up-Scale project).

Financial systems:
Barriers:

- Financial capacity of the City Administration to finance climate neutrality actions is limited.
- Financial resources for innovative and extraordinary activities are also limited. There is not much experience with financial instruments (green bonds).
- Municipalities are also restricted by Financing of Municipalites Act on the share of debts. Limitations also exist in taking out loans outside the country (with sometimes more favourable conditions).
- High dependence on central government regulations, investment and funding priorities. Considering the substantial investment needs and current opportunities for financing, the climate neutrality paths is likely to comprise a range of projects, with several fragmented applications, rules, timeframes whereas time for strategic consideration is often too short. There is also a relatively short time for the implementation of projects supported by the ERDF/CF/JTF.
- At household level, especially the financial capacity of elderly owners of apartments to invest in energy renovation is often limited, especially considering recent price increases.

Opportunities:

- The City Administration has some experience in using financial support mechanisms (EIB, JASPERS/DG ENER/TARGET). As part of the just transition, financial support based on the Acton the restructuring of the SAŠA coal region will also contribute to climate actions. Attracting private investors in joint strategic projects (e.g. in the area of renewable energy) is planned.
- The City Administration has already started developing local incentives to support citizens in climate actions, especially for the vulnerable groups.
- Green aspects in the assessment of project applications and investment proposals supported by the City Administration are gaining importance in assessing and selecting applicants. It is expected that the CCC Mission Label, Green Leaf award, and Slovenia Green Destination label will help attract funding of private investors and leverage impact.

Considering the above, a collective understanding is necessary to account for different systemic perspectives. The Transition Team and the CCC Strategic Council will be the main bodies to plan, implement and monitor the CCC process. This requires:

- Capacity building for the public administration and stakeholders to increase understanding of climate aspects and other technical, planning and financial competences for managing the CCC process and specific actions.
- Effective coordination between the City Administration and Transition Team and external stakeholders through regular meetings, clear communication flows, and data collection.
- Developing a platform to support collection and analysis of data related to specific systems and actions.
- Effective communication and awareness raising for the citizens' using the City Administration and stakeholders' communication channels.
- Increased stakeholder engagement.

Table 9: Systems & stakeholder mapping

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology District heating and renewable energy	**City of Velenje – City Administration;** Economic development and Transition Office *Local self-governance* **Komunalno podjetje Velenje** *Public utility company* *Local level* **Ministry of Environment, Climate and Energy** *National level* **ELES and Elektro Celje** *National electricity transmission company, national and regional level* **Šoštanj TPP** *Thermal Power Plant* **Municipality of Šoštanj** *Local self-governance*	**High** The current district heating system is fossil fuel based and relies on a single energy supplier – Šoštanj TPP. Heating (scope 2), along with electricity consumption, is the key generator of the City's GHG emissions. The district heating network is the 2nd largest in the country, following the one in the capital city of Ljubljana; its total length is 180 km with 408 km of pipelines and 505 heat stations. The system supplies heat to 35 000 households in Velenje and 650 industry users. The district heating distribution system is fully owned by the City of Velenje and Municipality of Šoštanj and managed by the public utility company. Transforming the system and replacing lignite with a combination of renewable energy sources is expected to largely impact the City's climate neutrality ambition by 2030.	**High** It is of the highest priority for the City Administration and the public utility company to adapt the district heating system to renewable energy sources and improve its overall efficiency to ensure a reliable service to citizens and industrial users. This is critical also in view of increasing prices of ETS allowances and consequently high costs of heating and cooling, in particular for the citizens. Decarbonisation of the district system is also a key priority of the just transition process. A strategic project group was established for the transformation of the district heating system, consisting of key stakeholders and technical experts. A cooperation agreement was signed between the City of Velenje, Municipality of Šoštanj and ELES in 2022 for joint development of green transition projects. Another agreement was concluded with the Šoštanj TPP on the preparation of the concept of transformation of the district heating system.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology Buildings	**City of Velenje – City Administration** *Local self-governance* **KSSENA** Local Energy Agency *Institute* **KP Velenje** *Public utility company responsible for the district heating system* **Managers of multi-dwelling buildings** HABIT d.o.o. LINEA stanovanjsko podjetje d.o.o. Vesta dom d.o.o. Stanovanjsko podjetje Velenje Dom plan d.o.o. Staninvest d.o.o. Upra-stan d.o.o. FerDom d.o.o. *Limited liability companies*	**High** The City of Velenje is responsible for providing the infrastructure for health centres, primary schools, sports and cultural facilities, community centres, administration buildings, etc. Local Energy Agency KSSENA is responsible for energy monitoring of 36 public buildings and provides advisory support in preparation of the EE and RES projects. There are 193 multi-dwelling buildings in Velenje. In accordance with the Housing Act, private owners in residential buildings with more than 8 dwellings are required to appoint a management organisation. Most multi-dwelling buildings in Velenje are managed by Habit d.o.o., Linea stanovanjsko podjetje, and Vesta dom. In recent years, some energy renovations in public and residential buildings were already implemented. However, intensive investments are still expected with substantial potential for reducing GHG emissions.	**High** Heat energy savings are of common interest of the City Administration, its public institutions, multi-dwelling building managers and users of those facilities (better quality of living, health, lower heating costs). A working group consisting of the City Administration, public utility company, local energy agency and managers of multi-dwelling residential buildings has engaged in a detailed analysis of the state of buildings to identify the most critical ones and to outline the future plan of energy renovations. Reducing the use of heating energy is closely linked to transforming the district heating system to renewable energy sources (see above).

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology - road and rail infrastructure, - cycling and pedestrian networks - public transportation - charging infrastructure	**City of Velenje – City Administration** *Local self-government* **NOMAGO** Provider of the public passenger transport *Concessionaire at a local level* **APS** Provider of school transport *Concessioner at local level* **Ministry of Infrastructure / DRSI – Slovenian Infrastructure Agency** *National level* **DARS d.d. Motorway Company in the Republic of Slovenia** *Joint Stock Company* *National level* **CORe d.o.o.** *Municipal company*	**High** Emissions from transport are the 2nd larger contributor to the City's GHG emissions. Velenje is impacted by increasing daily commuter and transit traffic. Reduction of motorised traffic is highly relevant for achieving climate neutrality. The City Administration is responsible for local roads, cycling and pedestrian networks. Recently, substantial investments were made in the inner-city cycling network; to some extent, recreational routes in the periphery have also been developed. Beside the physical infrastructure, different mobility services are provided in cooperation with stakeholders to reduce the use of cars in the city centre (free public passenger transport, BICY bike rental system). The public passenger transport is provided by two concessionaires, NOMAGO and APS. The city has already implemented several studies to improve the routes and to increase their use, however optimisation has not yet been completed. The City Administration established a company which is responsible for developing the Velenje digital platform. In the initial development phase, the focus is on mobility solutions. Decarbonisation of transport is another challenge to be addressed to decrease emissions. The Ministry of Infrastructure is responsible for national and regional road and cycling networks. For Velenje, the relevant connections include the main cycling route G14 which starts at the Austrian border, passes through the Koroška region, and continues to Velenje and Celje, and a regional route R25 connecting Črna – Šoštanj – Velenje – Šempeter.	**High** The City Administration takes high interest in reducing traffic congestions, promoting sustainable mobility in the City, providing reliable public transport services, and improving traffic management. Another important factor pushing for a change is the contribution to the quality of environment and living in the City (less noise and GHG emissions). The construction of the state expressway (3rd development axis) around Velenje is to be completed by 2027/28. The City of Velenje has no bypass road and all traffic between regions goes directly through the City. In Velenje, there is a high interest that the situation improves, both in terms of shortened travel distances and co-benefits for the citizens. Also, the City Administration will advocate, at a national level, to accelerate the modal shift. Initial studies for the decarbonisation of public passenger transport in the city (and two neighbouring municipalities) have already been made. Investments of the City Administration in clean city buses is connected to a pilot project of green hydrogen production at the energy location of the Šoštanj TPP in the neighbouring municipality. The green hydrogen project is co-funded by the Horizon Programme and linked to the development of North Adriatic Hydrogen Valley. The estimated production is 3,000 t annually. Given a locally produced clean fuel complemented with a charging infrastructure and the opportunity for the municipality to apply for national incentives for electric or hydrogen fuelled public transport vehicles with zero emissions at exhaust, a realistic solution for the decarbonisation of public transport exists. An alternative is to purchase electric buses.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
		The construction of the 3rd development axis (the Velenje-Slovenj Gradec section and the Velenje-Šentrupert section) falls under the responsibility of DARS. The 3rd development axis is a state project that has been planned years ago, but has seen a considerable delay in the implementation. For the City of Velenje and the neighbouring City of Slovenj Gradec and Municipality of Šoštanj, the new route will significantly shorten the distance to the state highway (see Figure 7).	The state cycling route G14 between Mislinja and Velenje became operational in May 2024, promoting more sustainable travel between the two municipalities. The City Administration recently applied for funding support for the development of a digital platform for mobility, which will be further upgraded to include other important areas of the city services (see Figure 18). In general, stakeholders show high interest in improving mobility and transport in the City, what has already been evidenced by some investments. The interest and support to decarbonisation efforts was identified also by business sector representatives who plan further replacement of fossil-fuelled cars with electric vehicles.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology Parking and pedestrian areas	**City of Velenje – City Administration** *Local self-government* **Komunalno podjetje Velenje** *Public utility company* *Local level* **IPOP Inštitut za politike prostora** *Institute/NGO* **Ministry of Health** *National level* **MEGA M d.o.o.** *Private company*	**High** The municipal utility company has managed outdoor car parks, parking garages and e-charging stations since 2017. Parking fees are mandatory in seven designated blue zones. The City Administration aims to further encourage citizens and visitors/commuters to use sustainable mobility options and keep cars outside the city centre. Velenje also participates in two programmes, 'Actively to school' and 'Healthy city', which are coordinated by the non-government organisation IPOP institute and supported by the Ministry of Health. Every year, the City Administration also participates in the European Mobility Week. The City Administration is a signatory of the International Charter for Walking, aiming at encouraging more everyday walking and greater walkability. IPOP institute also developed a walkability plan. Improvement of pedestrian infrastructure is also an essential strategy under the SUMP.	**High** The interest of key stakeholders is high, both for contributing to climate neutrality and for achieving co-benefits (developing the culture of walking contributes to health and social cohesion). The interest of the City Administration and the public utility company is to put in place effective parking policies which will help keep cars outside the city centre while promoting walking, including the mobility of persons with disabilities.
Infrastructure/ technology Public lighting	**City of Velenje – City Administration** *Local self-government* **Javna razsvetljava Ljubljana** *Concessionaire for public lighting*	**Medium** Public lighting operation and maintenance are managed by a concessionaire under a 20-year contract which expires in 2035. The public lighting network covers 93.6 km of municipal and state roads. Most of the lamps have already been replaced with LED technology, thus complying with applicable regulations and generating energy savings.	**Medium** It is in the interest of the City Administration to introduce smart solutions to further improve the public lighting management, which could better meet the citizens' needs (e.g. adapting the lighting to particular situations requiring more or less illumination). Public lighting is one of the public services included in the digitalisation strategy of the city.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology Waste management and circular economy	**City of Velenje – City Administration** *Local self-government* **PUP Saubermacher d.o.o.** *Concessionaire, Local level Limited liability company* **Zavod za turizem Šaleške doline** *Tourism promotion institute, SAŠA region* **Center ponovne uporabe/SAŠA inkubator** **PLP lesna industrija** **Plastika Skaza**	**Medium** Waste is collected by the concessionaire PUP Saubermacher. Quantities of generated and collected waste have been slightly increasing. Overall reduction in waste generation and better separation at source provides potential for further reduction of GHG emissions. The City Administration started installing underground waste collection containers. The new technology is expected to result in fewer waste collection points in multi-dwelling buildings area. In total, 35 such collection points are planned to be installed in the next five years (resulting in shorter collection routes and less negative impact on GHG emissions). A specialised vehicle for collection from underground waste collection containers will be purchased by the concessionaire. This will reduce the time and energy currently required to change gears on existing waste collection vehicles. Zavod za turizem Šaleške doline is responsible for the coordination and promotion of sustainable tourism products. From environmental aspects, the focus is put on promoting zero-waste approaches in organising public events. The potential for the circular economy of the area is has not yet been fully recognised and explored.	**Medium** Optimising waste collection and reducing the quantities of generated waste is a common interest of the City. However the change significantly depends on behavioural systems (see below). The City Administration and public event organisers are promoting zero waste concepts, which have already proven highly effective. Velenje, being awarded Green Leaf 2024 and Slovenia Green Destination label (Gold), has also adopted guidelines for sustainable organisation of events promoting no single-use plastic packaging. Potential for decarbonisation of the existing waste collection services is limited due to relatively small area and high investments as well as due to technical limitations of EVs to collect waste in peripheral hilly areas. However, new technologies are being observed to find most appropriate solutions. The interest of the industry and services for circular economy depends on type of activities and identified potentials. Some companies expressed interest to explore circular solutions during the preparation of the sub-regional development programme for the SAŠA region. Some intend to further upgrade circular loops within companies and in the local ecosystem.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology Water supply and wastewater management	**City of Velenje – City Administration** *Local self-government* **Komunalno podjetje Velenje** *Public utility company* *Local level*	**Medium** The public utility company is responsible for the management and operation of the water supply network and wastewater network and treatment. The City Administration is responsible for the construction of networks. The length of the drinking water pipelines is 411.4 km with 99.8% of the population connected. Overall, about 30% of drinking water in the entire network (about 1.5 million m^3) requires pumping. There is potential to reduce water losses which were at 18.98% in 2023 (ILI factor=2.06). The public utility company has in recent years started exploiting solar and hydro potentials to increase energy self-sufficiency. In 2023, nearly 30,000 residents were connected to the wastewater network and treatment system (90%). The sewage network extends over 162 km. The potential lies in the energy optimisation of sewage pump stations and increased energy self-sufficiency at the central WWT plant.	**High** It is of high interest of the City of Velenje and its public utility company to ensure effective and efficient communal services to citizens at affordable prices. Further improvement of energy efficiency and self-sufficiency will result in reduced environment footprint and lower costs for citizens.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology Green and blue infrastructure	**City of Velenje – City Administration** *Local self-government* **Andrejc d.o.o.** *Concessionaire, Local level Limited liability company* **Institute of the Republic of Slovenia for Nature Conservation** *National nature conservation authority* **Local civil society organisations**	**Low** The City is responsible for public green areas, while their maintenance is entrusted to the concessionaire. Green areas that require mowing extend over 557,000 m^2. The city has defined the protected urban forest in its spatial plan. Natura 2000 areas comprise 35.5% of the municipal territory. The regional unit of the Institute for Nature Conservation coordinates nature protection measures. In the framework of the Green Leaf award activities, the City Administration has prepared a detailed urban tree inventory, which shows a decline in the urban tree stock, mainly owing to extreme weather as well as to several infrastructure construction projects. The green and blue infrastructure has also become more emphasised in the City's business zones areas.	**Medium** In general, there is an overall interest of the City of Velenje and other public and civil society stakeholders to further preserve and maintain urban green areas and forests as essential part of the City's architectural concept 'The city in the park', and to protect the City's natural heritage as well as maintaining the source of carbon sinks. Preserving and enhancing urban green areas is crucial for the quality of life of residents, particularly in terms of climate adaptation and bolstering the City's resilience.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Infrastructure/ technology AFOLU	**City of Velenje – City Administration** *Local self-government* **Chamber of Agriculture and Forestry of Slovenia – Institute of Agriculture and Forestry Celje** *National/regional level* **Forestry Institute of the Republic of Slovenia - Nazarje regional office** *National/regional level* **Kmetijska zadruga Šaleške doline** *Farmers' cooperative* *Sub-regional level*	**Low** Relatively large forest areas (50% of the surface) are the source of carbon sinks. Due to more intensive weather events the forests are becoming more vulnerable. Regional institute of the Chamber of Agriculture and Forestry implements public advisory service to the farm holdings. Presenting possible new practices to mitigate GHG emissions from agriculture is part of their activities. The City Administration provides financial support for strengthening the agricultural sector in its rural areas. Promotion of local self-sufficiency and adoption of effective sustainable technologies and practices is in focus. Provision of locally supplied food is supported by the farmers' cooperative and city local market.	**Medium** Preserving forests as the source of carbon sinks and decreasing methane emissions from agriculture is of interest to both national and local stakeholders. Since milk and meat production are predominant activities, enhancing farming practices, particularly on larger farms, is essential. However, the implementation of solutions also depends on the availability of incentives. There is a growing interest for locally supplied farm products on the part of more environment conscious and higher income families.
Infrastructure/ technology Industry and services	**Hisense Gorenje** **Plastika Skaza** **Veplas** **Eurofins Erico** **Elpa** **S-tech** **Ergopharma** **Vonfarma** **MIEL**	**Low** Energy efficiency and material efficiency can contribute to decrease in the City's GHG emissions. According to the national statistical office, the processing industry accounted for 61% of electricity consumption. Another relevant sector is trade with a 14% share (2022). Some businesses/enterprises have recently started optimising their production processes and invested in more efficient technologies and renewable energy. However, there is still potential to explore for increasing circular loops and reducing waste.	**Medium** The industry as well as the service sector are interested in reducing their carbon footprint, especially by more efficient energy use in production processes, by increasing the share of own renewable energy and by investing in cleaner technologies and products as well as energy management. Key reasons are economic but also environmental and social, ranging from lower production/service costs, gaining or preserving competitive advantage, reduction in energy dependence, higher standards required by key clients or alignment with the city policies and ambitions. Interventions are often dependent on the availability of own financial resources and measures offered by the financial system.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
	TIKI HVAC **MEGA M** **Shopping centres**		Some enterprises also intend to invest in new carbon-neutral products, technologies and services with lower carbon footprint.

Social and behavioural system	**Komunalno podjetje Velenje** *Public utility company* *Local level* **RA SAŠA - Just Transition Centre** **SAŠA Inkubator** **Vrtec Velenje** *Pre-school education institutes* **OŠ Antona Aškerca, OŠ Gorica, OŠ Gustva Šiliha, OŠ Livada, OŠ Mihe Pintarja Toleda, OŠ Šalek**, *Institutes for education at primary level* **Šolski center Velenje** **Music school Velenje** **Fakulteta za energetiko** **Fakulteta za varstvo okolja** *Institutes for secondary and tertiary level education* **Mladinski center Velenje** **Ljudska univerza Velenje** *Public institutes established by the City of Velenje for youth and adult education* **VTV** **Naš čas** **Radio Velenje** **Moj radio** *Media outlets* *Local/subregional level* **Civil society groups**	**Low to medium** The City Administration has consistently shown its sensitivity to the social situation and wellbeing of citizens. For many years the costs of heating were relatively low compared to other cities, which did not encourage efficient energy use. Low-income households are among most effected by the increase in energy bills. Citizens can also use free public passenger transport since 2008. Just and green transition processes require various citizens groups to become active players on the mission to smart and climate neutral city. Increase in the awareness and understanding, followed by more sustainable behaviour is inevitable, in particular regarding the heat and energy consumption. There is significant potential in changing mobility practices, thus increasing the use of public passenger transport, cycling and walking. To raise citizens awareness, a Climate and Energy Office was established in July 2024. Working with other stakeholders, the Just Transition Centre focuses on awareness raising and communication actions. The SAŠA incubator has initiated a re-use centre. All these initiatives are welcome and need an extra push to reach and engage more citizens. Velenje is an important education centre and therefore also a generator of mobility. Education institutions have potential to increase awareness, knowledge and to put theory into practice. Public institutes involved in youth and adult education effectively reach their respective target groups and can also contribute to promoting sustainable practices this way. Local media effectively reach various citizen groups, though less so with the younger population, and can play a significant role in raising awareness among the broader public.	**Medium** The public utility company, Just Transition Centre and the City Administration are highly interested in decreasing the consumption of heat energy in households. This must be complemented with behavioural changes of citizens, though. A range of communication materials and information actions have already been produced and distributed. Stakeholders are interested in complementing and upgrading these approaches/actions. The main interest of the citizens and civil society groups is to have reliable and affordable municipal services, while their motivation to contribute with more sustainable practices is not yet sufficient. Interest among different groups varies; the young and young families are seen as potential drivers of wanted changes. Educational institutions are recognised partners in raising awareness and education of the young on topics related to climate neutrality. The recent hackathon with the secondary school students revealed the potential for improving communication strategies of the city public services. Local media are interested in reporting on local developments, in particular in relation to just transition processes.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
Institutional/regulatory and political systems	**European Commission** **Europe Council** **Government of the RS** Ministries Agencies National public companies **City of Velenje – City Administration** *Local self-government* **City Council** *Local self-government* **Regional Development Council** *Regional development body*	**High** The European Green Deal and regulatory framework, including the EU Mission, provide the vision and legal basis for actions at a national level. The regulatory framework of Slovenia is based on transposing EU directives into national legislation. Most legislation relevant for the City's climate neutrality is adopted at a national level. According to the Local Self-government Act, the municipality is responsible for local spatial planning, creation of conditions for economic development, construction of residential buildings, local public services, environmental protection, local road construction, utility services, fire safety and other tasks. The City Council is the highest body responsible for adopting strategies, legal acts, and all other relevant decisions. According to the Promotion of Balanced Regional Development Act, the Regional Development Council is a body responsible for coordinating the development interest in the NUTS 3 region. It comprises representatives of the municipalities, and representatives of economic and NGO sectors.	**High** EU institutions are highly interested in achieving climate neutrality of the European cities, and support this goal through a range of instruments. Governmental institutions also share the interest for the city climate targets, providing the regulatory framework, funding and promoting strategic collaboration. One of its priorities include just transition of the two coal regions in Slovenia. The local self-government is a leading promoter of the City's climate neutral path and the main coordinator in terms of alignment of interests and creation of synergies between the national, regional, sub-regional and local level stakeholders. The City Council recognises the need to align the path to climate neutrality with the priority of the City's restructuring and just transition. The Regional Development Council is the venue for regional coordination of strategic development projects funded through a specific regional instrument 'Agreement for the Development of Regions', supported by the European Cohesion Policy programme 2021–2027.
Financial systems	**ECO FUND, Slovenian Environmental Public Fund**	**High** The fund promotes development in the field of environmental protection by offering financial incentives, such as soft loans and grants for different environmental investment projects undertaken by citizens, enterprises, public sector and NGOs. The fund promotes energy efficiency and renewable energy measures in residential buildings, including self-sufficiency in electricity, performance of energy audits	**High** The Eco Fund is interested in more deep energy renovations vis-à-vis shallow renovations, higher number of required renovations, stimulation of the remaining, non-refurbished building stock, energy poverty reduction, development of innovative financial instruments etc. Diminishing grey economy, the Eco Fund's subsidies have had a positive effect on tax revenues, as well as

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
		in companies, energy efficiency investments (by companies and municipalities) in the construction of nearly zero-energy buildings, environmentally friendly electric vehicles and buses, charging stations for electric cars in the Natura 2000 area and protected areas. The fund is one of the most important actors for the City and its stakeholders. Eco Fund has taken over the organisation and financing of free energy advisory network offering free expert advice on how to improve energy efficiency to households.	on the creation of new green jobs, sustainable development of the construction planning and business, and on the development of the use of strategic resources, such as wood. These impacts, which simultaneously contribute to combating environmental crisis on the one hand, and benefiting the economy on the other, point to a positive role of the Eco Fund in the process of green growth and development in Slovenia.
	SID banka	**Medium** SID Bank is an export and development bank fully owned by the Republic of Slovenia. It offers banking and insurance services to promote sustainable development and improve the competitiveness of the Slovene economy. The fundamental activity pursued by SID Bank is funding market gaps, including environmental protection, energy efficiency, climate change, regional development, economic and public infrastructure. Financing is also available to SMEs.	**Medium** SID bank supports four main development areas: - economy and internationalisation - knowledge society and innovative entrepreneurship - regional and social development - environmentally friendly society and production, covering: Financing **renewable energy sources**, such as solar power, power from biomass and biogas, geothermal energy, wind power and hydropower. Financing **energy and material efficiency**, in particular the measures which improve energy efficiency of commercial premises and residential property. Financing **environmentally friendly production or products** which, in an innovative way, prevent or reduce environmental pollution or increase the material efficiency of production.
	BORZEN	**Medium** The core activity of Borzen is to provide the public service of electricity market operator and a	**Medium** Borzen is dedicated to actively pursuing and supporting the ongoing transition towards a more

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
		compulsory national public service of the support centre. They provide grants or co-financing in the area of green transition (e.g. for production of electricity and heat from RES and storage of electricity and heat).	sustainable and environmentally conscious society. Committed to fostering a green ethos, they develop initiatives that contribute to advancing sustainable energy solutions.
	Slovenia Climate Change Fund	**High** The fund is managed by the Ministry of the Environment, Climate and Energy and is aimed at funding climate change adaptation and mitigation actions, with a focus on energy renovations of residential and public administration buildings, decarbonisation of economy projects (investments in RES and EE, support to SMEs for sustainable reporting), and transition to low-carbon society education projects.	**High** The fund's main purpose and the City's climate neutral path have common goals, i.e., mitigating and adapting to climate change, thus reducing GHG emissions.
	Ministry of Cohesion and Regional Development - EU Structural and Cohesion Fund	**High** The Ministry of Cohesion and Regional Development is the managing authority of the Slovenia's EU Cohesion Policy programme 2021–2027, which also includes priorities relevant for the City's climate neutrality, also including the Just Transition Fund. The Programme also includes funds for the implementation of the integrated territorial investment (ITI) mechanism for sustainable urban development of Slovenia.	**High** In its capacity as the managing authority, the Ministry is interested in effective implementation of the Slovenia's EU Cohesion Policy programme 2021–2027. Transformation of the district heating system is identified as the strategic project to be funded by the JTF. The City of Velenje is one of the recipients of the integrated territorial investment (ITI) mechanism support.
	Slovenian Regional Development Fund	**Medium** The Fund is a public financial institution of the Republic of Slovenia aimed at promoting coherent regional and rural development and focuses on enterprises, agriculture and forestry sector, local self-governments and non-for-profit organizations. One of the Fund's objectives is to support European Green Deal and green transition (sustainable	**Medium** The Fund is strongly linked to national strategies and policies for regional and rural development, with a view to reducing development disparities between regions or areas and to achieving a sustainable balanced development of Slovenia.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
		agriculture, sustainable mobility, circular economy, sustainable industry). The Fund provides different products (loans, bridging finance, liquidity funds, project co-financing or pre-financing…)	
	The European Investment Bank EIB	**High** The EIB is one of the world's main financiers of climate action and environmental sustainability. It supports projects that reduce or prevent GHG emissions by investing in R&D on low-carbon technologies, renewable energy, low-carbon transport solutions, industrial de-carbonisation.	**High** The EIB is an important partner in this new growth strategy, and plays a leading role in the implementation of the Paris Agreement and the Sustainable Development Goals. The EIB supports climate action and just transition. The City of Velenje works on the preparation of project documentation for energy efficiency in public buildings supported by the ELENA- European Local Energy Assistance.
	HORIZON EUROPE	**High** Horizon Europe is the EU's key funding programme for research and innovation, which tackles climate change and helps achieve Sustainable Development Goals. Its new elements include Missions, including the Climate-Neutral and Smart Cities and adaptation to climate change missions.	**High** The 112 selected cities were invited to develop Climate City Contracts, which include an overall plan for climate neutrality across all sectors such as energy, buildings, waste management and transport, together with related investment plans.
Organisational system	**Association of Urban Municipalities of Slovenia AUMS**	**Medium** The AUMS is the only representative association of municipalities in Slovenia that represents exclusively the interests of the 12 urban municipalities. The core mission of the AUMS is to represent and safeguard the interests of urban municipalities on the national and international level. It monitors national legislation and legislative proposals, prepares position papers, fosters exchange of practices, cooperates with international associations and regional and local authorities. The AUMS is the intermediate body for project selection in the integrated territorial investment (ITI)	**High** The City of Velenje is an active member of the AUMS. The ITI is a model of multi-level governance, providing cooperation between the state and local levels. In the 2014–2020 period, the mechanism covered three priority axes of the operational programme which included energy efficiency of public housing, sustainable mobility and urban regeneration. Having proved to be a successful mechanism, ITI continues in the 2021–2027 period in the fields of

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the City´s climate neutrality ambition	Interest in the City´s climate neutrality ambition
		mechanism for sustainable urban development of Slovenia under the Slovenia's EU Cohesion Policy programme 2021–2027.	urban green infrastructure, sustainable mobility and urban regeneration.
	Association of Municipalities and Towns of Slovenia	**Medium** The association is the legal successor of the Standing Conference of Local Authorities of Slovenia, established in 1992. It is the largest representation organisation of municipalities. Key tasks relate to sharing experiences and strengthening local self-government at all levels, organising various forms of trainings to meet the needs of members, promoting and representing the common interests of local authorities vis-à-vis national authorities and international organisations, representing the interests of municipalities in negotiations for funding allocated in the national budget for the needs of municipalities.	**Medium** The association is active in diverse topics concerning the planning and implementation of policies at local level. Recently the association has been engaged in international projects on circular economy (https://circularpsp.eu) and geothermal energy (Info-geothermal), increasing knowledge and experience on how local authorities can support such processes.
	Association of Municipalities of Slovenia	**Medium** The association represents local interests. works in the legal, economic and political interest of the member municipalities as well as other Slovenian municipalities. It represents the interests of Slovenian municipalities on a national and international level, and links up with similar institutions and organisations in Slovenia and abroad.	**Medium** The association is actively involved in a range of topics related to the planning and implementation of policies at local level, including transport and mobility, renewable energy, etc. It is a good source of information on legal and administrative topics concerning local authorities.
	Covenant of Mayors	**Medium** The EU Covenant of Mayors for Climate & Energy is an initiative supported by the European Commission bringing together thousands of local governments that want to secure a better future for their citizens. By joining the initiative, they voluntarily commit to implementing EU climate and energy objectives.	**High** The City of Velenje has been a member since 2010.

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: Impact pathways

B-1.1: Impact Pathways					
Fields of action	Systemic levers	Early changes (1–2 years)	Late outcomes (3–4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
Energy systems	Technology and infrastructure	District heating system upgraded, and energy efficiency increased.	District heating system operates using a combination of renewable energy sources.	Emission reduction: 79,362 t CO_2e	Increased energy self-sufficiency Green jobs
		Increased energy efficiency in services and processes	Savings in energy use both in services and processes	Emission reduction 2,381 t CO_2e	Cost savings
			Smart public lighting solutions in place		
		Increased renewable energy production	Increased renewable energy production	Emission reduction: 20,009 t CO_2e	Increased energy self-sufficiency
	Finance and funding	Model for strategic investments in decarbonisation of the district heating systems	Structured financial approach through a mix of instruments in portfolio	-	City builds capacities to source and manage public & private capital
	Governance and policy	Digitalised energy management for public sector	Improved monitoring of energy use Improved decision making		Cost savings
	Democracy and participation	New ways of organising multi-actor collaboration in energy communities	Energy community set-up	Emission reductions	Income generation Increased cooperation culture
Mobility & transport	Technology and infrastructure	Sustainable mobility infrastructure enhanced (cycling & walking network, bus stops, etc.)	Sustainable mobility infrastructure enhanced (cycling & walking network, bus stop)	Emission reduction: 1,269 t CO_2e	
	Governance and policy	More commuters practice sustainable mobility – walking, cycling public transport, car sharing	More commuters practice sustainable mobility – walking, cycling public transport, car sharing		Behavioural change towards a low carbon lifestyle
	Technology and infrastructure	Moe EV in public, private sector, and households; Enhanced charging network for clean vehicles	More EV in public, private sector, and households Enhanced charging network for clean vehicles	Emission reduction: 8,037 t CO_2e	Reduced noise pollution Better air quality
	Finance and funding	Business model for decarbonisation of public passenger transport outlined	Purchase of green vehicles for the city public transportation		Improved image of public transport
	Technology and infrastructure	Sections of the 3rd development axis under construction	Transit through the city centre reduced (3rd development axis)	Emission reduction: 6,767 t CO_2e	Less traffic congestion Reduced noise pollution

B-1.1: Impact Pathways					
Fields of action	Systemic levers	Early changes (1–2 years)	Late outcomes (3–4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
					Better air quality Improved road safety
	Governance and policy	Solutions for optimisation of public transport identified.	Mobility management improved. Public passenger transport optimised – reduced travel times. City card introduced.	-	Better services
Waste & circular economy	Technology and infrastructure	Expanded network of underground waste collection facilities & reduced number of collection points in multi-dwelling residential areas	Optimised waste collection routes	Emission reduction: 145 tCO_2eq	Behavioural change towards a low carbon lifestyle
	Learning and capabilities	Improved waste separation	Increased recycling rates		Cost savings
	Social innovation	Increased participation of citizens in circular practices	Increased participation of citizens in circular practices Reduced waste generation		Behavioural change towards low carbon lifestyle
	Technology and infrastructure	Circular economy solutions among local actors explored (industry, public services, agriculture, forestry, wood processing, etc.)	Circular economy solutions among local actors tested and upscaled		Cost saving Green jobs
	Learning and capabilities				
Green infrastructure & nature-based solutions	Technology and infrastructure	Green urban areas maintained and lost tree stock gradually replaced.	Green urban areas improved (green corridors, new or improved green areas, planted trees)	Carbon sink: -	Liveability, attractiveness and aesthetics of built environment
	Governance and policy	Management of urban green areas enhanced - (better understanding of the situation, enhanced maintenance standards, urban tree management plan)	Management of urban green areas improved (digitally supported monitoring, action planning)		Preserved urban biodiversity.
	Participation and democracy	Urban gardening and local food production programme improved	Urban gardening and local food production programme has been extended to include new areas		Improved sense of belonging, social wellbeing & inclusion Locally produced food
	Social innovation				

B-1.1: Impact Pathways					
Fields of action	Systemic levers	Early changes (1–2 years)	Late outcomes (3–4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)
	Learning and capabilities	Higher standards for green and blue infrastructure in new commercial and residential areas developed	Higher standards in green and blue infrastructure in new commercial and residential areas applied		Liveability, attractiveness and aesthetics of built environment
	Governance and policy				
	Technology and infrastructure	Enhanced awareness among farmers about low-carbon farming solutions	Farmers apply sustainable farming practices	-	Sustainable local food production
	Learning and capabilities				
	Institutional/ regulatory	Local incentives for sustainable farming			
Built environment	Technology and infrastructure	Improved energy performance of buildings - energy renovation projects implemented	Improved energy performance of buildings - energy renovation projects implemented	Emission reduction: 19,474 t CO_2 eq	Cost savings; Improved quality of life
	Social innovation	Increased awareness of citizens and engagement in energy efficient practices and actions	Increased participation of citizens in energy and climate actions and schemes		Social cohesion, equality and equity
	Participation and democracy				Behavioural change towards low carbon lifestyle

B-1.2: Description of impact pathways

The selected impact pathways were opted for on the basis of analytical work, results of stakeholder engagement and consultation, experience and processes of existing strategies and plans and in view of effectively addressing the identified emissions gap.

Based on the GHG inventory in 2018, emissions amount to **171,276 t CO_2eq per year**. Considering a 20% share of residual emissions, the emission gap of **137,443 t CO_2eq** per year has to be addressed by 2030. In designing the impact pathways, all fields of action and most relevant system levers were observed, with potential early changes and late outcomes being identified in view of contributions to reducing emissions or generating carbon sinks and co-benefits.

In defining the strategy/approach, the primary focus has been on fields of actions and systemic levers with **highest emission gaps and highest potential for reducing GHG emissions**, while also observing the feasibility and potential for engagement of relevant stakeholders (e.g. industry and service sectors). Proposed pathways are in line with the short-term and long-term climate action priorities both at national, regional and local level.

For the City of Velenje, the most relevant field of actions relate to **energy systems and built environment** which must be addressed in synergy and for which the highest priority has also been set in line with the process of just transition. As shown in table A-1.3, GHG emissions from buildings sector account for **80 % of all GHG emissions**. Transformation and decarbonisation of the 2nd largest district heating system in the country is of strategic importance and directly linked with the coal phase out strategy. The main identified systemic levers are: *technology & infrastructure* and *finance & funding*.

The City must ensure reliable, stable and energy efficient services to citizens and industry based on a combination of different local renewable energy sources. In the short-term perspective, the outcomes relate to achieving energy efficiency of the system itself, while decarbonisation targets are to be met by 2030. In this context, it is critically to address potential for **reducing the energy use** both in industrial processes, public sector and households. Besides technology and infrastructure, important contribution can also be achieved through **awareness raising, competence building and social innovation**. These outcomes will also be complemented with gradual replacement of fossil fuel-based heating and energy renovations of buildings in dispersed settlements where the district heating is not available.

Outcomes related to **mobility and transport** have two main challenges: reducing motorised traffic and reducing transit through the City. In addition to the completion of the main cycling and pedestrian network infrastructure, introducing clean transport technologies combined with the charging infrastructure for decarbonisation of the transport (hydrogen or electric vehicles) has been planned. Complementary systemic levers relate to governance (better services), learning, social innovation and democracy/participation. Influencing citizens' mobility habits and making sustainable mobility more attractive at a local level, with gradual increase of users practicing walking, cycling or using public transportation, requires engagement of citizens through the participation lever. National investments in the 3rd development axis will reduce transit through the City, congestions and noise, with air quality and traffic safety also seeing an improvement in the long-term. To counterbalance the potential increase in car travel due to the new expressway, Velenje plans to implement a range of sustainable mobility initiatives.

Waste and circular economy are addressed under different systemic levers, where learning & capacities and social innovation is of particular importance to improve citizens' awareness on how an individual can participate with their own choices and practices. In the short term, the focus is on the understanding the benefits of replacing consumerism with more sustainable choices (less waste, more value), improving waste separation and adopting practices that promote circularity. Technologies and infrastructure will serve as system levers, particularly for activities that help increase material efficiency. Exploring the potential for circular economy of various local stakeholders, thus reducing the pressure on natural resources will be addressed through soft measures in the short term with anticipation of achieving long-term impacts by 2030.

Green infrastructure & nature-based solutions outcomes are gaining relevance in terms of actively preserving the 'city in the park' concept, while maintaining and potentially also increasing the carbon-sink potential both in the short and long term. Governance and policy as well as learning, social innovation and participation play an important level of outcomes next to the physical ones.
Relevant long-term outcomes derive from preserving and maintaining forests, promoting local food supply and increasing sustainable farming practices knowledge.

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.

An overview of the City of Velenje climate neutrality portfolio design is presented in Figure 12. It includes actions with a direct impact on reducing GHG emissions as well as actions deemed necessary to enable or stimulate a climate-neutral path.

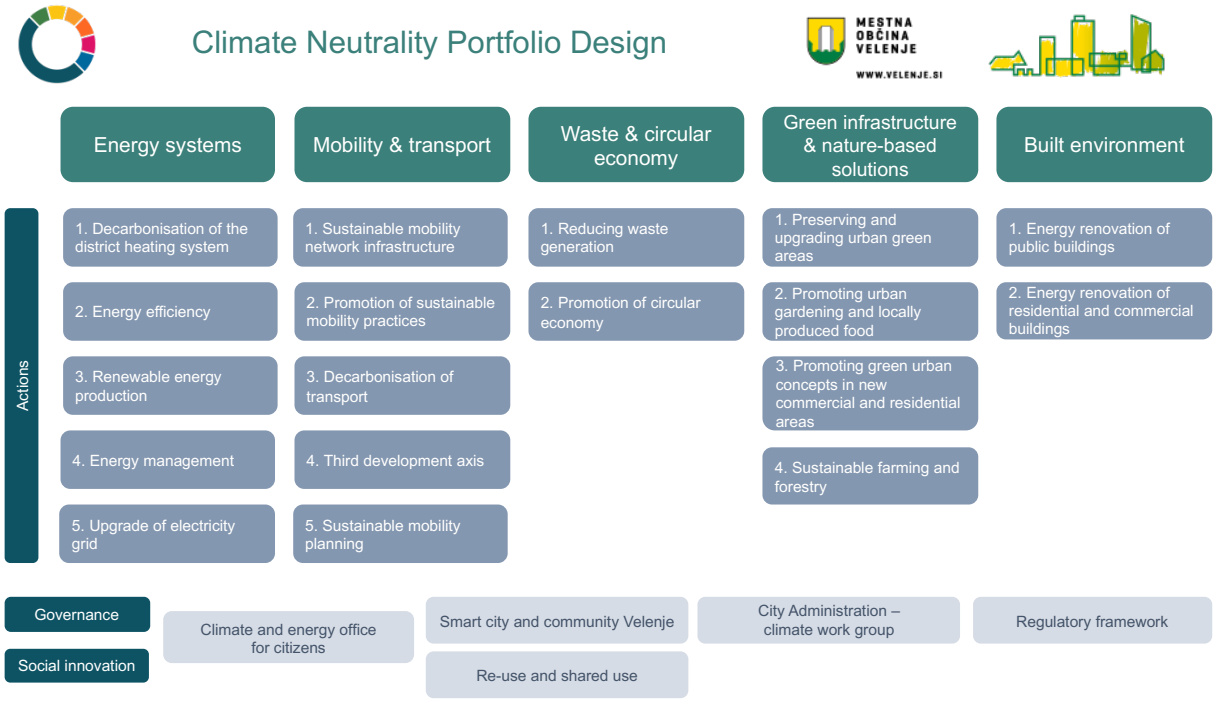


Figure 12: Climate neutrality portfolio design of the City of Velenje

As shown in Figure 13, the main contribution to achieving 2030 GHG emission reduction targets are expected from actions within the energy systems (74%), followed by built environment (14%) and transport and mobility (12%). In all other systems the expected contributions will be minor or will become apparent over the longer term.

Looking at specific actions in the City of Velenje portfolio, the most important one is 1.1 Decarbonisation of the district heating system, contributing 57.7% to emission reductions. Strategically, it is considered the most important action, followed by closely related actions 5.2 Energy renovation of residential and commercial buildings (14%) and 1.3 Renewable energy production (13.0%).

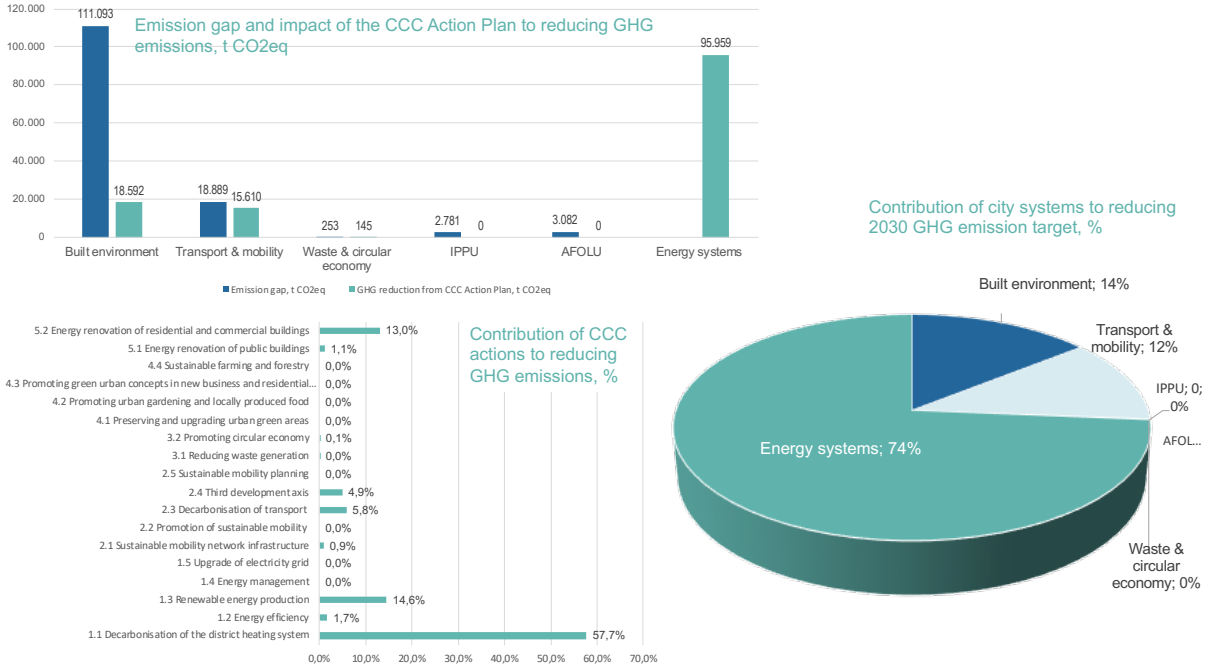


Figure 13: Contribution of actions and systems to GHG emission reduction targets

Table 11: Contribution of actions to reducing GHG emissions

Action	tCO2eq reduction	Contribution to GHG reduction target, %
1.1 Decarbonisation of the district heating system	79,362	57.7%
1.2 Energy efficiency	2,381	1.7%
1.3 Renewable energy production	20,009	14.6%
1.4 Energy management	0	0.0%
1.5 Upgrade of electricity grid	0	0.0%
2.1 Sustainable mobility network infrastructure	1,269	0.9%
2.2 Promotion of sustainable mobility	0	0.0%
2.3 Decarbonisation of transport	8,037	5.8%
2.4 Third development axis	6,767	4.9%
2.5 Sustainable mobility planning	0	0.0%
3.1 Reducing waste generation	24	0.0%
3.2 Promoting circular economy	121	0.1%
4.1 Preserving and upgrading urban green areas	0	0.0%
4.2 Promoting urban gardening and locally produced food	0	0.0%
4.3 Promoting green urban concepts in new commercial and residential areas	0	0.0%
4.4 Sustainable farming and forestry	0	0.0%
5.1 Energy renovation of public buildings	1,546	1.1%
5.2 Energy renovation of residential and commercial buildings	17,928	13.0%
TOTAL	**173,444**	**100.00%**

DESCRIPTION OF ACTION PORTFOLIOS

Table 12: Description of action portfolio

B-2.1: Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
Energy systems	1. Decarbonisation of the district heating system 2. Energy efficiency 3. Renewable energy production 4. Energy management 5. Upgrade of electricity grid	Energy systems are the most important for achieving climate neutrality of the City of Velenje by 2030. **Decarbonisation of the city district heating system** is at the heart of the city's green and just transition. It is also the essential priority of the Territorial Just Transition Plan and the City's sustainable urban strategy. First, energy efficiency of the district heating will be improved to reduce losses in heat distribution. Fossil fuel (lignite) will be replaced with a combination of renewable energy sources. Cooperation between the City Administration, its public utility company, experts and key operators in energy sector is established to optimise the strategy and define an action plan for the transformation of the district heating system. Improving **energy efficiency** of public services, industry processes and service is directed towards decreasing the use of electricity or heat. Public lighting, EE of the water supply network system, sewage system and waste-water treatment are key areas to be addressed. The action will also be addressed by the industry and services that will introduce new technologies or optimise the energy use. **Renewable energy** production will primarily continue with PV projects in public sector, as well as in commercial and private household buildings. A joint project for installing PV on public buildings has just been prepared and submitted for co-financing. A small hydro power plant will be constructed to cover the energy needs of the public utility company's water supply pump station. Energy communities are a new approach that will be tested by involving both the commercial sector and households. Decarbonisation of the heating systems, energy efficiency and renewable energy are to be implemented in synergy with actions improving the EE in buildings (see below 'built environment'). A comprehensive **energy management** system for the public sector will be enhanced and digitalised to allow for better monitoring, control and informed decision-making. An **upgrade of the electricity grid** is considered a key enabler for the transformation of the district heating system and increase in renewable energy. The main transformer station has sufficient capacity, while renovations and upgrades are needed in the electricity grid.

B-2.1: Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
Mobility & transport	1. Sustainable mobility network infrastructure 2. Promotion of sustainable mobility practices 3. Decarbonisation of transport 4. Third development axis 5. Sustainable mobility planning	Transport contributes 14% to the city GHG emissions and will be addressed in the CCC Action Plan in several ways: **Sustainable mobility network infrastructure** aims at completing the urban cycling and walking network. **Promotion of sustainable mobility practices** The city centre and its administrative, social, education, cultural facilities and services are relatively easily reachable by foot, bicycle or public transportation. The modal shift, however, needs to be accelerated. Public transportation is underused and must be optimised to attract more citizens for daily migration needs. To reduce the number of cars in the city centre, different measures will be combined, ranging from user friendly digital solutions, awareness raising campaigns and other actions needed to complement the city overall ambition making the mobility in Velenje sustainable. **Decarbonisation of transport** Contribution to reducing GHG emissions is to be made by decarbonising the city public transportation and further increase in replacement of fossil-fuel vehicles with low-emission ones in public sector, businesses, and households. Extending and improving the charging infrastructure will support this change. **Third development axis** The city centre is heavily congested with transit traffic. The planned construction of the state expressway to connect northern and southeastern Slovenia is expected to alleviate congestion in the city and shorten travel times through the municipalities. **Sustainable urban mobility planning** fostered a strategic approach to implementing the city urban mobility policies. The first strategy was prepared in 2017 and will be iterated in 2024/2025. For making informed decisions regarding mobility measures, the integration of various collected data and its use under a common digital platform is planned.
Waste & circular economy	1. Reducing waste generation 2. Promotion of circular economy	**Reducing waste generation** The action focuses primarily on raising awareness of households in multi-dwelling buildings to improve waste separation. Another aspect is to support social innovation solutions that will help reduce waste and extend the life of products and materials. The tourism sector will also be addressed, with the primary focus on mobility and waste generation, particularly in relation to city festivals. Further promotion of zero waste concept in organising events is necessary, focusing on replacement of single-use packaging with more sustainable choices.

B-2.1: Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
		The waste collection system will be improved by installing underground waste containers and their digitalisation. **Promotion of circular economy** The potential for circular economy has so far not yet been properly identified. Potentials will be analysed, and possible cooperation models tested and promoted in partnership with identified local/regional actors. Waste heat was identified as one of the focus areas.
Green infrastructure & nature-based solutions	1. Preserving and upgrading urban green areas 2. Promoting urban gardening and locally produced food 3. Promoting green urban concepts in new commercial and residential areas 4. Sustainable farming and forestry	**Preserving and upgrading urban green areas** The City of Velenje must further protect and upgrade its green areas to maintain 'the city in the park' concept which gives the City a unique quality of life and contributes to climate change adaptation. In view of recent extreme weather (windthrow) and some infrastructure projects resulting in tree felling, replacing the tree stock and inter-connecting green areas is required. **Promoting urban gardening and locally produced food** The City has traditionally supported urban gardening and will continue to expand available surfaces. Also, access to locally produced food will be improved through enhancements to the local market and initiatives promoting local food. **Promoting green urban concepts in new commercial and residential areas** The spatial plan of the City of Velenje includes commercial and residential areas that are expected to be at least partially activated in light of the city's just transition, economic restructuring, and related green job creation. In line with the nearly zero-energy building requirements prescribed by the Energy Act, the City will engage with property developers to incorporate above-standard green and blue infrastructure. **Sustainable farming and forestry** Preserving and maintaining forests is one of the City's priorities. The agriculture sector, which currently produced GHG emissions, will be encouraged to apply low-emission farming practices that have been shown to reduce the methane emission from livestock breeding. The City will thus amend the programme of incentives in agriculture and forestry and promote the use of the intervention *Environment and Climate Scheme* of the CAP Strategic Plan.
Built environment	1. Energy renovation of public buildings 2. Energy renovation of residential and commercial buildings	**Energy renovation of buildings** Energy renewal of buildings complements the actions within the energy system related to decarbonisation of the district heating system. The most relevant for reducing GHG emissions is the energy renovation of multi-dwelling residential buildings; of 193 buildings 10 were completely renovated so far. A project group consisting of the City Administration, the public utility company, the managers of the building stock

B-2.1: Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
		and the Local Energy Agency analysed the current situation and identified buildings prioritised for energy renovation investments. The potential for reducing emissions also exists in the energy renovation of the municipal public buildings (mainly schools and the community health centre) and state-owned buildings. The action also addresses individual houses, envisaging the measures such as renovating façade walls and replacing fossil-fuel boilers with RES (heat pumps, wood biomass boilers in dispersed settlements not connected to the district heating system). Energy renovation of buildings is also expected to be promoted by business sector entities.

1. ENERGY SYSTEMS - Individual action outlines

Table 13: Energy systems – individual action outlines

B-2.2: Individual action outlines		
Action outline	Action name	**1.1 Decarbonisation of the district heating system**
	Action type	Technical intervention
	Action description	**1. District heating system** The current district heating system utilises lignite in a combined heat and power generation process which is classified as the 1G generation with the distribution network temperature exceeding 100 °C. The system relies on a single energy supplier, i.e., TEŠ Šoštanj (Šoštanj Thermal Power Plant). The entire distribution network spans 180 km in length with 408 km of pipelines and over 500 heat stations. It has a rated heat power of 204.7 MW and supplies 250 000 MWh of heat annually, serving 40 000 residents and 650 industry users. In Velenje, **70% of households** are connected to the district heating system (LEC, 2022). The district cooling network is small, encompassing only 2 buildings with a rated power of 1 MW and supplying 91 000 kWh of cooling power annually). Transformation of the district heating system aims at achieving the 3G/4G generation. The action consists of the following key components: **a. Renewal of the distribution network and heat stations.** Technical improvements will be made to reduce heat losses on the distribution network, covering 8 100 m of primary and 3 000 m of secondary network, with 13 heat sub-

		stations and 84 heat stations in multi-dwelling buildings also being included. **b. Gradual replacement of fossil fuel with renewable energy sources**: **- Heat pumps water/water**: **3** The primary heat/electricity source is water from the lake. Estimated total power: 1x 10 MW + 2x 5 MW; **- Combined heat and power (CHP) – organic rankine cycle (ORC) system: 2** The primary heat/electricity source is wood biomass (wood chips). Two systems will be installed. Thermal power: 12.5 MW + 5.3 MW Estimated electricity output: 2.6 MW + 1.25 MW Estimated annual heat output: 50 000 MWh + 21 200 MWh; **- Boilers: 2** Primary heat source: wood biomass (wood chips). Thermal power: 10.0 MW + 10.0 MW Estimated annual heat output: 15 000 MWh + 20 000 MWh; Nominal temperature regime: 90/70°C and 110/90°C **- Combined heat and power (CHP): 1** Estimated power: 5.3 MW Estimated electricity output: 1.25 MW Estimated annual heat output: 21 200 MWh **- Solar thermal plant** Estimated rated power: 10 MW Estimated annual heat output: 25 000 MWh **- High voltage electric boiler** Estimated rated power: 10 MW The renewed district heating system is to become self-sufficient regarding electricity needed for its operation.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology and infrastructure; Finance and funding.
	Outcome (according to module B-1.1)	• District heating system upgraded, and energy efficiency increased. • District heating system operates using a combination of RES. • Model for strategic investments in the decarbonisation of the district heating system. • Structured financial approach through a mix of instruments in portfolio.
Implementation	Responsible bodies/person for implementation	• District heating system: City of Velenje, public utility company KP Velenje, Šoštanj TPP
	Action scale & addressed entities	Scale: Entire district heating system • Existing users of the district heating system in the City (households, industry, public entities); managers of the multi-dwelling buildings, potential new users

	Involved stakeholders	District heating system: City of Velenje, public utility company KP Velenje, KSSENA - Local Energy Agency, EIB, Ministry of Cohesion and Regional Development, HSE, ELES
	Comments on implementation – consider mentioning resources, timelines, milestones	Project documentation for the renewal of the district system is being prepared. The project is included in the Operational Programme 2021–2027 to be financed from JTF.
Impact & cost	Generated renewable energy (if applicable)	Heat: 216.199 MWh per annum Electricity: 651,088 MWh
	Removed/substituted energy, volume, or fuel type	Lignite
	GHG emissions reduction estimate (total) per emission source sector	District heating system: 79,362 t CO2
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 141,798,848 Costs by CO_2 unit: 1,787 EUR/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.2 Energy efficiency**
	Action type	Technology and infrastructure
	Action description	Increasing energy efficiency is key to reducing the need for energy production and reducing GHG emissions. The action combines efforts of different stakeholders. **Public utility services** Public lighting: The public lighting network covers 93.6 km of municipal and state roads and includes a total of 4 089 lamps (as at 2023). Since 2018, there has been an ongoing progress in replacing old lamps with more efficient ones with only 340 lamps remaining to be replaced at the end of 2023. Further action is directed towards smart public lighting to help increase the quality of services and generate energy savings. Pilot smart public lighting measures will be introduced for traffic signalisation and public buildings. Efficient water supply: The drinking water supply network spans 411.4 km with 99.8% of population being connected to it. In general, about 30% of drinking water within the network (about 1.5 million m^3) requires pumping. Future investments will be aimed at improving energy efficiency, achieving energy self-sufficiency and reducing water losses. Sewage and waste-water treatment: In 2023, almost 30 000 inhabitants (90%) were connected to wastewater network and treatment facilities. The sewage network spans

		162 km. There is potential for energy optimisation of sewage pump stations and increased energy self-sufficiency at the central waste water treatment plant (WWTP). **Energy efficiency in industry and services** In 2023, processing activities accounted for 59% of electricity use in manufacturing and services (SURS). According to the survey conducted during preparation of the CCC Action Plan, enterprises are aware of the challenges of green transition and are interested in investing in more efficient technologies and improving their manufacturing and service processes. Several local enterprises have already demonstrated good practices and the trend is expected to continue with additional measures and support at the national level.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Savings in energy use Smart public lighting solutions in place Increased EE in service and processes
Implementation	Responsible bodies/person for implementation	City of Velenje; Javna razsvetljava Ljubljana (concessionaire for public lighting); public utility company KP Velenje, Businesses and their management bodies
	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje Javna razsvetljava Ljubljana (concessionaire for public lighting) Komunalno podjetje Velenje (public utility company) Businesses and their management bodies Citizens (service users) and consumers
	Comments on implementation – consider mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/ substituted energy, volume, or fuel type	Electricity: 5,485 MWh pa
	GHG emissions reduction estimate (total) per emission source sector	2,381 t CO_2 per annum
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 14,081,978 Costs by CO_2 unit: 5,915 EUR/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.3. Renewable energy production**
	Action type	Technical intervention
	Action description	The purpose of the action is to exploit local potential for renewable energy and increase its share in the overall energy use. **Solar electricity production:** Solar energy has been identified as the most relevant renewable source by different stakeholders, who have recently invested in or are planning to invest in PV projects. The action comprises: • Installation of PV on rooftops of public buildings. A joint project has recently been prepared by the City of Velenje and its public service providers to apply for co-financing. • Installation of PV on commercial/industrial buildings. • Installation of PV on multi-dwelling buildings. Where relevant, these projects will be combined with energy renewal of buildings. • Installation of PV on individual houses. **Small hydro power plant:** The drinking water treatment facility at location 'Čujež' uses app. 270,000 kWh of electricity annually. By exploiting energy potential of the water entering the treatment facility for electricity generation (rated power: 38 kW), around 269,000 kWh of electricity is expected to be produced. **Energy communities** Energy communities enable collective and citizen-driven energy actions that support the clean energy transition. They facilitate attracting private investments in the clean energy transition by re-structuring energy systems and empowering citizens to drive the energy transition locally which in turn allows them to directly benefit from better energy efficiency, lower bills, reduced energy poverty and more local green job opportunities. Under the pilot initiative, the potentials of the City will be explored and a business model will be developed and tested. The possibilities of cooperating with local businesses or other property owners will also be explored.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology and infrastructure; Democracy& participation
	Outcome (according to module B-1.1)	Increased renewable energy production Energy community set-up
Implementation	Responsible bodies/person for implementation	City of Velenje, public utility company KP Velenje, TPP Private investors (companies, individuals)

	Action scale & addressed entities	Local scale Energy producers and consumers
	Involved stakeholders	City of Velenje, public utility company KP Velenje, Local Energy Agency KSSENA, private investors (individuals, companies, public enterprises, …), Elektro Celje (local electricity distribution grid operator)
	Comments on implementation – consider mentioning resources, timelines, milestones	Since 2018, investments in smaller capacities have mainly been made by individual households and some businesses. In 2024, a joint project for investing in PV on public buildings was prepared. Further interest for installing larger capacity is expressed by the industrial sector.
Impact & cost	Generated renewable energy (if applicable)	Solar electricity: 46,103 MWh pa
	Removed/substituted energy, volume, or fuel type	Electricity: 46,103 MWh
	GHG emissions reduction estimate (total) per emission source sector	20,009 t CO_2 pa
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 38,736,499 Costs by CO_2 unit: 1,936 EUR/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**1.4 Energy management**
	Action type	Governance and policy, learning and capabilities
	Action description	Proactive and systematic monitoring, control, and optimization of energy production and consumption to rationalize and reduce costs is an important aspect of sustainability and the climate neutrality ambition of the City of Velenje. **Public institutions** Energy management for the public sector institutions set in place includes implementation of energy accounting, identification and implementation of measures to increase energy efficiency and the use of RES, reporting to the relevant ministry on energy use, related costs and implementation of measures. Detailed activities: • Creating a database of large boiler rooms, small combustion devices • Implementing the monitoring of energy use • Raising awareness and encouraging large enterprises to conduct energy audits and introduce energy management standards • Preparation of a decree on priority use of energy sources for heating • Establishing an energy management unit within the City Administration aiming at

		reducing energy use, including digitalisation support • Transfer of knowledge and cooperation in EU projects in the field of energy management. **Economic sector** Local businesses interested in developing solutions for improved energy management are setting up an ecosystem to optimise the use of electricity produced from PV.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Governance and policy; Technology and infrastructure
	Outcome (according to module B-1.1)	Digitalised energy management for public sector; improved monitoring of energy use; improved decision-making process
Implementation	Responsible bodies/person for implementation	Local Energy Agency KSSENA, energy managers, public utility company KP Velenje, MEGA M
	Action scale & addressed entities	Public institutions, enterprises, individual households,
	Involved stakeholders	Local Energy Agency KSSENA, energy managers, City of Velenje, ecosystem of local businesses
	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	NA
	GHG emissions compensated (natural or technological sinks)	NA
	Total costs and costs by CO2e unit	Total costs: € 4,070,873

B-2.2: Individual action outlines		
Action outline	Action name	**1.5 Upgrade of electricity grid**
	Action type	Technical intervention; Physical/spatial intervention
	Action description	One of the most important ways to achieving climate neutrality is linked to energy sector and renewable energy. The energy-generating location in the SAŠA region is of national importance. While the capacity of the distribution transformer station in Velenje is adequate, the electricity distribution grid, with 197 transformer stations, may not fully meet the demand for green transition across all

		locations (e.g. households and businesses interested in solar energy production). To facilitate the transformation of the district heating system through local renewable energy sources, as well as the construction of the 3rd development axis and regional cycling network, investments in construction of transformer stations are foreseen.
Reference to impact pathway	Field of action	Energy systems
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Improved capacity of electricity grid
Implementation	Responsible bodies/person for implementation	ELES / Elektro Celje
	Action scale & addressed entities	local
	Involved stakeholders	Electricity producers and stakeholders
	Comments on implementation – consider mentioning resources, timelines, milestones	This action does not directly contribute to reduction in GHG emissions. It is a prerequisite for the implementation of actions 1.1, 1.2 and 1.3.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO2e unit	/

2. MOBILITY AND TRANSPORT - Individual action outlines

Table 14: Mobility and transport – individual action outlines

B-2.2: Individual action outlines		
Action outline	Action name	**2.1. Sustainable mobility network infrastructure**
	Action type	Physical/spatial intervention
	Action description	The aim of this action is to provide citizens and visitors with a safe and well-connected infrastructure that promotes cycling, walking and the use of public transportation in the city. **Cycling and pedestrian network** The size of the city and its topography are well-suited for covering daily distances by bicycle or on foot. In 2018, the City had around 13 km of cycling paths. Since then, three main projects have been completed, adding additional 19.3 km to the network. By 2030, efforts will focus on: • constructing the cycling path along the open coal stockpile, which will link the

		cycling infrastructure to the municipality of Šoštanj, app. 650 m • integrating the existing cycling paths into a functional inner-city network and linking it to state cycling routes and recreational routes on the city outskirts, app. 4000 m • enhancing cycling routes in settlements outside the urban centre (local community centres) • improving infrastructure for children to cycle safely to school, including the setting up of around 300 bike parks • setting up of safe bike parking areas at key locations (e.g. by Lake Velenje) • expanding the BICY system from the city to local communities, thus better connecting urban and rural areas. New pedestrian areas are to be developed in the City and its local communities: • Velenje: Ljubljanska cesta, Rakova Goša, Rudarska cesta, Stantetova ulica, Kardeljev trg • Local communities: Šentilj, Bevče-Velenjka, Šmartno, Podkraj **Public transportation** Public transportation in the city is carried out by a concessioner and covers six routes within the city, linking it also to its peripheral areas. To improve the accessibility of public transport service, new bus stops will be set up, including bike shelters. In addition to these physical improvements, digital solutions have recently been implemented, such as installing digital displays at local bus stops to provide real-time information on bus arrivals, timetables, and other notices.
Reference to impact pathway	Field of action	Mobility & transport
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Sustainable mobility infrastructure enhanced
Implementation	Responsible bodies/person for implementation	City of Velenje, Ministry of infrastructure
	Action scale & addressed entities	Local/sub-regional network
	Involved stakeholders	City of Velenje, citizens – especially commuters
	Comments on implementation – consider mentioning resources, timelines, milestones	The Ministry of Infrastructure invested in the state cycling network on the two routes connecting the City towards north and east in a total length of app. 15 km. It is also responsible for the national and regional roads that pass through the city's territory.

Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: 467,305 l (4 752 MWh)
	GHG emissions reduction estimate (total) per emission source sector	1,269 t CO_2 pa
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 23,232,502 Costs by CO_2 unit: 18,309 EUR/t CO_2

B-2.2: Individual action outlines		
Action outline	Action name	**2.2 Promotion of sustainable mobility**
	Action type	Other interventions, technical interventions
	Action description	The city centre and its administrative, social, education, health, cultural facilities and commercial services are easily reachable by foot, bicycle or public transportation. The modal shift needs to be further promoted. Measures have been discussed with experts in the City Administration, with business sector and co-created in the youth hackathon. The City of Velenje already introduced several measures, which shall be further improved: • Public passenger transport has been free for citizens since 2008, with around 35,000 passengers using it monthly. However, the public service has been underused, main reasons being impractical routes taking too much time, occasional delays and perceived low image. • A public city bike rental system BICY was set-up in 2012 with five rental stations and 25 city bikes. Since then, it has been expanded to 17 rental stations and 120 bikes. The system operates from spring to late autumn reaching app. 10,000 rentals annually. A digitalised system of rentals will be introduced in 2024 making the service much more convenient to use. To reduce the number of cars in the city centre and to increase car-free travel within Velenje, different measures are foreseen: • Increasing the number of BICY stations and bikes (in cooperation with businesses and public service providers interested in promoting cycling as a way commuting to work). • Promotion campaigns aimed at improving the image of public mobility services (BICY, LOKALC).

		• Awareness raising actions to increase walking, cycling and use of public transport. • Participation in the European Mobility Week actions. • Promotion of sustainable transportation for tourists and visitors. • Supporting social innovation for sustainable mobility: piloting car-sharing service among public sector institutions (city administration, public utility companies, health and educational institutions, etc.). • Business sector campaigns promoting the purchase of e-bikes for employees and use of public transport for commuting to work. • Other actions attracting more citizens and visitors to opt for sustainable daily migration. This action is closely linked to sustainable mobility planning addressed in 2.5.
Reference to impact pathway	Field of action	Mobility and transport
	Systemic lever	Governance and policy; Social innovation; Democracy and participation; Learning and capabilities
	Outcome (according to module B-1.1)	More commuters practice sustainable mobility: walking, cycling, public transportation, car sharing
Implementation	Responsible bodies/person for implementation	City of Velenje, public utility company KP Velenje, Climate & Energy Office
	Action scale & addressed entities	Local scale Public services, local enterprises, CSOs
	Involved stakeholders	City of Velenje, public utility company KP Velenje, tourist organizations, enterprises, educational institutions, CSOs, IPOP institute.
	Comments on implementation – consider mentioning resources, timelines, milestones	The City Administration plans annual resources for promotion activities, while EU funding is planned for technical ones (e.g. expanding the BICY network).
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	(calculated under Action 2.1)
	GHG emissions reduction estimate (total) per emission source sector	
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 3,123,229

B-2.2: Individual action outlines

Action outline	Action name	**2.3. Decarbonisation of transport**
	Action type	Technical intervention
	Action description	Clean mobility involves replacing fossil-fuel vehicles with low-carbon alternatives in the city public transportation, public services, business sector and by citizens. Extending and improving the charging infrastructure is a pre-requisite to support this transition. **Decarbonisation of public transport** Public transportation in the city is provided by a concessionaire, which currently operates fossil-fuel vehicles. In partnership with different stakeholders, the City of Velenje is involved in a green hydrogen bus project. The plan is to replace the existing fleet with six green hydrogen fuel cell buses to operate on urban bus routes, covering an annual distance of 517,000 km. The green hydrogen will be produced locally at the Šoštanj Thermal Power Plant in the Municipality of Šoštanj with the necessary green fuel production facilities and and a charging infrastructure established on site. The approach is in line with the recently adopted regulation EU 2024/1735 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem, which among others defines hydrogen technologies, including electrolysers and fuel cells, as net-zero technologies. The City Administration will apply for a state co-financing to purchase zero-emission clean public transport vehicles. **Replacement of fossil-fuelled cars in public administration and public services with low carbon alternatives** The primary objective is to stimulate walking, cycling and the use of public transportation within the public administration. For example, a bike parking space and a BICY station have already been set up in front of the municipal building. However, not all travels can be made by non-car transport modes. The intention is to gradually replace the existing fossil-fuelled car fleet of the City Administration and local public services with low-carbon alternatives. By 2030 at least 50 clean vehicles will be deployed. **Low-carbon vehicles in business sector and households** Consultations with the representatives of business sector showed that employees are encouraged to walk, cycle or use public transportation to commute to work. Good practices include companies purchasing bicycles for their employees, or co-financing the

		purchase, or arranging discounts for a collective purchase. In Velenje, the average car is ten years old. The analysis of incentives provided by the Eco Fund indicates a gradual increase in the purchase of EVs since 2018. Some local enterprises encourage employees to replace fossil-fuelled cars with e-vehicles and offer free charging at their premises. By 2030, it is estimated that at least 200 clean vehicles will be purchased or deployed by the business sector and around 1,869 by individuals. **Charging infrastructure** The charging infrastructure for e-vehicles in Velenje has been progressing slowly. In 2020, there were 16 e-charging stations in total. By 2030, the charging network is expected to expand based on demand, with investments coming primarily from the private sector.
Reference to impact pathway	Field of action	Mobility and transport
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	More EV in public, private sector and households; Enhanced charging network for clean vehicles
Implementation	Responsible bodies/person for implementation	City of Velenje
	Action scale & addressed entities	Sub-regional scale
	Involved stakeholders	• Public passenger transportation: City of Velenje, NOMAGO (bus operator/concessionaire), HSE (hydrogen producer), R&D institutions, Local Energy Agency (coordinator) • Deployment/purchase of low-carbon vehicles: public institutions and companies, private actors
	Comments on implementation – consider mentioning resources, timelines, milestones	The government provides support for fuel-cell electric vehicles with incentives for municipalities. The Eco Fund provides incentives for the low-carbon vehicle purchase.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: 2,959,940 l (30,103 MWh)
	GHG emissions reduction estimate (total) per emission source sector	8,037 t CO_2
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 47 784 620 Costs by CO_2 eq: 5,945 EUR/t CO_2 eq

B-2.2: Individual action outlines		
Action outline	Action name	**2.4 Third development axis**
	Action type	Physical/spatial intervention
	Action description	The City of Velenje faces significant transit challenges due to the absence of a bypass road. Unlike many smaller cities, Velenje has no such infrastructure. On average, 7 700 cars and 1 600 freight vehicles pass through Paka pri Velenju in the north, a key route to the Koroška region and the Austrian border. The western part of the City (Pesje with 9 600 cars and 1260 buses and freight vehicles) also faces heavy transit.). Traffic volume increases further at the southern exit towards the highway, where 15 400 cars and 2 465 buses and freight vehicles pass through Črnova. These high volumes contribute to severe congestions on roads. The express way, currently being constructed in sections, will eventually improve connectivity between the northern and southeastern parts of Slovenia. The new route passing through Velenje is expected to reduce traffic flows along the city centre and shorten travel distances within the city and neighbouring municipalities (see Figure 7). The section Slovenj Gradec–Velenje is 17.5 km long, with app. 12.1 km within the City of Velenje. It is currently under construction. This new connection is expected to shorten the route between the north and south of the municipality by app. 6.8 km, while the new route to the south will be 17 km shorter than the existing one passing through Črnova. To counterbalance the potential increase in car travel due to the new expressway, Velenje plans to implement sustainable mobility initiatives. These will ensure that the introduction of the expressway does not lead to an increase in local car journeys. It will also influence upwards to the national level to accelerate the national mobility shift.
Reference to impact pathway	Field of action	Mobility and transport
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Transit along the city centre reduced; Sections of the 3rd development axis under construction
Implementation	Responsible bodies/person for implementation	Ministry of Infrastructure, DARS – Motorway Company in the Republic of Slovenia
	Action scale & addressed entities	National scale; Municipalities, national authorities
	Involved stakeholders	Municipalities, citizens, civil engineering industry, transport operators, etc.
	Comments on implementation – consider	Under construction.

	mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Diesel: 2,491,972 l (25,343 MWh)
	GHG emissions reduction estimate (total) per emission source sector	6,767 t CO_2
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	

B-2.2: Individual action outlines		
Action outline	Action name	**2.5. Sustainable mobility planning**
	Action type	Other intervention
	Action description	**Sustainable urban mobility planning** Strategic approach to development and implementation of urban mobility policies started with the preparation of the first Sustainable Urban Mobility Strategy in 2017. The process will be iterated in 2024/2025. It will assess the results of the strategy implementation, identify challenges, vision and actions for the next period and a monitoring framework. **Digitalisation** To take informed decisions on sustainable mobility measures, various mobility data will be collected and integrated into a common digital platform. With support of the Elaborator project, network of cameras will be installed to monitor traffic. A city card will be introduced to improve users' experience regarding sustainable mobility service (bike rental, public transport, parking, etc.) **Optimised public passenger transport** Currently, buses run at 15-minute intervals. A proposal for optimisation of the public transport routes will be made, tested and evaluated.
Reference to impact pathway	Field of action	Mobility and transport
	Systemic lever	Governance and policy; Technology and infrastructure
	Outcome (according to module B-1.1)	Mobility management improved; Public passenger transport optimised-reduced travel times; City card introduced; Solutions for optimisation of public transport identified.
Implementation	Responsible bodies/person for implementation	City of Velenje, NOMAGO (concessionaire for public transportation), CORE d.o.o. (platform development)

	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje, NOMAGO (concessionaire for public transportation),
	Comments on implementation – consider mentioning resources, timelines, milestones	SUMP will be prepared by 2025.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 512,267

3. WASTE AND CIRCULAR ECONOMY - Individual action outlines

Table 15: Waste and circular economy – individual action outlines

B-2.2: Individual action outlines		
Action outline	Action name	**3.1 Reducing waste generation**
	Action type	Other intervention
	Action description	The City of Velenje introduced a separate waste collection system 30 years ago. After closing the municipal waste landfill in 2010, mixed municipal waste and biodegradable waste is transported to the Celje Regional Waste Management Centre (RCERO) for treatment and disposal. Waste management regulations aim to achieve a high proportion of municipal waste collected separately, to enable recovery and recycling, and thus reduce landfilling. According to SURS, generated waste per capita increased during the Covid-19 pandemic and remains relatively high (718 kg/inhabitant in 2022 which is above national average 496 kg p.c.). Collected waste has decreased since 2018 from 367 to 341 kg per inhabitant and is below national average (361 kg p.c.). Insufficient waste separation by households remains a challenge; more than 50% of mixed municipal waste contains textiles, bio-waste, and packaging, which should be separated. The action aims at promoting more conscious consumption and increased circularity by: • **Awareness raising campaigns** for citizens (information, awareness raising events and actions, exchanges…)

		• **Green support for local events –** local organisers and suppliers receive financial support of the City Administration for organising local festivals and events in line with the zero-waste principles (e.g. avoiding single-use packaging). • **Promoting innovative circular practices** (sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible) • **Capacity building** at schools • **Improving waste collection and optimisation of routes –** by installing underground waste collection containers and digitalising the system, the number of collection points will decrease in the long term • **Organising public events without single-use plastic packaging** (in place since February 2024).
Reference to impact pathway	Field of action	Waste and circular economy
	Systemic lever	Technology and infrastructure; Learning and capabilities; Democracy and participation; Social innovation
	Outcome (according to module B-1.1)	Optimised waste collection routes; Expanded network of underground waste collection facilities/reduced number of collection points in muti-dwelling residential areas; Increased recycling rates; Increased participation of citizens in circular practices; Reduced waste generation
Implementation	Responsible bodies/person for implementation	City of Velenje, SAŠA incubator, PUP Saubermacher (waste collection concessionaire)
	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje, SAŠA incubator, PUP Saubermacher (waste collection concessionaire), environmental organisations, educational institutions, citizens, businesses, public institutions, organisations providing re-use services, Faculty of Environmental Protection
	Comments on implementation – consider mentioning resources, timelines, milestones	The re-use centre and library of things 'NUCARNICA' have recently been set-up.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	90 MWh pa
	GHG emissions reduction estimate (total) per emission source sector	24 t CO_2 eq

	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 626,291 Costs by CO_2 eq: 26,109 EUR/t CO_2 eq

B-2.2: Individual action outlines		
Action outline	Action name	**3.2 Promoting circular economy**
	Action type	Technical intervention
	Action description	Transition to a circular economy is one of the EU goals to reduce pressure on natural resources and achieve climate neutrality. In a circular economy, the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized. The potential for increasing material efficiency and circular economy in the City of Velenje needs to be analysed first. The City Administration is currently involved in an Interreg CE Europe project HEAT 35, which focuses on the potential of waste heat that could be used for the district heating system. Other potentials to explore are wood biomass, biowaste and production of biobased plastics. Key activities: • Analysis of the ecosystem (industry, agriculture, forestry, wood processing, services) and potential for circularity within the city and nearby locations • Capacity building and awareness of the actors within the ecosystem • Testing of at least one circular solution
Reference to impact pathway	Field of action	Waste and circular economy
	Systemic lever	Technology and infrastructure; Learning and capabilities
	Outcome (according to module B-1.1)	Circular economy solutions among local actors explored, tested and upscaled
Implementation	Responsible bodies/person for implementation	City of Velenje, Faculty of Environmental Protection
	Action scale & addressed entities	Local scale
	Involved stakeholders	PLP/Premogovnik Velenje, bioplastics producers, Faculty of Environmental Protection, City of Velenje, Plastika Skaza
	Comments on implementation – consider mentioning resources, timelines, milestones	The implementation is based on ensuring co-financing. At least one solution shall be in place by 2030.
Impact & cost	Generated renewable energy (if applicable)	/

	Removed/substituted energy, volume, or fuel type	300 MWh pa
	GHG emissions reduction estimate (total) per emission source sector	121 t CO_2 eq
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 1,680 000 Costs by CO_2 eq: 13,937 EUR/t CO_2 eq

4. GREEN INFRASTRUCTURE AND NATURE-BASED SOLUTIONS - Individual action outlines

Table 16: Green infrastructure and NB-solutions – individual action outlines

B-2.2: Individual action outlines		
Action outline	Action name	**4.1 Preserving and upgrading urban green areas**
	Action type	Nature-based solutions, other interventions
	Action description	Urban green areas in the City of Velenje have been carefully planned back when its urban concept was developed. They constitute one of key elements of the quality of living and are becoming increasingly important for strengthening the City's resilience to climate change. Protected urban forest is one of the City's assets. Carbon sinks amounted to 4,802 t CO_2 (baseline 2018). A concessionaire is responsible for the maintenance of 922 covering a total of 557,000 m^2 (grass mowing and maintenance of trees and shrubs). Recent extreme weather events, safety reasons and some infrastructural construction projects contributed to a reduction of the city tree stock, which amounted to over 6,300 trees in 2023. Climate changes require a comprehensive approach to planning and maintenance of trees to preserve the high quality of life in the city. Challenges of preserving green areas have been discussed at several local events, including the international GreenLeaf conference held in Velenje in March 2024. Citizens also participated in several tree-planting actions. The action aims at restoring, preserving and improving green areas by various types of interventions: • Improving and optimising maintenance of urban green areas (e.g. reducing mowing) • Replacing annual plants with perennial ones • Systematic care for the urban tree stock – replacing the reduced tree stock with

		quality saplings (e.g. at least 200 trees will be planted in 2024) • Preparing the urban tree stock management plan • Improving the digitalised system of the urban tree stock • Extending and connecting green corridors, greening the cycling and walking infrastructure (e.g. connecting the city centre with Lake Velenje) • Greening urban community areas (squares, paths, riverbanks, etc.) • Awareness raising campaigns for different target groups (owners of individual houses to plant trees, business entities, managers of multi-dwelling building and others) • Providing incentives for local tourism businesses to green their outdoor areas • Improving local regulatory framework to enhance standards for urban green areas.
Reference to impact pathway	Field of action	Green infrastructure and nature-based solutions
	Systemic lever	Governance and policy; Learning and capabilities
	Outcome (according to module B-1.1)	Green urban areas maintained, and lost tree stock gradually replaced; Green urban areas improved; Management of green urban areas improved
Implementation	Responsible bodies/person for implementation	City of Velenje, Andrejc (concessionaire),
	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje, public utility company KP Velenje, citizens, CSOs,
	Comments on implementation – consider mentioning resources, timelines, milestones	Under implementation: regular maintenance, improved digitalisation of the urban tree stock and management plan supported by the GreenLeaf award.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO2e unit	Total costs: € 4,254,450

B-2.2: Individual action outlines		
Action outline	Action name	**4.2 Promoting urban gardening and locally produced food**
	Action type	Nature-based solutions

	Action description	Urban gardening has traditionally been popular in the city and there remains strong interest among residents, particularly those living in multi-dwelling buildings, to lease a plot from the City. Promotion of locally produced food is thus another area of support affecting short supply chains. The action focuses on: • Maintenance of existing urban garden surfaces and expansion available garden plots for residents to lease (Bevče) • Promoting community gardens and orchards • Supporting local food production and promoting local producers • Organising food festivals introducing local food producers (e.g. *Promenada okusov*/Promenade of Flavours) • Improving the accessibility of local food by renovating the city marketplace.
Reference to impact pathway	Field of action	Green infrastructure and nature-based solutions
	Systemic lever	Democracy and participation; Social innovation
	Outcome (according to module B-1.1)	Urban gardening and local food production programme improved; Urban gardening and local food production programme expanded to include new surfaces
Implementation	Responsible bodies/person for implementation	City of Velenje
	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje, residents, local communities, environmental NGOs, local farmers
	Comments on implementation – consider mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	/
	GHG emissions compensated (natural or technological sinks)	/
	Total costs and costs by CO2e unit	Total costs: € 1,148,718

B-2.2: Individual action outlines		
Action outline	Action name	**4.3 Promoting green urban concepts in new commercial and residential areas**

	Action type	Other interventions
	Action description	Ceasing mining and mining related activities require an ambitious approach to attracting new sustainable businesses and creation of higher value added and green jobs. The City's spatial plan provides for the surfaces intended for the development of new residential and commercial areas which are both vital for the just transition. The development of commercial zone 'Stara vas' (covering an area of 3 hectares) followed a sustainable concept involving an incorporation of green and blue infrastructure (greening of the area), sustainable mobility solutions and smart public lighting. This approach will be further promoted. The city will closely work with businesses and property developers to implement higher standards of quality in green and blue infrastructure development: • Introducing higher standard for green spatial planning (local regulatory framework, green spatial planning) • Awareness raising and promotion of green and blue solutions for new infrastructure developments (property developers, businesses, residents, etc.), • Promotion of sustainable construction projects (use of local wood, green roofs, etc.) • Preventing the emergence of any new heat islands.
Reference to impact pathway	Field of action	Green infrastructure and nature-based solutions
	Systemic lever	Higher standards for green and blue infrastructure in new commercial and residential areas developed/applied
	Outcome (according to module B-1.1)	Enhanced green and blue areas
Implementation	Responsible bodies/person for implementation	City of Velenje
	Action scale & addressed entities	Local
	Involved stakeholders	Property developers, businesses entering new commercial zones, residents of newly built neighbourhoods/districts
	Comments on implementation – consider mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/

	GHG emissions reduction estimate (total) per emission source sector	Indirect impact
	GHG emissions compensated (natural or technological sinks)	Indirect impact
	Total costs and costs by CO2e unit	Total costs: € 297,949

B-2.2: Individual action outlines		
Action outline	Action name	**4.4 Sustainable farming and forestry**
	Action type	Nature-based solutions
	Action description	Forests cover 50% and agricultural land covers 29% of the territory of the City of Velenje. Forest areas (4,187 ha) generate 4,802 t CO_2eq carbon sinks per year (2018). Maintaining a good condition of forests is of vital importance for the City. According to agricultural census in 2020, 355 agricultural holdings cultivated 2,391 ha of arable land and bred 2,353 livestock. Livestock breeding (dairy and meat production) is the predominant activity in the area. Farms filing the annual CAP application are considered active farms. In 2018, there were 298 such farms, while in 2023 there were 296. In 2023, 107 farmers applied for support under the climate environmental scheme and 27 for agricultural-environmental-climate payments. Smaller farms have recently increased vegetable production for the market. A few farms opted for organic farming (20 included in CAP measures in 2023), mainly for organic cattle breeding and rearing of small livestock. In 2018, GHG emissions from livestock breeding amounted to 9,855 t CO_2eq. Regional units of agricultural advisory services and regional units of the Forestry Institute of Slovenia provide advisory support to farmers and assist them in preparing and implementing their participation in different interventions under the CAP Strategic Plan. In view of supporting climate neutral pathways, the following measures are foreseen: • Promoting inclusion of farmers in environmental and climate schemes under the CAP Strategic Plan • Improving knowledge for preparing appropriate feed rations • Awareness raising and financial incentives for providing food supplements that reduce

		emissions from the cattle gastrointestinal tract • Organising local supply chains and promoting products at local markets • Supporting installation of local food vending machines (e.g. for milk and meat products) The City Administration will: • analyse the land use and explore possibilities for converting the land intended for buildings, which has remained inactive for years, back into arable land; • analyse and green the city incentives for agriculture and forestry (e.g. pondering support directed towards sustainable farming).
Reference to impact pathway	Field of action	Green infrastructure and nature-based solutions
	Systemic lever	Learning and capabilities; Institutional/regulatory
	Outcome (according to module B-1.1)	Enhanced awareness of farmers on low-carbon farming practices; Local incentives for sustainable farming; Farmers apply sustainable farming practices
Implementation	Responsible bodies/person for implementation	Forestry institute of Slovenia – Nazarje regional unit; Chamber of Agriculture and Forestry – Celje Agriculture and Forestry Institute, City of Velenje
	Action scale & addressed entities	local
	Involved stakeholders	Farmers, forest owners, consumers, experts,
	Comments on implementation – consider mentioning resources, timelines, milestones	Support for cooperation in CAP SP intervention; ongoing
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	/
	GHG emissions reduction estimate (total) per emission source sector	Not estimated
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 60,000

5. BUILT ENVIRONMENT - Individual action outlines

Table 17: Built environment – individual action outlines Energy renovation of public buildings

B-2.2: Individual action outlines		
Action outline	Action name	**5.1 Energy renovation of public buildings**
	Action type	Physical/spatial interventions
	Action description	Improving energy efficiency in buildings complements the actions targeting the energy systems. Action comprises: • Energy renovation of public buildings owned by the City Administration or its public institutions The 36 public buildings owned by the City of Velenje covers an area of 81,729 m^2. Most of them are for educational purposes. Partial renovations (such as replacement of windows) have been implemented on several buildings. Many buildings in the city centre are classified as cultural heritage, making renovation more challenging. By 2030, efforts will focus on the energy renovation of primary schools and kindergartens, health centre facilities, and sport and culture centres. The City Administration applied for support from EIB ELENA to prepare energy renovation projects for seven buildings. • Energy renovation of public buildings owned by the state (8,143 m^2).
Reference to impact pathway	Field of action	Built environment
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Improved energy performance of buildings – energy renovation projects implemented
Implementation	Responsible bodies/person for implementation	City of Velenje Republic of Slovenia
	Action scale & addressed entities	Local scale
	Involved stakeholders	City of Velenje, Republic of Slovenia, public institutions, EIB
	Comments on implementation – consider mentioning resources, timelines, milestones	Phased approach – preparing the project documentation for several buildings, gradual renovation until 2030.
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Energy savings: 4,192 MWh, Electricity savings: 390 MWh Heat energy savings: 3,802 MWh
	GHG emissions reduction estimate (total) per emission source sector	1,546 t CO_2eq
	GHG emissions compensated (natural or technological sinks)	

	Total costs and costs by CO2e unit	Total costs: € 19,970,351 Costs by CO2eq: € 12,921

B-2.2: Individual action outlines		
Action outline	Action name	**5.2 Energy renovation of residential and commercial buildings**
	Action type	Physical/spatial interventions
	Action description	According to national statistical office, in 2018 there were 12 194 apartments in the City of Velenje. The majority of these apartments (86 %) were built by 1990, with the most intense construction period being between 1972 and 1990, during which 52% of all apartments were built. Many of these buildings do not yet meet current energy efficiency regulations. The action focuses on: • Energy renovation of multi-dwelling buildings The energy renovation of multi-dwelling buildings is also vital in view of the transformation of district heating system and renewable energy needs. There are 193 multi-dwelling buildings in the City with a total area of 430,509 m^2. To date, complete renovations have been implemented on 10 buildings totalling 22 966 m^2. The City has recently formed a working group consisting of the City Administration, public utility company, local energy agency and managers of multi-dwelling buildings to analyse the state of renovation, priority needs and plans of investments. The pace of renovation will be accelerated with an additional 50 buildings expected to be renovated by 2030. • Energy renovation of individual houses There are 8,411 individual houses in the City, covering a total area of 1,438,894 m^2. It is estimated that 25 % will be renovated by 2030. Key measures include renovating facades, replacing windows as well as replacing fossil-fuel boilers with RES (e.g. heat pumps or wood biomass boilers – the latter only in dispersed settlements). However, to speed up the renovation process, expert support will be provided (see also Climate and Energy Office – social innovation). • Energy renovation of business (commercial) buildings. Recently, some companies have already undergone energy renovations of their premises and the trend is expected to continue, especially with support of the Eco Fund or other funding institutions. At least 10 business entities with a

		total area of 1,000 m^2 are included in the estimate.
Reference to impact pathway	Field of action	Built environment
	Systemic lever	Technology and infrastructure
	Outcome (according to module B-1.1)	Improved energy performance of buildings – energy renovation projects implemented Increased participation of citizens in climate actions and schemes
Implementation	Responsible bodies/person for implementation	Private house owners
	Action scale & addressed entities	Local scale
	Involved stakeholders	Private house owners, Eco fund, Local Energy Agency, Climate and Energy Office, managers of multi-dwelling buildings, businesses
	Comments on implementation – consider mentioning resources, timelines, milestones	
Impact & cost	Generated renewable energy (if applicable)	/
	Removed/substituted energy, volume, or fuel type	Reduction in diesel consumption: 1,104,491 litre Reduction in heat energy consumption: 44 581 MWh Increase in electricity consumption: 2,787 MWh Energy savings: 53,027 MWh
	GHG emissions reduction estimate (total) per emission source sector	17 928 t CO_2 e
	GHG emissions compensated (natural or technological sinks)	
	Total costs and costs by CO2e unit	Total costs: € 75,980,725 Costs by CO2 eq: 4,238 EUR/t CO_2 eq

B-2.3: Summary strategy for residual emissions

(Detail where residual emissions stem from, provide a more detailed rationale for ruling out emissions reduction options, and how residual emission will be compensated, if applicable. Include the expected breakdown of natural sinks, permanent sequestration, and offsets.). Only options that durably store carbon captured from the atmosphere should be part of the residual emissions strategy. If non-durable options are included, the strategy should discuss how the city intends dealing with reversals.

According to the GHG inventory 2018, total GHG emissions amount to **171,276 t CO_2eq per year**. In the first preparation of the CCC Action Plan, residual emissions of 20% (33,833 tCO2eq) were considered for the following reasons:

- The remaining implementation period until 2030 is rather short, especially when considering the complexity of specific actions, such as those that target the energy systems.
- The City Administration and key stakeholders have limited financial capacities to accelerate investments and need to prioritise.
- Considering financial and technical capacities of key stakeholders, some actions will need to continue beyond 2030, such as energy renovation of buildings, which by experience is time consuming, in particular in multi-dwelling buildings. This will on the other hand allow integration of new technologies available on the market and thus contribute to increased energy efficiency and renewable energy.

- Certain solutions contributing to generating carbon sinks take more time to implement and to become effective; green infrastructure and possible increase of green areas need to be planned; newly planted trees take time to grow and contribute more significantly to carbon sequestration.
- Some actions have lower priority considering their contribution to reducing emissions, such as small district heating systems using natural gas.
- A rather conservative estimates were made regarding specific actions.

Residual emissions by 2030 will stem from the following sectors:

- **Buildings**: Energy renovation of buildings is a process that will not be fully completed by 2030. It requires substantial investments, this presenting a challenge for both private and public owners. In addition, the city centre is a designated historical monument with certain limitations concerning the energy renovations of cultural heritage buildings.
  Strategy: Further cooperation of the City Administration, public utility company and multi-dwelling managers on implementing energy renovation of the remaining building stock; coordinated approach of the Climate and Energy Office to support energy renovation of the individual houses.
- **Mobility and transport**: The pace of replacing fossil-fuel vehicles is expected to be accelerated, however it will still take time. The socio-economic transition of the City is expected to create more green and high value jobs to reduce daily commuting to bigger employment centres.
- *Strategy*: Further promotion of sustainable mobility within the City in cooperation with public institutions and enterprises will continue (e.g. expanding the bike rental stations, bike parking). The socio-economic transition of the City is expected to create more green and high value jobs to reduce daily commuting to bigger employment centres outside the city boundaries.
- **Waste**: Although much has already been done in relation to waste treatment, some further reductions are still expected due to changes in citizens' behaviour and optimised waste collection routes.
  Strategy: Continuing with awareness raising activities, introducing clean vehicles for waste collection, optimising transport routes, increasing competences and extending circular economy solutions.
- **IPPU**: Some industries require significant investments to improve energy efficiency and reduce energy use for the processes or services, while for some technological solutions are not yet economically viable. It also needs to be pointed out that there are no ETS or other significant energy consuming industries operating in the city.
  Strategy: Promoting (international) partnerships to test new technologies, developing new products and services by local businesses that consider sustainable aspects important.
- **Energy systems**: Energy systems are expected to contribute significantly to reducing GHG emissions through deployment of renewable energy for the district heating system. The City also has a small natural gas-fired district heating system with app. 170 users. The public utility company is responsible for the network operation.
  Strategy: Natural gas is expected to be replaced by a clean renewable source in the future. Also, in terms of national renewable energy targets, the share of renewable energy at national level is expected to increase by 2030 and beyond (having in mind the closure of the Velenje Coal Mine and of the Šoštanj TPP).
- **AFOLU and green infrastructure**: It is expected that agricultural land will continue to be maintained and that more farmers will enter the CAP climate-environmental measures.
  Strategy: Further cooperation between stakeholders to promote CAP climate measures. Changes in the IPCC methodologies are expected to result in lower impacts of the agriculture on GHG emissions. The City Administration will analyse possibilities to improve the existing green areas (e.g. additional tree planting and connecting the green systems, promoting vertical greening, etc.), expanding green areas, and will further ensure maintenance of forests.

The City Administration will strive to reduce GHG emissions to minimum. An update of the GHG inventory and a re-view of the CCC Action Plan will be made in 2026/27. This will help identify residual emissions that are difficult or impossible to eliminate and to define solutions for their offsetting, while considering new technologies or options for increasing carbon sinks within the city boundaries, and possibly learning from good practices of other cities.

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

Table 18: Impact pathways – overview of indicators

B-3.1: Impact Pathways							
Outcomes/impacts addressed	Action/ project	**Indicator No.** (unique identifier)	Indicator name		Target values		
					2025	2027	2030
(List early changes/ late outcomes and impacts to be evaluated by indicator)	(List action/ pilot project if applicable)	(Indicate unique identifier)	(Insert indicator name)		(List one value per indicator)	(List one value per indicator)	(List one value per indicator)
ENERGY							
Energy efficient and decarbonised district heating system	1.1	I-1	Heat energy in district heating system generated from RES MWh, %				216,199 90%
Energy savings in services and processes	1.2	I-2	Reduced electricity consumption in public services and manufacturing (MWh)		3,653		5,485
Renewable energy production	1.3	I-3	Local RES energy production (MWh)		9,690	10,700	46,103
MOBILITY & TRANSPORT							
Sustainable mobility infrastructure enhanced	2.1, 2.2	I-4	Length of urban cycling network, km		30	35	40
		I-5	Number of BICY bike rental stations		19	22	28
More sustainable commuting (walking, cycling, public transport)		I-6	7.1 Use of the BICY system - rentals		10,000	20,000	35,000
			7.2 Use of the BICY system - users		1,200	1,500	2,000
		I-7	Use of public transportation, %		5%	10%	20%
Increased number of clean vehicles	2.3	I-8	Use of clean vehicles in local public services				50
		I-9	Use of clean vehicles by private owners		150	800	2,069
Public passenger transport decarbonised		I-10	Green hydrogen or e-powered vehicles in				6

			public transportation				
Transit through the city centre reduced	2.4	I-11	Reduced transit through the city (%)				- 80%
WASTE & CIRCULAR ECONOMY							
Expanded network of underground waste collection facilities	3.1; 3.2	I-12	Number of underground waste collection points		8	12	18
Reduced waste generation; Improved waste separation		I-13	Share of inadequately disposed fractions in mixed municipal waste, %		45	40	30
Circular economy solutions involving local actors		I-14	Circular solutions piloted		1	2	3
GREEN INFRASTRUCTURE AND NATURE-BASED SOLUTIONS							
Enhanced management of green urban areas	4.1, 4.3	I-15	Green urban areas (ha)		55.7 enhanced	55.7 enhanced	55.7 enhanced
Urban tree stock	4.1, 4.3	I-16	Number of trees		6,500	⇗	⇗
Sustainable farming	4.2	I-17	Farmers included in climate/environment schemes		135 (SOPO, KOPOP)	⇗	⇗
BUILT ENVIRONMENT							
Enhanced energy performance of buildings	5.1	I-18	Share of public buildings renovated				70%
	5.2	I-19	Share of residential buildings renovated				30%
		I-20	Share of commercial buildings renovated				20%
REDUCED GHG EMISSIONS							
Emission reduction	All actions	I-21	GHG emissions, t CO_2eq				137,443
OTHER IMPACT/CO-BENEFITS INDICATORS							
Improved quality of life	All actions	I-22	Quality of life – behavioural change		tbd	⇗	⇗
Better air quality	1.1,1.2, 2.1,2.3, 2.4	I-23	PM10 concentration, # days		0	0	0
Green jobs	1.1, 3.1, 3.2	I-24	Number of green jobs created		5	20	100
Liveability, attractiveness	4.1, 4.2, 4.3	I-25	Quality of green spaces		tbd	⇗	⇗

and aesthetics of built environment							

Table 19: Indicators Metadata

B-3.2: Indicator Metadata	
Indicator Name	**I1 – Heat energy in the district heating system generated from RES**
Indicator Unit	MWh
Definition	Heat energy used by the district heating system produced from RES
Calculation	SUM of heat produced from the combination of RES = CHP + solar thermal + heat pump + HV electric boiler
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Buildings, IPPU
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?	Energy systems: District heating system upgraded and EE increased. District heating system operates using a combination of RES. IMPACT: Increased energy self-sufficiency. Green jobs. The City builds capacities to source and manage public & private capital.
Is the indicator captured by the existing CDP/SCIS/Covenant of Mayors platforms?	-
Data requirements	
Expected data source	District heating system operator KP Velenje
Is the data source local or regional/national?	Local
Expected availability	yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Annual report
Other indicator systems using this indicator	

B-3.2: Indicator Metadata	
Indicator Name	**I2 – Reduction of electricity consumption in public services and manufacturing**
Indicator Unit	MWh
Definition	Savings made in electricity consumption in the selected public services of the city-owned companies and public institutes in the following activities: E- water supply, sewerage, waste management and remediation activities O-public administration and defence P- Education Q-Human health and social work activities

	And selected entities in manufacturing, trade, civil engineering, and others operating within the city administrative boundaries.
Calculation	SUM= savings in energy consumption by selected public entities
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Buildings, Waste, IPPU
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
If yes, which co-benefit does it measure?	Specify co-benefit
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 energy efficiency in services and processes; savings in energy consumption in services and processes; smart public lighting solutions in place; IMPACT: cost savings, better air quality
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	KSSENA, Local Energy Agency, Elektro Celje, own survey
Is the data source local or regional/national?	local
Expected availability	yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	LEC reports – energy monitoring for public buildings, City Administration survey; Electro Celje database
Other indicator systems using this indicator	

B-3.2: Indicator Metadata	
Indicator Name	**I-3 Local RES energy production**
Indicator Unit	MWh
Definition	Renewable energy produced within the city boundaries.
Calculation	SUM of electricity produced annually = solar energy (MWh) + hydro (MWh) + other RES sources
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	IPPU, BUILDINGS
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Increased energy self-sufficiency
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 capacities for renewable energy production IMPACT: increased energy self-sufficiency, green jobs.

Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Electricity power distributer Elektro Celje d.d.
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Databases of the electricity power distributer
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I4- Length of urban cycling network**
Indicator Unit	km
Definition	Length of cycling lanes within the administrative boundaries of the City of Velenje
Calculation	Total length of all cycling lanes
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
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 - Sustainable mobility infrastructure enhanced IMPACT: behaviour change towards low carbon lifestyle
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje, cadastre of cycling lanes
Is the data source local or regional/national?	local
Expected availability	yes
Suggested collection interval	every 3 years
References	
Deliverables describing the indicator	City of Velenje database
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I5- Number of BICY bike rental stations**
Indicator Unit	number
Definition	Network of public bike rental stations set up in the administrative boundaries of the City of Velenje
Calculation	Total number of rental stations
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	

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 - Sustainable mobility infrastructure enhanced IMPACT: behaviour change towards low carbon lifestyle
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje
Is the data source local or regional/national?	local
Expected availability	yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	City of Velenje database
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I6- Use of the BICY system**
Indicator Unit	Number
Definition	6.1. Number of rentals of the BICY system within the boundaries of the City of Velenje 6.2. Number of users of the BICY system
Calculation	6.1 – Total number of users 6.2 – Total number of users
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	TRANSPORT
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 – more commuters practice sustainable mobility IMPACT: behaviour change towards low carbon lifestyle
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Public utility company KP Velenje
Is the data source local or regional/national?	local
Expected availability	yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Database (Velenje digital platform)
Other indicator systems using this indicator	-
B-3.2: Indicator Metadata	
Indicator Name	**I7- Use of public transportation**

Indicator Unit	Number of passengers per month
Definition	Number of passengers using LOKALC public transportation – all routes
Calculation	Total number of passengers/month
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	TRANSPORT
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 – more commuters practice sustainable mobility IMPACT: behaviour change towards low carbon lifestyle
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	NOMAGO (transport concessionaire)
Is the data source local or regional/national?	local
Expected availability	Yes – city mobility card
Suggested collection interval	annually
References	
Deliverables describing the indicator	Database (Velenje digital platform)
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I8- Use of clean vehicles by local public services**
Indicator Unit	Number
Definition	Number of clean vehicles, of all types, used by the City of Velenje and its public companies and institutions (City Administration, public utility company KP Velenje, educational institutions, Kamerat service for the elderly, cultural and other institutions)
Calculation	Total number of EV or hydrogen-powered vehicles used
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Mobility and transport
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
If yes, which co-benefit does it measure?	Less noise pollution; better air quality
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Mobility and transport – more electricity or hydrogen powered vehicles IMPACT: behaviour change towards low carbon lifestyle; less noise pollution, better air quality
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no

Data requirements	
Expected data source	City of Velenje Administration/Local Energy Agency
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Database (Velenje digital platform)
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I9- Use of clean vehicles by private owners**
Indicator Unit	number
Definition	Number of clean vehicles, of all types, used by private business entities and residents
Calculation	Total number of EV or hydrogen-powered vehicles used/all vehicles in use by the same entitles
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Mobility and transport
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
If yes, which co-benefit does it measure?	Less noise pollution; better air quality
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Mobility and transport – more electricity or hydrogen powered vehicles IMPACT: behaviour change towards low carbon lifestyle; less noise pollution, better air quality
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Administrative Unit, ECO Fund database, own surveys (businesses)
Is the data source local or regional/national?	Local, national
Expected availability	Yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Annual report
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I10- Green hydrogen-powered or e-vehicles used in public transportation**
Indicator Unit	Number
Definition	Number of hydrogen-powered or EV vehicles used in public transportation (LOKALC fleet).
Calculation	Total number of clean vehicles used
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Mobility and transport

Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Less noise; better air quality
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Mobility and transport – Public passenger transport decarbonised IMPACT: improved image of public transport; less noise pollution; better air quality
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration and/or NOMAGO concessionaire
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Database (Velenje digital platform)
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I11- Average daily traffic on main roads (%)**
Indicator Unit	percentage
Definition	Average daily traffic, of all types of vehicles, on selected state roads. Traffic counter: 315 – Paka pri Velenju, 132 – Črnova, 166 – Pesje
Calculation	% of reduction = annual average number read from counters 1 to 3 (both directions, all types of vehicles) of year n/annual average in 2018 x 100
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Mobility and transport
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Transit along the city centre 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?	Mobility and transport – Transit through the city reduced. IMPACT: less traffic congestion; less noise pollution; better air quality; improved road safety
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	annually
References	
Deliverables describing the indicator	Database (Velenje digital platform)
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I12- Underground waste collection points**
Indicator Unit	number
Definition	Number of arranged underground waste collection points within the administrative boundaries of the City of Velenje
Calculation	Total number of collection points
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it measure?	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: Expanded network of underground waste collection points/reduced number of total collection points in multi-dwelling buildings Improved waste collection routes IMPACT: behaviour change towards low carbon lifestyle
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	PUP Saubermacher (concessionaire)/City of Velenje
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	annually
References	
Deliverables describing the indicator	Annual report
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I13- Share of inadequately disposed fractions in mixed municipal waste, %**
Indicator Unit	percentage
Definition	Share of other fractions disposed in mixed municipal waste containers (e.g. textile, biowaste, packaging, plastics) identified on the basis of sorting analysis.
Calculation	Share = (% of biowaste + % plastics + % packaging + % of textile)/100% waste analysed Reduction compared to 2019–2022 results.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Waste and circular economy
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Behaviour changes towards low carbon lifestyle
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 – Improved waste separation, increased recycling rates IMPACT: cost savings
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	PUP Saubermacher (concessionaire)
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Annually
References	
Deliverables describing the indicator	Waste Sorting analysis
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I14- Circular solutions piloted**
Indicator Unit	number
Definition	Pilot circular economy solutions with involvement of local actors developed, tested or piloted.
Calculation	Total number of solutions
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	No
If yes, which emission source sectors does it measure?	Waste and circular economy
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	green jobs, 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?	Waste and circular economy – circular economy solutions among local actors explored, circular economy solutions among local actors tested and upscaled. Impact: cost savings, green jobs
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 3 years
References	
Deliverables describing the indicator	City of Velenje Administration database
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I15 - Green urban areas**
Indicator Unit	ha
Definition	Green urban areas (urban parks, meadows, green connections, playgrounds and other green areas, urban orchards etc).
Calculation	Total surface in ha
Indicator Context	

Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes – carbon sinks
If yes, which emission source sectors does it measure?	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?	Liveability; attractiveness and aesthetics of build environment; preserved urban biodiversity; enhanced sense of belonging, social wellbeing & inclusion; locally produced food
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: enhanced management of green urban areas, urban gardening programme expanded
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 3 years
References	
Deliverables describing the indicator	Spatial Plan tool
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I16 – Urban tree stock**
Indicator Unit	Number
Definition	Number of trees in the City
Calculation	Total number of trees
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes – carbon sinks
If yes, which emission source sectors does it measure?	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?	Liveability; attractiveness and aesthetics of build environment; preserved urban biodiversity; enhanced sense of belonging, social wellbeing & inclusion; locally produced food
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: enhanced management of green urban areas; urban gardening programme expanded
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 3 years
References	

Deliverables describing the indicator	Digital tool – tree cadastre
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I17 – Farmers included in climate/environment schemes**
Indicator Unit	number
Definition	Farms that participate in the CAP SP 2021–2027 climate related interventions and are the recipients of municipal support for sustainable food production
Calculation	Total number of farms
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
If yes, which co-benefit does it measure?	Social wellbeing and inclusion; locally produced food
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: farmers apply sustainable farming practices
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	ARSKTRP/Agriculture and Forestry Institute; City of Velenje Administration
Is the data source local or regional/national?	National and local
Expected availability	Yes
Suggested collection interval	
References	
Deliverables describing the indicator	Database analytics
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I18 – Share of public buildings renovated**
Indicator Unit	percentage
Definition	Share of energy-renovated public service buildings owned by the City of Velenje.
Calculation	Total share. Number of renovated buildings per year/all buildings. Baseline 2018:
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Energy cost savings; improved quality of life
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 renovation of public buildings

Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	
References	
Deliverables describing the indicator	Database analytics
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I19 – Share of multi-dwelling buildings renovated**
Indicator Unit	percentage
Definition	Share of energy-renovated multi-dwelling buildings. The current multi-dwelling stock is 193.
Calculation	Total share. Number of renovated buildings per year/all buildings.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Energy cost savings; improved quality of life
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 renovation of multi-dwelling buildings
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje Administration, managers of multi-dwelling buildings
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 2 years
References	
Deliverables describing the indicator	Database analytics
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I20 – Share of individual houses renovated**
Indicator Unit	Number:
Definition	Share of energy-renovated individual houses.
Calculation	Total share: number of renovated buildings per year/all buildings
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes

If yes, which emission source sectors does it measure?	Built environment
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Energy cost savings; improved quality of life
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 renovation of public buildings
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Eco Fund, Climate and Energy Office
Is the data source local or regional/national?	National, local
Expected availability	Yes
Suggested collection interval	Every 3 years
References	
Deliverables describing the indicator	Database analytics, data collected by Energy and Climate Office
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I21 – GHG emissions reduction**
Indicator Unit	t CO2eq
Definition	Reduced GHG emissions in sectors: buildings, mobility &transport, waste, AFOLU, IPPU.
Calculation	GHG emissions calculated based on the methodology presented in the Action Plan. Baseline year: 2018.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	buildings, mobility &transport, waste, AFOLU, IPPU
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?	1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 5.1, 5.2; minor contribution expected from 3.1, 3.2,
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Different data providers
Is the data source local or regional/national?	National and local
Expected availability	Yes
Suggested collection interval	Every 3 years
References	
Deliverables describing the indicator	Database analytics
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I22 – Quality of life – behavioural change**
Indicator Unit	Average score
Definition	The City of Velenje will conduct periodic surveys among citizens on different aspects of the quality of living (overall satisfactions, quality of public services, housing, green areas, local food supply, citizens' behavioural change towards low economy).
Calculation	Calculation of the mean values on the Lickert scale of the overall satisfaction and of the specific elements of the quality of life.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Quality of life; behavioural and lifestyle shift; social wellbeing
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 actions
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Survey among citizens
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 4 years
References	
Deliverables describing the indicator	Report on survey results
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I23 – Air quality**
Indicator Unit	Number of exceedances of the PM10 daily limit value in a year
Definition	The City of Velenje has established a monitoring system based on its installed monitoring sites. It collects data on PM10. The indicator will measure exceedances of daily limit values for Velenje.
Calculation	Total number of exceedances. Counting the number of days with exceedances in a year.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Quality of air
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 system; IPPU; mobility and transport; buildings
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje, https://okolje.velenje.si
Is the data source local or regional/national?	local
Expected availability	daily
Suggested collection interval	annually
References	
Deliverables describing the indicator	Reports
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I24 – Green jobs**
Indicator Unit	Number of green jobs created
Definition	Number of jobs created in the sectors linked with the CCC Action Plan: energy systems, circular economy, green infrastructure
Calculation	Total number of green jobs.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Green jobs
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Energy system; IPPU; mobility and transport, buildings; green infrastructure and NBS
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	City of Velenje
Is the data source local or regional/national?	local
Expected availability	annually
Suggested collection interval	annually
References	
Deliverables describing the indicator	Reports
Other indicator systems using this indicator	-

B-3.2: Indicator Metadata	
Indicator Name	**I25 – Quality of green space**
Indicator Unit	Average score
Definition	The City of Velenje will conduct periodic survey among its citizens on different aspects of the quality of living. A set of questions address the quality of green areas.

Calculation	Calculation of the mean values on the Lickert scale of the overall satisfaction and of the specific elements of the quality of life.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
If yes, which emission source sectors does it measure?	
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Liveability; attractiveness and aesthetics of built environment
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	4.1, 4.2, 4.3
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Survey conducted among citizens
Is the data source local or regional/national?	local
Expected availability	Yes
Suggested collection interval	Every 4 years
References	
Deliverables describing the indicator	Survey results report
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 in 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 transition to climate neutrality requires technical and social shift. The City of Velenje has in recent years strongly engaged in the process of defining pathways for the just transition of the SAŠA coal region with relevant stakeholders at different levels. Outcomes of these processes and continuation of stakeholder involvement within the Mission requires aligning and adjusting the governance structures to create synergies within the City Administration and in cooperation with external stakeholders.

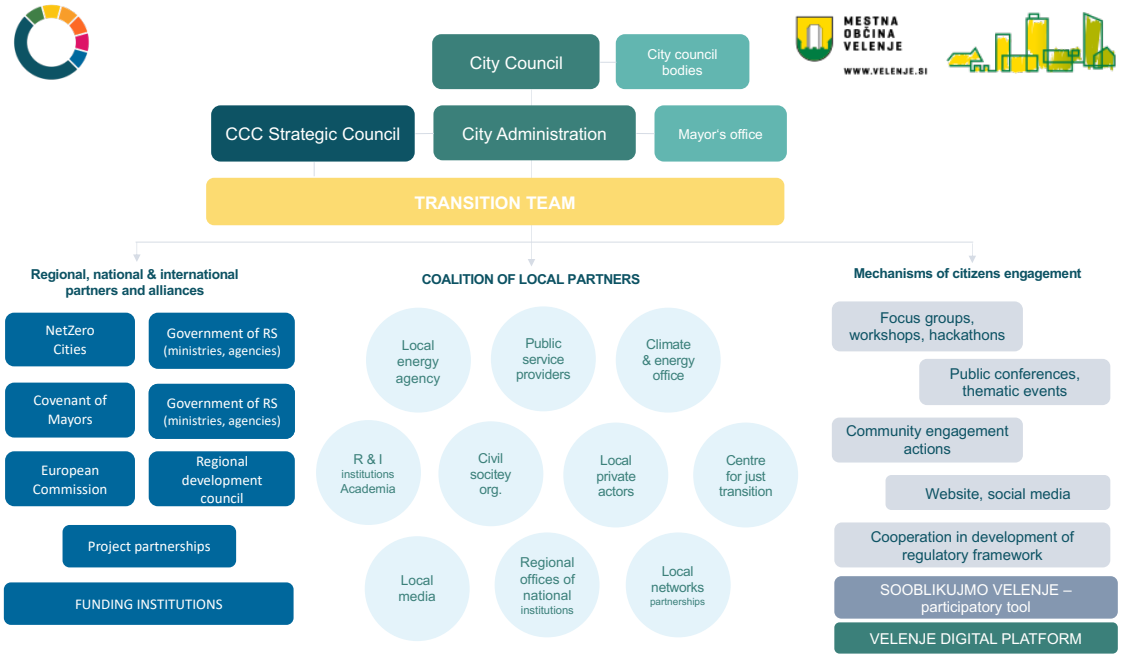


Figure 14: Participatory governance model

The **participatory governance model structure** is set at a strategic and operational/implementation level:

Strategic level:

- **The City Council** is the highest decision-making body, adopting final decisions on all matters within the competence of the City. Among other things, the City Council within its competence adopts local spatial and other development plans as well as the City's budget and accounts. It also supervises the work of the Mayor and the City Administration. It will be informed on the CCC process and progress.

- **The CCC Strategic Council** (currently in constitution) is appointed by the Mayor. It will involve relevant stakeholders from main fields of actions to be addressed by the CCC and from different sectors (administration, business, academia, civil society, R&I…). The Strategic Council will provide guidance and strategic support in implementing, monitoring and potentially amending the CCC.

Operational level:

- **The City Administration** carries out administrative, professional, facilitation and development tasks, as well as tasks related to the provision of public services under the municipality's responsibility in accordance with the Local Governance Act.

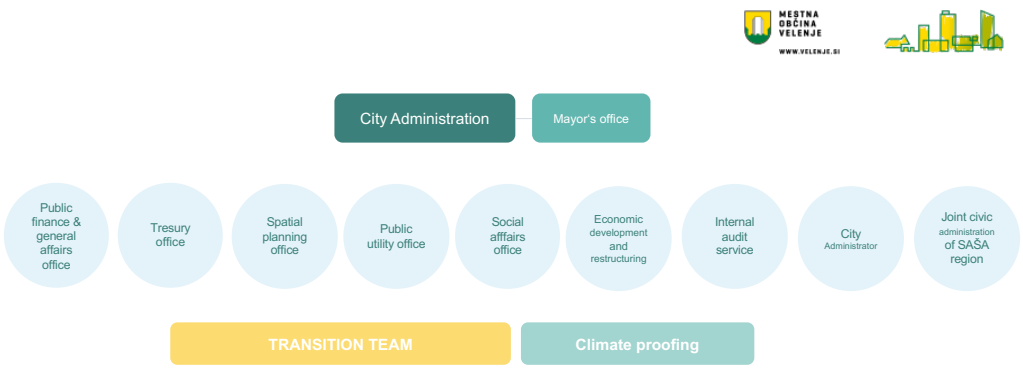


Figure 15: Administrative structure at operation level

- **The Transition Team** is the main structure at an operational level.
  It consists of the representatives of the City Administration offices covering the CCC sectors and of the representatives of external members, of which the Local Energy Agency and public utility company are most important.
  Key roles: being a change agent in the local government – mobiliser and activator within the City Administration and an intermediary for involvement of local actors.
  The transition team is structured around key fields of actions: energy systems, buildings, transport and mobility, green infrastructure & nature-based solutions.

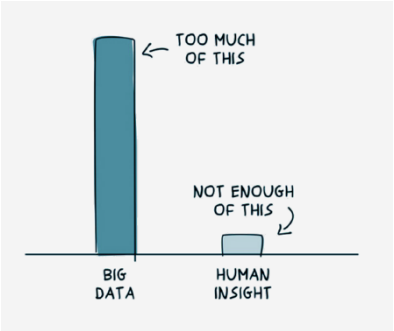


Figure source: NetZeroCities

In the design of the CCC and its implementation, the TT facilitates and assists co-creation with different partners at local, regional, national and international level and supports learning within and outside the ecosystem.

To create synergies and break down the silo mentality within the administration, specific attention will be made to creation of ownership over the CCC and to increase the climate neutrality aspects in the actions and projects of the city (see C-1.2).

- **Stakeholder engagement mechanisms and tools**
  The City of Velenje has good experience in actively engaging stakeholders through various methods and tools.

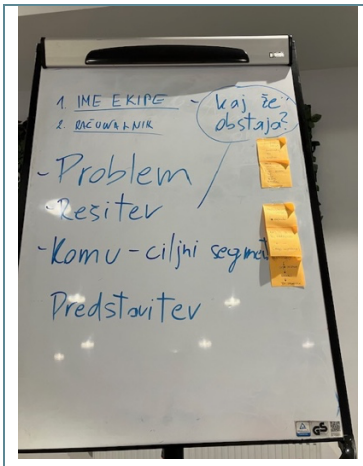


Figure 16: Engagement of youth – hackathon in Velenje

Figure 17: Consultation with key business sector representatives

In the design of the CCC Action Plan, the following **methods of engagement and co-creation** were used (for more details see Figure 3 and Annex 6.1):

- → focus groups and technical meetings (active involvement of public service providers to support relevant data collection, identification of challenges, plans and co-creation of possible pathways)
- → open events: conference on the green infrastructure (initiating the GreenLeaf activities)
- → consultation events with key business sector representatives
- → hackathon (young people developed communication and awareness raising solutions for engaging citizens in sustainable climate friendly practices)
- → community events (e.g. planting 1,000 trees in the city urban forest and green areas to restore the windthrow damage)
- → individual meetings with key stakeholders.

The city already uses several **communication tools** to inform and interact with citizens:

- → Website and social media
- → Communication channels of public utility service company and concessionaires
- → Portal Sooblikujmo Velenje (participatory online tool aiming at participation of citizens in creating the life in the city and municipality)
- → Citizens can address the questions to the Mayor using a specific e-mail
- → Local media publications

The CCC preparation process identified needs for more systemic and structured approach to understanding the systems, systemic barriers and opportunities. Specific interventions are presented in C-1.2.

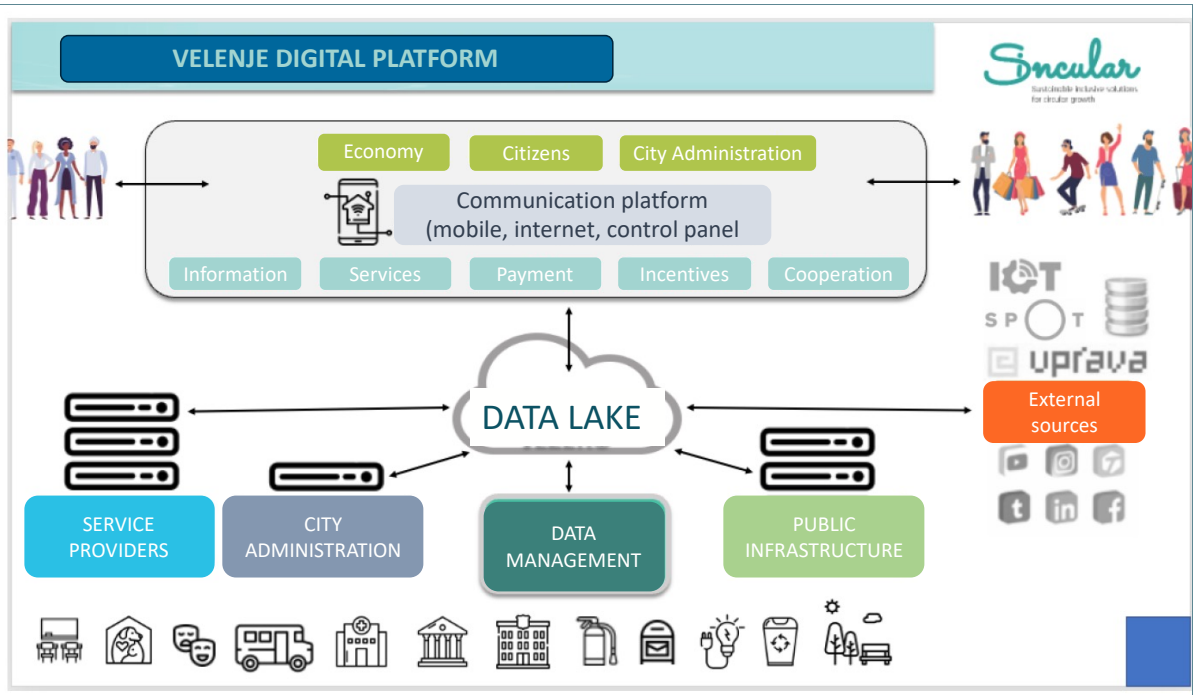


Figure 18: Velenje digital platform; source: Digitalisation strategy of the City of Velenje.

Table 20: 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	Leadership and stakeholders involved	Enabling impact	Co-benefits
Smart city and Community Velenje	Gradual development of a comprehensive digital platform of the City. The platform will become a central hub for accessing data of the City Administration, as well as of public and other service providers. Its main parts comprise: → data lake with the data management system → communication platform. Pillars of the platform: → mobility, traffic, public transport → energy and water supply → waste management and wastewater management → environment, land, buildings → events → city administration services and other institutions of public interest.	Barriers: → Dispersed or incomplete information does not support informed decision making. → Stakeholder engagement and cross-sectoral co-creation and innovation underused. Opportunities: → Setting up an integrated digital information platform for the key climate neutrality related systems	Leader: City of Velenje Administration Stakeholders (digital coalitions): → Public sector institutions → Economic sector → R&D → NGOs	→ Improved evidence-based decisions → Improved operation of systems and services → Improved access to public services → Unified management of buildings, traffic systems, public lighting, mobility → The platform includes a city card and paying system. → Improved transparency of processes and activities (e.g. public procurement, citizen consultations) → Effective monitoring, evaluation and learning.	→ Improved quality of services for the citizens and improved user experience → Change in the city organisational practice → Cost savings → Improved capacities
City climate mainstreaming	The purpose of the intervention is to ensure climate proofing in the city actions and processes. The intervention includes capacity building of the city administration staff and strengthened integration of climate relevant aspects in taking decisions on key city investments and activities. The exact governance form is yet to be defined (e.g. extended role of the TT, thematic working groups, designated office...)	Barriers: → Dispersed or incomplete information does not support informed decision taking. → City Administration capacity to manage strategic transition processes is limited Opportunities: → Capacity building activities for local administration and stakeholders → Establishing regular joint coordination of key departments related to	Leader: City of Velenje Administration Stakeholders: → municipal offices → project promoters → experts → other → decision makers	→ Strengthened climate neutrality aspects in decision making (e.g. examination of impacts on emissions, synergies with other activities taking place) → Improved awareness of the City Administration, public service providers and other investors on climate impacts of investments → Promotion of cooperation and increased uptake of climate friendly solutions	→ Change in the city organisational practice → Increased cooperation culture → Improved capacities

C.1.2: Relations between governance innovations, systems, and impact pathways					
Intervention name	Description	Systemic barriers/opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
		climate actions through a Transition Team			
Regulatory framework	In line with the above intent to strengthen climate proofing or climate mainstreaming in the city activities and investments, the City will analyse its regulatory framework to support this activity. Key identified areas relate to: → Examining the possibilities of setting higher standards in the development of new commercial and residential areas (promote green and blue infrastructure) → Improve management of green areas (management plan) → Further greening of the city incentives and grants	Barriers: → City Administration capacity to manage strategic transition processes is limited. Opportunities: → regulations/incentives at local level to better support climate neutrality paths and actions → advocacy for integration of relevant incentives in national regulatory framework	Leader: City of Velenje Administration Stakeholders: → Citizens → SMEs → Farmers → Property developers, investors	→ Improved regulatory framework strengthens climate relevant actions → Increased awareness of stakeholders and integration of climate friendly practices in their activities	→ City strategically mobilises public resources to attract private capital → Increased contribution of citizens to climate neutrality

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[2]. It also includes:

Table 21: 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	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)	(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 the impact listed in Module B-1)
Climate and energy office	Establishing the Climate and Energy Office is a collective step of the City's key actors to join and upgrade awareness raising, information, capacity building and advisory services for citizens at one place. The main areas to be addressed: → Energy use → Sustainable mobility → Waste → Green products.	Barriers: → City Administration capacity to manage strategic transition processes is limited. → Stakeholder engagement and cross-sectoral co-creation and innovation processes underused. → Citizens' awareness on the needs and opportunities for making changes in own behaviour and practices rather low, not followed by actions. Opportunities: → Promoting social innovation and participation → Greater engagement of youth in co-creation of transition pathways and promoting climate neutrality practices → Strengthening the one stop shop for households, incentives for the citizens to engage in changing habits (e.g. climate energy office supported by the Up-Scale project)	Leader: City of Velenje Administration Stakeholders/local coalition: → Local/regional actors in the addressed areas (KSSENA, BORZEN, CPP, KP VELENJE, NUCARNICA, PUP SAUBERMACHER, CONSTRUCTION COMPANIES, MANAGERS OF BUILDINGS, COMPANIES PROVIDING GREEN PRODUCTS …)	→ Provision of relevant, reliable and user-friendly service to citizens regarding climate relevant systems → Increased understanding of the need for collective action → Empowerment of citizens to take part in climate action	→ City strategically mobilises public resources to attract private capital → Increased contribution of citizens to climate neutrality → Increased cooperation culture → Behavioural and lifestyle shift → Cost savings → Social wellbeing and inclusion

[2] 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	Leadership and stakeholders involved	Enabling impact	Co-benefits
Re-use and shared use	The purpose of the intervention is to promote sustainable practices among citizens, public, private and civil society actors. It primarily addresses waste/circularity and mobility. Its main elements are: → Promotion of the recently established re-use centre → Promoting shared economy (Library of Things (Nucarnica), public car sharing)	Barriers: → Stakeholder engagement and cross-sectoral co-creation and innovation processes underused. → Citizens' awareness on the needs and opportunities for making changes in own behaviour and practices rather low, not followed by actions Opportunities: → Promoting social innovation and participation	Leader: Incubator SAŠA City of Velenje Administration (car sharing)	→ Empowerment of citizens, NGOs, businesses and public actors to apply circular solutions. → Increased life cycles of products and materials → Rationale use of resources → Increased sense of society and locality, new social relations	→ Increased contribution of citizens to climate neutrality → Increased cooperation culture → Behavioural and lifestyle shift → Cost savings

C-2.2: Description of social innovation interventions

Climate and Energy Office

Path to climate neutrality and just transition requires a collective effort of many stakeholders. For the City of Velenje, involvement of citizens is of utmost importance. One of prioritised needs of several stakeholders who provide services to citizens is to increase their understanding of possible climate neutrality pathways and how they can contribute as individuals (e.g. with consumer decisions, using sustainable mobility options, efficient use of energy, etc.) Access to different knowledge and advice will be offered in one common place operating under regular working hours. The location of the Office will be in a recently renovated building in the old town of Velenje. Its setting-up is supported by the UP-SCALE project.

The office will primarily address the following **challenges/topics**:

- → Energy consumption (reduction of thermal energy consumption, energy renovation of buildings, use of renewable energy sources and promotion of energy self-sufficiency),
- → Sustainable mobility (changing mobility habits for more sustainable travel around the city)
- → Waste (improved waste separation, promotion of circularity - extending the life cycle of products),
- → Green products (presenting products and services that can contribute to the green transformation of the City).

Main end-beneficiaries:

- → Owners and tenants of multi-dwelling residential buildings and individual residential buildings
- → Young families
- → Elderly residents in multi-dwelling buildings
- → Children and young people (nursery, primary school, and secondary school population)

Main providers of support:

- → Professional public (various organisations, solution providers, commercial building owners, experts, and opinion leaders in the field of energy and environmental protection) providing support and advice.

The concept of the climate and energy office is to provide **one-stop-shop,** bringing together different knowledge and expertise in a coordinated manner and ensuring reliable and professional support to different target groups. Variety of methods will be used: information, advice, workshops, lectures. Support will be primarily available in the centre, for the elderly home visits will also be possible.

Figure 19: Climate and energy office concept

The organisation of the Climate and Energy Office is of particular importance for accessing marginalised groups (e.g. the elderly, low-income families) who have less knowledge and thus seek hands-on advice and guidance regarding sustainable practices and possible identification of funding sources to support their climate neutral investments.

Future scaling-up is directed towards introducing activities to new target groups and new sectors by expanding the network of partners as well as organising activities for seeking collective solutions or organising collective awareness raising actions. The vision is for the Climate and Energy Office to become a central hub for citizens' climate and energy matters. All related consultation services provided by different organisations and support providers will be organised here (e.g. Eco Fund, Borzen).

Re-use and shared use

Re-use centre
Overall opportunities for improved material efficiency in Velenje have not yet been exploited. The aim of the re-use centre is to raise environmental and climate awareness, save natural resources and energy and reduce waste.

The SAŠA incubator recently started a Re-use centre, which despite its small-scale operations has an important awareness raising role. Residents of the Šaleška valley can bring household items such as furniture, household appliances, crockery, ceramics, sports equipment, books, children's equipment, etc. to the Reuse Centre Velenje. The items are repaired, refurbished and sold to new users at a good price. This diverts the flow of potential waste from collection centres back into use.

The offer has recently been complemented with a library of things 'NUCARNICA'. Donated items that usually are needed from time to time (e.g. cleaning, household appliances, tools, sport and travel gear, fun etc.) are available to citizens for a small fee. In the formation of the library, local enterprises donated different appliances. Multiple benefits include savings in the family budget, creating less waste and acting in a more sustainable and responsible manner. The centre also promotes renovation skills and knowledge vis-a-vis young citizens.

Partners: City of Velenje, Eurofins Erico, Ekološko društvo Slovenj Gradec, SAŠA incubator, Medobčinska zveza prijateljev mladine Velenje (Inter-municipal association of Friends of Youth Velenje), PUP Saubermacher, ZEOS, local businesses.

Target groups: citizens of Velenje and Šoštanj

Car sharing
This social innovation aims at promoting more sustainable mobility choices in the local public sector. The main idea is to reorganise the use of vehicles in the city administration and it public service organisations by introducing a sharing system and by gradually substituting the existing fossil-fuel vehicles by EV or hydrogen-powered ones.

The intervention encourages cooperation between public institutions to increase the use of clean vehicles while also enabling cost savings and better utilisation of vehicles.

In the upscaling phase, the clean vehicle car park formed this way would be offered to citizens, thus also enabling benefits.

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 CCC Action Plan is the first collective stakeholder process of identifying pathways of the City Velenje to climate neutrality.

The CCC implementation depends on many external factors (e.g. ensuring funding and attracting investors, national regulatory framework, public procurement and availability of contractors, social situation following the coal phase out etc.). All these can particularly affect the implementation of the main building block of the CCC Action Plan, i.e., a decarbonisation of the district heating system and an increase in energy efficiency.

- **Next steps**

Organising for implementation

→ TRANSITION TEAM: appointing coordinators for specific fields of actions (energy systems, transport and mobility, waste and circular economy, green infrastructure and nature-based solutions, built environment) and managers for specific actions.
→ CCC STRATEGIC COUNCIL APPOINTMENT: inviting key stakeholders from local, regional and national level to become members of the Strategic Council; establishment and agreement on rules of procedures.
→ SHORT TERM PLANNING & IMPLEMENTATION: preparing short term activity plans for all actions, focusing on most critical actions and their implementation (district heating, RES, renovation of buildings, decarbonisation of public transport, energy efficiency).
→ STAKEHOLDER ENGAGEMENT AND COMMUNICATION PLAN: the plan will identify methods and ways of further continuous engagement of stakeholders based on their specific interest and impact (e.g. informing, consulting, involving, partnership) to further encourage participation.
→ COMMUNICATION ACTIVITIES: regular communication activities on the implementation of the CCC Action plan and their integration in the City Administration and other stakeholder communication channels.
→ FINANCIAL MANAGEMENT: aligning the actions with municipal budget, attracting funding and investors
→ SETTING UP MONITORING and REPORTING SYSTEM: a system of collecting and monitoring the indicators within the City Administration and from external data providers will be established; gradual integration of data into the emerging digital platform
→ RISK MANAGEMENT: identification of risks, assessment and preparation of a mitigation plan.
→ OTHER: where necessary, the CCC Action Plan actions to be aligned with the new sectoral strategies (SUMP – under preparation; any spatial plan amendments).

- **Iteration**

The CCC Action Plan is understood as a **live document**. It will be regularly monitored by the TT. The progress will be assessed in the mid-term review in 2026/2027, including the update to the GHG inventory. The CCC Action plan will be adjusted on a need basis.

6 Annexes

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

6.1 Annex 1: Stakeholder engagement

A separate document.

Annex 6.1: STAKEHOLDER ENGAGEMENT

Herewith key events and activities are presented, which took place to provide information on the climate neutrality ambitions of the City of Velenje, to co-create and discuss possible solutions and take concrete actions which contribute to reducing GHG emissions and provide other co-benefits for citizens.

1. Citizens and other local stakeholder engagement activities

- **Tree planting,** 14 June 2024

This is one of a series of events organised by the city aiming at engaging citizens in concrete actions and awareness raising. A total of 44 trees were planted on a green space between two primary schools and along the bank of the Paka River.

- **Webinar FOOD WASTE MANAGEMENT IN TOURISM,** 10 June 2024

The webinar was organised by Visit Šaleška and focused on raising awareness of food waste in tourism and provided guidelines to tourism stakeholders on sustainable food management, including a presentation of good practices on circular approaches.

- **Consultation with economic stakeholders,** 16 May 2024

Representatives of the economic sector discussed the climate neutrality actions and possible contributions of enterprises to reducing GHG emissions.

- **Forum on measures to decrease heating energy use in households,** 14 May 2024

The purpose of the forum was to define measures that will be co-financed to citizens within the municipal public invitation. Representatives of dwelling owners, multi-dwelling managers, the

public utility company, presidents of local communities and city quarters, municipal councillors, municipal board members and commissions and directors of public institutions partook part. The working group analysing heat energy and water use in multi-dwelling buildings presented its findings.

- **Sustainable practices among youth,** mayor's breakfast with young researchers, May 2024

Young researchers from primary and secondary schools were invited by the mayor to discuss topics such as food waste, sustainable clothing, e-cigarettes and heated tobacco when they become waste, and biomass sources. Young people co-created a squirrel path under the treetops, which will be implemented in collaboration with the Velenje School Centre.
In the autumn, students will develop an application providing detailed descriptions of at least 12 trees growing in the city.

- **Library of things NUCARNICA:** March 2024

Citizens and companies were invited to co-create the offer of the library of things. Through a survey, citizens communicated what items they could use in a shared way. Based on inputs, collecting of things was organised, in which citizens and companies donated different appliances, tools and other useful things for the library. NUCARNICA opened on 10 April 2024 and operates within the Re-use Centre of the SAŠA incubator.

- **GREEN HACK,** 28–29 March 2024

The City Administration and Just Transition Centre of the SAŠA development agency invited 50 young students of the Velenje School Centre to innovate and co-create solutions for key challenges of the city. In a two-day hackathon, solutions for the following challenges were proposed:

- Sustainable mobility
- Waste management
- District heating

Roundtable and guided tour on how to maintain trees in the urban environment, April 2024
The roundtable was supported by the City of Velenje and organised by KID Cumadres to raise citizens' awareness on the importance of sustainable and long-term planning of green areas in Velenje and present examples of good practices. The purpose was to engage and raise awareness on how the decision makers, experts and citizens can contribute to the city's green fabric. The City Administration played an active part in presenting and discussing the measures for improving the urban tree stock and its management.

Rejuvenate forests – the 5th national volunteer tree planting campaign, 6 April 2024

As part of the national campaign, citizens, NGOs, the City Administration, National Forest Service and Slovenian State Forests (SiDG) participated in reforesting the fitness trail behind Vila Herberstein in Velenje, devastated by the heavy storms in July 2023 in which around 1,600 m3 of trees fell. Over 750 trees were planted. Participants brought their own tools and protective gear, while the SiDG foresters guided them on site. Over 200 trees were also planted in various municipal locations, including parks and kindergartens.

Green Leaf workshop, 26 January 2023
A series of workshops were organised within the Green Leaf initiative. One was dedicated to the climate, environment and energy. Stakeholders from the economic sector co-created proposals for improvements and solutions related to waste, water, nature, mobility, air and noise, energy and climate challenges.

Energy Office activities with residents
The Energy Office implemented several activities to collect data from participants regarding energy efficiency and renewable energy use (survey, interviews, observation, forms). They also provided counselling, workshops, seminars to raise awareness and learning on possible measures and to involve residents in the implementation of energy efficiency and climate-related measures.

2. Exchange of experience at the international level

5th ANNUAL POLITICAL DIALOGUE OF COAL REGIONS, 11–12 July 2024
The event enabled the sharing of experience on green transition of coal regions, which also emphasised the need for continuation of the Just Transition fund in the next programme perspective, where the City of Velenje focused on decarbonisation of the district heating system and energy renewal of buildings and pointed out the importance of effective communication with the public. The event was attended by 200 guests, including representatives of the European Commission.

ENRE international conference, May 2024
The City of Velenje was actively involved in the organisation of the conference, which aimed to explore pathways towards climate neutrality and sustainable green transition. The primary focus was on advancing innovation that supports the transformation of energy, industrial, and societal systems. The conference brought together experts, researchers, policymakers and business leaders who exchanged experience and shared research findings.

WE CHANGE, WE MOVE, WE GROW – INTERNATIONLA CONFERENCE ON URBAN GREEN SPACE MANAGEMENT, February 2024

The Green Leaf 2024 opening conference was devoted to management of **urban green areas**. Experts discussed the co-benefits of urban green areas and participating cities exchanged good practices, while a part of the conference was specifically devoted to the experience of the Mission 100 climate neutral and smart cities, where the approaches of Valencia, Klagenfurt, Ljubljana, Kranj and Velenje were shared.

WELCOME FUTURE are conferences organised by the City of Velenje and the Municipality of Šoštanj aimed at the exchange of experience between EU countries and regions on topics related to climate and green transition of coal regions.

- In September 2022, the conference addressed the **transformation of district heating systems in Europe**.
- In September 2023, it was devoted to sustainable economic diversification.

Both conferences took place in Velenje and were attended by the national and local stakeholders, representatives of EU bodies, relevant national ministries and agencies, local economic operators, public companies, NGOs and citizens.

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 Velenje

MESTNA OBČINA VELENJE

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

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1 Introduction

Introduction

The City of Velenje formally stated its green ambitions back in 2010 when joining the Covenant of Mayors. Its efforts and achievements related to climate change mitigation have been recognised by the 2024 Green Leaf award. The vision of the city to become climate neutral by 2030 coincides with the exit from coal and just transition of the Savinjsko-Šaleška (SAŠA) sub-region.

The modern city of Velenje was planned and built in 1950s. Its development was stimulated by the increasing energy needs. The city has grown into an important economic, employment, educational, administrative and cultural centre of the SAŠA sub-region. Today, the Velenje coal mine is the only one left operating in Slovenia and supplies lignite to a thermal power plant (TPP) Šoštanj in the neighbouring municipality, which produces around one third of electricity in Slovenia. The Government of the Republic of Slovenia adopted a Strategy for the exit from coal stating that the Velenje coal mine is to close mining operation by 2033 at the latest. Ceasing the use of lignite for production of electricity and for heating is a turning point in history for the City of Velenje, being both a challenge and an opportunity to ambitiously step on a climate neutral path. Becoming a member of the Mission 100 climate-neutral and smart cities is a logical and right step for the city's aspirations.

Over years, the City of Velenje has already initiated several climate actions, both at strategic and implementation level. The first Sustainable energy action plan (SEAP) was elaborated in 2011 and the first Local Energy Concept in 2012 with the objective of reducing GHG emissions by 23.1 % until 2020. Climate and environment actions were integrated in the Sustainable urban strategy of the city in 2016. The Sustainable urban mobility plan was prepared in 2017. The next generation of these strategic documents strengthens climate actions and ambitions even more. In 2022, the City of Velenje also adopted a Digital development strategy of the smart city and community Velenje 2022-2030 to improve the governance and implementation of public services.

The implementation of strategies and actions resulted in several actions and initiatives, among them:

- Public passenger transport is available free of charge in Velenje already since 2008.
- The city's urban cycling network, which safely and comfortably connects residential areas with workplaces, schools, employment and service centres, has been extended from 13 km in 2018 to 30 km in 2023.
- A bike rental system BICY has been introduced and is gradually being extended.
- Municipal waste separation was introduced already in 1992, and efforts were made to decrease the quantities of landfilled waste over years.
- The Public utility company has in recent years already invested in renewable energy generation to increase self-sufficiency for the operation of water supply and waste-water treatment networks and appliances.
- Public lighting has been modernised by substituting the old lamps with more energy efficient ones.
- The process of energy renovation of the multi-dwelling building stock is progressing.
- The energy efficiency of the district heating system has improved.
- Several soft measures were recently initiated to increase awareness of citizens regarding sustainable climate and energy practices and for sustainable organisation of public events.
-

Climate neutrality by 2030 can only be achieved in cooperation of the City Administration, strong and committed Transition Team and key city stakeholders. To monitor and steer the CCC implementation, a Strategic Council will be appointed by the mayor and the CCC documents will be presented to the City Council.
Being aware of a challenging process ahead, the Mission provides an encouraging learning environment and an opportunity for exchange and transfer of good and innovative practices among

cities across Europe. The City of Velenje is committed to work in synergy with and to disseminate learnings to other municipalities in the region and wider.

2 Goal: Climate neutrality by 2030

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Goal

The 2030 climate neutrality target of the City of Velenje is to reduce GHG emissions by 80 % compared to the 2018 baseline. This will be achieved by engaging the City's key stakeholders in climate neutral pathways.

GHG emissions of the City of Velenje in 2018 were 171 276 t CO2eq. The calculation was made for the entire administrative territory with no exclusion of any areas. By 2030, GHG emissions within the city administrative boundary will be reduced by 80 % (amounting to 137 443 t CO2eq), what is in line with the Net Zero Cities methodological approach.

Increasing and accelerating the climate actions, which will be implemented in different systemic levers, ranging from technology and infrastructure, finance and funding, governance and policy, democracy and participation, will also create several co-benefits for the city.

Actions in the energy systems will primarily contribute to increased energy self-sufficiency as well as to building capacities to source and manage public and private funds. Actions in mobility and transport will help reduce noise pollution and contribute to better air quality and less congestions. Several soft actions in different systems will contribute to behavioural change of citizens towards low carbon lifestyle. By maintaining and improving the green infrastructure, liveability, attractiveness and aesthetics of built environment is expected to improve, including preservation of the urban biodiversity and social wellbeing. A range of actions will contribute to cost savings; digital solutions will also help improve public services. Implementation of new approaches and technologies related to energy and circular economy are expected to create more green jobs. Through implementation of the processes, overall contributions to increased quality of life will be achieved.

3 Strategic priorities

Strategic priorities

In designing the impact pathways towards climate neutrality, all fields of action and most relevant system levers were observed, potential early changes and late outcomes were identified in view of contributions to reducing emissions or generating carbon sinks and co-benefits.
In defining the strategy, the primary focus is on fields of actions and systemic levers with highest emission gaps and highest potential for reducing GHG emissions, while also observing the feasibility and potential for engagement of relevant stakeholders.

The most relevant strategic systemic priorities comprise energy systems and built environment, which must be addressed in synergy and for which the highest priority is set also in line with the process of just transition. The third most relevant priority is mobility and transport. The other two sectors (waste and circular economy, green infrastructure and nature-based solutions) are expected to add to climate neutrality through piloting new innovative solutions and maintaining or improving the existing ones.

A range of infrastructure and technology measures will be complemented with different soft activities, such as awareness raising and participation, social innovation and governance, aiming at impacting the behavioural change and improved quality of services.

- **Energy systems**: Actions within the energy systems represent **74%** of the city emission reductions targets, in total 95 959 t CO2eq. Transformation and decarbonisation of the 2nd

largest district heating system in the country is at the heart of the city's green and just transition. The city must ensure reliable, stable and energy efficient service to citizens and industry based on combination of different local renewable energy sources. In a short-term perspective, transforming and achieving the energy efficiency of the system itself is a priority, while renewable energy targets are to be met by 2030. In this context, it is critically to address potential for reducing energy use both in industrial processes, public sector and households. Energy efficiency and renewable energy activities will be complemented with improved energy management. Critical stakeholders include the City Administration, the public utility company, local energy agency, thermal power plant and electricity distribution operator as well as expert community. Besides technology and infrastructure, social innovation can also make a significant impact in terms of capacity building and behavioural change. The Climate and energy office is a collective step of the city's key actors to upgrade awareness raising, information, capacity building and advisory services for citizens at one place. The services will primarily cover all three strategic priorities presented in this section.

- **Built environment:** Actions of the built environment system will contribute **14%** to the city emission reduction targets, in total 18 592 t CO2eq. Energy renovation of buildings complements actions of the energy system, most relevant being an accelerated renovation of multi-dwelling building stock and individual residential building, while potential also exist in public buildings. The city recently formed a working group comprising the City Administration, public utility company, local energy agency and managers of multi-dwelling apartments to analyse the state of renovation, priority needs and plan of investments. Energy renovation actions will be gradually implemented until 2030. An important contribution in engaging and supporting individual house owners in energy renovation procedures as well energy efficient practices is expected from the Climate and energy office.

- **Transport and mobility**: Actions in transport and mobility are expected to contribute **12%** to the emission reduction targets (15 610 t CO2eq). The City Administration will continue improving the walking and cycling infrastructure and extending the bike rental system. The most important contributions are expected from decarbonisation of the public transport as well as increased share of clean vehicles. The construction of the 3rd development axis will help reduce transit through the city. Sustainable mobility planning and promotion activities are important in view of changing citizens' modal shift and better mobility services. Critical stakeholders comprise the City Administration, public utility company, Climate and energy office, concessioners for public transportation, local enterprises and citizens. Investor in the 3rd development axis is the Ministry of infrastructure, DARS Motorway Company in the Republic of Slovenia.

4 Process and principles

Process and principles

The CCC and its Action Plan and Investment plan are a result of collective stakeholder engagement and co-creation process following the main steps of the Climate Transition Map.

The **Transition Team (TT)** is the main operational body. Its key role is to become a change agent - a mobiliser and activator - within the City Administration and an intermediary for engagement of stakeholders at local level.

The composition of TT is structured around key fields of actions: energy systems, buildings, transport and mobility, green infrastructure & nature-based solutions. It also includes representatives covering horizontal fields, such as finance, digitalisation, spatial plan, communication, community engagement and just transition (coordination with the process of the region's exit from coal). The members are appointed from the employees of the City Administration and external stakeholders (see Figure 1).

The Mayor and Director of the City Administration are the main promoters of the CCC process both internally within the City Administration and at local, regional, national and EU level. The **Economic development and transition office** is responsible for the operational coordination of the CCC process.

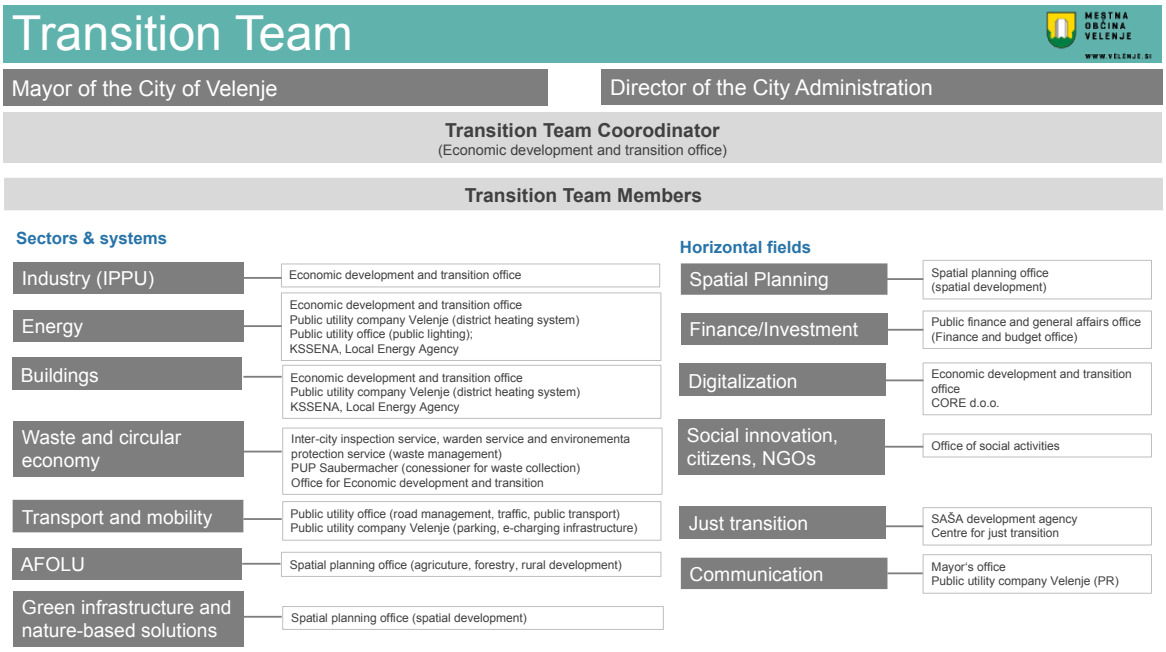

Figure 1: Composition of the Transition Team

Figure 2 represents the main steps of the CCC preparatory process. It needs to be highlighted that the City Administration has already established sound relations with key stakeholders during the development of Territorial Just Transition Plan for SAŠA region and its Action plan. Both processes are very much connected and several already identified challenges and solutions contributed to identification of actions and the overall CCC process.

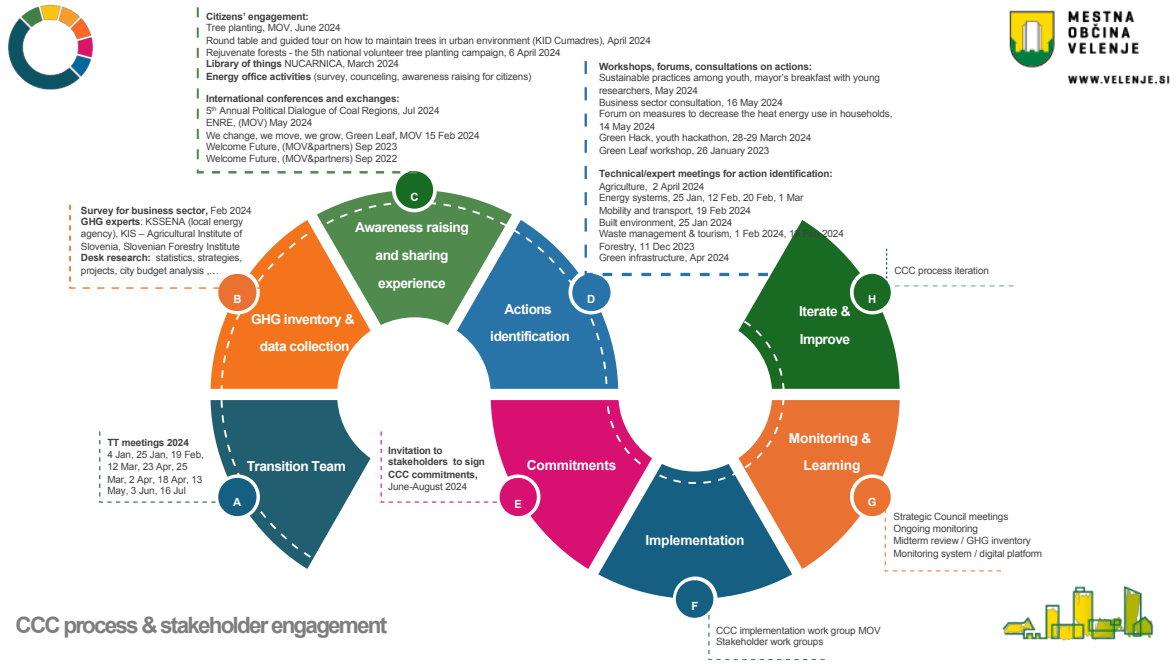

Figure 2: CCC preparation process

The City of Velenje is committed to continue working with key stakeholders in the implementation of the CCC by applying effective collaboration methods and principles (see below).
The organisational structure for the CCC implementation will be strengthened:

- The CCC documents will be approved by the **City Council**. The Council will be informed annually on the CCC implementation process and progress. The Council will also approve key strategic projects and investments of the City Administration using its standard procedures.
- The **Transition Team** will continue to promote the shared vision, nurture collaboration, create synergies and expand the ecosystem of actors involved in the implementation of the action portfolio. Besides being responsible for operational aspects, the TT will track progress and reflect on learning and review the CCC Action Plan.
- To further ensure a wide consensus on the implementation of key actions, to steer CCC implementation and to decide on any strategic level challenges, the mayor will appoint a **CCC Strategic Council**. The Strategic Council will comprise representatives of key stakeholders from the local, regional and national level: representatives of the city's main economic operators, educational institutions, chamber of economy, trade union, civil society, and social activities, representative of the ministry responsible for just transition and cohesion policy and the City Administration. All members will bring their expertise and experience as well as their influence to support the CCC process. They will provide guidance and strategic support in the CCC implementation, monitoring and possible amendments. The CCC Strategic Council will be chaired by the mayor.

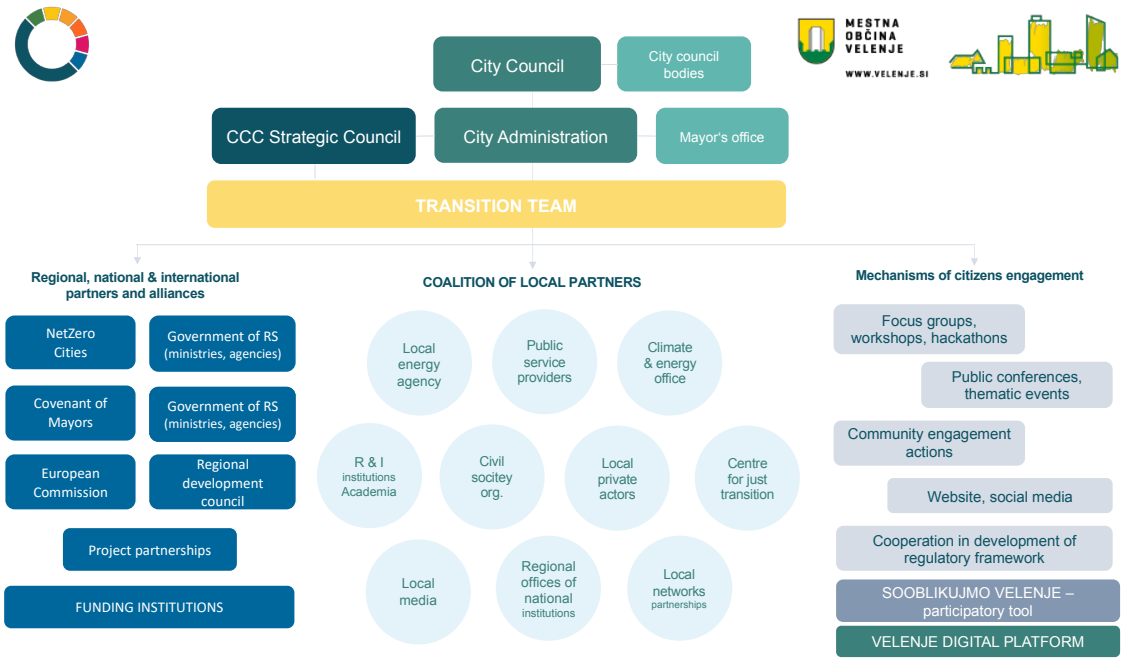

Figure 3: Participatory governance model

The CCC Action Plan is understood as a live document. The system of monitoring will be set up and supported by the city digital platform. The progress will be assessed in the mid-term review in 2026/2027, including the update of the GHG inventory. The CCC Action plan will be adjusted on a need basis.

Key principles and collaborative methods guiding the implementation of CCC include:

- **Climate justice**: ensuring that the transition to climate neutral city is fair and just, with benefits and opportunities shared among all residents. The situation of the marginalised and vulnerable groups will be carefully observed.

Methods: The Transition Team will build capacity of the city administration and external stakeholders regarding the challenges and solutions related to climate justice. This will help the actors better observe and integrate possible solutions in the design and implementation of CCC actions. Teams responsible for the implementation of actions will be interdisciplinary and will be supported by the relevant Transition Team members and other stakeholders.

- **Stakeholder and citizen engagement**: This principle is crucial for achieving climate neutrality. The implementation of the CCC will ensure engagement of different actors from relevant sectors. For this purpose, an engagement strategy will be developed. Methods: The Transition Team will be responsible for the preparation of the engagement strategy, which will be aligned with the needs of specific sectors and actions. The City Administration and other key stakeholders' communication channels will be activated to ensure regular information on the specific engagement opportunites.

- **Co-creation and innovation**: The collaborative process will involve actors from different sectors and levels to bring in diverse perspectives and expertise. The development of new technologies, processes, organisational and governance solutions will be encouraged and supported to help overcome barriers and challenges. By fostering the culture of innovation, better and more efficient results in reducing GHG emissions are expected.
Methods: The Transition Team will prepare short term plans of activities and will accordingly identify and invite key stakeholders and actors to build capacity, co-design projects, and manage communication activities according to identified needs. These may include specific thematic workshops for design of projects or creation of concepts, solutions, hackathons, etc.

- **Transparency, accountability, ownership**: The involved partners will strive for competent, committed and responsible contributions. Open and constructive communication will be encouraged. CCC implementation progress and plans will be shared openly among stakeholders and public to build trust and support for climate action.
Methods: The Transition Team supported by the City Administration employees and external stakeholders will regularly inform on the CCC implementation process and achievements using its most effective communication channels and tools. Annual updates will be prepared for the City Council and the CCC Strategic Council.

- **Monitoring, evaluation and learning (MEL)**: Regular monitoring and evaluation of the CCC implementation will help identify progress, factors of success and failure and facilitate reflecting and learning for future actions and CCC iterations.
Methods: Based on key indicators, a system of collection and monitoring of indicator within the city administration and from external data providers, gradual integration of data into the newly emerging digital platform.

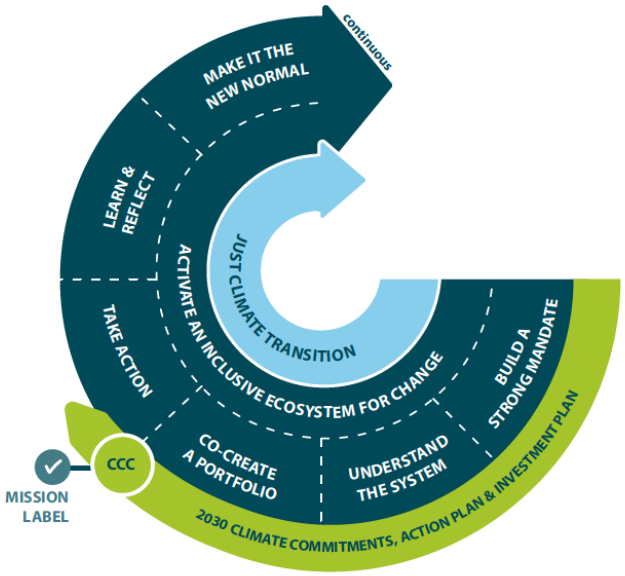

Figure 4: Climate Transition Map (NetZeroCities)

5 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 signatory (organisation)	Sector / Domain / Level of operation[2]	Legal form	Name of the responsible person	Position of the responsible person
The City of Velenje	Energy systems/ Mobility and transport/ Waste and circular economy/ Green infrastructure and nature-based solutions/ Built environment/ Governance & policy / Social innovation local level	Local Authority	Peter Dermol	Mayor
KOMUNALNO PODJETJE VELENJE, d.o.o. Utility Company Velenje, d.o.o.	Energy systems/ Mobility and transport/ Built environment/ sub-regional level	Limited liability company - public utility company	Gašper Škarja	CEO
KSSENA, Energy Agency	Energy systems/ Mobility and transport/ Built environment/ Social inovation local level	Public institute - Local energy agency	Boštjan Krajnc	CEO

[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.

LINEA SP, d.o.o.	Built environment local level	Limited liability company	Peter Konečnik	Director
PUP SAUBERMACHER, d.o.o.	Waste and circular economy local level	Limited liability company, concessioner for waste collection	Janez Herodež	CEO
MINISTRY OF HEALTH	Mobility and transport/ governance & policy national level	Ministry of Health	Dr. Valentina Prevolnik Rupel	Minister
MINISTRY OF DIGITAL TRANSFORMATION	Energy systems/ built environment/ governance & policy national level	Ministry of Digital Transformation	Dr. Emilija Stojmenova Duh	Minister
MINISTRY OF PUBLIC ADMINISTRATION, Local Self-Government, Non-Governmental Organisations and Political System Directorate	Waste and circular economy/ Green infrastructure and nature-based solutions/ Governance & policy national level	Ministry of Public Administration	Mateja Prešern	Acting Director-General
GORENJE, d.o.o.	Energy systems/ Waste and circular economy national level	Limited liability company	Tomaž Korošec	Executive Vice President
MEGA M, d.o.o.	Mobility and transport local level	Limited liability company	Matej Meža	CEO

TIKI HVAC, d.o.o.	Energy systems local level	Limited liability company	Peter Šilc	CEO
VONPHARMA SI, d.o.o.	Energy systems/ Mobility and transport/ Waste and circular economy local level	Limited liability company	Tadej von Horvath	CEO
ESOTECH, d.d.	Energy systems local level	Joint stock company Company for Development and Implementation of Environmental Solutions and Power Technologies	Marko Škoberne	Chairman of the Board
VEPLAS, d.d.	Waste and circular economy local level	Joint Stock company	Gregor Vedenik Helena Šumah Zaluberšek	Executive Director Executive Director
ELPA, d.o.o.	Energy systems local level	Limited liability company	Darja Goltnik	Director
APS, Avtoprevozništvo in servisi, d.d.	Mobility and transport local level	Joint stock company road and services	Zoran Zager	CEO
CORE, d.o.o.	Governance & polic local level	Limited liability company	Rok Urbanc	CEO
SAŠA INKUBATOR, d.o.o., Company for Entrepreneurial and Business Consulting	Waste and circular economy/ Social innovatio	Limited liability company	Ana Anžej	Director

	local level			
RAZVOJNA AGENCIJA SAVINJSKO-ŠALEŠKE REGIJE, d.o.o. Development Agency of SAŠA Region	Energy systems/ Mobility and transport sub-regional level	Limited liability company	Biljana Škarja	CEO
SIMBIO, d.o.o.	Waste and circular economy sub-regional level	Limited liability company	Mag. Marko Zidanšek	Director
IPoP-Institute for Spatial Policies,	Mobility and transport national level	NGO	Marko Peterlin	Director
ŠOLSKI CENTER VELENJE	Mobility and transport/ Waste and circular economy/ Social inovation local level	Educational, research and development centre	Janko Pogorelčnik	Director
PRIMARY SCHOOL GORICA, VELENJE	Mobility and transport/ Waste and circular economy/ Built Environment local level	Educational, research and development centre	Barbara Trebižan	Headmaster
CVIU- Center for behaviour, education and training Velenje	Mobility and transport/ Waste and circular economy/ Built Environment local level	Educational, research and development centre	Aleksander Vališer	The principal

ANDRAGOŠKI ZAVOD LJUDSKA UNIVERZA VELENJE Adult education institution	Mobility and transport/ Waste and circular economy local level	Public institution	Brigita Gorjup	CEO
UNIVERSITY MARIBOR, FACULTY OF ENERGY TECHNOLOGY	Energy systems/ Mobility and transport national level	Faculty – energy technology	Sebestjan Seme	Dean
FACULTY OF ENVIRONMENTAL PROTECTIONS	Mobility and transport/ Waste and circular economy local level	Faculty – environnemental protection	Gašper Gantar	CEO
TIE d.o.o.	Energy systems local level	Limited liability company	Matej Meža	CEO
T-2, d.o.o.	Energy systems/ Mobility and transport national level	Limited liability company	Jože Zrimšek	Member of Management
FOCUS, Association for Sustainable Development	Mobility and transport/ Waste and circular economy national leve	NGO	Živa Kavka Gobbo	Representative
PNF d.o.o.	Waste and circular economy/ Social innovation local level	Limited liability company	Maja Ferme	CEO

EKOLOGI BREZ MEJA Ecologists Without Borders	Mobility and transport/ Waste and circular economy national level	NGO	Katja Sreš	President
CER, Sustainable Business Network	Waste and circular economy national level	Association	Ana Struna Bregar	Executive Director
SŠGZ, Chamber of Commerce for SAŠA Region	Energy systems/ Mobility and transport/ Waste and circular economy sub-regional level	Association	Rok Plankelj	Director
KGZS, Kmetijsko gozdarski zavod Celje	Green infrastructure and nature-based solutions sub-regional level	Public institution	Irena Friškovec	Representative
ŠALEŠKA VALLEY TOURIST BOARD	Mobility and transport/ Waste and circular economy sub-regional level	Public institution	Alenka Kikec	CEO
VELENJE FESTIVAL	Mobility and transport/ Waste and circular economy local level	Public institution	Barbara Pokorny	Director
VELENJE LIBRARY	Waste and circular economy local level	Public institution	Drago Martinšek	Director
VELENJE MUSEUM	Waste and circular economy	Public institution	Tanja Verboten	Director

	local level			
RED HALL- sports and recreation institute	Energy systems/ Waste and circular economy local level	Public institution	Dimitrij Amon	Director
VELENJE MEDICAL CENTER	Built Environment local level	Public institution	Janez Kramar	CEO
PHARMACY VELENJE	Waste and circular economy local level	Public institution	Sabina Grm	Director
CARE HOME FOR ADULTS VELENJE	Mobility and transport/ Waste and circular economy/ Built Environment local level	Public institution	Violeta Potočnik Krajnc	Director
YOUTH CENTER VELENJE	Waste and circular economy local level	Public institution	Janko Urbanc	Director
CONSTRUCTION CLUSTER OF SLOVENIA	Built Environment national level	Economic Interest Group	Vladimir Gumilar	Director
SPAR SLOVENIJA, d.o.o.	Energy systems/ Waste and circular economy national level	Limited liability company	David Kovačič	General Director
ENVIRODUAL, d.o.o.	Energy systems/	Limited liability company	Katarina Pogačnik	CEO

	international level			
MERCATOR, d.o.o.	Energy systems/ Waste and circular economy national level	Limited liability company	Tomislav Kramarić	CEO
SRIP, Strategic Research and Innovation Partnership-Networks for the Transition to a Circular Economy	Waste and circular economy National level	NGO	Nina Meglič	Coordinator
AGRICULTURAL INSTITUTE OF SLOVENIA	Green infrastructure and NBS national level	Public research institute Agricultural Institute of Slovenia	Andrej Simončič	Director
JOŽEF STEFAN INSTITUTE	Energy systems/ Mobility and transport/ Waste and circular economy/ Built environment national level	Public research institute **Slovenian scientific research institute**	Boštjan Zalar	Director
NATIONAL INSTITUTE OF CHEMISTRY	Energy systems national level	Public research institute National Institute of Chemistry	Gregor Anderluh	Director
STUDIO MF, d.o.o.	Waste and circular economy/ Social innovation local level	Limited liability company	Maja Ferme	CEO
ELES, d.o.o.	Energy systems	Limited liability company	Aleksander Mervar	CEO

	national level			
ZMOS Association of Urban Municipalities of Slovenia	Governance & policy / Social innovation national level	Association	Miran Košpenda	Secretary General
SOS Association of Municipalities and Towns of Slovenia	Governance & policy / Social innovation national level	Association	Jasmina Vidmar	Secretary General
PRIMARY SCHOOL MIHA PINTAR TOLEDO VELENJE	Mobility and transport/ Waste and circular economy/ Built Environment local level	Primary school Miha Pintar Toledo, Velenje	Mobility and transport/ Waste and circular economy/ Built Environment local level	Primary school Miha Pintar Toledo, Velenje
LIDL, d.o.o. k.d.	Energy systems/ Waste and circular economy national level	Limited liability company	Ivan Udiljak Metka Šiljak Šturm	Director Procurator
VIMOSA, d.o.o.	Energy systems national level	Limited liability company	Andrej Fajmut	CEO
LUCI, d.o.o.	Energy systems/ Waste and circular economy local level	Limited liability company	Martina Meke	CEO
PROSTOROŽ, Urban design studio	Green infrastructure and nature-based solutions	NGO	Maša Cvetko	Representative

	national level			
Ministry of the Environment, Climate and Energy	Energy systems/ mobility and transport/ built environment/ governance & policy national level	Ministry of the Environment, Climate and Energy	Bojan Kumer	Minister
Eurofins Erico SI d.o.o.	Energy systems/ Waste and circular economy local level	Limited liability company	Matej Šuštaršič	Managing Director
MARLES HIŠE MARIBOR d.o.o.	Waste and circular economy national level	Limited liability company	Tadej Gosak	Director
Administrative Unit Velenje	Built Environment local level	Public institution	Franja Tevž	Head
The City of Šoštanj	Energy systems/ Mobility and transport/ Waste and circular economy/ Green infrastructure and nature-based solutions/ Built environment/ Governance & policy / Social innovation local level	Local Authority	Boris Goličnik	Mayor
Premogovnik Velenje d.o.o. (*Velenje Coal Mine*)	Energy systems national level	Limited liability company	Marko Mavec	General Manager

Turistična zveza Velenje Velenje Turist Association	Green infrastructure and nature-based solutions/ Social innovation local level	NGO	Marija Brložnik	President

6 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 City of Velenje climate neutral by 2030. We agree on the joint ambition and commitments, as formulated in the City of Velenje's Climate City Contract.

We aim to support this goal with the following actions:

- ….
- ….

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.