NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

SUMMARY

2030 Climate Neutrality Action Plan &

2030 Climate Neutrality Investment Plan

of the City of Velenje

MESTNA OBČINA VELENJE

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Abbreviations and acronyms

Abbreviations and acronyms	Definition
AFOLU	Agriculture, Forestry and Other Land Use
ARSO	Slovenian Environment Agency
CCC	Climate City Contract
EE	Energy Efficiency
EU	European Union
FOD	First Order of Decay
GHG	Green House Gas
IPPU	Industrial Process and Product Use
KSSENA	Local Energy Agency for Savinjska, Šaleška and Koroška
KOPOP	Agri-environmental-climate payments
LEC	Local Energy Concept
NUTS	Nomenclature of territorial units for statistics
NZC	NetZeroCities
RES	Renewable Energy Sources
SAŠA	Savinjsko-Šaleška
SOPO	Environmental and climate scheme
SURS	Statistical Office of the Republic of Slovenia
TT	Transition Team

1 Introduction

The **City of Velenje** is located in the eastern part of the Šaleška valley, Slovenia. It stretches over an area of 83.5 km^2. Administratively, the city is part of the Savinjska region (NUTS 3) and Cohesion region Eastern Slovenia (NUTS 2). With population of 33 675 (2023) it is the 8th largest municipality in Slovenia. 75 % of population lives in the urban settlement of Velenje.
The City formally stated its green ambitions back in 2010 when joining the Covenant of Mayors. Its efforts and achievements related to GHG 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 Šaleška valley. The City of Velenje is thus again on a turning point in history to design new greener and climate neutral pathways.

EU Mission 100 Climate-neutral and Smart Cities by 2030
The City of Velenje is one of 122 selected cities to participate in the EU Mission 100 Climate-neutral and Smart Cities by 2030 under the Horizon Europe. Cities were invited to develop Climate City Contracts, which would include an overall plan for climate neutrality across sectors, such as energy and buildings, transport, waste management, green infrastructure and nature-based solutions. Three documents were prepared in line with the proposed methodology (Figure 1).

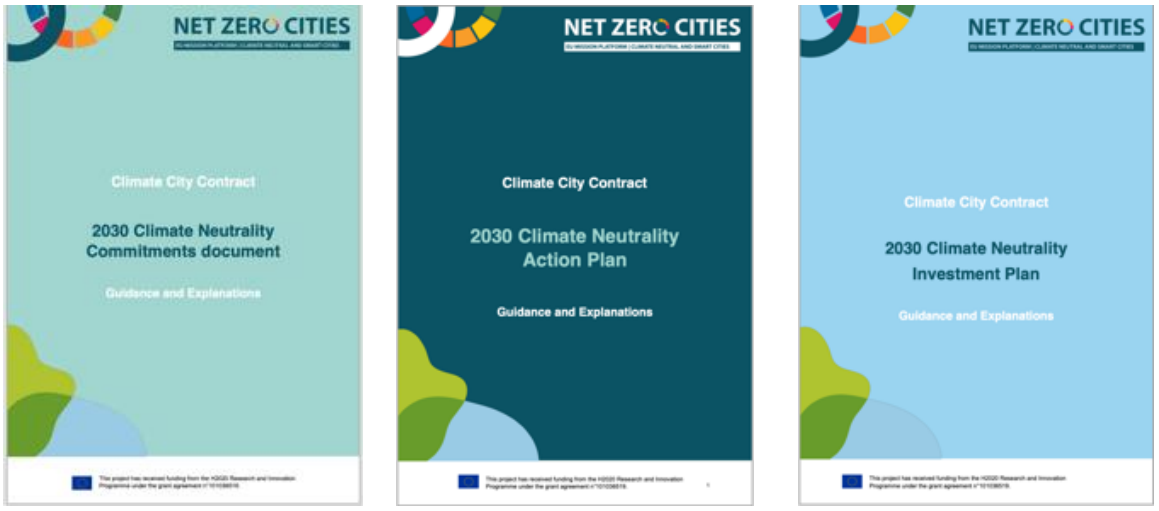

Figure 1: CCC documents

In preparing the **CCC Action Plan**, the current state of Climate Action was analysed, starting with the GHG emissions baseline inventory, analysis and assessment of current policies and strategies and identification of barriers and opportunities for climate neutrality. In the next step, pathways towards climate neutrality and climate neutrality portfolio were designed, including indicators for monitoring, evaluation and learning. Governance and social interventions enabling climate neutrality were also identified. The **CCC Investment Plan** analysed in detail the previous and existing funding and financing for climate activities by field of action and assessed financial policies and capital allocation towards climate neutrality, identified barriers to climate investment and pathways towards climate neutrality. Furthermore, it defined capital goals and hove to achieve them, including economic and financial indicators. Enabling financial conditions as well as risks and their mitigation were identified. The two plans are summarised in the following chapters.

The process
The City Administration invited local, regional and national level stakeholders and citizens in the process of co-creation of pathways to close the climate neutrality gap by 2030. The City Administration will be responsible for the monitoring and updating of the CCC Action Plan and its Investment Plan. For the strategic guidance and support to the CCC implementation a Strategic Council will be appointed.

2 GHG emission baseline and emission gap

Below table indicates an overview of territorial boundaries, sectors and scopes being included in the preparation of the GHG emissions baseline inventory and 2030 targets.

Table 1: Climate neutrality targets 2030

Climate Neutrality Target by 2030			
Sectors	**Scope 1**	**Scope 2**	**Scope 3**
Stationary energy	In scope 1, the following sub-sectors are covered: residential buildings, commercial buildings and facilities, institutional buildings and facilities, manufacturing industries and construction, and energy producing; The following energy sources are included: natural gas, extra light fuel oil, liquefied petroleum gas, wood biomass and electricity production (small individual self-sufficiency in electricity)	In scope 2, the following sub-sectors are covered: residential buildings, commercial buildings and facilities, institutional buildings and facilities, manufacturing industries and construction and public lighting; including the following energy sources: grid-supplied district heating and electricity (also for e-mobility)	Not applicable
	Without exclusion	Without exclusion	Not applicable
Transport	Scope 1 includes on-road transportation and railways; and the following energy sources: diesel, gasoline, natural gas, liquefied petroleum gas and biodiesel	Without exclusion	Not included
	Without exclusion	Electricity use for mobility is included in Stationary energy (in line with 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)
Industrial processes and product use sector **IPPU**	Scope 1 includes emissions generated in industry and processes as use of energy sources: diesel, extra light fuel oil, liquefied petroleum gas	Not applicable	Not applicable
	Use of heat from »district heat grid« and natural gas from grid are evaluated in Stationary energy sector. The City of Velenje does not have industrial facilities that produce CO_2 and other greenhouse gas emissions through processes like mineral, chemical, or metal production; hence, these emissions are not accounted.	Not applicable	Not applicable
Agriculture, forestry and other land use **AFOLU**	Scope 1 includes as non-energy emissions in agriculture, encompassing 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 from land use and land use changes	Not applicable	Not applicable
	Without exclusion.	Not applicable	Not applicable

Other	No - all considered emissions are already categorized in the above-mentioned sectors	No - all considered emissions are already categorized in the above-mentioned sectors	Not applicable
Geographical boundary	**Same as city administrative boundary**	**Smaller than city administrative boundary**	**Larger than city administrative boundary**
	X		
	Without exclusion	-	-

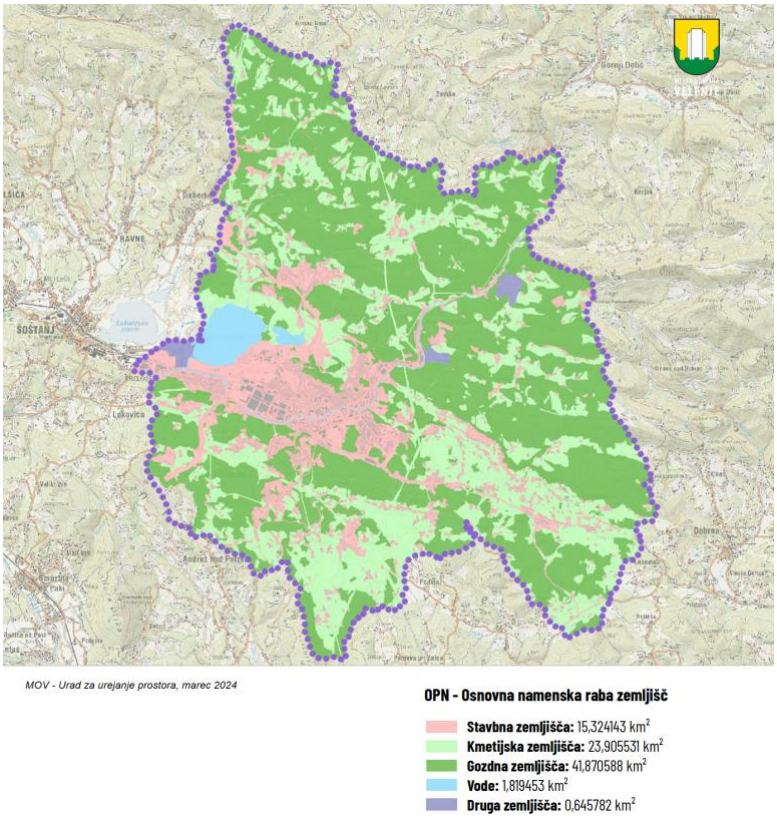

Figure 2: Land use, March 2024

GHG Emissions Baseline inventory

TOTAL GHG EMISSIONS FOR THE BASELINE YEAR 2018

Greenhouse gas (GHG) emissions baseline year is 2018. This decision is anchored 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 the GHG inventory. The adoption of 2018 as the baseline year allows for the utilization of this vetted data, ensuring that our inventory is both accurate and aligned with established local energy policies.

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

→ Total CO_2 emissions in 2018: 171 276 t CO_2 equivalent/year

→ Total energy consumption: 502 464 MWh/year

Most emissions (79%) are generated in Scope 2, which indicates that also reducing total emissions needs to be addressed primarily in the district heating system and grid supplied electricity.

Table 2: GHG emissions by source sectors

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
Agricultural, Forestry and 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**

Analysis of activities by sectors shows that the largest shares of emissions are contributed by the residential buildings and industry.

Table 3: Activity by source sectors

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: Agricultural, Forestry and Land Use (AFOLU)	**5 053.30**	**IE**	**NO**
agriculture, forestry	- 4 802.00	IE	NO
livestock farming	9 855.30	IE	NO

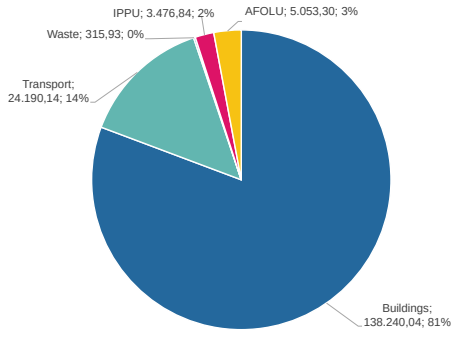

Figure 3: GHG emissions per sectors, t CO_2eq / year, baseline 2018

Table 4: Emissions gap

	(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		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.		(4) = (2) – (3)		This column is used to present the already quantified emission reduction associated with the action portfolios.		(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
Agricultural, Forestry and 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**

The emission reduction target for 2030 should ideally achieve 80 % reduction from the baseline year, which is 137 443 t CO_2eq. An estimated of already reduced targets in the period 2018-2023 is 7 137 t CO_2eq (4%), while the remaining gap of 130 306 t CO_2eq (76 %) will be addressed by the CCC Action Plan. The main sectors contributing to reduction are energy, buildings and transport.

3 Pathways towards Climate Neutrality by 2030

The selected impact pathways were opted based on 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.

In designing the impact pathways, 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.

For the City of Velenje, most relevant field of actions relate to **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. As shown in table 5, GHG emissions from buildings sector comprise **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 exit from coal. The main identified systemic levers are *technology & infrastructure* and *finance & funding*.

The city must ensure reliable, stable and energy efficient service to citizens and industry based on 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 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. Besides 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) is planned. Complementary systemic levers relate to governance (better services), learning, social innovation and democracy/participation. By influencing citizens mobility habits and making sustainable mobility more attractive at local level with gradual increase of users requires engagement through participation lever. National level investments in the 3rd development axis will reduce the transit through city, congestions and noise, improve air and traffic safety in a longer-term perspective.

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

Green infrastructure & nature-based solutions outcomes are gaining relevance in terms of actively preserving the 'city in the park' on one and maintaining the potential of carbon sinks in short-term with perspective on increasing it in a 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 knowledge on sustainable farming practices.

Table 5: Impact pathways

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 refurbished, and energy efficiency increased.	District heating system operates on combination of renewable energy sources.	Emission reductions: 79 362 t CO_2e	Increased energy self-sufficiency Green jobs
		Increased energy efficiency in services and processes	Savings in energy use in services and processes Smart public lighting solutions in place	Emission reductions 2 381 t CO_2e	Cost savings
		Increased renewable energy production	Increased renewable energy production	Emission reductions: 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	Energy management for public sector digitalised	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 stop, etc.)	Sustainable mobility infrastructure enhanced (cycling & walking network, bus stop)	Emission reduction: 1 269 t CO_2e	
	Governance and policy	Increased share of commuters practices sustainable mobility – walking, cycling public transport, car sharing	Increased share of commuters practices sustainable mobility – walking, cycling public transport, car sharing		Behaviour changes towards low carbon lifestyle
	Technology and infrastructure	Increased number of EV in public, private sector, and households Improved charging network for clean vehicles	Increased number of EV in public, private sector, and households Improved 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 defined	Purchase of green vehicles for the city public transportation		Improved image of public transport
	Technology and infrastructure	Sections of the 3rd development axis in construction	Transit along the city centre reduced (3rd development axis)	Emission reduction: 6 767 t CO_2e	Less traffic congestion Less noise Better air quality

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)
					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	Behaviour change towards 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		Behaviour 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 substituted.	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 improved - (improved 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 expanded to new surfaces		Improved sense of belonging, social wellbeing & inclusion Locally produced food
	Social innovation				

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 business and residential areas developed	New standards in green and blue infrastructure in new business and residential areas applied		Liveability, attractiveness and aesthetics of built environment
	Governance and policy				
	Technology and infrastructure	Improved awareness of farmers on 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				Behaviour change towards low carbon lifestyle

4 Climate Neutrality Portfolio Design

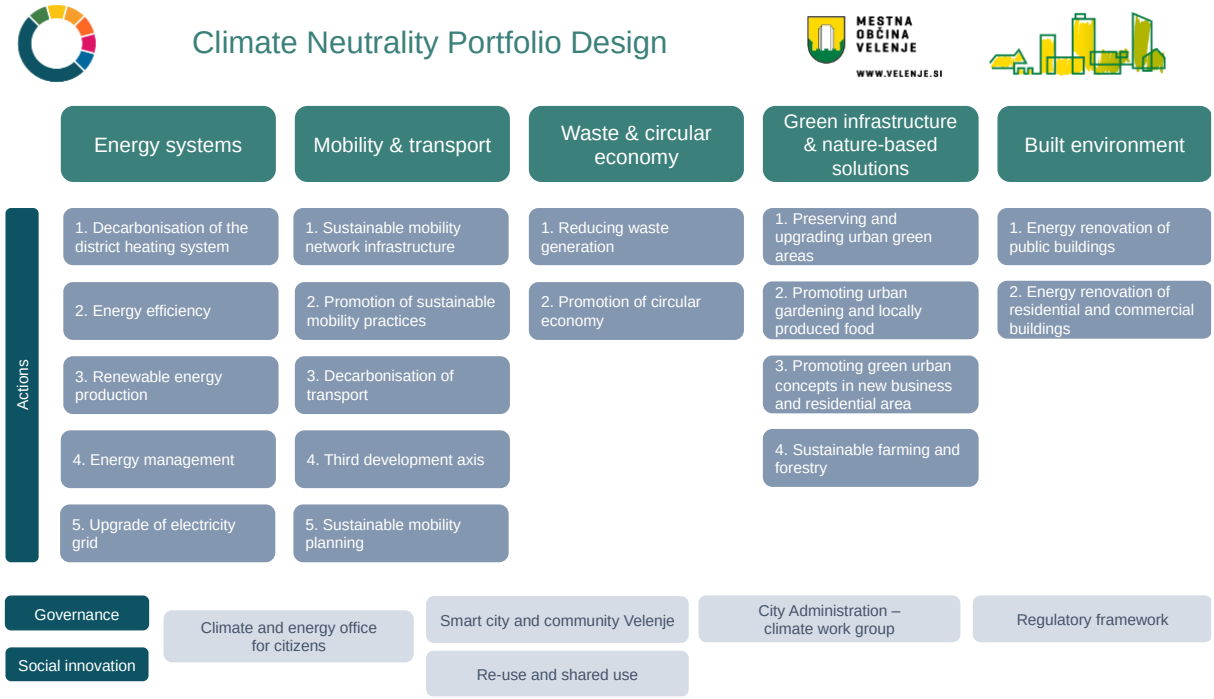

Figure 4: Climate neutrality portfolio design of the City of Velenje

DESCRIPTION OF ACTION PORTOLIO

Table 6: Description of action portfolio

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 include the most significant steps towards the climate neutrality of the City of Velenje. **Decarbonisation of the city district heating system** is the heart of the city's green and just transition. It is 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 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 define an optimal strategy and 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 electricity or heat use. Public lighting, EE of the water supply network system, sewage system and waste-water treatment are key areas to addressed. Action will also be addressed by the industry and services by introducing new technologies or optimising energy use.

Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
		Renewable energy will primarily continue with PV projects on public sector, commercial and private household buildings. The preparation of a joint project for public buildings has just been prepared. A small hydro power plant built to cover the needs of the public utility company on the water supply pump station. Energy communities are a new approach that will be tested with business sector and households. Decarbonisation of the heating systems, energy efficiency and renewable energy are to be implemented in synergy with actions improving EE of buildings (see below 'built environment'). A comprehensive **energy management** system for the public sector will be enhanced and digitalised to allow for better monitoring and control and appropriate decision-making. **Upgrade of electricity grid** is 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 electricity grid.
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 CCC Action Plan in several ways: **Sustainable mobility network infrastructure** aims at completion of 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 measure ranging from changes in parking policy, digital solutions, awareness campaigns and other actions are needed to complement the overall ambition. **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 the change. **Third development axis** The city centre is heavily burdened with transit. The investment of the government in the construction of the

Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
		express highway linking the north and southeast of Slovenia will help reduce the traffic in the city centre while also shortening its route within the city territory. **Sustainable urban mobility planning** fostered a strategic approach to implementation of 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 data collected and their 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 on raising awareness of households in multi-dwelling buildings to improve waste separation. Another aspect is to support social innovation solutions that help reduce waste and extend the life of products and material. The action will also address the tourism sector where mobility and waste, especially linked to city festivals, are primary concern. Further promotion of zero waste concept in organisations of event is necessary, focusing on replacement of single use packaging. 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 is 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 business 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 concept of the ‘city in the park’ which gives the city unique quality of life and adapting to climate change. In view of recent extreme weather events (windfall) and some infrastructure interventions replacing the tree stock and inter-connecting green areas is needed. **Promoting urban gardening and locally produced food** The city has traditionally supported urban gardening and will increase available surfaces. Also, the access to locally produced food will be enhanced by improving the local market and local food promotion initiatives. **Promoting green urban concepts in new business and residential areas** The spatial plan of the City of Velenje includes commercial and residential areas which are expected to be at least partially activated in view of the city just transition, economic restructuring and related green job creation. In line with nearly zero-energy building prescribed by the Energy Act,

Description of action portfolios		
Fields of action	Portfolio description	
	List of actions	Descriptions
		the city will engage with property developers to apply above-standard green and blue infrastructure. **Sustainable farming and forestry** Preserving and maintaining forests is one of the city priorities. The agriculture sector, which is currently producing GHG emissions, will be encouraged to apply low-emission farming practices that have proved to decrease 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** Renewal of buildings complements actions of the energy system related to decarbonisation of the district heating system. Most relevant for reducing GHG emissions is renovation of multi-dwelling residential buildings, out of 193 so far 10 were renovated. A project group comprising the City Administration, the public utility company, managers of the building stock and the local energy agency analysed the current situation and identified buildings that are priority for energy renovation. Potential for reducing emissions also exists in the energy renovation of public buildings (mainly schools and health centre), state own buildings. This action also includes energy renovation of individual houses, comprising renovation of facades, substitution of fossil-fuel boilers with RES (heat pumps, wood biomass boilers in dispersed settlements not connected to the district heating system). Energy renovation is also expected to be accelerated by business sector entities.

4.1 Indicators for Monitoring, Evaluation and Learning

A set of indicators were established for monitoring of the implementation of the CCC Action plan.

Table 7: Impact pathways – overview of indicators

B-3.1: Impact Pathways							
Outcomes/ impacts addressed	Action/ project	**Indicator No.**	Indicator name		Target values		
					2025	2027	2030
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	Reduction of electricity use in public services and manufacturing (MWh)		3 653		5485
Renewable energy production	1.3	I-3	Local RES energy production (MWh)		9 690	10 700	46 103
MOBILITY & TRANSPORT							

B-3.1: Impact Pathways							
Outcomes/ impacts addressed	Action/ project	**Indicator No.**	Indicator name		Target values		
					2025	2027	2030
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 (walk, cycle, 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	2069
Public passenger transport decarbonised		I-10	Green hydrogen or e-powered vehicles in public transportation				6
Transit through city centre reduced	2.4	I-11	Reduction of transit through the city (%)				- 80 %
WASTE & CIRCULAR ECONOMY							
Expanded network of underground waste collection facilities	3.1; 3.2	I-12	Underground waste collection points number		8	12	18
Reduced waste generation Improved waste separation		I-13	Share of inadequately disposed fractions in mixed communal waste, %		45	40	30
Circular economy solutions involving local actors		I-14	Circular solutions piloted		1	2	3
GREEN INFRASTRUCTURE AND NATURE-BASED SOLUTIONS							
Green urban areas managed better	4.1, 4.3	I-15	Green urban areas (ha)		55.7 improved	55.7 improved	55.7 improved
Urban tree stock	4.1, 4.3	I-16	Number of trees		6500	⇗	⇗
Sustainable farming	4.2	I-17	Farmers included in climate/environment schemes		135 (SOPO, KOPOP)	⇗	⇗
BUILT ENVIRONMENT							
Improved 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

5 Investment Plan

A historical overview of the budget of the City of Velenje for the period between 2018 and 2023 is based on the real expenditures as presented in the final budgetary accounts, approved annually by the City Council. The relevant municipal budget for climate related actions and projects is extracted, reflecting the intensity of climate actions and investment projects by year. In the year 2020 the investment activities were more intensive due to closure of the EU cohesion programme period 2014-2020, and consequently finalisation of projects in sustainable mobility.

Table 8: Historical Municipal Budget and Budget for Climate Actions

Budget Data	2018	2019	2020	2021	2022	2023
Municipal Budget (€)	40 298 047	43 219 468	49 443 552	46 823 873	47 120 826	59 395 177
Municipal Budget for Climate Actions & Projects (€)	4 744 167	6 000 302	13 489 138	8 039 613	7 049 443	7 911 158
% of Municipal Budget for Climate Actions & Projects (%)	11.77%	13.88%	27.28%	17.17%	14.96%	13.32%

The City of Velenje Investment Plan for the period 2018–2030 is estimated to **378.7 million** € of which 41.1 million € represent already implemented climate actions in the period 2018–2023; 337.6 million € are envisaged for the period 2024–2030.

The cost estimations reflect the strategic focus of the City of Velenje 2030 decarbonisation targets that prioritize Energy systems. This is also the most cost-effective intervention as measured in €/t CO2 reduction.

- Energy systems actions account for 53% of total Investment Plan costs and contribute to 74% of all CO2eq reduction.
- Mobility and Transport actions account for 20% of total Investment Plan costs and contribute to 12% of all CO2eq reduction.
- Waste and Circular economy actions account for 0,6% of total Investment Plan costs with contribution of 0,11 % CO2eq reduction.
- Green infrastructure & nature-based solutions account for 1,5% of total Investment Plan costs with no contribution to CO2eq reduction.
- Built environment actions account for 25% of total Investment Plan costs and contribute to 14% of all CO2eq reduction.
- Cross-cutting costs of horizontal interventions require 0,36% of the overall Investment Plan budget while there is no direct impact on GHG emissions.

Table 9 indicates the breakdown of financial sources between the City budget and other sources. The percentage of costs covered takes into account all costs covered by the City budget and financial sources from other stakeholders for investment projects and activities already carried out in the period from 2018 to 2023. Note that Actions 1.5 Upgrade of electricity grid and 2.4 Third development axis are not yet assessed.

Table 9: Capital Planning by Stakeholder

Field of Action		Action / Indicator	Citizens (€)	Private Sector (€)	Municipality (€)	Government (RS) (€)*	Transport Operators (€)	Utility Providers (€)	Total (€)
1 Energy systems	1.1.	Decarbonisation of the district heating system	0	0	64 371 193	0	0	77 427 656	141 798 848
	1.2.	Energy Efficiency	0	2 176 120	11 905 858	0	0	0	14 081 978
	1.3.	Renewable energy production	26 310 499	5 800 000	6 626 000	0	0	0	38 736 499
	1.4.	Energy management	0	0	4 070 873	0	0	0	4 070 873
	1.5.	Upgrade of electricity grid	0	0	0	0	0	0	0
2 Mobility & Transport	2.1.	Sustainable mobility network infrastructure	0	0	23 232 502	0	0	0	23 232 502
	2.2.	Promotion of sustainable mobility practices	0	0	3 123 229	0	0	0	3 123 229
	2.3.	Decarbonisation of transport	37 062 000	4 312 000	4 441 254	0	1 969 366	0	47 784 620
	2.4.	Third development axis	0	0	0	0	0	0	0
	2.5.	Sustainable mobility planning	0	0	512 267	0	0	0	512 267
3 Waste & Circular economy	3.1.	Reducing waste generation	0	0	180 000	0	0	446 291	626 291
	3.2.	Promotion of circular economy	0	1 500 000	180 000	0	0	0	1 680 000
4 Green infrastructure & nature-based solutions	4.1.	Preserving and upgrading urban green areas	0	0	4 254 450	0	0	0	4 254 450
	4.2.	Promotion of urban gardening and locally produced food	0	0	1 148 718	0	0	0	1 148 718
	4.3.	Promoting green urban concepts in new business and residential areas	0	0	297 949	0	0	0	297 949
	4.4.	Sustainable farming and forestry	0	0	60 000	0	0	0	60 000
5 Built environment	5.1.	Energy renovation of public buildings	0	0	17 431 550	2 538 802	0	0	19 970 351
	5.2.	Energy renovation of residential and commercial buildings	69 668 274	2 182 440	4 130 010	0	0	0	75 980 725
0 Horizontal interventions	0.1.	Governance	0	0	1 000 000	0	0	0	1 000 000
	0.2.	Social innovation	0	0	350 000	0	0	20 000	370 000
TOTAL			**133 040 773**	**15 970 560**	**147 315 852**	**2 538 802**	**1 969 366**	**77 893 947**	**378 729 300**

6 Enabling Climate Neutrality by 2030

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.

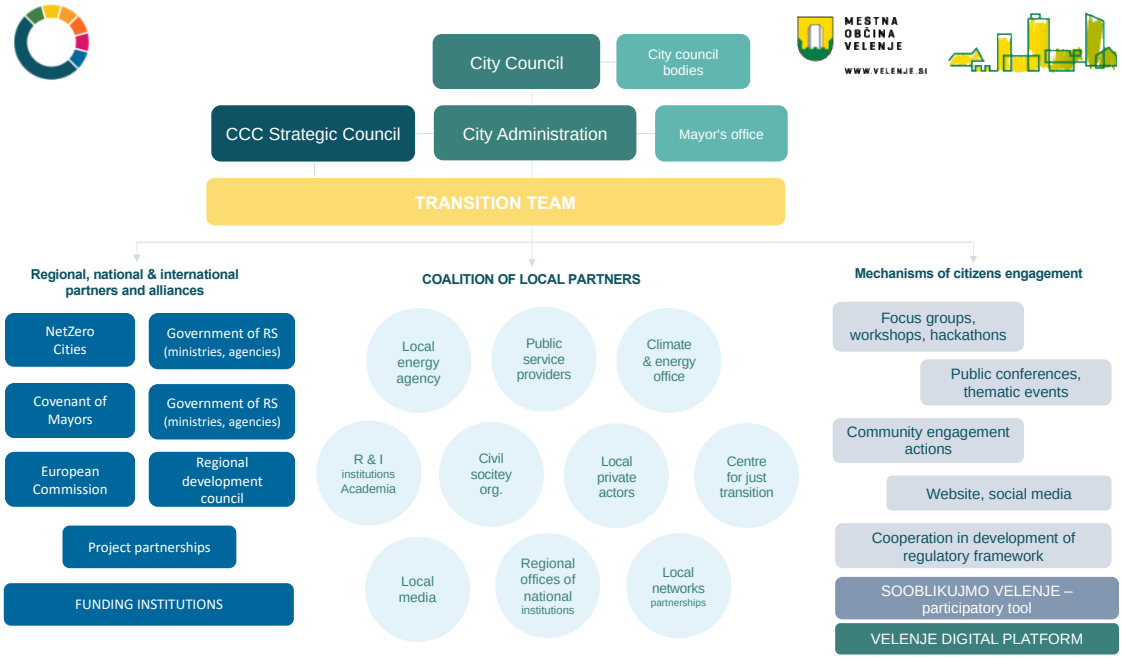

Figure 5: Participatory governance model

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

Strategic level:

- **City Council** is the highest decision-making body on all matters within the scope of the municipality's rights and duties. Within its power, among others, the city council adopts local spatial and other development plans, city budget and the accounts, supervises the work of mayor and the city administration. It will adopt the CCC.
- **CCC Strategic Council** (currently in constitution) is nominated 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 the CCC implementation, monitoring and possible amendments.

Operational level:

- **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.

- **Transition Team** is the main structure at operational level. It comprises representatives of the City administration offices covering the CCC sectors and external members, of which the most important are the local energy agency and public utility company.
  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.

  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.

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

Figure 6: Engagement of youth – hackathon in Velenje

Figure 7: Consultation with key business sector representatives

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 open with a regular schedule. The location of the office will be in a recently renovated building in the old town of Velenje. Its setting-up is supported by 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 movement 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 elderly home visits will be possible.

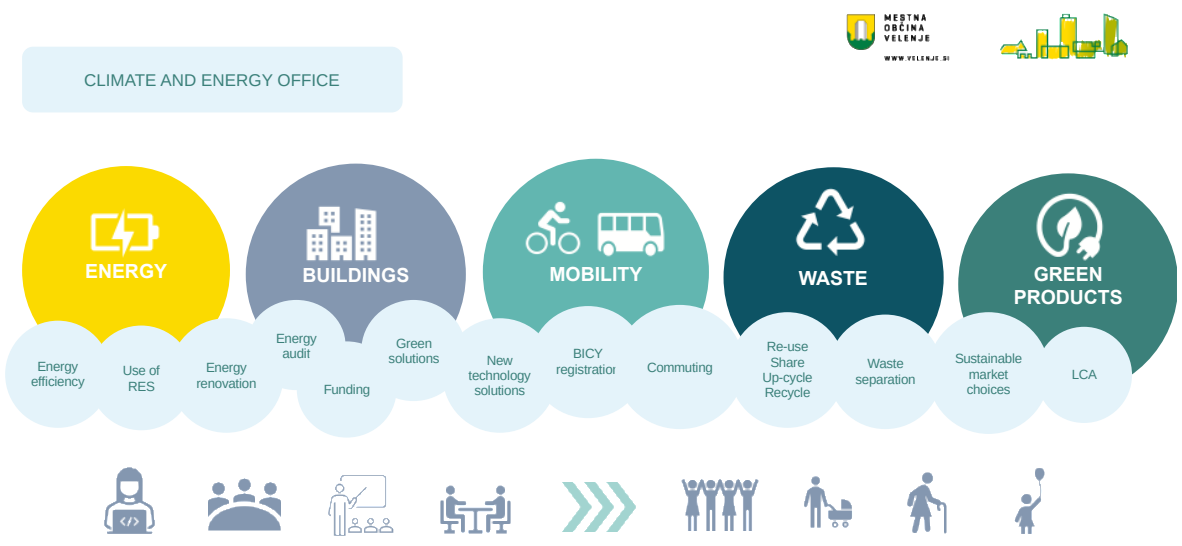

Figure 8: Climate and energy office concept

The organisation of the Climate and energy office is of particular importance for accessing marginalised groups (e.g. 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 the climate and energy office to become a central hub for citizens' climate and energy matters. All related counselling of the 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.

SAŠA incubator recently started a Re-use centre, which currently operates at small scale and yet has 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 more sustainably and responsibly. The centre also promotes renovation skills and knowledge to 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 enterprises.

Target groups: cizitens 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 gradual 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 formed clean vehicle car park would be offered to citizens and thus also enabling benefits.

7 Outlook and next steps

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 exit from coal, etc.). All these can affect especially the implementation of the main building block of the CCC Action Plan – decarbonisation of the district heating system and increased in energy efficiency.

- ### Next steps

Organising for implementation

→ TRANSITON 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 of specific actions.
→ 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) as further encourage participation.
→ COMMUNICATION ACTIVITIES: regular communication activities on the implementation of CCC Action plan and their integration in the City Administration and other stakeholders communication channels.
→ FINANCIAL MANAGEMENT: aligning the actions with municipal budget, attracting funding and investors
→ SETTING UP MONITORING and REPORTING SYSTEM: 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 emerging digital platform
→ RISK MANAGEMENT: identification of risks, assessment and preparing mitigation plan.
→ OTHER: where necessary, the CCC Action Plan actions to be aligned with the new sectoral strategies (SUMP in 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 of the GHG inventory. The CCC Action plan will be adjusted on a need basis.