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 Riga State City

RĪGA

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Summary

In 2022, Riga was selected as one of the participants of the 'EU mission for 100 climate-neutral and smart cities by 2030' ('net-zero cities'). Given the fact that Riga State City Municipality (RSCM) already had a Sustainable Energy and Climate Action Plan 2030 (SECAP 2030) developed and approved, its boundaries and emission calculation methodology were expanded to include waste and wastewater management and forestry, updating the targets defined in SECAP 2030.

The new target for the achievement of the 2030 climate goals of the RSCM Action Plan ('action plan') is a 53% CO_2 emissions reduction compared to 2019, which at the same time means a CO_2 emissions reduction of 80% compared to 1990, reaching climate-neutrality in municipal infrastructure. Forest areas are additionally planned to be used to provide a constant sequestration of CO_2 of around 300 ktCO_2 per year by 2030, which represents 16% of the total GHG emissions recorded in 2019.

In order to enable the RSCM climate goals, the following fields of action have been defined for each sector:

(P) Municipal infrastructure and facilities (measures included will contribute **7% of the total CO_2 reduction**):

P1: Continuous improvements in the energy management system.
P2: 100% renewable heat energy share in municipal buildings.
P3: 100% renewable electricity share in municipal buildings.
P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of buildings.
P5: Upgrading of street lighting.
P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030.
P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use.
P8: Promotion of the use of public transport for work among employees of the Riga municipal government.
P9: Transition to zero-emission vehicles in companies, municipal institutions.
P10: Energy efficiency and RES use in wastewater treatment plants.

(E) Energy production (measures included will contribute **37% of the total CO_2 reduction**):

E1: Promotion of zero-emission technologies and RES in district heating.
E2: Ensure the connection of new clients to DHS of Riga.
E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system.
E4: Gradual transition to the 4th generation heating supply system.
E5: Implementation of innovative pilot projects.
E6: Promote electrification, use of RES in decentralised heating, or connection to DHS.
E7: Promote the use of RES in the generation of electricity for Riga's needs.

(Dz) Multi-apartment residential buildings (**2% reduction in CO_2 emissions)**:

Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings.
Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga.
Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings.
Dz4: Establishment of the Riga Energy Efficiency Fund (REEF).
Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs.

(T) Transport (largest **CO_2 reduction: 54%** of the total amount):

T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars.
T2: Measures to promote distance working and increase the availability of online services.
T3: Promotion of active lifestyle and cycling.
T4: Increase the share of public transport in everyday passenger trips.
T5: Restrictions on private transport.

T6: Other measures to reduce car use.
T7: Promotion of electrification in private transport and provision of services.
T8: Gradual transition to clean technology in vehicles that enable municipal functions.
T9: Collection of mobility data and monitoring of measures implemented.

(A) Waste management and circular economy:

A1: Develop and improve the data records system and mapping of infrastructure.
A2: Waste prevention.
A3: Improving of the amount and quality of household waste sorting.
A4: Development of sorted waste collection infrastructure.
A5: Promotion of waste recycling.
A6: Development of a Riga circular economy action plan for 2026–2030.
A7: Development and implementation of an integrated municipal wastewater management plan.
A8: Provision of information and education, awareness-raising for waste generators.

(ZM) Forestry and CO_2 sequestration:

CO_2 sequestration field of action (in the area owned by LLC 'Rīgas meži'):

ZM1: Targeted creation of uninterrupted forest coverage, selection of sustainable planting material for forestry activity zones.
ZM2: Development of research and innovation to improve CO_2 sequestration in the urban environment.
ZM3: Sharing knowledge on new forest management methods.

Field of action for reducing GHG emissions (in the area owned by LLC 'Rīgas meži'):

ZM4: Develop and improve the data records system and emissions calculations.
ZM5: Compliance with forest certification conditions for long-term afforestation area restrictions.
ZM6: Improvement of the company's forestry risk assessment, assessing the threats and opportunities for developing forest stands.
ZM7: Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise.

ZM8: Greening of Riga's urban environment (rest of Riga's administrative territory).

In order to achieve climate-neutrality, the following horizontal aspects will be taken into account and integrated into the planning and implementation process:

- **Stakeholder participation:** In order to involve as many or as diverse stakeholders as possible in the implementation of the identified measures and in the planning of new measures, representatives of the institutions in charge of each sector will identify and approach the main stakeholders, including representatives of neighbourhood centres and communities that combine and represent the interests of various social groups, as well as business and service provider associations representing business interests, and NGOs and other organisations, such as universities, which can disseminate information to an even broader share of the public (see Section C-1.2 for a more detailed description).
- **Social innovations:** The opportunities that will be assessed and developed will include support for the creation of innovation centres/incubators; opening up of data to foster innovation; strengthening of cooperation with research institutions; setting up of climate innovation funds; development of education programmes; organisation of regular networking events (see Section C-2.1 for a more detailed description).

In order to enable the effective and transparent implementation of the field of action included in the plan, a detailed organisational diagram was prepared for each sector (see Section A-3.3 for a more detailed description), taking into account the main stakeholders involved and their interactions (see Section A-3.1 for a more detailed description).

The funding needed to implement the field of action included in the action plan can be obtained from a variety of sources: short- and mid-term municipal budget measures; private funding for long-term building renovation projects; EU structural funds for RES transition and other long-term energy efficiency measures; sustainable transport solutions; co-financing by the state; as well as other financial instruments. The expected amount of funding necessary for achieving the climate-neutrality targets is set at EUR 3.0 billion.

RSCM's immediate plans are:

- To approve the Action Plan and the Investment Plan.

- To sign the Climate City Contract.
- To provide an active and capable organisational structure for implementing and supervising the plan.
- Prepare visually attractive, simplified, and abbreviated versions of this plan for different target groups (municipality departments and companies, local residents, businesses, etc.), which each target group can review to understand how they can contribute to Riga's climate-neutrality goals.
- Start the implementation of the actions identified in the field of action, involving all the social stakeholders identified in conducting priority actions, including monitoring of the activities.

RSCM will update this plan in 2–3 years based on GHG emissions data and the results of the monitoring of measures taken and will add more actions if necessary.

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Abbreviations and acronyms

Abbreviations and acronyms	Definition
RES	Renewable energy sources
ALTUM	AS 'Attīstības finanšu institūcija Altum'
RRF	Recovery and Resilience Facility
AS	Joint-Stock Company
CSDD	State Joint-Stock Company (VAS) 'Ceļu satiksmes drošības direkcija' ('Road Traffic Safety Directorate')
DHS	District heating system
MoE	Ministry of Economics
EMS	Energy management system
EU	European Union
ESCO	Energy services company
EV	Electric vehicle
ETS	EU Trading System
MoF	Ministry of Finance
SECAP	Sustainable Energy and Climate Action Plan
IPCC	Intergovernmental Panel on Climate Change
kg/t/ktCO_2e	Mass units of greenhouse gas emissions expressed as carbon dioxide equivalent (kilogram, tonne, or kilotonne)
MoCE	Ministry of Climate and Energy
LED	Light-emitting diode
LR	Republic of Latvia
CoM	Cabinet of Ministers
NECP2030	National Energy and Climate Plan for 2021–2030
NGO	Non-governmental organisation
MWGMIS	Municipal waste generation and management information system
PV	Solar photovoltaic panels/cells
VAT	Value-added tax
REEF	Riga Energy Efficiency Fund
Riga Metropolitan Area	Riga Metropolitan Area
RNP	LLC 'Rīgas namu pārvaldnieks'
Riga Planning Region	Riga Planning Region
RTU	Riga Technical University
GHG	Greenhouse gases: carbon dioxide (CO_2), methane (CH4), monovalent nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulphur hexafluoride (SF_6)
LLC	Limited liability company (Ltd.)
MoT	Ministry of Transport
CHP	Combined heat and power plant
Riga State City Municipality units and institutions	
RNRC	Riga Neighbourhood Residents Centre
RCC	Riga City Council
HEC	Housing and Environment Committee of the Riga City Council
RDA	Riga Digital Agency
REA	Riga Energy Agency
RSCM	Riga State City Municipality
PSMD	Public Space and Mobility Department of the Riga State City Municipality

FD	Finance Department of the Riga State City Municipality
PD	Property Department of the Riga State City Municipality
ECSD	Education, Culture, and Sports Department of the Riga State City Municipality
WD	Welfare Department of the Riga State City Municipality
HED	Housing and Environment Department of the Riga State City Municipality
CDD	Urban Development Department of the Riga State City Municipality

1 Introduction

The drafting of municipal sustainable energy and climate action plans is not required in Latvia, but according to the Energy Efficiency Law, municipalities may prepare and adopt an energy plan as a separate document or as part of a national or regional development programme that includes specific energy efficiency targets and measures. The draft Climate Law also envisages the gradual integration of climate policy objectives into municipal development planning.

Riga State City Municipality (RSCM) was the first Latvian municipality to join the Covenant of Mayors initiative, which happened in 2008. It was the first political undertaking by a municipal government to implement and pursue climate and energy policies at the local level. It was a key driver for the initial development of the Riga Smart City Sustainable Energy Action Plan for 2014–2020 and SECAP 2030 in 2021.

When Riga joined the initiative, it undertook to achieve at least a 20% reduction in CO_2 emissions by 2020, compared to 1990. By 2020, the CO_2 emissions reduction compared to 1990 was 60%. During the preparation of SECAP 2030 in 2021, a new target was set, to reduce CO_2 emissions compared to 1990 by 70%, and by 30%, compared to 2019.

In 2022, Riga was selected as one of the participants of the 'EU mission for 100 climate-neutral and smart cities by 2030' ('net-zero cities'). During the development of SECAP 2030, its scope and emissions calculation methodology were expanded to include waste and wastewater management as well as forestry, updating the targets.

Riga's new target is to achieve a 53% CO_2 emissions reduction compared to 2019, which at the same time means a CO_2 emissions reduction by 80% compared to 1990 and the achievement of climate-neutrality in municipal infrastructure. Forest areas are additionally planned to ensure a constant sequestration of CO_2 of around 300 ktCO_2 per year by 2030, which equals 16% of the total GHG emissions recorded in 2019.

1.1 Work process

In 2008, the European Commission launched the Covenant of Mayors initiative to encourage and support local governments in their efforts to implement sustainable energy policies. The Covenant of Mayors is currently the only movement bringing local and regional governments together in achieving the EU's targets.

Riga took an important step towards tackling climate and energy affairs by joining the Covenant of Mayors initiative in 2008. This commitment served as a catalyst for the municipality to develop a sustainable energy action plan for 2010–2020 in 2010. In the plan, the city undertook to reduce its CO_2 emissions 20% by 2020, compared to 1990 levels. The 2011 and 2012 progress reports showed that the target had already been exceeded in 2011, with a 51% reduction. This led to an updated 2020 Action Plan in 2014, with new, more ambitious targets. The goal was to bring the city closer to smart city status and achieve a 55–60% CO_2 emissions reduction by 2020.

The Riga SECAP for 2022–2030 was approved in 2022. It set a target of reducing CO_2 emissions 70% compared to 1990, and 30% compared to 2019. In addition to 1990 as the original baseline year, 2019 was chosen as the second baseline year. It was chosen to mitigate the significant impact of COVID-19 on 2020 consumption data.

In 2021, Riga state city introduced an EMS covering 355 municipal institutions. The implemented EMS was certified according to ISO 50001:2018 in 2023. The system was developed to consistently reduce energy consumption in municipal infrastructure (buildings). The implementation of this system is bringing significant results, with energy savings of up to 5% in its initial years.

In 2022, Riga was selected as one of the participants of the 'EU Mission for 100 climate-neutral and smart cities by 2030' ('net-zero cities').

The energy crisis after the 2022 invasion of Ukraine clearly showed that reducing energy consumption in municipal infrastructure, through EMS and other climate programmes, could reduce costs, while the resulting savings could be utilised to fund climate-neutrality measures.

One of the key fields of action in municipal infrastructure energy savings in winter 2022 was public lighting. Replacing the lights with LEDs, dimming the lighting, and reducing the illumination of building facades, the city reduced the energy consumption of public lighting by 16% in the winter of 2022. RSCM also focused on saving energy by reducing indoor temperatures in public buildings on off-days. In that way, RSCM saved between 15 and 18% of the heating energy consumed by the municipality's buildings. The energy savings from these measures resulted in cost savings of around EUR 4 million compared to 2021. This EUR 4 million was made available to REA for the implementation of the measures defined in the Riga SECAP 2030.[1]

In 2024, a long-term climate programme is being developed to measure and monitor the CO_2 emissions and energy cost reductions of the measures implemented. To ensure the suitability and added economic value of the measures, regulations were created in Riga that gave a value of 1 euro for every tonne of CO_2 saved or reduced across the lifecycle of the project. This approach represents Riga's commitment to assessing and planning environmental investments in real economic terms.

Figure 1 illustrates the GHG emissions reduction actions taken by RSCM so far.

1990	**Total emissions 4 569 ktCO₂**	
…		
2008	Riga joins the Covenant of Mayors	**Reduce CO_2 emissions by 20%, compared to 1990**
2009	..	
2010	Riga' s Sustainable Energy Action Plan 2020 approved	
2011	…	
2012	…	
2013	…	
2014	Riga's Sustainable Energy Action Plan 2020 updated	**Reduce CO_2 emissions by 60%, compared to 1990**
2015	…	
2016	…	
2017	…	
2018	…	
2019	…	
2020	**Total emissions 1 837 ktCO₂ (-60%)**	
2021		
2022	Riga's SECAP 2030 approved Climate-Neutrality Working Group established Energy Management System implemented Riga selected as one of 100 EU Mission cities	**Reduce CO_2 emissions by 70%, compared to 1990, or 30% compared to 2019**
2023	Energy Management System certified	
2024	Riga's SECAP 2030 updated	**Reduce CO_2 emissions by 80%, compared to 1990, or 53% compared to 2019**

Figure 1: Riga's progress towards climate-neutrality so far

To achieve climate-neutrality, RSCM intends to focus on six key sectors. Their interactions are shown in Figure 2.

[1] Source: https://eu-mayors.ec.europa.eu/en/how-riga-reinvests-its-energy-savings-into-long-term-sustainable-energy-and-climate-action

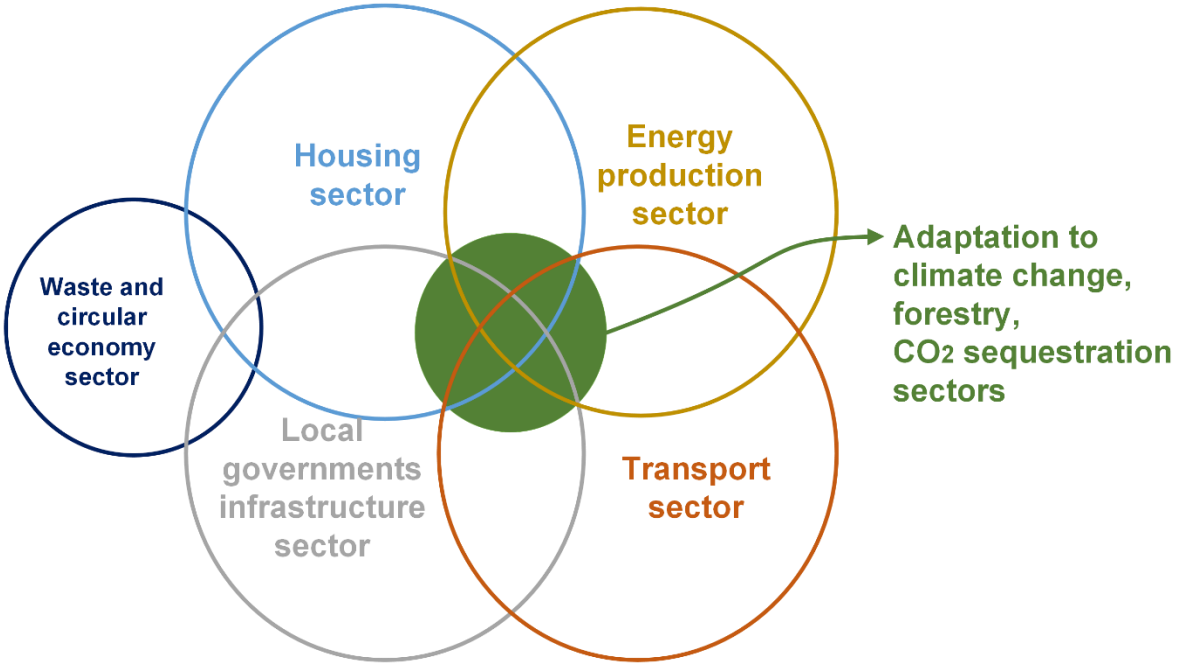

Figure 2: Sectors encompassed by the Action Plan

During the development of the action plan, five co-creation workshops were organised to develop the Riga Climate action planning and the CCC. The topics of the workshops included:

- Energy efficiency in municipal buildings, street lighting, and municipal transport
- Waste management sector, circular economy
- Energy efficiency and energy production in multi-apartment residential buildings
- Transport
- Forestry and CO_2 sequestration

Stakeholders were involved in the workshops, representing the government, RSCM, higher education institutions, healthcare institutions, various NGOs working in nature protection and climate, companies working in energy production, transport, waste, and water management, manufacturing, and local residents. The workshops aimed at identifying specific climate actions and measures to be taken to implement them, defining a scenario to be included in the city climate contract. More than 160 people took part.

Figure 3 summarises the RSCM vision for achieving climate-neutrality.

Figure 3: Riga's climate-neutrality roadmap

With medium-term objectives at the heart of the plan, it is important to revise the plan at regular intervals, every 2–3 years. Such revision serves several purposes. First, it enables assessments of what has been achieved and done so far. Secondly, it supports a thorough assessment of measures, reviewing their effectiveness in achieving the goals. Finally, it makes it possible to plan additional actions that may be needed to ensure that the goals of the plan are met. This approach ensures that the plan remains flexible and complies with Riga's growing needs and challenges in achieving its status as a climate-neutral city.

RSCM's immediate plans are:

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2 Part A — Current State of Climate Action

2.1 Module A-1 Greenhouse Gas Emissions Baseline Inventory

A-1.1: Final energy use by source sectors				
Boundary	The administrative territory of Riga state city and the territory owned by LLC 'Rīgas meži' outside the territory of Riga			
Base year	2020[2]			
Unit	MWh/year			
	Scope 1[3]	Scope 2	Scope 3	Total
Stationary energy sources	5,499,000	1,960,311	Not specified	7,459,311
DHS energy	*2,756,000*	-		*2,756,000*
Natural gas energy	*2,743,000*	-		*2,743,000*
Electricity from the grid	-	*1,960,311*		*1,960,311*
Transport	2,875,035	57,513		2,932,548
Fuel consumption	*2,875,035*	-		*2,875,035*
Electricity from the grid	-	*57,513*		*57,513*
Waste	Not applicable			
Industrial Process and Product Use (IPPU)				
Agricultural, Forestry and Land Use (AFOLU)				

A-1.2: Emissions factors applied
The methodology developed by the Covenant of Mayors based on the 'How to develop a sustainable energy action plan' guidelines has been used to determine GHG emissions. CO_2 emissions are divided into two categories: (1) energy-related emissions resulting from the amount of energy consumption, and (2) non-energy-related emissions coming from the wastewater and waste management, as well as forestry sectors. For heat energy, emissions are determined using data on the amount of fuel consumed for the production of heat energy. The unit of measurement for emissions related to energy and the combustion of fossil fuels is tonnes of CO_2 (the calculations did not include data on emissions of methane CH_4 and nitrous oxides N_2O by the energy sector). The unit of measurement for emissions from waste management and land use is tonnes of CO_2e. The calculation uses emission factors approved by the IPCC. These are emission factors for fuel combustion based on the carbon content of each fuel. DHS emission factor was calculated according to the guidelines of the Covenant of Mayors. The Latvian national standard electricity emission factor was used as the electricity emission factor, in accordance with the guidelines of the Covenant of Mayors. The baseline year was already set in 2008, when Riga joined the Covenant of Mayors. In accordance with the Covenant of Mayors' guidelines for the development of the action plan, 1990 was chosen as the baseline year. That baseline year has remained in place in all action plans developed to date, including SECAP 2030 developed in 2021. As part of the Riga SECAP 2030, waste and wastewater management emissions are calculated in accordance with IPCC guidelines, while forestry emissions were obtained from the monitoring report

[2] The table for 1990 could not be completed due to a lack of data.
[3] The 3 GHG emission scopes follow the standard of the GHG Protocol for Cities: https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities.

of LLC 'Rīgas meži'. This methodology was defined taking the available data into account and in consultation with MoCE experts.

The 3 GHG emission scopes were assigned according to the standard of the GHG Protocol for Cities: (1) Scope 1 includes emissions originating in the territory of the city; (2) Scope 2 includes GHG emissions from the production and delivery of electricity consumed in the city; (3) Scope 3 includes other GHG emissions originating outside the city boundaries but related to activities that took place in the city.

The table below lists the emission factors used to calculate the 2020 emissions.

Natural gas consumed, lowest natural gas combustion value (9.35 MWh per 1000 m^3)	0.202 tCO_2/MWh
Diesel fuel consumption, diesel fuel density 0.84 t/m^3, lowest diesel fuel combustion value (11.8 MWh/t)	0.267 tCO_2/MWh
Petrol amount consumed, lowest petrol combustion value (12.21 MWh/t)	0.249 tCO_2/MWh
Autogas amount consumed, lowest autogas combustion value (12.65 MWh/t)	0.225 tCO_2/MWh
Hydrogen amount consumed, lowest hydrogen combustion value (38 MWh/t)	0.202 tCO_2/MWh
District heating energy production	0.145 tCO_2/MWh
Electricity	0.109 tCO_2/MWh
Waste disposal	1.09 tCO_2/t waste landfilled

A-1.3.1.: Activities by source sectors			
Year	1990/2020		
	Scope 1	Scope 2	Scope 3
Stationary energy sources	Heat energy consumption through DHS	Electricity consumption by households, municipality, industry, services, and other sectors	Not calculated
	Natural gas consumption		
Transport	Private, municipal, public, and rail vehicle fuel consumption	Private, municipal, public, and rail vehicle electricity consumption	
Waste	Wastewater treatment centralised and decentralised	-	Waste disposal at Getliņi landfill
Industrial processes and product use	Emissions from industrial processes and use of products are not included, as the installations generating these emissions are part of the EU Emissions Trading System and, according to the Covenant of Mayors guidelines, fall outside its scope.		
Agriculture, Forestry, and Land Use	-	-	Forest land managed by LLC 'Rīgas meži' outside the city[4]

[4] The data represent the total emissions produced on the land of LLC 'Rīgas meži', i.e., these are not available with a breakdown for urban and non-urban areas.

A-1.3.2.: Activities to be included in the future			
The table below summarises activities for which GHG emissions are not currently accounted for in this plan but are planned to be included in it in the future, as well as activities for which the methodology for calculating emissions is to be refined.			
	Scope 1	**Scope 2**	**Scope 3**
Stationary energy sources	• Energy consumption by individual heating systems in Riga (excluding natural gas) • Amount of electricity generated individually and fed into the grid		• Electricity supply distribution losses
Transport	• Port fuel consumption	• Port electricity consumption	• Electricity supply distribution losses
Industrial Processes and Product Use	• Emissions from industrial processes and product use of companies in the city that are not a part of ETS		
Agriculture, Forestry, and Land Use	• Emissions from green areas in Riga not managed by LLC 'Rīgas meži'		

A-1.4: GHG emissions by source sectors				
Base year	2020			
Unit	tCO_2e			
	Scope 1	Scope 2	Scope 3	Total
Stationary energy sources	696,600	213,673	Not calculated	910,273
Transport	711,411	6269		717,680
Waste	23,500	-	145,650	169,150
Industrial Processes and Product Use	Not included			
Agriculture, Forestry, and Land Use	-	-	39,938	39,938
Total	1,431,511	219,942	185,588	1,837,041

A-1.4: GHG emissions by source sectors				
Base year	1990 (baseline year)			
Unit	tCO_2e			
	Scope 1	Scope 2	Scope 3	Total
Stationary energy sources	3,256,100	423,700	Not calculated	3,679,800
Transport	609,727	5373		615,100
Waste	60,895	-	213,408	274,304
Industrial Processes and Product Use	Not included			
Agriculture, Forestry, and Land Use	-	-	-	-
Total	3,926,722	429,073	213,408	4,569,204

A-1.5: Figures and charts

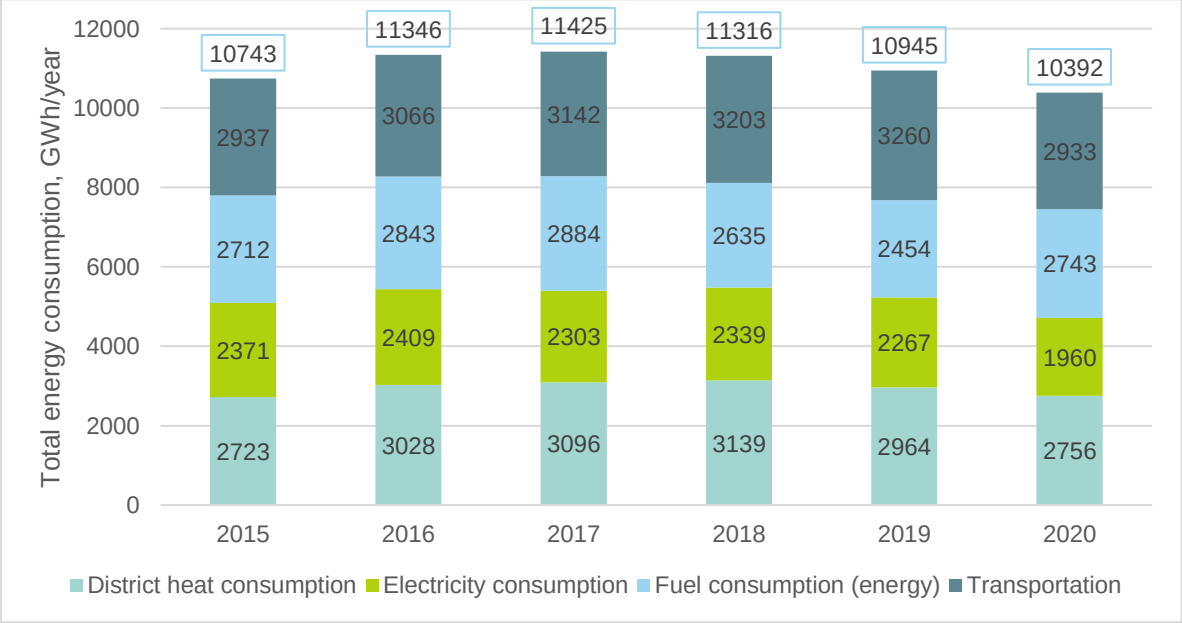


Figure A-1.5.1: 2015–2020 changes in energy consumption in Riga

A-1.5: Figures and charts

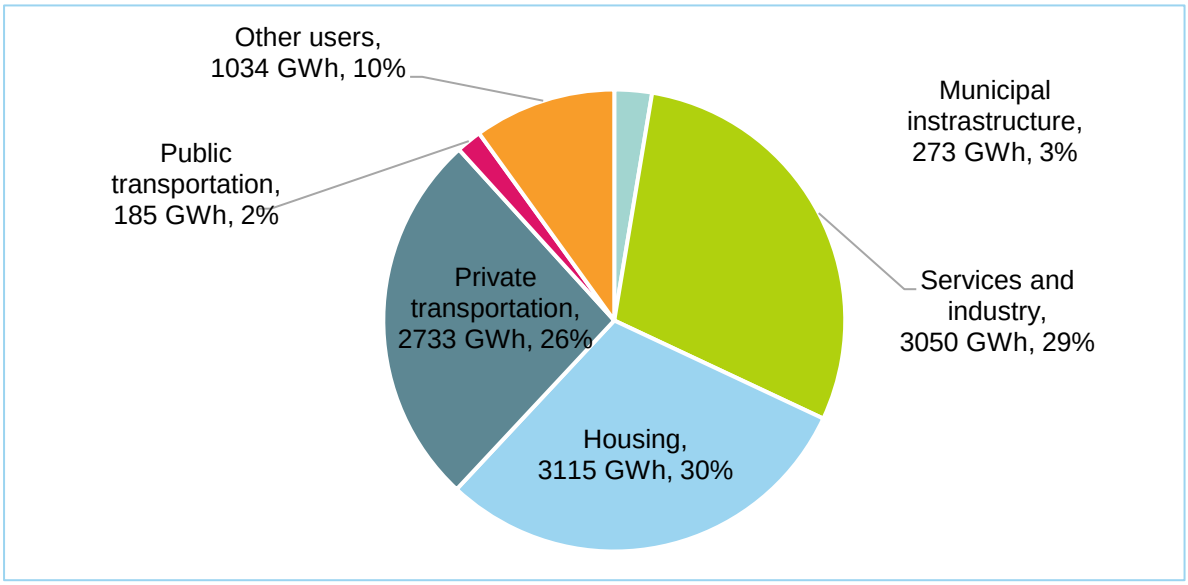


Figure A-1.5.2: Breakdown of 2020 energy consumption by sector

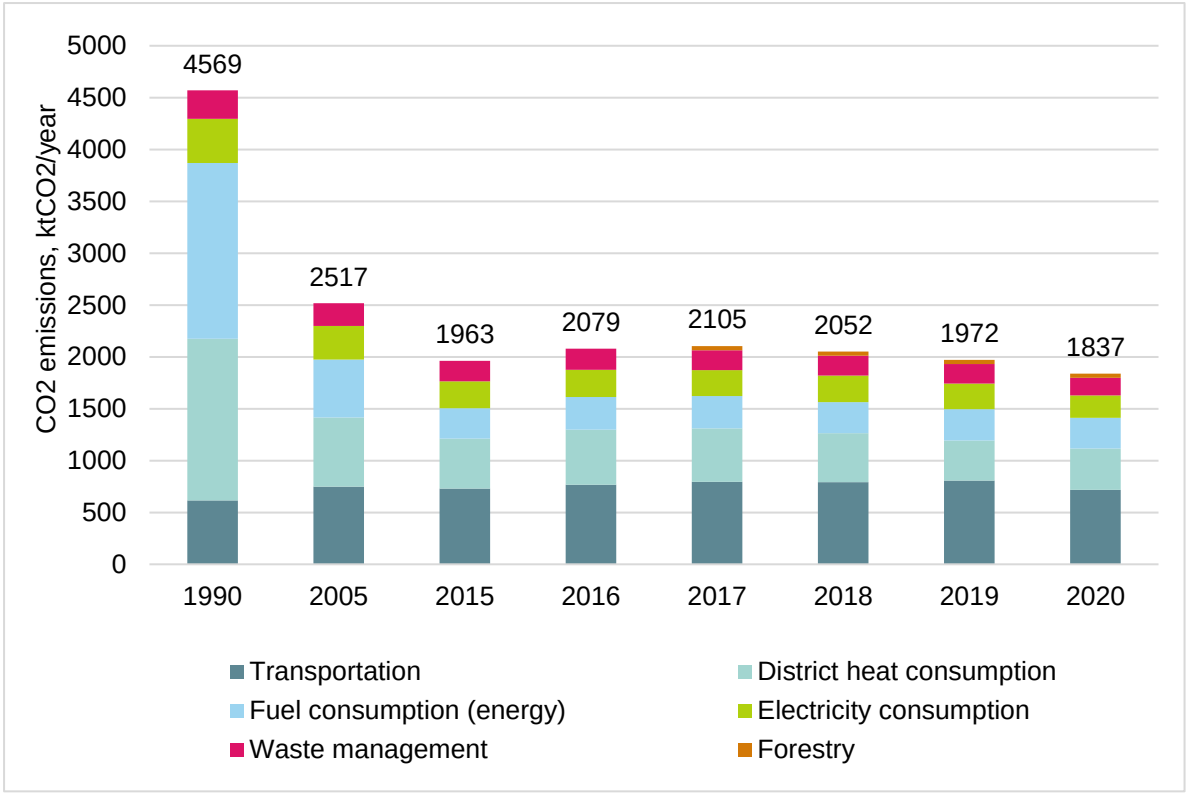


Figure A-1.5.3: Changes in GHG emissions in Riga in 1990, 2005, 2015–2020

A-1.5: Figures and charts

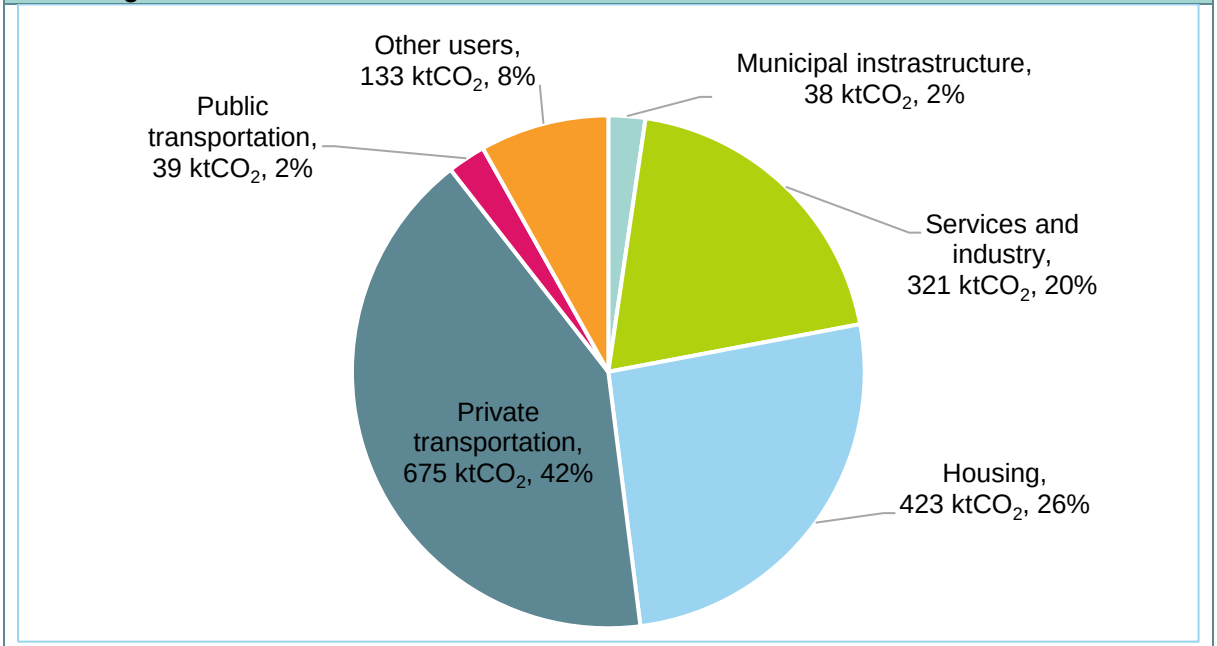


Figure A-1.5.4: Breakdown of 2020 GHG emissions by sector

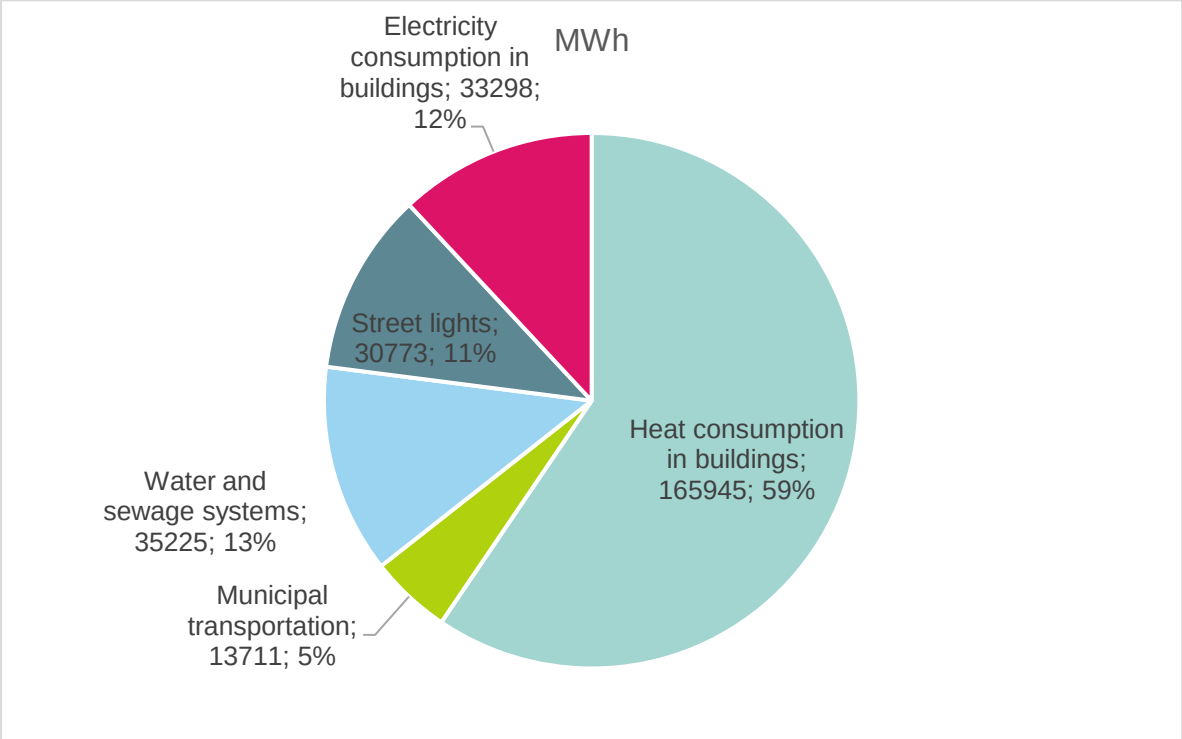


Figure A-1.5.5: Municipal infrastructure energy consumption in 2020

A-1.5: Figures and charts

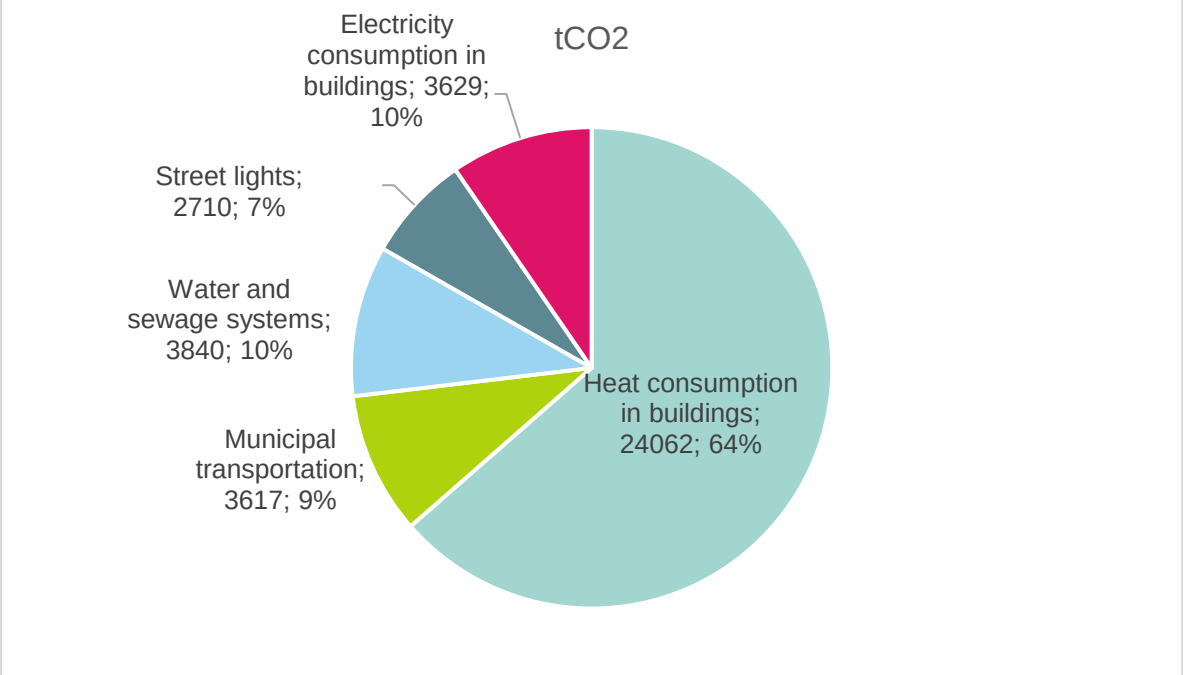


Figure A-1.5.6: Municipal infrastructure energy consumption CO_2 emissions in 2020

A-1.6: Description and assessment of GHG baseline inventory

Figure A-1.5.1 shows the changes in Riga state city energy consumption in 2015–2020. Energy consumption in Riga fell 3% since 2015, reaching 10,392 GWh in 2020. The 2020 decrease can be explained by the impact of COVID-19, and by the use of a more detailed source of input data, and the assumptions used in the calculations compared to 2015–2019. In 2020, heat energy consumption from energy production by the district heating was 27%, transport took up 28%, fuel consumption for decentralised heat supply systems was 26%, and electricity consumption was 19%.

Figure A-1.5.2 shows a more detailed breakdown of energy consumption by key sectors in 2020. The residential sector accounted for the largest share of Riga's total energy consumption in 2020 (30%), while the services and industry sector accounted for 29%, and the private vehicle sector, 26%. The municipal sector (water supply, street lighting, municipal buildings, and municipal fleet) accounted for 3%, public transport for 2%, and other consumers, for 10%.

Figure A-1.5.3 shows the changes in Riga state city GHG emissions in 1990, 2005, and 2015–2020. Given the fact that energy consumption fell 6% since 2015, the amount of **GHG emissions decreased accordingly, reaching 1837 $ktCO_2e$ in 2020. In 2020, 39% of emissions were generated by the transport sector, 22% by DHS, 16% by fuel consumption in the decentralised heat supply system, 12% by electricity consumption, 9% by waste management, and 2% by forest management.**

Figure A-1.5.4 shows a more detailed breakdown of GHG emissions generated in 2020 by main groups of consumers. **In 2020, 37% of the emissions were caused by private transport fuel consumption, 23% by the electricity and heating energy consumption in the housing sector, and 18% by the electricity and heating energy consumption in the manufacturing and service sector.** The municipal sector (electricity and heating energy consumption of municipal institutions, electricity consumption by water management and lighting, and fuel consumption by municipal transport) accounted for 2%, waste management for 9%, forest management for 2%, and other energy consumers, for 8%.

Figure A-1.5.5 shows the total RSCM infrastructure consumption and its breakdown into main groups in 2020. The heat energy consumption by municipal buildings takes up the biggest proportion in the overall energy consumption structure (59%). On the other hand, electricity consumption in water management accounts for 13%, in municipal buildings for 12%, and in street lighting, for 11%. At the

A-1.6: Description and assessment of GHG baseline inventory

moment, no information is available about the consumption of heat energy and electricity in all municipal buildings, so the share of these sectors in the total consumption could be even higher.

Figure A-1.5.6 shows the municipal infrastructure energy consumption GHG emissions in 2020. The breakdown of the major emission sources is similar to Figure A-1.5.5 for the energy consumption of municipal infrastructure.

2.2 Module A-2 Current Policies and Strategies Assessment

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
Strategy	National	Latvia Sustainable Development Strategy 2030	The country's top long-term development plan.	*National energy policy:* The main goal of the energy sector is to ensure energy independence by increasing energy self-sufficiency and integrating into EU energy networks.	The document has a neutral impact as it does not represent the commitments undertaken by the state and the requirements and opportunities for municipalities resulting from such commitments.
Action plan	National	Latvia National Development Plan 2021–2027	The country's top mid-term development plan.	*National development policy:* Sets key priorities, including 'Nature and Environment — Green Deal', and mitigating the impact of climate change through climate change adaptation measures.	Important national policy planning documents that can support Riga's efforts in achieving climate-neutrality. However, both these documents do not fully take into account the needs and opportunities of municipalities, especially Riga as the capital of Latvia. The plans plan for EU structural fund funding for various energy and climate-related activities, but the funding earmarked is small relative to the needs identified. Adequate and targeted funding is needed to implement measures, not only for infrastructure projects but also for targeted educational activities for all social groups. Implement a clear policy in the transport sector to reduce the use of old vehicles. It is
Action plan	National	Latvian National Energy and Climate Plan 2021–2030	A framework policy document setting out Latvia's goals and measures to achieve these goals, in terms of reducing GHG emissions and increasing CO_2 sequestration, increasing the share of RES, improving energy efficiency, ensuring the security of energy supply, maintaining and improving energy market infrastructure, pursuing innovation, research, and competitiveness.	*National energy and climate policy:* The mandatory national 2030 target for Latvia is 20,472.02 GWh of cumulative savings in the end consumption of energy. The total amount of funding foreseen (desired) to implement the measures proposed in the action plan is EUR 7362.1 million.	

[5] The colours represent the impact of the document on the achievement of Riga's climate objectives: green — positive impact; grey blue — neutral/no significant impact; orange — negative impact.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
					necessary to find ways to raise external funding for energy efficiency and other projects, e.g., from the European Investment Bank.
Strategy	National	Long-term strategy for the renovation of buildings	The goal is to mobilise investments in the renovation of public and private housing stock, as well as retail premises.	*Public housing renovation policy:* Identify cost-effective renovation approaches depending on the building type and the climatic zone, and the policy measures necessary to promote the cost-effective, full renovation of buildings, including gradual and complete renovation.	This is a national-level document that identifies the need for the renovation of buildings; it does not, however, provide a clear strategy for how renovation will take place and be scaled up to the level that Riga needs.
Strategy	National	Long-term energy strategy 2030 for Latvia	The goal is to achieve a competitive economy through a balanced, efficient, market-based energy policy that enables further development of the Latvian economy and its competitiveness in the region and the world, and fosters the well-being of the public.	*National energy policy:* The following targets and performance indicators are set for 2030: • 50% RES in gross end energy consumption; • Average heating energy consumption reduced by 50% compared to the current level.	The document has a neutral impact as it does not represent the commitments undertaken by the state and the requirements and opportunities for municipalities resulting from such commitments.
Policy	National	Latvian Strategy for Achieving Climate-Neutrality by 2050	The overall goal is to achieve climate-neutrality in Latvia by 2050.	*National climate mitigation policy:* Two strategic goals were set (1) to reduce GHG emissions in all sectors of the economy and (2) to increase CO_2 sequestration.	The document has a neutral impact as it identifies national long-term goals reaching as far as 2050 that are not consistent with Riga's climate-neutrality goals.
Law	National	Energy Efficiency Law	The goal is to use and manage energy resources efficiently to promote sustainable economic development and limit climate change.	*National climate mitigation policy:* Section 5 sets the rights and obligations that apply to RSCM.	A national policy that motivates the municipality to maintain and continuously improve its certified EMS.
Action plan	National	Latvian Plan for Climate Change Adaptation for 2030	The overall goal is to reduce the vulnerability of Latvian public, economy, infrastructure, built developments, and nature to the	*National climate change adaptation policy:* This requires (1) integrating climate change aspects	A national planning document that identifies a range of actions for municipalities but does not set a framework or

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
			impacts of climate change and to promote the use of opportunities associated with climate change.	(mitigation and adaptation to climate change) into development planning and sectoral policy documents at all levels; (2) ensuring that detailed measures and necessary adaptation measures are included in municipal development programmes.	binding requirements, for example, on biodiversity and other topics.
Policy	National	Environmental Policy Guidelines 2021–2027	The main sub-goals are to achieve progress towards climate-neutrality and to foster resilience and adaptation to climate change.	*National climate change adaptation policy:* By 2027, all municipalities must have developed and fully or partially implemented their municipal climate change adaptation strategies.	A national policy that encourages municipalities to develop local climate change adaptation strategies.
Action plan	National	Air Pollution Reduction Action Plan 2020–2030	The plan was designed to reduce the negative effects of air pollution on the environment and human health, and to reduce costs and worktime lost due to health problems and doctor's visits caused by air pollution.	*Riga air quality policy:* One of the measures identified in the plan is the development of air quality measure programmes in municipalities.	A national policy that encourages municipalities to develop local policies in this sector.
Action plan	National	Wastewater Sludge Management Plan 2024–2027	The purpose of the plan is to define a model for wastewater sludge management in Latvia, with a view to centralising sludge treatment and disposal.	*National wastewater sludge management strategy:* Support sustainable economic development that reduces climate change, working towards a suitable and competitive economy, including following circular economy principles. The document sets out a number of measures that also apply to the state city of Riga, including the expansion of methane tanks, increasing RES production, and reducing GHG emissions.	A national policy that also includes measures to be implemented in Riga. In Riga, all wastewater sludge must be processed for the production of biogas; composting must be expanded.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
Law	National	Transport Energy Law	The purpose of the law is to promote the circulation of transport energy that is safe for the health of humans and their environment, and to achieve the development of alternative fuel infrastructure and public awareness of the available and usable forms of transport energy.	*National sustainable mobility development policy:* According to the draft law, Riga will be required to: • it will be necessary to determine such conditions for the use of vehicles in the municipality that promote the reduction of emissions caused by the use of vehicles; • it will be required to ensure that renewable energy accounts for at least 50% of city public transport energy in 2030; • it will be required to ensure starting from 1 January 2030, that at least 50% of the vehicles purchased by municipalities through public procurement are RES vehicles.	A national policy that sets various obligations for municipalities. Riga has set even more ambitious targets for achieving climate-neutrality.
Policy	National	Transport Development Guidelines 2021–2027	A mid-term policy planning document for the development of the transport sector that aims to address the need for sustainable human mobility while contributing to the economic growth of the country, including the development and accessibility of the business environment.	*National sustainable mobility development policy:* The document sets a number of measures that also apply to the state city of Riga, including: • strengthening the role of railways in providing public transport services; • development of public transport services; • improvement of the transport system through	A national policy that also includes measures to be implemented in Riga does not contradict this action plan. However, the implementation of the measures included in the plan and their coordination between the national and municipal governments is slow in this sector.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
				• measures to mitigate climate change; • promotion of the use of alternative fuels.	
Strategy	National	Circular economy strategy for Latvia	The purpose of the strategy is to inform the Latvian public about the most important aspects of implementing the circular economy and to offer it a vision of the main areas of action and measures as part of these areas aimed at fostering the development of the circular economy in Latvia, thus investing in the development of a competitive, inclusive, and sustainable national economy, while enabling the fulfilment of the country's international obligations.	*National circular economy policy:* This document lists a number of measures that must be implemented by municipalities, including the creation of a records system for waste and material flows and the use of statistics to enable informed policymaking.	The municipality is working to incorporate the principles of circular economy into municipal policies.
Action plan	National	Latvia Circular Economy Transition Action Plan 2020–2027	A mid-term policy planning document that outlines potential field of action that require the active engagement and commitment of all line ministries, municipalities, the private sector, and the public.	*National circular economy policy:* One of the field of action identified in the plan is strengthening the role of municipalities in implementing the principles of the circular economy.	The municipality is working to incorporate the principles of circular economy into municipal policies.
Law	National	Waste Management Law	The goal is to set waste management procedures to protect the environment, human life and health by preventing or reducing the production of waste, enabling the separate collection and recovery of waste produced in Latvia and reducing the amount of waste disposed of in landfills, and promoting the efficient use of natural resources to increase Latvia's competitiveness and encourage the transition to a circular economy.	*National circular economy policy:* States that municipalities in Latvia are responsible for organising household waste management in their administrative territories.	The municipality is working to incorporate the principles of circular economy into municipal policies.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
Plan	National	National Waste Management Plan 2021–2028	The plan describes the current situation in the sector, and determines the fields of action and the measures for achieving the environmental policy goals in waste reduction, separate collection of waste, and recycling of waste, reducing the amount of waste going to landfill.	*National circular economy policy:* The plan aims to create stronger waste management regions, thereby developing and increasing waste recycling capacity and expanding separately collected waste flows. Riga is in the Central Latvia Waste Management Region.	The municipality is working to incorporate the principles of circular economy into municipal policies.
Strategy	Regional	Riga Planning Region Development Strategy 2014–2030	At the regional level, the overarching long-term development planning document is	*Riga region development policy:* The strategy defines the following objectives and priorities for SECAP 2030: A knowledge-based green, innovative, and resilient economy: ○ High-quality traffic and logistics; ○ Local governments as drivers of development. Ecologically compatible lifestyle and locations: ○ Sustainable living; ○ Smart development.	The impact of the document is neutral as it does not impose any obligations on the local government. It does not contradict the policy of RSCM.
Action plan	Regional	Riga Metropolitan Area Development Action Plan	The purpose of the plan is to achieve consistent Riga Metropolitan Area development and coordination of the processes taking place in Riga Metropolian Area, using an integrated approach and comprehensive solutions to reconcile the interests of the state, the city of Riga, the municipalities within Riga Metropolitan Area, and the local residents.	*Regional sustainable mobility development policy:* The plan sets the actions to achieve coordinated and efficient management of the environment, natural resources and energy in the Riga Metropolitan Area. This includes environmental infrastructure, energy planning, and climate change adaptation, use of natural resources, development of the	The document does not have a clearly positive meaning, as it has not so far added value to the implementation of the various actions identified.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
				circular economy, and environmental governance topics.	
Vision	Regional	Spatial vision of mobility in the Riga Metropolitan Area	Includes a vision for the development of the outer and inner reaches of the metropolitan area.	*Regional sustainable mobility development policy:* The following transport goals are set for the Riga planning region: • Strengthening of unified internal and external access infrastructure networks. • Creation of an integrated and functionally differentiated public transport network. • Strengthening of international North-South, East-West connections and hubs. • Creation of an integrated network of inland and coastal water lines. • Development of intra-city transport and its connections.	The document does not have a clearly positive meaning, as it has not so far added value to the implementation of the various actions identified.
Action plan	Regional	Riga Metropolitan Area Sustainable Integrated Public Transport Plan 2024–2030	The purpose of the plan is to achieve more use of public transport for high passenger flows and to reduce car traffic in Riga Metropolitan Area by creating a public transport offer that is competitive with private vehicles and by promoting and offering more opportunities for passengers to plan their journey using different modes, including bicycles and other micro-mobility vehicles.	*Regional sustainable mobility development policy:* The plan sets specific fields of action: a route network development plan, a fare policy, an integrated strategic schedule, planned transport amounts, and other conditions.	The document could have a positive impact if the measures set out in the plan are implemented.
Action plan	Regional	Everyday Mobility Development Plan 2021–2027	Mid-term regional	*Regional sustainable mobility development policy:* The goal	Based on the data, migration between Riga and its suburbs

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
			development planning document for 2021–2027 Its purpose is to improve the capacity of sustainable mobility in the context of commuter migration between Riga, its suburbs, and the municipalities involved.	is to improve the capacity of sustainable mobility in the context of commuter migration between Riga, its suburbs, and the municipalities involved, given the fact that the area affected includes the majority of the inner Riga Metropolitan Area.	has not decreased as a result of consistent policies.
Strategy	Local	Riga Sustainable Development Strategy 2030	Riga State City Municipality long-term area development planning document.	*Riga development policy:* Riga City Municipality has set four long-term development goals, including 'Comfortable and safe urban environment that is pleasant to local residents. The goal is to develop Riga as a sustainable metropolis by restricting the entry of private vehicles into its centre, encouraging local residents to use public transport and cycling. Multi-apartment residential buildings also play an important role in Riga. The renewal of housing stock is one of the main factors for the development of this sector.	A local policy document that guides and determines the development of Riga state city and is also linked to the main fields of action defined in this action plan.
Programme	Local	Riga Development Programme 2022–2027	Mid-term development planning document for the city's municipal government.	*Riga development policy:* Three of the defined fields of action are closely linked to energy and climate: 1. Good environment quality and sustainable urban ecosystem for mitigating climate change to: 'Create such quality of the environment that has a beneficial effect on the health	A local policy document that guides and determines the development of Riga state city and is also linked to the main field of action defined in this action plan.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
				and well-being of local residents, and their desire to be physically, socially, and economically active. Create and maintain a pleasant, diverse, and climate change-adapted environment, in which nature-based solutions contribute to the quality of the environment, to the adaptation to and mitigation of climate change.' 2. Availability of diverse and high-quality housing with the goal of: 'No less than 1400 multi-apartment residential buildings getting a comprehensive and high-quality renovation as part of the housing programme by 2027.' 3. Comfortable and environmentally friendly travel in the city: 'Promote climate and human-friendly mobility by making a wide range of mobility options available and creating the necessary infrastructure.'	
Guidelines	Local	Riga State City Municipality Housing Policy Guidelines 2024–2030	A mid-term policy planning document that sets out the directions and tasks for the housing policy. Its purpose is to provide high-quality, diverse, and affordable housing in Riga, in order to stabilise the population of the city and enable its economic development.	*Riga Housing Renovation Policy:* These guidelines define the municipal government's field of action for improving the energy efficiency of municipality-owned multi-apartment residential buildings (10 buildings renovated) and for	If implemented, this planning document could lead to a significant increase in the number of renovated multi-apartment residential buildings, potentially enabling further scaling up of the renovation of buildings in Riga.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
				improving the energy efficiency of other multi-apartment residential buildings (2000 buildings renovated).	
Proposal (not approved as a planning document)	Local	Riga mobility vision for 2050	Describes Riga's mobility vision for 2050.	*Riga sustainable transport development policy:* According to the vision, development is based on improving public transport infrastructure and services, including creating mobility points and coordinating transport schedules. It is also planned to build new infrastructure networks that would connect the different neighbourhoods of Riga, and Riga to its suburbs. The vision also envisages reducing the use of private transport by developing bicycle and pedestrian infrastructure.	The vision and principles set in the document are consistent with the fields of action identified in this action plan.
Proposal (not approved as a planning document)	Local	Short-Term Sustainable Mobility Action Programme for the Transport System in Riga 2019–2025	The action programme provides details on the principles and scope defined in the Riga mobility vision, setting steps, activities, and deadlines for achieving the goal set in the vision.	*Riga sustainable transport development policy:* developed in order to 'enable the mobility of people and the business environment, the accessibility of areas and the availability of facilities for better quality of the living environment.' Measures defined: • for pedestrian infrastructure; • for the improvement of bicycle infrastructure; • for the development of public transport;	The vision and principles set in the document are consistent with the fields of action identified in this action plan.

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
				• for private transport; • for the development of electric transport infrastructure.	
Proposal (not approved as a planning document)	Local	Riga Air Quality Improvement Action Programme for 2021–2025	In the period from 2015 to 2019, the air quality standards and upper pollution assessment thresholds of several pollutants were found to be exceeded in Riga, as a result of which the Riga City Air Quality Improvement Action Programme 2021–2025 was prepared. It includes measures to reduce emissions of five pollutants: nitrogen dioxide (N_2O), PM10 and PM2.5 particulate matter, benzene and benz(a)pyrene.	*Riga air quality policy:* The programme assesses in detail the measures that can potentially affect air quality, grouped as follows: • transport and traffic infrastructure; • public transport; • heating supply systems; • stationary sources of pollution; • shipping traffic in the port; • air quality management, and education and awareness-boosting activities for the public.	This policy document will have a positive impact if the development track it sets is followed, and the planned measures are implemented in a consistent manner.
Concept	Local	Riga bicycle traffic development concept for 2030	The 2030 development concept defines the vision, goal, and main tasks of bicycle traffic development in Riga, aiming to achieve the goal of integrated cycling development.	*Riga sustainable transport development policy:* The purpose of bicycle traffic development is to create and improve safe and sustainable cycling opportunities for everyday purposes in the city, integrating bicycle infrastructure into the overall transport system and the urban environment of Riga. It is necessary to pay much attention to the safety aspect in order to make it safe to cycle on all city streets in Riga.	This policy document will have a positive impact if the development track it sets is followed, and the planned measures are implemented in a consistent manner.
Concept	Local	Concept for the development of the electric vehicle charging infrastructure network by 2035	The 2035 development concept includes electric and micro-mobility tool forecasts up to 2035, the	*Riga sustainable transport development policy:* According to the concept, the	It defines the locations where electric vehicles charging stations could be installed. If

A-2.1: List of important policies, strategies, and regulations[5]					
Type	Level	Name	Description	Importance	Action necessary
			locations of existing and potential charging solutions in Riga, as well as guidelines and design solutions.	share of electric vehicles will be 6.1% in 2030 and 35.1% in 2040. A minimum of 3400 publicly accessible charging points will be needed by 2030 and 10800, by 2035. Electric micro-mobility will grow alongside electric vehicles.	the plan is implemented, and barriers in the sector, such as those related to official approvals, are also removed, the plan could have a positive impact.
Action plan	Local	2024–2028 Neighbourhood Centre Development Plan	A mid-term policy planning document that coordinates the development of public outdoor space in neighbourhood centres over the next five years. The plan sets territorial priorities, investment areas, and an implementation mechanism that will ensure the consistent development and implementation of public outdoor space projects.	*Riga development policy:* The plan defines a number of climate and energy measures, including the promotion of micro-mobility, the development of green areas and artisanal producer markets.	The development of conceptual plans for the neighbourhoods must take the city's climate and energy goals into account, with special attention paid to information, education, and engagement measures.

A-2.2.: Description and assessment of policies

Latvia's National Energy and Climate Plan 2030 (NECP2030) is the comprehensive policy planning document that encompasses Latvia's goals, current policies, and measures in limiting GHG emissions, restructuring the energy sector, and reviewing key actions for climate change adaptation. NECP2030 was developed in line with the *Fitfor55* EU climate and energy framework package aimed at achieving climate-neutrality; it sets out Latvia's national contribution to achieving the overall EU RES share target, to reducing GHG and achieving energy efficiency.

An updated version of NECP2030 was submitted to the European Commission in summer 2024; it was updated based on results of modelling, a socio-economic assessment, ministry proposals, and discussions with stakeholders. NECP2030 was developed in accordance with Latvia's Sustainable Development Strategy 2030 and Latvia's National Development Plan 2021–2027, as well as other sectoral policy planning documents and legislation.

Riga is Latvia's economic and population centre, and in 2020, Riga accounted for some 24% of Latvia's total GHG emissions[6]. So there is a strong link between NECP2030 and the fields of action and sources of funding set in the RSCM 2030 action plan. The target values may be updated in 2024, following European Commission recommendations and discussions with industry and stakeholders. The priorities highlighted in NECP2030 are also broadly in line with the fields of action of this plan.

Latvia's 2030 GHG target is a reduction of 65% compared to 1990. A non-ETS GHG reduction target of 17% compared to 2005 is also binding; in particular, it encompasses measures in transport and housing. Latvia must achieve a 15% reduction in GHG intensity in transport by 2030.

The updated NECP2030 for 2024 sets a target of 60% renewable energy in end energy consumption (50% in the previous NECP2030). Accordingly, it is also planned to achieve >70% RES in end electricity consumption and 100% RES in the electricity produced in Latvia. Renewable energy targets for 2030 are also set for heating and cooling (66.4%), district heating systems (73.9%), transport (29%), buildings (65%), and industry (73.1%). In the field of energy efficiency, there are targets for energy savings and reducing energy consumption, and a separate target for renovated floor area in public sector buildings (a total of 2.5 million m^2 renovated).

Key NECP2030 measures in the field of transport include strengthening the role of rail infrastructure, greening heavy and light cargo vehicles, promoting electrification and the transition towards low-emissions mobility, including implementing a low-emissions zone and holding a car-free day in Riga.

In the field of electricity and heat generation and consumption, the plan is to achieve a balanced development of solar and wind farms and to start using energy storage solutions. In district heating, the emphasis is put on the role of electrification, use of residual heat and plans to modernise infrastructure. Biomethane production will be promoted, and natural gas traders will be required to achieve an annual RES share of at least 3%. Restrictions will be placed on the installation of new fossil fuel systems. It is worth highlighting the plan to achieve biogas/biomethane extraction in the water management companies of the state city, which is particularly relevant to the measures envisaged by LLC 'Rīgas ūdens'. This measure is also linked to the future requirement for certain service providers (DHS operators, waste management companies, water management companies, etc.) to adopt RES technologies and to provide in-house sources of energy.

Equally important will be the involvement of energy consumers, supporting active users, developing the net system and launching the first energy community initiatives.

Many actions are intended to improve energy efficiency, including the introduction of energy management systems, improved data systems and calculation methodologies, and measures to manage energy consumption and demand. Monitoring and management measures, support for energy efficiency measures implemented by local authorities and improved energy efficiency of public sector buildings will be expanded in the area of buildings. Renovation and energy efficiency efforts will be stepped up in multi-apartment residential buildings, detached houses, and neighbourhoods and connecting them to DHS will be encouraged.

[6] Data on regional climate change indicators are available at: https://stat.gov.lv/lv/statistikas-temas/vide/regionalie-klimata-parmainu-raditaji/21326-siltumnicefekta-gazu-emisijas

A-2.2.: Description and assessment of policies

In the area of waste and wastewater management, NECP2030 aims to increase the recycling of biodegradable waste and improve sorting rates. GHG emissions monitoring will begin at major wastewater treatment plants, with improvements in the operation of the systems and the comprehensive implementation of the Sewage Sludge Management Plan for 2024–2027.

Energy and climate policies are governed by different laws and regulations. Specifically, Latvia's preliminary energy savings target and other requirements set by directives are included in the **Energy Efficiency Law**, which took effect on 29 March 2016. The current mandatory energy end-use savings target for 2030 is at 20,472 GWh (1.76 Mtoe, 73.7 PJ) in 2020. The Energy Efficiency Law will be revised in the light of Directive 2023/1791 of the European Parliament and of the Council on energy efficiency and the updated NECP2030. Section 5 of the Energy Efficiency Law establishes the following rights and obligations for the government and municipal sectors:

(1) Government bodies and municipalities are entitled to:

1) develop and adopt an energy efficiency plan as a separate document or as a part of the municipal land development programme, which includes certain energy efficiency goals and measures;

2) implement an EMS separately or as part of the implementation of their energy efficiency plan;

3) use energy efficiency services and conclude energy efficiency service contracts to implement energy efficiency improvement measures.

(2) The municipal governments of the national cities introduce a certified EMS. [...]

The provisions of the **Law on the Energy Performance of Buildings** derive from Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings. The purpose of this law is to promote the efficient use of energy resources by improving the energy efficiency of buildings, and informing the community about the energy consumption of buildings. The law sets the minimum energy efficiency requirements for buildings that can be operated, designed, rebuilt, or renovated, and the requirements for the energy certification of buildings, heating systems, and air conditioning systems. Meanwhile, the conditions for local governments in terms of heating supply and energy poverty, are determined in the Energy Law.

A problem of current importance in Latvia, especially in Riga, is improving air quality and reducing pollution. The **Air Pollution Reduction Action Plan 2020–2030 was approved on 16 April 2020.** The plan was designed to reduce the negative effects of air pollution on the environment and human health, and to reduce costs and worktime lost due to health problems and doctor's visits caused by air pollution.

In the transport sector, the draft **Transport Energy Law** was undergoing inter-ministerial approvals during the preparation of the plan. The purpose of the law is to promote the circulation of transport energy that is safe for the health of humans and their environment, and to achieve the development of alternative fuel infrastructure and public awareness of available and usable forms of transport energy. The planned law will also affect municipal governments. According to the draft law, Riga will be required to:

- determine such conditions for the use of vehicles in the municipality that promote the reduction of emissions caused by the use of vehicles;
- ensure that at least 50% of the transport energy used in the city's public transport is renewable in 2030;
- ensure that, starting from 1 January 2030, at least 50% of the vehicles purchased as part of municipal public procurement must be vehicles that use renewable energy.

The Riga 2022–2030 Sustainable Energy and Climate Action Plan (SECAP 2030) is the main policy planning document for the energy and climate sector. It was drafted in accordance with other development planning documents of RCC. The link between the documents and SECAP 2030 is shown in Figure A-2.2.1.

A-2.2.: Description and assessment of policies

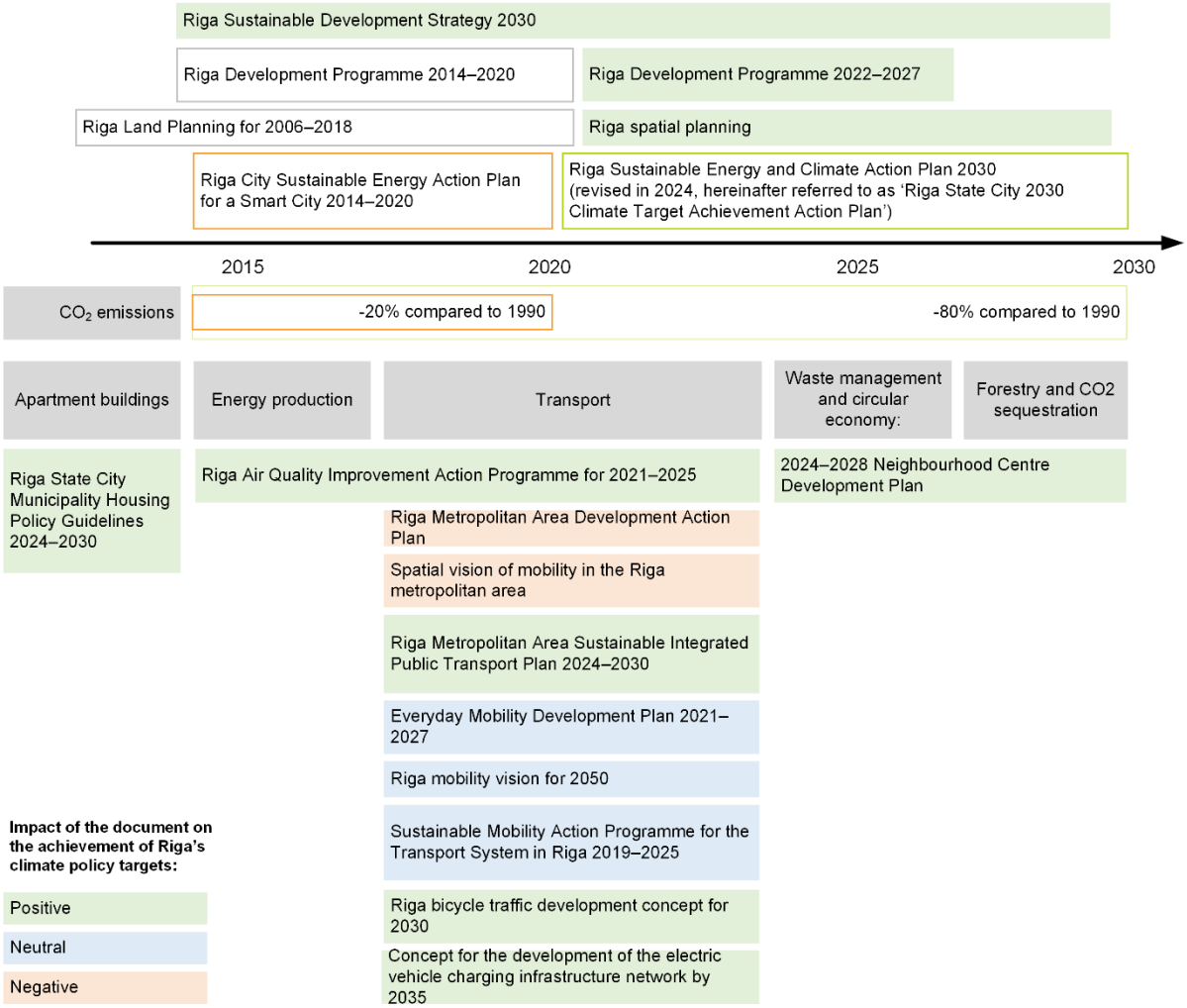


Figure A-2.2.1: Linking the action plan with RCC development planning documents

Riga Sustainable Energy Action Plans before 2020

The Riga City Sustainable Energy Action Plan for a Smart City 2014–2020 was a continuation of the first Riga City Sustainable Energy Action Plan (2010–2020), which aimed to: 'Bring the city closer to the status of a smart city by integrating innovative information and communication technologies in energy and transport.' The action plan included an initial review of CO_2 emissions for the 1990–2012 period, and scenarios for up to 2020. The plan's official CO_2 emission reduction goal was to reduce CO_2 emissions by 20% (vs 1990) by 2020. The results of the plan's forecasts predicted that by 2020, the potential reduction in CO_2 emissions could be 55–60%.

According to the final monitoring report of the action plan, the total amount of CO_2 emissions in Riga decreased about 60% in 2020, compared to 1990, or 27% compared to 2010. The fastest reduction in emissions (44%) compared to 2010 was achieved in the energy production sector.

Riga Sustainable Development Strategy 2030

Riga Sustainable Development Strategy 2030 is a long-term land development planning document of the Riga City Municipality. The plan offers a vision of Riga, which envisages that in 2030, Riga will be:

'An internationally recognised metropolis for Northern Europe. Riga's rightful membership among major Northern European cities will be supported by the quality of life in the city, innovative economy, smart, resource-saving, and modern governance, with the active participation of local residents.'

Riga City Municipality has set four long-term development goals, including 'Comfortable and safe urban environment that is pleasant for local residents'. The strategy puts a special focus on the transport sector.

A-2.2.: Description and assessment of policies

Although the movement of pedestrians and cyclists is currently subordinated to car traffic, in the long term, the transport infrastructure must be built according to the following generally accepted hierarchy, especially in the city core and neighbourhood centres:

pedestrian –> cyclist –> public transport –> private car transport.

The goal is to develop Riga as a sustainable metropolis by restricting the entry of private vehicles into its centre, encouraging local residents to use public transport and cycling. Multi-apartment residential buildings also play an important role in Riga. The renewal of housing stock is one of the main factors for the development of this sector.

Riga Development Programme 2022–2027

The Riga Development Programme 2022–2027 sets 9 priorities/scope of development, of which three are closely related to energy and climate:

- Good environment quality and sustainable urban ecosystem for mitigating climate change to: 'Create such quality of the environment that has a beneficial effect on the health and well-being of local residents, and their desire to be physically, socially, and economically active. Create and maintain a pleasant, diverse, and climate change-adapted environment, in which nature-based solutions contribute to the quality of the environment, to the adaptation to and mitigation of climate change.'

As part of this field of development, it is planned to implement comprehensive energy management, energy efficiency, and emissions reduction measures, increasing the share of renewable energy in the overall energy balance, supporting energy, climate, and environmental innovations, improving the energy literacy of the city's residents, and encouraging changes in their lifestyle.

- Availability of diverse and high-quality housing with the goal of: 'No less than 1400 multi-apartment residential buildings getting a comprehensive and high-quality renovation as part of the housing programme by 2027.'

In order to achieve this goal, the development programme envisages creating a competence centre in the municipality for housing, to develop and pursue a well-designed housing policy, to create an action programme, to set clear goals, and to determine the institutions in charge. The criteria for affordable and environmentally friendly housing will be taken into account in developing and implementing the housing policy, including energy efficiency, sustainable materials used in construction, principles of circular economy, and air quality. In renovating the outdated housing stock, it is planned to ensure adaptation to climate change, improve environmental health indicators, introduce extensive accessibility solutions, and significantly improve the quality of the living environment.

- Comfortable and environmentally friendly travel in the city: 'Promote climate-friendly and human-friendly mobility by making diverse modes of transportation available and creating the necessary infrastructure.'

The development programme aims to set the conditions for the part of society that does not need to travel by private car on a daily basis, so that it can use comfortable, safe, and environmentally friendly vehicles, while improving the quality of air in the city, reducing the negative impact on the climate, and the load on the street infrastructure. In addition to infrastructure improvements, one must implement mobility management measures, promoting changes in travel habits.

RSCM currently lacks city-wide policy planning documents on sustainable mobility and climate change adaptation.

RSCM owns shares in **12 companies**, including 'Rīgas satiksme', RNP, LLC 'Rīgas ūdens', LLC 'Rīgas meži' and 'Rīgas nami', where it owns 100% of shares, as well as LLC Getliņi EKO (97.7% of shares) and AS 'Rīgas siltums' (49% of shares). The companies have an approved or have in development a mid-term operating strategy (at least 3 years), and a few companies have a sustainable development strategy (at least 10 years) undergoing development/approval, which will take the city's climate-neutrality objective into account.

A-2.3: Emissions gap

	Emissions baseline (1990)		Other emissions/offsets [1]		Baseline emissions reduction target [2]		Emissions reductions with existing strategies [3]		Emissions difference (considered in the action plan) [4]	
	tCO_2	%	tCO_2	%	tCO_2	%	tCO_2	%	tCO_2	%
Stationary energy sources	3,679,800	81			3,215,586	87	3,038,000	83	3,215,586	87
Transport	615,100	13			370,006	60	104, 000	17	370,006	60
Waste	274,304	6			84,596	31	n/a	n/a	84,596	31
Industrial Process and Product Use (IPPU)					-	-	-	-	-	-
Agriculture, Forestry, and Land Use			-300,000				-	-	-	-
Total	4,569,204	100	-300,000	7	3,607,188	-	3,198,000	70	3,607,188	80

[1]. Residual emissions include emissions that cannot be reduced through climate action and that need to be compensated for. Residual emissions may account for no more than 20%, in accordance with the information guidelines of the Mission.
[2] Baseline reduction target = Baseline emissions – residual emissions.
[3] The planned emission reductions in existing action planning and strategies must be calculated for every sector.
[4] Emissions difference = Baseline emissions reduction target – emissions reduction with existing strategies.

The action plan aims to achieve an 80% reduction in GHG emissions compared to 1990 by 2030. The most significant GHG emissions reductions (87%) are planned in the energy sector, through the substitution of fossil fuels in the production of energy. Transport GHG emissions are also to be reduced by 60%, in particular, by promoting the electrification of transport, use of public transport and low-emission mobility in the Riga Metropolitan Area. It is also planned to reduce emissions in the waste sector by 31% by limiting the amount of waste disposed in landfills. In addition to GHG emission reductions, the forest areas of LLC 'Rīgas meži' will provide the permanent sequestration of CO_2 in the amount of some 300 $ktCO_2$ per year.

Existing strategies are based on Riga's SECAP 2030, which proposes a 70% reduction of GHG emissions compared to 1990. This plan does not have a specific target for the waste sector. While the ambition of GHG reduction is already high in SECAP 2030, the new action plan puts a bigger emphasis on transportation.

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

A-3.1: Mapping of systems and stakeholders

The stakeholders involved in each sector are described below and graphically shown according to their interests and influence. Table A-3.1 below lists the stakeholders in each sector, with an assessment of their:

- cooperation — between the municipality and the stakeholder, i.e., the existing cooperation model and its effectiveness;
- impact — the impact of the stakeholder on reducing emissions within the sector;
- interest — the interest of the stakeholder in reducing emissions within the sector.

Municipal infrastructure

In achieving Riga's climate-neutrality goals, various levels of engagement by all municipal institutions, departments, committees, and companies are needed. In assessing the influence, substantial engagement is needed from PD, whose activities include the management of buildings, planning and

conducting the renovation of buildings, and delegating tasks to building managers. It is also important to provide feedback to municipal committees for political decision-making. The involvement of the Executive Director Office is essential to delegate the implementation of the measures included in the Riga climate contract at the level of institutions and companies and to monitor the implementation process. The main responsibility of the companies is to implement the tasks assigned to them. The main tasks of REA are to provide the necessary data analysis and information for making decisions on the implementation of measures and the raising of finance, the maintenance and expansion of the EMS, and for raising awareness of and the commitment to climate goals in all the departments of the municipality.

Energy production:

Endeavouring to achieve climate-neutrality in Riga, stakeholders in the energy production sector have and will play a key role in implementing the measures specified. Given the fact that the Riga Metropolitan Area is the largest energy consumer in the country, achieving Riga's climate targets is also crucial for achieving the climate targets of Latvia as a whole. Thus, the political and regulatory decisions pursued by MoCE and further adopted by the national Parliament and/or the Cabinet of Ministers that are related to promoting the production of renewable energy, also play an important role in the development of Riga's energy sector. Investments by energy companies in innovative solutions also play an important role in decarbonising the energy sector. Citizens' initiatives and the development of energy communities can also boost the demand for the production of renewable energy. Effective engagement and cooperation of these various stakeholders is essential in building a sustainable and climate-neutral energy sector in Riga.

Apartment buildings:

A number of institutions are involved in the management and development of multi-apartment residential buildings in Riga. In conjunction with other municipal departments, REA has set up an energy efficiency centre and provides advice on the renovation procedure to local residents and participates in organising various campaigns and international projects. HED pursues a consistent housing policy for the city, helping to solve housing issues; it supervises the management of housing controlled by the municipality and manages non-privatised residential premises in the municipality. PD pursues the efficient use of the property and land plots owned and controlled the municipality, and arranges the co-financing for the renovation of buildings in Riga (atjauno.riga.lv). The ALTUM financial institution offers a number of assistance mechanisms for local residents to renovate their buildings. However, the involvement, competence, and capacity of other stakeholders, such as RNP and other building management companies, must be significantly increased to support local residents and provide advice to them in terms of options for the renovation of buildings, given the fact that the rate of renovation will increase in the future. There is also a need to promote action agreed and coordinated by all stakeholders. For the implementation of all fields of action in the multi-apartment residential buildings sector, the institutions responsible for the measure must involve other stakeholders in both the planning and implementation phases (HED, PD, REA, DD, etc.).

Transport and mobility:

The transport and mobility sector in Riga involves many stakeholders, from national and local policymakers to local residents and city's guests. According to their interest and influence, all major stakeholders must be provided with sustainable and environmentally friendly transportation (according to the Riga Mobility Vision: https://www.rdpad.lv/rigas-mobilitates-vizija/), as summarised in Table A-3.1

Waste management and circular economy:

Stakeholders in the waste management sector are divided into 4 groups:

- Policymakers — Executive Director Office, HED, REA.
- Waste producers — local residents, institutions, businesses.

- Waste management companies — companies authorised to collect, sort, and transport municipal waste in the city[7]; LLC Getliņi EKO is responsible for waste reception and ecological management; LLC 'Rīgas ūdens' is responsible for wastewater management.
- Other stakeholders involved in the implementation of the measures — building managers, NGOs, RNRC, and companies whose business results in reduced amounts of waste produced.

Forestry and CO_2 emissions sequestration:

Responsibility for Riga's green spaces is divided between four RD departments:

- CDD — responsible for grounds development and planning, and for the collection and supervision of geospatial data;
- HED — responsible for supervising environmental protection and the efficient use of natural resources, as well as for preparing environmental plans, programmes, and projects;
- PD — responsible for the management of green spaces, including small gardens, owned by the state city of Riga;
- PSMD — maintains rainwater drainage systems.

In practice, green spaces are managed by:

- LLC 'Rīgas meži' manages 5625.2 ha of forest land in the Riga state city territory, 57,166.9 ha of forest land outside Riga, as well as 399 ha of Riga's gardens and parks;
- Grounds Improvements Administration — cleans the municipality's grounds, repairs courtyards, maintains playgrounds and recreation areas.

A-3.1: Systems & stakeholder mapping

System	Stakeholders	Collaboration	Influence on the city´s climate-neutrality ambition	Interest in the city´s climate-neutrality ambition
Municipal infrastructure				
Municipal sector (units, agencies, institutions, companies)	REA	High	Medium	High
	FD	High	Medium	Medium
	Executive Director Office	High	High	High
	PD	Medium	High	Medium
	CDD	Low	Low	Medium
	RD committees	High	High	Medium
	ECSD	Medium	Medium	High
	PSMD	High	Medium	Medium
	Rīgas nami	Medium	Medium	Medium
	AS 'Rīgas siltums'	Low	Medium	Low
	Rīgas satiksme	Medium	Low	Medium
	LLC 'Rīgas ūdens'	Medium	Medium	Medium
	Other companies	Medium	Low	Medium

[7] All merchants with appropriate permits may transport waste and engage in transactions with it. LLC Clean R, LLC 'Eco Baltia vide', and PS Lautus Vide were selected following the procedure of Section 18 of the Waste Management Law and were authorised to collect, transport, handle, sort, and landfill municipal waste and household construction waste in the respective municipal waste management zones.

A-3.1: Systems & stakeholder mapping				
System	Stakeholders	Collaboration	Influence on the city´s climate-neutrality ambition	Interest in the city´s climate-neutrality ambition
	Institutions	Medium	Low	Low
Energy production				
Municipal sector (units, agencies, institutions, companies)	HEC	Medium	High	Medium
	Executive Director Office	High	High	High
	REA	High	Low	High
	CDD	Medium	High	Medium
	AS ‘Rīgas siltums’	Medium	High	High
Government sector (ministries, companies)	MoCE	Medium	High	Medium
	MoE	Medium	High	Medium
	AS Latvenergo (CHP 1 and CHP 2)	Medium	High	Medium
Private sector (companies, organisations, households)	Other independent heat energy producers from which heat energy is purchased	Low	Medium	Medium
	Households and other natural gas consumers	Low	Medium	Low
	Community (interest and territorial)	Low	Low	Medium
	Electricity production	Medium	Medium	Medium
	Companies	Low	Medium	Medium
Multi-apartment residential buildings				
Municipal sector (units, agencies, institutions, companies)	REA	High	Medium	High
	FD	Medium	Medium	Low
	Executive Director Office	Medium	High	High
	CDD	High	Low	Medium
	RNP	Medium	High	Medium
	HED	Medium	High	Medium
	PD	Medium	High	Medium
	LLC ‘Rīgas nami’	Medium	Low	Medium
	AS ‘Rīgas siltums’	Low	Medium	Low
Government sector (ministries, companies)	MoE	High	High	Medium
	ALTUM	Medium	High	High
Private sector (companies, organisations, households)	Other building management companies	Medium	Medium	Medium
	Local residents, local resident associations and communities	Low	Medium	Low
Transport				
Government sector (ministries, institutions, companies)	MoT	Medium	High	Medium
	Road Transport Administration	Medium	High	Medium

A-3.1: Systems & stakeholder mapping				
System	Stakeholders	Collaboration	Influence on the city´s climate-neutrality ambition	Interest in the city´s climate-neutrality ambition
	Pasažieru vilciens	Medium	High	Medium
	Latvijas dzelzceļš	Medium	High	Medium
	CSDD	High	Low	Medium
Municipal sector (units, companies)	Transport and Traffic Affairs Committee	Medium	High	Medium
	Executive Director Office	Medium	High	High
	CDD	High	High	High
	PSMD	Medium	High	Medium
	Freeport of Riga	Medium	High	Low
	REA	Low	Low	High
Private sector (companies, organisations, local residents)	Vehicle owners	Low	High	Low
	Fuel traders	Medium	Medium	Medium
	Electric charging service providers	High	Medium	High
	Transport service providers	Medium	Medium	Medium
	Cargo carriers	Low	Medium	Low
	Real estate developers	Low	Low	Low
	Public transport users	Medium	Low	High
	Pedestrians	Low	Low	High
	Cyclists	Medium	Low	High
	NGO	Medium	Medium	High

A-3.1: Systems & stakeholder mapping				
System description	Stakeholders	Collaboration	Influence on the city´s climate-neutrality ambition	Interest in the city´s climate-neutrality ambition
Waste management and circular economy:				
Municipal sector (units, agencies, institutions, companies)	Executive Director Office	High	High	High
	REA	High	Low	High
	HED	High	High	High
	Educational institutions	Medium	High	Low
	LLC Getliņi EKO	Medium	Medium	Medium
	LLC ‘Rīgas ūdens’	Low	Medium	Low
	RNRC	Medium	High	Medium
Private sector (companies, organisations, local residents)	Companies whose business results in a reduction of waste produced	Low	Low	High
	Waste management companies	Medium	High	Medium
	Waste-producing companies	Low	High	Low

	NGO	Medium	Medium	High
	Building management companies	Medium	Medium	Low
	Local residents	Low	High	Low
Forestry and CO_2 sequestration				
Municipal sector (units, agencies, institutions, companies)	Executive Director Office	Medium	High	High
	REA	Medium	Medium	High
	CDD	Medium	High	Medium
	HED	Medium	High	Medium
	PD	Medium	High	Low
	PSMD	Low	Medium	Low
	Grounds Improvements Administration	Medium	High	Medium
	RNRC	Medium	Medium	High
	LLC 'Rīgas meži'	High	High	High
Private sector (companies, organisations, local residents)	NGO	Medium	High	High
	Companies with outdoor terraces	Low	Medium	Low
	Local residents	Low	Medium	Medium
	Building managers	Low	Medium	Low

A-3.2: Description of systemic barriers

Municipal infrastructure

One of the main challenges is the lack of understanding of climate-neutrality and sustainable management at the political and RSCM management level, which in turn hinders the elimination of other barriers. RSCM lacks capacity to raise financing and to implement projects, and the link between the RSCM budget and the investment plan is insufficient. The current governance system is not transparent enough and does not make it possible to fully track energy consumption and costs across the entire RSCM infrastructure, which prevents data availability and the making of informed decisions on the management of RSCM infrastructure. There is also a lack of coordination between all stakeholders, such as PD and WD. Challenges are also created by national-level political decisions, hampering the drafting of the necessary laws and regulations.

Systemic barriers in the municipal infrastructure sector:

- Social:
  - There is no awareness of the skills required to manage an RSCM holding at all levels.
  - Climate scepticism among politicians, civil servants, and department heads.
- Organisational:
  - Insufficient capacity.
  - Poor coordination between departments in charge.
  - Fragmented governance in rainwater management.
- Financial:
  - There is a lack of long-term political support and funding for activities.
  - There is no 3-year budget plan and the link between the RSCM budget and the RSCM investment plan is weak.
  - Low capacity to raise financing.

- Technical:
  - Lack of data on the entire scope of RSCM property, including the technical condition of buildings.
- Legal:
  - Non-compliance with the Law on the Energy Performance of Buildings requirements on energy performance certificates.
  - Failure to implement the innovative procurement principles.

The implementation of the field of action must aim towards reducing these barriers. Technical and legal barriers related to the lack of data and the drafting of building energy certificates will be addressed in field of action P1, planning activities within EMS, taking into account the fact that the activities foreseen in the EMS manual are binding for all municipal institutions. Awareness-raising events will be organised to reduce social barriers. Organisational barriers need to be reduced by promoting greater inter-departmental cooperation and the involvement of other stakeholders in the implementation of the field of action.

Energy production:

The biggest challenge in the energy production sector is to achieve coordinated decision-making among all stakeholders and to ensure awareness of the need to meet climate targets. Achieving climate-neutrality targets in the energy production sector will be strongly linked to national energy policy, and RSCM needs to play an active role in shaping this policy.

Systemic barriers in the energy production sector:

- Social:
  - High levels of energy poverty (low energy efficiency in homes makes it difficult to pay for heating and limits the ability to save).
- Organisational:
  - Lack of a strong political stance and direction on the sustainable supply of energy, including a lack of close cooperation among all stakeholders.
  - Weak cooperation with the private sector.
  - The capacity of local residents to cooperate and form energy communities is low.
- Financial:
  - The capacity to raise investment to decarbonise the sector needs to be developed.
  - Falling future demand for heating supply services.
- Technical:
  - Limited coverage of district heating systems.
  - Some of the district heating service is covered by CHP 2 and CHP 1, which use fossil fuels.
- Legal:
  - Commitment to ensure the stability of the energy system through the operation of CHP.
  - Lack of regulation for energy communities.
  - There is a lack of regulations to allow local residents to purchase energy certificates for electricity.
  - There is a lack of regulations for heating energy certificates.

Multi-apartment residential buildings:

One of the barriers in renovating buildings is the low purchasing power of local residents. It limits people's ability to afford building renovation and, in the long run, leads to a significant deterioration of the technical condition of multi-apartment residential buildings as a result of poor management. At the same time, local residents lack the knowledge and experience to manage their buildings and make collective decisions. Building managers lack the competence and capacity to support local residents in the renovation process. In recent years, the COVID-19 pandemic and the military action in Ukraine, as well as other global events, have also led to higher prices of construction materials and other related goods and services, including Euribor interest rates for loans, which makes renovation projects more expensive and people more cautious when deciding on long-term financial commitments. As a result, the return-on-investment period for building renovation is very long. There is also a lack of local residents willing to take the lead to drive these processes in these buildings. Furthermore, there is a low level of activity among local residents in terms of forming associations, which is a major obstacle to the renovation process unless an energy service provider (ESCO) is involved.

One of the major barriers in the field of the renovation of buildings is the bureaucratic burden that obstructs the renovation process. One of the barriers is the need to borrow the full amount of the assistance before receiving assistance for the renovation of the building, as well as the requirement to undergo a second assessment of the loan with ALTUM if the commercial bank rejects the loan, which significantly slows the process down. Changes in the conditions for co-financing create additional confusion for those submitting their projects. Significant obstacles were also encountered at the technical documentation and procurement stages, where design developers faced the burden of making corrections and changes in designs that had already been approved and confirmed by the construction authority, thus significantly increasing the design development time.

In order to address the barriers related to the lack of involvement of local residents, various activities will be carried out as part of field of action Dz3 to raise awareness among local residents, improve the skills and capacities of house managers, and encourage cooperation between municipal institutions to ensure coordinated and consistent communication with local residents. Barriers related to data access and the provision of data to local residents will be addressed as part of field of action Dz1. Field of action Dz2 will mainly involve addressing problems associated with bureaucratic hurdles in an effort to shorten the duration and financial burden of the process for initiating renovation. The financial barriers will be addressed as part of fields of action Dz4 and Dz5, through the creation of the Riga Energy Efficiency Fund (REEF) and the development of standard solutions and examples to facilitate decision-making and enable the implementation of larger, block-scale projects.

Systemic barriers in the multi-apartment residential building sector:

- Social:
  - Low awareness among apartment owners of their responsibility to maintain their property.
  - Lack of awareness of sustainable management of buildings.
  - Low local resident participation and desire to cooperate.
- Organisational:
  - Insufficient awareness of the options to receive free technical assistance and support among local residents.
  - Bureaucratic burden in the approval and implementation of building renovation projects.
  - Lack of competent project managers.
  - Lack of data on heat energy consumption.
  - No clearly defined responsibilities for moving the renovation process forward in the municipal government.
  - Lack of information about active apartment owner associations.
- Financial:
  - High construction costs.
  - Low local resident purchasing power, insufficient savings made by building associations.
  - Long renovation return-on-investment period.
- Technical:
  - Lack of standardised technical solutions (e.g., insulated panels) that could increase the rate of renovation.
  - Fluctuating demand for the renovation of buildings, resulting in inconsistent demand for construction services that the construction industry cannot adapt to quickly.
- Legal:
  - Division of shared properties, acquisition of ownership in historic buildings.
  - Handover of control over buildings (absence of associations).

Transport and mobility:

A number of challenges related to demographic change, urban dispersion and sprawl, congestion, bicycle infrastructure bottlenecks, less competitive public transport, and others have been identified in the transport and mobility sector in Riga. Nine fields of action have been identified, aimed at eliminating these barriers and achieving climate-neutrality.

Systemic barriers in the transport and mobility sector:

- Social:
  - Need to change behaviour and habits.
  - Inadequate education on healthy lifestyle.
  - Effects of air pollution in Riga City Centre.

- Organisational:
  - Lack of strong political stance and political continuity.
  - Public transport routes not suited for the needs of local residents.
  - Lack of a single ticket for using Riga's public transport and rail services.
  - Inconsistent access to services close to home.
  - Lack of mobility data.
- Financial:
  - Lack of funding for pedestrian and cycling infrastructure.
  - Major investments in providing public transport services.
- Technical:
  - No cohesive, uninterrupted cycling infrastructure.
  - Insufficient cycle options parking in the city's centre and neighbourhoods.
  - Lack of comfortable public transport stops that meet accessibility standards.
  - No effective mobility points.
  - Low number of electric vehicle charging stations, especially in residential areas.
  - High share of outdated vehicles in the city.

Systemic barriers in the waste management and circular economy sector:

The main challenge for the waste management sector is to achieve a significant reduction in the amount of waste going to landfill. Improvements in the separate waste collection infrastructure are not happening fast enough or face resistance from stakeholders in practice. The principles of the circular economy in resource use are not integrated into financial mechanisms on a sufficiently large scale, although they work well at the level of individual initiatives.

- Social:
  - Poor public awareness of the principles of waste separation.
  - Sorting is not convenient (infrastructure, habits, economic incentives).
  - Poorly developed infrastructure for sorting and composting organic waste.[8]
  - Problems with separate collection of textiles and household hazardous waste.
- Organisational:
  - Engagement of building managers in waste management is low.
  - Lack of information and control systems for specific types of waste, higher costs.
  - There is no control mechanism.
  - Circular economy infrastructure not developed.
- Financial:
  - Low municipal waste collection fee.
  - No assistance and punishment systems to motivate sorting waste.
- Technical:
  - Lack of public infrastructure for separate waste collection in the city.
  - Separate collection of organic waste is not organised.
  - Low share of waste sorted.
- Legal:
  - Sorting is not compulsory or available to everyone in practice.

Forestry and CO_2 sequestration:

At the time of the preparation of this action plan, one of the main barriers in this sector is the lack of a single city-level data records system and the lack of a single emissions calculation methodology at the national level for GHG emissions produced and sequestration d by green spaces. As a result, the city has no information about the current situation (with the exception of the areas of LLC 'Rīgas meži'), which prevents data-driven development planning. The development of the sector is also hampered by the lack of a clear goal at the city level. At the time of the preparation of this action plan, the aspect of reducing GHG emissions and increasing CO_2 sequestration by green spaces in the city is not taken into account in spatial and development planning.

Systemic barriers in the forestry and CO_2 sequestration sector:

[8] Since 1 March 2024, operators of multi-apartment residential buildings must provide for the separation of organic waste at multi-apartment residential buildings with more than ten apartments.

- Social:
  - The public is not educated and informed of the measures to reduce GHG emissions and sequestration of CO_2 through green spaces in the city.
- Organisational:
  - Lack of cooperation and sharing of information between stakeholders in the sector.
  - There is no clear goal defined for the development of the sector.
- Financial:
  - Raising of funds for the planned activities.
- Technical:
  - Limited availability and poor quality of data on GHG emissions produced by the areas of LLC 'Rīgas meži'.
  - There is no single methodology for calculating emissions at the municipal level.
  - The emissions and CO_2 sequestration values of the green spaces within the territory of Riga that are not owned by LLC 'Rīgas meži' are not identified.
- Legal:
  - The CO_2 sequestration aspects of the areas are not taken into account in spatial planning documents and regulatory requirements.

A-3.3: Description or visualisation of the participatory city climate-neutrality model

In order to enable the effective and transparent implementation of the fields of action included in the plan, an overall organisational diagram was prepared for each sector, taking into account the main stakeholders involved and their interactions.

Municipal infrastructure

The municipal sector is largely made up of various municipal departments and companies that provide a number of services to the city's residents, including water, building management, heating, public transport, lighting, and other services.

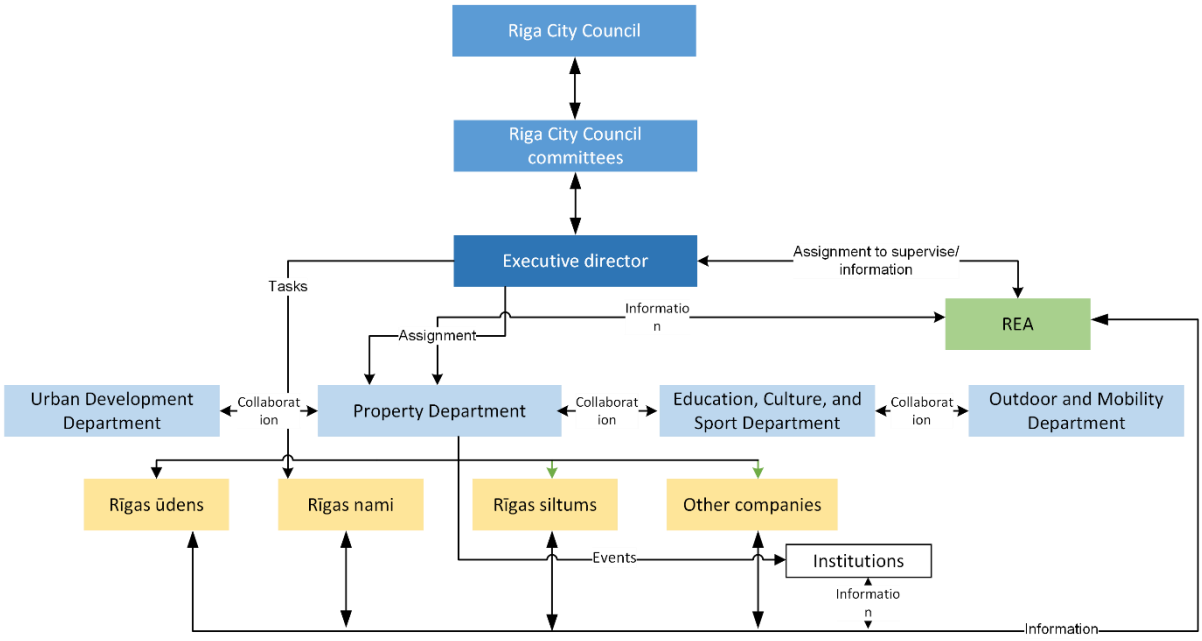


Figure A-3.3.1: Municipal infrastructure sector organisational diagram

Energy production:

Given the fact that the energy sector involves private businesses and other stakeholders that are not directly under the authority of Riga City Council, pursuing an effective climate policy is essential for achieving the sector's climate-neutrality goals. Thus, one of the leading stakeholders is HEC, tasked with shaping the climate policy and engaging in dialogue with national-level and private-sector stakeholders.

Within the municipality, the Executive Director Office plays an important role, delegating tasks to municipal institutions and, as a shareholder, defining the financial and non-financial targets for municipal companies. The main tasks of REA and CDD are to conduct the supervision, provision of information, and analysis of climate targets, and to develop planning documents.

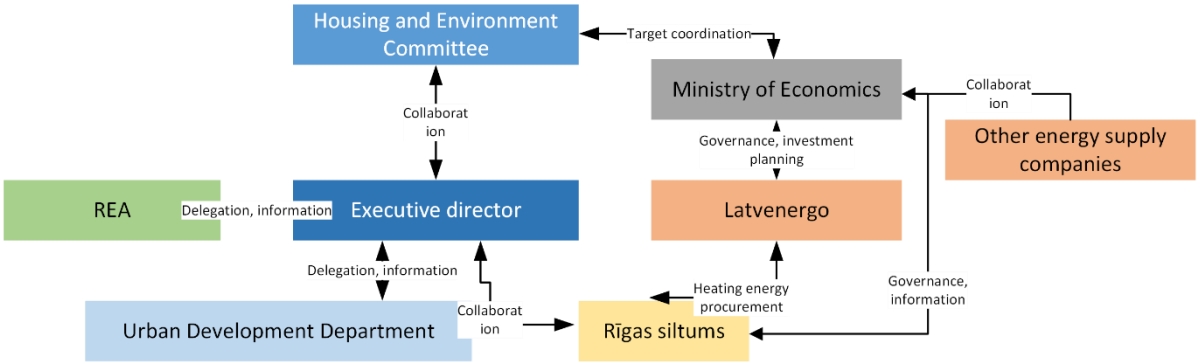


Figure A-3.3.2: Energy production sector organisational diagram

Multi-apartment residential buildings:

In the apartment sector, the coordinated cooperation of the Executive Director Office with the departments, agencies, and companies of RSCM plays the main role. The implementation of programmes supervised by Altum is essential in financing the renovation of buildings. REA analyses data on the energy performance of buildings, develops support tools and provides advice with the goal of speeding up the building renovation process.

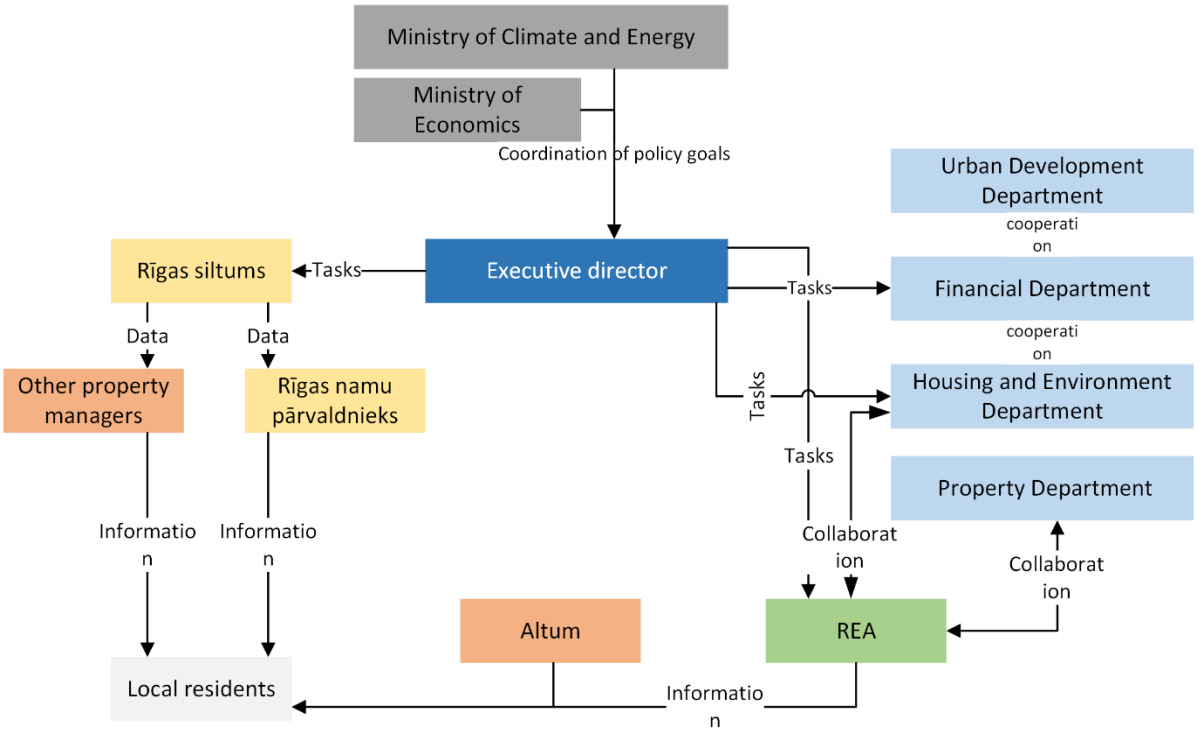


Figure A-3.3.3: Multi-apartment residential building sector organisational diagram

Transport and mobility:

Figure A-3.3.4 offers an organisational diagram for the implementation of transport and mobility measures, indicating the main stakeholders in the municipal and national sectors. The main decision-making body for RSCM in this sector is the Traffic and Transport Affairs Committee, which places the implementation of the measures under the supervision of the Executive Director Office. The office

delegates the measures to the main stakeholders (CDD, PSMD and 'Rīgas satiksme'), while REA monitors the implementation of the measures.

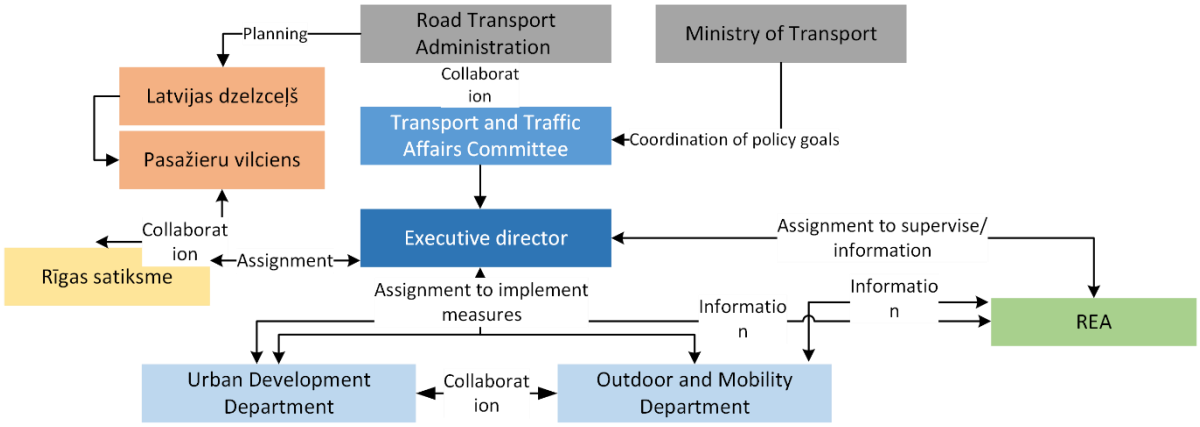


Figure A-3.3.4: Transport and mobility sector organisational diagram

Waste management and circular economy:

Figure A-3.3.5 offers an organisational diagram for the implementation of waste and circular economy measures, indicating the main stakeholders in the municipal and national sectors. The main decision-making body for RSCM in this sector is HEC, which places the implementation of the measures under the supervision of the Executive Director Office. The executive director delegates the measures to the main key stakeholders (HED), and REA monitors the implementation of the climate contract.

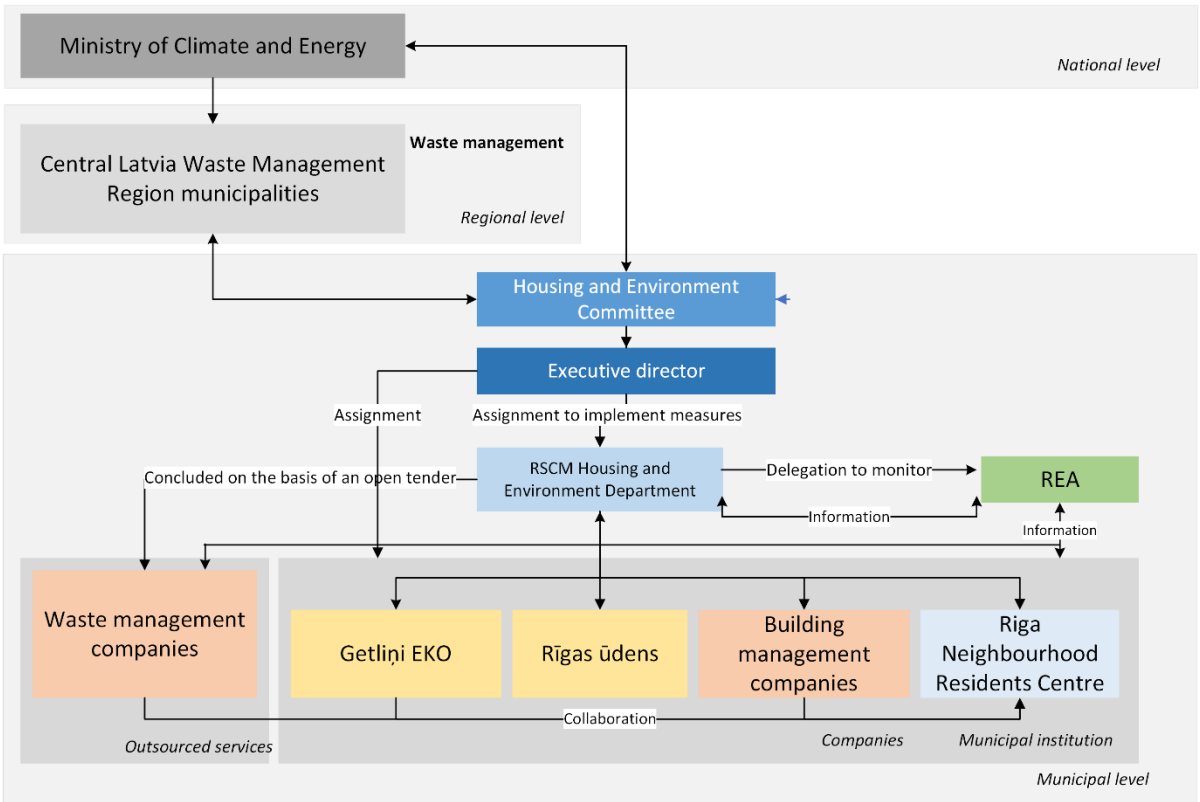


Figure A-3.3.5: Waste management and circular economy sector organisational diagram

Forestry and CO_2 sequestration

Figure A-3.3.6 offers an organisational diagram for the implementation of forestry and CO_2 emissions sequestration measures, indicating the main stakeholders in the municipal and national sectors. The main decision-making body for RSCM in this sector is HEC and the Urban Development Committee,

which places the implementation of the measures under the supervision of the Executive Director Office. The office delegates the measures to the main key stakeholders (CDD, HED, PD, PSMD), and REA monitors the implementation of the climate contract.

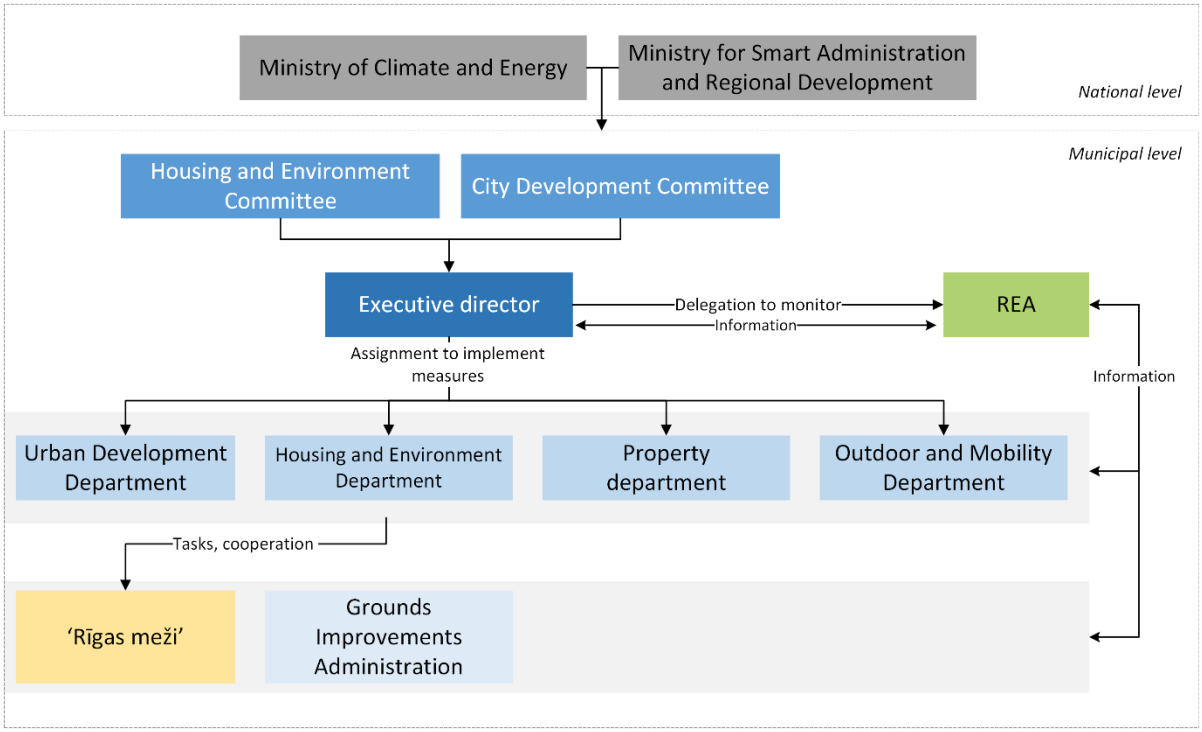


Figure A-3.3.6: Forestry and CO_2 sequestration sector organisational diagram

3 Part B — Pathways towards Climate-Neutrality by 2030

3.1 Module B-1 Climate-Neutrality Scenarios and Impact Pathways

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
Field of action: Energy systems								
X		X				P2: 100% renewable heating energy share in municipal buildings	21,751	• The municipal government sets a good example in achieving climate-neutrality goals • Creation of new jobs • Increased public understanding of renewable energy • Reduced dependence on fossil fuels and improved energy independence
X		X			P3: 100% renewable electricity share in municipal buildings		35,675	
X						P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030	1901	• Energy savings • High-quality street lighting • Better local resident satisfaction
						P10: Energy efficiency and RES use in wastewater treatment plants	2780	• Continuity of the treatment process ensured • Reduced use of fossil fuels and more energy independence in the municipal company • Promotion of innovation and technology development
		X				E1: Promotion of zero-emission technologies and RES in district heating	121,180	• New jobs • Environmentally friendly municipal heating system • Promotion of energy independence • Promotion of innovation and technology development
	X	X				E5: Implementation of innovative pilot projects		

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
		X				E2: Achieve the connection of new clients to DHS of Riga		• Economic benefits and economic development for all stakeholders Improvements in infrastructure efficiency • Reduced environmental impact and improved air quality in the city
		X				E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system	1320	• Reduced fuel consumption and improved overall system energy efficiency • Improved system governance and efficiency
		X				E4: Gradual transition to the 4th generation heating supply system	172	• A more efficient and flexible system that also makes it possible to optimise resources and integrate various energy sources Integration with renewable energy sources • Economic benefits through reduced generation and transmission costs • Improved governance, monitoring, and diagnostics capabilities
X	X	X				E6: Promote electrification, use of RES in decentralised heating, or connection to DHS	86,199	• Reduced environmental impact and improved air quality in the city Improvements in infrastructure efficiency • Reduced dependence on fossil fuels and increased energy independence

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
X	X	X				E7: Promote the use of RES in the generation of electricity for Riga's needs	157,716	• Reduced dependence on fossil fuels and increased energy independence • Job creation and business opportunities • Development of innovations and technology, sustainable development of the city
Field of action: Mobility and transport								
Shared indirect benefits: • Reduced air and noise pollution in the city, improved quality of life for local residents • Reduced private vehicle traffic in the city centre • Reduced traffic congestion and improved overall mobility in the city • Healthier lifestyle and potentially lower healthcare costs • Improved attractiveness of public spaces, improved attractiveness for tourism and potentially increased number of tourists visiting Riga								
	X	X				P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use	253	• Transparent oversight of the municipality's overall road vehicle fleet • Measures can be developed to reduce the climate impact of the road vehicle fleet and to reduce fuel costs
			X		P8: Promotion of the use of public transport for work among employees of the municipal government		181	• Changing of attitude towards the use of public transport

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
		X				P9: Transition to zero-emission vehicles in companies, municipal institutions	3402	• Reduced fuel costs • The municipal government sets a good example for local residents • Increase in the use of renewables
X						T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars	126,840	• Ability of local residents to use the public space more
X					T2: Measures to promote distance working and increase the availability of online services			• Commute time savings and fewer private car trips • Optimisation of resources, including reduced office maintenance costs • Improvements in the efficiency of governance processes, including in crisis situations
X						T3: Promotion of an active lifestyle and cycling	77,000	• Reduced costs for road maintenance and construction, reduced accident costs • Increases in more diverse mobility • Improved infrastructure and road safety
X	X	X				T4: Increase the share of public transport in everyday passenger trips	138,880	
X						T5: Restrictions on private transport	72,800	• Implementation of the ‘polluter pays’ principle, more income for the municipal budget

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
X						T6: Other measures to reduce car use	85,680	
		X				T7: Promotion of electrification in private transport and provision of services	24,000	• Increased demand for RES in electricity production • Improvement of air quality
		X				T8: Gradual transition to clean technology in vehicles that enable municipal functions	28,200	• Compliance with the sustainability goals of the municipality • Implementation of innovative solutions in the provision of services • Raising of public awareness of zero-emissions vehicles and renewable fuels • Increased public satisfaction with municipal services
	X					T9: Collection of mobility data and monitoring of measures implemented		• Precise mobility planning and data-driven decision-making • Assessing of the efficiency of using various transport modes • Better services for local residents and the general public • Improvement of road safety • Business development
Field of action: Waste and circular economy								
		X				A1: Develop and improve the data records system and mapping of infrastructure		• Capacity of the municipality to make data-driven decisions and to use more accurate methodologies for calculating emissions

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
X	X	X	X	X		A2: Waste prevention		• Reduction of the amount of waste generated
X				X		A3: Improvement of the amount and quality of household waste sorting		• Increase in the amount of well-sorted waste, thus reducing the amount of waste disposed in landfills
		X				A4: Development of sorted waste collection infrastructure		• Increase in the share of sorted waste
		X				A5: Promotion of waste recycling		• Recovery and reuse of materials
X						A6: Development of a Riga circular economy action plan for 2026–2030		• Transfer of circular economy initiatives and business models into practice
						A7: Development and implementation of an integrated municipal wastewater management plan		• Adaptation to climate change recommendations • Use of nature-based solutions • Reduction in resource consumption
	X		X			A7 (Horizontal): Provision of information and education, awareness-raising for waste generators		• Cooperation with stakeholders, engagement • Social innovations • Responsibility for the living environment
Field of action: Green infrastructure and nature-based solutions								
		X				ZM1: Targeted creation of uninterrupted forest coverage, selection of sustainable planting		

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
						material for forestry activity zones		
	X	X				ZM2: Development of research and innovation to improve CO_2 sequestration in the urban environment		
	X					ZM3: Sharing knowledge on new forest management methods		
		X				ZM4: Develop and improve the data records system and emissions calculations		
	X	X				ZM5: Compliance with forest certification conditions for long-term afforestation area restrictions		
		X				ZM6: Improvement of the company's forestry risk assessment, assessing the threats and opportunities for developing forest stands		
		X				ZM7: Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise	16	

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
		X				ZM8: Greening of Riga's urban environment		• Improving and expanding green spaces in the city • Attractive living environment • Improved city microclimate • Sustainable urban development promoted by reducing overheating and the heat island effect. Reduced negative impacts of the urban environment on human health • Reduced flood risk • Promotion of biodiversity
Field of action: Built environment								
X	X	X				P1: Continuous improvements in the energy management system	2311	• The municipality knows, manages, forecasts, and can influence the energy consumption of municipal buildings and associated costs Energy costs savings of at least 3–8% per year • EMS independently assessed, implemented, and consistently improved
X		X				P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of buildings	5016	• Improved working conditions in municipal buildings • Financial savings for the municipal budget (the savings can offset the additional cost of buying green electricity) • Fostering technology innovation

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
		X				P5: Upgrading of street lighting	1788	• Energy savings • High-quality street lighting • Better local resident satisfaction
X						Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings	1186	• Prerequisite for an increase in the number of renovated multi-apartment residential buildings • Easily accessible sources of information for local residents • Data available for broad sector analysis • Simplified and evidence-based further decision-making in the building renovation sector
X						Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga	593	
X		X				Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings	19,358	• Well-kept outdoor spaces • Improvements in the living space and outdoor spaces • Satisfied city's residents and guests
				X		Dz4: Establishment of the Riga Energy Efficiency Fund (REEF)		• Contribute to the increase in the number of renovated multi-apartment residential buildings

B-1.1: Impact Pathways								
Systemic levers					Early changes (1–2 years)	Late outcomes (3–4/5+ years)	Direct impacts (Emission reduction, tCO_2)	Indirect impacts (co-benefits)
Governance and policy	Capacity and capacity building	Technology and infrastructure	Culture, engagement, and social innovation	Financial and business models				
		X				Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs	273	• Promote the improvement of the living space for the residents of Riga • Reducing uncertainty in the price of renovating buildings

B-1.2: Description of impact pathways

By 2030, RSCM aims to achieve a 53% reduction in GHG emissions compared to 2019, and 80%, compared to 1990, including reaching climate-neutrality in municipal infrastructure. The share of sectors in total GHG emission reductions and the measures to achieve the 2030 targets are summarised in Figure B-1.1.1. The fields of action in the municipal infrastructure, energy production, housing, transport and mobility sectors and their priorities are shown in Figure B-1.1.2.

Riga is Latvia's largest city and the centre of economic activity – these aspects add extra complexity to planning comprehensive climate change mitigation actions. The list of actions in each sector was selected to cover as many aspects as possible, given the high ambition of GHG emissions reduction. In total, there are 31 action lines for reducing emissions in four sectors (excluding waste management and green infrastructure). Each of them has several implementation steps, coordinated by a group of different stakeholders. Although all actions must evolve in parallel, there is a need for prioritizing in terms of resource allocation and expected results.

In **Municipal infrastructure** (38 $ktCO_2$ or 2% of Riga' s total emissions), the Action plan aims to achieve full climate-neutrality, implying that the amount of GHG emissions will drop to zero by 2030. The largest source of emissions is due to heating of public buildings (24 ktCO2), thus replacement of gas boilers, acquisition of 100% renewable district heating certificates and building renovation will be the priority (actions P2 & P4). The provision of 100% electricity will take place by arranging green electricity procurements and gradually installing solar PV on public buildings. Replacement of fossil fuel vehicles will happen by 2030 by changing the rules of procurement and lease as well as implementing new data management systems. The climate-neutrality target for municipal infrastructure was already approved as part of the SECAP 2030 in 2022, thus it is well integrated in the present investment plans and agendas for municipal departments. Riga's energy management system is operational since 2022.

With 876 $ktCO_2$ in 2020, **Energy production** was the sector that produced most GHG emissions. The aim of this action plan is to reduce the emissions till 513 $ktCO_2$ by 2030. To achieve it, there are three priorities – reduce the share of fossil fuels in district heating (actions E1-E5); replace the gas boilers in decentralized heating systems (electrification, connection to DHS) (action E6); increase of renewable electricity (action E7). Since Riga's energy system is connected to thermoelectric plants of national significance, decarbonisation plans are made together with sector ministries and energy companies. Phase out of fossil fuels will be further promoted in Riga's strategy of sustainable heat supply, involving the municipal company "Rigas Siltums". To minimize the emissions form decentralized heat, a lot of investment will be necessary in the private sector (commercial and residential buildings) – Riga will continue its work on normative and financial support measures. To reduce the carbon footprint of Riga's electricity consumption, there are plans for scaling up the use solar PV. Riga will also benefit from the system wide decarbonisation of Latvia's power sector, thus different options for purchasing renewable electricity will be available.

The **Housing sector** (multi-apartment buildings) will have a rather small reduction of emissions – from 367 $ktCO_2$ in 2020 till 346 $ktCO_2$ in 2030. The main goal of this field of action is to speed up the renovation rate of multiapartment buildings, reaching 2000 by 2030 (there are about 6000 multi-apartment buildings to renovate in Riga). The actions describe the steps that the municipality takes to ensure the enabling conditions (information, regulation, co-funding, standardized solutions, outreach) as well as the renovation projects that the owners should implement with partial public co-funding or bank loans.

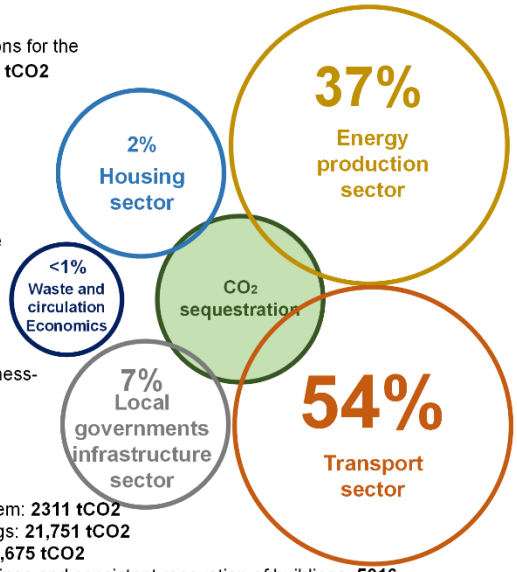
Finally, the **Transport sector** must achieve a major transformation reducing its GHG emissions from 714 $ktCO_2$ in 2020 to 160 $ktCO_2$ in 2030. In this sector, all actions are aimed at reducing the use of private cars by developing infrastructure for public transport, cycling and walking (T1-T6). The municipality has already scaled up investments in cycling roads, mobility hubs and public traffic as a part of its development and air quality programmes. The GHG reduction target for transport is very high and part of it may be redistributed to other sectors (Housing, Energy production) to ensure that the ambition is realistic.

In the **Waste management sector** and the **green infrastructure sector** the list of actions includes priorities identified in expert discussions and ongoing planning processes. The quantification of their contribution and costs will be completed by 2026 when the respective policy planning documents are finalized. Meanwhile, several measures are already being implemented.

In the Module B2, each action is assigned a label “priority I – III”, where “priority I” stands for the most urgent actions in terms need for engagement and expected contribution to climate change mitigation. “Priority II” marks either those actions whose contribution to emissions reduction is smaller or actions where some progress is already achieved. “Priority III” marks actions which would be beneficial, but their contribution is complementary. Regardless of the priority marking, all actions should be implemented.

Fields of action (housing):
Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings: **1186 tCO2**
Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga: **593 tCO2**
Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings: **19,358 tCO2**
Dz4: Establishment of the Riga Energy Efficiency Fund
Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs: **273 tCO2**

Fields of action (waste management):
A1: Improvement of the data records system and mapping of infrastructure
A2: Waste prevention
A3: Improvement of the amount and quality of household waste sorting
A4: Development of sorted waste collection infrastructure
A5: Promotion of waste recycling
A6: Development of a Riga circular economy action plan
A7: Integrated municipal wastewater management plan
A7 (Horizontal): Provision of information and education, awareness-raising for waste generators



Fields of action (municipal infrastructure):
P1: Continuous improvements in the energy management system: **2311 tCO2**
P2: 100% renewable heating energy share in municipal buildings: **21,751 tCO2**
P3: 100% renewable electricity share in municipal buildings: **35,675 tCO2**
P4: Development of a plan for the renovation of municipal buildings and consistent renovation of buildings: **5016 tCO2**
P5: Upgrading of street lighting: **1788 tCO2**
P6: Achieve a 100% renewable electricity share for street lights, traffic lights, and clocks in 2030: **1901 tCO2**
P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use: **263 tCO2**
P8: Promotion of the use of public transport for work among employees of the municipal government: **181 tCO2**
P9: Transition to zero-emission vehicles in companies, municipal institutions: **3402 tCO2**
P10: Energy efficiency and RES use in wastewater treatment plants: **2780 tCO2**

Fields of action (energy production):
E1: Promotion of zero-emission technologies and RES in district heating: **121,180 tCO2**
E2: Achieve the connection of new clients to DHS of Riga
E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system: **1320 tCO2**
E4: Gradual transition to the 4th generation heating supply system: **172 tCO2**
E5: Implementation of innovative pilot projects
E6: Promote electrification, use of RES in decentralised heating, or connection to DHS: **86,199 tCO2**
E7: Promote the use of RES in the generation of electricity for Riga's needs: **156,716 tCO2**

Fields of action (transport):
T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars: **126,840 tCO2**
T2: Measures to promote distance working and increase the availability of online services
T3: Promotion of active lifestyle and cycling: **77,000 tCO2**
T4: Increase the share of public transport in everyday passenger trips: **138,880 tCO2**
T5: Restrictions on private transport: **72,800 tCO2**
T6: Other measures to reduce car use: **85,680 tCO2**
T7: Promotion of electrification in private transport and provision of services: **24,000 tCO2**
T8: Gradual transition to clean technology in vehicles that enable municipal functions: **28,200 tCO2**
T9: Collection of mobility data and monitoring of measures implemented

Adaptation to climate change, forestry, and CO2 sequestration fields of action:
ZM1: Targeted creation of uninterrupted forest coverage, selection of sustainable planting material for forestry activity zones
ZM2: Development of research and innovation to improve CO2 sequestration in the urban environment
ZM3: Sharing knowledge on new forest management methods
ZM4: Develop and improve the data records system and GHG emissions calculations
ZM5: Compliance with forest certification conditions for long-term afforestation area restrictions
ZM6: Improvement of the company's forestry risk assessment, assessing the threats and opportunities for developing forest stands
ZM7: Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise: **16 tCO2**
ZM8: Greening of Riga's urban environment

Figure B-1.1.1: Sector field of action and sector share in total CO_2 emission reductions
(the tCO_2 value at the measure indicates the projected emissions reductions after their implementation)

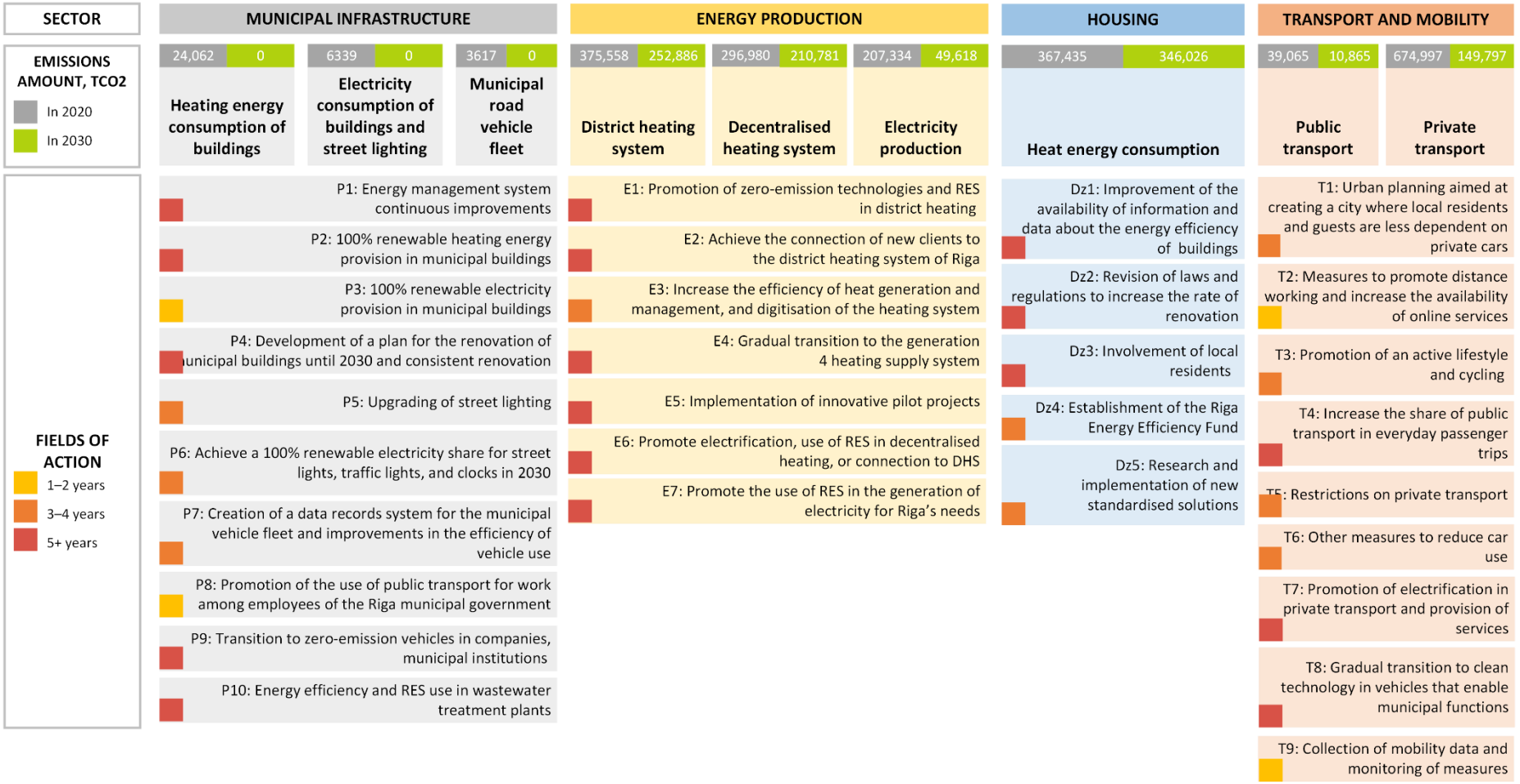


Figure B-1.1.2: Fields of action for municipal infrastructure, energy production, housing, and transport and mobility sectors, by priority

3.2 Module B-2 Climate-Neutrality Portfolio Design

B-2.1: Description of action portfolios - textual or visual		
Fields of action	Portfolio description	
	List of actions (**level of priority I-III**)	Description
Energy systems	• P2: 100% renewable heating energy share in municipal buildings (**priority I**) • P3: 100% renewable electricity share in municipal buildings (**priority II**) • P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030 (**priority III**) • P10: Energy efficiency and RES use in wastewater treatment plants (**priority II**) • E1: Promotion of zero-emission technologies and RES in district heating (**priority I**) • E2: Achieve new client connections to DHS (**priority II**) • E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system (**priority I**) • E4: Gradual transition to the 4th generation heating supply system (**priority II**) • E5: Implementation of innovative pilot projects (**priority III**) • E6: Promote electrification, use of RES in decentralised heating, or connection to DHS (**priority I**) • E7: Promote the use of RES in the generation of electricity for Riga's needs (**priority II**)	GHG emissions will be reduced by: • Reducing the consumption of natural gas by the decentralised heating system by 57% • Increasing the share of RES in DHS to 55% (baseline value 31%) • Raising the share of RES in electricity generation to 74% • Achieve 100% RES in municipal infrastructure heating and power supply • Achieve the use of RES in the operation of wastewater treatment plants
Mobility and transport	• P8: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use (**priority II**) • P9: Promotion of the use of public transport for work among employees of the municipal government (**priority III**) • P10: Transition to zero-emission vehicles in companies, municipal institutions (**priority II**) • T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars (**priority I**) • T2: Measures to promote distance working and increase the availability of online services (**priority III**) • T3: Promotion of an active lifestyle and cycling (**priority I**) • T4: Increase the share of public transport in everyday passenger trips (**priority I**) • T5: Restrictions on private transport (**priority III**) • T6: Other measures to reduce car use (**priority III**) • T7: Promotion of electrification in private transport and provision of services (**priority II**)	GHG emissions through reductions in the number of private vehicles in the city, optimisations and upgrades in the public transport, and making a 100% switch to zero-emission and RES vehicles in the municipal fleet.

	• T8: Gradual transition to clean technology in vehicles that enable municipal functions (**priority III**) • T9: Collection of mobility data and monitoring of measures implemented (**priority II**)	
Waste & circular economy	• A1: Development of a data records system and mapping of infrastructure • A2: Waste prevention • A3: Improvement of the amount and quality of household waste sorting • A4: Development of sorted waste collection infrastructure • A5: Promotion of waste recycling • A6: Development of a Riga circular economy action plan for 2026–2030 • A7: Development and implementation of an integrated municipal wastewater management plan • A8 (Horizontal): Provision of information and education, awareness-raising for waste generators	GHG emissions will mainly be reduced through reductions in the amount of waste disposed of in landfills. Indirectly, the emissions will be reduced by producing less new materials and extending their life cycle.
Green infrastructure and nature-based solutions	• ZM1: Targeted creation of uninterrupted forest coverage, selection of sustainable planting material for forestry activity zones • ZM2: Development of research and innovation to improve CO_2 sequestration in the urban environment • ZM3: Sharing knowledge on new forest management methods • ZM4: Improvement of the data records system and emissions calculations • ZM5: Compliance with forest certification conditions for long-term afforestation area restrictions • ZM6: Improvement of the company's forestry risk assessment, assessing the threats and opportunities for developing forest stands • ZM7: Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise • ZM8: Greening of Riga's urban environment	GHG emissions will be reduced through the reclamation of the peat bogs. The consistent sequestration of CO_2 from the areas of LLC 'Rīgas meži' will be ensured.
Built environment	• P1: Continuous improvements in the energy management system (**priority II**) • P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of buildings (**priority I**) • P5: Upgrading of street lighting (**priority II**) • Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings (**priority III**) • Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga (**priority III**) • Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings (**priority I**) • Dz4: Establishment of the Riga Energy Efficiency Fund (**priority II**) • Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs (**priority III**)	GHG emissions will be decreased by reducing the city's energy consumption through various energy efficiency measures.

3.2.1 B-2.2: Individual action outlines — Municipal infrastructure

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P1: Continuous improvements in the energy management system
	Action type	Continuous and long-term
	Action description	The establishment of an energy management system in RSCM is not only a requirement of laws and regulations but also an essential need for optimising the work of the municipal government in order to systematically monitor and ensure the reduction of energy consumption in municipal buildings. As part of this measure, the municipality is required to continuously improve the created EMS and expand its scope every year, in order to include all (more than 4000) municipal buildings by 2030.
Reference to impact pathway	Field of action	Municipal infrastructure
	Systemic lever	Governance and policy/Capacity and capacity building/Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• REA — responsible for maintaining EMS, including planning annual goals and measures, energy consumption records and their analysis, provision of recommendations, organisation of cooperation with PD, expansion of EMS boundaries, etc. • PD — responsible for the management of municipal buildings in accordance with the EMS manual and other guidelines
	Action scale & addressed entities	Municipal infrastructure: all municipal buildings
	Involved stakeholders	• Municipal building owners and/or heads of institutions — management of buildings according to EMS, provision of energy consumption data (if necessary), consistent measures to reduce and/or streamline energy consumption • Legal Administration — preparation of binding regulations • FD — earmarking of funding for low-budget measures • ECSD — implementation of the measures in line with the EMS manual
	Comments on implementation – consider mentioning resources, timelines, milestones	• P1.1. Creation of a single online energy consumption records and analysis tool accessible to all municipal managers and building owners. The chosen solution must include at least the following functions: overview reports and comparison with other sites. The set of indicators will include data on building heating energy and electricity consumption, primary energy consumption, water consumption, GHG emissions, and other indicators to be defined during the development. There will have to be data input features, with processing and visual presentation, also for transport energy data (2024; RDA in conjunction with REA) • P1.2. Inspection of all renovated buildings, including the supervision of energy consumption and its comparison with energy consumption as specified in energy performance certificates, as well as recommendations on further measures that will save an average of 10–15% of the

		energy consumption of every building (2024; REA in conjunction with PD) • P1.3. Incorporation of the energy performance guarantee in the construction and renovation of all municipal sites, which will lead to the energy savings planned in the project (2024; REA in conjunction with the Legal Administration) • P1.4. Creation of incentives for behaviour change in the municipality. For example, setting targets for the specific consumption of heating energy and/or electricity in buildings that would be binding for the institution. The target value must be set according to the building type, e.g., for schools and education institutions in renovated buildings, the target could potentially be as high as 60 kWh/m^2 (or as specified in the renovation design of the building). The target must be linked to the budget of the building or institution to motivate the institution to work towards the target • P1.5. Implementation of the 'energy efficiency first' principle at the level of all departments and companies: for example, in draft decisions, their impact on the climate and the environment should also be considered in the explanatory statements; preparation of general brief guidelines and discussions regarding them with the heads of RSCM and all departments; the measure as such will not create savings, but taking the principles of energy efficiency into account, will prevent the consumption of energy from increasing (2024; REA) • P1.6. More than 300 building energy certificates are planned to be prepared during 2024, providing information about the energy efficiency of buildings, lighting and other energy-related topics. After the preparation of the energy certificates, extensive data analysis must be carried out and higher priority must be given to the implementation of measures in buildings where urgent action is needed. The next step is to carry out an assessment of the technical condition of the buildings so that the energy efficiency measures are planned in combination with measures to improve the overall technical condition of the building (2024–2030; REA in conjunction with PD) • P1.7. Incorporation of energy consumption targets in building management contracts, potentially saving an average of 5% in heating energy consumption (2024; REA in conjunction with PD and the company managing heating units) • P1.8. Based on the data collected as part of action P.1.6, a priority list of buildings in need of replacing the lighting to energy-efficient lighting must be compiled: this will save 15–20% in electricity consumption in these buildings. By 2030, all municipal buildings must have their lighting replaced with LED or equivalent energy-efficient lighting. The existing lighting must be replaced in at least 50 municipal buildings every year, which will save 15–20% in electricity consumption in these buildings (2024–2030; REA in conjunction with PD) • P1.9. Expansion of the planning document Riga Municipal Property Management Strategy with energy efficiency guidelines for buildings; the measure will not provide savings as such, but will ensure compliance with the

		principles of energy efficiency and will limit increases in the consumption of energy (2024, PD) • P1.10. Development and implementation of regulations for the allocation of a part of the energy savings for measures to achieve further improvements in municipal institutions. The inclusion of these provisions in the annex to the municipal budget, or in the EMS manual, which is binding to all municipal institutions, must potentially be considered. Such an approach has the potential to motivate the management and users of the institution to take behaviour change measures (2024; REA in conjunction with all stakeholders) • P1.11. Inventory of 100 municipal buildings every year and their potential inclusion within the boundary of EMS; this will result in information on potential new facilities for which the municipality pays energy bills (2024–2030; REA in conjunction with PD) • P1.12. Maintenance, continuous improvement, and annual recertification of the EMS, including training municipal employees in saving energy, changing habits. To promote the engagement of employees, informal events such as energy saving competitions and annual awards for energy efficiency achievements at the institution/building level must also be organised. (2024–2030; REA)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	15,939 MWh
	(Total) GHG emission reduction forecast for the emissions sector	2311 tCO_2
	Total costs and costs by CO_2e unit	EUR 2.45 million (investment period 7 years, EUR 350,000 per year); EUR 1060 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P2: 100% renewable heating energy share in municipal buildings
	Action type	Long-term
	Action description	In order to achieve the goal of climate-neutrality, the municipality must ensure the use of heat energy produced from renewable energy sources. At the moment, most of the municipal buildings and sites are connected to the district heating system, and the municipal government has to work with the main heat energy supplier - AS 'Rīgas Siltums' - to agree on a gradual transition to heat energy from renewable energy sources with proof of supply. This way, a 100% RES share can be achieved in 2030 for all municipal buildings connected to DHS. The municipality must also assess and implement other solutions in buildings with local fossil-fuel heating systems (reducing the energy consumption of the building first).
	Field of action	Municipal infrastructure

Reference to impact pathway	Systemic lever	Governance and policy/Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• REA — responsible for providing guidance on how to achieve the goal of the measure in the municipality, for collecting data, and for monitoring the measure; prepares regulations for RES heating energy procurement • PD — coordinates cooperation with municipal buildings under its responsibility to achieve the goals of the measure; ensures the implementation of the measure (replacement of boilers) • FD — provide the necessary funding
	Action scale & addressed entities	Municipal building heating energy consumption
	Involved stakeholders	• AS 'Rīgas siltums' — involved in the implementation of the measure, providing technical assistance to connect potential buildings to DHS • Rīgas nami — coordinates cooperation with municipal buildings under its responsibility to achieve the goals of the measure
	Comments on implementation – consider mentioning resources, timelines, milestones	• P2.1. Creation or expansion of a single GEO RIGA database on heating systems installed in municipal buildings (PD in conjunction with REA and RDA; Q1 2024) • P2.2. Building of a single understanding with all stakeholders on the implementation of the measure, next steps, and a year-by-year breakdown on how to gradually ensure the introduction of RES and certificates of heating energy origin in Riga (REA in conjunction with AS 'Rīgas siltums', PD, etc.; starting from 2024) • P2.3. Inclusion of proof of origin in procurements or regulatory frameworks (Executive Director Office; starting from Q4 2024) • P2.4. Procurement documentation/signing of a contract with AS 'Rīgas Siltums' for the supply of renewable heat energy to municipal buildings (Executive Director Office; 2025) • P2.5. EU Cohesion Programme, Modernisation Fund, or RRF assistance for the replacement of fossil fuel boilers or building of connections to Riga DHS in at least 15 municipal buildings per year. Buildings potentially requiring the replacement of heating boilers: Bolderāja Music and Art School; Altona Pārdaugava Children and Youth Centre; Pārdaugava Music and Art School; Ābecītis Riga Pre-school Education Institution No 13; Riga Central Library Bolderāja Branch; Riga Football School; Riga Pārdaugava Pre-school Institution; Riga Municipality Agency 'Rīgas pieminekļu aģentūra' ('Riga Monuments Agency'); Ezermala Riga Municipality Children and Youth Centre; Riga Municipality Children and Youth Centre; Madariņa Riga Pre-school Education Institution; Pasaciņa Riga Pre-school Education Institution; Priedīte Riga Pre-school Education Institution; skiing track in Uzvaras Park; Arkādija Sports School; Avoti Territorial Centre (PD in conjunction with REA; starting from 2024)

Impact & cost	Generated renewable energy (if applicable)	150,006 MWh
	Energy savings	
	(Total) GHG emission reduction forecast for the emissions sector	21,751 tCO_2
	Total costs and costs by CO_2e unit	EUR 2.5 million (investment period: 5 years, including EUR 5000 for the preparation of documentation and EUR 500,000 for the replacement of boiler systems every year); EUR 115 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P3: 100% renewable electricity share in municipal buildings
	Action type	Short-term
	Action description	The use of electricity in municipal buildings is the second largest source of CO_2 emissions that the municipal government can reduce by having its own electricity production, for example by installing solar panels on municipal buildings or in municipal territories, and/or by implementing CO_2 compensation mechanisms, such as purchasing renewable electricity whose CO_2 emissions are 0. Given the fact that the price of renewable electricity could be higher than electricity from the grid, the municipal government can also introduce this measure gradually, reaching 100% in 2030 when all the electric power consumed in municipal buildings will come from RES.
Reference to impact pathway	Field of action	Municipal infrastructure: municipal buildings
	Systemic lever	Governance and policy/Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• REA — coordinate the implementation of the measure, ensure that renewable electricity certificates are purchased when procuring electricity for municipal institutions.
	Action scale & addressed entities	All municipal buildings
	Involved stakeholders	• Municipal institutions — ensure that certificates of origin are included in electricity procurements • PD, HED — coordinate the installation of solar panels on municipal buildings • LLC 'Rīgas meži' — implements the project of the industrial solar panel park in the company's swamp areas
	Comments on implementation – consider mentioning resources, timelines, milestones	• P3.1. Determine the annual amounts of electricity produced from renewables, and determine further forecasts (REA, 2024) • P3.2. Develop procurement documentation for procuring renewable electricity (REA; 2025) • P3.3. Assess the electricity consumption of buildings and identify buildings suitable for the installation of solar panels to cover internal consumption (PD; 2025) • P3.4. Determine the capacity of solar panels to be installed on the roofs of the municipal buildings identified and prepare standard technical specifications (REA; 2026) • P3.5. Continue to implement at least 14 RES projects (expected to be ~14 roofs of standard school buildings (or

		those of equivalent roof size) with solar panels for a total of ~8000 m^2 of PV panels per year) on the roofs of municipal buildings per year. Provisionally by 2030, enough PV must be installed to cover 18% of the electricity consumption of the municipal infrastructure (generating up to 11,500 MWh/year RES electricity). (PD in conjunction with REA; starting from 2024) • P3.6. Implement LLC 'Rīgas meži' project 'Reduction of GHG emissions and CO_2 equivalent capture solutions in degraded swamp areas and development of solar parks with storage technology in LLC 'Rīgas meži' restored swamp areas'. The project aims to install a 300 MW solar park (LLC 'Rīgas meži'; starting from 2028) • P3.7. Organise and conduct the procurement of RES electricity (Executive Director Office; 2026)
Impact & cost	Generated renewable energy (if applicable)	33,298 MWh (municipal building consumption)
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	35,675 tCO_2
	Total costs and costs by CO_2e unit	EUR 9.5 million for RES systems (EUR 5000 for developing documentation); EUR 266 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of the buildings
	Action type	Long-term
	Action description	The municipality manages more than 4000 buildings and sites that are not undergoing renovation due to ownership and management problems. The energy monitoring system developed as part of EMS will enable the collection of data on municipal buildings and their energy consumption, which will further make it possible for the municipal government to develop a building renovation plan for 2030. Action priorities must be clearly defined during the development of the plan, i.e., the buildings of what type, technical condition, and occupancy must be renovated first in order to achieve the greatest energy savings while improving the working conditions in them. The implementation of the measure will not result in direct savings, but will enable the basic conditions to be met for achieving a systemic reduction in heat energy consumption through the planned measures, and improving indoor air quality in municipal buildings, especially in educational institutions.
Reference to impact pathway	Field of action	Municipal infrastructure: municipal buildings
	Systemic lever	Governance and policy/Technology and infrastructure

Implementation	Responsible bodies/person for implementation	• Executive Director Office — assignment of duties to responsible departments and stakeholders
	Action scale & addressed entities	All municipal buildings
	Involved stakeholders	• REA — coordination of the development of the plan and technical documentation; monitoring of the implementation of the measure • PD, CDD, 'Rīgas nami' — implementation of the measure
	Comments on implementation – consider mentioning resources, timelines, milestones	• P4.1. The stakeholders assign representatives for the preparation of the plan. The stakeholders agree on the purpose, content, and main expected outcomes of the document (REA; 2024) • P4.2. Analysis of data on municipal buildings, inspections of buildings for which information is missing (PD in conjunction with 'Rīgas nami'; 2024) • P4.3. Development of a plan for the renovation of buildings, involving all responsible departments. Compilation of a list of priority buildings (REA; 2024) • P4.4. Development of standardised technical specifications and procurement documentation (REA; 2024) • P4.5. Systemic renovation of buildings (10 renovated municipal buildings per year, starting with the largest uninsulated buildings), raising of funding from various sources, potentially including the European Investment Bank (PD; starting from 2025) • P4.6. Assessment of the possible creation of a municipal ESCO, defining the range of stakeholders, the roles and responsibilities of each stakeholder in the creation of a municipal ESCO, and the operating principles of the municipal ESCO (REA, 2024)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	19,000 MWh
	(Total) GHG emission reduction forecast for the emissions sector	5016 tCO_2
	Total costs and costs by CO_2e unit	EUR 60 million for the renovation of buildings, EUR 50,000 for the development of the plan; EUR 11,962 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P5: Upgrading of street lighting
	Action type	Medium-term
	Action description	89% of all street lighting uses sodium lights, the replacement of which with LED lights will result in significant energy savings. Although the municipality is gradually implementing various projects for replacing the lights, their replacement will take several years at the current pace. In a few European capitals, street lighting is being modernised by signing an energy efficiency service contract, which provides both financing and energy savings.

		Although the installation of street lighting in the city's streets that are still unlit will increase the total electricity consumption, the municipal government must set a goal to install energy-efficient lights on these streets. The implementation of the measure will ensure that the specific electricity consumption per light will not increase, and the municipal government will continue to meet the conditions of the EMS. This measure can also be implemented as part of the street lighting modernisation project. The installation of streetlights in the unlit areas will lead to an increase in electricity consumption, but the main goal of this measure is to make sure that the increase is minimal by installing efficient lights and an efficient lighting system. The installation of new street lighting and the upgrading of existing lights also requires the procurement of electricity with a certificate of origin, in order to ensure that renewable electricity is used in street lighting.
Reference to impact pathway	Field of action	Municipal infrastructure: street lighting
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • PSMD — implementation and coordination of the measure
	Action scale & addressed entities	All street lighting in Riga
	Involved stakeholders	• REA — supervises the measure • CDD, PSMD — involvement in the implementation of the measure
	Comments on implementation – consider mentioning resources, timelines, milestones	• P5.1. Continue the implementation of the technical specifications for the development of the engineering design and investment plan (CDD, PSMD; 2024) • P5.2. Continue the development of the engineering design, investment plan, and procurement documentation (external service provider; 2025) • P5.3. Implementation of the project 'Modernization of street lighting and increase of energy efficiency in the city of Riga'. Preparation of public partnership project documentation, conclusion of contract and implementation (PSMD; 2026) • P5.4. Development of a single action policy for street lighting in the streets of Riga where street lighting is not yet currently installed (Executive Director Office; 2025) • P5.5. Development of an engineering design with standardised energy-efficient solutions depending on the technical requirements for street lighting in the respective street section (PSMD; 2025) • P5.6. Preparation of standardised procurement documentation for announcing a procurement or integration into infrastructure renewal projects implemented at the same time by other Riga municipality departments (PSMD; 2026)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	13,328 MWh

	(Total) GHG emission reduction forecast for the emissions sector	1788 tCO_2
	Total costs and costs by CO_2e unit	EUR 90 million; EUR 50 336 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030
	Action type	Municipal infrastructure: street lighting
	Action description	The installation of new street lighting and the upgrading of existing lights also requires the procurement of electricity with a certificate of origin, in order to ensure that renewable electricity is used in street lighting. However, energy efficiency measures must be implemented as a first priority to reduce electricity consumption as much as possible.
Reference to impact pathway	Field of action	Municipal infrastructure: street lighting
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • 'Rīgas gaisma' municipal agency — implementation and coordination of the measure
	Action scale & addressed entities	Street lighting in Riga
	Involved stakeholders	• RSCM Procurement Administration — responsible for procuring electricity in the municipality • REA — cooperation in the preparation of procurement documentation; supervision of the measure
	Comments on implementation – consider mentioning resources, timelines, milestones	• P6.1. Determine the annual amounts of electricity produced from renewables, and determine further forecasts (PSMD; 2028) • P6.2. Develop procurement documentation for the purchase of renewable electricity (Procurement Administration; 2028) • P6.3. Organise and conduct the procurement of RES electricity (Procurement Administration; 2029)
Impact & cost	Generated renewable energy (if applicable)	17,445 MWh (RES electricity with certificate of origin)
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	1901 tCO_2
	Total costs and costs by CO_2e unit	EUR 616,000; EUR 324 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use
	Action type	Medium-term
	Action description	The creation of a fleet monitoring system is an important first step in making it possible for the municipal government to identify the current situation and follow its progress. Currently, there are significant deficiencies in data recording: no centralised records are kept for all vehicles; the analysis of existing information is complicated by different data storage solutions; gathering the information is manual work; no information on vehicle mileage is collected, which makes it impossible to compare transport energy consumption between institutions/vehicles using specific energy consumption indicators. Data on vehicle fleet and vehicle mileage collected during the preparation of Riga SECAP 2030 show that the utilisation of vehicles in municipal institutions and companies is often relatively low. In order to increase the efficiency of vehicle use, the tasks include not only a study of their existing utilisation but also a study of the corresponding needs, while deciding on the optimisation of the number of vehicles and other measures.
Reference to impact pathway	Field of action	Municipal infrastructure: municipal transport
	Systemic lever	Technology and infrastructure/Capacity and capacity building
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • REA — implements and maintains EMS, including energy consumption records for the municipal vehicle fleet, provides training and advice to municipal institutions and companies; supervision of the measure
	Action scale & addressed entities	Vehicles owned and leased by municipal institutions; vehicles of companies
	Involved stakeholders	• RDA — maintains the data records platform • Municipal institutions and companies — data records, development and implementation of measures, meeting of targets
	Comments on implementation – consider mentioning resources, timelines, milestones	• P7.1. Executive director order to municipal institutions and request to companies defining their target for reducing emissions generated by their vehicle fleets and a requirement to participate in EMS (Executive Director Office; 2024) • P7.2. REA provides training and advice to municipal institutions and companies in the Scope of conducting inventory, preparing measures and EMS (REA; 2025) • P7.3. Municipal institutions and companies carry out a vehicle fleet inventory, including its age, mileage, fuel consumption, users, routes, workload, and other aspects to help define emission reduction measures (municipal institutions and companies; 2025) • P7.4. RDA keeps a data records platform on the basis of the executive director's order. Every municipal institution

		and company regularly enter data into the platform (RDA; 2025) • P7.5. Based on the results of the inventory and the executive director's order, the municipal institutions develop their own mobility plans, which clearly show how targets will be met and how data will be recorded. REA prepares a mobility plan template. Meanwhile, the companies include goals and measures in their development strategies (municipal institutions and companies; 2026) • P7.6. The municipal vehicle fleet is included in EMS, resulting in a manual with a procedure for recording data and monitoring progress. For more on EMS, see action P1 (REA; 2027) • P7.7. The mobility plans of municipal institutions must include the development of EV charging points for EV owned by the municipality. The charging points must be designed to have a smart management system that is linked to changes in electricity prices.
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	963 MWh
	(Total) GHG emission reduction forecast for the emissions sector	253 tCO_2
	Total costs and costs by CO_2e unit	EUR 91,000 (investment period 7 years, EUR 13,000 per year); EUR 360 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P8: Promotion of the use of public transport for work among employees of the municipal government
	Action type	Short-term
	Action description	In order to increase the use of public transport among municipal employees, one must create a binding requirement to use public transport for work trips within the city. Alternatively, a time limit (for example, 40–60 min.) can be set at which journeys can be made by public transport as a priority. The employees must be provided with monthly public transport tickets. The implementation of this measure would not only have a positive effect on the reduction of transport CO_2 emissions but would also serve as an example of reducing car dependency for the rest of the public.
Reference to impact pathway	Field of action	Municipal infrastructure: municipal transport
	Systemic lever	Culture, engagement, and social innovation
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to all stakeholders • REA — coordinates the implementation of the measure, trains and advises municipal institutions on promoting the use of public transport among employees

	Action scale & addressed entities	Municipal employees
	Involved stakeholders	Municipal institutions and companies — development of internal rules on the use of public transport for work trips. Provision of monthly tickets.
	Comments on implementation – consider mentioning resources, timelines, milestones	• P8.1. Executive director order to municipal institutions and request to companies on the use of public transport for work purposes and the provision of monthly tickets for employees (Executive Director Office; 2025). • P8.2. REA provides training and advice to municipal institutions and companies on promoting the use of public transport among employees, e.g., by publishing information on the regular news page of the RCC Communication Administration and by organising internal motivation contests among employees of institutions (REA, 2025).
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	690 MWh
	(Total) GHG emission reduction forecast for the emissions sector	181 tCO_2
	Total costs and costs by CO_2e unit	85,000 EUR/year (investment period 2 years, total: EUR 170 000); EUR 939 per tCO_2e

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P9: Transition to zero-emission vehicles in companies, municipal institutions
	Action type	Long-term
	Action description	The city's goal is a 100% transition to RES zero-emission vehicles in the municipal fleet by 2030. The measures to be implemented include the development of criteria for the purchase of vehicles and services, procurements and assessment of the purchase of bicycles and other micro-mobility vehicles for the work needs of municipal institutions. In addition, activities that would promote the use of low-emission transport solutions (public transport, bicycles, car sharing) among municipal employees are supported not only for work trips but also for commuting to and from work. The increase in emission-free vehicles must go hand in hand with the development of the charging infrastructure. The municipal government will install electric vehicle charging infrastructure at municipal institutions in proportion to the increase in the number of electric vehicles, encouraging the use of RES fuels.
Reference to impact pathway	Field of action	Municipal infrastructure: municipal transport
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office — assignment of duties • REA, in conjunction with PSMD and CDD — develop criteria for the purchase of vehicles • REA — supervises the measure

	Action scale & addressed entities	Overall municipal vehicle fleet
	Involved stakeholders	companies, municipal institutions — transition to zero-emission vehicles
	Comments on implementation – consider mentioning resources, timelines, milestones	• P9.1. Use and evaluation of existing vehicles, employee travel habits and needs; recommendations and potential measures The goal is to reduce the need for cars to a minimum through the increased use of public transport (CDD; 2025). • P9.2. Development of recommendations for the purchase of vehicles and mobility services criteria. The development of the criteria must take the previous experience of the institutions and companies in the Scope of EV into account and encourage the transfer of criteria among municipal departments (REA; 2025). • P9.3. Executive director's order to municipal institutions and request to companies, which defines the fleet emissions reduction target and criteria for the purchase of new vehicles, including for zero-emission vehicles (Executive Director Office; 2026). • P9.4. Assessment of the purchase of bicycles for the work of municipal institutions (CDD; 2026) • P9.5. Procurement of vehicles based on the set criteria (PSMD; 2027).
Impact & cost	Generated renewable energy (if applicable)	12,000 MWh
	Energy savings	823 MWh
	(Total) GHG emission reduction forecast for the emissions sector	3402 tCO_2
	Total costs and costs by CO_2e unit	EUR 600,000 (depending on the chosen solution); EUR 176 per tCO_2

B-2.2.1: Individual action outlines — Municipal infrastructure		
Action outline	Action name	P10: Energy efficiency and RES use in wastewater treatment plants
	Action type	Long-term
	Action description	With the expected amendments to the Council Directive concerning urban wastewater treatment, the EU aims to achieve climate-neutrality in the municipal wastewater treatment sector. These amendments will require energy audits of wastewater treatment plants and sewer systems to be carried out by 2028, with the intention to use RES to cover the internal gross energy consumption for large wastewater treatment plants that treat 10,000 p.e. or more of wastewater with 20% by 2030, 40% by 2035, 70% by 2040, and 100% by 2045. Currently, 26% of the Daugavgrīva wastewater treatment plant heat energy consumption is covered by RES, namely the combustion of biogas produced at the site.
	Field of action	Municipal infrastructure

Reference to impact pathway	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	MoCE — rulemaking; monitoring targets; planning EU co-financing. LLC 'Rīgas ūdens' — responsible for data collection; development of the measure plan; implementation of the measure; provision of the necessary financing REA — provides information support for the preparation of the regulations for the procurement of RES electricity; supervises the achievement of targets.
	Action scale & addressed entities	Municipal wastewater treatment plant electricity and heating energy consumption
	Involved stakeholders	LLC 'Rīgas ūdens' — ensures the implementation of the measure by providing administrative and technical qualification, ensuring 50% RES in the internal gross consumption of wastewater treatment plants
	Comments on implementation – consider mentioning resources, timelines, milestones	P10.1. Planning, design, and construction of Phase 1 of a solar plant with a capacity of 0.499 MW on the grounds of the wastewater treatment plant (LLC 'Rīgas ūdens'; starting from 2024) P10.2. Planning and implementation of industrial energy efficiency measures: reconstruction of heating lines and replacement of site lighting with LED lights (LLC 'Rīgas ūdens'; starting from 2024) P10.3. Energy audit in accordance with the CoM regulations for wastewater treatment plants (LLC 'Rīgas ūdens' in conjunction with REA, MoCE; starting from 2026) P10.4. Construction of 2 biogas production tanks (LLC 'Rīgas ūdens'; starting from 2024) P10.5. Construction of a biogas cogeneration plant and reconstruction of electricity distribution facilities with a capacity of up to 3 MW (LLC 'Rīgas ūdens'; starting from 2028). P10.6. Inclusion of proof of origin in energy procurement (LLC 'Rīgas ūdens' in conjunction with REA; starting from 2029) P10.7. Inclusion of active users in electricity procurement (LLC 'Rīgas ūdens' in conjunction with REA; starting from 2030)
Impact & cost	Generated renewable energy (if applicable)	22,805 MWh/year (399 MWh/year of electricity from PV; 22,032 MWh/year of electricity and an additional 374 MWh/year of heat from biogas cogeneration) This amount of RES will cover up to 85% of the internal energy consumption of the wastewater treatment plant.
	Energy savings	24,445 MWh Replacement of European Residual Mix (ERM) electricity for a total of 22,431 MWh/year and 210 MWh/year unused; replacement of natural gas for 374 MWh/year and 1430 MWh/year unused.
	(Total) GHG emission reduction forecast for the emissions sector	2780 tCO_2e Additionally, up to 750 tCO_2e/year (treatment of 9000 t of wastewater sludge — reduction of biogenic GHG emissions).

	Total costs and costs by CO_2e unit	EUR 39 million (investment period 7 years); EUR 14,029 per tCO_2e

3.2.2 B-2.2: Individual action outlines — Energy production

B-2.2.2.: Individual action outlines — Energy production		
Action outline	Action name	E1: Promotion of zero-emission technologies and RES in district heating
	Action type	Long-term
	Action description	The purpose of this field of action is to reduce the GHG emissions of the Riga DHS and promote electrification. It involves the conversion of existing energy sources of AS 'Rīgas siltums' to zero-emission and RES solutions, achieving an RES share of at least 90%, and the procurement of RES heating energy, electricity, and residual heat, which will include incentive conditions for producers. If possible, the producers will be required to submit heating energy certificates. At the end of 2023, REA began to work on the Riga State City District Heating Development Strategy 2024–2030, which will provide more detailed information and an approach for how to organise the implementation of this field of action.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	Executive Director Office — assigns duties to all stakeholders and creates a model of cooperation for all stakeholders
	Action scale & addressed entities	DHS within the city administrative territory
	Involved stakeholders	• AS 'Rīgas siltums' — implementation of the field of action • HEC — cooperates with the MoE on the environmentally-friendly provision of heating from CHP1 and CHP2 • REA — supervises and monitors the field of action • Latvenergo and other heating energy producers — involved in the implementation of the measure and in the development of the cooperation model
	Comments on implementation – consider mentioning resources, timelines, milestones	• E1.1. Integrate the goals, field of action and measures set in the Riga State City Action Plan for Achieving Climate Targets by 2030 into the 2030 mid-term strategy of AS 'Rīgas siltums'. The main directions for heating energy production in DHS are: (1) electrification and transition to emission-free technologies; (2) purchase of residual heat from companies in Riga; (3) purchase of low-emission and RES-generated heating energy; (4) integration of heating, electricity, water supply sectors; (5) introduction of storage systems (AS 'Rīgas siltums'; 2024) • E1.2. Continue to implement fuel transition projects in low-capacity boiler houses and cogeneration plants of AS 'Rīgas siltums' (36 boiler houses with a total installed capacity of 31.4 MW), switching to emission-free technologies and RES where technically and economically

		possible (heat pumps, solar panels, solar collectors, pellet boilers with a capacity up to 7.5 MW, etc.). As an alternative, provide connection to the heating system. (AS 'Rīgas siltums'; starting from 2024) • E1.3. Continue fuel transition projects and reconstruction in heating plants/large capacity boiler houses (AS 'Rīgas siltums'; starting from 2024) • E1.4. Identify all industrial companies that can provide residual heat from their production processes to Riga DHS and develop a cooperation scheme together (AS 'Rīgas siltums'; 2024) • E1.5. Identify plans of heating energy suppliers to provide low-emission and RES heat to Riga DHS by 2030 (AS 'Rīgas siltums' in conjunction with the Executive Director Office; 2024) • E1.6. Negotiate with the MoE on the inclusion of climate-neutrality targets for the development of the heating supply system in the plans of state-controlled companies and in CoM regulations, taking their impact on the achievement of Riga's 2030 climate-neutrality targets into account (HEC; 2024) • E1.7. Conduct negotiations with the MoE and AS Latvenergo on emission-free technologies and the use of residual heat for heat production in CHP areas: CHP-2 (40 MW electrode boilers, 20 MW heat pump, solar collector field <10 MW, conversion of gas turbine for hydrogen combustion, etc.) and CHP-1 (40 MW electric boilers, 20 MW heat pump, heat storage system, etc.) (HEC; 2024) • E1.8. Prepare and announce a heating energy procurement requiring producers to submit certificates (if possible) or other documentation proving the origin of the heat produced. The share of RES heating energy and residual heat is determined as part of the procurement annually. The share of RES in heating energy procurement increases every year, enabling the achievement of the 2030 targets: a total of 769 GWh produced from RES (AS 'Rīgas siltums'; starting from 2025)
Impact & cost	Generated renewable energy (if applicable)	768,855 MWh
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	121,180 tCO_2
	Total costs and costs by CO_2e unit	EUR 75 million; EUR 619 per tCO_2

B-2.2.2.: Individual action outlines		
Action outline	Action name	E2: Achieve the connection of new clients to DHS of Riga
	Action type	Long-term
	Action description	The purpose of this field of action is to promote the more efficient use of energy resources and improvement of air quality

		in Riga by connecting potentially new and existing decentralised plants to DHS of Riga.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	Executive Director Office: assignment of duties to all stakeholders
	Action scale & addressed entities	DHS within the city administrative territory
	Involved stakeholders	• AS 'Rīgas siltums' — implementation of the field of action • REA — supervises and monitors the field of action • CDD, HED — involvement in the implementation of the field of action • HEC — discussions on the creation of a potential assistance instrument
	Comments on implementation – consider mentioning resources, timelines, milestones	• E2.1. Mapping of heat networks in GEO Riga, making it possible for all stakeholders to assess the distances to the nearest connection (CDD in conjunction with AS 'Rīgas siltums'; 2024) • E2.2. Organisation of workshops with various stakeholders (businesses, CDD, REA, Executive Director Office, RNRC, etc.) on how to motivate businesses, building managers and owners to connect to DHS (REA; 2024) • E2.3. Identification of the DHS development zone, development and/or regular updating of the detailed plan with new potential connections and their installation time (AS 'Rīgas siltums' in conjunction with REA and CDD; starting from 2024) • E2.4. Provide any potential client with easy-to-understand information on the websites and information stands of RSCM (e.g., REA and CDD) and AS 'Rīgas siltums', providing details about the options for connecting to the DHS, including the identification of benefits and drawbacks, as well as examples of best practices (AS 'Rīgas siltums' in conjunction with REA; 2025) • E2.5. Prepare technical and financial document templates (with different potential solutions) for the connection of decentralised facilities to DHS, and cooperation and financing models (between AS 'Rīgas siltums', building owners, building managers, builders, and financing providers) to reduce the costs of connection (AS 'Rīgas siltums'; 2025) • E2.6. Develop assistance measures and financial instruments for fuel combustion plant operators to facilitate their connection to the DHS (HEC; 2025) • E2.7. Identify major heating energy consumers located close to heating pipes and inform them of the possibility to connect to DHS (AS 'Rīgas siltums'; starting from 2025) • E2.8. Create a digital platform where every end consumer of heating energy can keep track of consumption data. Provide certificates of origin for heating energy.
Impact & cost	Generated renewable energy (if applicable)	This field of action will result in an increase in the consumption of DHS heating energy, but a decrease in decentralised heating supply. The savings resulting from this field of action are thus included in E6 'Promote electrification, use of RES in

	Energy savings	decentralised heating, or connection to DHS', total GHG emission reduction 86,199 tCO_2. It is estimated that new connections to the DHS will contribute ¼ or 20,000 tCO_2. This action is described separately because it will be implemented by the municipal district heating company.
	(Total) GHG emission reduction forecast for the emissions sector	
	Total costs and costs by CO_2e unit	EUR 2.1 million (investment period 7 years, EUR 300,000 per year)

B-2.2.2.: Individual action outlines		
Action outline	Action name	E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system.
	Action type	Medium-term
	Action description	The field of action focuses on the district heating sector with the purpose of improving its overall efficiency and introducing digitisation solutions. Digitisation in the scope of environment, climate, and governance is stated as an essential and very important connecting item in the Riga Development Programme 2022–2027.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • AS 'Rīgas siltums' — planning and implementation of the field of action
	Action scale & addressed entities	Riga city heating system lines to be renovated
	Involved stakeholders	• REA — supervises and monitors the field of action • RDA, CDD — involvement in the implementation of the field of action
	Comments on implementation – consider mentioning resources, timelines, milestones	• E3.1. Map all energy sources producing heating energy for Riga DHS in Geo Riga (CDD in conjunction with AS 'Rīgas siltums'; 2024) • E3.2. Continue implementing measures to reduce heat energy losses in the city's district heating system in order to achieve the total heat energy loss reduction target (AS 'Rīgas siltums', from 2024) • E3.3. Continue implementing projects related to the installation of condensing plants and heat pumps for the deeper cooling of flue gas (AS 'Rīgas siltums', AS Latvenergo, and other independent producers; 2024–2025) • E3.4. Assess the digitisation of production, records, billing, and other processes of AS 'Rīgas siltums' and prepare recommendations for increasing it (AS 'Rīgas siltums' in conjunction with the Executive Director Office; 2025) • E3.5. Raise funding for the integration of digitisation solutions (e.g., Termis, Dymola Modelica, or other tools) for the optimisation of heating supply processes in Riga in order to increase the energy efficiency of the heating system, reduce heat losses, and improve service quality (AS 'Rīgas siltums'; starting from 2025) • E3.6. If necessary, given the current data on AS 'Rīgas siltums' boiler houses and future plans for the replacement of boilers using emission-free technologies, as well as the

		information provided in the Riga State City District Heating Development Strategy 2024–2030, conduct energy efficiency measures in the existing systems, such as improving heat exchanger systems, introducing heating energy storage in the heating supply system (if technically possible), installing equipment for the deeper cooling of flue gas, and other technical improvements that can accordingly increase the efficiency of the system in the boiler houses (AS 'Rīgas siltums'; starting from 2025)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	5000 MWh
	(Total) GHG emission reduction forecast for the emissions sector	1320 tCO_2
	Total costs and costs by CO_2e unit	EUR 8 million; EUR 6061 per tCO_2

B-2.2.2.: Individual action outlines		
Action outline	Action name	E4: Gradual transition to the 4th generation heating supply system
	Action type	Long-term
	Action description	DHS of Riga mostly uses a 3rd generation heating line, where the temperature of the heating medium (water) is 118/70 °C. In 4th generation heating lines, the heat medium has lower water temperatures (flow temperature 60–40 °C, return temperature 30–25 °C), which leads to a reduction of heat energy losses in the lines, with the possibility to introduce a heat energy surplus from other renewables sources, such as solar collectors and heat pumps. Such a concept is intended for the climatic conditions of Northern European countries, where heat energy is provided for both heating and hot water production. In general, one must promote the use of 4th generation heating line solutions in DHS of Riga. The implementation of the measure by 2030 should be considered mandatory for new connections to DHS of Riga, and the installation of such a system should be considered if rebuilding heat lines or changing the heating supply system for the consumer. Cooperation with real estate developers and construction contractors must be pursued to ensure that the systems are compatible with the heating solutions of the buildings. The implementation of the measure will create a direct impact on the achievement of DHS goal: a relative reduction of losses in heating lines.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • AS 'Rīgas siltums' — planning and implementation of the field of action

	Action scale & addressed entities	Riga DHS lines to be renovated
	Involved stakeholders	• REA — supervises and monitors the field of action • CDD — involvement in the implementation of the field of action
	Comments on implementation – consider mentioning resources, timelines, milestones	• E4.1. Develop (and update every 2–3 years) a detailed action plan for the upgrade of Riga DHS to a 4th generation heat supply solution, taking the rate of renovation of apartments in Riga into account (AS 'Rīgas siltums'; 2025) • E4.2. In implementing the 4th generation concept, use the principle of sector interaction, install electric boilers that would enable economically viable heat generation and, if necessary, balancing of the power grid (AS 'Rīgas siltums'; starting from 2025) • E4.3. Implement other projects related to the interaction of sectors, based on heat pump technology and providing heat recovery from wastewater or other sources where it is technologically and economically viable (AS 'Rīgas siltums'; starting from 2025) • E4.4. Implement energy efficiency measures in the existing system, e.g., by improving heat exchanger systems, introducing heating energy storage and other technical improvements that can increase system efficiency (AS 'Rīgas siltums'; starting from 2025) • E4.5. Explore options to integrate the heating energy produced by individual heating energy producers into the city heating supply (AS 'Rīgas siltums'; starting from 2027) • E4.6. Explore the possibility of providing 4th generation heating system services in newly built blocks and neighbourhoods, and in blocks where multi-apartment residential buildings are being renovated (AS 'Rīgas siltums'; starting from 2027)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	650 MWh
	(Total) GHG emission reduction forecast for the emissions sector	172 tCO_2
	Total costs and costs by CO_2e unit	EUR 240,000; EUR 1395 per tCO_2

B-2.2.2.: Individual action outlines		
Action outline	Action name	E5: Implementation of innovative projects
	Action type	Long-term
	Action description	In order to achieve the goals of climate-neutrality one must assess and implement pilot electrification, renewables, and smart control projects in cooperation with universities and scientific institutions in order to look for various solutions to improve the efficiency of the existing DHS, to adapt technological renewables solutions to local conditions, which includes promoting the use of emission-free energy sources,

		such as heat recovery from waste water, and production of cooling energy in the context of climate change adaptation and the development of an industrial solar park (300 MW) in degraded swamp areas. The implementation of the field of action will not have a direct and immediate effect on the increase in the proportion of renewables or the reduction of heat energy consumption, but the field of action has a long-term effect on the achievement of climate-neutrality goals in Riga.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure/Capacity and capacity building
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • AS 'Rīgas siltums' — planning and implementation of the field of action
	Action scale & addressed entities	Riga DHS
	Involved stakeholders	• REA — supervises and monitors the field of action • CDD — involvement in the implementation of the field of action • LLC 'Rīgas meži' – involvement in RES energy production, envisaging the development of industrial solar parks in restored swamp areas
	Comments on implementation – consider mentioning resources, timelines, milestones	• E5.1. Continue cooperation with universities, local and international heating providers and other companies, and the municipality: continue participating in international project calls that will make it possible to develop, implement, and integrate innovative solutions — for example, to integrate heat produced by individual heat producers into Riga DHS (AS 'Rīgas siltums' in conjunction with REA and CDD; starting from 2024) • E5.2. Continue informing HEC and the corresponding RSCM departments about the latest and most relevant trends in the city's DHS development (AS 'Rīgas siltums'; starting from 2024) • E5.3. Test and scale up the most suitable and modern solutions for Riga's heating supply system (AS 'Rīgas siltums'; starting from 2025) • E5.4. Development of the project documentation 'Reduction of GHG emissions and solutions for CO_2 sequestration in degraded swamp areas, and development of solar parks with storage technology in LLC 'Rīgas meži' restored swamp areas'. (LLC 'Rīgas Meži'; from 2025)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	The GHG emission reduction from district heating projects will be about 300 t per year (counted in the digitalization action in E3). The GHG emission reduction from E5.4 will be about 16 kt CO_2e per year (counted in the green infrastructure sector (ZM)).

	Total costs and costs by CO_2e unit	EUR 300,000 and EUR 10 million (LLC 'Rīgas Meži')

B-2.2.2.: Individual action outlines		
Action outline	Action name	E6: Promote electrification, use of RES in decentralised heating, or connection to DHS
	Action type	Long-term
	Action description	The purpose of this Field of action is to promote the more efficient use of energy resources and improvement of air quality in Riga by connecting new and existing decentralised plants to the district heating system of Riga, promoting the electrification of heating supply systems and increasing the share of RES.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure / Governance and policy / Capacity and capacity building
Implementation	Responsible bodies/person for implementation	Executive Director Office: assignment of duties to all stakeholders
	Action scale & addressed entities	Households and businesses using individual fossil fuel heating solutions for heating their buildings
	Involved stakeholders	• AS 'Rīgas siltums' — cooperation in the implementation of the field of action • REA — implements, supervises, and monitors the field of action • CDD, HED — involvement in the implementation of the field of action • HEC — decision-making and discussions on the creation of a potential assistance instrument
	Comments on implementation – consider mentioning resources, timelines, milestones	• E6.1. Monitor the implementation of the binding regulations on the phasing out of natural gas boilers in the city, preparing information about the purpose of the binding regulations and the recommended heating solutions and providing it to key target groups (local residents, businesses, etc.), also emphasising the importance of renovating buildings and its impact on heating costs (REA; starting from 2024) • E6.2. Reduce barriers to the installation of zero-emission and renewable energy systems in the RSCM administrative territory (CDD; starting from 2024) • E6.3. In conjunction with all stakeholders, develop and conduct a targeted information campaign on environmentally friendly solutions for providing heating in the city and/or renovating buildings (Executive Director Office; starting from 2025) • E6.4. Collect and publish examples of good practice, ensure that this information reaches key target groups, including neighbourhoods and business organisations (REA; 2025)

		• E6.5. Prepare or use an already existing simplified calculation tool for assessing the lifecycle costs of heating solutions and provide access to it (REA; 2025) • E6.6. Develop an assistance programme to compensate overhead costs (HEC; 2025)
Impact & cost	Generated renewable energy (if applicable)	364,506 MWh
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	86,199 tCO_2 (includes action E2)
	Total costs and costs by CO_2e unit	EUR 134 million; EUR 1555 per tCO_2

B-2.2.2.: Individual action outlines		
Action outline	Action name	E7: Promote the use of RES in the generation of electricity for Riga's needs
	Action type	Long-term
	Action description	This field of action aims to encourage the generation of renewable electricity for in-house consumption in the city. The use of zero-emission RES, especially solar energy, in households and businesses is promoted as part of it. This field of action includes technical solutions and procedural improvements, as well as information and education measures.
Reference to impact pathway	Field of action	Energy production
	Systemic lever	Technology and infrastructure / Governance and policy / Capacity and capacity building
Implementation	Responsible bodies/person for implementation	Executive Director Office: assignment of duties to all stakeholders
	Action scale & addressed entities	Electricity consumers within the administrative territory of the city
	Involved stakeholders	• Electricity suppliers — participate in the implementation of the actions • REA — implements, supervises, and monitors the field of action • CDD, HED, PD — involvement in the implementation of the actions
	Comments on implementation – consider mentioning resources, timelines, milestones	• E7.1. Produce easy-to-read materials on how electricity consumers can use the already-developed Solar Energy Potential Tool for their own needs[9] (REA; 2024) • E7.2. Organise co-creation workshops with all stakeholders on how to encourage and motivate households and businesses to reduce electricity consumption in their homes/businesses and install individual RES electricity solutions (Executive Director Office; 2024)

[9] https://experience.arcgis.com/experience/82e536a0f5124c82b915ce8533f3a435

		• E7.3. Install at least 1000 kW of solar panels in municipal facilities every year. Monitor the creation and operation of solar plants as part of EMS. (REA, 2024) • E7.4. Promote the development of local resident and municipality energy communities by providing information and technical support (REA in cooperation with HED; starting from 2025) • E7.5. Building cooperation with businesses that have built or are planning to build solar and/or other RES power plants, organising co-creation workshops and/or meetings with business organisations and associations, campaigning, researching, and implementing the most effective approaches for cooperation used in other cities in Europe, in order to promote the involvement of businesses in achieving Riga's climate-neutrality goals (CDD; starting from 2025) • E7.6. Assess the possibility of installing solar panels and other renewable energy solutions for local residents (energy communities, companies, etc.), using the infrastructure available to the municipal government (building roods, degraded city areas, etc.) (Executive Director Office in conjunction with PD; 2025) • E7.7. Develop solutions for installing solar panels (e.g., let out roof areas with the guaranteed purchase of energy produced according to the energy exchange market price) (Executive Director Office, 2026) • E7.8. Development of incentive schemes (e.g., tax rebates, annual awards for the most active companies in Riga, development and use of a Riga climate-neutrality brand, etc.) to encourage companies to switch to local electricity production for their own needs or RES electricity procurements with energy certificates (Executive Director Office; 2026) • E7.9. Remove existing barriers that restrict local residents in purchasing electricity certificates. Once this barrier is removed, inform the community about the opportunity to contribute to Riga's climate-neutrality goals through the purchase of electricity assurance certificates that will promote the use of RES electricity in Riga (Executive Director Office; 2025)
Impact & cost	Generated renewable energy (if applicable)	1,446,931 MWh
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	157,716 tCO_2
	Total costs and costs by CO_2e unit	EUR 477 million; EUR 3024 per tCO_2

3.2.3 B-2.2: Individual action outlines — Multi-apartment residential buildings

B-2.2.3.: Individual action outlines — Multi-apartment residential buildings		
Action outline	Action name	Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings
	Action type	Long-term
	Action description	The measure includes the creation of an energy monitoring and benchmarking system for multi-apartment residential buildings, with the aim of informing local residents about GHG emissions indicators, and encouraging the introduction of energy efficiency measures, based on the comparison of data between similar types of buildings. The first step is to develop a methodology for recording and analysing heat consumption data in multi-apartment residential buildings. The second step is to create and maintain a publicly available database on the actual heat energy consumption of multi-apartment residential buildings (including specific heat energy consumption, energy fees paid in renovated and non-renovated multi-apartment residential buildings, etc.), determining the compliance of the building with the minimum energy performance threshold. Based on these data, buildings would be identified that must undergo energy certification (all buildings connected to DHS; buildings with the highest specific heat consumption, etc.). The implementation of this measure will not have a direct and immediate effect on the reduction of heat energy consumption, but this measure has a long-term effect on the achievement of climate-neutrality goals in Riga.
Reference to impact pathway	Field of action	Multi-apartment residential buildings
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to stakeholders • REA — development of a data exchange system, coordination and monitoring of the implementation of the measure
	Action scale & addressed entities	Residents of multi-apartment residential buildings. The goal is to cover information about all multi-apartment residential buildings in the database.
	Involved stakeholders	• AS ‘Rīgas siltums’, CDD, HED, RNP, other building managers, RDA — cooperation in circulating the information
	Comments on implementation – consider mentioning resources, timelines, milestones	• Dz1.1. Making data and information accessible to local residents (REA; 2024) ○ Dz1.1.1. Develop a publicly available heat map for local residents, indicating at least the specific consumption of buildings (kWh/m^2/year), the energy performance class in a way that enables comparison with other buildings. The map data must be updated at least once a year (REA, AS ‘Rīgas siltums’, RNP; 2024–2025).

		○ Dz1.1.2. Monitor and publish the heating energy consumption and savings data of renovated buildings. If possible, synchronise these data in a heat map (REA; 2024–2025). ○ Dz1.1.3. Provision of a free individual heating energy consumption analysis service. ○ Dz1.1.4. Development of a single potential solution together with all stakeholders that would include the above information in one place, i.e., a heat map, specific energy consumption data for renovated and non-renovated buildings, as well as other available data on buildings, such as information about the technical condition of the building, building safety reports. (Executive Director Office; 2024). ○ Dz1.1.6. Keeping of databases (for spatial data and technical information) covering all renovated buildings in Riga. ○ Dz1.1.7. Publish advice on choosing energy auditors, structural engineers, designers, and builders. Publish the contact details of building/house managers who are willing to share their experience in renovating a house. • Dz1.2. Implementation of environmental communication measures in multi-apartment residential buildings (posters, information boards on building energy performance and energy planning, pilot projects in individual blocks). The purpose of the event is to draw the attention of the buildings' residents to the technical and energy performance condition of their buildings. (REA and RNP; 2025)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	4492 MWh
	(Total) GHG emission reduction forecast for the emissions sector	1186 tCO_2
	Total costs and costs by CO_2e unit	EUR 700,000 (investment period 7 years, EUR 100,000 per year); EUR 590 per tCO_2

B-2.2.3.: Individual action outlines		
Action outline	Action name	Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga
	Action type	Long-term
	Action description	In order to encourage the renovation of multi-apartment residential buildings in Riga, the municipality has reviewed measures that would require apartment owners to renovate their buildings, through incentives and assistance. The conclusions have been communicated to the corresponding ministries and stakeholders. The purpose of the measure is to encourage local residents to implement renovation projects in multi-apartment residential buildings by preparing the regulatory and administrative framework for organising these

		processes in Riga: to reduce all known regulatory barriers for renovating buildings by revising and improving the regulatory framework and enabling a consistent and continuous process of the renovation of buildings. The RSCM Housing Policy Guidelines for 2024–2030 foresee the development of a building renovation programme, with one of the key indicators being the possible renovation of 2000 multi-apartment residential buildings by 2030.
Reference to impact pathway	Field of action	Multi-apartment residential buildings
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• HEC — decision-making and approval of regulatory documents • Executive Director Office: assignment of duties to stakeholders
	Action scale & addressed entities	Multi-apartment residential buildings within the administrative territory of Riga
	Involved stakeholders	• HED, CDD, FD — participation in the implementation of the measure • RNP — participation in the implementation of the measure • REA — coordination of the measure, operation of the Energy Efficiency Centre
	Comments on implementation – consider mentioning resources, timelines, milestones	Tasks at the municipality level: • Dz2.1. Provide for an increase in the real estate tax rate in accordance with the requirements of the Law on Immovable Property Tax and Law on the Energy Performance of Buildings for buildings in operation that do not meet the minimum energy performance requirements set by CoM regulations and if the building does not initiate the development of technical documentation for the renovation of the building (HEC; 2024). • Dz2.2 Institute a building renovation assistance programme for pension-age people and energy-poor households. As part of the assistance, it is necessary to compensate all or part of the increase in monthly utility bills resulting from the renovation costs. In planning the assistance mechanism, it must be linked to existing social and other assistance already provided (HEC; 2024). Tasks at the national level: • Dz2.3. For buildings that do not meet the minimum energy efficiency requirements, make the development of technical documentation a part of the mandatory maintenance of the house and the associated costs a part of the mandatory maintenance costs (HEC; 2024). • Dz2.4. Strengthen the requirement to meet minimum energy efficiency requirements within a specific time. Grant the building manager the right to start renovating a building if its residents have not decided against the renovation. The expenses must be allocated as necessary for the maintenance of the building (HEC; 2024). • Dz2.5. Reduce the number of decisions required for the renovation of a building (HEC in conjunction with MoE; 2024), e.g., so that the renovation of a building can start in three steps: ○ Preparation — the building manager makes the necessary preparations, ordering the technical documentation and the necessary cost estimates.

		○ Informing the community — the building manager informs the apartment owners, organises an information meeting if necessary. ○ Community decision — the community assesses the recommendations and decides on taking the necessary loan, and authorises the building manager to borrow and participate in the assistance programme. • Dz2.6. Creation of mandatory building savings for buildings, with a minimum contribution in EUR/m^2 (HEC in conjunction with MoE; 2024) • Dz2.7. Provision of pre-financing under state capital discount assistance programmes (HEC in conjunction with MoE; 2024) • Dz2.8. Reduction of the VAT rate for energy efficiency measures in multi-apartment residential buildings reaching a certain energy efficiency class, e.g., energy efficiency class A (HEC in conjunction with MoE; 2024)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	2246 MWh
	(Total) GHG emission reduction forecast for the emissions sector	593 tCO_2
	Total costs and costs by CO_2e unit	EUR 700,000 (investment period 7 years, EUR 100,000 per year); EUR 1180 per tCO_2

B-2.2.3.: Individual action outlines		
Action outline	Action name	Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings
	Action type	Long-term
	Action description	RSCM cannot carry out the renovation of multi-apartment residential buildings instead of the residents, but it can provide them with the necessary support and motivation in order to promote the involvement of the residents in the arrangement and renovation of their homes. As part of field of action Dz3 (Revision of laws and regulations to increase the rate of multi-apartment residential building renovation), the assistance and incentive schemes in the municipality would be better organised, and this action is to involve the implementation of a series of practical measures to achieve the renovation of at least 2000 multi-apartment residential buildings by 2030.
Reference to impact pathway	Field of action	Multi-apartment residential buildings
	Systemic lever	Governance and policy/Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to all stakeholders • REA — supervises and monitors the measure
	Action scale & addressed entities	Renovation of at least 2000 multi-apartment residential buildings in the administrative territory of Riga

	Involved stakeholders	• HED, CDD — implementation of the measure • RNP — implementation of the measure • Riga neighbourhood centres — implementation of the measure

	Comments on implementation – consider mentioning resources, timelines, milestones	• Dz3.1. Engaging and motivating house managers. Assistance mechanisms (RNP; 2024):
		  ○ Dz3.1.1. Provide house managers with information about energy efficiency and the renovation process, with training materials, and with training on these issues.
		  ○ Dz3.1.2. Provide house managers with information about the energy performance of their building.
		  ○ Dz3.1.3. Ensure that apartment owners have access to the contact details of the house manager in an existing online tool, such as the house file.
		  ○ Dz3.1.4. Develop an assistance programme for house managers, assessing the best model for engagement, e.g., on a voluntary basis or through a contract between house managers and RNP.
		• Dz3.2. Posting of information on the renovation of buildings in neighbourhoods. Fostering cooperation (REA in conjunction with neighbourhood centres; 2024)
		• Dz3.3. Promotion of the restoration of blocks/quarters by working with stakeholders to improve laws and regulations and to reduce barriers (REA; starting from 2024)
		  ○ If two or more adjacent buildings decide to renovate their buildings, it must be possible to combine the procurements and apply for the co-financing of these buildings together.
		  ○ Introduction of additional benefits for renovating multiple buildings together, e.g., 100% VAT rate co-financing by the state or higher-intensity assistance, etc.
		• Dz3.4. Promotion of building renovation in neighbourhood festivals (RNRC; starting in 2024).
		• Dz3.5. Fostering of closer cooperation among key stakeholders in planning coordinated actions and activities (HED, REA, companies) (Executive Director Office; 2024)
		  ○ Dz3.5.1. Establishment of a housing competence centre, synchronising the activities of all those involved in the renovation of buildings.
		  ○ Dz3.5.2. Organisation of regular workshops or stakeholder meetings (at least 3 times a year) covering the progress of building renovation in Riga. The purpose of the meetings is to report progress on individual topics and to agree on the next steps for each of the stakeholders.
		  ○ Dz3.5.3. Setting and monitoring of common objectives for all stakeholders.
		  ○ Dz3.5.4. Ensuring of cooperation between atjauno.riga.lv and renove.lv to ensure the coordinated provision of information on all available building renovation assistance to local residents.
		• Dz3.6. RNP capacity building: training of RNP staff dealing with building renovation and consulting of local residents. With the expected increase in the rate of renovation, the

		number of the staff needs to be increased, with training provided. (Executive Director Office; starting from 2024)
		• Dz3.7. Capacity building for project managers in building renovation (REA in conjunction with ALTUM; starting from 2024)
		  ○ Dz3.7.1. Organisation of experience sharing events for house/building managers, local residents, associations (REA; starting from 2025)
		  ○ Dz3.7.2. Creation of a building renovation guide to help apartment owners familiarise themselves with the renovation process and facilitate decision-making. The guide must be visually appealing and in easy-to-read language. (REA, 2025)
		  ○ Dz3.7.3. Organisation of training for building renovation project managers (REA, RNP; 2025)
		• Dz3.8. Renovation of historic residential buildings implementing energy efficiency measures (PR; starting from 2024)
		• Dz3.9. Popularisation of good practices: posting of information in shopping centres (REA; 2025)

Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	133,505 MWh (includes field of action Dz4)
	(Total) GHG emission reduction forecast for the emissions sector	19,358 tCO_2 (includes field of action Dz4)
	Total costs and costs by CO_2e unit	EUR 318 million; EUR 16,427 per tCO_2

B-2.2.3.: Individual action outlines		
Action outline	Action name	Dz4: Establishment of the Riga Energy Efficiency Fund (REEF)
	Action type	Medium-term
	Action description	The purpose of REEF is to ensure the availability of long-term financing for the renovation of multi-apartment residential buildings in Riga. The REEF business model and investment plan were developed in 2022, and they need to be approved and worked on further in order to expand the renovation of multi-apartment residential buildings in Riga.
Reference to impact pathway	Field of action	Multi-apartment residential building sector
	Systemic lever	Financial and business models
Implementation	Responsible bodies/person for implementation	• HEC — Making of decisions on the further development of REEF • Executive Director Office: assignment of duties to stakeholders
	Action scale & addressed entities	Multi-apartment residential building sector
	Involved stakeholders	• FD — Participation in the development and management of the REEF model

		• HED, REA — Coordinate the development and implementation of the REEF model

	Comments on implementation – consider mentioning resources, timelines, milestones	• Dz4.1. Adopt the decision on the creation of REEF (HEC; 2026)
		  ○ Dz4.1.1. Draft of REEF statutes, regulations, and other internal procedures
		  ○ Dz4.1.2. Raising of funds for REEF's share capital
		• Dz4.2. Establish REEF (Executive Director Office; 2026)
		  ○ Dz4.2.1. Investment portfolio preparation;
		  ○ Dz4.2.2. Preparation of a securitisation programme
		  ○ Dz4.2.3. Financing of the pilot project

Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	12 000 MWh - part of the total heat energy reduction in the multi-apartment residential building sector, Dz3
	(Total) GHG emission reduction forecast for the emissions sector	1800 tCO_2 - part of the total reduction in CO_2 emissions in the multi-apartment residential building sector, Dz3
	Total costs and costs by CO_2e unit	EUR 29 million; EUR 16,000 per tCO_2

B-2.2.3.: Individual action outlines		
Action outline	Action name	Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs
	Action type	Medium-term
	Action description	Taking the increase in construction costs into account, which cannot be fully covered by savings from the implementation of energy efficiency measures, one must find new solutions to reduce costs for building renovation projects. As part of this event, and in cooperation with universities and scientific institutions in Latvia and Europe, one must: • develop pilot projects using new and innovative solutions in the heating and power supply of buildings; • achieve the development of standard building renovation designs (standard designs for the same type or series of buildings); • provide information on the typical solutions available for different building types, their expected advantages, shortcomings, and costs. Standardised solutions will encourage owners to work together, renovating together and organising larger-scale procurement to reduce costs; • implement pilot projects for the standardised renovation of a block, of several buildings. The implementation of this measure will not have a direct and immediate effect on the reduction of heat energy consumption, but this measure has a long-term effect on the achievement of climate-neutrality goals in Riga.
Reference to impact pathway	Field of action	Multi-apartment residential buildings
	Systemic lever	Technology and infrastructure

Implementation	Responsible bodies/person for implementation	• Executive Director Office: assignment of duties to all stakeholders • REA — supervises and monitors the measure
	Action scale & addressed entities	The measure will involve the implementation of several pilot projects, with the municipality acting as a mediator and consultant. The catalogue of standard solutions must include solutions for all types of standard multi-apartment residential buildings.
	Involved stakeholders	• CDD, HED — Implementation of the measure • Construction specialists, RTU — Participation in the implementation of the measures • Building managers — Involvement in the implementation of the measures

	Comments on implementation – consider mentioning resources, timelines, milestones	• Dz5.1. Development and implementation of standardised technological solutions for building renovation (e.g., insulation panels).
		  ○ Dz5.1.1. Development of a catalogue of solutions for the implementation of energy efficiency measures in the most common types of multi-apartment residential buildings and historic multi-apartment residential buildings in Riga (REA; 2025)
		  ○ Dz5.1.2. Information about the use of standard mass-produced building drawings prepared by MoE, for the preparation of technical designs (CDD; 2024)
		  ○ Dz5.1.3. Development of pre-made panel projects as part of EU assistance projects
		• Dz5.2. Finding of partners and participating in EU tenders to renovate standard multi-apartment residential buildings in Riga (CDD; 2025).
		  ○ Dz5.2.1. Preparation of a project application for the European Investment Bank's technical assistance programme to encourage the renovation of buildings.
		• Dz5.3. Upgrading of heating systems in existing buildings
		  ○ Dz5.3.1. Upgrading and renovation of heating systems; implementation of room temperature control solutions into annual works in accordance with CoM regulations No 730 'Minimum energy performance requirements for buildings in operation' of 10.12.2020.
		  ○ Dz5.3.2. Installation of allocators, individual meters (building managers; starting from 2025).
		• Dz5.4. Installation of solar panels on multi-apartment residential buildings (HED; starting from 2025).

Impact & cost	Generated renewable energy (if applicable)	2500 MWh
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	273 tCO_2

	Total costs and costs by CO_2e unit	EUR 1.2 million (investment period 6 years, EUR 200,000 per year); EUR 4396 per tCO_2

3.2.4 B-2.2: Individual action outlines — Transport and mobility

B-2.2.4.: Individual action outlines — Transport and mobility		
Action outline	Action name	T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars
	Action type	Medium-term
	Action description	This measure involves the prioritisation of sustainable ways to travel, the development and use of sustainable mobility assurance criteria, the practical implementation of the concept of mobility points, the introduction of smart traffic management technologies, and other measures. Synergies between different types of mobility must be created. The priority measures are aimed at transforming the urban spaces and their links with suburban areas to accommodate pedestrian-friendly mobility and reduce the use of private cars.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• Transport and Traffic Affairs Committee — policymaking and decision-making • CDD — policy development and integration into municipal documents and processes
	Action scale & addressed entities	The measure is aimed at the development of the city as a whole
	Involved stakeholders	• PSMD — implementation of technical solutions • RDA — creation of digital solutions • Private sector (local residents, businesses, etc.) — provision of opinions • FD — earmarking of funding for measures • Service providers (transport companies) • Infrastructure providers, including VAS ‘Latvijas dzelzceļš’
	Comments on implementation – consider mentioning resources, timelines, milestones	• T1.1. Creation of at least 10 park-and-ride parking spaces in the major neighbourhoods of Riga and 50+ mobility points to reduce the incoming and outgoing flows of private cars (by 2027; CDD in conjunction with PSMD) • T1.2. Creation of the Low-Emission Zone and other restrictions on fossil fuel road transport , parking policy, entry fee) (until 2027; Traffic and Transport Affairs Committee, Executive Director Office, CDD, HED, PSMD). • T1.3. Creation of a comfortable, attractive urban environment, and improvement of infrastructure: construction, reconstruction, or renovation of pedestrian paths of at least 140,000 m^2, including energy-efficient lighting and bus stops (continuous; PSMD) • T1.4. Climate-neutral delivery (using electric vehicles) within the entirety of the administrative territory of Riga (50% by 2029; Executive Director Office) • T1.5. Development of shared services and policies, implementation of data monitoring to regularly measure trends (until 2027; CDD, private sector)

		• T1.6. Long-term planning and linking of new projects to public transport network planning (continuous; CDD in conjunction with PSMD)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	518,000 MWh (includes field of action #T2)
	(Total) GHG emission reduction forecast for the emissions sector	126,840 tCO_2 (includes field of action #T2)
	Total costs and costs by CO_2e unit	EUR 42 million; EUR 331 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T2: Measures to promote distance working and increase the availability of online services
	Action type	Short-term
	Action description	Mobility surveys in Riga show that going to work is the primary purpose of travel in the city. Traffic intensity measurements at the city boundaries show that the number of cars entering Riga is increasing every year. The purpose of the measure is to implement actions that promote the reduction of the need to travel for work among the residents of Riga and its suburbs (going to and from Riga).
Reference to impact pathway	Field of action	Transport
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	RDA — planning and implementation of digital solutions
	Action scale & addressed entities	RSCM administrative territory, covering municipal employees, residents of Riga, and people working in Riga
	Involved stakeholders	• CDD — assessment and determination of e-services necessary; collection of examples of best practices • REA — organising and gathering of opinions of municipal staff and other stakeholders • PD — identification of potential premises for shared use in different neighbourhoods of Riga • Executive Director Office — fostering of cooperation with Riga Metropolitan Area municipalities • FD — funding options and mechanisms
	Comments on implementation – consider mentioning resources, timelines, milestones	• T2.1. A survey of Riga municipal employees, which includes questions about travel habits (in relation to getting from home to work and from work to home, and need for travel during work), and their opinion on whether they would be interested in using work sharing spaces (2025, REA) • T2.2. Identification of municipal premises potentially suitable for shared workplaces and their provision to employees (2025, PD) • T2.3. Starting negotiations with Riga suburban municipalities on the possibility of offering residents of

		these municipalities who go to work in Riga (municipal employees) an opportunity to use shared workspaces in their 'home' municipalities, at the same time looking for ways to provide near-home shared-use premises for those working in other municipalities but registered in Riga (2025; Executive Director Office) • T2.4. Promote environmentally friendly habits among RCC employees through the regular newsletter of the RCC Communication Administration, in addition to internal cross-institutional motivation competitions (starting from 2025; REA in conjunction with PSMD and CDD) • T2.5. A pilot project for creating work sharing spaces in conjunction with one of the Riga suburban municipalities (2026, Executive Director Office) • T2.6. Support for businesses in addressing rental premises issues and/or identification and implementation of other good practice solutions aimed at reducing commuting and finding premises closer to home (2025; CDD) • T2.7. A survey of Riga residents on their interest in using shared workplaces, their potential locations, the cost threshold that people would be willing to pay for using shared workplaces; publicising of the results of the survey and discussing them with the existing work sharing space providers, and other interested parties (2025, REA) • T2.8. Development of online services, enabling the city's residents to access information on online services through a single point of contact (by 2026; RDA)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	Depends on the number of municipal employees and local residents involved. ~ 1.6 MWh/year/capita (included in field of action #T1)
	(Total) GHG emission reduction forecast for the emissions sector	Depends on the number of municipal employees and local residents involved. ~ 0.5 tCO_2/year/person (included in field of action #T1)
	Total costs and costs by CO_2e unit	EUR 840,000

B-2.2.4.: Individual action outlines		
Action outline	Action name	T3: Promotion of an active lifestyle and cycling
	Action type	Medium-term
	Action description	Surveys show that 58% of the population had a positive view of the possibility of travelling by bicycle in Riga, and 54% of the population have a positive opinion of the pedestrian infrastructure for their daily needs. The goal of the city is to improve these indicators and create an accessible, comfortable, and safe infrastructure for cyclists, which would be interesting for people of all ages, genders, and social statuses, including residents and guests of the city.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Governance and policy

Implementation	Responsible bodies/person for implementation	• Executive Director Office — assignment of implementation of measures to departments in charge; implementation of measures defined • CDD — overall planning and implementation of measures defined
	Action scale & addressed entities	The administrative territory of the city, covering the entire community
	Involved stakeholders	• PSMD — implementation of measures • Grounds Improvements Administration — installation of bicycle parking • REA — supervises and monitors the measure • Neighbourhood centres, associations, and NGOs — engagement, organisation and implementation of measures • CSDD — implementation of the measures
	Comments on implementation – consider mentioning resources, timelines, milestones	• T3.1. Provision of secure bicycle parking as a mandatory requirement, the priority being multi-apartment residential buildings, shops, public institutions in Riga. Development and approval of standardised bicycle parking solutions (according to CDD requirements), and their implementation (continuous; Executive Director Office and CDD (implementation of requirements and coordination of a standardised technical solution); Grounds Improvements Administration (municipal territory); building managers, private car park operators (private territory) • T3.2. Development of cycling infrastructure in accordance with the Riga bicycle traffic development concept, including the construction of arterial bicycle routes between Riga and its suburbs by 2026, financed with RRF funding; construction of bicycle routes between neighbourhoods, construction of bicycle lanes in the centre of Riga, integration of bicycle routes into transport infrastructure (continuous; PSMD) • T3.3. Consistent implementation of campaigns in Riga and neighbourhoods: Pedestrian Street Festival; Car-Free Day; cycling tourism; bike orienteering; various challenges (2025; CDD in conjunction with other departments, NGO, and other organisations) • T3.4. Organisation of a discussion on the availability of cycle racks in trains and public intercity buses with stakeholders (2025; Executive Director Office)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	288,400 MWh
	(Total) GHG emission reduction forecast for the emissions sector	77,000 tCO_2
	Total costs and costs by CO_2e unit	EUR 420 million; EUR 5455 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T4: Increase the share of public transport in everyday passenger trips
	Action type	Long-term
	Action description	The measure aims to encourage more use of public transport in the city and foster more active urban mobility. The scope for the development of public transport are: improvement of accessibility of public transport; improvement of public transport service quality; modernisation of 'Rīgas satiksme' rolling stock; promotion of railway use.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Technology and infrastructure/Governance and policy/Capacity and capacity building
Implementation	Responsible bodies/person for implementation	• Executive Director Office — assignment of implementation of measures to departments in charge; implementation of measures defined • CDD — overall planning and implementation of measures defined
	Action scale & addressed entities	The administrative territory of the city, including its residents, guests, as well as residents of other municipalities travelling through Riga
	Involved stakeholders	• PSMD — implementation of measures • Rīgas satiksme — participation in the implementation of the measures • Pasažieru vilciens — participation in the implementation of the measures • Grounds Improvements Administration — installation of bicycle parking • REA — supervises and monitors the measure • VAS 'Latvijas dzelzceļš' — provision of infrastructure • VSIA 'Autotransporta direkcija' — event planning
	Comments on implementation – consider mentioning resources, timelines, milestones	• T4.1. Expansion and supervision of roads with public transport priority, including CCTV cameras (if necessary) (public transport lanes, supervision and fines for private vehicles using public transport lanes) (starting from 2024; PSMD) • T4.2. Evaluation of the Riga municipal public transport system, development of a route network reform plan (2025), and optimisation of the route network to adapt it to changes in residential patterns and mobility habits of local residents; elimination of route duplication; creation of a more convenient and higher-quality service (2027; CDD and PSMD in conjunction with LLC 'Rīgas satiksme', VLLC 'Autotransporta direkcija', VAS 'Latvijas dzelzceļš', and AS 'Pasažieru vilciens') • T4.3. Creation of an integrated public transport system connecting municipalities at metropolitan level (Mārupe, Ādaži, Ķekava, Ropaži, etc.) (service providers, network planning, billing) (2026; Executive Director Office) • T4.4. Integration of Riga and national public transport systems — creation of shared mobility points for trains, regional buses, and Riga city transport; coordination of schedules (2026; Executive Director Office) • T4.5. Provision of regular (additional) train services from Riga central station to Riga's neighbourhoods (Ziemeļblāzma, Imanta, Zolitūde, etc.) (starting from 2025; Executive Director Office in conjunction with 'Latvijas dzelzceļš' and 'Pasažieru vilciens')

		• T4.6. Provision of real-time public transport data at all public transport stops (continue the measure; 'Rīgas satiksme' in conjunction with 'Pasažieru vilciens') • T4.7. Improvements in the comfort of public transport: cleanliness of vehicles, positive attitude, principles of eco-driving (starting from 2024; 'Rīgas satiksme') • T4.8. Creation of noise barriers (especially near the more intense train traffic to reduce the zone of discomfort) in accordance with the 'Action plan for outdoor noise reduction in the Riga Metropolitan Area in 2024–2028' approved on 20 December 2023 (2026; Executive Director Office in conjunction with 'Latvijas dzelzceļš') • T4.9. Purchase of appropriate low-emission (RES) vehicles (low floors, etc.) (starting from 2024; 'Rīgas satiksme') • T4.10. Safe and easy access to public transport stops for people with disabilities (certain public transport routes must be strategically prioritised at first, with all stops on them suitable for people with disabilities, improving the urban environment around these routes, as well as infrastructure compatibility and accessibility) (starting from 2024; CDD in conjunction with PSMD, 'Pasažieru vilciens') • T4.11. Installation of bus stops with shelters, taking into account the fact that the size of the shelters must be appropriate to the bus stop (shelters are insufficient at centrally-located bus stops with high traffic) (2025; Grounds Improvements Administration) • T4.12. Organisation of regular public education and information campaigns taking into account the needs of potential passengers, myths and prejudices about public transport in Riga present among the general public (starting from 2024; CDD in conjunction with 'Rīgas satiksme' and NGO, etc.) • T4.13. Addition of a boat route across the River Daugava to the public transport service, creating a new route between Vecmīlgrāvis and Daugavgrīva (2026; PSMD in conjunction with 'Rīgas satiksme') • T4.14. Development and implementation of digital solutions, starting with the creation of a single mobility platform with real-time data and a single transport ticket on Riga public transport and trains (by 2025; RDA)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	519,960 MWh
	(Total) GHG emission reduction forecast for the emissions sector	138,880 tCO_2
	Total costs and costs by CO_2e unit	EUR 1036 million; EUR 7460 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T5: Restrictions on private transport

	Action type	Medium-term
	Action description	Private cars are the main source of CO_2 emissions in the transport sector. The purpose of the measure is to promote the transition from private cars to sustainable modes of transportation (walking, cycling, public transport) by setting a high payment (or fee) for parking a car (including at workplaces) and thus reducing the advantages of the car compared to other modes of transportation, especially public transport.
Reference to impact pathway	Field of action	Transport
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• Traffic and transport affairs committee — making of decisions on setting restrictions in the city • Executive Director Office — organising and conducting of discussions on restrictions/assignment of responsibilities
	Action scale & addressed entities	The administrative territory of the city, covering the entire community
	Involved stakeholders	• RP LLC 'Rīgas satiksme' — introduction of restrictions at car parks • REA — supervises and monitors the measure • FD — development of a financing mechanism for the measure • PSMD — communication with businesses and local residents
	Comments on implementation – consider mentioning resources, timelines, milestones	• T5.1. Determine the number of parking spaces to which the conditions will apply (2024, 'Rīgas satiksme') • T5.2. Study the experience of other European cities in parking pricing policy or other policy instruments with the aim of reducing the number of cars in the city (2024; Executive Director Office) • T5.3. Introduction of traffic calming measures, especially in Riga City Centre and residential areas, creating 30 km/h zones, which will also improve traffic safety (starting from 2024; PSMD) • T5.4. Develop a long-term pricing policy, assess the impact of increased parking fees (or tolls) on businesses (2025, Executive Director Office) • T5.5. Expand the RCC car park concept with a vision of the impact of the price of parking spaces on the reduction of the number of cars, with regular updates, taking data on traffic intensity into account (2025, 'Rīgas satiksme') • T5.6. Separate the parking fee (and/or toll) revenue from the overall revenue of RVP LLC 'Rīgas satiksme' and allocate it to sustainable mobility projects (2025; FD) • T5.7. Communication about upcoming changes with businesses, local residents (2026; PSMD)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	280,000 MWh
	(Total) GHG emission reduction forecast for the emissions sector	72,800 tCO_2

	Total costs and costs by CO_2e unit	EUR 112,000 EUR 2 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T6: Other measures to reduce car use
	Action type	Medium-term
	Action description	The measure aims at reducing the use of private vehicles, especially by businesses, and promoting sustainable urban mobility. As part of this measure, it would be necessary to decide on assistance for vehicle sharing companies, for example, by providing dedicated parking spaces and mobility points. A discount policy may be used if users are offered zero-emission vehicles. As part of the measure, it would be necessary to develop an innovative 'mobility as a service' concept, combining available modes of mobility, fostering cooperation with the shared vehicle services sector, as well as making data and information available to mobility app developers.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Governance and policy
Implementation	Responsible bodies/person for implementation	• Traffic and transport affairs committee — making of decisions on setting discounts in the city • Executive Director Office — conducts discussions on the introduction of discounts and facilitating of cooperation with all stakeholders; assignment of responsibilities
	Action scale & addressed entities	The administrative territory of the city, covering the entire community
	Involved stakeholders	• REA — supervises and monitors the measure • CDD — implementation of measures
	Comments on implementation – consider mentioning resources, timelines, milestones	• T6.1. Implementation of measures to encourage car sharing, including the creation or use of special infrastructure (e.g., car parks) to increase car sharing in the city centre and neighbourhoods (2026; CDD) • T6.2. Introduction of a discount policy to encourage the use of bicycles, public transport, and zero-emission vehicles by employees of private businesses (2027; CDD) • T6.3. Improve the cargo transportation modelling and planning (2027; CDD) • T6.4. Minimise cargo transport within the city by setting up a small number of cargo transport routes along arterial streets; promote the use of rail transport for port cargo, assess the possibility of charging for cargo transport within a certain city area; promote the use of low-emission delivery modes and vehicles in the historic city centre and its protection zone (starting from 2024; Freeport of Riga)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	212,400 MWh
	(Total) GHG emission reduction	85,680 tCO_2

	forecast for the emissions sector	
	Total costs and costs by CO_2e unit	EUR 28 million; EUR 327 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T7: Promotion of electrification in private transport and provision of services
	Action type	Long-term
	Action description	As the number of electric vehicles registered in Riga increases, the number of charging stations must increase proportionally. The availability of charging infrastructure is a prerequisite for citizens to increasingly opt for electric vehicles. The forecasts for the increase in the number of electric vehicles in Latvia are between 18 and 60,000 electric vehicles by 2030. Assuming 1 charging station per 10 electric vehicles, the number of charging stations needed is in the range of 1800–6000, a large part of which should be located in Riga. This includes both public charging stations near public buildings, car parks, etc., and municipal electric vehicles for the municipal electric vehicle fleet, and stations near residential buildings. In order to achieve the goal of climate-neutrality, it is important that the electricity used in the city is produced from renewables.
Reference to impact pathway	Field of action	Transport
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• CDD — implementation of the measure
	Action scale & addressed entities	City administrative area; vehicle owners
	Involved stakeholders	• PSMD — implementation of measures • Businesses — implementation of measures • Building managers — implementation of measures • CSDD — implementation of measures • REA — supervises and monitors the measures
	Comments on implementation – consider mentioning resources, timelines, milestones	• T7.1. Create a system and define the persons to take charge of the centralised registration of new charging stations (public, semi-public, private), updating the corresponding information on the map of charging stations (public, semi-public) (2024, PSMD in conjunction with VSIA 'Latvijas Valsts ceļi' and charging station operators) • T7.2. Setting the mandatory requirement of RES electricity use and its implementation (with certificates of proof) at all EV charging stations (regardless of ownership status) in the city (2026; Executive Director Office) • T7.3. Revision of the approval procedure for the installation of EV charging points with a view to facilitating and speeding up the approval process (2024; CDD) • T7.4. Identification and registration of existing EV charging stations (public and semi-public) on a publicly available map/application, showing their occupancy with real-time data (2025; RDA in conjunction with VSIA 'Latvijas Valsts ceļi' and charging station operators)

		• T7.5. Assessment and implementation of low-emission solutions for services and delivery transport (e.g., Bolt, Wolt, DPD, Latvijas Pasts) (2025; CDD) • T7.6. Motivate, support, encourage businesses and local residents to use electric bicycles (starting from 2025; CDD) • T7.7. Development of EV charging stations for commercial vehicles (fast charging) (2025; CDD in conjunction with businesses) • T7.8. Installation of EV charging stations in residential neighbourhoods (especially at night) (2025; CDD in conjunction with building managers)
Impact & cost	Generated renewable energy (if applicable)	Depends on the number of 100% RES electricity charging stations
	Energy savings	101,000 MWh (due to rising number of EV)
	(Total) GHG emission reduction forecast for the emissions sector	24,000 tCO_2
	Total costs and costs by CO_2e unit	EUR 1.5 million EUR 63 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T8: Gradual transition to clean technology in vehicles that enable municipal functions
	Action type	Long-term
	Action description	The measure will focus on the introduction of low-emission technologies in vehicles used to support municipal functions, such as waste management vehicles. The electrification of transport and the use of RES fuels (biomethane, green hydrogen, etc.) improve the quality of the environment and encourage technological innovation in municipal work, providing more modern and efficient services to local residents.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Technology and infrastructure
Implementation	Responsible bodies/person for implementation	• Executive Director Office — decision on the implementation, approval by decision-makers, implementation of set measures • HED — measure planning and implementation
	Action scale & addressed entities	City administrative area in which the service is provided and the corresponding stakeholders, e.g., those involved in the waste management system
	Involved stakeholders	• Waste management and other service providers — implementation of the measure • REA — supervises and monitors the measure
	Implementation comments	• T8.1. Identify the municipal functions that are not under the direct control of the municipality (e.g., in the waste management sector), but that involve the use of vehicles. Assess and include in future procurements the requirement to use low-emission vehicles for service delivery (starting from 2024; Executive Director Office in conjunction with HED)

		• T8.2. Purchase of technology and provision of services (starting from 2026; service providers)
Impact & cost	Generated renewable energy (if applicable)	80,000 MWh
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	28,200 tCO_2
	Total costs and costs by CO_2e unit	EUR 3 million; EUR 106 per tCO_2

B-2.2.4.: Individual action outlines		
Action outline	Action name	T9: Collection of mobility data and monitoring of measures implemented
	Action type	Short-term
	Action description	Data and information play a significant role in the updating of the assumptions of GHG calculations and the annual monitoring of GHG emissions; these should be regularly collected in the form of mobility surveys of citizens and companies: their choice of mode of transport, mileage (km/day, km/year), number of people in the vehicle, number of vehicles, number by fuel type and age, average vehicle fuel consumption. This is why it is necessary to perform regular inventory of vehicles (cars, buses, lorries, bicycles, railways) and their long-term monitoring in order to assess the current situation and the impact of implemented measures.
Reference to impact pathway	Field of action	Transport and mobility
	Systemic lever	Capacity and capacity building
Implementation	Responsible bodies/person for implementation	• Executive Director Office — inclusion of stakeholders and further assignment of responsibilities • PSMD — measure planning and implementation
	Action scale & addressed entities	City administrative area; service providers; municipal employees
	Involved stakeholders	• RDA — implementation of measures • HED — implementation of set measures • CDD — implementation of set measures • Service providers — implementation of measures • REA — supervises the measure
	Implementation comments	• T9.1. Identification of mobility-related data in various municipal units (inventory); identification of needs and analysis of the capability to collect the necessary data (2024; RDA in conjunction with all involved municipal units and service providers) • T9.2. Establishment of a camera network at key points — bridges and arterial streets, including bicycle counters, in order to collect data (starting from 2024; PSMD) • T9.3. Creation of a single data centre and data analysis division or transfer of these functions to an existing unit with

		clear objectives, roles, and responsibilities (starting from 2024; Executive Director Office) • T9.4. Building of cooperation with the private sector in monitoring air quality measurements and other environmental and mobility topics and making the data available (starting from 2024; Executive Director Office in conjunction with HED) • T9.5. Sharing of data, e.g., on the number of passengers transported, between national and municipal transport companies (starting from 2024; Executive Director Office) • T9.6. Cooperation with the private sector in the collection and processing of data (starting from 2024; CDD in conjunction with service providers) • T9.7. Development of a new modelling tool or adaptation of an existing one to determine how CO_2 emissions change with changes in transport modes and other parameters (starting from 2026; RDA in conjunction with CDD and PSMD) • T9.8. Development of partnerships with private mobility platforms and apps (starting from 2025; Executive Director Office)
Impact & cost	Generated renewable energy (if applicable)	-
	Energy savings	-
	(Total) GHG emission reduction forecast for the emissions sector	GHG savings from digital systems have not been quantified yet; data will be added in the next iteration.
	Total costs and costs by CO_2e unit	EUR 3 million

3.2.5 B-2.2: Individual action outlines — Waste management and circular economy

B-2.2.5: Individual action outlines — Waste management and circular economy

The waste and circular economy sector is covered in the Riga State City Development Programme 2022–2027, Priority 3 'Good environment quality and sustainable urban ecosystem to mitigate climate change', Task 3.5 'Develop an environmentally-friendly waste management system'. Following the development programme, at the moment of the preparation of this action plan, a local Circular Economy Work Group was set up as part of the LET'S GO CIRCULAR! ('Pāreja uz aprites ekonomiku') project; the RSCM Circular Economy Action Plan 2026–2030 is also in the works, intended to define specific measures with a detailed description, which will be included in the updated climate contract in two years.

Below are the main field of action in the waste management and circular economy sector. The field of action covering the development of the regulatory framework are implemented at the national level, i.e., RCC HEC in conjunction with HED Waste Management Supervision Unit participate and facilitate the implementation of the field of action at the national level. LLC Getliņi EKO and other waste recycling companies are responsible for fields of action #A5 and #A6. The remaining fields of action are to be implemented at the municipal government level and the main entity responsible for them is RSCM HED.

Field of action #A1: Development of a data records system and mapping of infrastructure

Data must be used as the basis for decision-making and determination of measures. The municipality has developed a municipal information system for MWGMIS, maintained by HED. The existing system needs to be significantly improved, starting with a functional audit.

In addition, it is necessary to consider the possibility of recording data on infrastructure that contribute to the reduction of waste, such as zero-packaging retail outlets, artisanal producer markets, swap and donation points for personal items and food, etc.

The main benefits of the field of action are the ability of the municipality to make data-driven decisions and the ability to use more accurate emissions calculation methodologies.

HED is in charge of developing and maintaining the data records system, working with NGOs on infrastructure that contributes to waste reduction. Other stakeholders include waste managers, local residents, businesses, food service venues, neighbourhood centres, and parties that provide data.

Field of action #A2: Waste prevention

Waste prevention is the highest priority in the hierarchy of waste management activities. This field of action covers measures taken before a substance, material, or product becomes waste. The main benefit of the field of action is the reduction of the amount of waste produced. This is achieved by encouraging the reuse of products and extending their lifecycle.

Field of action #A3: Improvement of the amount and quality of household waste sorting

The field of action covers the consistent provision of information and motivating of local residents, including the involvement of children and young people in waste sorting. The main benefit is the increase in the amount of well-sorted waste, thus reducing the amount of waste disposed in landfills Particular emphasis is placed on improving the quality of biodegradable waste sorting and reducing the share of waste disposed in landfills.

Field of action #A4: Development of sorted waste collection infrastructure

The field of action covers the promotion of waste sorting through improvements in infrastructure, making it accessible, convenient, and safe. The existing infrastructure and its efficiency will be assessed first; then, measures to expand and improve the infrastructure will be determined.

Field of action #A5: Promotion of waste recycling

Cooperation with companies that form value chains for the recovery and reuse of materials. Special measures are planned for the recycling of biodegradable waste.

Field of action #A6: Development of a Riga circular economy action plan for 2026–2030

Development and implementation of the plan (see introduction to this section).

Field of action #A7: Integrated municipal wastewater management plan

The plan must include measures to prevent unpolluted rainwater from entering the sewer systems, including measures to promote natural water retention or accumulation, and measures to increase green and blue spaces in urban areas to reduce the overflow of rainwater or to limit impermeable surfaces in the agglomeration. Measures to better manage and to optimise the use of existing infrastructure (including sewer systems, storage capacity, urban wastewater treatment plants) must also be included to ensure that the discharge of untreated household wastewater or polluted urban wastewater into receiving bodies of water is kept to a minimum. Finally, if this is necessary to achieve the goals specified, additional mitigation measures are to be taken, including the adaptation of infrastructure for household wastewater collection, storage, and treatment, such as the connection of newly built urban areas to separation systems, or the creation of new infrastructure, prioritising green and blue infrastructure, creating ditches covered in vegetation, treatment wetlands, and accumulation ponds, designed to support biodiversity. The development of the plan will be coordinated by LLC ‘Rīgas ūdens’; this measure is linked to the improvement of energy efficiency of wastewater treatment facilities described in the municipal infrastructure field of action (P10).

Field of action #A8 (horizontal): Provision of information and education, awareness-raising for waste generators

This field of action covers horizontal measures to be implemented in parallel with the field of action listed above. The field of action is based on building cooperation with all stakeholders, sharing experience with Latvian and foreign municipalities, and pursuing effective measures for every target group.

B-2.3: Summary strategy for residual emissions

The sector covers GHG emissions and CO_2 sequestration from green areas within the territory of RSCM and green areas outside Riga that belong to RSCM. Figure B-2.3.1 shows the green areas within the territory of Riga, and Figure B-2.3.2 shows the green areas managed by LLC 'Rīgas meži' in other municipalities.

LLC 'Rīgas meži' is a company that belongs to RSCM, which manages 5625.2 ha of forest land in the Riga state city territory, 57,166.9 ha of forest land outside Riga, as well as 399 ha of Riga's gardens and parks. At the time of preparation of the action plan, the emissions generated, and sequestration d have only been determined for these sites.

In addition to the areas managed by LLC 'Rīgas meži', there are other green (forests, meadows, orchards, scrub) and blue (water) zones within the territory of Riga, as well as approximately 5000 hectares of land under buildings and courtyards and 3000 hectares of land under roads. All this land has CO_2 sequestration potential and a methodology to calculate it will be developed in the coming years.

Figure B-2.3.1: Riga's green zones in 2020

Source:http://sus.lv/pilsetvides-attistibu-raksturojoso-pakalpojumu-kvalitate-un-pieejamiba-rigas-58-apkaimes-2020gada

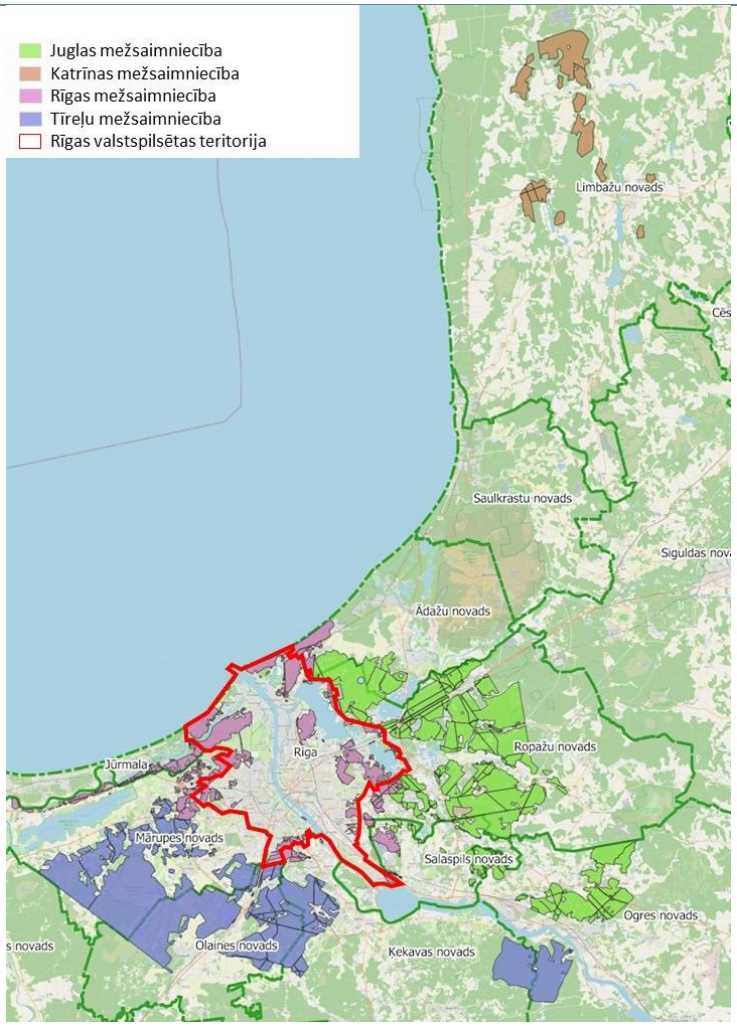


Figure B-2.3.2: Forest areas managed by LLC 'Rīgas meži'.

Figure B-2.3.3 shows the CO_2 emissions sequestration d by LLC 'Rīgas meži' areas in 2017–2020. In 2019, LLC 'Rīgas meži' areas sequestration d 324 $ktCO_2$ of emissions, which offset 16% of Riga's GHG emissions that year. According to LLC 'Rīgas meži' estimates, the sequestration of CO_2 emissions will remain unchanged until 2030.

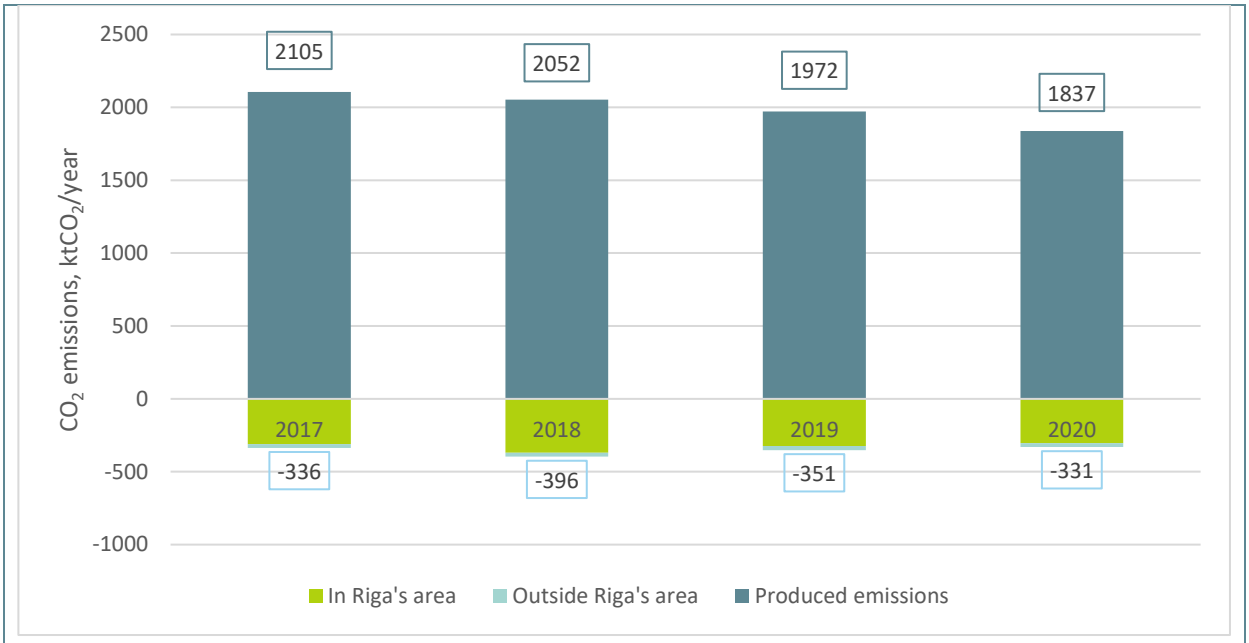


Figure B-2.3.3: sequestration of CO_2 emissions from areas owned by LLC 'Rīgas meži'[10]

In 1990, all Latvian forests were owned by the state, so the sequestration of CO_2 emissions only came from the city of Riga. The amount of CO_2 emissions sequestration d by these forest areas in 1990 has not yet been precisely calculated. Assuming this as the average amount for the 2017–2020 period, the sequestration in 1990 accounted for only 0.6% of the emissions that year.

Listed below are the field of action for the green infrastructure areas managed by LLC 'Rīgas meži' that will result in direct GHG emissions reductions or in the sequestration of CO_2. The field of action are detailed in the mid-term strategy and sustainability report of LLC 'Rīgas meži'.

Field of action #ZM1-#ZM3 will ensure a constant CO_2 sequestration until 2030, at around 300 $ktCO_2$ per year. Field of action #ZM6 focuses on climate change risk assessments and research, assessing the risks of wind, forest fire, disease, and pest damage, as well as water impact, and making appropriate (risk-based) adjustments to the planning of new forest stands and the management of existing stands. All this can significantly improve their sustainability, by increasing their life cycle and ensuring that they provide consistent CO_2 sequestration in the long run. Field of action #ZM7 will reduce GHG emissions from peat bog areas by up to 40%, which would amount to some 16 $ktCO_2e$ per year.

CO_2 sequestration field of action:

- ***Field of action #ZM1:*** Targeted creation of uninterrupted forest coverage, selection of sustainable planting material for forestry activity zones (LLC 'Rīgas meži'; 2024–2030):
    - ZM1.1: Based on forest management and landscape environmental planning approaches, develop landscape design plans for operations in recreation areas.
    - ZM1.2: Develop the Norupe tree nursery to enable the sustainable production of seedlings adapted to climate change, and their use for the regeneration of existing forest stands and the creation of new forest stands.
- ***Field of action #ZM2:*** Development of research and innovation to improve CO_2 sequestration in the urban environment (LLC 'Rīgas meži'; 2024–2030):
    - ZM2.1: Study for the development of a toolbox of garden, park, green space, and waterfront management projects that contribute to the vitality of areas, and the sequestration of emissions.

[10] The following breakdown of areas is used for calculating CO_2 sequestration: (1) forest areas within the administrative territory of Riga and (2) forest areas outside the administrative territory of Riga.

- ZM2.2: Identify opportunities for revitalising urban green spaces through in-depth analysis of satellite data on forest areas.

- ***Field of action #ZM3:*** Sharing of knowledge on new forest management methods (LLC 'Rīgas meži'; 2024–2030):
  - ZM3.1: Hosting of forestry seminars, conferences in pilot areas of LLC 'Rīgas meži';
  - ZM3.2: Involvement in European projects through knowledge transfer, conversion of know-how into data retrieval algorithms, synchronisation of forestry experience across European countries.

GHG emissions mitigation field of action:

- ***Field of action #ZM4:*** Develop and improve the data records system and emissions calculations (SIA 'Rīgas meži'; 2024–2025):
  - ZM4.1: Map and monitor urban green spaces using remote surveying methods;
  - ZM4.2: A project for the scientific study of the GHG emissions balance of urban green spaces, including gas chamber observations.
- ***Field of action #ZM5:*** Compliance with forest certification conditions for long-term afforestation area restrictions (LLC 'Rīgas meži'; 2024–2030):
  - ZM5.1: Commissioning of a data analytics project that would make it possible to plan the potential development of Riga, municipalities adjoining Riga, infrastructure, industry, enabling forecasts of theoretically deforested areas in Riga's forests in the future;
  - ZM5.2: Analysis of unused urban land to select additional areas that can be afforested to compensate for deforestation needed for infrastructure.
- ***Field of action #ZM6:*** Improvement of the company's forestry risk assessment, assessing the threats and opportunities for developing forest stands (LLC 'Rīgas meži'; 2024–2026):
  - ZM6.1: Develop a study including: (1) Recommendations for forest management techniques based on climate change mitigation and Green Deal objectives; (2) proposals for legislative changes on the list of tree species and the breakdown of tree species that must be restored.
- ***Field of action #ZM7:*** Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise (LLC 'Rīgas meži', 2024–2030).

Table B-2.3.1: Field of action #ZM7: Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise

General information	
Sector	Forestry and CO_2 sequestration
Field of action name	Investigation and implementation of measures to reclaim peat bogs and manage these areas otherwise
Summary	Peat bogs account for around 85% of the sector's GHG emissions. LLC 'Rīgas meži' has carried out an assessment of ten bogs and developed bog areas, preparing an extensive description of the data and research materials for each area. Further research will be carried out to identify the best-suited reclamation options, such as renaturalisation, the creation of water reservoirs, creation of cultivated perennial grasslands, afforestation, introduction of paludiculture, growing of berries. Solutions will be selected and implemented that will contribute to the restoration of the hydrological conditions and enable long-term reductions in GHG emissions and CO_2 sequestration.
Main benefits	The GHG emission reduction potential from peat bog areas is up to 40% (some 16 $ktCO_2e$ per year). The expected GHG emission reductions from peat bog restoration measures by 2035 are about 6 tCO_2e/ha per year.

Responsible bodies/person for implementation	LLC 'Rīgas meži'
Actions	• ZM7.1: Investigation of possibility to reclaim peat bogs and manage these areas otherwise; • ZM7.2: Analysis of legislation, lobbying to: (1) ease the requirements for setting up RES facilities in developed peat bogs; (2) create emissions trading opportunities if the peat bogs are restored or reclaimed through afforestation or berry crop cultivation; • ZM7.3: Implementation of forest reclamation and restoration measures, including the innovation project 'Reduction of GHG emissions and CO_2 capture solutions in degraded swamp areas, and development of solar parks with storage technology in restored swamp areas of LLC 'Rīgas meži' (LLC 'Rīgas meži'; from 2028)

Below is a summary of the tasks related to greening of Riga's urban environment (also shown in Figure B-2.3.4), which concern the other green infrastructure areas of Riga state city (the entity in charge is shown in brackets). This field of action is related to the greening of the urban environment, improving the quality of the living environment and adapting to climate change: the contribution of these measures to reducing GHG emissions and capturing CO_2 is not quantified in this version of the action plan.

- ***Field of action* #ZM8:** Greening of Riga's urban environment:
    - ZM8.1: Improvement of a data records system and area mapping (HED).
    - ZM8.2: Development and use of emissions calculation methodologies, determination of problem areas (REA).
    - ZM8.3: Implementation of a green area monitoring system (LLC 'Rīgas meži', in conjunction with HED).
    - ZM8.4: Development of a regulatory framework:
        - ZM8.4.1: Revise and reinforce the requirements of the land use and development regulations with a view to increase CO_2 sequestration and the implementation of nature-based solutions (CDD);
        - ZM8.4.2: Develop a 'green factor' that takes greening and nature-based solutions into account (adoption of regulations and binding rules) (CDD);
        - ZM8.4.3: Amendments to the Protection Zone Law to promote the greening of streets (PSMD):
        - ZM8.4.4: Requirement for standardised nature-based rainwater collection solutions in newly constructed streets (CDD).
    - ZM8.5: Provision of information, education, awareness-raising, and engagement:
        - ZM8.5.1: Developing of guidelines for local resident participation in the greening of urban areas (RNRC);
        - ZM8.5.2: Developing of guidelines for the engagement of businesses in the greening of urban areas (HED);
        - ZM8.5.3: Developing of support mechanisms for local residents and businesses (grants, tax rebates, etc.) (PD):
            - ZM8.5.3.1: Promotion of the greening of privately-owned land through support measures (RNRC);
            - ZM8.5.3.2: Greening of school and pre-school facility grounds — tree planting, urban meadows (ECSD).
        - ZM8.5.4 Event and campaign organising for local residents (RNRC, NGO);

- ZM8.5.5: Organisation of events and campaigns for businesses (RNRC, NGO).

- ZM8.6: Cleaning up and development of green, blue, and degraded areas;
- ZM8.7: Implementation of nature-based solutions.

Table B-2.3.2: Field of action #ZM8: Greening of Riga's urban environment Task #ZM8.6: Cleaning up and development of green, blue, and degraded areas

General information	
Sector	Forestry and CO_2 sequestration
Task name	#ZM8.6: Cleaning up and development of green, blue, and degraded areas
Summary	In Riga, existing green areas will be tidied up and improved, and new green areas will be created through the revitalisation of degraded areas. The creation of ecological networks and improvement of the environment in these areas will be planned and conducted in conjunction with various stakeholders involved.
Direct benefits	• Improving and expanding green spaces in the city • Attractive living environment • Improved city microclimate • Sustainable urban development promoted by reducing overheating and the heat island effect. Reduced negative impacts of the urban environment on human health • Reduced flood risk • Promotion of biodiversity
Responsible bodies/person for implementation	CDD, HED
Other institutions/persons involved and their responsibilities	NGO, local residents, businesses
Actions	• #ZM8.6.1: In developing or regenerating urban areas, plan for and implement green infrastructure solutions (CDD) • #ZM8.6.2: Creation of urban meadows (HED, Rīgas meži) • #ZM8.6.3: Promotion of small gardens in local communities, educational institutions, and retirement homes (PD, RNRC) • #ZM8.6.4: Prioritise plants in the greening that have low resource demands (water, energy, labour) and are resilient to the impact of climate change (HED) • #ZM8.6.5: Promote the greening of areas available for temporary use (HED) • #ZM8.6.6: Management of waterfronts and their greening, assessing the CO_2 sequestration potential (HED) • #ZM8.6.7. Revitalisation of the River Šmerļupīte (HED)
Implementation	
Implementation period	2024 to 2030
Costs	Will be defined
Source of funding	Municipal budget, EU funds, other stakeholders' funding

Table B-2.3.3: Field of action #ZM8: Greening of Riga's urban environment Task #ZM8.7: Implementation of nature-based solutions

General information	
Sector	Forestry and CO_2 sequestration
Name	#ZM8.7: Implementation of nature-based solutions
Summary	Nature-based solutions will be developed by exploring and drawing inspiration from natural systems, where intelligently planned interactions with natural processes provide essential ecosystem services. Nature-

	based solutions will transform Riga's infrastructure, improving air quality, microclimate, and the discharge of rainwater. Nature-based solutions will make the urban environment more suitable for the outdoors life of local residents and for sustainable mobility, as well as for plant and animal habitats.
Direct benefits	• Attractive living environment • Improved city microclimate • Sustainable urban development promoted by reducing overheating and the heat island effect. Reduced negative impacts of the urban environment on human health • Reduced flood risk • Improved rainwater management • Relieving of the general centralised sewer system • Promotion of biodiversity • Reduced consumption of resources for land management
Responsible bodies/person for implementation	CDD, PD, PSMD
Other institutions/persons involved and their responsibilities	NGO, local residents, businesses
Actions	• #ZM8.7.1.: Greening of Riga's streets (HED) • #ZM8.7.2: Promote the greening of the urban environment to create shade (HED) • #ZM8.7.3: Creation of shade and green solutions in parking areas to reduce overheating (CDD) • #ZM8.7.4: Promotion of green roofs and facades (CDD) • #ZM8.7.5: Green roof and facade pilot projects for municipal buildings (PD) • #ZM8.7.6: Installation of beehives on the roofs of municipal buildings (PD) • #ZM8.7.7: Incorporating of new Bauhaus principles into planning and project implementation (CDD) • #ZM8.7.8: Promotion of small-scale nature-based rainwater solutions (PSMD) • #ZM8.7.9: Use of permeable street surfaces in densely developed areas (PSMD)
Implementation	
Implementation period	2024 to 2030
Costs	Will be defined
Source of funding	Municipal budget, EU funds, other stakeholders' funding

In line with the Riga Development Programme 2022–2027, HED plans to develop a Street Greenery Renovation Plan; meanwhile, by 2026, CDD plans to develop a Riga Urban Environment Greening Plan 2027–2031 as part of the project 'Development and demonstration of a portfolio of nature-based solutions to improve the climate resilience of cities in Latvia and Estonia' (LIFE LATESTadapt (101074438 LIFE21-CCA-EE-LIFE)). In addition, a Biodiversity Strategy is developed as part of the project 'Adaptive community-based biodiversity management in urban areas to improve ecosystem connectivity and health' (urbanLIFEcircles (101074453 LIFE-2021-SAP-NAT)). The above fields of action will be further assessed and described in detail in these planning documents and, once these are developed, will be included in the climate contract, which will be updated in 2–3 years.

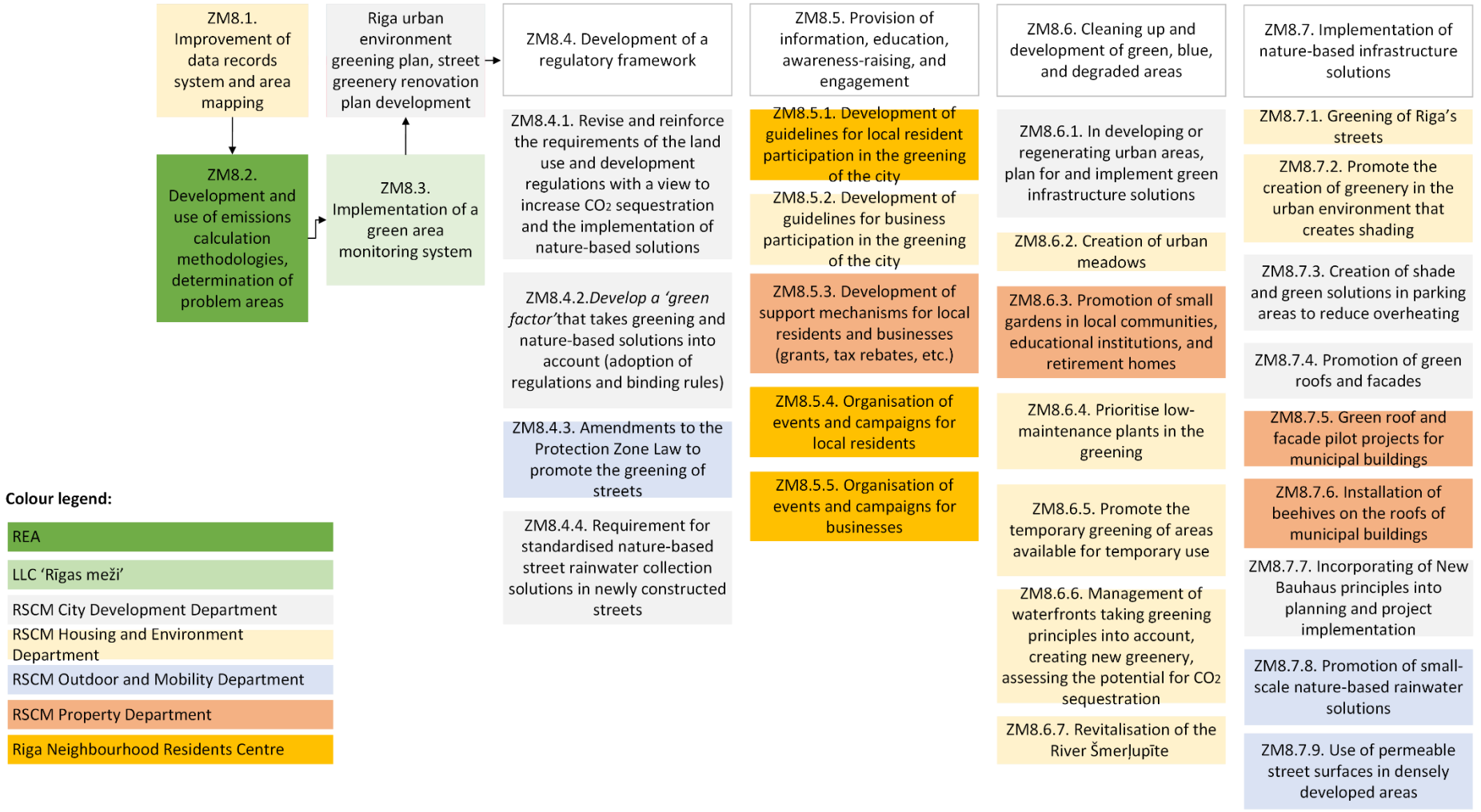


Figure B-2.3.4: Field of action applicable to Riga green infrastructure areas not owned by LLC 'Rīgas meži'

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

B-3.1: Impact Pathways									
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**		**Baseline value**	**Target values**			**Unit**
					2020	**2025**	**2027**	**2030**	
Reduction of CO_2 emissions from municipal infrastructure		P I 1.	**CO_2 emissions reductions from energy consumption by municipal infrastructure**		**-**	**10,205**	**20,411**	**34,019**	**tCO_2**
		P I 2.	**CO_2 emissions produced by municipal infrastructure, as a share of total energy consumption**		**34,019**	**20,411**	**10,205**	**0**	**tCO_2/year**
		P I 3.	**CO_2 emissions by municipal buildings, as a share of total heat consumption**		**24,062**	**14,437**	**7219**	**0**	**tCO_2/year**
		P I 4.	**CO_2 emissions by municipal buildings, as a share of total power consumption**		**3629**	**2177**	**1089**	**0**	**tCO_2/year**
		P I 5.	**CO_2 emissions produced by the consumption of electricity by street lighting**		**2710**	**1626**	**813**	**0**	**tCO_2/year**
		P I 6.	**CO_2 emissions from municipal transport**		**3,618**	**2171**	**1,085**	**0**	**tCO_2/year**
	P1: Continuous improvements in energy management	P I 7.	• Municipal building heating energy consumption, by energy source		165,945	↓	↓	133,669	MWh/year
		P I 8.	• Specific heating energy consumption in municipal buildings		144	↓	↓	↓	kWh/m^2 per year
		P I 9.	• Specific heating energy consumption with connection to the heating system in municipal buildings		164	↓	↓	↓	kWh/m^2 per year
		P I 10.	• Municipal building electric power consumption, by energy source		33,298	↓	↓	30,634	MWh/year
		P I 11.	• Specific electric power consumption in municipal buildings		31.6 — educational institutions 56.1 — office buildings	↓	↓	↓	kWh/m^2 per year
		P I 12.	• Water consumption in municipal buildings		N.d.	↓	↓	↓	m^3/year

B-3.1: Impact Pathways									
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**		**Baseline value**	**Target values**			**Unit**
					2020	**2025**	**2027**	**2030**	
	P2: 100% renewable heating energy share in municipal buildings	P I 13.	• Number and capacity of RES systems installed to produce heat for municipal infrastructure		N.d.	↑	↑	↑	number and MW
		P I 14.	• Annual amount of heat energy produced from renewables in municipal institutions		N.d.	↑	↑	↑	MWh/year
		P I 15.	• Share of heat energy produced from renewables per year		N.d.	↑	↑	100%	%
		-	See indicators P I 7 to P I 9.						
	P3: 100% renewable electricity share in municipal buildings	P I 16.	• Number and capacity of RES systems installed to produce electricity for municipal infrastructure		N.d.	↑	↑	↑	number and MW
		P I 17.	• Annual amount of electric power produced from renewables in municipal institutions		N.d.	↑	↑	↑	MWh/year
		P I 18.	• Amount of RES electricity procured in municipal infrastructure		N.d.	↑	↑	↑	MWh/year
		P I 19.	• Annual share of RES electricity generated/procured		N.d.	↑	↑	100%	%
		-	See indicators P I 10, P I 11.						
	P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of the buildings	P I 20.	• Number of buildings with valid energy certificates		N.d.	↑	↑	100%	quantity
		P I 21.	• Number of municipal buildings renovated		N.d.	↑	↑	100%	quantity
		-	See indicators P I 7 to P I 11.						
	P5: Upgrading of street lighting	P I 22.	• Electricity consumption for street lighting		27,756	↓	↓	11,921	MWh/year
		P I 23.	• Specific energy consumption for street lighting		597	↓	↓	↓	kWh/light

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
		P I 24.	• Number of lights replaced	11.1%	↑	50%	100%	quantity
		P I 25.	• Number of lights installed	11.1% LED, 88.8% sodium, 0.1% mercury	-	-	-	quantity
Reduction of CO_2 emissions from municipal infrastructure	P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030	-	See indicator P I 22.					
	P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use	P I 26.	• Number of vehicles by vehicle type and fuel consumption (cars, light and heavy goods vehicles, other) and fuel type (including alternative fuels)	697/ 13,711	↓	↓	-12,248	number and litres or kWh per year
		P I 27.	• Specific fuel consumption of municipal vehicles	N.d.	↓	↓	↓	l/100 km
		P I 28.	• Share of electricity in municipal transport fuel consumption	0.5%	↑	↑	↑	%
		P I 29.	• Average age of municipal vehicles	N.d.	↓	↓	↓	years
		P I 30.	• Annual vehicle mileage	N.d.	↓	↓	↓	km
		P I 31.	• Number of zero-emission vehicles purchased	10	↑	↑	100%	quantity
		P I 32.	• Number of electric vehicle charging stations near municipal buildings	N.d.	↑	↑	↑	quantity
		P I 33.	• Share of municipal employees by mode of transport use (walking, cycling, public transport, private vehicle, etc.)	N.d.	-	-	-	%
Reduction of CO_2 emissions from municipal infrastructure	P8: Promotion of the use of public transport for work among employees of	P I 34.	• Number of work trips by car	N.d.	↓	↓	↓	km
		-	See indicator P I 33					

B-3.1: Impact Pathways									
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**		**Baseline value**	**Target values**			**Unit**
					2020	**2025**	**2027**	**2030**	
	the municipal government								
	P9: Transition to zero-emission vehicles in companies, municipal institutions	-	See indicators P I 26, P I 27, P I 29, P I 31, P I 32.						
Reduction of CO2 emissions from municipal infrastructure	P10: Energy efficiency and RES use in wastewater treatment plants	P I 35.	RES energy in wastewater treatment plants		26%	↑	↑	50%	% RES gross in-house consumption/year
		P I 36.	Amount of RES electricity procured for wastewater treatment plants		0	↑	↑	>2000	MWh/year
Reduction of CO_2 emissions from energy generation		E I 1.	**CO_2 emissions reduction in the centralised energy production sector**		**-**	**40,482**	**80,964**	**122,672**	**tCO_2**
		E I 2.	**CO_2 emissions reduction in the decentralised energy production sector**		**-**	**28,446**	**56,891**	**86,199**	**tCO_2**
		E I 3.	**CO_2 emissions reductions in the electricity generation sector**		**-**	**52,046**	**104,093**	**157,716**	**tCO_2**
		E I 4.	**CO_2 emissions from the centralised production of heating energy**		**375,558**	**335,076**	**294,594**	**252,886**	**tCO_2/year**
		E I 5.	**CO_2 emissions from the decentralised production of heating energy**		**296,980**	**268,534**	**240,089**	**210,781**	**tCO_2/year**
		E I 6.	**CO_2 emissions from electricity consumption**		**207,334**	**155,288**	**103,241**	**49,618**	**tCO_2/year**
	E1: Promotion of zero-emission technologies and RES in district heating	E I 7.	• Consumption of heat energy produced from renewables in low-capacity natural gas energy sources of AS 'Rīgas siltums', MWh/year		N.d.	↓	↓	↓	MWh/year
		E I 8.	• Number of projects implemented (number of connections for the use of surplus heat, amount of heat energy transferred to DHS of Riga)		N.d.	↑	↑	↑	quantity

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
Reduction of CO_2 emissions from energy generation	E2: Achieve new client connections to DHS	E I 9.	• Annual number of new clients connected to DHS of Riga and their consumption	N.d.	↑	↑	↑	number and MWh/year
	E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system	E I 10.	• Efficiency factor of each energy source	99% on average	↑	↑	↑	%
		E I 11.	• Digital solutions implemented; number and funding raised	N.d.	↑	↑	↑	euros
	E4: Gradual transition to the 4th generation heating supply system	E I 12.	• 4th generation heating system pipelines	N.d.	↑	↑	↑	km
		E I 13.	• Reduced heating energy consumption in the 4th generation heating system	N.d.	↑	↑	↑	MWh/year
	E5: Implementation of innovative projects	E I 14.	• Funding raised to develop innovative solutions	N.d.	↑	↑	↑	euros
		E I 15.	• Innovative solutions implemented in the city heating system	N.d.	↑	↑	↑	quantity
	E6: Promote electrification, use of RES in decentralised heating, or connection to DHS	E I 16.	• Share of renewables in the manufacturing and service sector	47%	↑	↑	↑	%
		E I 17.	• Natural gas consumption, housing sector (households)	295,000	↓	↓	↓	MWh/year
		E I 18.	• Natural gas consumption, public sector (other users)	213,000	↓	↓	↓	MWh/year
		-	See indicators E I 9.					
	E7: Promote the use of RES in the generation of electricity for Riga's needs	E I 19.	• Share of RES in the city's electricity generation mix	3	↑	↑	↑	%
		E I 20.	• Installed capacity and number of RES facilities	N.d.	↑	↑	↑	MW, number
		E I 21.	• RES electricity generated in the city	77,970	↑	↑	↑	MWh/year
Reduction of CO_2 emissions from multi-		Dz I 1.	**CO_2 emissions reduction from the consumption of heating energy by multi-apartment residential buildings**	**-**	**6423**	**12,846**	**21,409**	**tCO_2**

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
apartment residential buildings		Dz I 2.	• **CO_2 emissions amount from the heating energy consumption in multi-apartment residential buildings**	**367,435**	**373,858**	**380,281**	**388,844**	**tCO_2/year**
	Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings	Dz I 3.	• Number of multi-apartment residential buildings in the city and type of their heating	11,700	-	-	-	quantity
		Dz I 4.	• Heating energy consumption of multi-apartment residential buildings connected to DHS	2123	2081	2039	1983	GWh/year
		Dz I 5.	• Specific heating energy consumption of multi-apartment residential buildings connected to DHS	147	↓	↓	↓	kWh/m^2 per year
		Dz I 6.	• Number of multi-apartment residential buildings renovated per year	-	↑	↑	↑	number/year
		Dz I 7.	• Number of nearly zero-energy buildings	-	↑	↑	↑	quantity
		Dz I 8.	• Reduction of heating energy consumption due to the renovation of buildings	-	↑	↑	↑	MWh/year
		Dz I 9.	• Specific heating energy consumption in renovated buildings according to the project	-	-	-	-	kWh/m^2 per year
	Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation in Riga	-	See indicators Dz I 4 to Dz I 9.					
	Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings	-	See indicators Dz I 4 to Dz I 9.					

B-3.1: Impact Pathways									
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**		**Baseline value**	**Target values**			**Unit**
					2020	**2025**	**2027**	**2030**	
	Dz4: Establishment of the Riga Energy Efficiency Fund	Dz I 10.	• Number of people consulted Number of buildings/occupants consulted per year as part of REEF		-	-	-	-	quantity
		Dz I 11.	• Number of multi-apartment residential buildings that received financing as part of REEF, per year		-	-	-	-	quantity
		Dz I 12.	• Municipal support for the renovation of buildings		-	-	-	-	number and EUR
		Dz I 13.	• Efficiency of the funding used		-	-	-	-	%
Reduction of CO_2 emissions from multi-apartment residential buildings	Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs	-	See indicators Dz I 6, Dz I 8, Dz I 9.						
Reduction of CO_2 emissions from the transport and mobility sector		T I 1.	**CO_2 emissions reductions for private vehicles**		**-**	**182,622**	**365,244**	**553,400**	**tCO_2**
		T I 2.	**CO_2 emissions from private vehicles**		**674,997**	**492,375**	**309,753**	**121,597**	**tCO_2/year**
	T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars	T I 3.	• Number of digital solutions implemented		-	↑	↑	↑	quantity
		T I 4.	• Number of mobility points created		N.d.	↑	↑	↑	quantity
		T I 5.	• Number and percentage (%) of electric vehicles providing services		N.d.	↑	↑	↑	number and %
		T I 6.	• Number of new policy instruments implemented		N.d.	↑	↑	↑	quantity
		T I 7.	• Improvements in pedestrian and cycle infrastructure		-	↑	↑	↑	km
		T I 8.	• Number of shared-vehicle service providers and number of vehicles used		N.d.	↑	↑	↑	quantity

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
	T2: Measures to promote distance working and increase the availability of online services	T I 9.	• Number of municipal employees distance working	N.d.	↑	↑	↑	number of people and % of employees
		T I 10.	• Share of residents of Riga and Riga suburbs distance working (based on mobility survey results)	N.d.	↑	↑	↑	%
		T I 11.	• Number and floor area of work sharing spaces (m^2) in Riga	N.d.	↑	↑	↑	number and m^2
Reduction of CO_2 emissions from the transport and mobility sector	T3: Promotion of an active lifestyle and cycling	T I 12.	• Available pedestrian paths and cycling routes	68.2	↑	↑	↑	km
		T I 13.	• Number of people cycling and walking	N.d.	↑	↑	↑	number and % of total
	T4: Increase the share of public transport in everyday passenger trips	T I 14.	• Number of passengers transported by bus, tram, trolleybus, and train	LLC 'Rīgas satiksme' — 89.7 million	↑	↑	↑	quantity
		T I 15.	• Passenger-kilometres travelled	N.d.	↑	↑	↑	p-km
		T I 16.	• Average speed of trams, trolleybuses, buses within routes	N.d.	↑	↑	↑	km/h
	T5: Restrictions on private transport	T I 17.	• Share of public transport users	N.d.	↑	↑	↑	%
		T I 18.	• Share of users of physically active modes of transportation	N.d.	↑	↑	↑	%
		T I 19.	• Share of car users	N.d.	↓	↓	↓	%
		T I 20.	• Budget income from parking charges (fees)	N.d.	↑	↑	↑	million euros/year
		T I 21.	• Budget use for sustainable mobility projects	N.d.	↑	↑	↑	million euros/year
	T6: Other measures to reduce car use	T I 22.	• New policy instruments developed and implemented	-	↑	↑	↑	quantity
	T7: Promotion of electrification in	T I 23.	• Number of electric vehicles registered and in good technical order	3037	↑	↑	↑	quantity

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
	private transport and provision of services	T I 24.	• Number of electric vehicle charging stations (public, semi-public, private)	19	↑	↑	↑	quantity
		T I 25.	• Number of electric vehicle charging stations with integrated renewable electricity generation	N.d.	↑	↑	↑	quantity
Reduction of CO_2 emissions from the transport and mobility sector	T8: Gradual transition to clean technology in vehicles that enable municipal functions	T I 26.	• Number of vehicles with RES technologies used for municipal services	N.d.	↑	↑	↑	quantity
		T I 27.	• RES fuel consumption	0.5%	↑	↑	↑	MWh/year
	T9: Collection of mobility data and monitoring of measures implemented	T I 28.	• Tools created or adapted	N.d.	↑	↑	↑	quantity
		T I 29.	• Recording devices for collecting mobility data	N.d.	↑	↑	↑	quantity
Reducing of GHG emissions from the waste management sector		A I 1.	• Municipal waste generated in the city, by type of waste	298,372	↓	↓	↓	t/year
		A I 2.	• Household waste generated in the city, per capita	480	↓	↓	↓	kg per capita, per year
		A I 3.	• Share of sorted waste in total household waste amount	N.d.	↑	↑	↑	%
		A I 4.	• Share of organic waste in unsorted household waste	N.d.	↓	↓	↓	%
		A I 5.	• Total amount of household waste landfilled	76,769; 45%	↓	↓	↓	tonnes/year and % of the total amount generated
		A I 6.	• Number of publicly accessible waste sorting sites	N.d.	↑	↑	↑	quantity
		A I 7.	• Publicly accessible exchange/donation points for personal items and food	N.d.	↑	↑	↑	quantity
Reducing of GHG emissions from the forestry		ZM I 1.	• GHG emissions from the forestry sector (within the territory of Riga and outside it)	40	↓	↓	↓	$ktCO_2e$/year

B-3.1: Impact Pathways								
Outcomes/ impacts addressed	**Action/ project**	**No**	**Indicator name**	**Baseline value**	**Target values**			**Unit**
				2020	**2025**	**2027**	**2030**	
sector and CO_2 sequestration		ZM I 2.	• CO_2 emissions from the forestry sector (within the territory of Riga and outside it)	321	↑	↑	↑	$ktCO_2$/year
Reducing of GHG emissions from the forestry sector and CO_2 sequestration		ZM I 3.	• CO_2 emissions accumulated (and potentially sequestered) by the forestry sector (within the territory of Riga and outside it)	4381	↑	↑	↑	$ktCO_2$/year
		ZM I 4.	• Changes in tree canopy cover or forest area	N.d.	↑	↑	↑	m^2 or ha
		ZM I 5.	• Amount of green infrastructure by type (separately: amount of healthy green infrastructure areas)	N.d.	↑	↑	↑	m^2 or ha
		ZM I 6.	• Total share of bodies of water (separately: share of high-quality bodies of water)	N.d.	-	-	-	m^2 or %
		ZM I 7.	• Heat island area changes	N.d.	↓	↓	↓	m^2

B-3.2: Indicator metadata

REA is responsible for conducting the overall monitoring. The necessary monitoring data are prepared and submitted by the corresponding municipal specialists/departments/organisations on request.

The indicators fall into two categories:

- Direct impact indicators (listed in B-3.1: Impact paths are shown bold in the table, more details in B-3.2: Impact metadata in the table).
- Indirect impact indicators (listed in B-3.1: Impact paths in the table, more details in B-3.2: Indicator metadata in the table).

The data monitoring and analysis must be carried out at least once a year.

The monitoring result will inform the decisions about the budget priorities for the following year. The CCC indicators will complement the list of indicators connected the SECAP 2030 and Riga's Development programme.

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
P I 1.	tCO_2	CO_2 emissions from municipal infrastructure reduced through sectoral field of action in 2030	Calculation — 2030 CO_2 emissions caused by municipal infrastructure energy consumption subtracted from baseline year CO_2 emissions	Municipal infrastructure sector	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10	REA
P I 2.	tCO_2/year	CO_2 emissions from the municipal infrastructure energy consumption during the year	Calculation — energy consumed (MWh) broken down by energy source, multiplied by the emissions factor of the energy source (tCO_2/MWh)			
P I 3.	tCO_2/year	CO_2 emissions from the municipal infrastructure heating energy consumption during the year			P1, P2, P4	
P I 4.	tCO_2/year	CO_2 emissions from the municipal infrastructure electric power consumption during the year			P1, P3	
P I 5.	tCO_2/year	CO_2 emissions from the street lighting electric power consumption during the year			P5, P6	
P I 6.	tCO_2/year	CO_2 emissions from the municipal vehicle fleet consumption during the year			P7, P8, P9	
P I 7.	MWh/year	Municipal building heating energy consumption by source	Meter readings, fuel records		P1, P2, P4	EMS, heads of institutions
P I 8.	kWh/m^2 per year	Municipal building heating energy consumption relative to the heated area of the building	Calculation — annual heating energy consumption of the building divided by the building area		P1, P2, P4	
P I 9.	kWh/m^2 per year	Specific heating energy consumption of municipal buildings adjusted using the climate correction factor for the year. Climate adjustment makes it possible to normalise the reading, for a correct value comparison relative to previous years	Calculation — specific heating energy consumption of municipal buildings multiplied by climate correction factors for the year		P1, P2, P4	
P I 10.	MWh/year	Municipal building electricity consumption broken down by source	Meter readings		P1, P3, P4	
P I 11.	kWh/m^2 per year	Electricity consumption of municipal buildings relative to the area of the buildings	Calculation — annual electric power consumption of the building divided by the building area		P1, P3, P4	

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
P I 12.	m^3/year	Water consumption in municipal buildings	Meter readings		P1	
P I 13.	number and MW	Number and capacity of RES systems installed to produce heat for municipal infrastructure	Collection of information from heads of institutions	Municipal infrastructure sector	P2	
P I 14.	MWh/year	Annual amount of heat energy produced from renewables in municipal institutions	Meter readings		P2	
P I 15.	%	Share of heat energy produced from renewables per year	Calculation — amount of heat produced from RES relative to total municipal infrastructure heating energy consumption		P2	REA
P I 16.	number and MW	Number and capacity of RES systems installed to produce electricity for municipal infrastructure	Collection of information from heads of institutions		P3	EMS, heads of institutions
P I 17.	MWh/year	Annual amount of electric power produced from renewables in municipal institutions	Meter readings		P3	
P I 18.	MWh/year	Amount of RES electricity procured in municipal infrastructure	Electricity bills		P3	
P I 19.	%	Annual share of RES electricity generated/procured	Calculation — amount of RES electricity generated and procured vs total municipal infrastructure electricity consumption		P3	REA
P I 20.	quantity	Number of municipal institutions with up-to-date energy certificates. The energy certificates show an assessment of the quality of the building in terms of its energy efficiency. They are mandatory for municipal buildings with a total floor area of more than 250 m^2	Collection of information from heads of institutions or from the Building Information System		P4	Heads of institutions, Building Information System
P I 21.	quantity	Number of municipal buildings renovated	Collection of information from heads of institutions		P4	Heads of institutions
P I 22.	MWh/year	Electricity consumption for street lighting	Meter readings		P5, P6	‘Rīgas gaisma’ agency
P I 23.	kWh/light	Electricity consumption of street lighting relative to the number of lights installed	Calculation — electricity consumption of street lighting divided by the number of lights installed		P5	
P I 24.	quantity	Number of lights replaced during the year			P5	

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
P I 25.	quantity	Number of lights installed	Data request from the 'Rīgas gaisma' agency			
P I 26.	number and litres or MWh per year	Number of municipal vehicles and fuel consumption by type of vehicle and type of fuel	Collecting data from a data records system	Municipal infrastructure sector	P7, P9	Data records system for the municipal vehicle fleet
P I 27.	l/100 km	Municipal vehicle fuel consumption relative to the distance travelled	Calculation — municipal vehicle fuel consumption per 100 km travelled		P7, P9	
P I 28.	%	Municipal vehicle electricity consumption relative to the total municipal vehicle energy consumption	Calculation — municipal vehicle electricity consumption divided by total municipal vehicle energy consumption		P7	
P I 29.	years	Average age of municipal vehicles	Collection of data from vehicle procurement documents		P7, P9	
P I 30.	km	Distance travelled by municipal vehicles during the year	Collecting data from a data records system		P7	
P I 31.	quantity	Number of zero-emission vehicles purchased for municipal use during the current year			P7, P9	
P I 32.	quantity	Number of EV charging stations at municipal buildings	Collection of data from municipal institutions		P7, P9	Heads of municipal institutions
P I 33.	%	Share of municipal employees by mode of transport use (walking, cycling, public transport, private vehicle, etc.)	Conducting of surveys		P7	Survey results
P I 34.	%	Number of work trips by car			P8	
P I 35.	%	RES energy in wastewater treatment plants	Calculation — RES electricity generated relative to total electricity consumption		P10	'Rīgas ūdens'
P I 36.	MWh	Amount of RES electricity purchased for wastewater treatment plants	'Rīgas ūdens' information			
E I 1.	tCO_2	CO_2 emissions from heating energy production in DHS reduced during the year	Calculation — CO_2 emissions from DHS heating energy generation in the previous year minus CO_2 emissions from DHS heating energy generation in the current year	Energy generation sector	E1, E3, E4, E5	DHS companies

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
E I 2.	tCO_2	CO_2 emissions from heating energy production in the decentralised energy production sector reduced during the year	Calculation — CO_2 emissions from decentralised energy production in the previous year minus CO_2 emissions from decentralised energy production in the current year		E2, E6	AS Gaso
E I 3.	tCO_2	CO_2 emissions from electric power production reduced during the year	Calculation — CO_2 emissions from electricity generation in the previous year minus CO_2 emissions from electricity generation in the current year	Energy generation sector	E7	AS 'Sadales tīkls', businesses
E I 4.	tCO_2/year	CO_2 emissions from the production of heating energy in the district heating system	Calculation — energy produced (MWh) broken down by energy source, multiplied by the emissions factor of the energy source (tCO_2/MWh)		E1, E3, E4, E5	REA
E I 5.	tCO_2/year	CO_2 emissions from the production of heating energy in the decentralised heating system			E2, E6	
E I 6.	tCO_2/year	CO_2 emissions from electricity generation during the year			E7	
E I 7.	MWh/year	Consumption of heat energy produced from renewables in low-capacity natural gas energy sources of AS 'Rīgas siltums', MWh/year	AS 'Rīgas siltums' information request		E1	AS 'Rīgas siltums'
E I 8.	quantity	Number of projects implemented (number of connections for the use of surplus heat, amount of heat energy transferred to DHS of Riga)			E1	
E I 9.	number and MWh/year	Number of consumers connected to DHS, by type (municipal institutions/ businesses/ multi-apartment residential buildings/ detached houses/etc.) and their heating energy consumption			E2, E6	
E I 10.	%	Efficiency factor of each DHS energy source			E3	
E I 11.	euros	Digital solutions implemented in DHS; their number and funding raised			E3	
E I 12.	km	4^{th} generation heating system pipelines			E4	
E I 13.	MWh/year	Reduced heating energy consumption in the 4^{th} generation heating system			E4	

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
E I 14.	euros	Funding raised to develop innovative solutions			E5	
E I 15.	quantity	Innovative solutions implemented in the city heating system		Energy generation sector	E5	
E I 16.	%	Share of RES energy relative to the total energy for manufacturing and service companies	Calculation — RES energy to total sector energy		E6	AS 'Sadales tīkls', businesses
E I 17.	MWh/year	Annual natural gas consumption, housing sector (households)	AS Gaso data request		E6	AS Gaso
E I 18.	MWh/year	Annual natural gas consumption, public sector (other users)			E6	
E I 19.	%	Share of RES in the city's electricity generation mix	Calculation — RES electricity generated relative to total electricity amount		E7	Central Statistical Bureau
E I 20.	number/year	Number of installed RES facilities in the city or number of installed RES facilities per year or period	AS 'Sadales tīkls' data request		E7	AS 'Sadales tīkls'
E I 21.	MWh/year	RES electricity generated in the city during the year			E7	
Dz I 1.	tCO_2	the reduced CO_2 emissions amount from multi-apartment residential building sector in 2030	Calculation — subtract 2030 CO_2 emissions of the multi-apartment residential building sector from the baseline year CO_2 emissions in that sector	Multi-apartment residential building sector	Dz1, Dz2, Dz3, Dz4, Dz5	
Dz I 2.	tCO_2/year	CO_2 emissions caused by heating energy consumption in the multi-apartment residential building sector during the year	Calculation — energy consumed (MWh) broken down by energy source, multiplied by the emissions factor of the energy source (tCO_2/MWh)			
Dz I 3.	quantity	Number of multi-apartment residential buildings in the city and type of their heating	Collection of information from HED		Dz1	HED
Dz I 4.	MWh/year	Heating energy consumption of multi-apartment residential buildings connected to DHS	Collection of information from AS 'Rīgas siltums'		Dz1, Dz2, Dz3	AS 'Rīgas siltums'
Dz I 5.	kWh/m^2 per year	Specific heating energy consumption of multi-apartment residential buildings connected to DHS			Dz1, Dz2, Dz3	

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
Dz I 6.	number/year	Number of multi-apartment residential buildings renovated per year	Collection of information from HED		Dz1, Dz2, Dz3, Dz6	HED
Dz I 7.	quantity	Number of nearly zero-energy buildings			Dz1, Dz2, Dz3	
Dz I 8.	MWh/year	Reduction of heating energy consumption due to the renovation of buildings	Collection of information from AS 'Rīgas siltums' and building managers	Multi-apartment residential building sector	Dz1, Dz2, Dz3, Dz6	AS 'Rīgas siltums' and building managers
Dz I 9.	kWh/m^2 per year	Specific heating energy consumption in renovated buildings according to the project			Dz1, Dz2, Dz3, Dz6	
Dz I 10.	quantity	Number of multi-apartment residential buildings/local residents advised per year, as part of REEF	Collection of information from HED		Dz4	HED
Dz I 11.	quantity	Number of multi-apartment residential buildings that received financing as part of REEF, per year			Dz4	
Dz I 12.	number and EUR	Municipal support for the renovation of buildings	Collection of information from FD		Dz4	FD
Dz I 13.	%	Efficiency of the funding used			Dz4	
T I 1.	tCO_2	Reduction in CO_2 emissions from private vehicles during the year	Calculation — 2030 CO_2 emissions caused by private vehicles subtracted from baseline year CO_2 emissions for private vehicles	Transport and mobility sector	T1, T2, T3, T4, T5, T6, T7, T8, T9	CSDD, calculation methods
T I 2.	tCO_2/year	CO_2 emissions caused by private vehicles during the year	Calculation — energy consumed (MWh) broken down by energy source, multiplied by the emissions factor of the energy source (tCO_2/MWh)			calculation methods
T I 3.	quantity	Number of digital solutions implemented	Collection of information from PSMD and RDA		T1	PSMD and RDA
T I 4.	quantity	Number of mobility points in the city	Collection of information from CDD		T1	CDD
T I 5.	number and %	Number and percentage (%) of electric vehicles providing services	Surveying of companies		T1	Survey results
T I 6.	quantity	Number of new policy instruments implemented	Collection of information from CDD		T1	CDD
T I 7.	km	Improvements in pedestrian and cycle infrastructure	Collection of information from PSMD and CDD		T1	PSMD and CDD

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
T I 8.	quantity	Number of shared-vehicle service providers and number of vehicles used	Collection of information from CDD		T1	CDD
T I 9.	number of people and % of employees	Number of municipal employees distance working	Conducting of surveys		T2	Survey results
T I 10.	%	Share of residents of Riga and Riga suburbs distance working	Conducting of surveys		T2	Survey results
T I 11.	number and m^2	Number and floor area of work sharing spaces in Riga	Collection of information from CDD	Transport and mobility sector	T2	CDD
T I 12.	km	Length of city bicycle and pedestrian paths, with bicycle lanes, bicycle paths, bicycle paths combined with pedestrian paths, and pedestrian paths	Collection of information from PSMD		T3	PSMD
T I 13.	number and % of total	Number of people cycling and walking	Conducting of surveys		T3	Survey results
T I 14.	quantity	Number of passengers transported by bus, tram, trolleybus, and train	Collection of data from public transport management companies		T4	LLC 'Rīgas satiksme', AS 'Pasažieru vilciens', VAS 'Latvijas dzelzceļš'
T I 15.	p-km	Passenger-kilometres travelled by public transport			T4	
T I 16.	km/h	Average speed of trams, trolleybuses, buses within routes			T4	
T I 17.	%	Share of local residents using public transport	Conducting of surveys		T5	Survey results
T I 18.	%	Share of users of physically active modes of transportation			T5	
T I 19.	%	Share of local residents using private vehicles			T5	
T I 20.	million euros/year	Budget income from parking charges (fees)	Request for information FD		T5	FD
T I 21.	million euros/year	Budget use for sustainable mobility projects			T5	
T I 22.	quantity	New policy instruments developed and implemented	Collection of information from CDD and RDA		T6	REA
T I 23.	quantity	Number of roadworthy vehicles registered in the city that operate using electricity	Collection of information from the CSDD database		T7	CSDD, charging station operators

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
T I 24.	quantity	Number of charging stations in the city by type (public, semi-public, private)			T7	
T I 25.	quantity	Number of charging stations in the city with integrated RES electricity generation			T7	
T I 26.	quantity	Number of vehicles with RES technologies used for municipal services	Collection of information from municipal institutions and companies	Transport and mobility sector	T8	Municipal institutions and companies
T I 27.	MWh/year	RES fuel consumption for the provision of municipal services			T8	
T I 28.	quantity	Tools created or adapted	Collection of information from PSMD, CDD, RDA, HED		T9	PSMD, CDD, RDA, HED
T I 29.	quantity	Recording devices for collecting mobility data	Collection of information from PSMD		T9	PSMD
A I 1.	tonnes/year	Amount of household waste generated in the city	MWGMIS, LLC Getliņi EKO, Lietovelreiz.lv	Waste management sector	A1, A2, A3, A4, A5, A6, A7	HED
A I 2.	kg per capita, per year	Household waste generated in the city, per capita				
A I 3.	%	Share of sorted waste in total household waste amount				
A I 4.	%	Share of organic waste in unsorted household waste				
A I 5.	tonnes/year and % of the total amount generated	Total amount of household waste landfilled				
A I 6.	quantity	Number of publicly accessible waste sorting sites				
A I 7.	quantity	Publicly accessible exchange/donation points for personal items and food				
ZM I 1.	tCO_2e/year	In the context of the action plan, the forestry sector encompasses all green areas within the territory of Riga state city and green areas outside Riga owned and managed by Riga state city	Request for information by LLC 'Rīgas meži'	Forestry and CO_2 sequestration sector	ZM4, ZM5, ZM6, ZM7	LLC 'Rīgas meži'
ZM I 2.	tCO_2/year				ZM1, ZM2, ZM3	
ZM I 3.	tCO_2/year				ZM1-ZM7	
ZM I 4.	m^2 or ha	The action plan covers forests within the territory of Riga and outside it, owned and managed by Riga state city			ZM1, ZM2, ZM3	

B-3.2: Indicator Metadata						
No	**Indicator unit**	**Definition**	**Calculation**	**Description**		**Data**
				Emissions sectors affected	**Field of action**	**Source**
ZM I 5.	m^2 or ha	Green infrastructure includes trees, shrubs, marshes, gardens, meadows and other greenery, including green roofs, vertical landscaping, plant containers, etc.	Collection of information from LLC 'Rīgas meži', CDD, HED	Forestry and CO_2 sequestration sector	ZM8	LLC 'Rīgas meži', CDD, HED
ZM I 6.	m^2 or %	Total share of bodies of water (separately: share of high-quality bodies of water)	Collection of information from CDD and HED		ZM8	REA
ZM I 7.	m^2	Area in the city where the lack of surrounding buildings and trees results in higher temperatures compared to the surrounding area	Collection of information from CDD and HED		ZM8	

4 Part C — Enabling Climate-Neutrality by 2030

4.1 Module C-1 Governance Innovation Interventions

C-1.1: Enabling organisational and governance interventions

The main political responsibility for the implementation of the plan lies with the RCC chairman. The Executive Director Office, in conjunction with REA (which sets up a Climate Group), acts as the main monitoring and coordinating body, overseeing the implementation of all activities included in the plan, delegating responsibilities and tasks, coordinating any other future cooperation opportunities, and organising additional discussions on measures not accepted by all stakeholders at the sectoral level.

In order to ensure the effective and transparent implementation of the measures included in the plan, organisational charts have been prepared for each sector (see section A.3.3).

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

Intervention name	Description	Institution/person in charge	Leadership and stakeholders involved	Enabling impact	Co-benefits
Climate Group	Working group that monitors and coordinates the achievement of climate targets	RSCM Executive Director Office and REA	All stakeholders indicated in the organisational chart of each subsector	Provides synergies between all groups involved in each sector, as well as the Monitoring Group and committees	Enables the consistent implementation of energy and climate measures in Riga
Engages different social groups, businesses, and organisations	Each sector group is responsible for identifying and involving stakeholders in the implementation of the measures	Each sector group according to the organisation chart	All stakeholders already mentioned for each measure and additional groups identified that could contribute to the implementation of the measure (see figure in Section C1.2). These could be businesses, NGOs, local residents, service providers, etc.	Involving different groups can lead to more targeted and broader implementation of the measures in the action plan	New ideas and proposals, additional competencies and knowledge, financial savings, etc.

C-1.2: Description of organisational and governance interventions

The groups involved in each sector and their interest and influence in achieving Riga's climate-neutrality targets are shown in Section A.3.1.

In order to involve as many or as diverse stakeholders as possible in the implementation of the defined measures and in the planning of new measures, representatives of the institutions in charge of each sector will identify and approach representatives of neighbourhood centres and communities, business, and service provider associations, NGOs and other organisations, such as universities and the media, which can disseminate information to an even broader share of the public.

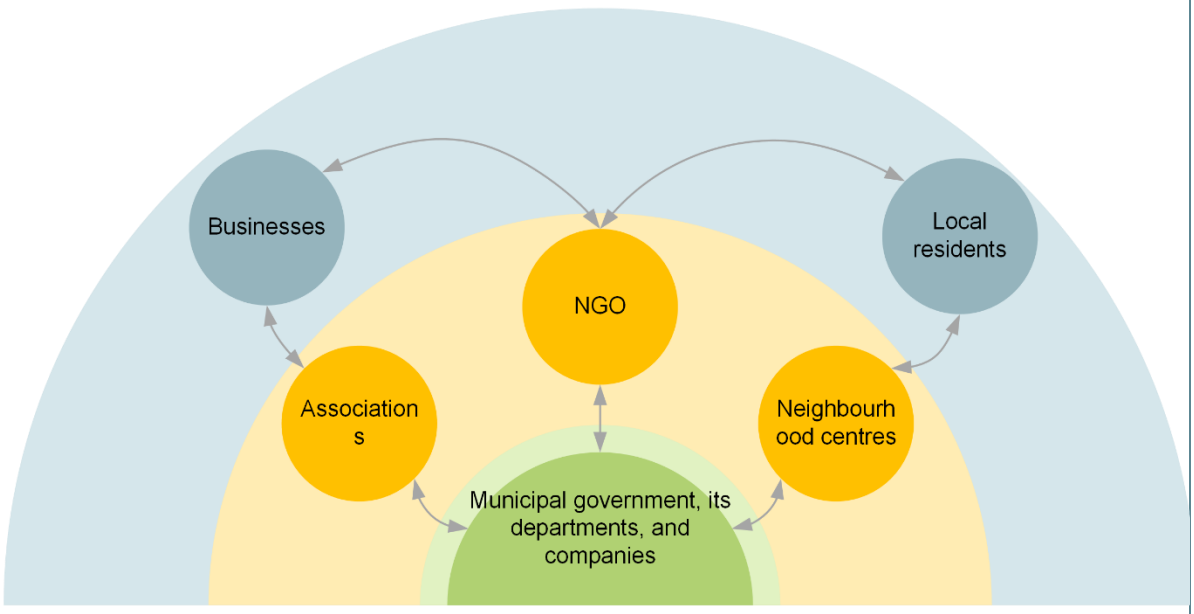


Figure C-1.2.1: Key stakeholder groups

The following five principles for stakeholder involvement will be taken into account in the implementation of every measure by the responsible departments:

1) clear and continuous communication about the purpose of the measure/action and the role of each party involved;

2) planning of a joint event and deciding on further steps;

3) if necessary, capacity and knowledge building, so that all stakeholders have a common understanding of the measure to be implemented;

4) regular feedback on further steps and on the results achieved;

5) identification and recognition of achievements, thus giving all stakeholders the motivation to continue, also highlighting the positive impact of their participation and their contribution to developing the community.

Workshops with various stakeholders were organised during the development of the action plan. Their positive assessment shows that people from different municipal departments and organisations are ready to participate in the development of their city. REA will continue to conduct similar activities in conjunction with other departments.

Simplified versions of this action plan need to be prepared for each of the main target groups (municipal and private company employees, local residents, businesses, etc.) with the purpose of explaining how each target group can participate in, contribute to, and benefit from Riga's climate-neutrality targets. REA will be responsible for preparing the communication materials.

Riga intends strengthening its cooperation with governmental and non-governmental stakeholders as part of the implementation process of this Action plan. First, the inter-institutional cooperation among different municipal entities will be activated in 2025, coordinated by the Executive Directors. This plan

has a complex governance structure and focused decision-making is required to achieve rapid progress. Second, Riga will use its established platforms to communicate and engage sectoral stakeholders – some examples are working groups established as part of development or innovation projects or advisory bodies supporting the work of the City Council. Third, Riga will use digital tools to publish and communicate its progress towards climate-neutrality. In the last few years, Riga has implemented various projects on participatory climate governance and stakeholder cooperation – these channels of communication and decision-making will be activated once this Action plan is adopted.

4.2 Module C-2 Social Innovation Interventions

C.2.1: Enabling social innovation interventions

Social innovation initiatives in the scope of energy and climate are relatively underdeveloped in Riga and anywhere else in Latvia and their development requires additional attention in the future.

Table C2.1 summarises the most important social innovation initiatives at the municipal and national level. Several of these can already make a significant contribution to Riga's climate-neutrality targets, but their impacts and benefits have not been determined and analysed. There has also been no assessment of the improvements needed in this scope.

Ways to further promote social innovation for climate development in Riga:

- Support the creation of innovation centres and incubators: places (physical or virtual) where people and organisations can collaborate on projects related to sustainable energy and climate. These centres serve as a platform for networking, generating ideas, and sharing resources among innovators working on climate solutions. Collaborations can be set up with existing incubators, universities, science centres, NGO, other education institutions, businesses, etc.
- Strengthen cooperation with research institutions: building partnerships with universities and research institutions to use their expertise not only in climate science and technology but also in communication and public engagement. Collaboration with research institutions can improve the municipality's knowledge base and support the development of evidence-based climate solutions. Improve the availability and re-use of open data.
- Create a Climate Innovation Fund: in partnership with businesses, create a special fund for investing in and supporting promising climate innovation solutions in the municipality. This would enable scaling up and further integrating consistent climate innovation in any of the sectors covered by the action plan.
- Education programmes: in conjunction with NGOs, inform communities, including children and young people, about current issues in Riga. Regularly hold competitions to solve various challenges.
- Regularly hold networking events: achieving Riga's ambitious climate-neutrality goals requires continuous public engagement. Networking events, co-creation workshops, forums are just some of the ways to engage with different groups and sectors of society.

C.2.2: Description of social innovation interventions

Intervention name	Description	Institution/person in charge	Leadership and stakeholders involved	Enabling impact	Co-benefits
Council for the implementation of the Memorandum of Cooperation	The goals of the memorandum council are to protect the interests of the public in the	RCC chairman and committee chairs	Nine representatives of the NGOs that signed up to the Memorandum	Potential to involve the NGOs in climate-neutrality targets	Involve

C.2.2: Description of social innovation interventions					
Intervention name	**Description**	**Institution/person in charge**	**Leadership and stakeholders involved**	**Enabling impact**	**Co-benefits**
between RCC and NGO	development and implementation of important current and future plans in the municipality, to promote the effective participation of the public in the work of the municipality, and to participate in the development and implementation of decisions concerning the activities of the entire NGO sector		of Cooperation, elected for two years through a competitive procedure in accordance with the statute		
Creation of shared-use premises closer to the house	Creation of shared-use premises for work and meetings intended for different social groups	Executive Director Office	Municipality employees; local residents; NGO; businesses	Reduced travel across the city, resulting in less pollution and congestion	Improved efficiency and productivity
Community participation budget	Support instrument for implementing local resident initiatives	Executive Director Office	Municipality departments; local residents	Development of projects that reduce climate impact and promote nature-based solutions	Community engagement and improvement of neighbourhoods
Neighbourhood centres	Riga is currently divided into 58 neighbourhoods, each with one or more associations that work on the well-being of local residents and organise	Neighbourhood associations	Local residents; NGO; businesses; municipality	Educate and motivate different social groups in the context of their impact on the climate	Community engagement and education

C.2.2: Description of social innovation interventions					
Intervention name	**Description**	**Institution/person in charge**	**Leadership and stakeholders involved**	**Enabling impact**	**Co-benefits**
	various activities				
Incubators and accelerators	Supports start-ups, often promoting companies with environmentally friendly products or services	CDD	NGO (Vefresh, 'Zaļā brīvība', etc.), businesses	Reduced environmental impact; improved urban environment; development and dissemination of sustainable solutions	Creation of new initiatives, data-driven decisions
Mana balss	Platform for involving local residents in political decisions	NGO 'Sabiedrības līdzdalības Fonds'	Local residents	Could potentially serve as a platform for decision-making associated with climate measures	education and engagement

4.3 Module C-3 Financing the measure portfolio

C-3.1: Summary of interventions with an impact on costs (outlined in the Investment Plan)
The table below summarises the expected investments for each field of action. Planned investments for the identified field of action in the waste management and circular economy sectors, as well as for the CO_2 sequestration and GHG mitigation measures within the forestry sector, will be updated in 2–3 years as part of the revision of the action plan and investment plan. The expected investments for the four fields of action in order to achieve the climate-neutrality targets in RSCM are estimated at a minimum of EUR 2.8 billion, which could change significantly depending on the technical solutions chosen and other circumstances. Inclusion of waste management and climate change adaptation sectors in the next iteration of this plan will increase the costs till at least EUR 3 billion.

C-3.1: Summary of interventions with an impact on costs (outlined in the Investment Plan)					
Measure	**Institution/person in charge**	**Start/end date**	**Field of action**	**Impact**	**Total expected costs**
P1: Continuous improvements in the energy management system	REA, PD	2024–2030	Municipal infrastructure	Energy savings: 15,939 MWh; CO_2 reduction: 2311 tCO_2	350,000 EUR/year; **EUR 2.45 million** by 2030
P2: 100% renewable heating energy share in municipal buildings	REA, PD, FD	2022–2030		RES: 150,006 MWh; CO_2 reduction: 21,751 tCO_2	EUR 5000 (preparation of documentation), EUR 500 000 per year for the replacement of boiler systems; total: **EUR 2.5 million** by 2030
P3: 100% renewable electricity share in municipal buildings	REA	2024–2025		RES: 327,298 MWh; CO_2 reduction: 35,675 tCO_2	EUR 5000 (for the preparation of documentation); **EUR 9.5 million for RES facilities**
P4: Development of a plan for the renovation of municipal buildings until 2030 and consistent renovation of buildings	Executive Director Office	2024–2030		Energy savings: 19,000 MWh; CO_2 reduction: 5016 tCO_2	EUR 45–50,000 (for the development of the plan), EUR 60 million for the renovation of buildings; total: **EUR 60 million** by 2030
P5: Upgrading of street lighting	Executive Director Office, 'Rīgas gaisma' municipal agency	2024–2030		Energy savings: 13,328 MWh; CO_2 reduction: 1788 tCO_2	**EUR 90 million** (of which 200,000 EUR/year for equipping streets without lighting)
P6: Achieve a 100% renewable electricity share for streetlights, traffic lights, and clocks in 2030		2028–2030		RES: 17,445 MWh; CO_2 reduction: 1901 tCO_2	88,000 EUR/year; **EUR 616,000** by 2030
P7: Creation of a data records system for the municipal vehicle fleet and improvements in the efficiency of vehicle use	Executive Director Office, REA	2024–2030		Energy savings: 963 MWh; CO_2 reduction: 253 tCO_2	13,000 EUR/year; **EUR 91,000** by 2030
P8: Promotion of the use of public transport for work among employees of the municipal government		2024–2025		Energy savings: 690 MWh; CO_2 reduction: 181 tCO_2	85,000 EUR/year; **EUR 170,000** by 2030
P9: Transition to zero-emission vehicles in companies, municipal institutions		2025–2030		Energy savings: 823 MWh; RES: 12,000 MWh; CO_2 reduction: 3402 tCO_2	Depending on the chosen solution (assumed to be around **EUR 600,000**)
P10: Energy efficiency and RES use in wastewater treatment plants	LLC 'Rīgas ūdens'	2024–2030	Municipal infrastructure	RES: 24,445 MWh; CO_2 reduction: 2780 tCO_2e	**EUR 39 million**

C-3.1: Summary of interventions with an impact on costs (outlined in the Investment Plan)					
Measure	**Institution/person in charge**	**Start/end date**	**Field of action**	**Impact**	**Total expected costs**
E1: Promotion of zero-emission technologies and RES in district heating	Executive Director Office	2024–2030	Energy production	RES: 768,855 MWh; CO_2 reduction: 121,180 tCO_2	**EUR 75 million**
E2: Achieve the connection of new clients to DHS of Riga	Executive Director Office	2024–2030		Reduced number of individual solutions; reduced air pollution	EUR 300,000 per year; **EUR 2.1 million** by 2030
E3: Increases in the efficiency of heat generation and management, and digitisation of the heating system	Executive Director Office, AS 'Rīgas siltums'	2024–2030		Energy savings: 5000 MWh; CO_2 reduction: 1320 tCO_2	**EUR 8 million**
E4: Gradual transition to the 4th generation heating supply system		2024–2030		Energy savings: 650 MWh; CO_2 reduction: 172 tCO_2	**EUR 240,000**
E5: Implementation of innovative pilot projects		2024–2030		-	**EUR 10.3 million**
E6: Promote electrification, use of RES in decentralised heating, or connection to DHS	Executive Director Office	2024–2028		RES: 364,506 MWh; CO_2 reduction: 86,199 tCO_2	**EUR 134 million**
E7: Promote the use of RES in the generation of electricity for Riga's needs		2024–2030		RES: 1,446,931 MWh; CO_2 reduction: 157,716 tCO_2	**EUR 477 million**
Dz1: Improvement of the availability of information and data about the energy efficiency of multi-apartment residential buildings	Executive Director Office, REA	2024–2030	Multi-apartment residential buildings	Energy savings: 4492 MWh; CO_2 reduction: 1186 tCO_2	EUR 100,000 per year; **EUR 700,000** by 2030
Dz2: Revision of laws and regulations to increase the rate of multi-apartment residential building renovation	Executive Director Office, HEC	2024–2030		Energy savings: 2246 MWh; CO_2 reduction: 593 tCO_2	100,000 EUR/year; **EUR 700,000** by 2030
Dz3: Involvement of local residents in the renovation of multi-apartment residential buildings	Executive Director Office, REA	2024–2030		Energy savings: 133,505 MWh; CO_2 reduction: 19,358 tCO_2	**EUR 318 million**
Dz4: Establishment of the Riga Energy Efficiency Fund (REEF)	Executive Director Office, HEC	2026–2030		Ability to scale up the renovation of buildings	**EUR 29 million**
Dz5: Research and implementation of new standardised solutions for the renovation of buildings, reducing building renovation costs	Executive Director Office, REA	2025–2030		RES: 2500 MWh; CO_2 reduction: 273 tCO_2	200,000 EUR/year; **EUR 1.2 million** by 2030
T1: Urban planning aimed at creating a city where local residents and guests are less dependent on private cars	Transport and Traffic Affairs Committee, CDD	2024–2030	Transport and mobility	Energy savings: 518,000 MWh; CO_2 reduction: 126,840 tCO_2	**EUR 42 million**
T2: Measures to promote distance working and increase the availability of online services	RDA	2024–2026	Transport and mobility	Increased productivity and efficiency; reduced impact on traffic flow	**EUR 840,000**

C-3.1: Summary of interventions with an impact on costs (outlined in the Investment Plan)					
Measure	**Institution/person in charge**	**Start/end date**	**Field of action**	**Impact**	**Total expected costs**
T3: Promotion of an active lifestyle and cycling	Executive Director Office, CDD	2024–2030		Energy savings: 288,400 MWh; CO_2 reduction: 77,000 CO_2	**EUR 420 million**
T4: Increase the share of public transport in everyday passenger trips		2024–2030		Energy savings: 519,960 MWh; CO_2 reduction: 138,880 tCO_2	**EUR 1036 million**
T5: Restrictions on private transport	Transport and Traffic Affairs Committee, Executive Director Office	2024–2027		Energy savings: 280,000 MWh; CO_2 reduction: 72,800 tCO_2	**EUR 112,000**
T6: Other measures to reduce car use		2026–2028		Energy savings: 212,400 MWh; CO_2 reduction: 85,680 tCO_2	**EUR 28 million**
T7: Promotion of electrification in private transport and provision of services	CDD	2024–2030		Energy savings: 101,000 MWh; RES 14,200 MWh; CO_2 reduction: 24,000 tCO_2	**EUR 1.5 million**
T8: Gradual transition to clean technology in vehicles that enable municipal functions	Executive Director Office, HED	2024–2028		RES: 80,000 MWh; CO_2 reduction: 28,200 tCO_2	**EUR 3 million**
T9: Collection of mobility data and monitoring of measures implemented	Executive Director Office, PSMD	2024–2027		Data-driven decisions	**EUR 3 million**

5 Outlook and next steps

Plans for next CCC and CCC Action Plan iteration
RSCM's immediate plans are: • To approve the Action Plan and the Investment Plan. • To sign the Climate City Contract. • To provide an active and capable organisational structure for implementing and supervising the plan. • Prepare visually attractive simplified and abbreviated versions of this plan for different target groups (municipality departments and companies, local residents, businesses, etc.), which each target group can review to understand what their main benefits and collaboration opportunities in achieving Riga's climate-neutrality targets will be. • Start the implementation of the actions identified in the field of action, involving all the social stakeholders identified in conducting priority actions, including monitoring of the activities. RSCM will update this plan in 2–3 years based on GHG emissions data and the results of the monitoring of measures taken and will add more actions if necessary.