NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Investment Plan

2030 Climate Neutrality Investment Plan
of the Wroclaw City

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Glossary of Terms

Acronym	Description
AP	Action Plan
BAU	Business As Usual
CEEB	Central Building Emissions Inventory
CCC	Climate City Contract
IP	Investment Plan
KPI	Key Performance Indicator
MEL	Monitoring Evaluation & Learning
MRV	Monitoring Reporting Verification
WP	Work Package
RFIL	Government Fund for Local Investments
TAT	one of the city's flagship investments in Bus and Tram Route construction to Nowy Dwor district
IPAM	Independent Project Accountability Mechanism
EBI/EBRD	European Investment Bank/ European Bank for Reconstruction and Development
SMES	Small and Medium Enterprises
MPA	Climate change adaptation plan
NEEST	NetZero Emission and Environmentally Sustainable Territories
PPP	Public-Private Partnership
SPVs	Special Purpose Vehicle
SECAP	Sustainable energy and climate action plan
SUMP	Sustainable urban mobility plan
GIS	Geographical information system
ISO	International Organization for Standardization
EMAS	EcoManagement and Audit Scheme
KOBiZE	National Centre for Emissions Management
ESG	E – Environment, S - Social responsibility, G - Corporate governance
PEDs	Positive Energy Districts
RSE	Regional Energy Company
SECAP	Sustainable energy and climate action plan
SUMP	Sustainable urban mobility plan
SEAP	Sustainable Energy Action Plan

1 Part A – Current State of Climate Investment

1.1 Module IP-A1: Existing Climate Action Funding and Financing

A-1.1

Wroclaw is a city with many pro-climate ambitions. It faces challenges, draws inspiration from good practice and is open to the implementation of best practices from even more advanced cities leading the climate transition. Climate budgeting is seen as one of the challenges. For the time being, the municipal finance and revenue services do not collect data on climate budgeting. At the level of the Financial Division, data is collected according to the budget classification - section, chapter and paragraph, as well as the number of the budgetary task. At the request of the authorising officer, tasks may additionally be labelled in order to distinguish e.g. the source of funding, e.g. environmental funding or RFIL (analytics of paragraph or a separate budgetary task). In view of its participation in the prestigious initiative of the Mission of Climate Neutral and Smart Cities by 2030, the city is considering changes in its approach to climate budgeting in this time horizon, including setting requirements for projects to be considered climate measures.

In line with the vision of the Mission of Neutral and Smart Cities by 2030 for private sector involvement in urban investment, the city will consider the circumstances for involving private actors in the implementation of the urban budget in terms of regulatory, political and financial issues. There is currently a solution in Polish legislation in the form of the creation of a public-private partnership, however, according to the RB-Z liability report and the budget implementation report, Wroclaw is not involved in public-private partnership contracts because of, inter alia, the high financial costs of implementing investments in this mode (high risk premium for the private partner) and the risk of such contracts being included in debt.

For the purpose of completing Table 1 in this chapter, the column ‘Budget data’, in the row ‘City budget for climate action and projects EUR’, and Table 2, an analysis of asset expenditures in recent years was used to select those that most closely contribute to the city's development in terms of reducing greenhouse gas emissions, adapting to climate change and building resilience. This approach follows the model of the EU Taxonomy for Sustainable Finance setting out the requirements for projects to be recognised as climate measures. The tables have been completed based on data from Wroclaw Municipality sources, as it does not have detailed financial data from municipal companies or private stakeholders who are not obliged to report their policies and financial data to the city.

The data presented in Table 1, in principle, show an upward trend for pro-climate measures until 2024, which as a result of macroeconomic conditions (interest rates, exchange rate fluctuations, inflation levels, GDP growth), as well as unpredictable geopolitical conditions, related, inter alia, to the ongoing war at the eastern border of the country, presents a lower value for pro-climate measures than in previous years, despite the overall increase in the value of the municipal budget overall.

Consistently, over the last 5 years, the largest financial stream has been focused on expenditure from the transport sector.

It should be stressed that all the information, including financial, presented in the IP may change due to legal, political, financial and social conditions.

For the purposes of the Climate City Contract, EUR 1 = 4.5 PLN was used to convert the values expressed in PLN, with the exception of liabilities incurred in EUR, which are shown in Table 3 (point A-2.1 contains an adequate annotation with the EUR exchange rate).

Table 1: Historical Municipal Budget and Budget for Climate Actions

Budget Data	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	2024 [EUR]
Municipal Budget	*1,207,135,362.89*	*1,335,631,570.89*	*1,456,175,017.78*	*1,550,522,004*	*1,732,197,324.44*
Municipal Budget for Climate Actions & Projects	*65,673,372.33*	*73,827,767.27*	*106,789,451.76*	*110,762,371.24*	*62,156,646.88*
% of Municipal Budget for Climate Actions & Projects (%)	*5.44*	*5.53*	*7.33*	*7.14*	*3.59*

Table 2: Finance Sources By Field of Actions, for years 2022 to 2024

Fields of Action	Sector Subsection	Budget Allocation for Climate Actions and Projects		
		2022 [EUR]	2023 [EUR]	2024 [EUR]
Transportation	*Local public transport*	*23,777,700*	*24,052,950*	*0*
	Bicycle programme	*1,253,300.79*	*974,291.16*	*3,986,384.22*
	Construction of a separate bus- tram route connecting the Nowy Dwor district with the centre of Wroclaw	*13,176,742.71*	*24,485,970.44*	*0*
	Integrated Rail Transport System in the Agglomeration and in Wroclaw - Stage III	*15,461,618.13*	*12,558,362.17*	*0*
	Integrated Rail Transport System in the Agglomeration and in Wroclaw - Stage IV	*9,113,975.80*	*8,331,431.10*	*2,191,399.56*
	Rail infrastructure improvement programme	*15,614,337.95*	*10,228,208.94*	*9,559,954.00*
	The construction of a footbridge over the Sleza River in the course of Trawowa - Francuska Streets.	*920.87*	*934,280.12*	*0*
	Rail infrastructure	*0*	*0*	*0*
	Redevelopment of Bardzka and Buforowa Streets and extension of Kajdasz Street involving the construction of public transport routes to Jagodno district.	*0*	*208,400.15*	*8,111,111.11*
	Pedestrian Movement Programme	*0*	*1,361,772.67*	*3,785,811.78*
Built Environment	*Execution of revitalisation works of selected communal tenements in Komuny*	*157,762.14*	*0*	*0*

	Paryskiej, T. Kosciuszki, I. Prądzyńskiego Streets.			
	Modernisation of the facades of the municipal buildings/ Reconstruction and modernisation of the municipal buildings.	*35,407.83*	*607,449.01*	*0*
	Adaptations and modernisations of properties occupied by educational institutions	*300,930.10*	*122,003.22*	*0*
	Adaptation of commercial premises for public tasks NEW FACILITY - NEW QUALITY	*737,377.78*	*776,777.56*	*844,444.44*
	Preparatory work and associated tasks for infrastructure investments	*0*	*0*	*16,444.44*
	Extension of the air-conditioning system and associated components in the municipal buildings.	*84,265.91*	*92,030.38*	*77,777.78*
Energy Systems	*Municipal heating source replacement programme*	*13,669,699.65*	*10,690,117.94*	*15,582,331.11*
	Reduction of chimney emissions in the housing stock of Wroclaw Municipality through elimination of coal-fired heat sources	*70,073.21*	*0*	*0*
	Reducing chimney emissions in the housing stock of Wroclaw Municipality through elimination of coal-fired heat sources - phase 2	*2,397,168.06*	*1,985,721.50*	*0*
	Reducing chimney emissions in the housing stock of Wroclaw Municipality through elimination of coal-fired heat sources - phase 3	*1,571,704.96*	*675,584.65*	*0*
	Design of back-up power supply system from a power generator in connection with the existing power supply system – network at Municipality's facilities	*10,386.67*	*0*	*0*
	Implementation of RES in municipal facilities	*187,148.12*	*188,320.40*	*222,222.22*
	Construction and reconstruction of street lighting and hazardous areas	*365,111.11*	*127,463.17*	*508,496.22*
	Warm Apartment programme	*0*	*6,666.67*	*1,090,555.56*
	Replacement of the heating in the office building and selected rooms of the exhibition building of the Wroclaw Contemporary Museum with ecological heat radiators	*0*	*12,222.22*	*0*
	Construction of a photovoltaic installation at municipal	*20,508.87*	*0*	*0*

	cemeteries			
Green Infrastructure and Nature Based Solutions	*Programme to modernise the city's drainage system*	*112,953.93*	*0*	*0*
	Stormwater management in the city of Wroclaw - phase I	*778,708.76*	*610,090.16*	*0*
	Maintenance of green areas in cities and municipalities	*3,834,828.54*	*5,691,386.53*	*7,842,714.44*
	Programme of revitalisation of greenery, quays and islands on the Oder River	*1,285,937.08*	*1,846,151.82*	*2,876,666.67*
	Building a management system for urban greenery resources in Wroclaw - e-platform Greenery in Wroclaw - phase I	*451,848.99*	*271,139.16*	*0*
	Air and climate protection	*536,070.62*	*744,465.34*	*1,107,000.00*
	GrowGreen - Green cities for Climate and Water Resilience, Sustainable Economic Growth, Healthy Citizens and Environments - phase II	*534,072.46*	*722,620.55*	*0*
	Support for tasks in the field of environmental protection	*1,998.16*	*7,559.78*	*0*
	Development of land for educational activities in connection with the implementation of the Wooden classroom project	*0*	*22,960.00*	*0*
	Eco-workshop - Green heart of the school	*0*	*16,345.33*	*0*
	Investment expenditure related to the implementation of the Catch the rain programme	*0*	*110,898.39*	*133,333.33*
	Green Revolution	*0*	*1,087,870.55*	*2,337,777.78*
	Implementation of tasks related to maintenance of greenery after completion of the investment	*0*	*8,013.33*	*0*
	Park of the Young Wroclaw Citizen – GROWinWROclaw	*0*	*87,021.06*	*0*
	Supply and installation of drinking water stations in educational establishments in Wroclaw	*0*	*0*	*22,222.22*
	Botanical and zoological gardens and natural protected areas and sites	*0*	*0*	*1,111,111.11*
Waste and Circular	*Waste management and water protection*	*907,458.38*	*745,642.32*	*460,000.00*

Economy	*Connection of residential buildings to the municipal sewage network*	*15,795.69*	*24,653.76*	*288,888.89*
	Municipal waste management	*35,838.42*	*169,299.52*	*0*
	Construction of a Municipal Waste Selective Collection Point at Szwajcarska Street.	*35,838.42*	*169,299.52*	*0*
	Municipal waste management plants	*2,681.67*	*0*	*0*
	Other waste management activities	*124,640.00*	*3,498.67*	*0*
	Integrated system for municipal waste management.	*124,640.00*	*3,498.67*	*0*
Total [EUR]		***106,789,451.77***	***110,762,371.13***	***62,156,646.89***

1.2 Module IP-A2: Strategic Funding and Financing Evaluation

A-2.1
There is a clear picture of the city's public sources of capital, as shown in Table 3: 'List of Income Sources for the City'. The city's debt level for 2023 is EUR 951,579,806.89. The debt increment between 2020 and 2023 is EUR 252,288,380.89. The indebtedness of the city of Wroclaw is the result of the great needs and expectations of the inhabitants regarding the development of the city. Funds from loans and credits have been earmarked, among other things, for the implementation of many investments such as new tram lines, re construction of streets, the construction of modern educational establishments or the renovation of tenement houses. In the years 2020-2023, as well as in future years, the Multiannual Financial Forecast meets the limits for repayment of liabilities in accordance with Article 243 of the Public Finance Law[1]. The financial policy pursued by the city is aimed at ensuring financial stability through appropriate control of the deficit and debt level while maintaining the ability to incur, service and repay debt ensuring the implementation of the investment programme. In the city, a number of interventions at different levels for sustainable development and improvement of quality of life are identified. Diagnosis of these issues as well as goals for the city's strategic development are identified at the level of the city's development strategy as well as urban programmes and policies or policies at regional and national level. It should be emphasised, however, that with often long-term goals it is very difficult to link them directly to specific funding. Both in terms of the necessary budget, which is often variable, and the indication of specific sources

[1] Public Finance Law[1] of August 27, 2009 as amended.

of funding, which can be internal or external. At both local, regional and national levels, in particular, insufficient capital for climate improvement activities is noticeable. This is one of the key barriers to achieving climate goals. It is necessary to develop a model for close cooperation between local and national levels of government, and then to develop a common policy of financial support for pro-climate urban policy. It is in cities that the greatest development potential of the country is concentrated, but also the greater climate challenges. At statutory level, there is also a lack of opportunities to formally create the level of metropolitan areas, which could take over part of the responsibilities and climate finance by creating inter-municipal partnerships. At local level, it will certainly be important to identify a permanent urban climate budget that will strengthen systemic actions and ensure their long-term continuity.

For Table 4: 'List of Capital Sources for the City', In the case of EIB loans taken out in euro, the value was converted at the exchange rate of 28 June 2024, Table No. 125/A/NBP/2024 – EUR 1 = PLN 4.313.

Table 3: List of Income Sources for the City

Income Category	City income [EUR]	% of city budget
Total revenue	***1,607,972,702.67***	***100.0%***
Tax receipts, including:	***184,430,800.00***	***11.5%***
tax on real estate	*145,333,333.33*	*9.0%*
tax on civil law transactions	*30,111,111.11*	*1.9%*
tax on inheritance and donations	*4,000,000.00*	*0.2%*
tax on means of transport	*3,755,555.56*	*0.2%*
tax from tax card	*822,222.22*	*0.1%*
Revenue from fees, including:	***140,680,214.44***	***8.8%***
stamp duty	*7,333,333.33*	*0.5%*
payment for licences to sell alcohol and fees for the use of these permits and the proceeds from part of the fee for permits for the sale of alcoholic beverages at wholesale	*7,255,555.56*	*0.5%*
revenues from parking fees for motor vehicles on public roads	*6,144,444.44*	*0.4%*
traffic charge	*3,455,922.22*	*0.2%*
revenue from catering fees in units with pre-school education tasks and from fees for using pre-school education	*9,686,006.67*	*0.6%*
charges for municipal waste management	*96,797,630.00*	*6.0%*
other charges collected pursuant to separate acts	*7,835,877.78*	*0.5%*
Property income	***110,787,382.89***	***6.9%***
perpetual usufruct	*8,466,666.67*	*0.5%*
transformation of the right of perpetual usufruct into ownership	*2,288,888.89*	*0.1%*
sale of municipal assets	*55,137,844.44*	*3.4%*
rent and lease	*10,644,549.56*	*0.7%*
rental income (including residential and commercial premises)	*33,693,877.78*	*2.1%*
Revenue from services, including:	***90,261,376.00***	***5.6%***
revenue from public transport	*49,880,888.89*	*3.1%*
revenue from utility charges	*17,631,082.22*	*1.1%*
revenue from catering charges	*10,544,913.33*	*0.7%*
revenue from fees for stay in social welfare homes	*2,766,888.89*	*0.2%*
revenue from fees for care services and specialised care services	*1,088,888.89*	*0.1%*
revenue from nursery fees	*4,276,148.22*	*0.3%*
revenue from the Urban Greenery Management	*873,333.33*	*0.1%*

Other revenue, of which:	***52,411,347.11***	***3.3%***
receipts from revenue related to the performance of government tasks	*6,165,964.44*	*0.4%*
revenue from fines and penalties imposed by the Wroclaw City Guard	*1,355,555.56*	*0.1%*
interest	*3,972,702.67*	*0.2%*
miscellaneous revenue	*40,082,828.67*	*2.5%*
payment of surplus of local government budgetary establishments	*834,295.78*	*0.1%*
Share of taxes constituting income of the state budget, of which:	***526,439,175.11***	***32.7%***
share in revenues from income tax from legal persons and organisational units without legal personality (CIT)	*73,641,227.11*	*4.6%*
share of personal income tax revenue (PIT)	*452,797,948.00*	*28.1%*
General subsidy, of which:	***342,858,136.89***	***21.3%***
educational part of the general subsidy	*315,587,010.89*	*19.6%*
balancing part of the general subsidy	*12,658,791.33*	*0.8%*
development part of the general subsidy	*14,612,334.67*	*0.9%*
Target subsidies from the state budget	***78,104,467.33***	***4.9%***
Target subsidies for tasks carried out on the basis of agreements between local government units	***6,264,966.22***	***0.4%***
Funds for own tasks obtained from other sources	***7,041,575.11***	***0.4%***
Grants and funds for financing expenditures related to the implementation of tasks co-financed from European funds	***25,588,307.11***	***1.6%***
Grants and funds from funds	***43,104,954.44***	***2.7%***

Table 4: List of Capital Sources for the City

Type	Size Range	Level	Description
Source of Capital	*Quantum of Capital Accessible to the city through this source*	*Private or Public*	*(Description of capital source e.g. cost & provider)*
EU funding from the Pilot Cities programme under the Horizon 2020 financial mechanism	per Wroclaw city EUR 201,750	Public	NEEST project - Cities as Innovation Hubs - a scientific and research project by a consortium of 5 Polish Mission Cities (Krakow, Lodz, Rzeszow, Warsaw, Wroclaw) and a substantive partner - the National Centre for Research and Development. The aim is to prepare a set of innovative solutions ready for implementation, scaling and replication on the basis of model implementation simulations→ models: technical, environmental, financial, management and public participation. As part of the project, analyses of urban quarters and selected five types of buildings in each city, together with their surroundings, as well as activities involving stakeholders, including business, residents in the process, are caried out.
EC funding under the LIFE programme	per Wroclaw city EUR 1,088,536.44	Public	LIFECOOLCITY project - a project that aims to use remote sensing to manage blue-green urban infrastructure in climate change adaptation. Two information

			systems will be created to help identify the greatest adaptation needs of inhabited urbanised areas, create the blue-green infrastructure management strategy to minimise climate risk and monitor the effectiveness of its implementation.
EU funding + funding from the Regional Operational Programme for the Lower Silesian Voivodship 2014-2020	EUR 2,235,551.11	Public	The funds provided were used to build a network of car parks located near bus stops and interchanges. As part of the project Construction of the 'Park and Ride' system in Wroclaw, stage II, 7 new car parks with 336 parking spaces were built, including 15 for people with disabilities.
EU funds + Municipal budget	EUR 4,111,111.11	Public	Eco-building of the office building at Hubska Street: The EU funds provided (approx. PLN 10 million) and funds from the municipal budget were used to rebuild the office building and turn it into a model "green building". Photovoltaic panels and solar panels were installed. The window frames were replaced with new windows with improved thermal insulation properties and a metal frame was created on one of the buildings, on which so-called 'green walls' flourish. The building is equipped with adjustable blinds to easily control the sunlight. It has been armed with a rainwater collection and reuse system. Charging stations for electric vehicles have also been installed in the car park.
	EUR 432,253.33	Public	Bus and tram route to Nowy Dwor (TAT): an investment involving the construction of a tramway track separated from the general traffic, on which bus and tram public transport runs. The TAT has been integrated into the existing urban fabric with reference to functioning intersections and public transport lines, creating their continuity and enabling faster connections between Nowy Dwor and the city centre by bypassing congested general traffic streets.
	EUR 67,333,333.33	Public	Action "Change the furnace": funds are used to provide subsidies and grants for residents to remove their old solid fuel cooker and install new, environmentally friendly heating. The actions include projects such as KAWKA Plus or Termo KAWKA.
Funding from the National Fund for Environmental Protection and Water	EUR 833,333.33	Public	Eco-studio - the green heart of the school: funds for raising the level of environmental awareness among children and young people,

Management			disseminating knowledge, social activation and shaping attitudes and behaviour on the subject of environmental and nature protection and renewable energy sources.
	EUR 311,111,111.11	Public	Warm Apartment: funds serve as a subsidy to municipalities, which then provide grants to the final beneficiaries, i.e. individuals. The programme aims to improve air quality and reduce particulate matter and greenhouse gas emissions by replacing heat sources and improving energy efficiency in dwellings located in multi-family residential buildings. Support will be provided for projects involving the replacement of inefficient solid fuel heat sources and the improvement of energy efficiency in dwellings located in multi-family residential buildings.
City budget funds	EUR 2,666.66	Public	Blue and green square: funds have been allocated for the installation of a rainwater interceptor. Rainwater drained from the roof via downpipes into the sewer system is partially intercepted and collected in three tanks. The water, with the help of an electric pump, is then transferred directly to the green root zone of the plants, thanks to a drip line that uses less water than traditional sprinklers.
	EUR 133,333.33	Public	Catch Rain 2024: funds allocated for the implementation of projects in the form of new rainwater systems (rain gardens, absorption wells, above-ground market tanks, underground rainwater tanks with installation). The main objective of the project is to use rainwater for watering greenery, resulting in a reduction in tap water consumption, improvement of the microclimate and purification of rainwater and snowmelt, relieving the burden on underground technical infrastructure facilities and reducing the cost of operating the traditional sewerage system and wastewater treatment plant.
	EUR 536,975.46	Public	GROWinWROclaw: funds for the development of a project to honour the arrival of a new family member. Every newborn child in Wroclaw can become a patron of a tree planted as part of the project.
	EUR 22,222.22	Public	Green Culture: funds have been earmarked for pro-ecological projects of Wroclaw's cultural

			institutions. The aim of the Green Culture Programme was to increase biodiversity, local rainwater management and the city's resilience to climate change.
City budget including civic budget	Up to EUR 800,000	Public	Krzycka Promenade - recreation for South Wroclaw: the funds are used to realise the Krzycka Promenade project, which aims to restore the area of the former historical walking route, the so-called Hugo Richter Weg, which runs along the railway embankment in Wroclaw, to the inhabitants of South Wroclaw. Thanks to its revitalisation, an attractive green space will be created for various forms of activity.
Donation	No data available	Public	Project ECO SUPPORT - support from residents, the funds received will be used to initiate and implement information and education events of an ecological nature among the residents of Wroclaw; raise environmental awareness among students, teachers; introduce new greenery planting and rainwater management; unseal concreted pavements and introduce bioretention elements to preserve underground groundwater levels and create demonstrators of blue-green infrastructure e.g. rain gardens, which aim to retain rainwater, thereby improving biodiversity, reducing temperatures locally and counteracting the formation of urban heat islands.
Loan from a foreign bank	Cost of commitment according to contract: EUR 120,000,000.00	Private	European Investment Bank Currency of debt: EUR Date of contract conclusion: 8 December 2005 Maturity date: 15 June 2035 Amount of liability as at 30 June 2024: EUR 60,025,641.11
	Cost of commitment according to contract: EUR 88,888,888.89	Private	European Investment Bank Currency of debt: PLN Date of contract conclusion: 19 November 2014 Maturity date: 15 September 2029 Amount of liability as at 30 June 2024: EUR 58,473,684.20
	Cost of obligation according to contract: EUR 44,444,444.44	Private	European Investment Bank Currency of debt: PLN Date of contract conclusion: 26 September 2018 Maturity date: 15 September 2034 Amount of liability as at 30 June

			2024: EUR 42,323,232.32
	Cost of obligation according to contract: EUR 44,444,444.44	Private	European Investment Bank Currency of debt: PLN Date of contract conclusion: 25 September 2019 Maturity date: 15 August 2035 Amount of liability as at 30 June 2024: EUR 43,434,343.43
	Cost of obligation according to contract: EUR 44,444,444.44	Private	European Investment Bank Currency of debt: PLN Contract date: 8 May 2020 Maturity date: 15 November 2035 Amount of liability as at 30 June 2024: EUR 44,444,444.44
	Contract for the amount of PLN 720,000,000.00, 3 tranches, used in EUR and PLN Tranche I - EUR 27,034,333.60	Private	European Investment Bank Currency of debt: EUR Contract date: 20 October 2022 Maturity date: 17 November 2042 Amount of liability as at 30 June 2024: EUR 27,034,333.60
	Contract for the amount of PLN 720,000,000.00, 3 tranches, used in EUR and PLN Tranche II - EUR 64,047,822.37	Private	European Investment Bank Currency of debt: EUR Contract date: 31 May 2021 Maturity date: 15 November 2041 Amount of liability as at 30 June 2024: EUR 64,047,822.37
	Contract for the amount of PLN 720,000,000.00, 3 tranches, used in EUR and PLN Tranche III - EUR 66,666,666.67	Private	European Investment Bank Currency of debt: PLN Contract date: 31 May 2021 Maturity date: 15 November 2040 Amount of liability as at 30 June 2024: EUR 66,666,666.67
	Agreement for the amount of PLN 600,000,000.00, tranches in EUR and PLN Tranche - EUR 41,471,787.67	Private	European Investment Bank Currency of debt: EUR Contract date: 06 December 2023 Maturity date: 15 August 2046 Amount of liability as at 30 June 2024: EUR 41,471,787.67
Loan from a national bank	Cost of commitment according to contract: EUR 14,560,948.88	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 1 September 2014 Maturity date: 30 November 2028 Amount of liability as at 30 June 2024: EUR 5,096,948.88
	Cost of commitment according to contract: EUR 15,555,555.55	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 1 September 2014

			Maturity date: 30 November 2028 Amount of liability as at 30 June 2024: EUR 6,423,657.55
	Cost of commitment according to contract: EUR 16,666,666.66	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 1 September 2014 Maturity date: 30 November 2028 Amount of liability as at 30 June 2024: EUR 5,833,333.33
	Cost of commitment according to contract: EUR 12,605,320.44	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 13 June 2018 Maturity date: 30 September 2032 Amount of liability as at 30 June 2024: EUR 8,764,444.44
	Cost of obligation according to contract: EUR 8,888,888.88	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 13 June 2018 Maturity date: 30 September 2032 Amount of liability as at 30 June 2024: EUR 6,308,888.88
	Cost of obligation according to contract: EUR 14,444,444.44	Private	PKO Bank Polski S.A. Currency of debt: PLN Date of contract conclusion: 6 October 2014 Maturity date: 30 November 2025 Amount of liability as at 30 June 2024: EUR 582,333.33
	Cost of obligation according to contract: EUR 14,444,444.44	Private	PKO Bank Polski S.A. Currency of debt: PLN Date of agreement: 20 December 2017 Maturity date: 30 November 2031 Amount of liability as at 30 June 2024: EUR 12,036,666.66
	Cost of obligation according to contract: EUR 16,666,666.66	Private	PKO Bank Polski S.A. Currency of debt: PLN Date of contract conclusion: 2 July 2018 Maturity date: 30 September 2032 Amount of liability as at 30 June 2024: EUR 15,753,333.33
	Cost of obligation according to contract: EUR 12,463,977.77	Private	PKO Bank Polski S.A. Currency of debt: PLN Contract date: 6 November 2019 Maturity date: 30 November 2033 Amount of liability as at 30 June 2024: EUR 4,605,615.56

	Cost of obligation according to contract: EUR 20,000,000	Private	Bank Pekao S.A. Currency of debt: PLN Date of contract conclusion: 30 October 2014 Maturity date: 30 November 2028 Amount of liability as at 30 June 2024: EUR 4,935,979.11
	Cost of obligation according to contract: EUR 18,888,888.89	Private	PKO Bank Polski S.A., Bank Pekao S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 2 September 2015 Maturity date: 30 November 2025 Amount of liability as at 30 June 2024: EUR 4,722,228.88
	Cost of obligation according to contract: EUR 29,955,204	Private	PKO Bank Polski S.A., Bank Pekao S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 2 September 2015 Maturity date: 30 October 2025 Amount of liability as at 30 June 2024: EUR 9,985,067.11
	Cost of obligation according to contract: EUR 17,777,777.77	Private	PKO Bank Polski S.A., Bank Pekao S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 2 September 2015 Maturity date: 30 October 2025 Amount of liability as at 30 June 2024: EUR 5,925,937.77
	Cost of obligation according to contract: EUR 10,000,000.00	,Private	PKO Bank Polski S.A., Bank Pekao S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 2 September 2015 Maturity date: 30 November 2025 Amount of liability as at 30 June 2024: EUR 1,666,666.66
	Cost of obligation according to contract: EUR 44,444,444.44	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 3 August 2023 Maturity date: 31 October 2041 Amount of liability as at 30 June 2024: EUR 13,333,333.33
	Cost of obligation according to contract: EUR 26,666,666.66	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN

			Contract date: 3 August 2023 Maturity date: 31 October 2041 Amount of liability as at 30 June 2024: EUR 13,333,333.33
	Cost of obligation according to contract: EUR 222,222.22	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 3 August 2023 Maturity date: 31 October 2041 Amount of liability as at 30 June 2024: EUR 22,222,222.22
	Cost of obligation according to contract: EUR 17,777,777.77	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 3 August 2023 Maturity date: 31 October 2041 Amount of liability as at 30 June 2024: EUR 17,777,777.77
	Cost of obligation according to contract: EUR 9,777,777.77	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 15 December 2020 Maturity date: 30 November 2029 Amount of liability as at 30 June 2024: EUR 5,975,297.77
	Cost of obligation according to contract: EUR 10,222,222.22	Private	PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 15 December 2020 Maturity date: 30 November 2029 Amount of liability as at 30 June 2024: EUR 6,246,900
	Cost of obligation according to contract: EUR 11,111,111.11	Private	Bank Polskiej Spółdzielczości Currency of debt: PLN Date of contract conclusion: 26 September 2016 Maturity date: 30 October 2026 Amount of liability as at 30 June 2024: EUR 4,629,630.66
	Cost of obligation according to contract: EUR 15,555,555.56	Private	Bank Polskiej Spółdzielczości Currency of debt: PLN Date of contract conclusion: 26 September 2016 Maturity date: 30 October 2025 Amount of liability as at 30 June 2024: EUR 1,666,666.66
	Cost of obligation according to contract: EUR 16,893,752.44	Private	Bank Polskiej Spółdzielczości Currency of debt: PLN Date of contract conclusion: 26 September 2016 Maturity date: 30 October 2026

			Amount of liability as at 30 June 2024: EUR 7,039,065.33
	Cost of obligation according to contract: EUR 15,555,555.56	Private	Bank Polskiej Spółdzielczości Currency of debt: PLN Date of agreement: 28 November 2017 Maturity date: 30 November 2031 Amount of liability as at 30 June 2024: EUR 12,960,000
	Cost of obligation according to contract: EUR 15,555,555.56	Private	Bank Polskiej Spółdzielczości S.A. and 4 Branches of the Bank Currency of debt: PLN Contract date: 16 November 2021 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 15,555,555.56
	Cost of obligation according to contract: EUR 14,444,444.44	Private	Bank Polskiej Spółdzielczości, Bank Gospodarstwa Krajowego Currency of debt: PLN Date of contract conclusion: 17 December 2019 Maturity date: 30 November 2033 Amount of liability as at 30 June 2024: EUR 9,629,629.78
	Cost of obligation according to contract: EUR 11,111,111.11	Private	ING Bank Śląski S.A. Currency of debt: PLN Date of contract conclusion: 10 July 2018 Maturity date: 30 September 2032 Amount of liability as at 30 June 2024: EUR 10,502,222.22
	Cost of obligation according to contract: EUR 13,333,333.33	Private	ING Bank Śląski S.A. Currency of debt: PLN Date of contract conclusion: 10 July 2018 Maturity date: 30 September 2032 Amount of liability as at 30 June 2024: EUR 12,617,777.77
	Cost of obligation according to contract: EUR 22,222,222.22	Private	ING Bank Śląski S.A. Currency of debt: PLN Contract date: 05 November 2021 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 22,222,222.22
	Cost of obligation according to contract: EUR 13,333,333.33	Private	ING Bank Śląski S.A., PKO Bank Polski S.A. Currency of debt: PLN Contract date: 26 October 2020 Maturity date: 30 November 2034 Amount of liability as at 30 June 2024: EUR 8,888,888
	Cost of obligation according	Private	ING Bank Śląski S.A., PKO Bank

	to contract: EUR 16,133,986.88		Polski S.A. Currency of debt: PLN Contract date: 26 October 2020 Maturity date: 30 November 2034 Amount of liability as at 30 June 2024: EUR 10,755,986.66
	Cost of obligation according to contract: EUR 22,222,222.22	Private	ING Bank Śląski S.A., PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 12 December 2022 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 18,888,888.89
	Cost of obligation according to contract: EUR 28,888,888.88	Private	ING Bank Śląski S.A., PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 12 December 2022 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 1,111,111.11
	Cost of obligation according to contract: EUR 26,666,666.66	Private	ING Bank Śląski S.A., PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 12 December 2022 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 4,444,444.44
	Cost of obligation according to contract: EUR 33,333,333.33	Private	ING Bank Śląski S.A., PKO Bank Polski S.A., Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 12 December 2022 Maturity date: 31 October 2036 Amount of liability as at 30 June 2024: EUR 1,111,111.11
Bonds from a national bank	Cost of obligation according to contract: EUR 16,000,000	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Date of agreement: 21 December 2015 Maturity date: 29 December 2025 Amount of liability as at 30 June 2024: EUR 5,333,333.33
Loan from a national bank	Cost of obligation according to contract: EUR 34,666,666.66	Private	Bank Gospodarstwa Krajowego Currency of debt: PLN Contract date: 13 November 2023 Maturity date: 31 October 2038 Amount of liability as at 30 June 2024: EUR 34,666,666.66
	Cost of obligation according	Private	Bank Gospodarstwa Krajowego

	to contract: EUR 20,888,888.88		Currency of debt: PLN Contract date: 13 November 2023 Maturity date: 31 October 2038 Amount of liability as at 30 June 2024: EUR 20,888,888.88
Total	**EUR 1,676,675,978.02**	-	-

1.3 Module IP-A3: Barriers to Climate Investment

A-3.1

There are distinguished the following categories of barriers to capital allocation for climate action:

I. Structural
II. Political
III. Financial
IV. Economic.

The identified barriers are included in Table 5 together with a proposal for possible solutions. The financial barriers listed in the table represent a considerable obstacle to the implementation of climate neutrality measures. However, they are not a permanent obstacle, as with the right measures we are able to reduce their extent, or eliminate them altogether. Stakeholders are an important element here, as it is largely up to them to determine how quickly a barrier will be reduced. It is therefore a joint effort between different sectors to achieve the best possible results when implementing solutions and measures to improve the environment and achieve climate neutrality.

One of the rather problematic financial barrier is insufficient local funding. The municipality's inability to raise capital can be a major impediment to planning and running projects that require own contributions. It is therefore important for the municipality to have a good relationship with local entrepreneurs, as they can support the budget of projects through donations. Another stakeholder support to solve the local funding problem is to initiate cooperation between the municipality and the entrepreneurs on a win-win basis in the form of sponsorship, e.g. the project receives the required funding in exchange for promoting a given company's green initiative on municipal channels.

Another example of reducing the scope of a barrier, where stakeholder support is important, is the problem of few PPPs for climate-neutral investments. The main problem here is the lack of knowledge and awareness of climate neutrality. As this is a rather unpopular issue, many companies have a problem with taking the appropriate measures and this can cause delays in the progress of a project or during its implementation. Overcoming this barrier is not difficult, however, it requires stakeholders to be aware of the steps involved. On the part of stakeholders, careful project documentation is therefore required, which will make it much easier to select and compliment the relevant expert teams and thus speed up project implementation. It is also important to enter into long-term contracts in the PPP model to avoid unnecessary legal and business complications.

Stakeholders can also provide support in terms of reluctance to access EIB/EBRD loans, which is mainly due to lack of knowledge and awareness of the Independent Project Accountability Mechanism (IPAM), which is a common cause of confusion and can cause many problems. It is therefore important to foster a dialogue between the municipality, local businesses and the bank, enabling the resolution of environmental, social or public information issues in order to reduce the barrier. Involvement on the part of stakeholders in the form of providing training on the IPAM will avoid confusion in the later stages of project development and will allow companies to create qualified staff to analyse and assess problems and document everything appropriately. The

participation of the banking sector is also important, in order to reduce the problem of the existing barrier. Banks should clearly declare their policy on how to deal with the project so that everything is clear to the stakeholders and so that there are no discrepancies between the parties and thus violations of the agreed provisions. The use of IPAM is important insofar as it allows for an independent assessment of project problems and estimations of potential damage caused by errors occurring in the plan.

Access to finance, and more specifically the insufficient level of company support for projects financed by non-refundable EU funds, may be a rather big problem. The SMEs sector is most affected by this barrier, so changes on their part will help to reduce it the most. The main problem arises at national level, where it is difficult to obtain adequate resources and support for funding. In order to increase their chances of obtaining funding, SMEs need to start introducing products that will serve as low-risk assets and can be used as collateral in the event of project failure. Given that projects financed by European funds require compliance with various regulations, including European, national or legal provisions, and that breach of any of these rules leads to the funds used being considered ineligible, it is therefore up to the stakeholders to reduce the risk and to organise the control systems in such a way that all the required procedures are followed. In this way, it will help to limit the further development of this barrier.

Table 5: Barriers to Climate Investment

Financial Barriers to achieving Climate Neutrality	Typology of Barriers	Description	Sector and stakeholders involved	Paths to solving the barrier
Limited implementation capacity of local public administration	Financial	Limited resources in the organisation (BAU implementation)	Public administration - municipal authorities	– Setting aside a special section in the municipal budget for the climate budget to implement all kinds of pro-climate projects – Amendment to the regulations on the co-financing of projects completed in the year of the call for proposals – Introducing a priority in the classification of climate change projects, e.g. priority for the implementation of those activities that serve to educate and implement projects to mitigate and adapt to climate change.
	Structural	Lack of allocated substantive resources in finance sections to assess the nature of investments; regulatory constraints	Public administration - municipal authorities	– Employing qualified staff to prepare specific investments; taking care to include all acts and regulations – Creation of a database with substantive resources in the financial sections to facilitate interpretation and evaluation of the nature of investments.
Insufficient local funding	Financial	Lack of capacity of the municipality to raise capital	Municipal authorities, local businesses	– Carrying out a diagnosis of problems on the basis of which an appropriate action model can be developed – Donations from individuals or companies – Sponsorship - initiating a partnership with a company on a mutually beneficial basis.

Prohibitive investment costs	Financial	High project implementation costs, e.g. expensive building materials or professional services	Municipal authorities, local businesses, beneficiaries	– Analysis of the current market situation; checking of current market prices, which may involve a change of project contractor or material supply company – Comparison of prices in Poland and abroad - sometimes it is more profitable to import materials from abroad, because it is cheaper.
Few PPPs for climate-neutral investments	Economical	Lack of knowledge and awareness of climate neutrality measures	Municipal authorities, local businesses, beneficiaries	– Creating careful project documentation - so that the team of experts on both sides of the project can be completed – Concluding long-term contracts concluded in the PPP model in response to changes in the legal and business environment – Securing the needs of local communities and developing a savings scheme – Realisation of separate energy units inside the urban space, covering residential areas, office spaces and public buildings; moreover, municipal waste can be used in the energy transformation process, which would be beneficial not only for environmental but also for financial reasons.
Limited cooperation with the banking sector on financing	Financial	High risk of investment failure - funds will not pay off	Municipal authorities, local businesses	– Risk analysis - strong sector segment orientation to minimise the level of risk of financial exposure – Prepared a simple and clear basic product offer with the possibility to use more sophisticated solutions and a variety of access channels, with particular emphasis on the branch network, to encourage cooperation between both parties.
Weak monitoring and evaluation of local strategies	Structural	Interdepartmental organisation - lack of adequate communication at all levels of collaborating departments, disorganisation between departments	Municipal authorities, local businesses	– It is important to adopt the principle of self-monitoring and self-evaluation where objectives are set and results are to be achieved, in order to check figures and information on the achievement of strategic objectives – A good practice for planning monitoring and evaluation, which can foster its regular use, is to describe the methods for collecting and analysing and evaluating data in relation to the issues under investigation in the form of a table. Such a tabular summary is very transparent and facilitates the analysis of the adequacy and

				feasibility of the proposed methodology. It also helps in tracking the progress of the study.
Reluctance to access EIB/EBRD loans	Economical	Lack of knowledge and awareness of IPAM, which can cause problems and confusion among stakeholders EBRD Independent Project Accountability Mechanism	Municipal authority, local companies, bank	– It is advisable to carry out an independent assessment of problems associated with the Project that are believed to have caused (or are likely to cause) harm. This will minimise the chance of non-compliance and conflict between stakeholders – Foster dialogue between Project stakeholders to address environmental, social or public information issues – Determine whether the Bank has complied with its Environmental and Social Policy or the provisions of its Access to Information Policy relating to the project in question and, where appropriate, eliminate any non-compliance with the provisions of these policies and prevent the Bank from continuing to breach these provisions.
Lack of coordination with other levels of government and weak multi-level governance	Political	Lack of a coherent vision for the conduct of climate policy between the government and local government levels, which means that resource streams are not directed towards mitigation activities	Public administration - municipal authorities	– Expand cooperation based on agreements in the form of territorial contracts - improve top-down and bottom-up communication of objectives and priorities, agreement on development and investment priorities, coordinated actions, especially in areas where interests overlap (e.g. mitigation actions for environmental improvement) – To further develop the contracts, several key elements need to be considered, such as: • Identification of regional development objectives and priorities supported by the contract through a careful assessment of needs and opportunities in voivodships and municipalities • Balance the current dominant top-down approach with a stronger bottom-up component through dialogue with the stakeholders of the contracts. National, regional and local stakeholders, the private sector and civil society organisations should be involved in the consultation, and the dialogue should be about

				setting priorities and actions based on an assessment of local and thus regional development needs. • Encourage national and/or regional partnerships with municipal associations to support supra-municipal investments. This could particularly help peripheral municipalities that do not have the capacity to enter into such agreements themselves – Increasing the importance of consultation processes at national and regional level.
Difficulties for the private sector to access (EU) funding	Political	Access to finance - the existence of information asymmetries between providers of finance and applicants for finance	Small and medium-sized enterprise sector	– Regulatory changes need to be made to maintain the right balance between prudential regulation and SME financing, and between investor protection and tailor-made measures for SMEs – Easier access to information at local and regional level. Improved access for SMEs to various national and regional funding sources, including assessing the possibility of creating a single national online database of funding sources based on good practice. – Collection of accurate statistics on loans to SMEs.
Insufficient % support from companies for projects financed by non-refundable EU funds	Political	Access to finance	Small and medium-sized enterprise sector	– In view of the fact that the implementation of projects financed by European funds requires compliance with European, national and legal regulations, the breach of which results in the funds used being considered ineligible, in whole or in part, in order to reduce the risk of invalidation of expenditure incurred under European funds, SME management must organise their internal control systems in such a way that these procedures are complied with. – Reform of the public procurement sector, from the legal and institutional perspective and taking into account appropriate procedures (standardisation of documentation, reduction of the number of documents required from contractors) – Introducing commodities that will serve as assets that can be used as collateral. This will change the perception of SMEs

				as high-risk borrowers.

2 Part B – Investment Pathways towards Climate Neutrality by 2030

2.1 Module IP-B1: Cost Scenarios for Climate Neutrality

B-1.1
The city has not yet carried out a valuation of the measures and scale of the financial resources required to achieve climate neutrality. As part of the work on the CCC, an attempt has been made to estimate these. However, it is important to be aware of the limitations of this and the uncertainty of the results. Therefore, these figures will be detailed in subsequent iterations of the Investment Plan. Table 6 below shows the estimated costs required to achieve the assumed climate neutrality target for the tasks proposed in the Action Plan. The valuation process has been carried out using the knowledge of internal stakeholders of the Municipality of Wroclaw, data from an economic model that was built for Wroclaw with the support of experts from the NetZeroCities consortium, as well as publicly available information from online sources. As a result of the appraisal, the highest priority and most capital-intensive measures have been included in Table 7.

Table 6: Sectorial Costing

Fields of Action	Action / Indicator	Direct interventions	Implementation Costs/Capex	Operational Costs	Direct impacts (Emission reductions)*	Cost Effectiveness (EUR/tCO2e)	Indirect impacts (co-benefits)*
Energy Systems	**E.1** - Change in electricity and district heating generation using low and zero carbon technologies	Continuation and acceleration of the connection of buildings to the district heating network as part of the "Clean Energy for Wroclaw" programme. Modernisation of a combined heat and power plant in Wroclaw using heat pumps, cogeneration and gas boilers, heat storage and P2H. Modernisation of the Zawidawie combined heat and power plant with heat pumps, cogeneration and gas boilers, heat store and P2H. Supplying the Wroclaw district heating system from renewable energy sources using P2H technology. Utilisation of waste heat from wastewater at the Wroclaw Sewage Treatment Plant Janowek. Use of waste heat from other dispersed sources for their own use or for the district heating	*620,222,222.22 EUR*	*93,033,333.33 EUR*	*750,000*	*951*	- Reduction of CO_2e emissions - Improving air quality - Strengthening the city's energy security - Reducing energy poverty - Increase in residents' pro-climate awareness.

		system. Improving the efficiency of the existing network (modernisation of the network, thermal nodes). Development of a district heating system in the city to cover the demand of new development. Supporting district heating with heat pumps on buildings powered by photovoltaic panels - in municipal as well as private and cooperative buildings.					
	E.2 - Local electricity generation from renewable energy sources	Continuation of the Small-scale RES programme for public facilities. Continuation of the tax exemption programme for renewable energy installations. Creation of an energy cluster (universities - city of Wroclaw) Renewable energy installations on public buildings including, in particular, educational establishments. Realising the potential of RES development on private facilities. Construction of a photovoltaic farm for Municipal Transport	*EUR 482,888,888.88*	*EUR 96,577,777.78*	*460,000*	*1,259.71*	

		Company with an area of at least 20 ha.					
	E.3 - Modernisation of public lighting to make it more energy-efficient	Introduction of requirements in public procurement. Successive replacement of lighting in public assets. Successive replacement of lighting in third-party resources. Use of hybrid luminaires with LED technology, use of intelligent lighting.	*EUR 7,111,111.11*	*EUR 142,222.22*	*7,153*	*1,014.03*	
	E.4 - Active educational, organisational, promotional and planning measures for decarbonisation of electricity and heat production	Conducting information and promotional activities for residents and investors. Cooperation with the Institute for Territorial Development on the implementation of the energy strategy for Lower Silesia. Cooperation with the Voivodship Funds for Environmental Protection and Water Management on the unit's action strategy and educational programmes. Cooperation with universities on innovative energy and district heating solutions and energy education. Supporting RES development and cooperation projects in the Wroclaw Functional Area.	*EUR 666,666.67*	*Not applicable*	*Not applicable*	*Not applicable*	

		Spatial planning and strategic friendly climate neutrality. Establishment of an agency dedicated to working with existing and attracting new investors in the green energy industry, and under certain conditions being an investor or acting as an energy company.					
Built Environment	**B.1** - Energy efficient buildings	Utilisation by residents of municipal support programmes for thermal modernisation - subsidies under the KAWKA+ programme. Continued replacement of heat sources until 2028 (as required by the Anti-smog resolution for the Lower Silesian Voivodship). Use of national funds under grants from the programmes: Clean Air, Warm Apartment, Stop Smog.	*EUR 5,480,888,888.89*	*EUR 2,192,355,555.55*	*451,000*	*17,013.85*	- Development and creation of new jobs in the services sector related to the thermo-modernisation process (construction, installation work, sale of materials, consultancy) - Reducing energy consumption and

		Utilisation of funds under loans from bank[2] (TERMO programme). Development of a transformation model for quarters of different types of development as part of the NEEST pilot programme. Monitoring of energy consumption in facilities. Reactive power compensation in public facilities. Cooperation with the development sector. Implementation of the EPBD at national level. Implementation of the 'Tenement returns' programme - preparation of documentation and modernisation of tenement houses in the municipal stock of 22 tenements (target for 100).					operating costs of buildings. - Increase in property value -Improving air quality - Energy poverty reduction - Improving the quality of life and health of residents

[2] Bank Gospodarstwa Krajowego

		Comprehensive energy modernisation of residential buildings in the municipal housing stock of Wroclaw Municipality in the period 2025-2030. Energy-efficient existing commercial buildings (office, retail, industrial). Modernisation of educational establishments (schools, kindergartens) and cultural, social welfare and administrative facilities. High energy efficiency standards in municipal investments (schools, kindergartens, public buildings). Development of energy standards for buildings. New buildings meeting EPBD parameters close to NZEB. Construction and development of energy autonomous areas in the city – PEDs based on prosumer activities on the basis of the organisational, technical and financial models developed in the NEEST pilot project.					
	B.2 - Energy consultancy, education, information and promotion activities	Cooperation with private building managers within housing communities. Cooperation with housing	*EUR 2,666,666.67*	*Not applicable*	*Not applicable*	*Not applicable*	

	for residents and businesses	cooperatives. Conducting actions and information campaigns to promote energy efficiency in households as well as passive and plus-energy construction. Public participation (consultation, public actions) of prefabricated elements for buildings insulation including mechanical ventilation with heat recovery. Promoting comprehensive One Stop Shop (OSS) building retrofit services to accelerate and facilitate the retrofit process.					
Transportation	**T.1** - Extension of the public transport network with associated infrastructure and reduction of car traffic in the city	Continued development of Park&Ride system at transport interchanges. Successive expansion of the paid parking zone. Continued designation of residential zones. Tariff integration - common agglomeration ticket for public transport in Wroclaw. Carpooling and other forms of shared travel. Implementation of investments from the Wroclaw Tram and Bus Programme for the years	*EUR 668,888,888.89*	*EUR 10,033,333.33*	*324,800*	*2,090.28*	- Saving time in traffic jams - Increase in value of property with access to public transport - Improved air quality due to less car traffic - Noise reduction - Improving road safety - Improved quality of health through

		2024 - 2032 (including tram lines to Swojczyce district, Jagodno district, Borowska Hospital, Maslice, Klecina, Nowe Zerniki, Oltaszyn - Wysoka, Gadow Południowy, Muchobor Wielki, Ksieze Wielkie, Gajowice, Borowska Centrum, Psie Pole district, Sucha Street). Construction of new railway stops. Increase in traffic - launch of new agglomeration connections. Construction of a tram depot in connection with the development of the network. Construction of a bus depot. Seeking to establish a clean transport zone.					the use of healthy forms of exercise - Improving social equality - reducing transport exclusion - Renewal of public space - different use of road lanes and squares due to less car traffic - Competence development in local government and among cooperating stakeholders - Support for private sector involvement.
	T.2 - Implementation of the Plan for Cycling Actions until 2030 for Wroclaw	5,000 new bicycle parking spaces including Bike&Ride and the possibility to park the bicycle at all institutions, educational facilities and at all companies applying for a rack). Continuation and development of Wroclaw City Bicycle. Construction or modernisation of 4 main or alternative routes. 16 new connections of the estates to the cycle route network.	*EUR 28,888,888.89*	*EUR 1,444,444.44*	*18,100*	*1,675.87*	

		Modernisation of 25 km of existing cycle routes. Construction of 6 new connections to neighbouring municipalities: Miekinia, Katy Wroclawskie, Kobierzyce, Siechnice, Dlugoleka.					
	T.3 - Implementation of a pedestrian programme (in accordance with the Wroclaw Pedestrian - Friendly Urban Design Standards	Improving safety at pedestrian crossings. Pavement repairs. Construction of new accesses and crossings.	*EUR 2,666,666.67*	*EUR 26,666.67*	*1,000*	*2,693.34*	
	T.4 - Measures for the dissemination of electric cars in individual, collective and freight transport	Implementation of charging infrastructure (charging stations - electric, hydrogen) Subsidies for the purchase of electric cars under national programmes. Facilities for electric car users. Creation of a micro-hub for deliveries within the city centre. Purchase of new trams (at least 86 vehicles). Successive replacement of the bus fleet with low-emission and progressively zero-emission vehicles (electric buses, hydrogen buses) (at least 96 electric buses and 200 low-	*EUR 1,435,333,333.33*	*EUR 22,965,333.33*	*192,200*	*7,587.40*	

		emission buses meeting Euro 6 and higher standards). Infrastructure development - charging stations (public and commercial).					
	T.5 - Education, promotion and information measures in transport	Activities promoting cycling for various user groups (schools, students, entrepreneurs). Walking in Wroclaw - educational and promotional activities. Education on electromobility.	*EUR 400,000.00*	*Not applicable*	*Not applicable*	*Not applicable*	
Green Infrastructure & Nature Based Solutions	**G.1** – Implementation of the Green Revolution programme	Programme implementation: Green Lungs of Wroclaw. A park on every estate 3-30-300. The Strategy for Managing Stormwater and Meltwater in Wroclaw Afforestation of the city. Green roofs and facades. Revitalisation of courtyard interiors. Protection of nature and areas of biodiversity value. Rehabilitation and enhancement of existing parks and other green spaces. Creation of new parks and	*EUR 200,000,000.00*	*Not applicable*	*Not applicable*	*Not applicable*	- Creation of high quality greenery - Increase in property value through parks and urban gardens close to home - Improving air quality - Better physical conditions and mental health of residents - Improving water quality - Ecosystem services provided by nature-based solutions

		other green spaces. Implementation of pocket parks. Greening the streets. Greening of block interiors. Unsealing of concreted surfaces. Rainwater retention and prevention of flooding. Urban farms. Adoption of an ambitious greening plan. Elimination of rain and drought hot spots. Improvement of the functioning of water reservoirs (Pilczycki Pond). Creation of ecological areas and establishment of nature and landscape complexes by the City Council. Creation of a nature reserve in the Irrigation Fields Protection of the ecosystem of the Sleza River. LifeCoolCity project from the LIFE programme.					- Microclimate improvement - Reducing the temperature and increasing the humidity -Saving on water consumption - Supporting the growth of biodiversity - Inclusion of Climate Change Adaptation Mission activities in the CCC
	G.2 - Education, information, organisational	Continuation of activities in the framework of “I like the Rain”, “Catch the Rain” programmes,	*EUR 1,333,333.33*	*Not applicable*	*Not applicable*	*Not applicable*	

	climate action	"Wroclaw Doesn't Waste", bookcrossing.					
Waste and Circular Economy	**W.1** - Climate neutrality and energy security of water, wastewater and waste management	Research and development to optimise water treatment and wastewater treatment processes. Application of intelligent solutions in terms of hardware, software and management of the city's water and wastewater management. Improvement of the efficiency of the selective collection of all waste fractions. Purchase of zero- or low-emission vehicles. R&D projects for the construction of facilities for the mechanical and/or biological treatment of municipal waste with energy recovery. Educational activities in the field of circular economy "Wroclaw Doesn't Waste". Optimisation of the ventilation system for activated sludge at the Wroclaw Wastewater Treatment Plant. Programme to improve energy efficiency in the city's water and wastewater management.	*EUR 88,888,888.89*	*EUR 33,777,777.78*	*29,690*	*4,131.58*	- Reduction of consumption-based emissions - Strengthening the city's energy security - Improving water quality.

		Increasing the share of renewable energy in the Municipal Water and Sewage Company's energy balance through the construction of PV plants and heat pumps. Construction of facilities for receiving organic waste, e.g. from catering facilities, and preparing it for the co-digestion process. Implementation of an intelligent waste collection and transport management system. Use of innovative technologies for recycling and recovery of individual waste material fractions.					
Total			***EUR 9,020,844,444.44***	***EUR 2,450,356,444.43***	***2,233,943***	***38,417.06***	***-***
Cross Cutting Costs	-				These can include any supporting activity needed across different sectors, such as citizen engagement, communication with relevant stakeholders, governance and planning exercises, capacity building, the setting-up of SPVs for project management, etc.		

**Referring to the Action Plan*

Table 7: Capital Intensive Projects

<table>
<tr><th>Fields of Action</th><th>Action / Indicator</th><th></th><th></th><th></th><th></th></tr>
<tr><td rowspan="4">Energy Systems</td><td rowspan="2">E.1 - Change of electricity and district heat generation using low and zero carbon technologies</td><th>Capex</th><th>Opex</th><th>Cost Effectiveness (EUR/tCO₂e)</th><th>Investment (Split by Stakeholders)</th></tr>
<tr><td>EUR 620,222,222.22</td><td>EUR 93,033,333.33</td><td>951</td><td>Sources of funds:
- city budget (public funds)
- State budget (public funds)
- budgets of municipal companies - public funds
- private funds
- European funds

The proportions of involvement are unknown.</td></tr>
<tr><td colspan="4">Project Description :
Continuation and acceleration of the connection of buildings to the district heating network as part of the "Clean Energy for Wroclaw" programme
Modernisation of a combined heat and power plant in Wroclaw using heat pumps, cogeneration and gas boilers, heat storage and P2H
Modernisation of the Zawidawie combined heat and power plant with heat pumps, cogeneration and gas boilers, heat store and P2H
Supplying the Wroclaw district heating system from renewable energy sources using P2H technology
Utilisation of waste heat from wastewater at the Wroclaw Sewage Treatment Plant Janowek
Use of waste heat from other dispersed sources for their own use or for the district heating system
Improving the efficiency of the existing network (modernisation of the network, thermal nodes)
Development of a district heating system in the city to cover the demand of new development
Supporting district heating with heat pumps on buildings powered by photovoltaic panels - in municipal as well as private and cooperative buildings.</td></tr>
<tr><td rowspan="2">E.2 - Local electricity generation from renewable energy sources</td><th>Capex</th><th>Opex</th><th>Cost Effectiveness (EUR/tCO₂e)</th><th>Investment (Split by Stakeholders)</th></tr>
<tr><td>EUR 482,888,888.88</td><td>EUR 96,577,777.78</td><td>1,259.71</td><td>Sources of funds:
- city budget (public funds)
- State budget (public funds)
- budgets of municipal companies - public funds
- private funds
- European funds</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>The proportions of involvement are unknown.</td></tr>
<tr><td></td><td></td><td colspan="4">Project description :
Continuation of the Small-scale RES programme for public facilities
Continuation of the tax exemption programme for renewable energy installations
Creation of an energy cluster (universities - city of Wroclaw
Renewable energy installations on public buildings including, in particular, educational establishments
Realising the potential of RES development on private facilities
Construction of a photovoltaic farm for the Municipal Transport Company with an area of at least 20 ha.</td></tr>
<tr><td rowspan="3">Built Environment</td><td rowspan="3">B.1 - Energy efficient buildings</td><td>Capex</td><td>Opex</td><td>Cost Effectiveness (EUR/tCO₂e)</td><td>Investment (Split by Stakeholders)</td></tr>
<tr><td>EUR 5,480,888,888.89</td><td>EUR 2,192,355,555.55</td><td>17,013.85</td><td>Sources of funds :
- city budget (public funds)
- State budget (public funds)
- private funds
- European funds

The proportions of involvement are not known.</td></tr>
<tr><td colspan="4">Project description :
Utilisation by residents of municipal support programmes for thermal modernisation - subsidies under the KAWKA+ programme
Continued replacement of heat sources until 2028 (as required by the Anti-smog resolution for the Lower Silesian Voivodship)
Use of national funds under grants from the programmes: Clean Air, Warm Apartment, Stop Smog
Utilisation of funds under loans from Bank Gospodarstwa Krajowego (TERMO Programme)
Development of a transformation model for quarters of different types of development as part of the NEEST pilot programme
Monitoring of energy consumption in facilities
Reactive power compensation in public facilities
Cooperation with the development sector
Implementation of the EPBD at national level
Implementation of the “Tenement returns” programme - preparation of documentation and modernisation of tenement houses in the municipal stock of 22 tenements (target for 100)
Comprehensive energy modernisation of residential buildings in the municipal housing stock of Wroclaw Municipality in the period 2025-2030
Energy-efficient existing commercial buildings (office, retail, industrial)
Modernisation of educational establishments (schools, kindergartens) and cultural, social welfare and administrative facilities
High energy efficiency standards in municipal investments (schools, kindergartens, public buildings)
Development of energy standards for buildings</td></tr>
</table>

<table>
<tr><td></td><td></td><td colspan="4">

- *New buildings meeting EPBD parameters close to NZEB*
- *Construction and development of energy autonomous areas in the city - PEDs based on prosumer activities on the basis of the organisational, technical and financial models developed in the NEEST pilot project.*

</td></tr>
<tr><td rowspan="4">Transportation</td><td rowspan="2">T.1 - Extension of the public transport network with associated infrastructure and reduction of car traffic in the city</td><td>Capex</td><td>Opex</td><td>Cost Effectiveness (EUR/tCO₂e)</td><td>Investment (Split by Stakeholders)</td></tr>
<tr><td>EUR 668,888,888.89</td><td>EUR 10,033,333.33</td><td>2,090.28</td><td>Sources of funds :
- city budget (public funds)
- State budget (public funds)
- private resources (transport companies, municipal transport company, residents, transport operators/operators (public and private)
- European funds

The proportions of involvement are unknown.</td></tr>
<tr><td colspan="4">Project description:

- *Continued development of park and ride system at transport interchanges*
- *Successive expansion of the paid parking zone*
- *Continued designation of residential zones*
- *Tariff integration - common agglomeration ticket for public transport in Wroclaw*
- *Carpooling and other forms of shared travel*
- *Implementation of investments from the Wroclaw Tram and Bus Programme for the years 2024 - 2032 (including tram lines to Swojczyce, Jagodno district, Borowska Hospital, Maslice, Klecina, Nowe Zerniki, Oltaszyn - Wysoka, Gadow Poludniowy, Muchobor Wielki, Ksieze Wielkie, Gajowice, Borowska Centrum, Psie Pole district, Sucha Street)*
- *Construction of new railway stops*
- *Increase in traffic - launch of new agglomeration connections*
- *Construction of a tram depot in connection with the development of the network*
- *Construction of a bus depot*
- *Seeking to establish a clean transport zone.*

</td></tr>
<tr><td rowspan="2">T.2 - Implementation of the Plan for Cycling Actions until 2030 for Wroclaw</td><td>Capex</td><td>Opex</td><td>Cost Effectiveness (EUR/tCO₂e)</td><td>Investment (Split by Stakeholders)</td></tr>
<tr><td>EUR 28,888,888.89</td><td>EUR 1,444,444.44</td><td>1,675.87</td><td>Sources of funds :
- city budget (public funds)
- European funds

The proportions of involvement are not known.</td></tr>
<tr><td colspan="4">Project description :

- *5,000 new bicycle parking spaces including Bike & Ride and the*

</td></tr>
</table>

<table>
<tr><td rowspan="4"></td><td></td><td colspan="4">possibility to park the bicycle at all institutions, educational facilities and at all companies applying for a rack)
• Continuation and development of Wroclaw City Bicycle
• Construction or modernisation of 4 main or alternative routes
• 16 new connections of the estates to the cycle route network
• Modernisation of 25 km of existing cycle routes,
• Construction of 6 new connections to neighbouring municipalities: Miekinia, Katy Wroclawskie, Kobierzyce, Siechnice, Dlugoleka.</td></tr>
<tr><td rowspan="3">T.4 - Measures for the dissemination of electric cars in individual, collective and freight transport</td><td>Capex</td><td>Opex</td><td>Cost Effectiveness (EUR/tCO₂e)</td><td>Investment (Split by Stakeholders)</td></tr>
<tr><td>EUR 1,435,333,333.33</td><td>EUR 22,965,333.33</td><td>7,587.40</td><td>Sources of funds :
- city budget (public funds)
- State budget (public funds)
- private funds
- budgets of municipal companies- public funds
- European funds

The proportions of involvement are not known.</td></tr>
<tr><td colspan="4">Project description:
• Implementation of charging infrastructure (charging stations - electric, hydrogen)
• Subsidies for the purchase of electric cars under national programmes
• Facilities for electric car users
• Creation of a micro-hub for deliveries within the city centre
• Purchase of new trams (at least 86 vehicles)
• Successive replacement of the bus fleet with low-emission and progressively zero-emission vehicles (electric buses, hydrogen buses) (at least 96 electric buses and 200 low-emission buses meeting Euro 6 and higher standards)
• Infrastructure development - charging stations (public and commercial).</td></tr>
<tr><td colspan="4">Project description:
• Continuation of activities within the framework of initiatives such as “I Like the Rain”, “Catch the Rain”, “Wroclaw Doesn't Waste”, Bookcrossing.</td></tr>
</table>

2.2 Module IP-B2: Capital Planning for Climate Neutrality

Model IP-B2
At this stage, we only have the calculations made during the development of the economic model. Therefore, Table 8 includes values adjusted to individual activities within sectors based on the model calculations. At the moment, they do not reflect the actual division of costs between stakeholders for the tasks from the action plan, but they provide a general overview of the proportions of this division. Based on the list of action plan activities in Table 9, costs on the part of the local government, including its companies, and costs on the part of other stakeholders were estimated. The current capacity to cover these costs has also been determined. It should be noted that these calculations are only approximate and will change with changes in the city's budget, as new investment funds are raised and the costs of individual actions become more realistic.

Table 8: Capital Planning by Stakeholder

Field of Action	Action / Indicator	Action from Economic model	Citizens (€)	Private Sector (€)	Municipality (€)	Transport Operators (€)	Utility Providers (€)	Total (€)
Energy Systems	**E.1** - Change in electricity and district heating generation using low and zero carbon technologies	*Decarbonizing electricity generation* *Decarbonizing heating generation*	*1,368*	*488*	*84*	-	*595*	*2,431*
	E.2 - Local electricity generation from renewable energy sources							
	E.3 - Modernisation of public lighting to make it more energy-efficient	*Efficient lighting & appliances*	*256*	*91*	*18*	-	-	*366*
	E.4 - Active educational, organisational,	-	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*

	promotional and planning measures for decarbonisation of electricity and heat production							
Built Environment	**B.1** - Energy efficient buildings	*Building renovations (envelope)* *New energy-efficient buildings*	*959*	*422*	*81*	-	-	*1,464*
	B.2 - Energy consultancy, education, information and promotion activities for residents and businesses	-	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*
Transportation	**T.1** - Extension of the public transport network with associated infrastructure and reduction of car traffic in the city	*Reduced motorized passenger transportation need* *Shift to public & non-motorized transport* *Increased car pooling* *Optimized logistics*	*66*	-	*30*	*425*	-	*521*
	T.2 - Implementation of the Plan for Cycling Actions until 2030 for Wroclaw							
	T.3 -Implementation of a pedestrian programme (in accordance with the Wroclaw Pedestrian -Friendly Urban Design Standards							

	T.4 - Measures for the dissemination of electric cars in individual, collective and freight transport	*Electrification of cars + motorcycles* *Electrification of buses* *Electrification of trucks*	*137*	*95*	*12*	*409*	-	*653*
	T.5 - Education, promotion and information measures in transport	-	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*
Green Infrastructure & Nature Based Solutions	**G.1** – Implementation of the Green Revolution programme	*Not measured in Economic model*	-	-	-	-	-	-
	G.2 - Education, information, organisational climate action	-	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*	*not applicable*
Waste and Circular Economy	**W.1** - Climate neutrality and energy security of water, wastewater and waste management	*Increased waste recycling*	-	-	*1*	-	-	*1*
Total		**-**	**2,786**	**1,097**	**225**	**834**	**491**	**5,433**
% of Total			**51**	**20**	**4**	**15**	**9**	**100**

Table 9: Capital Planning

Field of Action	Action / Indicator	Cost to Municipality [EUR]		Cost to Other [EUR]	% of Costs Covered
Energy Systems	**E.1** - Change in electricity and district heating generation using low and zero carbon technologies	*62,952,555*	-	*650,303,000*	*40*
	E.2 - Local electricity generation from renewable energy sources	*57,946,666*	-	*521,520,000*	*20*
	E.3 - Modernisation of public lighting to make it more energy-efficient	*2,030,933*	-	*5,222,400*	*30*
	E.4 - Active educational, organisational, promotional and planning activities for decarbonisation of electricity and heat production	*666,666*	-	-	*90*
Built Environment	**B.1** - Energy efficient buildings	*767,324,444*	-	*6,905,920,000*	*10*
	B.2 - Energy consultancy, education, information and promotion activities for residents and businesses	*2,400,000*	-	*266,666*	*40*
Transportation	**T.1** - Extension of the public transport network with associated infrastructure and reduction of car traffic in the city	*543,137,777*	-	*135,784,445*	*50*
	T.2 - Implementation of the Plan for Cycling Actions until 2030 for Wroclaw	*30,333,332*	-	-	*80*
	T.3 - Implementation of a pedestrian programme (in accordance with the Wroclaw Pedestrian-Friendly Urban Design Standards	*2,933,332*	-	-	*80*
	T.4 - Measures for the dissemination of electric cars in individual, collective	*583,319,466*	-	*874,979,200*	*20*

	and freight transport				
	T.5 - Education, promotion and information measures in transport	*400,000*	-	-	*80*
Green Infrastructure & Nature-Based Solutions	**G.1** – Implementation of the Green Revolution programme	*200,000,000*	-	-	*50*
	G.2 - Education, information, organisational climate action	*1,333,333*	-	-	*80*
Waste and Circular Economy	**W.1** - Climate neutrality and energy security of water, wastewater and waste management	*122,666,665*	-	-	*50*

2.3 Module IP-B3: Economic and Financial Indicators for Monitoring, Evaluation and Learning

B-3.1

In order to more effectively assess the effects of implementing green investment strategies and programmes in Wroclaw, monitoring is carried out. It is not a single coherent monitoring system at the city level, but the principle is similar and based on a comparative analysis of year-on-year data or indicators indicating the trend or level of achievement of results. Key elements of monitoring include:

- **Monitoring of the Wroclaw City Strategy by 2030 -** The Wroclaw City 2030 Strategy is the first strategy of the city of Wroclaw whose implementation is being systematically and consistently monitored. To this end, a Monitoring Committee was established, at which the latest acquired indicator values are discussed, evaluated and analysed.
- **Monitoring of the Wroclaw's Climate Change Adaptation Plan -** this activity consists of annual data collection, analysis and presentation of changes related to the implementation of the city's strategic document on adaptation to climate change based on the adopted monitoring indicators.
- **Monitoring of the implementation of the Low-Carbon Economy Plan and SECAP -** monitoring of sustainable energy and climate actions comprising an annual GHG emissions inventory to assess the progress of actions related to the reduction of environmental impacts, together with an assessment of climate risks and vulnerability to change. The task analyses the status of implementation/execution, updates the actions covered by SECAP, as well as the low-carbon measures included in the material and financial schedule updated periodically within the Low-Carbon Economy Plan for the implementation of new investments (in the case of EU funding) and the granting of property tax exemptions in accordance with the resolution of the City Council. In addition, the monitoring of sustainable energy and climate actions provides the knowledge base necessary for ongoing information provision for changing legislation, as well as and analyses and enquiries for project purposes or resulting from the Municipality's commitments.
- **Monitoring of the Wroclaw Strategy for the Development of Electromobility -** the

activity consists of annual collection, analysis and presentation of changes related to the implementation of electromobility tasks based on the adopted monitoring indicators.

- **Monitoring of the implementation of socio-economic objectives** - the action consists of annual monitoring of the number of undertakings, in particular priorities, and their degree of implementation. This makes it possible to assess the level of implementation of specific measures in particular priority areas.
- **Monitoring of the The Sustainable Development Plan for Public Mass Transport in Wroclaw for 2023-2027 -** the activity consists in the annual collection, analysis and presentation of changes related to the implementation of the city's strategic documents for the sustainable development of public transport based on the adopted monitoring indicators.
- **Monitoring of the Wroclaw Mobility Policy -** this activity consists in the annual collection, analysis and presentation of changes related to the implementation of the city's strategic documents in the field of sustainable mobility, based on the adopted monitoring indicators. As part of the monitoring, comprehensive traffic surveys will be carried out for Wroclaw and its surroundings. The results of these surveys will be the most important indicator of progress in the implementation of the mobility policy.

  Data are currently being collected as part of policies, and acquiring data for monitoring will require additional resources.

The structure of Table 10 has been extended compared to the template to include information on the sources of data and the numbering of indicators. **With reference to Table 11, the issue of monitoring financial indicators requires further considerations, which the city will undertake in subsequent iterations of the CCC.**

Table 10: Economic Indicators by Sector

Action category - impact pathway	Action/ project	Indicator code	Indicator name	Data source	Indicator unit	Baseline* 2022	Target value* 2030
Global	All actions	1	Volume of CO_2 emission from the area of the municipality in a given year/degree of emission reduction in relation to the base year	GHG emissions inventory	kg CO_2/MWh/%	4,581,138	Reduction of 80%
	All actions	2	GHG emissions per capita	GHG emissions inventory	kg CO_2/per capita	7.04	TBD
Energy and district heating system	E.1, E.2	3	Emission factors for electricity end-users in the National Power System (NPS)	National Centre for Emissions Management (KOBiZE)	kg CO_2/MWh	685[3]	400 - 600[4]
	B.1, E.1, E.2, E.3, T.4	4	Electricity consumption in the city	GHG emissions inventory/ Updating the assumptions to the plan for supply of heat, electricity and gaseous fuels in the area of City of Wroclaw	MWh	2,481,576	TBD (3,201,000 in 2037)[5]

[3] The 2021 index was used in the 2022 inventory because the 2022 index was published at the end of 2023.

[4] The value of the indicator depends on the actions taken within the national energy system, the values given are projections according to the action scenarios presented in the analyses of KOBiZE and (the Centre for Climate and Energy Analyses (CAKE)).

[5] The figure given results from the supply plan and is linked to the city's economic and spatial development forecasts, it is advisable to reduce consumption through measures to reduce energy demand, e.g. within the CCC.

	E.2, E.1,	5	Local electricity emission factor within the city	GHG emissions inventory	kg CO_2/MWh	TBD	TBD
	E.2	6	Capacity of photovoltaic installations installed in the city	Data of the Municipality of Wroclaw in agreement with the National Power System operator	MWh	58.3	increase
	E.2	7	Share of renewable energy sources in energy production	Updating the assumptions to the plan for supply of heat, electricity and gaseous fuels in the area of City of Wroclaw	%	5	increase
Construction	B.1, E.1, E.2,	8	GHG emissions from residential buildings	GHG emissions inventory	kg CO_2/MWh	1,384,934	decrease
	B.1, E.1, E.2,	9	GHG emissions from service buildings	GHG emissions inventory	kg CO_2/MWh	1,071,493	decrease
	E.1	10	Share of district heating in building heating supply	Updating the assumptions to the plan for supply of heat, electricity and gaseous fuels in the area of City of Wroclaw	%	53	TBD
	E.1	11	Emission factor for district heating	GHG emissions inventory	kg CO_2/GJ	99.6	decrease
	B.1	12	Number of buildings undergoing thermal modernisation in the municipal stock	Municipality of Wroclaw's data	pcs/year	8	increase
	B.1	13	Heat energy consumption	Updating the assumptions to the plan for supply of heat, electricity and gaseous fuels in the area of City of Wroclaw /Inventory emissions	TJ	15,619	decrease
Transport	T.1 - T.4, E.1, E.2	14	Transport emissions	GHG emissions inventory	kg CO_2/MWh	1,483,345	-
	T.1	15	Share of non-vehicle transport	Wroclaw Mobility Policy /SUMP	%	59	70

	T.4	16	Share/number of electric vehicles in the total number of registered vehicles in the municipality	Wroclaw Strategy for the Development of Electromobility	%/pcs.	0.32 / 2,227	TBD
	T.4	17	Number/share of electric buses in public transport	Wroclaw Strategy for the Development of Electromobility	pcs/%	13	increase
	T.1	18	Number of carriage-kilometres of inter-municipal transport ordered by the organiser (local government authority)	SUMP monitoring	carriage km/y	Communication intercommunal – 4,535,382 Public transport - 29,507,442	increase
	T.1, T.2, T.3	19	Number of public transport passengers	Municipal Transport Company's data	pcs/y	Municipal Transport Company - 194,490,000 Lines 9xx - 1,193,000	increase
	T.1, T.2, T.3	20	Total number of kilometres travelled in the city by vehicles	Google Environmental Insights Explorer	km/y	4,780,000,000	decrease
	T.1	21	Number of Park & Ride facilities	-	pcs	2,751	increase
	T.1	22	Share of population of the Wroclaw Functional Area / residing within 800 m of a railway station and stops or within 500 m from a public transport stop (refers to	Sustainable Mobility Plan for the Wroclaw Functional Urban Area (37 municipalities)	%	90.3 (2020)	increase

			population registered for permanent residence)				
Green Infrastructure and Nature-Based Solutions	G.1	23	Surface area and share of paved land in the city (planned)	Monitoring of the Climate Change Adaptation Plan	%/ha	TBD	TBD
	G.1	24	Area and share of the urban heat island and the share and number of inhabitants within its range (planned)	Monitoring of the Climate Change Adaptation Plan	ha/%/pcs	3,477.8 /11.9 / 22.4 / 130,464 (2021)[6]	decrease
	G.1	25	Surface area of green areas subject to ongoing maintenance by the Urban Greenery Management	Monitoring of the Climate Change Adaptation Plan	ha	2,870.53	increase
	G.1	26	Percentage of population living within 300 m of green areas of any size	Monitoring of the Climate Change Adaptation Plan and the Wroclaw City Strategy by 2030	% downtown/entire city	95.64/ 83.96	increase
	G.1	27	Area of basic green system with adaptive functions/Share per capita	Monitoring of the Climate Change Adaptation Plan	ha/m^2 per capita	10,783.97/ 159.98	increase
	G.1	28	Share of high greenery (canopy cover)	Monitoring of the Climate Change Adaptation Plan	%	25	30
	G.1	29	Green areas in land use plans adopted in a given year	Monitoring of the Climate Change Adaptation Plan	ha	136.06	increase
	G.1	30	Surface and share of protected areas in the city area	Monitoring of the Climate Change	ha/%	2,504.43/8.6	increase

[6] Based on a one-off study entitled 'Study on the occurrence of a surface urban heat island for the area of the city of Wroclaw from 2021'.

				Adaptation Plan			
	G.1	31	AFOLU emissions	GHG emissions inventory	kg CO_2/MWh	3,277	decrease
Waste and Water Management	W.1	32	Emissions from waste and water management	GHG emissions inventory	kg CO_2//MWh	24,595	decrease
	W.1	33	Amount of waste per capita	the Statistics Poland's data/ Report on the state of the municipality	kg/per capita	486	decrease
	W.1	34	Share of non-segregated (mixed) municipal waste in the total municipal waste stream	Monitoring of the Environmental Protection Programme for years 2021-2025, with perspective to 2030/Report on the state of the municipality	%	58.77	decrease
	W.1	35	Water consumption per capita	Monitoring of the Environmental Protection Programme for years 2021-2025, with perspective to 2030/ the Statistics Poland's data	m^3 per capita	76.9	decrease
	W.1	36	Amount of municipal wastewater treated	the Statistics Poland's data	m^3	38,295	TBD
Industry	I.1	37	Emissions from industry	GHG emissions inventory	kg CO_2/MWh	591,091	decrease
	I.1	38	Number of enterprises undertaking the ESG actions (planned)	Municipality of Wroclaw's data[7]	pcs	TBD	TBD

[7] Data obtained from the Mission's partners as part of Transition Team activities or other initiatives

Co-benefits	All actions	39	Number of days per year when the PM_{10} particulate matter standard is exceeded	Monitoring of the Wroclaw City Strategy by 2030/ Voivodship Inspectorate for Environmental Protection's reports	number of days	9	no
	All actions	40	Annual average concentration of $PM_{2.5}$ dust	Monitoring of the Wroclaw City Strategy by 2030/ Voivodship Inspectorate for Environmental Protection's reports	$\mu g/m^3$	17	decrease

Table 11: Financial Indicators by Sector

Fields of Action	Indicator	Indicator Unit
Energy Systems	*Amount from the city budget allocated for the replacement of individual heating sources and the connection of municipal buildings to the district heating network*	*EUR*
	Amount within the purchasing group for electricity and gas	*EUR*
Built Environment	*Amount and percentage of the city budget allocated to renovation of municipal and public buildings*	*EUR / %*
Transportation	*Amount and percentage of the city budget allocated to investments in public and non-motorized transport*	*EUR / %*
Green Infrastructure and Nature Based Solutions	*Income and expenses for greenery management*	*EUR*

Waste and Circular Economy – Sewage Economy	*Cost of waste management service system*	*EUR*
	Investment outlays for water and sewage management	*EUR*

3 Part C – Enabling Financial Conditions for Climate Neutrality by 2030

3.1 Module IP-C1: Climate Policies for Capital Formation and Deployment

C-1.1

In the city, policy formulation is mostly carried out within interdepartmental teams at management level or operational teams at subject-matter level. An example of this is the way in which the current draft of the 'Wroclaw 2050' Strategy is being worked on. This is one of the key documents for the development of the city, indicating directions for social, economic and spatial development. The distant horizon of 2050, which corresponds to the aspiration for climate neutrality, is not without significance. As part of the work on the 'Wroclaw 2050' Strategy, the following structures were established:

- The Steering Committee for the 'Wroclaw 2050' Strategy, whose tasks include approving the various stages of work and reporting to the Mayor on the progress of work on the strategy. The Committee includes the Deputy Mayor, directors of all departments of the Municipality. It should be emphasised that the team includes the City Treasurer - which translates into rapid verification of long-term objectives and identification of threats to the city budget.
- Team for Wroclaw Development Strategy, whose tasks included ensuring consistency and integrity of the current and future strategic documents: Wroclaw Development Strategy, City Masterplan and Integrated Territorial Investment Strategy of the Wroclaw Functional Area for 2021-2027, as well as identifying areas and needs for preparation of necessary diagnoses and other specialist analyses;
- Expert Team for the 'Wroclaw 2050' Strategy, whose task was to identify challenges facing Wroclaw in the perspective of 2050, work out a vision, mission, main objectives and directions of Wroclaw's development, indicate specific objectives, expected results and main measures of implementation of the Wroclaw 2050 Strategy, support work on functional and spatial assumptions, consult and give opinions on the results of individual stages of work on the 'Wroclaw 2050' Strategy;
- Team for the implementation of the EU Mission 'Climate Neutral and Smart Cities', which has been in place since 2022 and consists of representatives of key urban units in the city, responsible for the creation of strategies, policies and plans and for the implementation of action.

It may be assumed that every policy and programme developed in the city is also based on interdepartmental teams or is supported by a team of external experts, and the climate area plays an increasingly important role in policy and programme development.

As a rule, the general formulation of policy documents in the city or at regional or national level does not explicitly specify the details of funding for individual measures. The fine-tuning of courses of action is shifted towards municipal or governmental programmes, and these in turn influence the ongoing shaping of the city budget or the possibilities for raising external funds. On the one hand, this creates difficulties in formulating strategic goals in the distant horizon (based on detailed financial calculations), on the other hand, it allows the bold setting of long-term goals and, as far as possible, the flexible inclusion of individual activities in the city budget.

The concretisation of undertakings is contained in the Socio-Economic Assumptions, which are updated annually in cooperation with all departments and reviewed in terms of budget possibilities. Another key document is the City's Multiannual Financial Forecast for 2024-2046, which is a planning document and complements the budget in terms of medium and long-term financial policy.

Numerous climate measures are included in this document. In Wroclaw, there was also a Multi-Annual Investment Plan in place until 2019, providing the basis for long-term planning in the city, but these priorities are now being defined in a more dynamic way to respond flexibly to current needs or budget constraints. Undoubtedly, the biggest problem in prioritising climate action is the lack of a separate municipal climate budget to pursue long-term strategic goals within a defined financial framework.

This is why, since Wroclaw's participation in the Mission, there is an Interdepartmental Team, which supports, among other things, the financing or funding of innovative areas and measures in the field of climate. Interdepartmental Team was established in year 2022, by Mayoral Ordinance[8]. Team consists of representatives of divisions, units and municipal companies, engaged in transformation processes in the city. Each person acts as a liaison and works towards building close cooperation and better coordination of work between departments. The team meets at least 4 times a year to discuss the progress of the implementation of the objectives of the City Mission in their organisational units. The division of authority and responsibility between the various organisational units and individuals allows for efficient management and implementation of activities in accordance with the planned objectives. The team representatives in their units have separate “implementation teams” to make management decisions and monitor the progress of the work of implemented initiatives, including climate neutrality activities. For example:

- in the Department of Infrastructure and Transport, there is a cross-cutting team that carries out ongoing monitoring of ongoing investments, meeting a minimum of once every three weeks with the implementing units and quarterly reporting on the solutions implemented, possible remediation plan for the next period),
- in the Public Finance Department there is a team of people who look for funding from regional, national, European sources and private investors.

The activities of the Interdepartmental Team at the current stage focus in particular on strengthening climate issues in urban planning documents and cooperation in this regard at regional level. At city level, the Wroclaw 2050 Strategy (with a strongly embedded climate component) is being developed. These goals are also being reinforced in updates to sectoral policies and programmes such as the Wroclaw Sustainable Urban Mobility Plan (SUMP), the Sustainable Mobility Plan for the Wroclaw Urban Functional Area (37 municipalities), the Electromobility Development Strategy or the Wroclaw Mobility Policy, as well as spatial policy documents.

In parallel, a series of meetings and workshops are being held with various stakeholders in the city who are or can be co-responsible for the implementation process of the measures and financing in their own right. In particular, a great deal of interest can be seen on the business side in terms of energy-related companies, but also developers and the design community responsible for shaping space in the city.

The current political situation in the country allows for a return to talks between local authorities and the government level. However, in this matter, it is desirable to strengthen this cooperation and to develop national support programmes for urban climate policies. In addition, the role of the transition team is to act as a liaison and missionary function across departments identifying problem areas or stimulating climate action.

[8] Ordinance No. 8741/22 of the Mayor of Wroclaw of 13 October 2022 on the establishment of a team for the implementation of the EU Mission: Climate Neutral and Smart Cities followed by amendments extending the composition of the team for the implementation of the Cities Mission

The first step to understanding the sources and magnitude of greenhouse gas emissions in Wroclaw was to develop an emissions inventory. Wroclaw has been performing a greenhouse gas emissions inventory since 2014, which was originally linked to the adoption of the Low Emission Economy Programme. Subsequently, this inventory has served and continues to serve for the SECAP. Currently, the SECAP is a foundational document outlining Wroclaw's current efforts and commitments to reduce greenhouse gas emissions. It includes measures across sectors such as energy, transport, buildings, and waste management, aiming to achieve substantial reductions by 2030.

Regarding the pursuit of climate neutrality, a change in approach can be seen in documents at the municipal level. One of the goals of existing Wroclaw Strategy 2030 is sustainable development, in parallel with green city. In contrast, the new strategy (under development) distinguishes between adaptation and mitigation, and one of the goals is to achieve climate neutrality.

There is also Climate Change Adaptation Plan addressing environmental education, green buildings, sustainable development, together with ensuring the city's energy. City Masterplan promotes idea of "greenery without borders", but there is also focus on sustainable development, with vision creating compact city, in order to reduce urban sprawl, limiting the development of communications, with the strengthening of the role of public transport. This is in line with the assumptions of SUMP. The main idea is to base transportation on rail transportation with interchanges, complemented by bus transportation. The importance of pedestrians and cyclists should increase, as well.

In year 2023 municipality has started working on Roadmap to achieving climate neutrality by 2030, with perspective to 2050. The Roadmap builds on existing documents, including Environmental Protection Program, Assumptions to the plan for supply of heat, electricity and gaseous fuels and SECAP, among others.

Irrespective of programmes and policies at the level of the entire city, Table no. 12 below provides examples of city activities and policies that are: implemented, under implementation or in preparation and individual departments within the city should ensure that the budget is secured. In order to ensure that these measures are underpinned by a coherent system of city management and that the adopted objectives are effectively realised, the majority of these undertakings have been defined in the Assumptions of Socio-Economic Policy of Wroclaw. This is a short-term document, indicating projects of strategic importance to be implemented. Each undertaking included in the document is included in the city budget and assigned to one priority and area.

When developing the Assumptions of the socio-economic policy of the City of Wroclaw for the financial year 2025, the principle of consistency with the Wroclaw Strategy 2030 was adopted, as in previous years. The tasks contained in the Assumptions have been grouped, as in the Wroclaw Strategy 2030, into seven priorities. Climate-related actions are assigned primarily to Priorities: Mobility of Wroclaw inhabitants, Quality of environment and urban space and Governance.

Notwithstanding the actions indicated in Table 12 - in terms of Policies and programmes plans, documents of strategic importance can be mentioned:

- Sustainable energy and climate action plan (SECAP)
- Updating the assumptions to the plan for supply of heat, electricity and gaseous fuels in the area of city of Wroclaw
- Sustainable urban mobility plan (SUMP)
- Wroclaw mobility policy
- Wroclaw strategy for the development of electromobility
- The Sustainable Development Plan for Public Mass Transport in Wroclaw
- Plan for Cycling Actions until 2030
- The Wroclaw Tram Program for the years 2024-2032

- Resolution[9] regarding the introduction of restrictions and prohibitions on the operation of installations involving fuel combustion within the Municipality of Wroclaw (2017)
- Position[10] of the Wroclaw City Council regarding the climate emergency (2019)
- Climate Change Adaptation Plan (2019)
- Environmental Protection Program for years 2021-2025, with perspective to 2030
- Wroclaw City Strategy by 2030 New strategy is under development with perspective by 2050
- Masterplan
- Resolution[11] regarding the principles of granting targeted subsidies to individuals for tasks aimed at improving energy efficiency through the replacement of external windows (2024)
- Resolution[12] regarding the principles of granting targeted subsidies for tasks aimed at air protection, involving the permanent change from solid fuel-based heating to low-emission heating (2024)
- Resolution[13] regarding the principles of granting targeted subsidies for tasks involving the installation of systems utilising renewable energy sources for electricity generation and energy storage systems (2024)
- Resolution[14] regarding exemptions from property tax for buildings or their parts connected to photovoltaic installations, solar collectors, heat pumps, heat recovery systems, or ground heat exchangers (2024)
- Resolution[15] regarding exemptions from property tax for usable area of residential premises within the framework of intensifying the creation of green areas within the City of Wroclaw (2021)
- The Strategy for Managing Stormwater and Meltwater in Wroclaw
- Masterplan for the City Centre
- Roadmap to achieving climate neutrality by 2030, with perspective to 2050 (in preparation).

[9] Resolution No. XLI/1405/17 of the Lower Silesian Voivodeship Assembly dated November 30, 2017, regarding the introduction of restrictions and prohibitions on the operation of installations involving fuel combustion within the Municipality of Wroclaw

[10] Position No. XIV/4/19 of the Wroclaw City Council dated October 17, 2019, regarding the climate emergency

[11] Resolution No. LXXX/2093/24 of the Wroclaw City Council dated April 18, 2024, regarding the principles of granting targeted subsidies to individuals for tasks aimed at improving energy efficiency through the replacement of external windows

[12] Resolution No. LXXX/2092/24 of the Wroclaw City Council dated April 18, 2024, regarding the principles of granting targeted subsidies for tasks aimed at air protection, involving the permanent change from solid fuel-based heating to low-emission heating

[13] Resolution No. LXXX/2095/24 of the Wroclaw City Council dated April 18, 2024, regarding the principles of granting targeted subsidies for tasks involving the installation of systems utilising renewable energy sources for electricity generation and energy storage systems.

[14] Resolution No. III/8/24 of the Wroclaw City Council dated June 6, 2024, regarding exemptions from property tax for buildings or their parts connected to photovoltaic installations, solar collectors, heat pumps, heat recovery systems, or ground heat exchangers

[15] Resolution No. XLVI/1192/21 of the Wroclaw City Council dated November 25, 2021, regarding exemptions from property tax for usable area of residential premises within the framework of intensifying the creation of green areas within the City of Wroclaw

Strategies and policies at regional, national or international level that are taken into account in the development of urban strategies and policies are also indicated below:

- Low-Emission Economy Plan for Integrated Territorial Investments of the Wroclaw Functional Sustainable Mobility Plan for the Wroclaw Functional Urban Area
- Integrated Territorial Investment Strategy of the Wroclaw Functional Area for 2021-2027
- Energy strategy of Lower Silesia - directions of support for the energy sector.

Table 12: List of Climate Policies to Enable Capital Deployment

Climate Policy	Policy Status (Enacted, In Process, Development, etc.)	Description of the policy (sector, targeted audience, etc.)	Intended Outcome for Capital Formation
Free tickets for public transport	Implemented and results from: • Wroclaw Mobility Policy [16] • of Resolution No. XLVII/1094/17 of the City Council of Wroclaw on establishing prices for transport services provided by means of local collective transport organised by the Municipality of Wroclaw and the method of determining the amount of additional and handling charges	**From 2022 onwards, senior citizens aged 65 and over will be able to use Wroclaw's public transport free of charge.** In other cities in Poland, free rides are provided from the age of 70, so it can be said that the capital of Lower Silesia is an innovator here. The second group of recipients of this policy from 2018 are pupils of primary, secondary and upper secondary schools - no longer than until they are 21 years old. Residents of Wroclaw can also enjoy **free travel on public transport during all elections** held in Wroclaw.	Increasing the proportion of journeys made on public transport, encouraging the use of public transport by people from groups that often require adult care, which translates into an increase in revenue from the purchase of travel tickets. Additional benefits include developing habits of using public transport and reducing car travel.
Increasing parking fees in the city centre and expanding Park & Ride facilities and designating special	Implemented and results from: • Wrocław Mobility Policy • Wrocław Electromobility Development Strategy [17]	The target audience is vehicle users, including residents.	Increasing parking fees to discourage car use while raising capital for climate action. The expansion of Park & Ride car parks and the designation of more parking spaces for zero-emission vehicles provide additional benefits such as developing habits of using public

[16] Resolution No. XLVIII/1169/13 of the City Council of Wroclaw dated 19 September 2013.
[17] Resolution No. XXV/675/20 of the City Council of Wroclaw dated 23 July 2020.

parking spaces for zero-emission vehicles	• Sustainable Urban Mobility Plan[18] for Wroclaw • Resolution No. V/79/19 of the Wroclaw City Council of 21 February 2019. (Park & Ride car parks) • Resolution No. XXVI/712/20 of the City Council of Wroclaw of 17 September 2020 (Paid Parking Zone).		transport, reducing car travel in the city centre (reducing traffic jams) and increasing the share of electric vehicles, improving air quality, which contributes to lower hospitalisation costs for residents resulting from pollution and noise in the city.
Purchase of buses and zero-emission vehicles	Ongoing and resulting from: • Wroclaw City Strategy by 2030[19], Wroclaw Strategy for the Development of Electromobility (2020)	The target audience is residents, including individual vehicle users	The modern rolling stock is intended to encourage users to increase their interest in travelling around the city on comfortable public transport, which increases municipal profits from travel tickets.
Preferential land lease rates for the construction of electric vehicle charging stations	Implemented and driven by the Wroclaw Strategy for the Development of Electromobility	The target audience is operators of electric vehicle charging stations and residents	Encouraging potential private operators to build publicly accessible charging stations in public spaces, thus increasing the number of stations, which directly increases revenue for the municipal budget.
Wroclaw Urban Bicycle	Implemented and results from: • Wrocław Mobility Policy	The target audience is the city's users, including residents	Increased revenue for the municipal budget. Additional benefits include the promotion of micromobility, building accessibility (ease of movement), developing habits of

[18] Resolution No. VIII/194/19 of the City Council of Wroclaw dated 11 April 2019.

[19] Resolution No. LI/1193/18 of the City Council of Wroclaw dated 15 February 2018.

	• Resolution No. LV/1688/10 of the City Council of Wroclaw of 14 October 2010 (Cycling Policy) • Cycling Action Plan by 2030.		using public transport, influencing reductions in car travel (reduction of traffic jams).
Private equity for climate neutrality	Implemented and results from the Climate Change Adaptation Plan [20]	Local business	Involvement of local companies which, by implementing their mobility service plans - (e.g. building more parcel lockers, charging stations), additionally contribute to the municipality's climate protection target.
Green Patronage	Implemented and results from the Climate Change Adaptation Plan	Private individuals and legal entities (e.g. businesses)	Sponsorship programme for a green project in the city (donating a contribution for planting trees, shrubs or perennial beds in the city, but also enriching the space with small architecture and even a pocket park). The project can be implemented in areas under the management of the Urban Greenery Management, i.e. parks, squares, communal forests and green belts along streets.
Eco-Support	Implemented and results from the Climate Change Adaptation Plan	Residents	The action aims to raise financial support for environmental education activities dedicated to the city's residents and tourists.
Penalties for burning rubbish in furnaces	Ongoing and results from the "Anti-smog Resolution"[21]	Residents, including building owners	The policy stems from current national legislation. Burning waste in heating installations or in the open air

[20] Resolution No. XIII/342/19 of the City Council of Wroclaw dated 5 September 2019.
[21] Resolution No. XLI/1405/17 of the Lower Silesian Voivodeship Assembly dated November 30, 2017, regarding the introduction of restrictions and prohibitions on the operation of installations involving fuel combustion within the Municipality of Wroclaw (2017), in which fuels are burned

			is punishable by a fine of up to PLN 500 or a penalty of up to PLN 5,000 if the case goes to court. The above feeds into the municipal budget. Additional benefits are the avoidance of the production of strong poisonous chemicals, which cause many serious and even fatal diseases.
Robotisation of local tax and fee administration processes	Ongoing and driven by the Smart City approach	Residents, municipal entities	This tool allows the identification of new buildings and structures that have not been declared for real property tax. It is planned to extend the satellite detection service to other elements, such as the presence of photovoltaic installations on buildings benefiting from property tax exemption due to their connection to a photovoltaic installation. The task is related to the use of an effective and, at the same time, taxpayer-friendly system for the collection of taxes and fees payable to the Municipality of Wroclaw. It is envisaged that IT solutions will be maintained through the development of the e-declaration system (allowing the submission of declarations and corrections electronically while using IT calculators to calculate the amount of tax). In addition, the acquisition of satellite imagery and its analysis for building detection is continued. The tool can contribute to improving and optimising the municipal budget, which can indirectly increase the climate budget.
Increasing the level of spatial order through the drawing up of Land use plans	In progress and results from the City Masterplan [2018]	Residents, business sector	Defining spatial policies in the form of local acts for key areas of the city or areas requiring spatial design interventions. As a result, a spatial framework for sustainable development will be set and areas such as green space or areas for appropriate technical infrastructure (including energy facilities and networks, low-carbon energy sources, electromobility, etc.) will be secured in invested or planned areas.

			Land use plans may include infrastructure costs, but they will also have a major impact on increasing the city's tax base. Enabling new residential, commercial and manufacturing properties will bring in a long-term budget from land and building taxes.
Revitalisation programme for the municipal housing stock	Ongoing and results from the Low-Carbon Economy Plan for Wroclaw [22]	Residents - a community resource. The programme will include: 1) modernisation of flats - change of structure and use, 2) construction works in communal buildings consisting in repair of roof, façade, balconies, staircase, repair or replacement of sanitary and electrical installations, change of heating system from furnace to network (where technical conditions allow) and liquidation of existing common toilets located outside the flats and (as far as technically possible) their construction within the flats, 3) comprehensive development of courtyard interiors: land levelling, drainage, lighting, organisation of parking spaces, organisation of waste disposal areas, construction of playgrounds and recreational areas, landscaping and maintenance of green areas.	The measures will contribute to improving the municipality's municipal stock in support of housing quality and climate objectives. The benefits for the city will arise in particular from the savings in energy consumption costs associated with heating and lighting the property, as well as ongoing management and repair costs.

[22] Resolution No. XVIII/345/15 of the City Council of Wroclaw dated 26 November 2015 on the "Low-Carbon Economy Plan for Wroclaw".

Energy efficiency	Ongoing and results from the Low-Carbon Economy Plan for Wroclaw	Residents, municipal entities	The aim of the task is to create a collection of information that provides an overview of the activities of individual municipal entities within the framework of reducing energy consumption in the stock of the municipality. Implementation of the obligation under the Energy Efficiency Act. The task is carried out by collecting data annually from entities associated with the city on the activities they carry out that contribute to energy efficiency. This action is designed to monitor the energy consumption costs of municipal facilities. The effect of the measure is to optimise energy consumption costs and take measures to reduce them. For the municipal budget, it will therefore result in savings on energy purchases.
Development of the Urban Farm	Implemented and results from the Climate Change Adaptation Plan	Residents, educational establishments	Development of the first Urban Farm, a large-scale farm within the administrative boundaries of the city. This will increase the city's resilience to crises, build food self-sufficiency, shorten supply chains and promote healthy food. The Urban Farm is a producer of food for the city's educational institutions and people in need, which affects the direct transfer of food products to the institutions and reduces logistical costs. This is the first year of operation This activity will have a positive impact on the budget savings associated with reducing the cost of purchasing food and the problems associated with, for example, food price volatility, inflation or the reduction of goods on the market in crisis situations. Crucially, supporting people in need with food products will reduce potential social welfare costs. Local food production and distribution can bring financial benefits in more efficient management of the

			supply chain and thus urban logistics costs.

3.2 Module IP-C2: Identification and Mitigation of Risks

C-2.1

Risk analysis is present in the investment decision-making process. The standard is the use of ISO standards and, in addition, Wroclaw is the only municipality in Poland listed in the EMAS register (as of 24 October 2012). In addition to the ISO and EMAS standards, the municipality has a project management system and there is ongoing monitoring of investments in progress. At least quarterly, the project manager evaluates investments in a system dedicated to risk management (e-risk), which is directly addressed to decision-makers. In addition, transport-related infrastructure projects are implemented on the basis of the '*Blue Book for the public transport sector in cities, agglomerations and regions'.* Confirmation of the certification of the adopted processes takes place at least once a year.

Once the risks have been identified and assessed, remedial actions are identified for each risk. There are four main remedial strategies:

1. Risk prevention: means changing the project plan to eliminate the risk or to eliminate the impact of the risk on the project. Remedial actions may consist of a change in the technical design, the institutional model, the method of financing or the implementation contract formula.

2. Risk mitigation: means reducing the likelihood of a risk occurring or its consequences by making changes to the project, such as changes in design or use of materials. The difference with a risk 'prevention' strategy is that risks are only reduced, not eliminated.

3. Risk transfer: means the transfer of responsibility for the risk to a third party (another entity) for a price. Insurance companies are the most obvious example of such a third party, but it can also be another entity involved in the project, such as a contractor. The transfer of risk must result from the contract, guarantees or pricing mechanisms (among others). The transfer of risk only makes sense if the assuming party is (better) able to control the risk in question, and has the means to cover the impact of the risk in case the risk materialises.

4. Risk tolerance: is a strategy adopted in situations where risks cannot be prevented, reduced or (economically) transferred. Therefore, such risks must simply be tolerated. However, this approach requires the development of a contingency plan in case a negative event occurs but does not require prior action.

Table 13: Climate Investment Plan Risk Framework

Fields of Action	Sectoral Project	Risks Identified	Description of Risk	Risk Priority	Mitigation of Risk
Transportation	Expanded green public transport infrastructure and reduced traffic congestion in the city (decongesttion of the city)	Operational risks relating to the operational phase of the project or financial risks arising from the complexity of the operation	High investment costs - the implementation of just a few major projects involving the extension of tram lines costs more than EUR 300 billion. Over the investment timeline, costs increase. The municipal budget is limited, so it is necessary to be supported by funds from external sources. There may be unforeseen increases in market prices for renovation and ongoing maintenance services. This can be caused by unforeseen circumstances causing an increase in infrastructure maintenance costs.	The severity and probability of the risk shall be assessed as high.	Within the structures of the office, there is an organisational unit for raising external funds, including European funds. The team is responsible for identifying external funding sources that will allow planned investments to be realised.

	Promoting the use of electric vehicles locally (mainly the city of Wroclaw)	Financial risks caused by continued increases in energy prices	Given the current geopolitical context, energy prices could fluctuate drastically, mainly due to a reduction in energy supply. This may lead to a reluctance of citizens to purchase and use electric vehicles.	The probability of risk shall be assessed as high and the severity of risk shall be assessed as moderate.	In order to reduce residents' reluctance and opposition, the municipality will promote the benefits of the measures taken (less noise, fewer traffic accidents, a more child- and elderly-friendly urban environment) and emphasise their added value for residents' quality of life.
	Wroclaw Urban Bicycle - self-service bicycle rental system	Risks arising from vandalism, financial burden on the city	No major risks are anticipated, but problems may arise in the form of consistent return of bicycles to the (rental) point, whereby they may be abandoned in places such as pavements or roadsides (the same situation that occurs with electric scooters). There may also be some "decorating" of bicycle frames with graffiti (the same as with electric scooters). The cost of maintaining the self-service bicycle rental stations and organising transport for unattended bicycles can also be a problem, so additional costs	The probability of risk shall be assessed as high, while the severity of risk shall be assessed as moderate.	One way to prevent such risks is the creation of an advanced mobile application accessible to all. People renting a bike would have to log in to the app by indicating the destination to which they want to move and the app would indicate where it is closest to the bicycle point (where the bicycle can be left). If such a person would not leave the bicycle at the point, but would abandon it in an unauthorised area, the app would track the bicycle and it would be possible to impose a declaratory financial penalty for non-compliance with the rules governing the use of the rental facility. Such a system would also reduce the risk of accidents involving the elderly or disabled people (who would not notice a bike left on the pavement). This would also make it easier for the city to locate and recover abandoned equipment.

			have to be taken into account. The city will also be financially responsible for any incidents where people walking on the pavement or by the side of the road (in particular blind people) arrive in hospital as a result of falling over an abandoned bicycle.		
	Construction of traffic routes in Jagodno district	Demand risks - level of public transport traffic lower than forecast (low passenger interest); reluctance of citizens to switch from car to public transport	A scenario where a decrease in tram passengers' use is possible. This situation may be caused by a lower number of permanent and temporary (students) inhabitants of Wroclaw as well as their lower mobility. The problem may also be the initial reluctance of citizens to change modes of transport (most people are used to travelling by car and to the so-called door-to-door travel).	The severity and probability of the risk shall be assessed as moderate.	Jagodno district is expanding rapidly, which leads to numerous traffic problems. In order to avoid the risk that interest in using public transport falls and therefore passenger numbers decline, changes would have to be made to the organisation and synchronisation of bus and tram traffic. This will not only make it easier for passengers to transfer between modes of transport, but will also optimise their travel time between work and home, making people more likely to use public transport.
Built Environment	Energy renovation of public buildings	Rising costs in the construction sector and indirectly in	The risk of an increase in the cost of necessary works due to inflation	The severity and probability of the risk shall be	The necessary core funding will be covered by non-refundable funds and the budget difference between the submission of funding requests and the date of

		renovation	and large fluctuations in the price of necessary materials may lead to an increase in the investment budget or to its cancellation.	assessed as high.	reimbursement will be covered by the local budget.
	Energy efficiency in commercial and residential buildings	Low interest from potential investors	Low interest from some potential investors in making changes to designs and completed buildings in terms of their energy efficiency due to the additional costs.	The severity and probability of the risk shall be assessed as moderate.	To prevent this risk from occurring, mixed tools such as budgetary incentives and a set of urban planning regulations should be used to increase the success rate of the measures.
Energy Generation	Implementation of RES in municipal facilities	Reduced potential for wind energy production and storage	The specificity of our country, including the municipality, is that we only have 72 windy days in the whole year, with wind speeds not high enough to produce enough energy on their own to power the whole facility.	The severity and probability of the risk shall be assessed as low.	In order to mitigate the risks, the most appropriate RES generation solutions for each building should be identified and hybrid solutions combining several types of RES installations should be used to achieve maximum efficiency.
	Energy-efficient public lighting	Financial risk - price fluctuations due to inflation	Price fluctuations due to inflation can have an impact on investment budgets, especially in a context where increasing demand for LED lighting technology leads to higher prices.	The severity and probability of the risk shall be assessed as moderate.	As the necessary funding is covered by non-refundable funds, the differences caused by inflation will be covered by the local budget.

	Municipal heating replacement programme	Low interest from the public due to price volatility	Despite the subsidies offered by the municipality, the public may express reluctance to change due to maintenance costs or the unstable and ever-changing energy market. There are also problems with the price stability of newer (green) appliances.	The risk severity shall be assessed as moderate and the probability of risk shall be assessed as high.	The municipality cooperates with the Voivodship Funds for Environmental Protection and Water Management in Wroclaw, which can offer support not only on an educational level but also on an advisory one, to present the intensity of funding for beneficiaries and offer support in identifying suitable suppliers who can provide the necessary solutions within reasonable time and financial limits.
Green infrastructure and Nature-Based Solutions	Green Wroclaw	Administrative and regulatory risks	These risks include the resources and bureaucracy associated with various expropriation measures for public use, weak regulation/standardisation at central level and inefficient legislation that can delay the timetable for the implementation of many projects.	The risk severity shall be assessed as low and the probability of risk shall assessed as moderate.	In order to avoid this risk, the municipality started preparing for these projects several years ago, leaving enough room for the whole bureaucratic process, securing the space, getting all the legal approvals in order to achieve operational compliance and common standards.
	Supporting sustainable rainwater management systems with blue and green infrastructure in Wroclaw	Administrative and regulatory risks	These risks include the resources and bureaucracy associated with weak regulation/ standardisation at central level and inefficient legislation that can delay the	The risk severity shall be assessed as low and the probability of risk shall be assessed as moderate.	The best solution to prevent this type of risk is to take a number of actions, which consist in preparing for the implementation of the project at the bureaucratic, legal level and obtaining all the necessary permits in order to achieve operational compliance and establish common standards between all cooperating entities.

			timetable for the implementation of many projects.		
Waste and Circular Economy	Municipal Waste Selective Collection Point Szwajcarska Street in Wroclaw	Low public involvement	No or low consequences drawn for the non-use of waste segregation, so that the public does not feel the need to separate waste.	The severity of the risk shall be assessed as moderate and the probability of the risk shall be assessed as high.	The municipality hopes that as residents see more and more advantages and opportunities for separate waste collection, they will change their behaviour. Environmental awareness is very important, so it is a good solution to use various types of infrastructural incentives such as bottle machines and to educate residents on this topic by means of brochures or posters. However, if the impact of the project lasts too long, the municipality will use a number of coercive measures to stimulate carbon-neutral household practices in the management of the waste they produce.
Mild interventions	Cities Mission	Administrative and regulatory risks	A lack of understanding of the concept of climate neutrality or delays in adopting the concept at a personal or collective level can damage the local climate neutrality pathway.	The severity and probability of the risk shall be assessed as low.	Wroclaw, as the Mission city, started preparing for project implementation several years ago, leaving enough room for the whole bureaucratic process, securing space, obtaining all legal permits for operational compliance and common standards. On the other hand, when it comes to increasing public support, the best solution will be to use a multi-level approach that aims to change behaviours and values to ensure the involvement of all stakeholders and provide support for neutral climate action.
City Wide Risks (Cross Cutting)	-	Capacity and capability risks; Climate risks; Risks associated	Legal and regulatory challenges that may arise from changes in laws and regulations. Market fluctuations that may affect the	The severity and probability of the risk shall be assessed as high.	Wroclaw is strongly committed to achieving its climate neutrality goals. Through cooperation with various administrative units as well as project partners and investors, it strives to achieve common goals to improve environmental quality. The city is working closely with the national government and other stakeholders to overcome

		with the execution of construction works; Reputational risk; Risk of institutional adaptation.	availability of products and services needed to implement the plan. As a result of climate change in Poland, there is an increasing threat of torrential downpours or flash floods in rivers, as indicated by increasing precipitation, expressed both by an increase in maximum daily precipitation and the number of days with extreme precipitation. Although each project has a deadline, complications can arise in the form of delays in individual tasks. Delays can occur: • due to the fault of the construction contractor, the supplier and the contractors for the other elements of the project, • regardless of the contractor (fortuitous events, bad weather,		these barriers, especially the political and financial ones, as they are the most complex, in order to achieve its objectives.

			unexpected obstacles during the construction phase, breakdown of machinery or equipment). Archaeological finds may occur during the development phase, which may lead to the commencement of archaeological work. Social concerns if the implementation of the plan does not take into account the needs and welfare of the communities and groups involved. Institutional challenges, such as coordination and communication between different departments, agencies or levels of government, which may negatively affect the implementation of the plan.		

3.2 Module IP-C3: Capacity Building and Stakeholder Engagement for Capital and Investment Planning

C-3.1

To bring about change in the city, it is essential to work with a wide range of partners (public, private, scientific institutions, civic organisations - residents), as these groups are responsible for the majority of greenhouse gas emissions in the city.

Since 2022, Wroclaw has been building a strong mandate in the form of teams working on the city's quest for climate neutrality by 2030. City teams have been formed, including incorporating external stakeholders:

1) **MISSION CITY TEAM - COOPERATION WITHIN THE MUNICIPALITY AND MUNICIPAL ENTITIES**

Establishment of the City Team - Ordinance No. 8741/22 of the Mayor of Wroclaw of 13 October 2022 on the establishment of a team for the implementation of the EU Mission: Climate Neutral and Smart Cities followed by amendments extending the composition of the team for the implementation of the Cities Mission. The panel shall meet at least 4 times a year.

2) **DECARBONISATION TEAM**

Establishment of the Decarbonisation Team - Ordinance No. 10546/23 of the Mayor of Wroclaw of 12 June 2023 setting up a team for the decarbonisation of the Wroclaw district heating system. The team has an advisory and coordinating role within the framework of **cooperation between the City of Wroclaw and energy companies, institutions and entities** in the areas of development and activities aimed at decarbonising the district heating system in Wroclaw.

3) **AIR QUALITY AND ENERGY EFFICIENCY TEAM**

Appointment of the Air Quality and Energy Efficiency Team in Wroclaw - Ordinance No. 10421/23 of the Mayor of Wroclaw of 26 May 2023 setting up a team on air and energy efficiency in Wroclaw. The team ended in June 2024, analysis of its continuation is underway.

In addition, from 2022 onwards, local representatives of the communities, key to the progress of the Mission's objectives, such as the academic sector, the property development sector, the private company sector and NGOs, among others, were selected in Wroclaw. In 2023, representatives of the urban planning community and Wroclaw's cooperatives joined the partners. Sector leaders are highly qualified and have the potential to support the city in building a roadmap for climate neutrality in the city. During the period 2023-2024, in the spirit of co-creation, meetings were held with the stakeholder community, including mixed groups, to obtain information about their organisations' activities towards decarbonisation that have an impact on reducing the city's GHG emissions and improving quality of life. During the meetings, stakeholders were also asked about their readiness to take further steps by 2030.

On this basis, it can be concluded that in Wroclaw, there is substantive and personal potential to plan and implement actions towards a climate-neutral city. What is challenging to jointly build an investment plan are legal barriers (e.g. internal restrictions such as trade secrets) economic barriers (e.g. lack of financial viability of parties in co-participating in investments or organisational barriers (e.g. lack of structured data). Addressing this situation requires constant communication between stakeholder groups and joint attempts to overcome the above-mentioned barriers.

In identifying relevant stakeholders to contribute to the development of the Investment Plan, account should be taken of the regional and government authorities, which Wroclaw has been encouraging since the beginning of its participation in the Cities Mission, to cooperate at the level of financial models, without which the climate transition in the city is not possible. Thus, cyclical meetings with representatives of the Ministry of Climate and Environment to support the CCCs of all Polish cities

were held in the first half of 2024. These took place:

- meetings with representatives of the Department of Adaptation to Climate Change and Urban Policy (coordinating role on the government side);
- arranging meetings of the Directors and Mayors of Cities with the Minister for Climate and Environment;
- engaging other public bodies for the purposes of the Cities Mission.

In addition, a memorandum of cooperation has been developed in 2024 with the Lower Silesian Voivodship - Institute of Territorial Development on projects and undertakings that bring European cities and regions closer to achieving climate neutrality. This agreement creates a platform for the exchange of knowledge, experience and best practice useful to the city, the region as a whole and other interested European and national partners. It aims to support the acceleration of decarbonisation and increase the involvement of citizens and key stakeholders in efforts to achieve climate neutrality.

Listening to the voice of stakeholders and responding to the need to create a space where representatives of communities working for climate neutrality in Wroclaw come together, in 2024 all stakeholders were invited to join the *Wroclaw Transition Team* group on the NetZeroCities portal. The aim was to create a cooperation platform for those willing to cooperate with each other and with local authorities on climate transformation in the city.

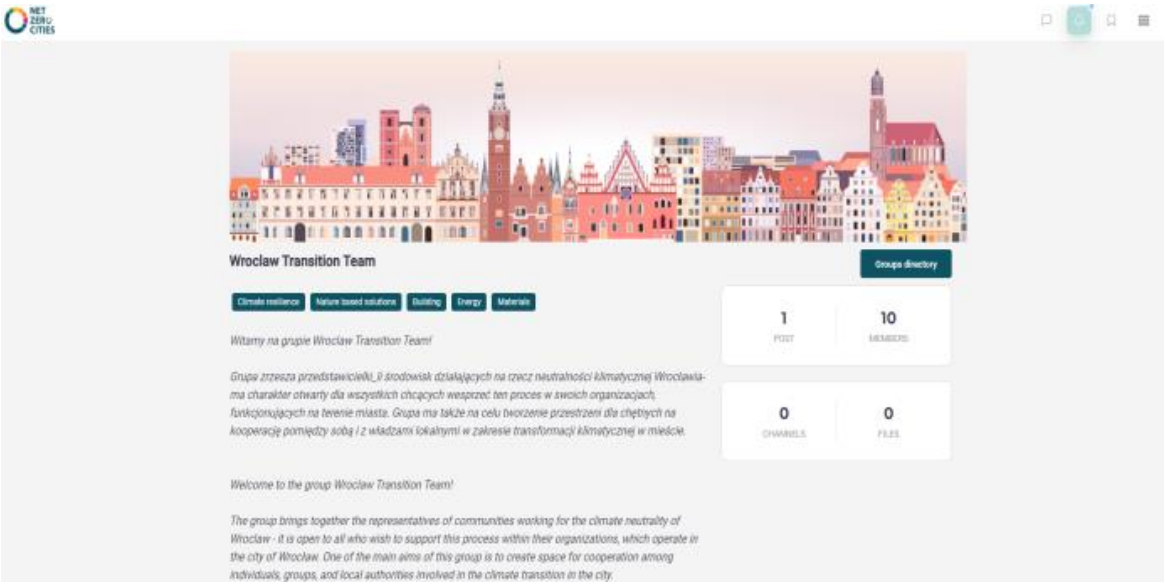

Figure 1. The Wroclaw Transition Team group on the NetZeroCities portal (NetZeroCities).

In the coming years, Wroclaw's stakeholders are interested in intensifying their climate-neutral initiatives, which have an indirect or direct impact on society or the Municipality of Wroclaw. We interpret these actions as public projects. Examples of the allocation of human resources, time and financial capital by stakeholders to climate projects are highlighted in Table 14.

From the city's point of view, the paths of financial involvement of the private sector (including banks, companies) are an open catalogue. From 2022 onwards, business in Wroclaw has been encouraged to cooperate at the level of:

- Joint projects funded from grants and external funds (City as a partner)
- CityLab - testing of the company's design/product solutions and algorithms in the urban fabric (use of real estate and property of Wroclaw)
- Commitment to the Green Patronage – financing environmentally friendly solution in exchange for the Patronage
- A "win-win" approach: economic, financial models and collaborations in which the city can

be involved

- Mayor's letters of support for company's pro-climate initiative
- Encouraging participation, meeting the conditions of city programs and taking advantage of future tax breaks
- Building prestige through publicity by the city of good mitigation and adaptation practices used internally within the company (e.g., promotion for Green Wroclaw)
- Activities of companies: experts and employee volunteering, organization of joint events; city activities: environmental education of company employees.

An example of the joint implementation of an action at the interface between the Municipality of Wroclaw and business was the Conference Mission 1.5°C Wroclaw - Business for Climate, which took place in May 2024.

Figure 2. Logo of the Conference Mission 1.5°C Wroclaw - Business for Climate (Municipality of Wroclaw).

- Co-organisers: Department of Strategy and Sustainable Development of the Municipality of Wroclaw, Wroclaw Agglomeration Development Agency, Wroclaw Technology Park
- Substantive partner: AdREM Energy
- Patrons: Chambers of Commerce - British, American, Scandinavian, French, German, Lower Silesian, Western.

Figure 3. The debate between some of the participants of the Conference Mission 1.5°C Wroclaw - Business for Climate (Municipality of Wroclaw).

Participants of the event were introduced to the Mission of Climate-Neutral and Smart Cities by 2030 and the CCC co-developed within its framework. At the conference, representatives of the business community presented, among other things, what ESG reporting was, how to approach it legally, shared their experiences with the implementation of pro-climate projects and presented the benefits of action towards climate neutrality. The conference served as a catalyst for its participants to unveil the secret of the decarbonisation strategies of the companies they represented, but also to take concerted action to reduce greenhouse gases in Wroclaw. The conference reinforced the city's further contacts with various business sectors operating in the city on a daily basis.

Figure 4. Group photo of the participants of the Conference Mission 1.5°C Wroclaw - Business for Climate (Municipality of Wroclaw).

At the end of the conference, the participants signed an important declaration of cooperation on:

- Identifying the climate (mitigation and adaptation) challenges facing Wroclaw in the 2030 perspective with the possibility of extension to 2050
- Develop the content of a social contract, known as: CCC, an the 2030 Action Plan and the Investment Plan
- Verify progress of implementation, climate indicators in the coming years, to monitor results.

Figure 5. Signing of the declaration (Municipality of Wroclaw).

Figure 6. QR code to the declaration.

Table 14: Stakeholder Engagement Mapping

Stakeholders involved	Required Investment [EUR]	Network	Influence	Interest	Level and Type of Engagement
European Investment Bank	133,000,000.33	Foreign financial institution - implementing EU policy to support climate action.	The stakeholder, through its policy, decides on the selection of investment tasks for a funded project, then checks the degree of implementation of these tasks until their completion. In this way, it ensures the completion of the project, which translates into investments that can accelerate the climate neutrality of the city.	Interest in the optimal management of investments contributing to climate neutrality and the development of related projects. Earmarking of loan funds for well-defined purposes contributing to climate neutrality.	Wroclaw Municipal Infrastructure Agreement A (dated 26 September 2018), B (dated 25 September 2019), C (dated 8 May 2020) for a total amount of PLN 600,000,000. Loan agreement for the implementation of a project in the field of urban transport (extension of the tramway network and urban street network) with some investments in health care, education, culture, sport and other investments in public infrastructure.
	160,000,000				Wroclaw Sustainable Infrastructure A & B agreement of 31 May 2021 for the amount of PLN 720,000,000. Loan agreement for a project comprising investments to support improvements in energy efficiency parameters, urban transport networks and mobility, education and sports facilities, cultural facilities and other elements of municipal infrastructure and services.
	40,000,000				Wroclaw Sustainable Infrastructure Agreement dated 6 December 2023 for the amount of PLN 600,000,000. Currently, PLN 180,000,000 has been used. Loan agreement for the implementation of a project concerning various investments in the field of development, revitalisation and renewal of urban areas through new construction, renovation and modernisation of urban infrastructure (including public buildings (e.g. educational institutions, care

					facilities, social housing, taking into account energy efficiency measures), sustainable mobility infrastructure (e.g. tramway track renovations, modernisation of bridges and urban roads, taking into account road safety and climate action measures), sustainable public transport (e.g. for bicycles and pedestrians), sports facilities and green spaces), as well as investments to increase infrastructure capacity and improve the functioning of municipal services.
Vantage Development S.A.	No	Building developer	The impact of activities on the environment and the local community, sustainable business with sustainable develop-ment, which contributes to reducing emissions.	There is interest in creating projects that combine elements of reducing emissions and improving energy efficiency with promoting environmen-tal awareness among tenants of premises.	**In 2023. the developer has undertaken activities such as:** a) Clean and accessible energy - 100 % of housing estates built in 2023 had at least five low-carbon solutions b) Sustainable cities and communities, as a result of which 46% of housing estates were equipped with outdoor charging stations for electric cars; 887 bicycle racks installed; 7 playgrounds and children's zones created. (c) Climate action-results: PE indicator of 61.85 PE kWh/m2/year across the portfolio; 77% biodiversity-friendly settlements; 22,835 m^2 of high biodiversity areas on housing estates. d) Cycling events for tenants "Unwind in spring" - the effect of which is to promote sustainable transport and care for building neighbourhood relations. e) eBOK for residents as support of environmental actions – the effect of increased

					awareness among tenants, environmental education. f) Supporting external sustainability initiatives - resulting in an increasing number of business partners involved in ESG. **Initiatives planned for the future include**: a) Reducing the carbon footprint: I. Conversion of 100% in the common parts of rental buildings to green energy supply with certificates of origin II. Aiming to reduce heat demand for the tenants portfolio through: digitalisation, audits and informed purchasing of household appliances in rental apartments III. Running an eco-portal, conducting information campaigns, implementing elements of circular economy policy. b) Contribution to building community relations - implementation of public charging stations for electric cars, installation of new bicycle repair stations, playgrounds.
ROBYG S.A.	No	Building developer	The impact of activities on local communities and the environment, running a business where a lot of attention is paid to ecology and community involvement.	Interest in creating projects that use innovative technologies and solutions to support the environment.	**In 2023, the developer was undertaking activities such as:** a) Low-carbon - ROBYG as the No. 1 low-carbon residential developer in Poland: i. 100% renewable energy in the construction process at ROBYG by the end of 2024, ii. disclosing CO_2 emissions under scopes 1 and 2 in accordance with the GHG Protocol

					standard and, starting in 2021, making preparations for reporting CO2 emissions under scope 3 b) Green Standard - an internally developed and evolving structured standard that includes both: I. solutions and facilities for customers as well as guidelines for architects and designers in the fields of construction, sewerage, electrical engineering or ecological design II. In addition, it defines the low-carbon solutions used (minimum 3 for each stage of the investment), biodiversity-friendly solutions (minimum 1 per stage) and solutions to protect water resources and encourage small-scale retention (blue-green infrastructure - minimum 1 per stage) c) 15-minute cities - increase the number of projects that are in line with the 15-minute city concept from the current 70% to over 80% by 2025 d) Water and biodiversity - 100% of newly built estates have a biodiversity conservation element. 100% of newly built estates have blue-green infrastructure elements. **Initiatives planned for the future include**: a) Climate mosaic (workshop - international movement Climate Fresk (world) - climate education: – training of internal facilitators – organisation of workshops for employees, subcontractors and suppliers, partners – evaluation studies

					b) Preparation for compliance with the Taxonomy in part of the construction of new rental investments.
Dom Development Wroclaw Sp. z o.o.	No	Building developer	The impact of activities on tenants and the environment, driving the Home 2030 strategy - which is a sustainable development strategy to meet objectives such as environmental care, social responsibility and corporate governance.	Interest in creating projects based on the internal "Green Investment Charter" standard, which is based on the use of design solutions in line with sustainable urbanisation priorities.	**In 2023, the developer was undertaking activities such as:** a) In 2022, introduction the ESG strategy 'Home 2030' I. minimising environmental impact and supporting urban biodiversity II. Supporting local communities through the creation of a high quality, inclusive urban fabric III. Ensure the highest standards of corporate governance and transparent communication with all stakeholders. **Initiatives planned for the future include**: - Reduction of scope 1 and 2 GHG emissions by 30% per apartment under construction by 2030 compared to 2021 - decarbonisation of operations.
DOM.developer Wroclaw Sp. z o.o.	No	Building developer	The stakeholder influences the environment and tenants of the premises through its activities, conducts sustainable business and introduces innovative technological and planning solutions, which translates into	Interest in creating projects that combine elements that reduce emissions and contribute to improving the quality and state of the environment.	**In 2023, the developer was undertaking activities such as:** a) Installation of so-called "grey water" in the "Brzozowe Zacisze" housing estate at 171 Maślicka Street in Wroclaw b) Design and construction of rainwater retention facilities and reservoirs in residential areas in Wroclaw

			accelerating the climate neutrality of the city.		c) Designing a roof with a biologically active area, the so-called "green roof" d) Reclamation of the pond owned by Urban Greenery Management at 173 Maslicka Street. **Initiatives planned for the future include**: a) Design and installation of ground source heat pumps b) Promoting the installation of photovoltaics and recuperation in facilities.
ECO BROKER Sp. z o.o.	No	Consultancy firm	The stakeholder, through its activities, affects the environment and the local community, pursues sustainable development policies, by using state-of-the-art IT tools and selecting the appropriate optimisation and distribution of heat energy, reducing the use of traditional energy, which can accelerate the city's climate neutrality.	Interest in energy efficiency through the use of Energy Management Systems (EMS) that deliver the fastest results, with the lowest investment costs.	**In 2023, the company was undertaking activities such as:** a) Energy management system at Domar Interior Gallery - reduction of energy consumption for heating (reduction of heating costs by 46%, for the environment - reduction of greenhouse gas and dust emissions) b) Energy management system at Wroclaw Municipality - reduction of energy consumption for heating (reduction of heating costs by 26%, for the environment - reduction of greenhouse gas and dust emissions) c) Energy management system at Wroclaw University of Environmental and Life Sciences - reduction of energy consumption for heating (reduction of heating costs by 15%, for the environment - reduction of greenhouse gas and dust emissions). **Initiatives planned for the future include**: - Innovative RES solution for multi-apartment

					buildings.
Wroclaw Medical University	No	University	The university's impact on society and the environment, undertaking activities related to the promotion and dissemination of activities and issues related to ecology and climate neutrality.	Interest in organising climate education campaigns and conferences.	**In 2023, the university was undertaking activities such as:** - Green University" conference - popularisation of issues related to ecology and its impact on health.
Wroclaw University of Environmental and Life Sciences	No	University	The university's impact on society including the University students and staff and the environment, undertaking activities related to promoting biodiversity projects and popularising ecological and climate-neutral activities and issues.	Interest in carrying out climate education conferences and promoting the Sustainable Development Goals.	**In 2023, the university was undertaking activities such as:** a) Promotion of "green roofs" - by organising a scientific conference "Greening the roofs of Polish cities". b) Promotion of the Sustainable Development Goals - publication of a series of texts c) As part of the EUGreen project, the Reasearch and Development Centre of the University co-organised a hackathon for English-speaking students on new solutions to reduce food waste - making students aware of the scale of the food waste problem d) Participatory budget at University promoting biodiversity projects e) Podcasts in the series "We have a green idea" - popularising knowledge of the Sustainable Development Goals, promoting the activities of University researchers. **Initiatives planned for the future include**:

					a) Implementation of the 'Action Plan' of the Race To Zero Campaign - reducing GHG emissions.
AST National Academy of Theatre Arts in Krakow/ Branch in Wroclaw	No	University	Social and environmental impact of the university, accelerating the climate neutrality of the city by introducing RES.	Interest in implementing RES projects in university buildings and promoting environmental awareness among children through performances.	Using RES as a source of energy supply. The aim of the initiative is to reduce the carbon footprint, saving on electricity purchase costs. The scale of the measures applies to the entire university - sites in Krakow, Wroclaw and Bytom. Wroclaw Photovoltaic installation of 49.875 kWp.
University of Wroclaw	No	University	The university's impact on society including students and staff and the environment, taking action related to neutralising the negative human impact on the climate and holding classes where discussions on ecology and climate neutrality are undertaken.	Interest in pursuing conferences and lectures on climate neutrality. Taking action to introduce green solutions on university premises.	**In 2023, the university was undertaking activities such as:** a) Installing drinking water machines in buildings and thereby eliminating bottled water b) Installation of shelters and bicycle racks next to buildings and in car parks c) Successive replacement of vehicles with more ecological ones d) Organisation of educational activities - the Inter-University Climate Academy is a unique in Poland initiative of three universities (University of Wroclaw, AGH University of Science and Technology, SGH Warsaw School of Economics), with significant support from the banking sector. Its offer is addressed to professionals from government and local administration, production and service companies, including consulting, law and finance, and experts from the non-governmental sector.

3M Wroclaw Sp. z o.o.	No	Industry (manufacturing company)	Social and environmental impacts of stakeholders, sustainable development policies and the introduction of RES – activities that can accelerate the climate neutrality of the city.	Interest in creating initiatives and investments that have a positive impact on improving the environment. Financial support for pro-climate projects and activities.	**In 2023, the company was undertaking activities such as:** a) Comprehensive improvement of the energy efficiency of the entire plant - reduction in energy consumption and CO_2 emissions (12% reduction in CO_2 emissions and 19% reduction in energy consumption) b) Renewable energy for 3M factory - supporting the development of renewable energy in Poland and reducing the carbon footprint of 3M products c) Use your bicycle - encouraging employees to come to work by bicycle. To this end, bicycle sheds have been expanded and bicycle services have been organised at each festival d) "Earth Week at 3M" - increased awareness of the climate challenge e) Financial support (3M and Global Giving grant) and organisational support for the H_2O Institute project - floating filter islands on the Oder River (project 2023-2024) - an educational and research project related to natural ways of cleaning the river. **Initiatives planned for the future include**: a) Photovoltaic installation for 3M Wroclaw plant - own production of renewable energy b) Comprehensive rainwater utilisation system - reduction in water consumption through the use of rainwater, e.g. in toilets c) Energy optimisation - reduction of electricity consumption by 3M plants.

Table 15: Stakeholder Activity Cost

Stakeholders involved	Activity	Cost to Municipality EUR
Charging station operators	Exemption from property tax for charging stations.	No data available
Owners of buildings in the city/residents	Tax benefits for RES installations (property tax exemptions).	6,511,111
Residents	Wroclaw Civic Budget 2024 - including pro-climate measures.	7,333,333
Residents	Free tickets for public transport.	No data available
Residents	Young - Actively Mobilised - a set of pro-education activities.	5,777
Residents	KAWKA 2024 programme - subsidy programme for replacing furnaces in Wroclaw with an environmentally friendly heat source.	Municipal heating replacement programme - 16,400,000
Residents	Termo KAWKA programme - window replacement subsidies for people who have replaced their furnaces thanks to the KAWKA programme.	
Residents	The Local Shield programme is a system of heating bill subsidies for people who have replaced their coal cooker with an environmentally friendly heat source: electric, gas, district or oil.	
Residents, users of the city	Eco Support - various forms of environmental education.	Programme under development, according to receipt of donations
Residents in communal buildings	Tenement Returns programme - revitalisation of municipal housing stock, stage I - 22 tenements.	11,000,000.33
Graduates of Wroclaw universities (public and non-public)	Wroclaw's Magnolia - the annual competition is aimed at graduates of universities who in a given academic year have defended their master's thesis dealing with issues related to improving the quality of life of the inhabitants of Wroclaw, and in particular with protecting the environment and nature of the city of Wroclaw in the broadest sense, as well as protecting human health and life. The aim of the competition is to select the best Master's theses.	The number and amount of prizes is decided each time by the Competition Committee. In 2023, it was 8,889
Individuals (property owners) and housing communities	Subsidies for the cost of connecting properties to the municipal sewage network.	No data available
Owners of dwellings in multi-family buildings	Warm Apartment programme - a programme of the National Fund for Environmental Protection and Water Management (subsidy from the national level), implemented by the Municipality of Wroclaw, consisting of subsidies for investments in the replacement of heat sources using solid fuels with low-emission heating and subsidies for the replacement of windows and doors.	Not applicable - national measures
Property owners (residents/businesses)	Programme to remove asbestos and products containing asbestos from the Wroclaw area. Task co-financed by the Voivodeship Funds for Environmental Protection and Water Management in Wroclaw and the National Fund for Environmental Protection and Water Management. In 2023, work was carried out on 46 properties. A total of over 64 tonnes of asbestos products were removed. The total cost of implementation was approximately PLN 130,000.	Not applicable - national measures
Administrative authorities of educational	Adapting school spaces to climate change through the implementation of the Grey to Green programme - the programme aims to unseal outdoor areas and develop	Annually, approximately 111,111

institutions and students	blue-green infrastructure, develop safe and student-friendly green spaces with the functions of increasing climate resilience, noise protection, biodiversity conservation and the development of small-scale rainwater retention with an accompanying educational task for students. In 2023, 18 educational establishments benefited from the programme.	
Residents, including students, teachers, parents	FoodSHIFT2030 was a project dedicated to transforming the European food system into a low-carbon, circular economy model, promoting local organic farming and healthy food and shortening the distance between producers and consumers. It aimed, among other things, to encourage residents to grow vegetables, flowers, fruit or herbs together and to create vegetable gardens in Wroclaw schools. The vegetable gardens were made with innovative and ecological functional and spatial solutions, using recycled and/or biodegradable materials. Diverse plant material of a utilitarian nature was used, including old orchard varieties. The selection of plant material included fruit trees and shrubs, and herbs. Seed sowing was planned to maximise the use of space (intercropping). Its implementation is another element of the city's new climate policy. The activities also have an educational function. They provide students, parents, staff of educational institutions with knowledge about greenery in the sustainable development of the city.	Over 114,667
Residents: individuals, housing communities and cooperatives	The 'Catch the Rain' programme is designed to increase the amount of stored water among the residents of Wroclaw. Money can be obtained for rainwater tanks that will improve water retention in the city area. In addition to providing financial support for the purchase of pro-ecological installations, the programme has an educational impact - rainwater is a resource worth keeping and using in the garden or on the balcony to contribute to the development of a green city.	In 2024, the allocation of 133,333
Residents with home gardens and educational establishments	Composter sharing programme. The aim is to educate residents about proper waste composting and to promote composting of waste for own use. The composters are lent to residents with home gardens and educational establishments. The equipment is lent for three years, based on a contract concluded with the Municipality of Wroclaw. After three years, the composters become the property of the user.	No data available
Residents	GROWinWROclaw - planting trees to commemorate the birth of the youngest female and male inhabitants of Wroclaw. In total, in a few years the capital of Lower Silesia, thanks to GROWinWROclaw, has been enriched by around 3,500 trees.	No data available

Appendix 1. Estates of Wroclaw (Municipality of Wroclaw)