

Climate Neutral Espoo 2030



Let's work together towards a climate neutral Espoo

We all share the common climate challenge and are in the midst of a sustainability transition. Climate neutrality can only be achieved together.

Our strength in Espoo is a unique community that has the expertise, ambition and courage needed in climate work. The companies, universities and research institutes of the Espoo community develop research-based high-tech solutions that will help reduce emissions globally.

We have been selected by the European Commission to lead the way in climate work. Our urban area is a development platform for emission-free solutions that are in high demand worldwide. At the same time, we are creating sustainable growth, vitality, well-being and jobs in Finland and Espoo.

We use our resources for systemic change as an enabler and for activities that promote, not hinder or slow down, the climate neutrality goal. We ensure that Espoo residents have the opportunity to make sustainable choices in their everyday lives.

We have already made significant progress in climate work, and together we can solve the remaining challenges. We welcome you to take part in this common journey.

Jukka Mäkelä
Mayor





Espoo is at the forefront of climate work



Let's show the world how Espoo and entire Helsinki metropolitan area of 1.5 million people are heated mainly without combustion! The Helsinki Metropolitan Area has a key role in Finland's phase-out of coal, and Espoo's solutions will play an important pioneering role within the region. The solutions of the region will have a major impact on the carbon neutrality path of the whole Finland. However, the real impact on the climate will come from the pioneering solutions that will be created when solving Espoo's energy system, and which we will then replicate at the world's major emission sources.

Kai Mykkänen

Minister of Climate and the Environment

Partnership for sustainable solutions



Sustainable development is at the core of Aalto University. Aalto University and the City of Espoo are building a more sustainable world both locally and globally. Sustainability transformation requires radical creativity in thinking and action, as well as continuous learning.

Ilkka Niemelä
Rector
Aalto University



We work together to ensure a clean transition in Espoo. By investing in the electrical grid, we are enabling the city's carbon neutrality goals. Espoo residents can continue to use renewable energy and be small-scale producers themselves.

Jyrki Tammivuori
CEO
Caruna



CLC is the largest climate business network in the Nordic countries. Working together with our member Espoo will bring new thinking to building a carbon neutral city, but also to boosting green growth and increasing our carbon handprint.

Tuuli Kaskinen
CEO
CLC



Espoo is an important partner for Fortum in promoting carbon neutrality. Together, we also create conditions for a good life for future Espoo residents with district heating, which we get on a large scale from air, wastewater and data centres.

Markus Rauramo
CEO
Fortum Oyj



At VTT, we use science and technology to solve the biggest challenges of our time. Through long-term cooperation, we are building a better city for the people of Espoo and export products for companies on the global market. We aim to achieve carbon neutrality in our own operations by 2030.

Antti Vasara
CEO
VTT

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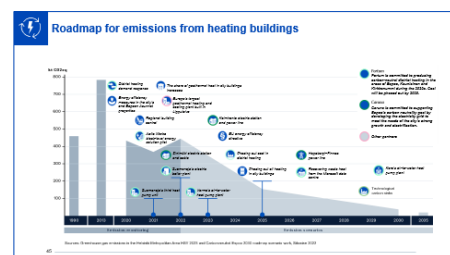
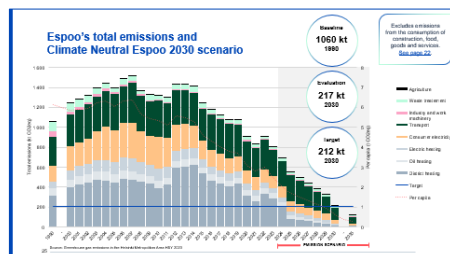
Reading guide

Emission-free, intelligently controlled, reliable and affordable energy

The energy sector currently produces the majority of the city's climate emissions, although in recent years the sector has also made significant emission reductions. Most of the emissions come from the production of district heating. Together with energy company Fortum, we are committed to achieving emission-free district heating by the end of the decade. The aim is to cut the production of district heating by half by 2030. Other measures to increase renewable and carbon-neutral energy, such as increasing the use of heating and increasing in solar panels, will also reduce climate emissions.

Recent electrification and the development of the electricity grid will accelerate emission reductions in district heating and transport. The city's heating will be transformed to use an electricity grid that is increasingly powered by renewable energy and the production of energy efficiency. Energy efficiency and energy saving will play an important role in meeting the need to reduce energy production and, at the same time, bring emission reductions and economic benefits. All of this is a continuous process, starting from the year 1990, the year when the city's emissions peaked, and ending in the year 2030, the year when the city's emissions will be halved.

We are actively involved in building an intelligently controlled energy system, which provides households and companies operating in Espoo with energy produced with low emissions and at a reasonable price. The energy system will provide a safe and reliable environment for businesses to operate and develop. In the production, consumption and distribution of energy, the company models are required, which are based on the latest technology and data and saving energy. We are heavily investing in saving energy measures.



Climate Neutral Espoo 2030 roadmap indicators

The implementation of the roadmap is monitored through various indicators. The indicators are divided into three categories: emissions, energy efficiency, and energy saving. The indicators are monitored and show progress.

Indicator	Unit	2020	2030	2030 scenario
CO2 emissions from heating buildings	kt CO2e	217	212	212
Energy efficiency	kt CO2e / MWh	0.15	0.12	0.12
Energy saving	kt CO2e / MWh	0.15	0.12	0.12

General

The content is divided into three themes and five priorities. Each priority is represented by a symbol. Each section presents the objective, vision, stakeholders, emission trends, actions and indicators.

Statistics

The emission trends include the 1990 baseline, actual emissions and an estimate of the Climate Neutral Espoo 2030 scenario.

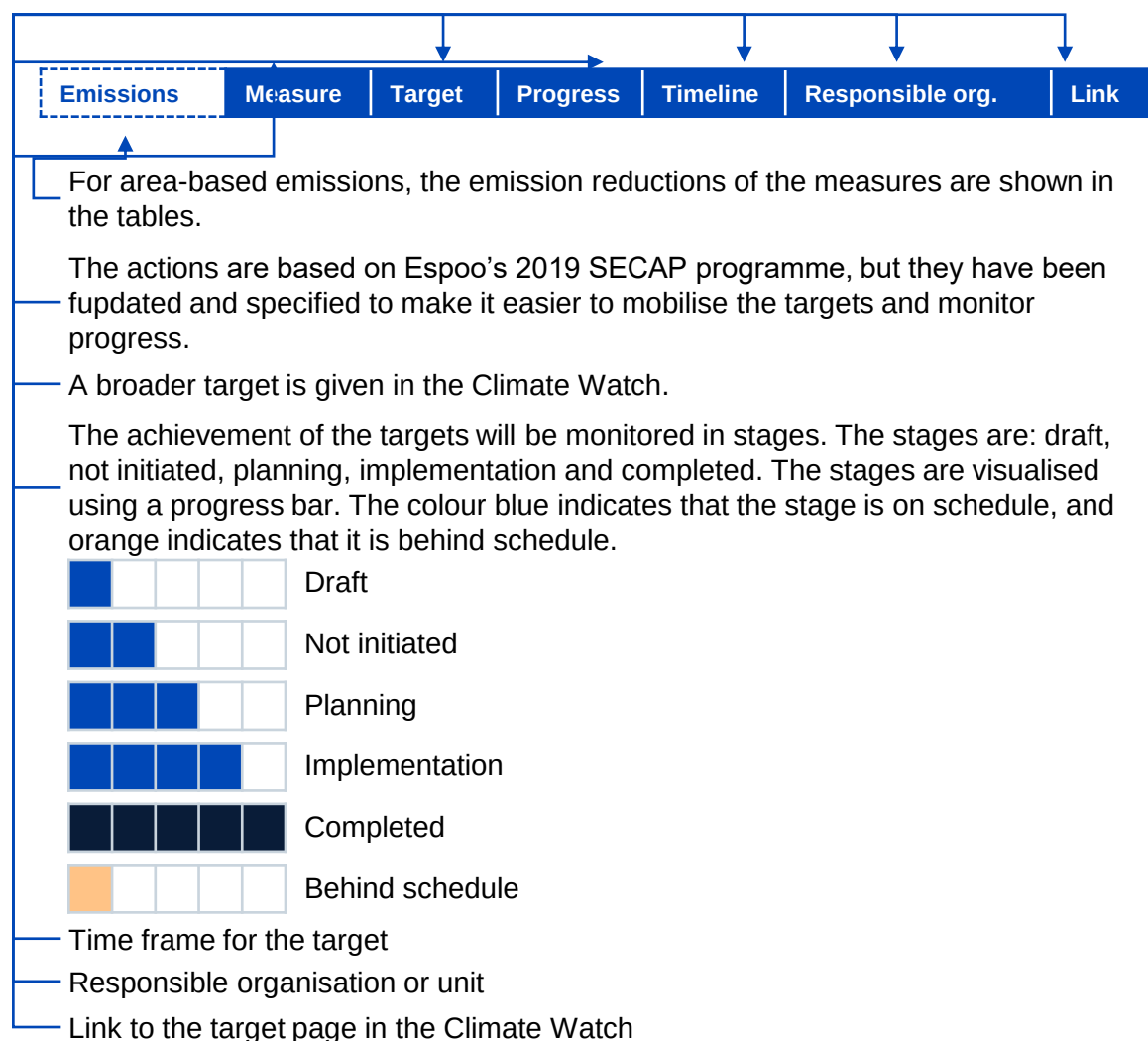
Roadmap

The roadmaps for the priorities indicate the most important climate measures of the city and its partners.

Metrics and indicators

Metrics and indicators are identifiable by their mint-coloured background. The indicators have target values. Indicators are monitored and show progress.

Climate actions



Glossary

<https://ilmastovahti.espoo.fi/en/carbon-neutral-espoo/termipankki>

Roadmap compiles the Espoo community's actions towards a climate neutral city



Climate neutral Espoo 2030 is a roadmap for combatting climate change that describes how the City of Espoo, its partners and residents are working together to achieve the carbon neutrality goal.



Espoo Story sets the targets

Espoo is actively working to combat climate change, enhance biodiversity and become climate neutral by 2030. The actions and budget for climate actions are set out annually when establishing the city budget.



Priorities for emission reductions

Land use, energy, transport and mobility, construction, circular economy and sustainable lifestyle.



We reduce our footprint and increase our handprint

The City cooperates with universities, research, innovation activities and companies, piloting and producing solutions in Espoo's developing urban areas that have a significant carbon handprint and help solve the global climate challenge.



The Espoo community is an active pioneer in the EU

Espoo is one of the forerunner cities in the EU Mission for 100 climate-neutral and smart cities by 2030. Espoo's Mission Label signifies the active support of the European Commission and the European Investment Bank in implementing new solutions and investments.

-80%

climate emission
reduction target
1990-2030

The roadmap
includes the
necessary
measures to
achieve an 80
percent
reduction in
emissions.

1990

1060

kt CO₂-eq

2022

910

kt CO₂-eq

2030

212 TARGET

kt CO₂-eq

Climate Neutral Espoo

Background and targets

Governance to mitigate climate change

Espoo Story



The Espoo Story, i.e. the city's strategy, guides the city's operations in accordance with common goals. Goal for the Council term 2021-2025: *Espoo will achieve carbon neutrality by 2030*. The description of Espoo's climate work in the 2024 budget is the city's climate plan, which was approved by the council in connection with the budget process.

Sustainable Espoo
development programme



The development programme seeks to find solutions to climate challenges and compiles a development portfolio in cooperation with partners and with the support of external funding. Programme goal: *Espoo will achieve carbon neutrality by 2030*.

Covenant of
Mayors

SECAP (2019)



The implementation instrument for the Covenant of Mayors is the Sustainable Energy and Climate Action Plan (SECAP), which outlines the measures for the mitigation and adaptation to climate change.

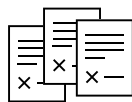
EU missions

Climate City
Contract (2023)



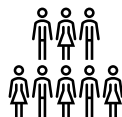
The cities selected for the EU Mission for 100 climate-neutral and smart cities by 2030 prepare a Climate City Contract (CCC) together with their stakeholders. Espoo also invited its partners to sign.

Sector-specific agreements
and programmes



Examples: Energy Efficiency Agreement for Municipal Sector (KETS), Rental Housing Property Action Plan of the Property and Building Sector Energy Efficiency Agreement (VAETS), Circular Cities Declaration, Green Deal agreement for emission-free construction sites.

Climate Neutral Espoo
roadmap 2023-2030



Compiles City of Espoo's own work with cooperation with partners and residents and concrete measures to achieve the carbon neutrality target. It refines the climate plan to be adopted in the budget. The Roadmap guides the actions of the City and the Espoo community as a whole.

The climate budget in the city
budget integrates climate work into
the financial planning.



The Climate Watch compiles
Espoo's climate measures and
emission reduction scenarios.



The City of Espoo is working to meet climate targets

The Mayor's Office is responsible for promoting and steering city-level climate work. The Sustainable Development and Climate Work Steering Group supports the Mayor's leadership. The city sectors and units and subsidiary organizations of Espoo are responsible for implementing the measures in their areas of responsibility in accordance with the administrative regulation and operating instructions.

The climate target is reviewed as part of the monitoring process of the Espoo Strategy's objectives for the council term. Each year, binding city-level performance targets are derived from the Espoo Story, i.e. the city's strategy. In addition, each sector and unit describes in the budget its own actions to achieve the climate goal. The City Council monitors the achievement of the performance targets in interim reports. Once a year, the City Board is informed of the progress of the climate roadmap along with additional measures for decision if climate neutrality is not achieved by 2030. Once a year, the City Board makes the necessary changes to the roadmap and, if needed and submits the changes to the City Council for consideration. New climate actions are decided annually as part of the budget.

The achievement of the climate goal is also monitored in the Sustainable Espoo development programme. The cross-administrative development programmes are reported to the City Council twice a year.

The Climate Neutral Espoo 2030 roadmap will be updated in accordance with the Espoo story and is presented as a whole for decision at least once a council term. The development of climate emissions are monitored annually as part of Helsinki Region Environmental Services HSY emissions monitoring for the Helsinki Metropolitan Area. The emission reduction scenarios are monitored and updated at least annually and more extensively in connection with the roadmap update. The climate budget is compiled annually as part of the budget and is further developed. Climate Watch presents all of Espoo's significant climate measures in more detail. At least once a year, monitoring and necessary updates of the measures are also made in the Climate Watch.



Sustainable Espoo programme seeks solutions to climate challenges

The City of Espoo has been working on climate neutrality for a long time. Already in 1995, a sustainable development code of conduct was adopted. Climate measures have been compiled since 2012.

In 2013, the City Council launched cross-administrative development programmes. One of them is the Sustainable Espoo programme, which supports the city's climate goal. The importance of sustainable development and climate work is illustrated by the fact that the Mayor has been the owner of the Sustainable Espoo development programme from the very beginning. In addition, each development programme has a steering group of policy makers and officials.



Espoo will be a pioneer in implementing the UN Sustainable Development Goals



Espoo will achieve carbon neutrality by 2030



The Espoo community and residents will act sustainably



Espoo will be a model city of sustainable urban development



Espoo will be the best developer partner for sustainable and smart urban solutions

Focus areas

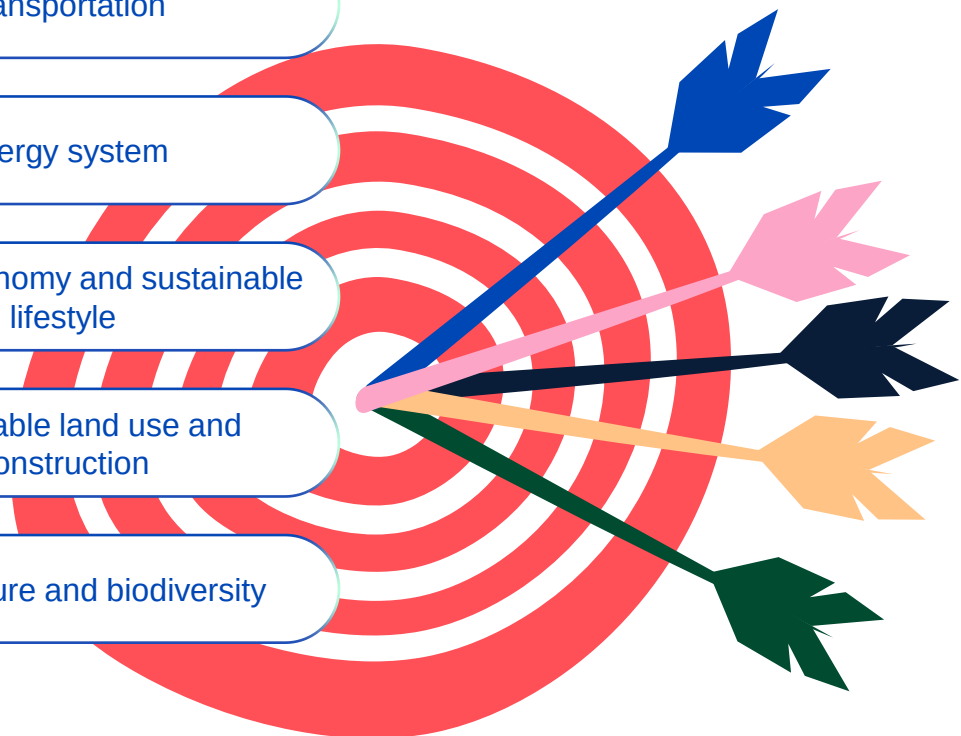
Transportation

Energy system

Circular economy and sustainable lifestyle

Sustainable land use and construction

Local nature and biodiversity



Climate work is part of the overall work on sustainable development

Espoo is committed to achieving the UN 2030 Agenda's Sustainable Development Goals (SDGs) as a forerunner and to developing and sharing knowledge in national and international city networks.

Our goal is an economically, ecologically, socially and culturally sustainable Espoo. Sustainable development goals are closely interlinked and cannot be pursued at the expense of each other. Climate change, biodiversity loss and pollution are among the most serious environmental problems facing humanity, and they have an impact on the achievement of all other sustainability goals. Urban areas are responsible for the majority of climate emissions, so they also play a key role in finding solutions.

The City of Espoo's Voluntary Local Review (VLR) was carried out in [2020](#) and [2023](#). VLR evaluates the city's operations in relation to the 17 Sustainable Development Goals. The next VLR will be prepared at the beginning of the new strategy period in 2025.

Our work in local sustainable development governance has set an example in international networks. In 2023-2025, Espoo is leading the European URBACT Cities for Sustainability Governance (CSG) network, which develops strategic governance for sustainable development in cities.



Espoo's goal is to provide affordable, emission-free and reliable energy for residents, businesses and the community. The use of coal for district heating ended in 2024, and production will be carbon-neutral by 2030. Espoo will prepare for the electrification of transport and heat production by ensuring sufficient capacity in the electricity grid.



The green and digital transition is a driving force for new growth. The growing demand for low-carbon products and services brings opportunities for companies and operators in Espoo's innovation community to create jobs, export, economic growth and well-being. Holistically sustainable business must also take into account other dimensions of sustainability.



Espoo is growing as a public transport city along the railways. The city's growth will be directed through city planning predominantly to centres and along good public transport connections, in a nature-friendly and sustainable way. A pleasant, safe and sustainable local environment contributes to well-being. Each Espoo resident has the opportunity to participate and influence their local environment.



A 1.5-degree lifestyle that is in line with global climate goals will require changes in consumption patterns and lifestyles. The carbon footprint of consumption comes from the consumption of energy, food, goods, services and transport. Espoo's goal is for every Espoo resident to have good opportunities to make sustainable choices in their everyday lives.



Espoo's per capita climate emissions have already fallen by 51 % since 1990. The climate neutrality target requires even more effective and faster emission reductions in the coming years. The key sectors are energy and transport.

Climate Neutral Espoo is made together

Forerunner cities play a key role in the achievement of Finland's 2035 and the EU's 2050 climate neutrality goals. Our strength in Espoo is a unique community that has the expertise, ambition and courage needed in climate work.

Forerunners will benefit from the green and digital transition

Our climate work aims at actively and purposefully enabling the Espoo community to produce innovations that are scalable at national and international levels. The growing demand for low-carbon products and services brings opportunities for companies and operators in Espoo's innovation community to create jobs, export, economic growth and well-being. More than half of Finland's patent applications are made in Espoo, and successes are meaningful for sustainable growth in Finland as a whole.

Ambitious climate goals are a competitive advantage

Rapid electrification of heat production and transport is key to achieving Espoo's climate goal. This will require a substantial increase in domestic clean electricity production and an increase in the capacity of the electricity grid. Espoo's and Finland's competitive advantage in attracting investment is a long-term commitment to climate goals, which increases predictability and trust. Microsoft and Fortum's one of the world's largest heat recovery project for data centre waste heat is an example of an investment that makes digitalisation possible, reduces emissions and creates jobs and vitality.

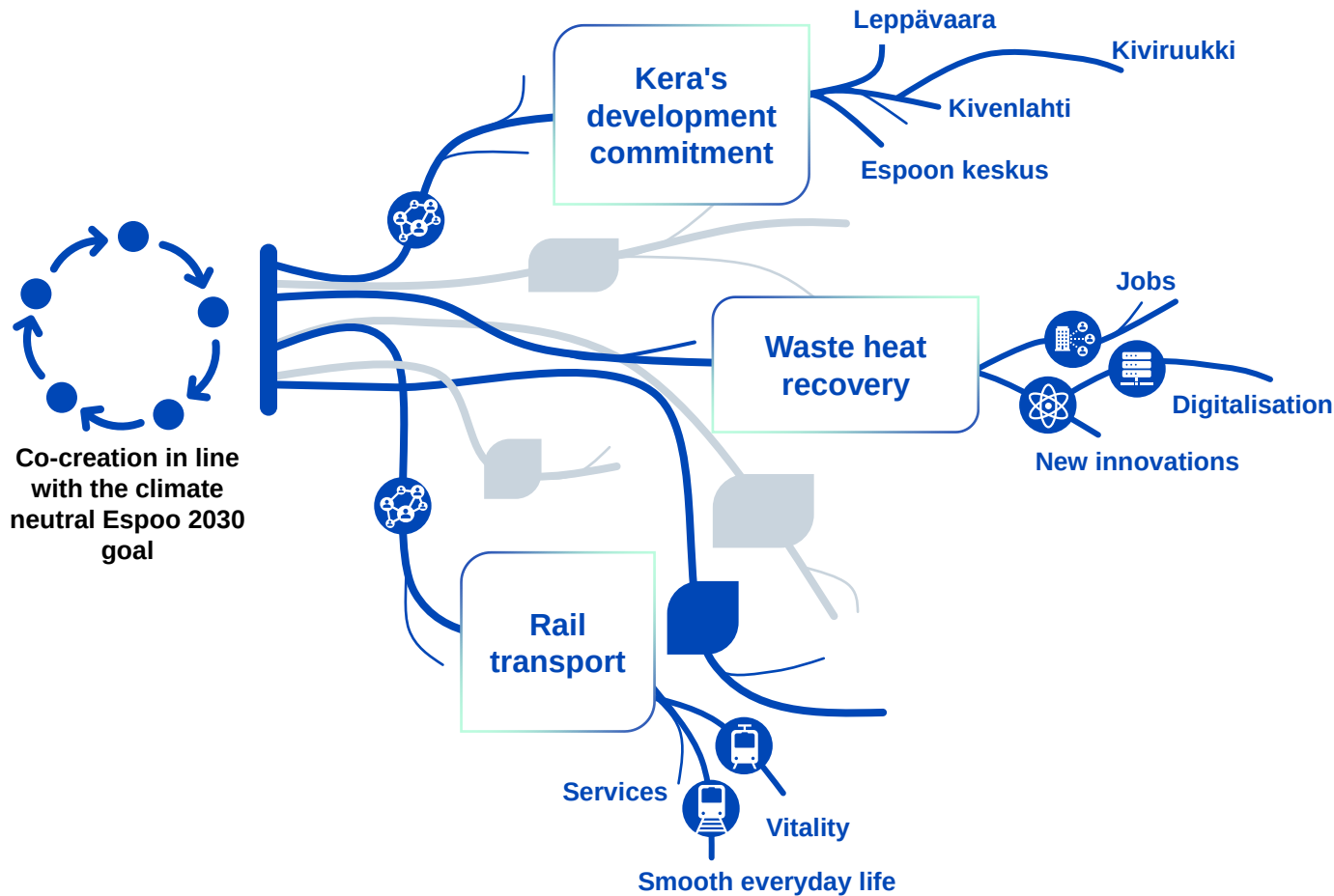
Residents participate in the development of their city

Climate action is about creating a comfortable and safe urban environment, and residents have the opportunity to participate and contribute to the development of their city. The residents' experience-based knowledge and views are used in the planning of the city and its services. Espoo's climate and sustainable development work provide opportunities for participation and information on sustainable choices in everyday life. Our partners also work together with the residents, which contributes to achieving the goals of climate work.

Climate action needs to involve the whole Espoo community:
businesses, universities and other higher education institutions, research and innovation operators, networks, organisations and residents.



The effectiveness of climate work is created together with partners through concrete measures and new operating methods



In the Espoo community, we create systemic change through co-creation: developing and innovating together with partners and residents. Practical actions take concrete form and create more effective solutions.

Kera's development commitment creates sustainable urban development

The city has a statutory role in land use planning, but it is also a platform and partner for experimentation, new solutions, ideas, collaboration and shared goals. The Kera Development Commitment has built collaboration, created a set of goals to create a sustainable neighbourhood, and made concrete change as part of sustainability governance. The lessons learned from the Kera Development Commitment will be applied in Leppävaara, Kivenlahti and Espoo Keskus in line with the Espoo story set by the City Council. The lessons learned will also be used in development work in other areas.

One of the world's largest data center waste heat recovery plants

Microsoft and Fortum's data centre waste heat recovery project is one of the largest in the world, and is an example of an investment that will enable not only significant emissions reductions but also digital solutions and service development. It will create jobs and new innovations in Espoo, Finland and the wider world.

Significant investments in rail transport

Espoo's significant infrastructure investments in rail transport have enabled better services and increased Espoo's vitality. Rail transport serves residents and has improved transport connections and attracted housing, services, jobs and innovation centres to the railway lines.

Espoo's climate work a forerunner in implementing EU's green and digital transition

The European Union is an important operating environment for Espoo and its partners. The goals of the European Green Deal are ambitious, but achievable through determined action. Cities and regions together with their partners play a decisive role in this.

Experimentation and innovation hub in the European mission

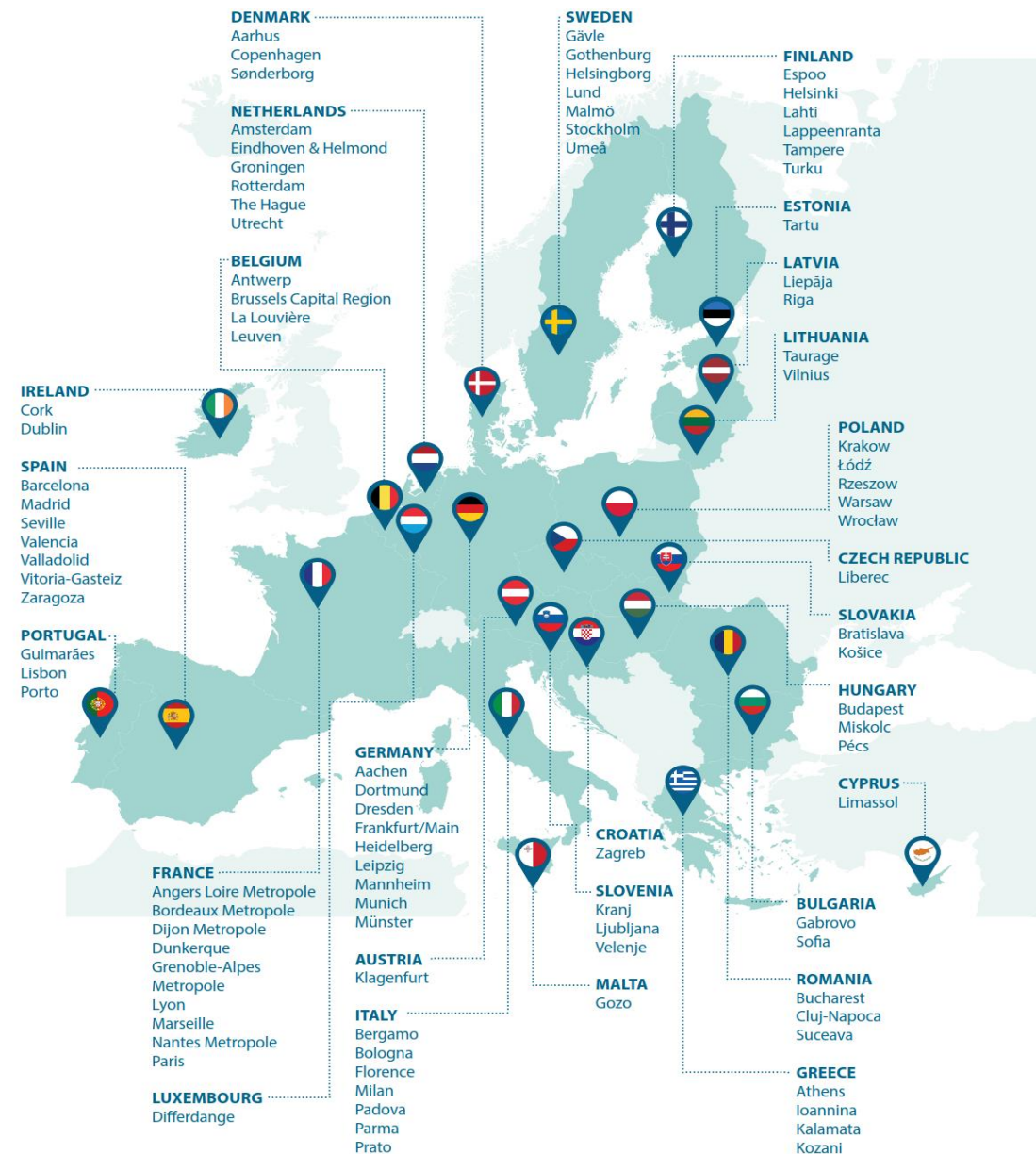
Espoo is a European forerunner in climate work in the *100 climate-neutral and smart cities by 2030* EU Mission. The cities selected by the European Commission will act as experimentation and innovation hubs for solutions that will enable all European cities to achieve the same goals by 2050. The selection focused on the ability to set an example for other cities and to deliver revolutionary innovations in cooperation with the whole community.

Systemic shift towards climate-neutral city

Espoo's strength is its open and inclusive collaboration with the best partners. Espoo has a wealth of expertise, research and development needed for the low-carbon solutions of the future that the Espoo community needs and produces to solve climate challenges. Through systematic actions, Espoo wants to utilise EU funding to create new innovative orchestrated action so that the results can be utilised in climate work throughout the EU. Without the contribution of the entire community, Espoo will not be able to achieve its climate neutrality goal.



Finland's Mission cities work in close cooperation with national government, businesses and research institutes to achieve ambitious climate goals.



European Commission recognises Espoo's climate cooperation

25 climate partners in joint commitment

In autumn 2023, the City of Espoo and 25 partners signed a commitment to work towards a climate-neutral city. The Climate City Contract is part of the EU Mission for 100 climate-neutral and smart cities and describes the actions and cooperation through which the climate-neutrality objective can be achieved. The commitment includes a wide range of companies, research institutes and universities from Espoo's award-winning innovation community. In their own appendices, each partner describes their role in this broad and diverse collaboration to achieve the climate goal.

Mission Label for impactful collaboration

The European Commission awarded the EU Mission Label to the Espoo Climate City Contract in spring 2024. It is a recognition of the community's broad commitment to climate work and strengthens Espoo's position as a forerunner of the green transition for European cities. The Commission aims to promote private and public funding to address the climate challenges that cities are facing.

New actors are welcome to join the cooperation

Espoo is actively working to deepen and expand its climate partnerships. New and already committed partners are invited to implement experiments, solutions and new operating models that support the goals of the Climate Neutral Espoo 2030 roadmap, both locally and in the European and international markets.



Signatories to the commitment
Aalto University
Aimo Park
A-Insinöörit
Betolar
Caruna
Climate Leadership Coalition
Espoon Asunnot
Finnpark
Fortum
HSL
HSY
Kemira
Lassila & Tikanoja
Laurea
Metropolia
NCC
Neste
Ramboll
Ramirent
Siemens
Sitowise
SRV
TEK
VTT
YIT

Espoo reduces climate emissions towards and beyond climate neutrality

We will be a climate neutral city by 2030. Climate neutrality means that the city emits only as much greenhouse gas emissions per year as it can absorb.

Espoo's target is an 80% emission reduction from the 1990 level by the year 2030. The remaining 20% can be absorbed into carbon sinks or offset by other means.

Espoo's total emissions were 1,060 kt CO₂-eq in 1990 and 910 kt CO₂-eq in 2022. The 2030 target is 212 kt CO₂-eq, which means that annual emissions must be reduced by at least 698 kt CO₂-eq over eight years. This roadmap describes the path to future emission reductions for each emission sector.

The longer-term national target is a 95 % reduction in climate emissions by 2050 from the 1990 level. For Espoo, a 95 % emission reduction would mean an emission level of 53 kt CO₂-eq.

As the energy sector becomes cleaner, the significance of emissions from transport will increase even further after 2030. By 2050, Espoo should achieve lower emissions per capita than the national level due to good public transport connections, an urban structure conducive to walking and cycling and a high share of electric cars.

Realisation
1,060 kt
1990

Realisation
910 kt
2022

Target
212 kt
2030

Estimation
217 kt
2030

Climate Neutral Espoo 2030 roadmap indicators

The implementation of the roadmap is monitored through meters. Below are the target levels for total climate work emissions. The emission reduction estimates, meters, current values and target levels of the measures can be found by focus area (energy, transport and mobility, construction, circular economy and sustainable lifestyle) and under the cross-cutting land use description.

A wide range of climate change metrics and indicators are being developed and evaluated at EU and international level. Espoo will participate in international cooperation on developing and measuring effectiveness based on the needs of the city and will monitor its performance in relation to other European cities. Impact monitoring promotes the creation and uptake of innovations.

The roadmap includes the necessary measures to achieve the climate neutrality goal.

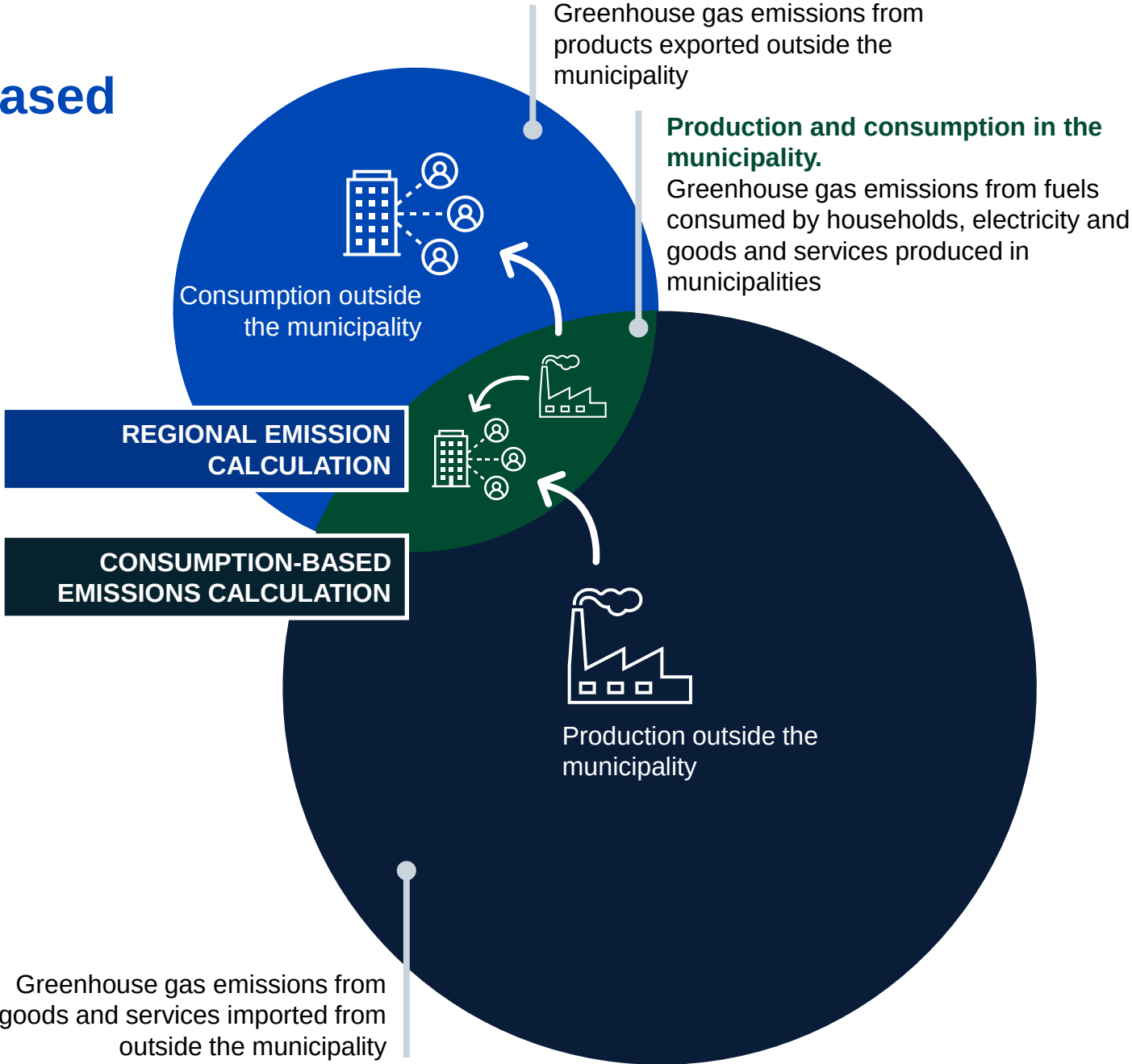
What measures	Meter	Present value	Target 2025	Target 2030	Monitoring method	Details
Entire goal	Total emissions by source	910 kt CO2-eq -14% of 1990 levels	552 kt CO2-eq -48% of 1990 levels	217 kt CO2-eq -80% vuoden 1990 tasosta	From Helsinki Region Environmental Services HSY	The targets are based on a scenario calculation that takes into account the measures included in this roadmap.
Entire goal	Emissions per capita	3,0 t CO2-eq -51% of 1990 levels	1,7 t CO2-eq -71% of 1990 levels	0,6 t CO2-eq -90% of 1990 levels	From Helsinki Region Environmental Services HSY	The targets are based on a scenario calculation that takes into account the measures included in this roadmap.

Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023

Regional and consumption-based emission calculations

Regional and consumption-based emission calculations overlap to some extent. They are therefore not alternatives to each other, but complement each other and together provide a broader information base on greenhouse gas emissions from the activities of municipality and residents.

-  Regional emission calculations
-  Consumption-based emissions calculation



Source: Kulma model, Sitowise and Luke 2023.

Reducing emissions from consumption is necessary to achieve the 1.5-degree lifestyle

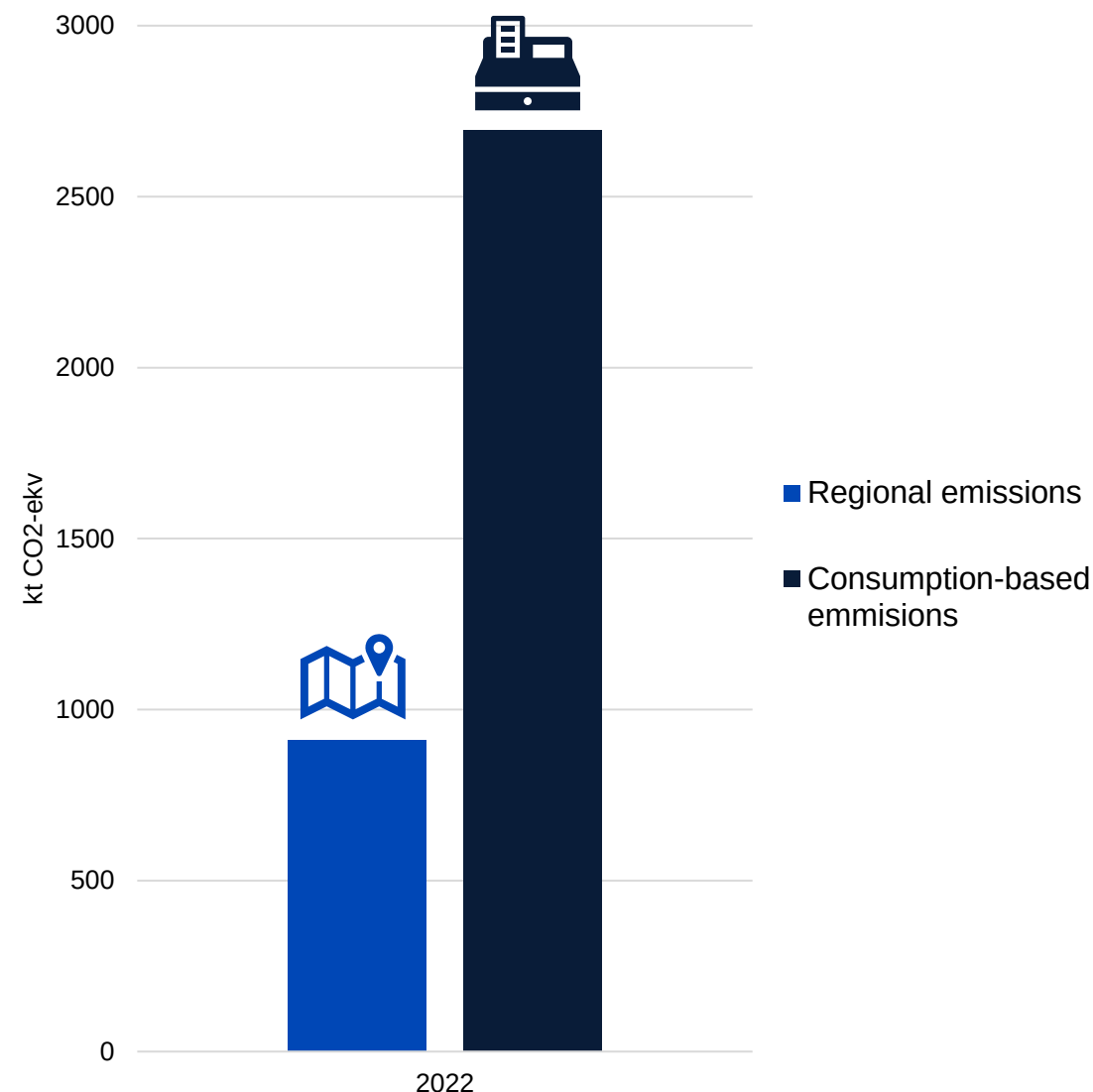
Espoo's emissions from consumption in 2022 were almost three times higher (2,693.3 kt CO₂-eq) than the emissions generated in the region (910 kt CO₂-eq).

Background

- Regional emission calculations focus on local emissions and help to identify regional priorities for emission reductions.
- Consumption-based calculations take into account the emissions caused by residents regardless of where the consumed goods are produced.
- Making consumption emissions visible will provide new information to solve the global climate challenge. Espoo is leading the way with others in developing systematic and reliable city-level monitoring of emissions from consumption.

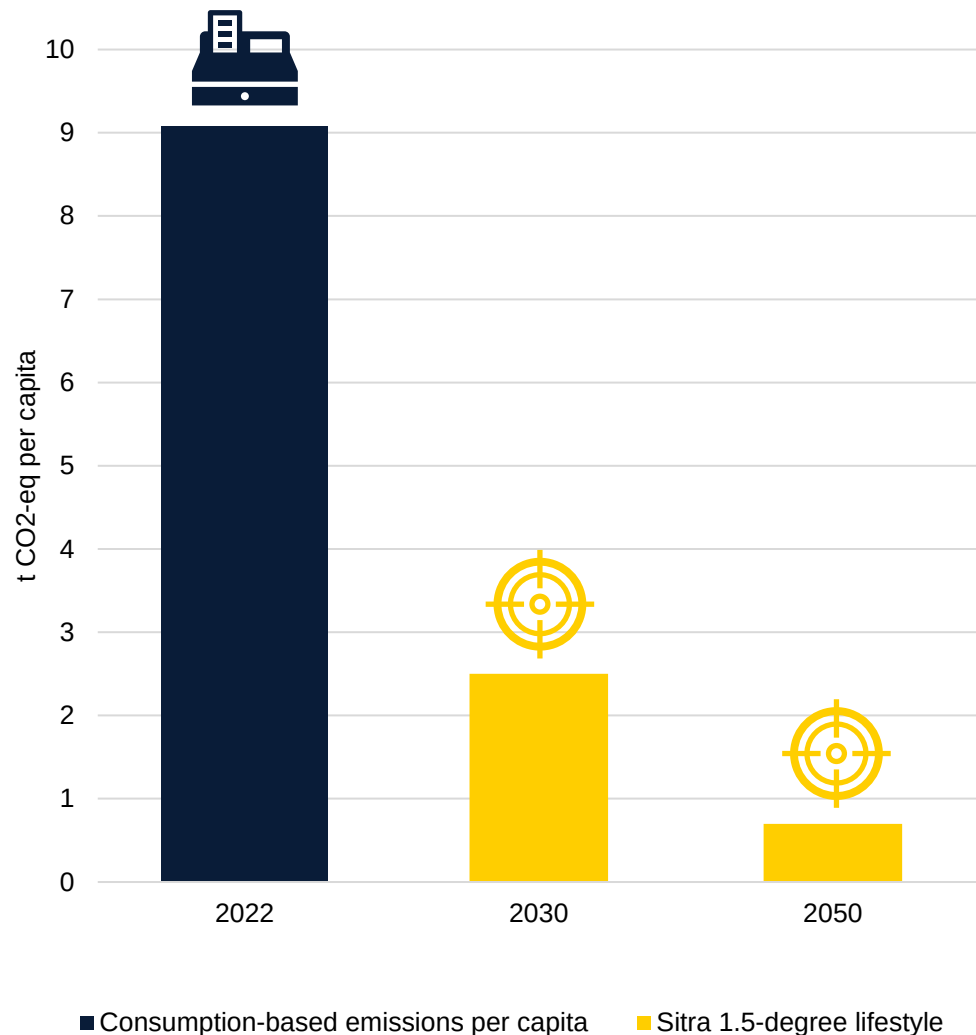
Regional and consumption-based approaches are not alternatives to each other but complement each other to provide a comprehensive view of greenhouse gas emissions. This information will help us achieve climate neutrality and reduce our environmental impacts.

The calculation methods are not fully comparable, and the calculation of emissions from consumption will be further developed.



Total emissions comparison. Source: Greenhouse gas emissions in the Helsinki metropolitan area HSY 2023 as well as the Kulma model, Sitowise and Luke 2023.

Towards a 1.5-degree lifestyle



Sources: The Kulma model, Sitowise and Luke 2023 as well as [1.5-degree lifestyles](#), [Sitra 2019](#).

Target

We need to reduce climate emissions caused by our lifestyles by up to more than 90% by 2050 if we are to meet the 1.5-degree climate goal. Espoo is developing its own activities and, together with its partners, is looking for solutions to reduce not only the emissions generated in its area but also the emissions from consumption. The calculation of emissions from consumption has been developed in extensive cooperation with cities and research institutes, and we will continue to contribute to the development of the calculation and to increasing the knowledge base.

Background

Espoo's 80% emissions target does not include emissions from the consumption of construction, food, goods and services generated outside Espoo's borders. The city can directly influence some of the emissions from consumption and also reduce some of them. Global production chains, EU and national regulation and the choices made by the residents play an important role in reducing consumption-based emissions.

Measures

Measures affecting emissions from consumption are presented as part of Espoo's priorities for climate work: energy, transport and mobility, construction, circular economy and sustainable lifestyle. In addition, land use development has a significant impact on reducing emissions by enabling sustainable choices in everyday urban life.

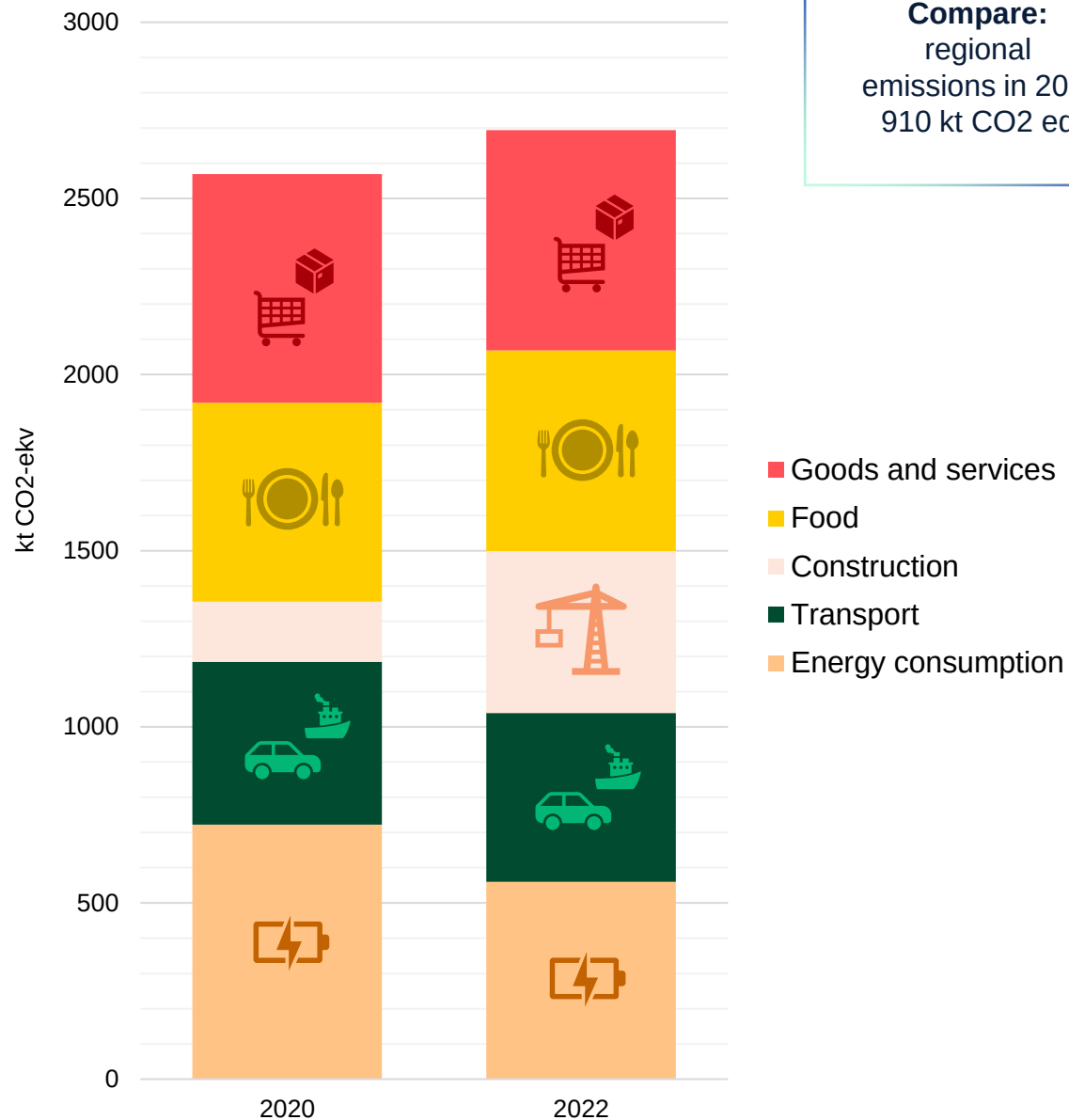
Carbon footprint of consumption

Total emissions from consumption increased by about 5% from 2020 to 2022. Emissions from consumption are divided into five sectors:

- Goods and services (-4% ↓ compared to 2020)
- Food (+1% ↑ compared to 2020)
- Construction (+169% ↑ compared to 2020)
- Transport (+4% ↑ compared to 2020)
- Energy consumption (-22% ↓ compared to 2020)

Reducing emissions from consumption will require changes in human behaviour, infrastructure and the introduction of technology.

Greenhouse gas emissions from consumption by sector in 2020 and 2022. The carbon handprint effect of construction is not shown in the figure.

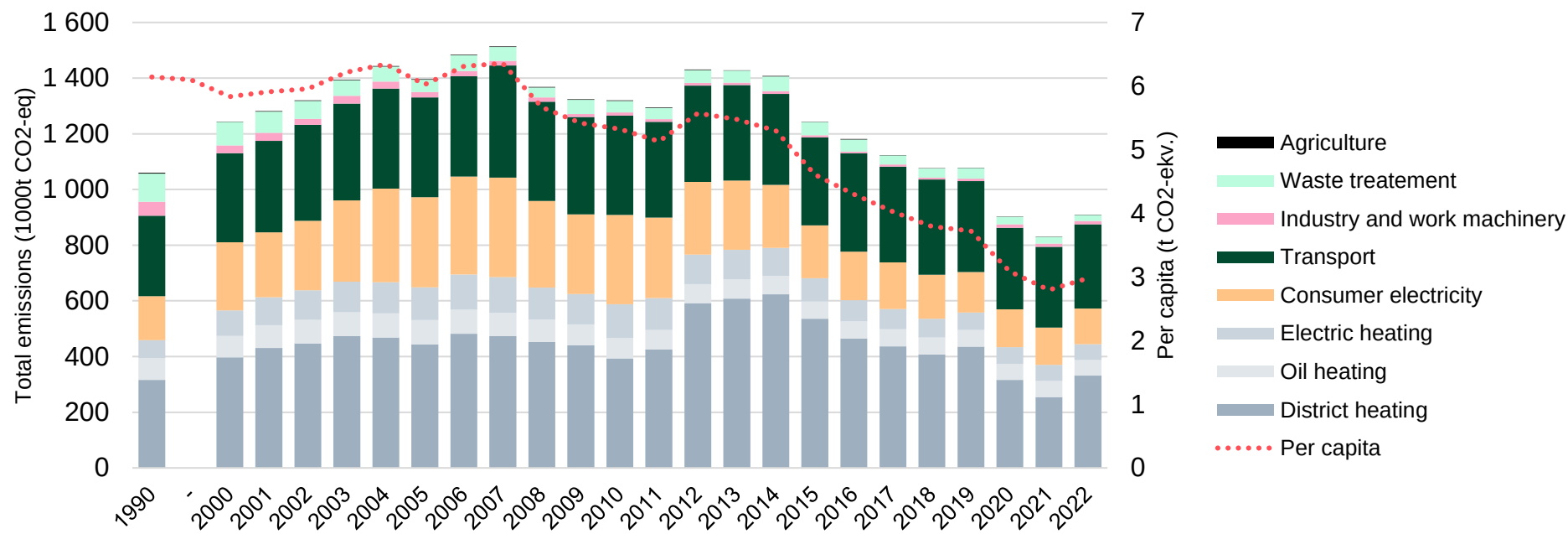


Source: The Kulma model, Sitowise and Luke 2023

The climate neutrality goal includes emissions from the Espoo region

Climate emissions in the Espoo region have decreased every year between 2013 and 2021. The level of the comparison year 1990 was reached in 2020, and the pace of emission reductions has accelerated in the 2020s. An exception is the year 2022, when the energy crisis caused by Russia's war of aggression against the Ukraine temporarily increased the climate emissions of the entire Metropolitan Area, including Espoo, due to the price and availability of fuels.

The climate neutrality goal will require significant emission reductions to continue in the coming years.



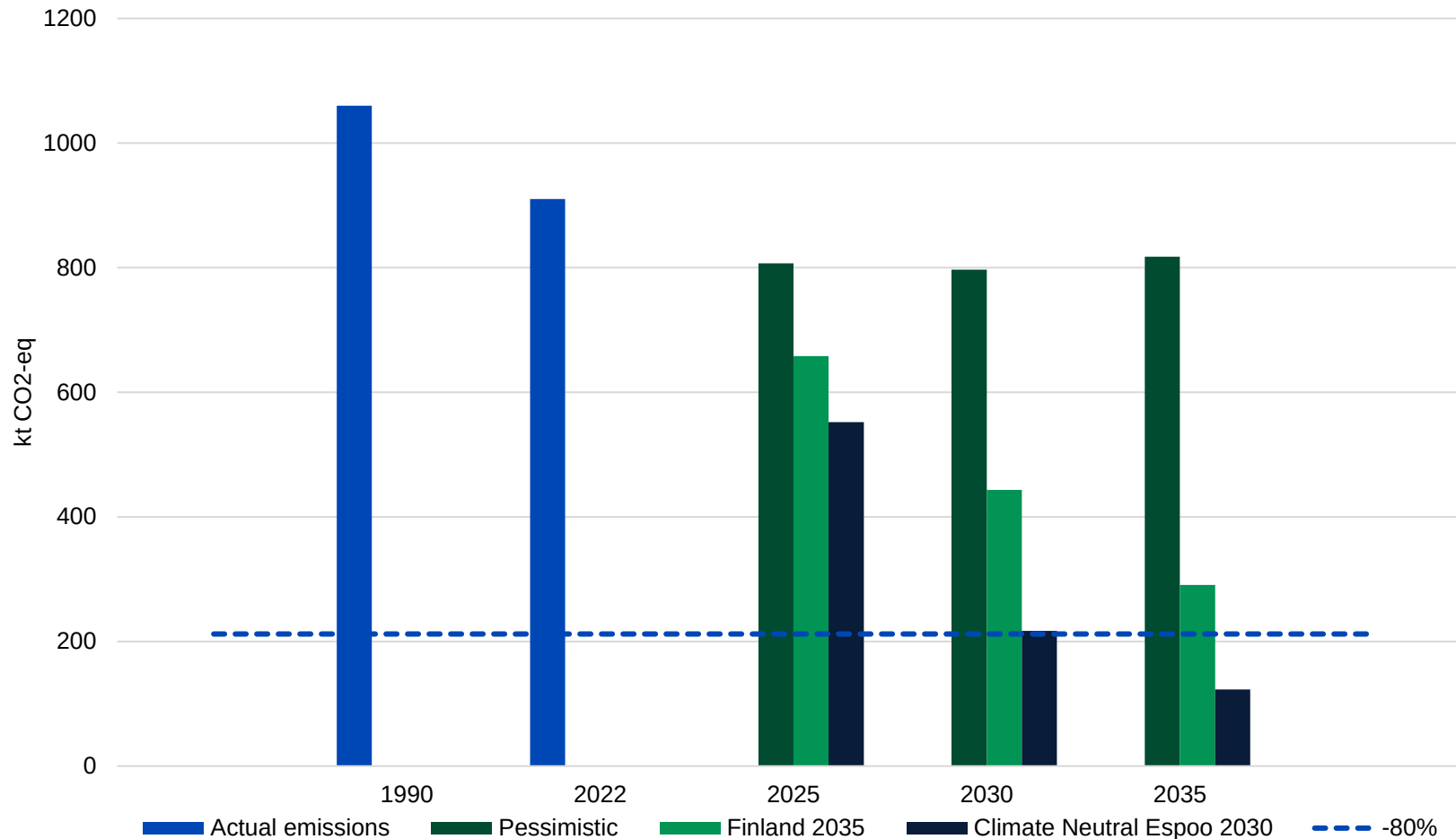
Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023

Target
212 kt CO₂-eq
in 2030.

Excludes emissions
from the consumption
of construction, food,
goods and services.
[See page 20.](#)

Espoo's per capita
emissions are the
lowest in the
Metropolitan Area for
the seventh consecutive
year.

Emission reduction scenarios 2025, 2030 and 2035



To support our climate work, we have put together three scenarios for the city's emissions development.

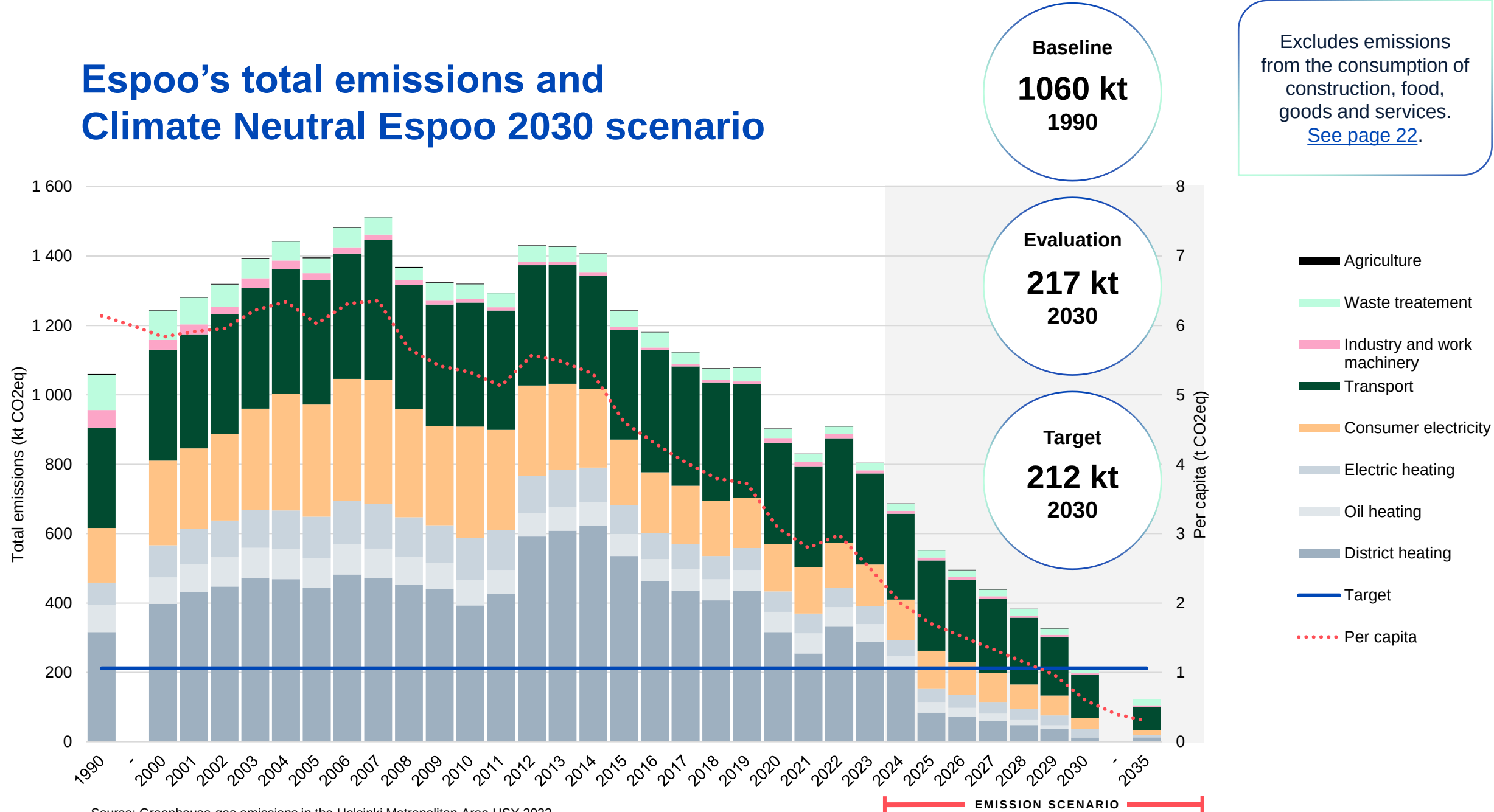
The pessimistic scenario assumes that no new emission reduction measures will be taken or planned in the city.

The Finland 2035 scenario assumes that climate policy measures at national level and EU legislation will affect Espoo's emissions development.

The Climate Neutral Espoo 2030 scenario assumes that, in addition to national and EU policies, the city's emissions development will also be affected by climate actions taken by the city and its partners, such as Fortum and HSY.

Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023

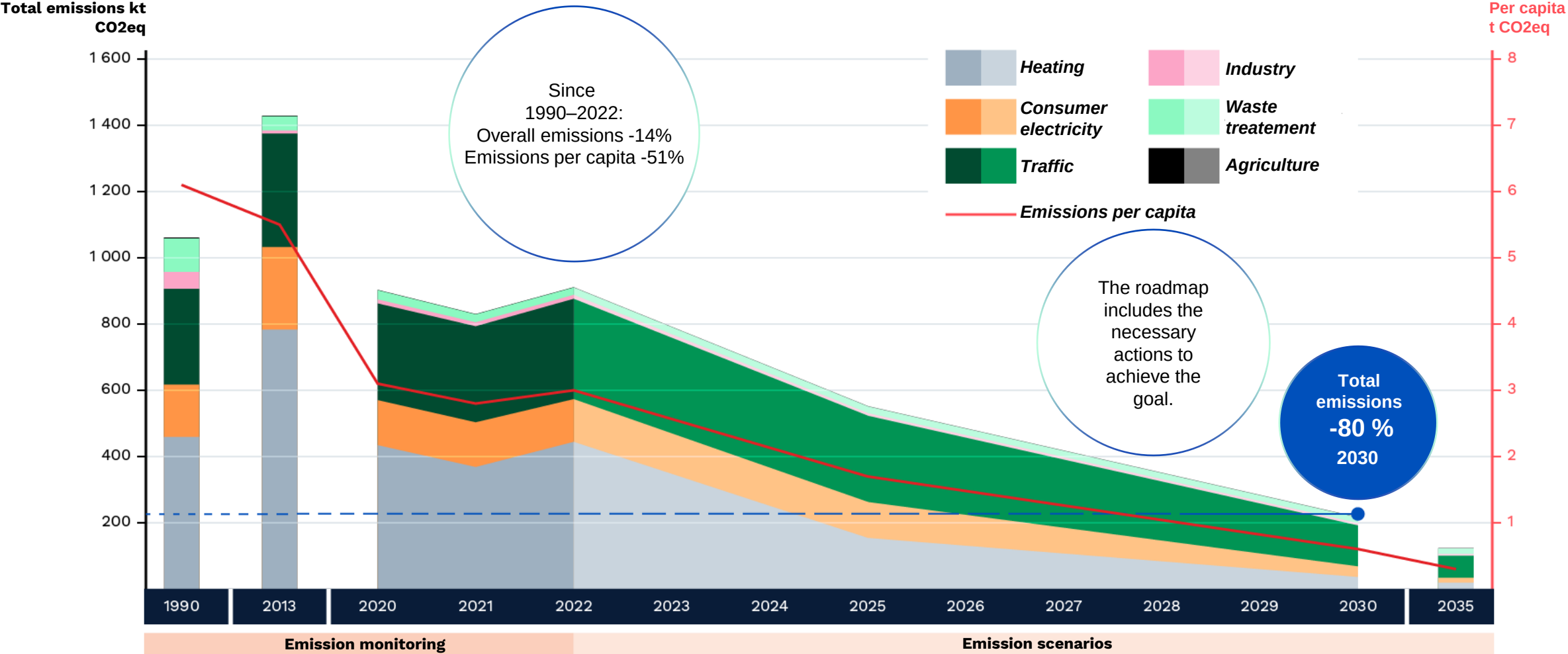
Espoo's total emissions and Climate Neutral Espoo 2030 scenario



Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023

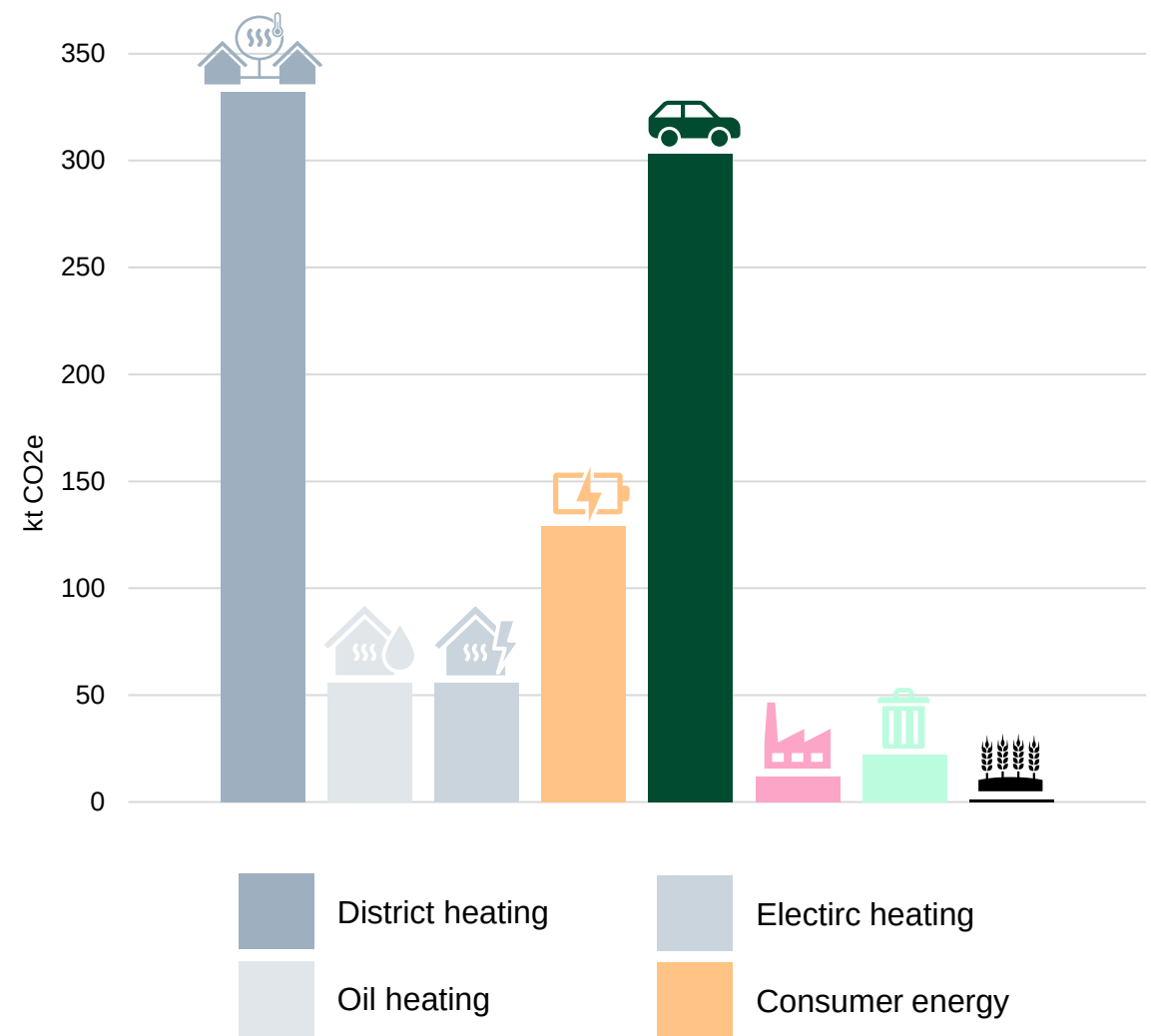
Espoo's climate emissions: Climate Neutral Espoo 2030 scenario

Excludes emissions from the consumption of construction, food, goods and services. [See page 22.](#)



Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023

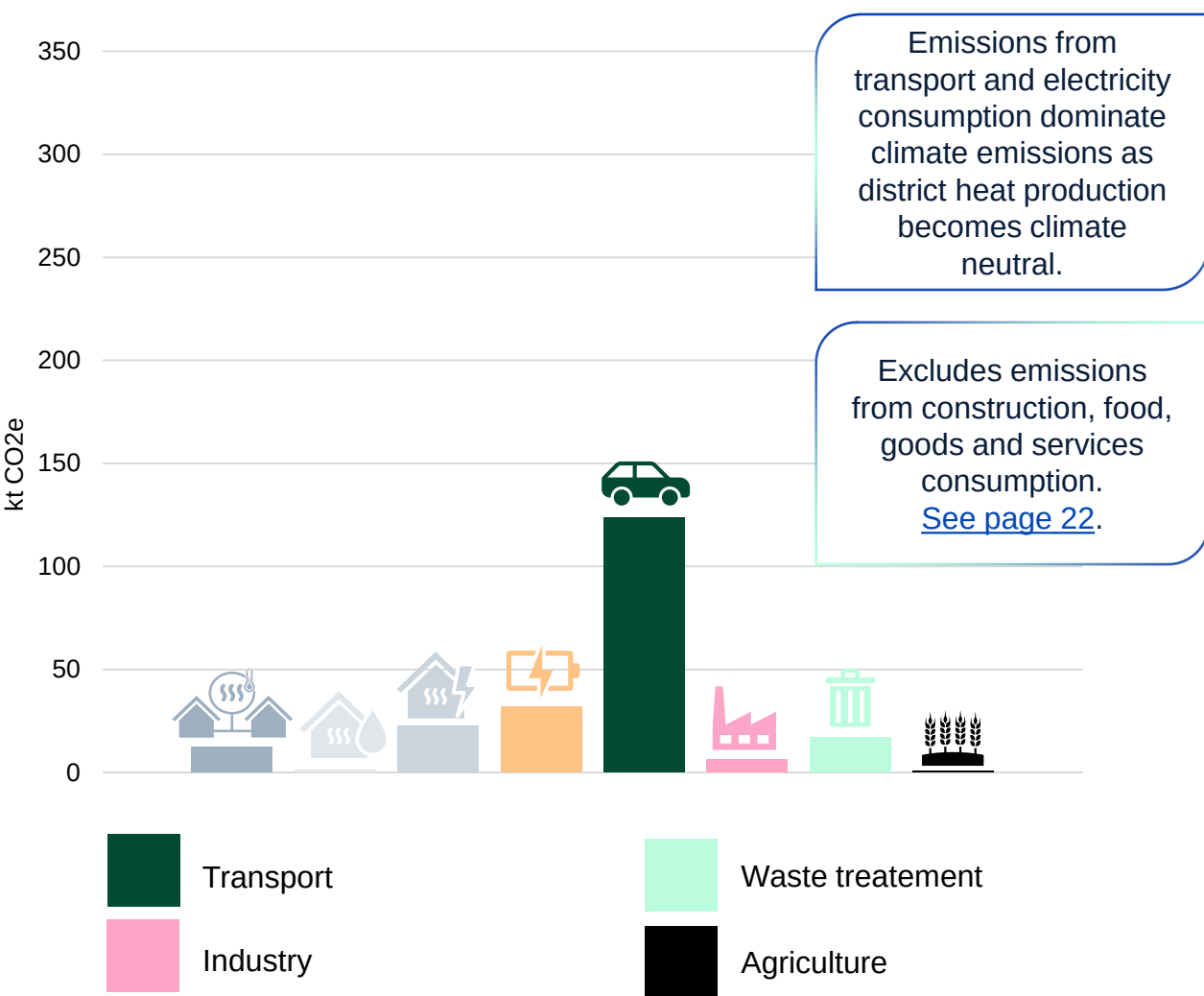
Emission distribution in 2022



Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023

Estimated emission distribution in 2030

Climate neutral Espoo scenario



Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023

The background is a stylized, blue-toned illustration of a city street scene. It features a tram on tracks, various buildings, and street elements like trees and signs. The style is graphic and modern.

Theme

Priorities for climate work

Espoo is a climate-smart city of networks

Good land use planning lays the foundations for climate neutral solutions. An essential part of this is an urban policy that encourages quality of areas, buildings and activities, where diverse, accessible and close-to-nature living, working and service environments create the conditions for quality of life.

Decisions on the city's land use are made by means of zoning. Land use planning has a significant impact on emissions from energy, transport and construction. Land use planning outlines where and how construction takes place in Espoo. The main outlines for the whole of Espoo will be set out in the Espoo Master Plan 2060, which is currently being prepared, and more detailed guidelines will be given in the detailed plans. Land use planning will therefore influence issues such as traffic performances and the proportion of means of transport, the implementation of emission-free energy solutions, low-carbon construction and sufficient carbon sinks and stocks.

Through city planning, Espoo predominantly directs its construction to centres and along good public transport connections in a nature-friendly and sustainable way. Climate impact assessments are carried out as part of planning projects, which can consist of an emissions or carbon footprint calculation or a more general assessment regarding the impacts of the plan on greenhouse gas emissions, carbon absorption and adaptation to climate change. In addition to master and detailed planning, the planning involves regional cooperation on regional land use planning and MAL planning, which affect the solutions for land use, housing and transport at the supra-municipal level.

Alongside statutory land use control measures, Espoo will create innovative incentives and commitments at different stages of the life cycle to support carbon-neutral urban development and investment. Urban environments are developed as local experimentation and service platforms for sustainable development approaches and solutions.

Affects all priorities

Land use

Challenges to be taken into account

The population of Espoo grows rapidly by around 4,700 residents a year. Preparing for population growth and ensuring adequate carbon sinks and stocks.

Climate measures for land use

The measures are compiled under the priorities generating emissions and also summarised in the Climate Watch.

Measures and indicators of the climate impact of land use

What measures	Meter	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Accessibility and reliance on sustainable modes of transport of the urban structure	Location of new dwellings and floor area of approved housing in the MAL agreement land use priority zones	86.4% of new dwellings 98% of approved floor area for housing (2022)			90% of new dwellings located in zones (2020–2030)	Sustainable Espoo programme	MAL agreement between the municipalities of the Helsinki region and the state 2020–2031
Carbon sinks	Number of carbon sinks, CO2/year	222 kt CO2/y (2019)			212 kt CO2/y (sinks, technical sinks or compensations)	HSY, Municipal sink project (Kuntanelu)	Changes to carbon sink calculation methods possible

What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Accessibility of green areas and thus reduced need for mobility	Accessibility of green and recreational areas	96.8% live within 300 m of a green and recreational area of at least 1 ha and 98.2% live within 700 m of a green/recreational area of at least 1 ha (2021)	Sustainable Espoo programme	Data source: Indicators of the ecological sustainability of the six cities, part 1

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

Priorities for climate work



1 Energy



2 Transport and mobility



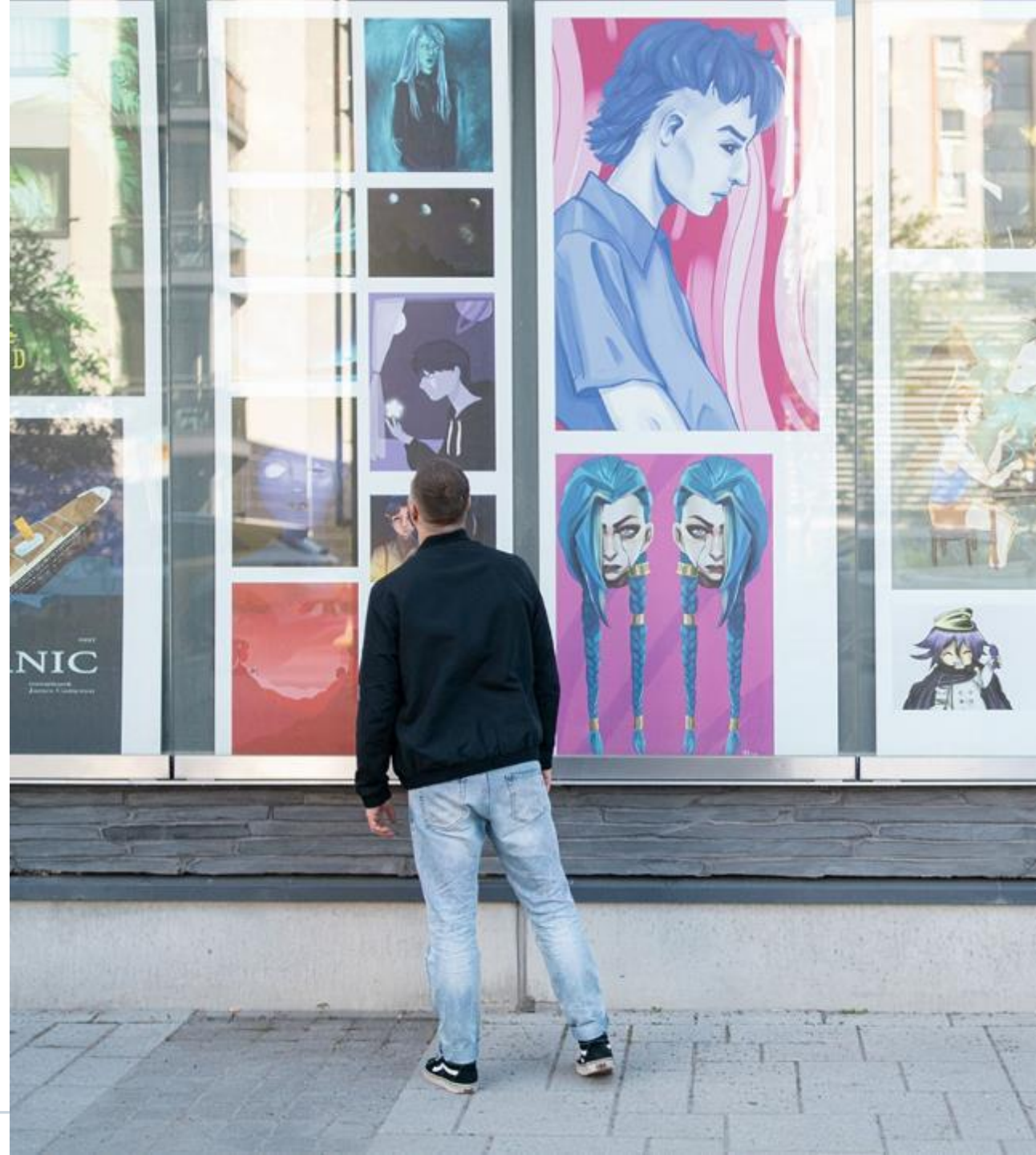
3 Construction



4 Circular economy



5 Sustainable lifestyle





Footprint, handprint and heartprint of climate work



We are reducing our carbon footprint

Together with our partners, we are reducing emissions in the Espoo region in accordance with the climate neutrality goal.



We are increasing our carbon handprint

Products, services and processes developed in Espoo help reduce emissions both locally and beyond Espoo's borders.



We are increasing the heartprint of climate work

Promoting the needed changes in skills, capabilities, mindsets and actions of our Espoo community to enable achieving the climate target.

Priority

Energy

Espoo is building an intelligently controlled energy system that will provide the residents and businesses with emission-free and affordable energy.





Emission-free, intelligently controlled, reliable and affordable energy

The energy sector currently produces the majority of the city's climate emissions, although in recent years the sector has also made significant emission reductions. Most of the emissions come from the production of district heating. Together with energy company Fortum, we are committed to achieving carbon-neutral district heating by the end of this decade. The use of coal in the production of district heating ended in April 2024. Other measures to increase renewable and carbon-neutral energy, such as phasing out oil heating and investing in solar panels, will also reduce climate emissions.

Rapid electrification and the development of the electricity grid will accelerate emission reductions in both district heating and transport. The city's building stock will be developed to serve as an example for the introduction of new energy solutions and the promotion of energy efficiency. Energy efficiency and energy saving will play an important role in avoiding the need to increase energy production itself, and at the same time bring emission reductions and economic benefits. All of the city's construction projects, including city-owned, PPP, life cycle, turnkey and rental projects, pursue similar sustainability goals.

We are actively involved in developing an intelligently controlled energy system, which provides households and companies operating in Espoo with energy produced with low emissions and at a reasonable price. The energy system will provide a safe and reliable environment for businesses to operate and develop. In the production, consumption and distribution of energy, new operating models are applied, which guides towards equalising consumption peaks and saving energy. We are heavily investing in raising energy awareness.



Carbon footprint is reduced by increasing sustainable production and reducing consumption.



Developing the electricity grid will enable many carbon-neutrality actions in sectors such as energy and transport. Innovations in the energy sector are distributed in Finland and globally.



Phasing out fossil fuels also contributes to local well-being. Increasing consumers energy awareness and establishing energy communities generates savings and emission reductions.



Vision for the future: Energy

The big picture of energy not only includes the generation, distribution and consumption of electricity, heating and cooling, but also energy efficiency, saving and guidance. Espoo is purposefully implementing the systemic whole of energy production, distribution and use. In terms of energy, the climate neutrality target of 2030 is achievable.

In terms of district heating, strategic cooperation with the energy utility Fortum is long-term and goal-oriented. The use of coal ended in April 2024 and district heating production will become carbon-neutral in the 2020s. In the future, carbon-neutral district heating will be produced using waste heat and renewable electricity as well as renewable energy sources, such as biofuels.

In the future, highlighted challenges in energy include emissions from consumer electricity and the electrification of society. Espoo is electrifying faster than the rest of Finland, and the sufficiency of the electricity grid is a major challenge. Espoo's strategic cooperation with Caruna will meet the needs for the development of the electricity grid.

The goal is a comprehensive energy system covering not just a single building or block but a wider, optimised system covering, for example, the heating and household electricity of an entire district.

Energy production will become an even larger part of the cityscape, for example, through investments in solar panels and more decentralized production of district heating. Both short- and long-term storage solutions will be developed to enable the most efficient use of renewable electricity and waste heat. New decentralized solutions and technologies (small-scale nuclear power, hydrogen, electric boilers, carbon capture and storage) will also be visible as part of city planning and regional development.

New approaches will also engage residents as active participants in the energy market. The introduction of energy communities and flexible consumption, for example, will increase in the future and different approaches, such as energy service solutions, will create new opportunities. The role of advice and guidance will increase as consumers are offered more options to generate local renewable energy or to take advantage of flexibility. More and more detailed information is needed on the various motivators and barriers to a sustainable energy transition for the residents, and energy awareness will be strengthened.

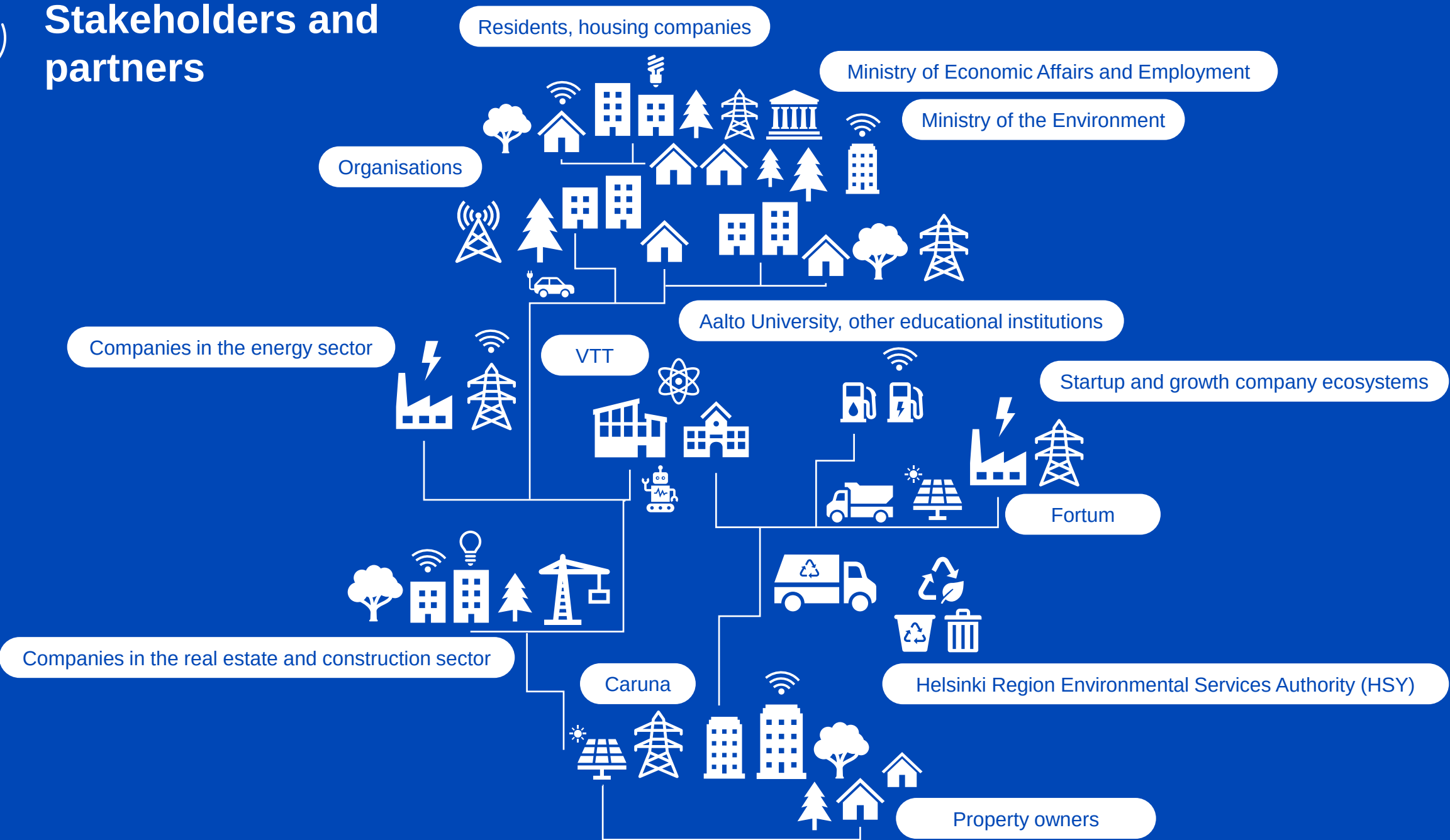
Emission-free energy solutions will boost the growth of new business in Espoo, for example through data centre investments. Espoo's pioneering solutions will create national and international business for local companies. At the same time, local development and innovation activities will grow through companies, research institutes, universities and universities of applied sciences, increasing knowledge and know-how.

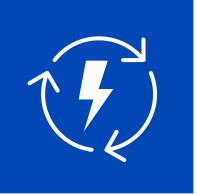
Risks

The impact of national and EU-level measures, such as the requirements of the EU's new Energy Efficiency Directive for Member States and the Public Sector, pose a risk to the electrification of society, for example. The need for rapid development of the electricity grid as the electrification of heating and transport continues to increase will require comprehensive cooperation and an agile planning and permitting process. The slowing development pace of new technologies or obstacles that may arise are risks. Lack of awareness or skills at the residential level can lead to a slowdown in household investments.

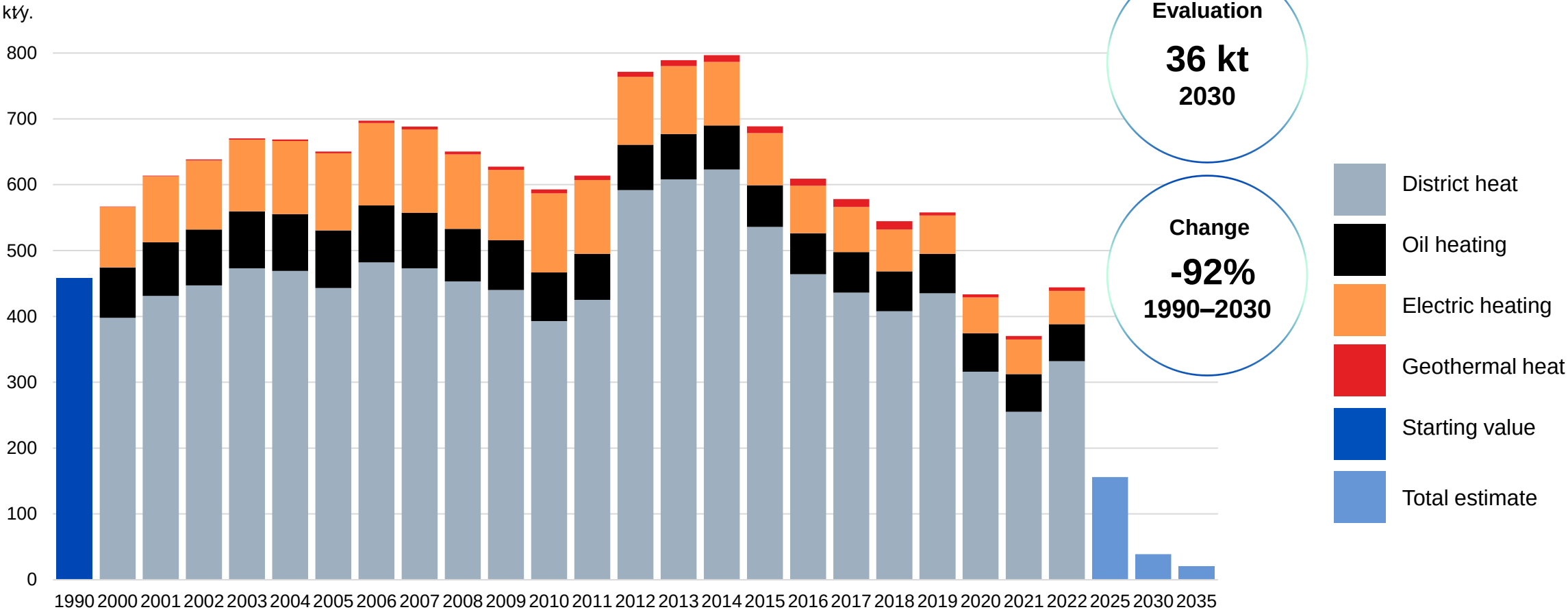


Stakeholders and partners

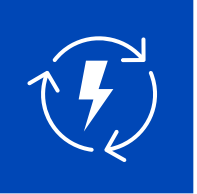




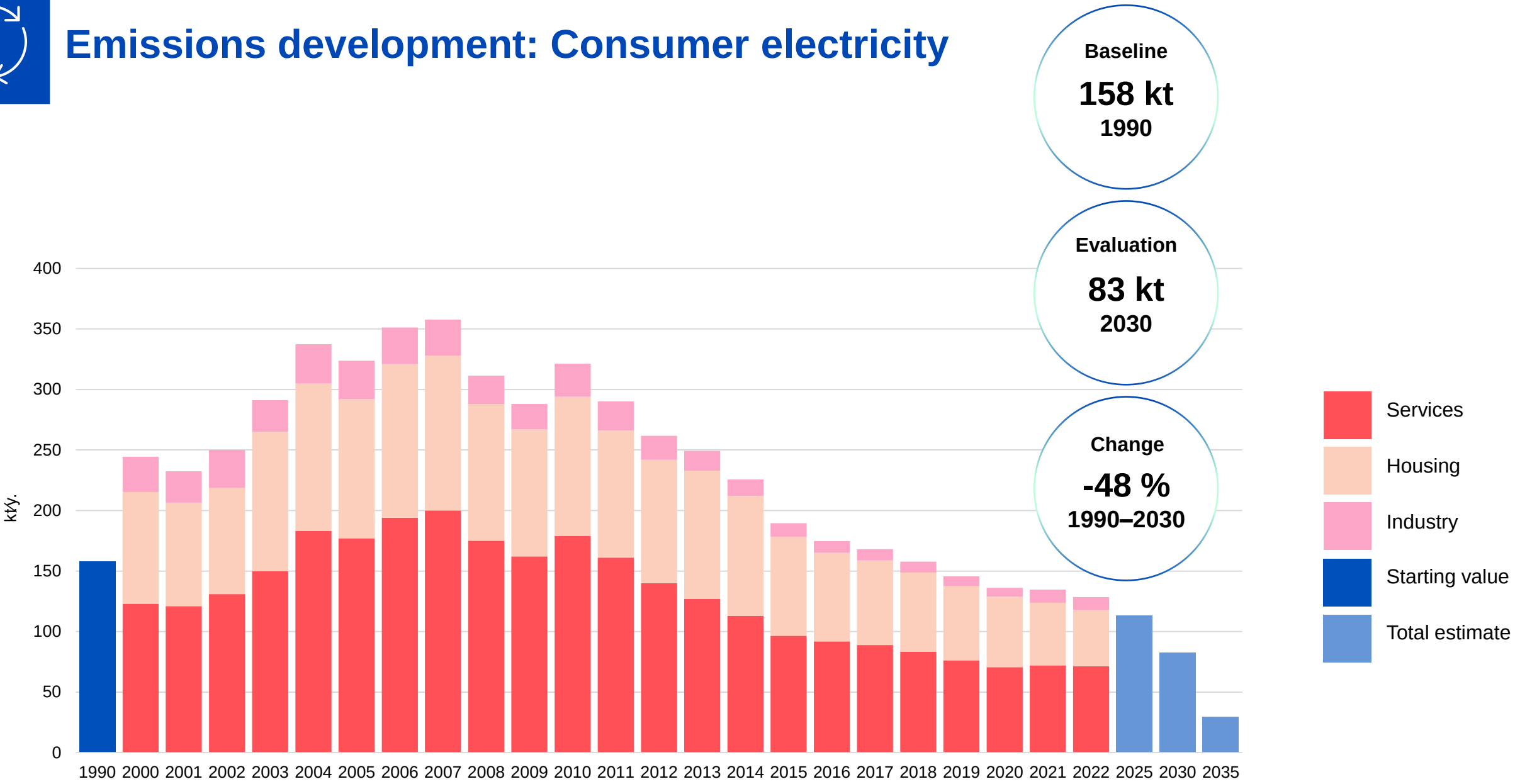
Emissions development: Heating of buildings



Source: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023



Emissions development: Consumer electricity



Source: Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Actions to achieve emission reductions: energy

National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community

Emission sector	Emissions in 1990 kt CO2eq	Emissions in 2022 kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	kt CO2 reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
Heating of buildings: district heating, oil heating and electric heating	459	444	154	37	Emission reduction - 423 i.e. emissions from heating buildings are reduced -92 %	We heat Espoon Asunnot properties with carbon-neutral district heat	Transition to carbon-neutral district heating		Continuous	Espoon Asunnot Oy and Fortum	www
						We utilise waste heat efficiently			Continuous	City Planning Department	www
						We heat all city-owned properties with renewable district heat			2020–continuous	Premises Department	www
						We replace fossil energy sources in district heat production			Continuous	Fortum and Centre of Excellence for Sustainable Development	www
						We give up fossil fuels as a form of heating for city-owned properties	Increasing renewable energy		By 2025	Premises Department	www
						We optimise the heating of city-owned properties	Improving energy efficiency		2020–continuous	Premises Department	www
						We improve the energy efficiency of Espoon Asunnot properties in the context of renovations			Continuous	Espoon Asunnot Oy	www
						We install water-saving fixtures in Espoon Asunnot properties			2022–2024	Espoon Asunnot Oy	www
						We use space of premises more efficiently			Continuous	Premises Department	www
						Solutions for low-carbon development of suburbs from neighborhood cooperation of housing companies (TYKKI)			2023–2024	Urban environment sector management	www

Source: Climate Neutral Espoo 2030 roadmap scenario work, Sitowise 2022 and 2023



Actions to achieve emission reductions: energy

National or regional measures, not in Climate Watch
Measure by the City of Espoo and the Espoo community
New measure by the City of Espoo and the Espoo community

Emission sector	Emissions in 1990 kt CO2eq	Emissions in 2022kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	kt CO2 reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link					
Consumer electricity	158	129	109	32	-75	The change in the national electricity emission factor and the increase in small-scale solar power production.	Not on Climate Watch, national action									
				Consumption electricity emissions to be reduced by 79%	-47			We develop Espoo's electrical grid through strategic cooperation				Increasing renewable energy		Continuous	Centre of Excellence for Sustainable Development, Caruna	www
								We use emission-free electricity for city-owned properties								
						We use carbon-neutral electricity in Espoon Asunnot properties										
						Taking into account the use of certified green electricity by major operators in the city area in emissions calculations	New measure			To be specified	-					
					-4	Increasing solar power production	New measure					2025–2030	To be specified	-		
						Estimated reduction potential -20 kt CO2eq. No follow-up data is available, so it is not taken into account in the calculation.	Encouraging residents to buy certified green electricity	New measure		Continuous	To be specified	-				
					We switch to using LED bulbs for lighting	Improving energy efficiency		Continuous	Sports and exercise unit, Premises Department, public works dep.	www						



Actions to achieve emission reductions: energy

National or regional measures, not in Climate Watch
Measure by the City of Espoo and the Espoo community
New measure by the City of Espoo and the Espoo community

Emission sector	Emission s in 1990 kt CO2eq	Emissions in 2022 kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	% decrease 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
Emission reductions included in the heating of buildings and consumer electricity sectors.						We use locally produced energy in the construction of new city-owned buildings	Increasing renewable energy		Continuous	Premises Department	www
						We innovate new solutions for positive energy districts as part of the European-level collaboration project SPARCS					
						We use zoning to steer operations towards energy efficiency and renewable energy	Improving energy efficiency		Continuous	City planning department	www
						We utilise energy manager and property control room services					
						We organise energy expert training for Espoon Asunnot residents			2023	Espoon Asunnot Oy	www
						Technological carbon capture	New measure		TBC	TBC	



Metrics for the climate impact of energy

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Emissions from district heating	Emissions from district heating in the city area	332 kt CO ₂ eq (2022)	84 kt CO ₂ eq (calculated target)	55 kt CO ₂ eq (calculated target)	13 kt CO ₂ eq	HSY	Emissions in the Espoo area
	Share of non-fossil fuels for district heating in city area	47,6 % (2022)			95%	HSY	
Energy efficiency	Share of carbon-neutral district heat in the City Corporate Group's district heat consumption	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	City of Espoo and Espoon Asunnot Oy	In terms of the city's buildings, the figure includes directly owned buildings
	Cumulative energy savings accumulated under the Municipal Energy Efficiency Contract (KETS) in the Facilities Services and City Works Department Cumulative energy savings under the Rental Housing Communities Operational Programme (VAETS) at Espoo Asunnot Oy	KETS cumulative accumulated savings 21,430 MWh/year (2016–2021) VAETS cumulative accumulated savings 15,449 MWh/year (2016–2022)	19 611 MWh/y (KETS) 12 824 MWh/y (VAETS)		Strengthened by KETS and VAETS negotiations	City of Espoo and Espoon Asunnot Oy	KETS and VAETS further negotiations ongoing for 2026–2035
Emissions from oil heating in the city area	Emissions from oil heating in the city area	56 kt CO ₂ eq (2022)	31 kt CO ₂ eq (calculated target)	19 kt CO ₂ e (calculated target)	2 kt CO ₂ eq	HSY	Emissions in the Espoo area
	Number of sites in the city organization heated by oil	Heating mode changes implemented 4/15, remaining 11	0	0	0	City of Espoo	There are around 30 sites containing oil heating, of which 15 will be phased out and 15 will undergo heating modifications



Metrics for the climate impact of energy

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Emissions from electric heating in the city area	Emissions from electric heating in the city area	56 kt CO2eq (2022)	39 kt CO2qe (calculated target)	33 kt CO2eq (calculated target)	23 kt CO2e	HSY	Emissions in the Espoo area
Local energy production	Number or capacity of implemented geothermal sites in the city organisation	Around 13 geothermal sites completed (2023) (Premises Department) Geothermal installations in 8 establishments with 58 buildings (Espoo Asunnot Oy)			The aim is to cover at least 10% of the energy consumption of new buildings with locally produced renewable energy generated on site (photovoltaic, geothermal, wind power). (Premises Department)	City of Espoo and Espoon Asunnot Oy	In terms of Premises Department, only directly owned properties are included
	Number or capacity of implemented photovoltaic sites in the city organisation	Around 12 photovoltaic installations completed, with a capacity of 278 kWp (2023) (Premises Department) Solar photovoltaic installations in 4 establishments with 10 buildings (Espoo Asunnot Oy)			The aim is to cover at least 10% of the energy consumption of new buildings with locally produced renewable energy generated on site (photovoltaic, geothermal, wind power). (Premises Department)	City of Espoo and Espoon Asunnot Oy	In terms of Premises Department, only directly owned properties are included
Emissions from consumer electricity	Emissions of consumer electricity in the city area	129 kt CO2eq (2022)	108 kt CO2eq (calculated target)		32 kt CO2eq (calculated target, share of certified electricity consumption taken into account)	HSY	Emissions in the Espoo area
	The transition of large operators in the area to using certified green electricity and its inclusion in emissions calculations	Not taken into account			Taken into account (calculated emission reduction -46,600 t CO2eq)		
	Share of emission-free electricity in the city's total electricity consumption	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	100 % (Premises Department) 100 % (Espoon Asunnot Oy)	City of Espoo and Espoon Asunnot Oy	In terms of Premises Department, only directly owned properties are included
	The share of LED lighting within the city organisation	47% outdoor lighting (2023), 30% indoor lighting (2023)	100% (indoor lighting)		100 % (Outdoor lighting)	City of Espoo	



Indicators for the climate impact of energy

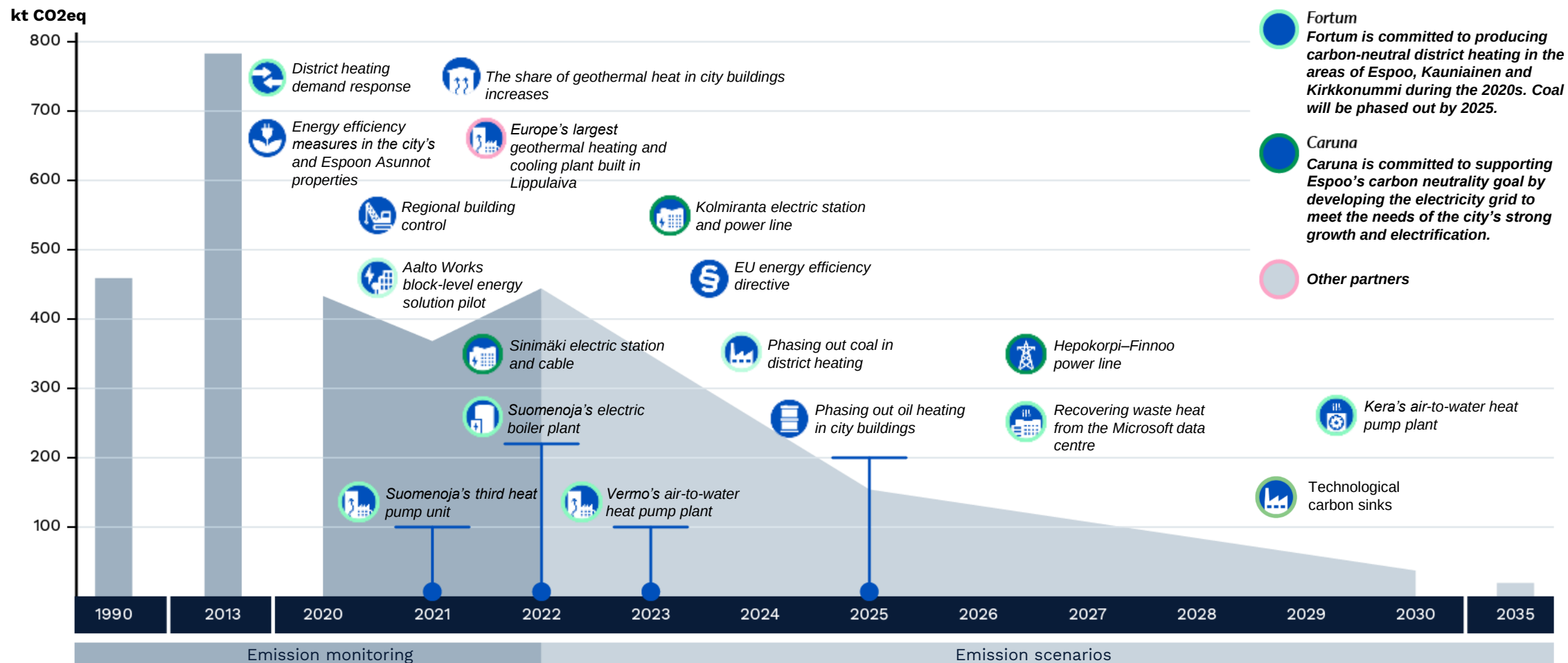
Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

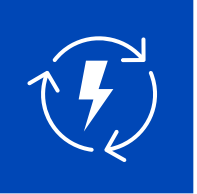
What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Emissions from consumer electricity	The amount of solar power produced in the city area	26.6 MW (4/2023, grid-connected)	Caruna	Plants connected to the electricity network in the Espoo area included



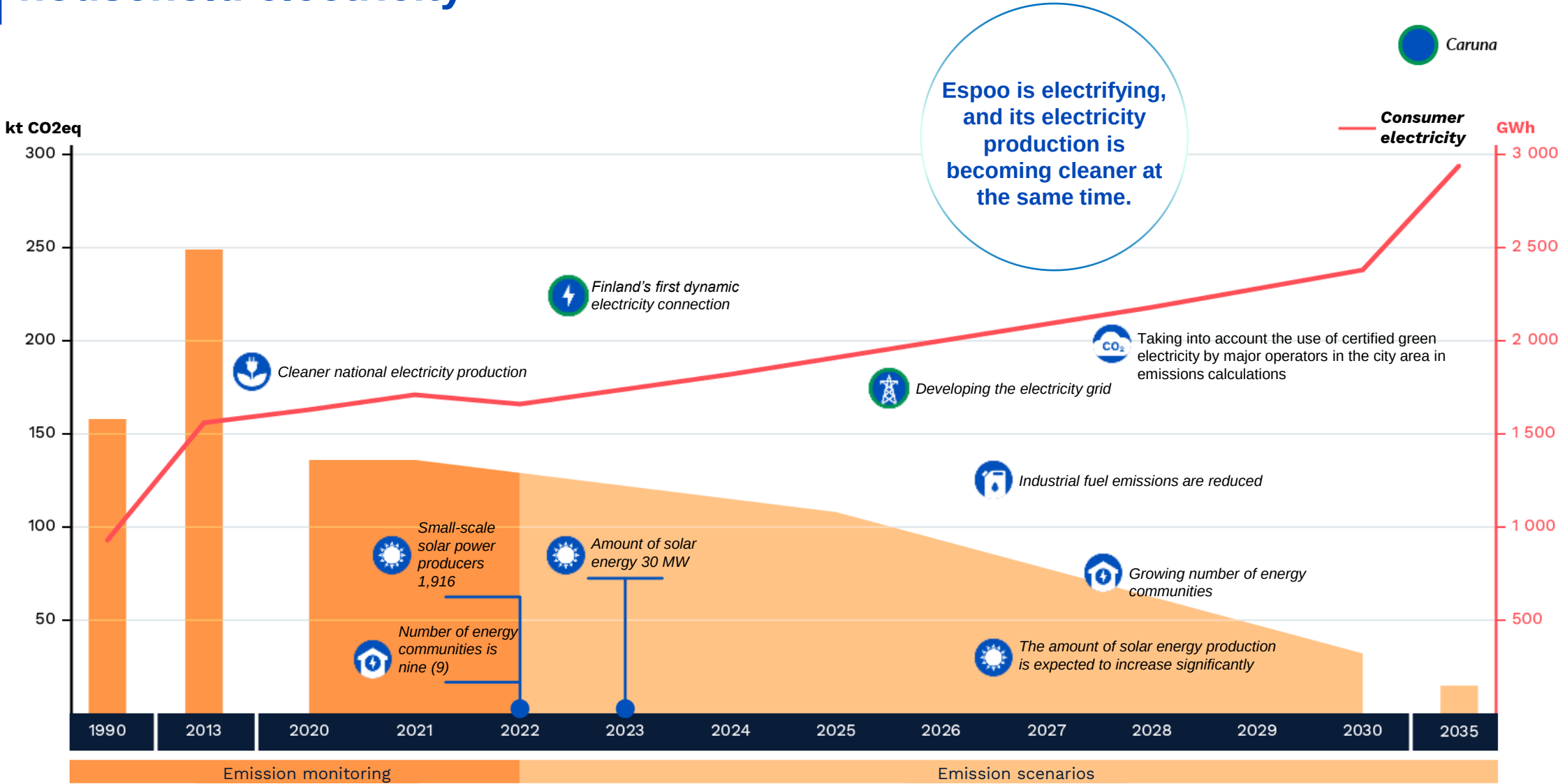
Roadmap for emissions from heating buildings



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Roadmap for emissions from household electricity



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022

Priority

Transport and mobility as well as industry and machinery

Emissions from transport will be reduced. Efforts will be reflected, for example, in improvements to public transport, walking and cycling conditions and in private car use, especially as a rapid increase in the use of electric cars.





Sustainable transport and emission-free power sources



Emissions from transport can be reduced by increasing sustainable modes of transport and by changing to fossil-free power sources.



Innovations from Espoo are in demand around the world. Companies in Espoo are developing new power sources and automated transport, especially for freight transport.



Healthier and safer transport and mobility will enable a prosperous and pleasant city. A functional and safe urban environment invites people to walk, cycle and use public transport.

The goal is that all Espoo residents can use smooth and low-emission modes of travel when commuting to school, day care and work, when accessing services and hobby activities, and when visiting loved ones.

The aim is to reduce overall transport emissions in Espoo. Solutions are being sought for transport and transport infrastructure throughout the city area. This requires both increasing the share of sustainable means of transport and transitioning from fossil-based to non-fossil-based fuels.

Cooperation will enable the sustainability of the electricity grid as transport becomes more electrified. Biofuels are a transport sub-solution. Circular economy models will bring solutions to the development work.

Efficient freight transport and good urban logistics will be ensured while emissions are reduced. Long-distance connections reduce the need to travel.

Preparations for tendering for the new contract period of the city bike system have started and the launch of the tender and the scope of the area are expected to be brought to a decision in 2024. In addition, a commuter bike benefit for city employees is under preparation.



Vision for the future: transport and mobility

In Espoo, as in other Finnish cities, emissions from transport are a challenge. Espoo's population is projected to grow by 4,700 people per year, which is the size of a small municipality. This will increase the traffic mileage, even though a shift to sustainable modes of transport such as walking, cycling and public transport is already taking place. Reducing overall emissions from transport is an ambitious goal. In order to reach the climate neutrality target, all proposed measures must be implemented in accordance with the most optimistic scenarios. The measures will reduce mileage, i.e. driven kilometers and unit emissions from transport.

The Espoo Master Plan 2060 will set out the important outlines for the development of public transport in the joint planning of land use and transport. In addition, there will be regional cooperation with regard to transport as part of MAL planning.

The emission reduction potential of public transport is greatest due to the length of public transport journeys but walking and cycling complement public transport trips and play an important role in the amenity and social sustainability of city centres. The cycling promotion programme will be updated. Public transport in the City of Espoo has developed significantly with the West Metro extension and the opening of the Jokeri Light Rail. Future major lines include the light rail and other public transport investments in line with the master plan implementation programme. New transport services will support the use of public transport, walking and cycling and enable sustainable choices in everyday life.

Risks

The impact of national measures is also significant in Espoo, including political policies such as changes in the distribution obligation and subsidies for the purchase of electric vehicles. In addition, there is a risk of changes in the operating environment globally, such as impacts on technology supply chains and economic opportunities for public operators, businesses and households to invest in the green transition.

This requires continuous development work together with businesses, HSL and other cities. New public transport connections will be further developed, and intermodal parking will be increased. Public transport will be streamlined to take into account all user groups and accessibility.

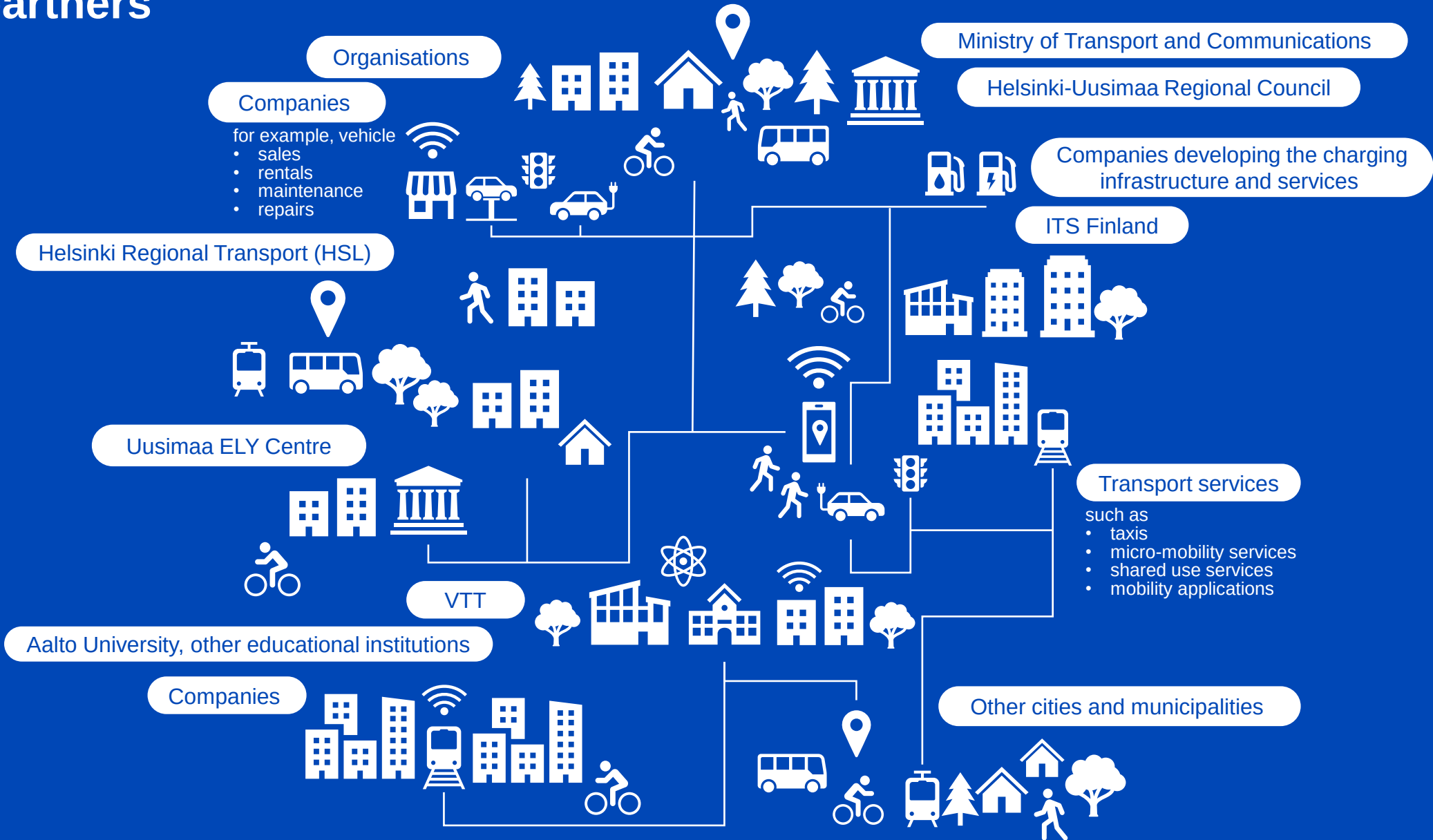
The proportion of emissions from freight transport and urban logistics will increase in the future. The range of methods for optimising logistics and emission-free power sources will be developed at regional level in cooperation with businesses and operators in the region.

The electrification of transport has good emission reduction potential and in Espoo, the uptake of electric cars is significant. Charging infrastructure for electric cars in the city's properties is being actively increased. The number of electric vehicles is also increasing in urban logistics and public transport. In the future, electric vehicles will enable energy storage and the optimisation of energy supply and demand. The electrification of transport will also require improvements in city procurement, permitting processes, urban planning and land use solutions. It is also important to monitor technological developments in other clean propulsion technologies (biofuels, hydrogen) and transport (autonomous public transport, digital parking services) in cooperation with businesses and research institutes.

Supplementing the urban structure and planning dense and comfortable centres that blend various functions and provide day-to-day services close at hand reduces the need to move from place to place and enables the use of emission-free and low-emission modes of transport.



Stakeholders and partners





Emissions development: transport and mobility

Transport emissions are influenced by the **traffic mileage (driven kilometres)** and the **emissions of the car fleet**. In a growing city, the traffic mileage increases and the emissions from the car fleet gradually decrease.

Full implementation of the measures is needed to reduce transport emissions to reach the target.

Baseline

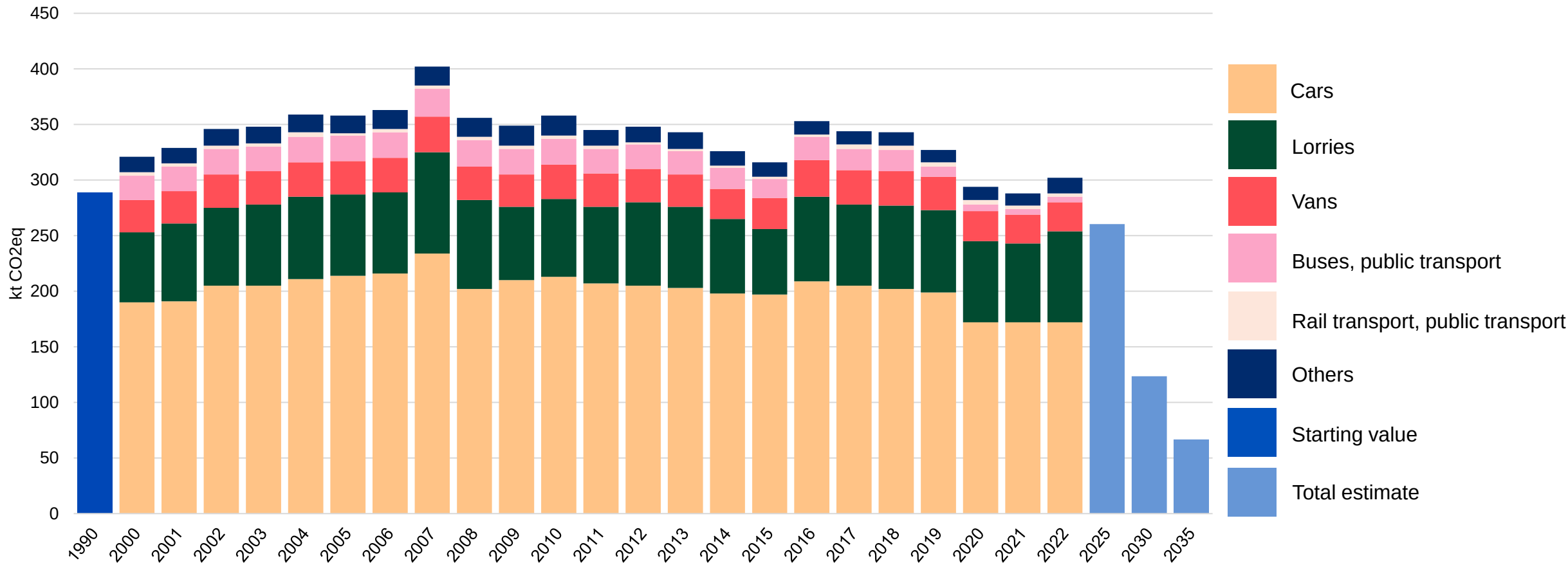
289 kt
1990

Evaluation

124 kt
2030

Change

-57 %
1990–2030

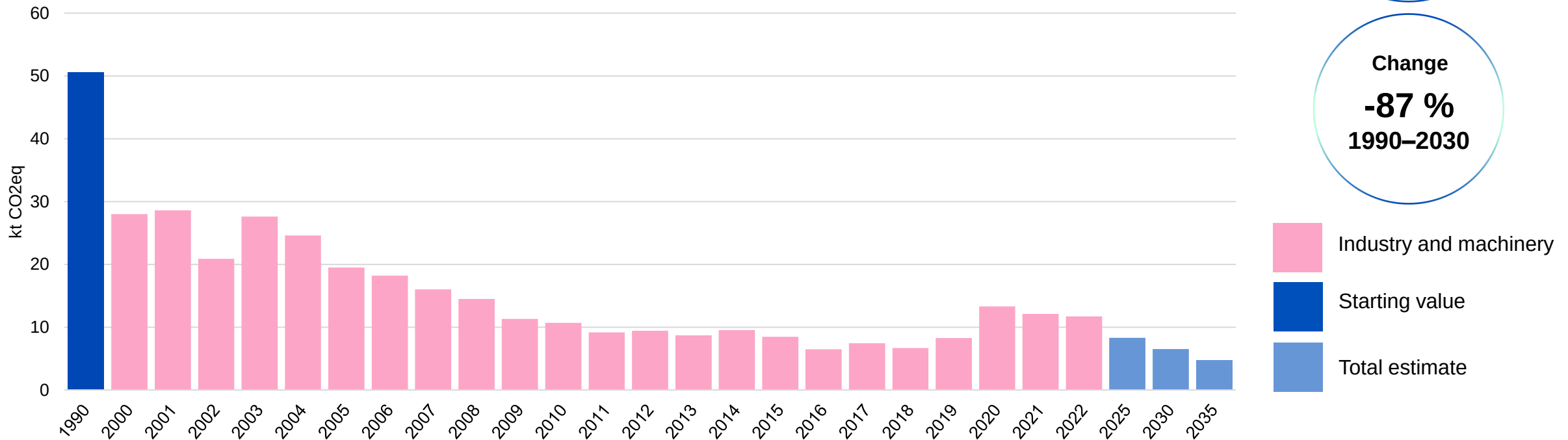


Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Emissions development: transport and mobility

Espoo does not have a significant amount of goods-producing industry. In 2022, emissions from industry and machinery accounted for just over 1% of total emissions. Emissions from industry and machinery have already decreased by 77% between 1990 and 2022.



Baseline

51 kt

1990

Evaluation

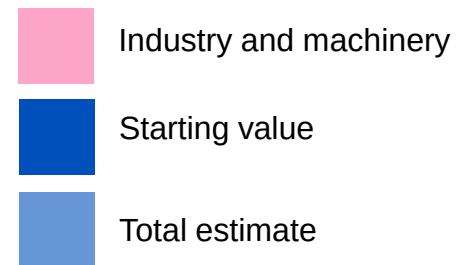
7 kt

2030

Change

-87 %

1990–2030



Source: Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Actions to achieve emission reductions: Transport (measures affecting mileage)

Emission sector	Emissions in 1990kt CO2eq	Emissions in 2022kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	% reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
Passenger car traffic is forecast to grow by 8% by 2030. This increase in mileage will bring a 2030 emission factor of 9 kilotonnes of additional emissions. The increase in the sector is due in particular to the growing population and would increase more in the absence of measures.						We design the Espoo–Salo direct line as part of the one-hour train link to Turku	Increasing rail traffic			Transport planning	www
						We deploy the Jokeri Light Rail line	Increasing rail traffic			Public Works Department	www
						We construct the West Metro extension	Increasing rail traffic			Public Works Department	www
						We construct the Espoo City Rail Link between Leppävaara and Kauklahti	Increasing rail traffic		2021– 2028	Public Works Department and transport planning	www
						We improve the conditions for walking	Promoting walking and cycling		Continuous	Public Works Department and transport planning	www
						We improve the preconditions for cycling	Promoting walking and cycling		Continuous	Public Works Department and transport planning	www
						We communicate about sustainable traffic and the climate impacts of mobility	Promoting walking and cycling		Continuous	Centre of Excellence for Sustainable Development	www
						We promote sustainable mobility among children and young people	Promoting walking and cycling		Continuous	Growing and learning	www
National or regional measures, not in Climate Watch											
Measure by the City of Espoo and the Espoo community											
New measure by the City of Espoo and the Espoo community											



Actions to achieve emission reductions: Transport (measures affecting mileage)

Emission sector	Emissions in 1990kt CO2eq	Emissions in 2022kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	% reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link						
(continuation) Passenger car traffic is forecast to grow by 8% by 2030. This increase in mileage will bring a 2030 emission factor of 9 kilotonnes of additional emissions. The increase in the sector is due in particular to the growing population and would increase more in the absence of measures.						We plan long-term public transport corridors	Streamlining public transport		Continuous	Transport planning	www						
						We develop park-and-ride facilities and services	Streamlining public transport		Continuous	Public Works Department and transport planning	www						
						We develop new sustainable transport services	Streamlining public transport		Continuous	Centre of Excellence for Sustainable Development	www						
						We ensure the smooth flow of public transport	Streamlining public transport		Continuous	Public Works Department and transport planning	www						
						We increase the efficiency of parking	Reducing the emissions of car traffic		Continuous	Transport planning and Public Works Department	www						
						We develop centres to be dense, comfortable and functionally diverse	Preconditions for sustainable mobility		Continuous	City Planning Department	www						
						We prepare a Sustainable Urban Mobility Plan (SUMP) for Espoo	Preconditions for sustainable mobility			Centre of Excellence for Sustainable Development	www						
						National or regional measures, not in Climate Watch						Preparations for the tendering process for the new contract period of the city bike system have started and the launch of the call for tenders and the scope of the area to be decided in 2024.	Promoting walking and cycling		TBC		
						Measure by the City of Espoo and the Espoo community						Bike benefit for city employees	Promoting walking and cycling		TBC		
New measure by the City of Espoo and the Espoo community																	



Actions to achieve emission reductions: Transport (measures affecting mileage)

National or regional measures, not in Climate Watch
Measure by the City of Espoo and the Espoo community
New measure by the City of Espoo and the Espoo community

Emission sector	Emissions in 1990kt CO ₂ eq	Emissions in 2022kt CO ₂ eq	Estimated emissions in 2025 kt CO ₂ eq	Estimated emissions in 2030 kt CO ₂ eq	% reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
(continuation) Passenger car traffic is forecast to grow by 8% by 2030. This increase in mileage will bring a 2030 emission factor of 9 kilotonnes of additional emissions. The increase in the sector is due in particular to the growing population and would increase more in the absence of measures.						We secure the sufficiency and availability of recreational areas and services	Sustainable urban structure		Continuous	City Planning Department	www
						We unify the urban structure through infill development	Sustainable urban structure		Continuous	City Planning Department	www
						We plan new areas based on the principles of sustainable development	Sustainable urban structure		Continuous	City Planning Department	www
Van traffic is forecast to grow 20% and truck traffic 44% by 2030. This increase in will result in an additional 22 kilotonnes of emissions in 2030. The route will increase in particular due to the growing population and would increase more in the absence of measures.						We use zoning to steer the positioning of jobs	Preconditions for sustainable mobility		Continuous	City Planning Department	www
						We prepare for changes in the operating environment of trade and industry	Preconditions for sustainable mobility		Continuous	City Planning Department	www
						We shape Kiviruukki, Keilaniemi and Finnöö into a diverse area for housing and jobs	Sustainable urban structure		Continuous	City Planning Department	www



Actions to achieve emission reductions: Transport (measures affecting unit emissions)

Emission sector	Emissions in 1990kt CO ₂ eq	Emissions in 2022kt CO ₂ eq	Estimated emissions in 2025 kt CO ₂ eq	Estimated emissions in 2030 kt CO ₂ eq	% reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
Emissions from passenger cars according to Climate Neutral Espoo 2030 and rapid increase of electric cars scenarios	183	166		56	70 %	We develop the distribution infrastructure for renewable fuel	Reducing the emissions of car traffic		Continuous	City Planning Department and City Works Department	www
						We develop the charging infrastructure for EVs in Espoo	Reducing the emissions of car traffic				
						We develop charging opportunities for EVs in Espoon Asunnot properties	Reducing the emissions of car traffic				
						We promote electric cars (the growth in the number of electric cars is only possible through determined action by the national, city and partners, such as subsidies for purchase, sufficient electricity network and adequate charging infrastructure).	Reducing the emissions of car traffic	Partly new measure 	Continuous	Centre of Excellence for Sustainable Development	www

The implementation of the proposed amendment to the Distribution Obligations Act has been taken into account in the calculation. It would increase emissions in 2030 by +31 kt CO₂eq.

National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community



Actions to achieve emission reductions: Transport (measures affecting unit emissions)

Emission sector	Emissions in 1990kt CO ₂ eq	Emissions in 2022kt CO ₂ eq	Estimated emissions in 2025 kt CO ₂ eq	Estimated emissions in 2030 kt CO ₂ eq	% reduction 1990–2030	Measures leading to emission reductions	Goal in Climate Watch	Progress	Timeline	Responsible organisations	Link
Emissions from vans and trucks	77	95		68	12 %	We increase the efficiency of goods transport	Reducing the emissions of car traffic		Continuous	Transport planning	www
						We develop charging solutions for commercial traffic (ZEMhub)	Reducing the emissions of car traffic				
						Promoting rapid growth in the electrification of distribution transport and trucks.	New measure				
Bus emissions	18	16		6	66 %	We increase the number of electric buses in Espoo	Joukkoliikenteen sujuvoittaminen		Continuous	Centre of Excellence for Sustainable Development	www

National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community

The implementation of the proposed amendment to the Distribution Obligations Act has been taken into account in the calculation. It would increase emissions in 2030 by +31 kt CO₂eq.



Other actions identified (for background information, not for decision)

Emission sector	Measures leading to emission reductions	Emission reduction
Would affect unit emissions from car traffic	Reduction of speed limits on roads in the Espoo motorway area. Would require a separate decision by the municipalities and the national government. Before the measure could be proposed for implementation, the effects of lowering speeds on the national road network towards the urban structure on would have to be studied.	Emission reduction potential about 5% of emissions from cars and vans.
Would streamline traffic and at the same time reduce traffic mileage	Transport pricing, including congestion charging and stricter parking policies. Currently, the development of congestion charging legislation is being monitored and influencing the preparation of legislation.	Emission reduction potential roughly estimated at around 5-7 kt CO ₂ eq in 2030.
Would affect traffic mileage	Public transport investments based on the solution set out in the master plan.	Realisation only after 2030.



Metrics for the climate impact of transport and mobility

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Road transport emissions	Road transport emissions	303 kt CO ₂ eq (2022)	260 kt CO ₂ eq		124 kt CO ₂ eq	HSY	
	Emissions from industry and machinery	12 kt CO ₂ eq (2022)	8 kt CO ₂ eq	8 kt CO ₂ eq	7 kt CO ₂ eq	HSY	
	Share of sustainable modes of transport in journeys	60% total (2023) 20% public transport 30% walking 9 % cycling 1 % other	60 % total			Passenger traffic survey, HSL	
	Sustainable road transport propulsion (electric, hybrid and gas cars) % of Espoo's car fleet	21 % (31.3.2024)			67 %	Traficom	Estimated 85,000 number of fully electric cars and plug-in hybrids in 2030
	Number of passenger cars (pcs/resident)	0,41 (2023)			0,36	Traficom, Espoo	The total amount would remain the same
	Number of climate-free buses in HSL transport (biofuels and electric buses)	39 electric buses (2022)			In 2035, the entire fleet	HSL	
	Share of electric cars and other low-emission vehicles in the City organisation's vehicle fleet	passenger cars 26%, vans 0% (2023)			100 %	Logistics	



Indicators for climate impact of transport and mobility

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

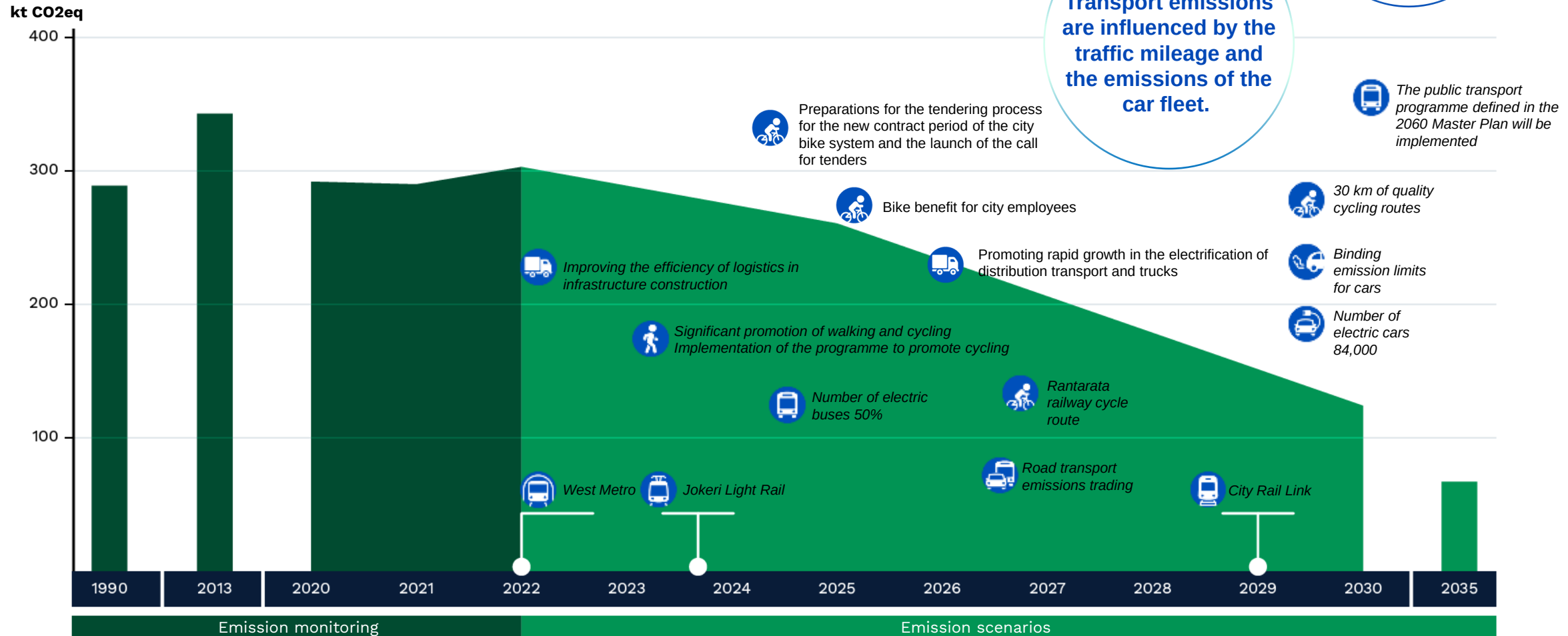
What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Road transport emissions	Number of electric and hybrid cars as % of first registrations in Espoo (cumulative number in the previous 12 months)	65 % (02/2024)	Traficom	
	Car travel mileage (km/person)	5251 km (2022)	Transport survey	VTT Liisa-model
	Number of paid parking	2 zones (2023)	Service map	
	Cycling volume at Ecocounter points (summer period (15 May to 15 September) on weekdays (Mon-Fri))	7332 per day (2022)	City Planning Department, transport survey	Includes: Leppävaara. Karhusaari, Gallen-Kallelantie, Pohjantie, Ring road 1, Mäkkylä total
	Usage volume of city bikes	1100 bikes, 341,391 trips/year = 310 trips/bike/year (2023)	Bike operator	
	Propulsion forces of machinery	Biodiesel > 90 %	The management of the City Works Dep. monitors	Compliance with emission limits, etc. No single meter.
	Investment and operating budget for climate change mitigation in transport measures for the basic city in the budget	Budget 2024: investments €118 million € ie 37% Operating economy: €234 million € ie 16%	Financial summary of climate work as part of the budget	Calculated as the total amount and as a percentage of the total investment budget for investments and as a percentage of the total operating budget for the operating budget.
	Charging infrastructure owned by the city Public charging points	City: 49 Public: 1055 (2023)	City: City Works Dep. Public: latauskartta.fi	



Roadmap for emissions from transport – measures decided

Change
-57 %
1990–2030

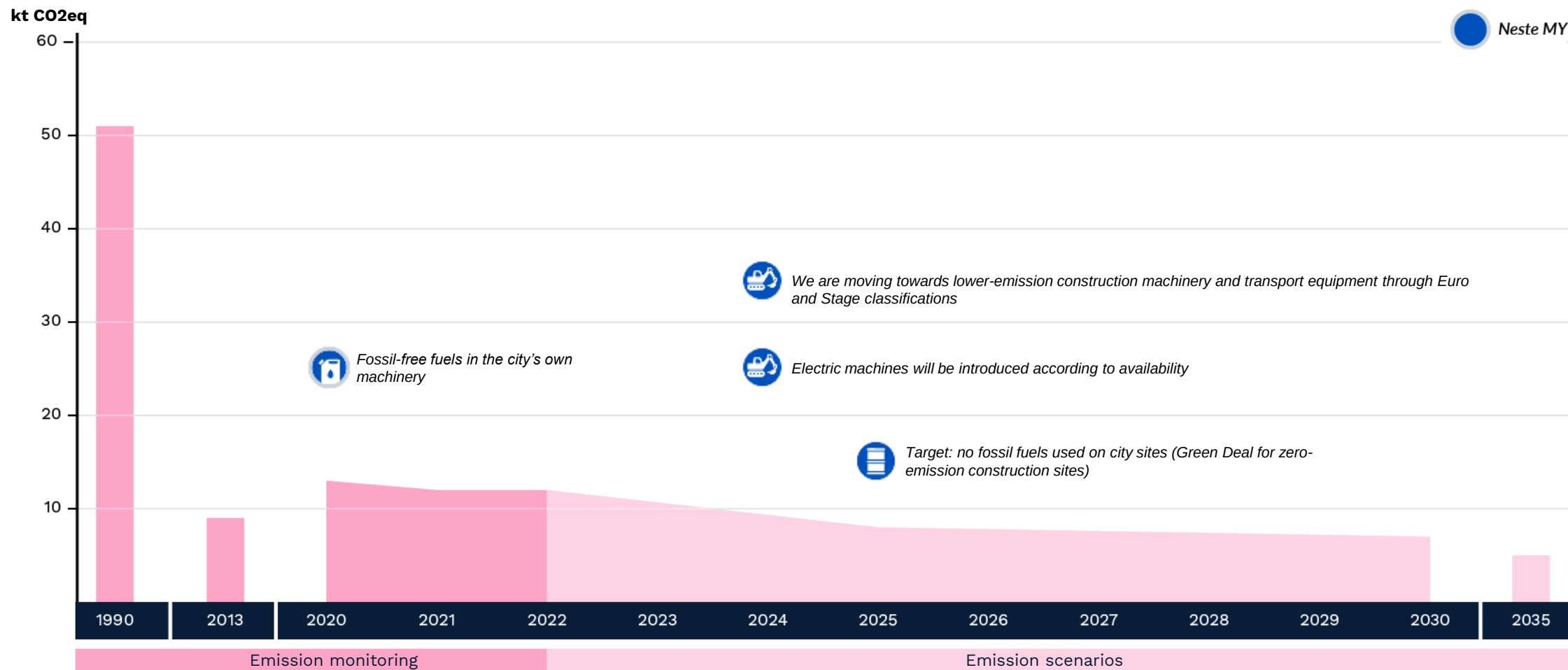
Transport emissions
are influenced by the
traffic mileage and
the emissions of the
car fleet.



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Roadmap for emissions from industry and machinery



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022

Priority

Construction

Espoo is planning and building along good public transport connections, in a sustainable and environmentally-friendly way.





Resource-wise construction

The aim is to reduce emissions and other environmental impacts throughout the construction life cycle all the way from the production of the construction materials to the actual construction phase, the use of the building and the recycling and reuse of the materials and components at the end of the building's service life.

As Espoo's population grows, so does the need for construction. Espoo controls construction through land use control measures and also builds itself. Espoo promotes low-carbon and comprehensively sustainable solutions and the circular economy both in its construction steering and in its own construction.

The climate impacts of construction are taken into account, and emissions are strongly reduced through cooperation between the city group and partners.

Espoo wants to lead the way in the EU in the low-carbon transformation of its building stock. The resource wisdom and overall sustainability of construction are implemented by promoting the use of zero-emission energy, energy and space efficiency, flexibility of conversion, accessibility, the choice of sustainable and high-quality building materials and long life cycles. Priority will be given to renovation rather than demolition, for example through change of use, anticipation of repair needs and quality building maintenance.

A significant share of construction-related emissions is only reflected in the city's consumption-based emissions.



Area-based emissions: energy and space utilisation measures in the building stock, building or replacing energy solutions in buildings, minimising emissions from construction sites and machinery.

Consumption-based emissions: climate-friendly building material choices and transport outside Espoo.



Carbon stocks and sinks in infrastructure construction (parks, yards, green areas and zones, etc.)

Material and technology choices in construction that store or absorb carbon.

Developing new solutions for construction.



Sustainably built and maintained streets, parks, homes, workplaces, schools and daycare centres are at the heart of healthy and safe everyday life.



Vision for the future: construction

The new Construction Act, which will enter into force in 2025, will introduce a number of obligations to promote low-carbon and circular economy. These include the calculation of the carbon footprint of buildings and emission limit values for buildings, the preparation of a material passport and specification, the making of a demolition survey mandatory for all demolition sites, the digitalisation of building information and a data model-based building permit.

In addition to legislation, global resource shortages and rising costs are encouraging the construction sector to rely more heavily on circular economy solutions, such as the reuse of building components, changes in the use of space and, for example, nature-based solutions in infrastructure construction. In addition, trends in housing, such as community living, sustainable everyday life and proximity to nature, will influence the future of construction and practical solutions and needs. In addition, the needs of different population groups must be met, for example through accessibility.

Changes in legislation and the operating environment will require resources and the development of steering instruments and skills. Particular attention will be needed in calculating the carbon footprint and handprint of buildings in order to identify the best solutions from the climate perspective.

Risks

Global resource shortages, rising costs and skills shortages are risks to the development of emission levels in construction.





Actions to achieve emission reductions: Construction

National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community

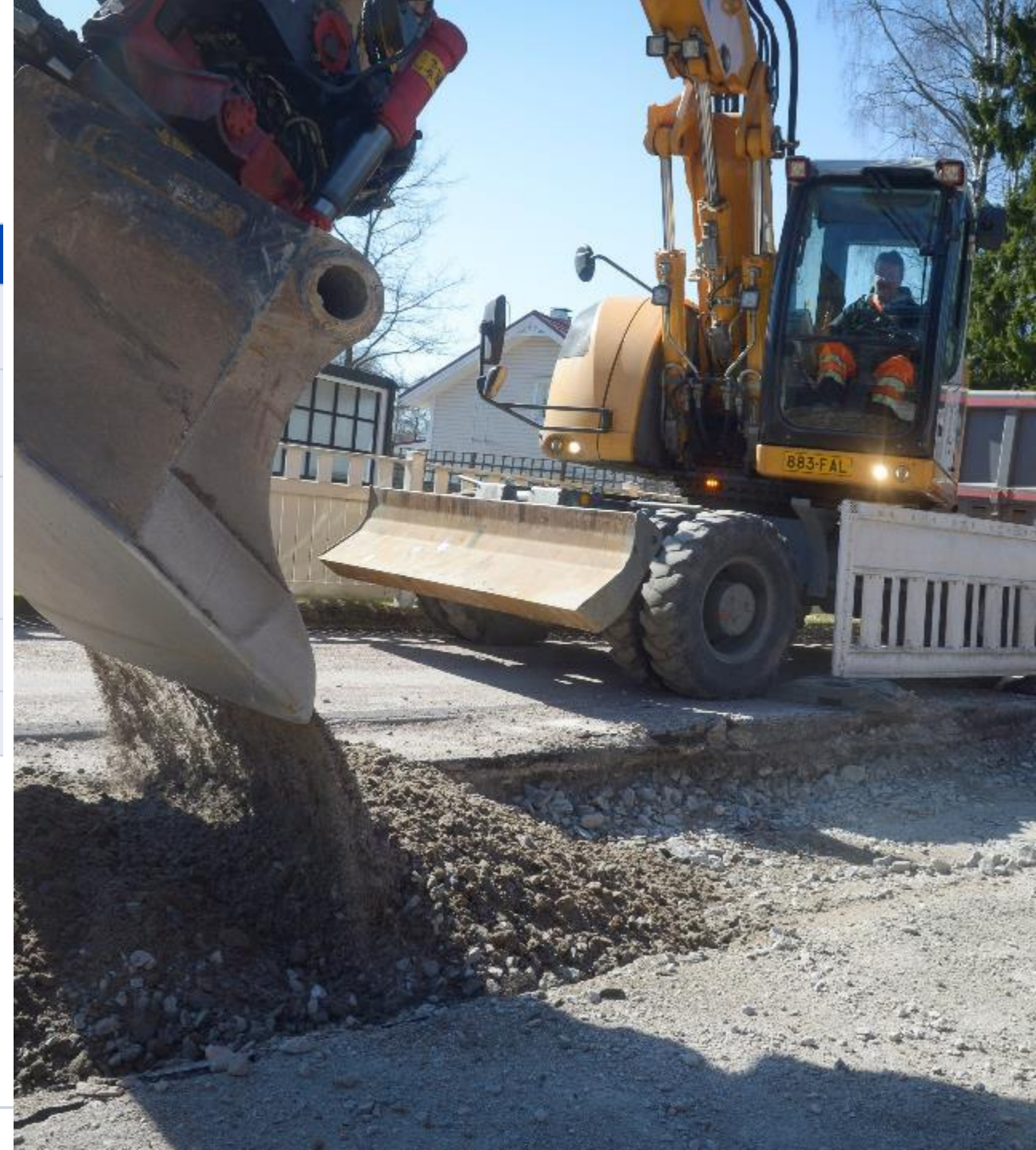
Measure	Target	Progress	Timeline	Responsible org.	Link
We secure the sufficiency and availability of recreational areas and services	Sustainable urban structure		Continuous	City Planning Department	www
We unify the urban structure through infill development			Continuous	City Planning Department	www
We shape Kiviruukki, Keilaniemi and Finnöö into a diverse area for housing and jobs			Continuous	City Planning Department	www
We plan new areas based on the principles of sustainable development			Continuous	City Planning Department	www
Kera will become a model area for the circular economy			Continuous	Centre of Excellence for Sustainable Development	www
We are developing innovative incentives and commitments to promote sustainability alongside statutory land use control measures			Continuous	Centre of Excellence for Sustainable Development	www
We assess the carbon sink impacts in planning significant new construction areas	Assessing climate impacts		Continuous	City Planning Department	www
We utilise emission calculation in zoning and regional construction			Continuous	City Planning Department	www
We develop emission calculation as part of assessing the impact and costs of infrastructure construction				City Planning Department	www

Measure	Target	Progress	Timeline	Responsible org.	Link
We use zoning to steer the positioning of jobs	Preconditions for sustainable mobility		Continuous	City Planning Department	www
We prepare for changes in the operating environment of trade and industry			Continuous	City Planning Department	www
We develop centres to be dense, comfortable and functionally diverse			Continuous	City Planning Department	www
We prepare a Sustainable Urban Mobility Plan (SUMP) for Espoo				Centre of Excellence for Sustainable Development	www
We focus zoning and construction work along good public transport links			Continuous	City Planning Department	www
We promote the circular economy of infrastructure construction through more sustainable procurement criteria for materials	Climate-wise construction		Continuous	Public Works Department	www
We tender out infrastructure contracts according to the Green Deal for zero-emission construction sites			Continuous	Public Works Department	www
We promote low-carbon construction in zoning			Continuous	City Planning Department	www
We utilise large impermeable surfaces in a diverse manner			Continuous	City Planning Department	www



Actions to achieve emission reductions: Construction

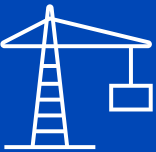
Measure	Target	Progress	Timeline	Responsible org.	Link
We design all new Espoon Asunnot properties for energy class A	Climate-wise construction		Continuous	Espoon Asunnot Oy	www
We design all new properties of the Premises Department for energy class A			Continuous	Premises Department	www
We build and renovate in a sustainable and low-carbon way, taking into account the principles of the circular economy			Continuous	Premises Department	www
We design low-carbon buildings through multi-objective optimisation			Continuous	Premises Department	www
We build with wood			Continuous	Premises Department	www



National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community



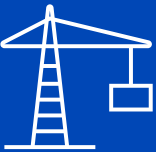
Metrics for the climate impact of construction

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

Energy consumption in construction is reflected in energy emissions, while site transport is reflected in transport emissions and emissions from industry and machinery. Material emissions from construction are monitored as part of the construction climate emissions metrics.

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Consumption emissions: Construction including material emissions	Consumption-based emissions from construction	469 kt CO2eq (2022)	Not yet available – the knowledge base is being created	Not yet available – the knowledge base is being created	Per capita emissions from consumption will decrease	Consumption-based emissions from construction	Consumption-based emissions from construction
Consumption emissions: Construction including material emissions	Scenarios for consumption-based emissions from construction are created	No information. The calculation will be created during 2024.	2025: Scenarios have been created	City-level monitoring every five years	City-level monitoring every five years	Consumption-based emissions scenario for construction	Scenarios for consumption-based emissions from construction are created



Indicators for climate impact of construction

Measuring the entire area of the City of Espoo

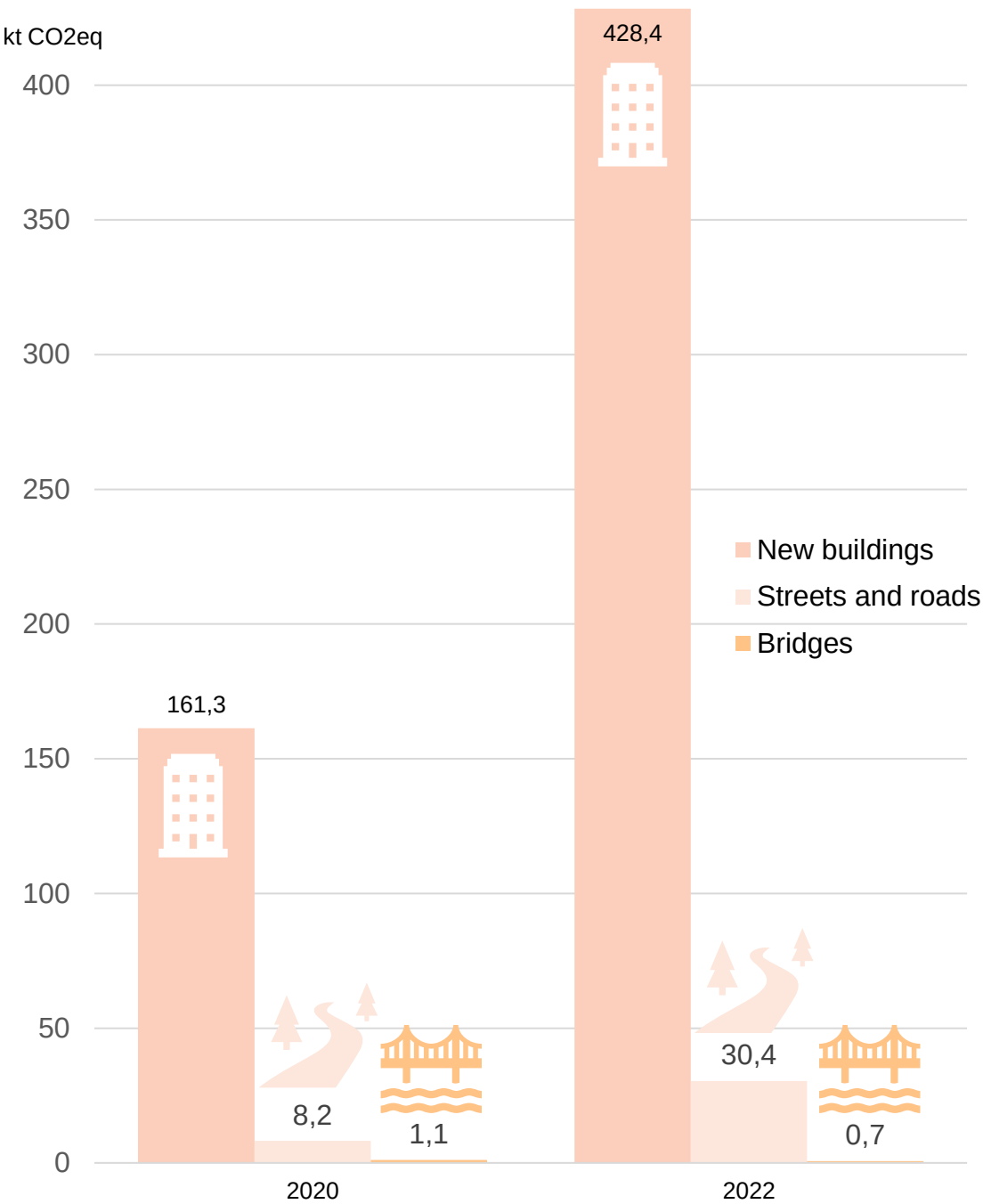
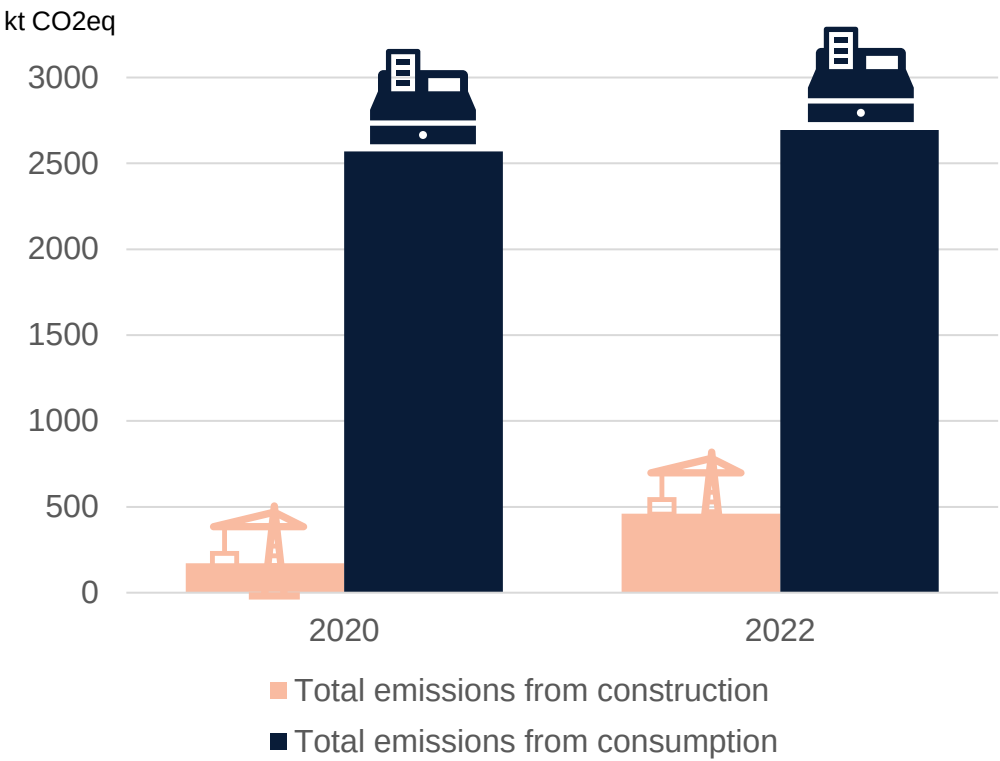
Only measuring the operations of the City of Espoo organisation

Energy consumption in construction is reflected in energy emissions, while site transport is reflected in transport emissions and emissions from industry and machinery. Material emissions from construction are monitored as part of the construction climate emissions metrics.

What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Volume of wood construction	New wood-frame building permits and their share of new construction (indicator)	Approximately 17% of the total area of new construction is wood construction. Building permits were granted for 642 out of 941 new wood frame buildings (2022).	Sustainable Espoo programme	Information on building permits
Carbon footprint of buildings	Carbon footprint per building	Not known (calculation obligation likely to come into force in 2026 at the latest with the new Building Act)		Building-specific threshold to be set in accordance with the city budget

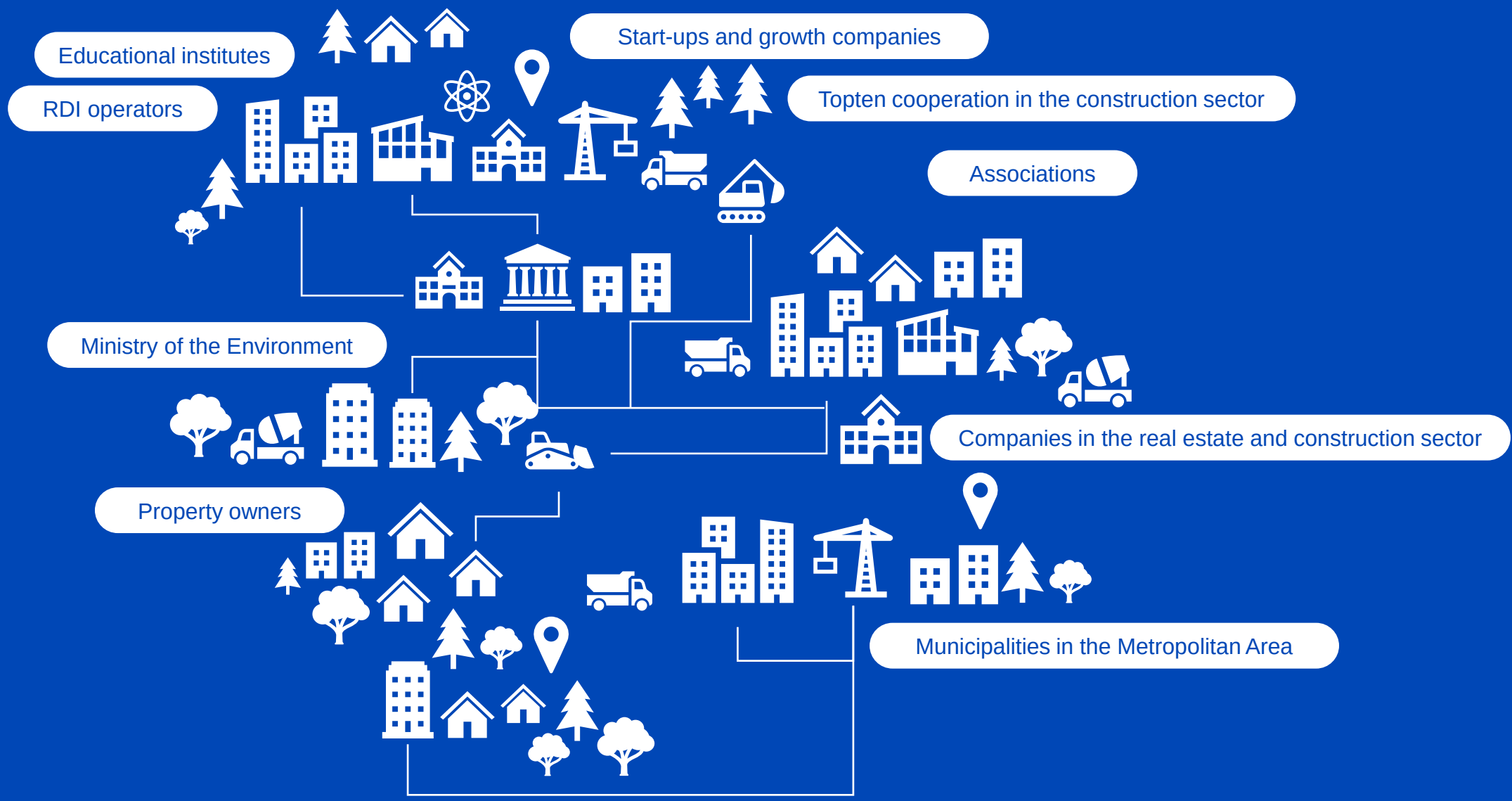


Consumption-based emissions from construction





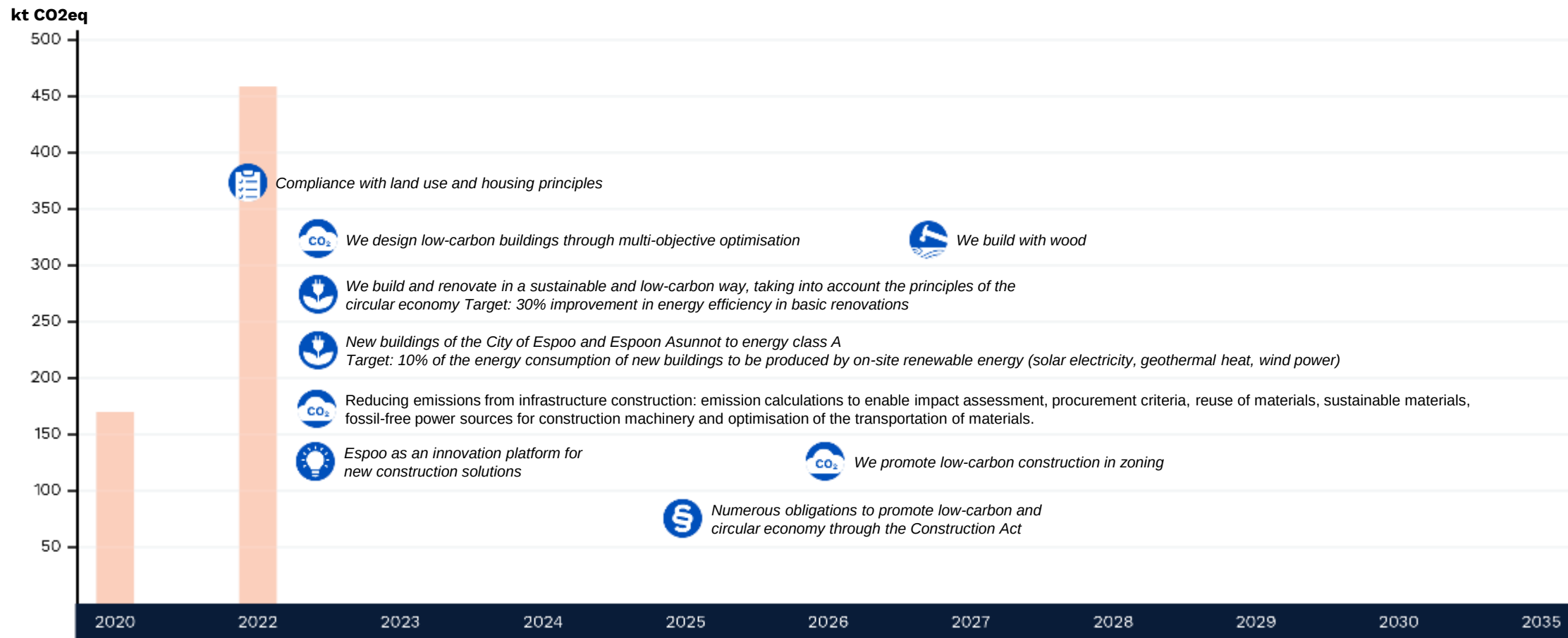
Stakeholders and partners





Roadmap for emissions from construction

The aim is to reduce emissions. There is no scenario or numerical target yet and the calculation is being developed.



Sources: The Kulma model, Sitowise and Luke 2023

Priority

Circular economy

In Espoo, circular economy helps to curb overconsumption of natural resources and climate change and to protect biodiversity. At the same time, new types of jobs are created and the competitiveness of the economy is strengthened.





Circular economy

Espoo's goal is to be a carbon-neutral city that adheres to the principles of the circular economy and protects local biodiversity. Promoting the circular economy reduces the use of natural resources through product design and raw material choices, prevents waste and wastage and is part of the fight against climate change.

Espoo is committed to promoting the circular economy through the Circular Cities Declaration and we are involved in developing a national Green Deal for supporting the circular economy together with 80 operators. Taking the circular economy into account is an increasingly strong part of the city's decision-making and operations in all urban solutions.

Espoo has around 900 companies offering circular economy services, products and training, of which around 40 companies base their core business operations on the circular economy. Espoo aims to double the number of circular economy companies operating in its area by 2030. Cooperation at regional and national level is a prerequisite for the growth of circular economy companies and for impressive handprint work.

In Espoo, especially Kera and Kiviruukki serve as circular economy development areas that bring together circular economy operators and produce solutions regionally and for export markets. Business operations based on the circular economy create sustainable economic growth and structures for a sustainable lifestyle.

Thanks to circular economy communication and education, the aim is that Espoo's residents recognise the importance of the circular economy in reducing climate emissions, and the residents' carbon footprint is the smallest in the country. Together with the Growth and Learning Sector and Premises Department, recycling actions for schools and day-care centres are being prepared. Waste sorting will be improved on city properties



Circular economy solutions reduce emissions across all the priorities of the climate roadmap: For example, using waste heat in energy production, using biogas as a transport fuel, increasing reuse in construction or renting and sharing as sustainable lifestyle services.



There is a global demand for circular economy solutions. Espoo's innovations in the handling of materials, in promoting the circular economy or in the logistics of shared use are helping others to make the sustainability transition.



The circular economy improves the quality of life in Espoo. A fair circular economy creates a sense of community, helps to appreciate what already exists, and encourages creativity and prioritising experiences.



Vision for the future: circular economy

Espoo has all the conditions to stay at the forefront of circular economy development: companies, top expertise, education, investments, circular economy areas and networks, and a large population base. Cooperation between all parties is essential as the handprint impact of the circular economy is created along long value chains.

In the future, the City of Espoo will support the circular economy through its decisions and actions by removing barriers to growth, strengthening enabling structures, increasing knowledge and highlighting good examples of infrastructure solutions, procurements and investments. Markets and regulatory mechanisms, in turn, will guide companies to potential circular economy products and services. Investors will invest in companies that have developed scalable circular economy solutions. Research and development will generate new knowledge and skills. New circular economy initiatives for the future will be related to the increasingly valuable use of materials, digitalisation and carbon absorption. Improved ways of analysing and modelling the impact of the circular economy on greenhouse gas reduction will also be needed in the future.

Espoo's rapid population growth and dense urbanisation will create increasing business opportunities for the circular and sharing economy, through reuse, material recycling and various rental and sharing services. Consumers' everyday decisions will reduce climate emissions from consumption in Espoo.

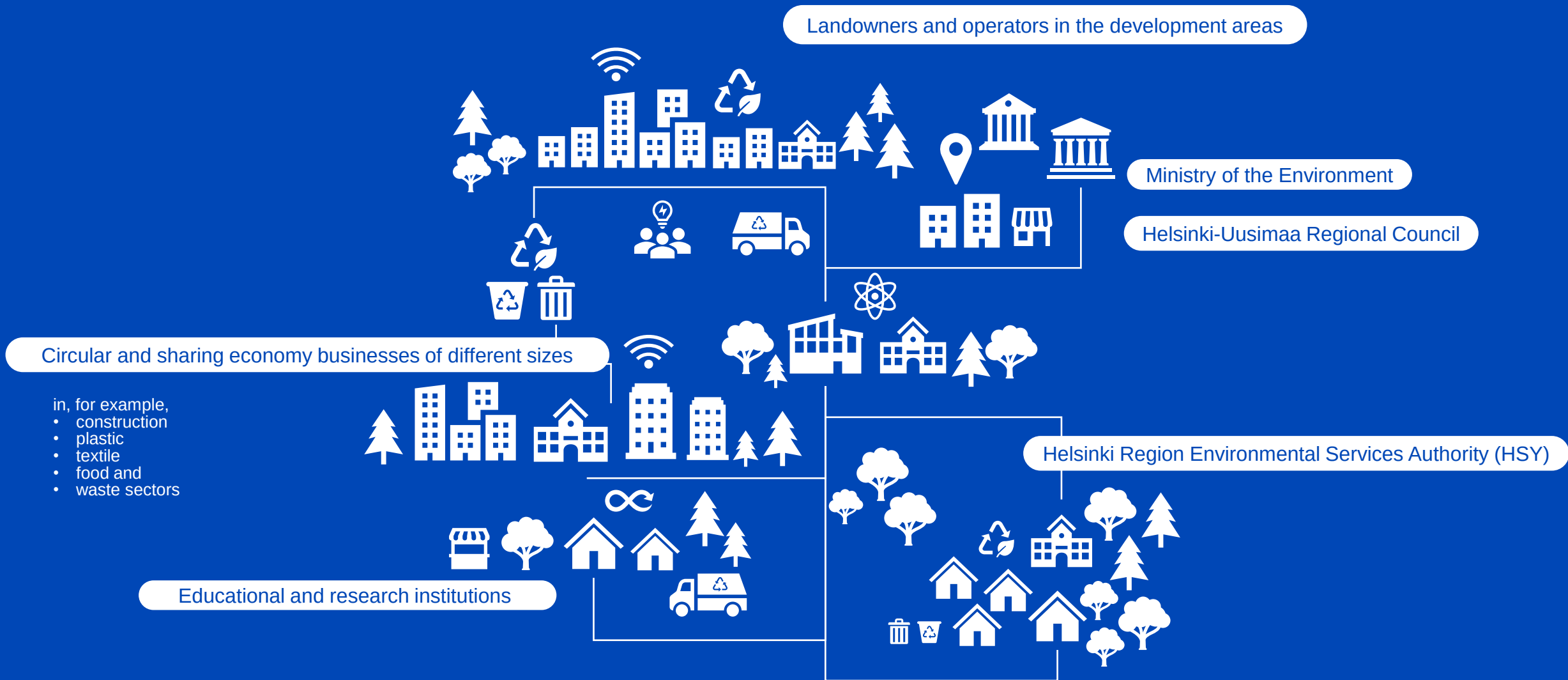


Risks

One risk is that the circular economy solutions are not scalable and that partial optimisation does not deliver climate benefits. In addition, there is a risk that regional development and operator's choices will not support the introduction of circular economy solutions and that circular economy companies will not be set up in Espoo due to expensive facility and land rents and slow permitting processes.

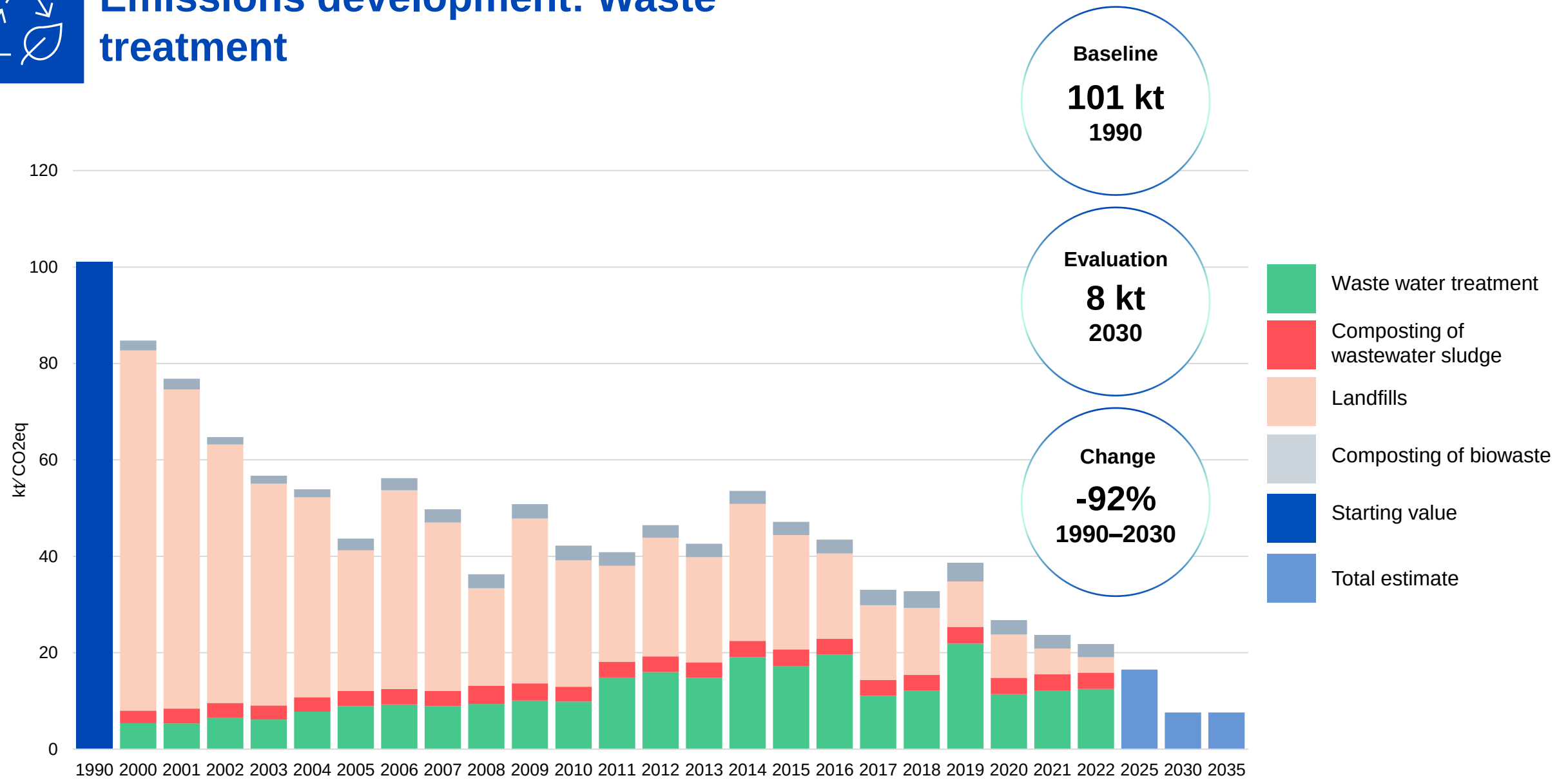


Stakeholders and partners





Emissions development: Waste treatment



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Actions to achieve emission reductions: Circular economy

National or regional measures, not in Climate Watch
Measure by the City of Espoo and the Espoo community
New measure by the City of Espoo and the Espoo community

Measure	Target	Progress	Timeline	Responsible org.	Link	Measure	Target	Progress	Timeline	Responsible org.	Link
We are committed to the systematic development of the circular economy (Circular Cities Declaration)	Circular economy solutions		Continuous	Centre of Excellence for Sustainable dev.	www	We reduce food wastage in meal services	Climate-friendly catering		Continuous	Catering services	www
We promote the national Green Deal for supporting the circular economy				Centre of Excellence for Sustainable dev.	www	We favour environmentally friendly food that adheres to nutritional guidelines in meal services			Continuous	Catering services	www
We promote sustainable consumption and circular economy thinking with children and young people			Continuous	Growth and Learning	www	We include children and young people in the development of more climate-friendly food			Continuous	Catering services	www
We chart the circular economy and sharing economy companies operating in Espoo				Centre of Excellence for Sustainable dev.	www	Reducing the amount of red meat in recipes and on menus by replacing it with poultry or vegetable proteins, in line with nutritional recommendations			Continuous	Catering services	www
We develop the circulation of construction and demolition materials and organic waste				Centre of Excellence for Sustainable dev.	www	Placing vegetarian food as the first meal option in schools, in lunch lines and on menus			Continuous	Catering services	www
We prepare a circular economy survey on demolition materials in the Kera area				Centre of Excellence for Sustainable dev.	www	We reduce the number of deliveries by means of shelving services	Carefully considered procurements		Continuous	Finance and economy	www
We are improving the recycling of plastics			2022–2024	Centre of Excellence for Sustainable dev.	www	In collaboration with Motiva, we are creating a tool for the use of responsibility goals and criteria in the city's procurements.			2023	Procurement Centre and Centre of Excellence for Sustainable Dev.	www
We promote the national Green Deal for supporting the Sustainable Demolition economy			2021–2027	Premises Department	www						
We recycle and restore furniture			Continuous	Growth and Learning	www						



Actions to achieve emission reductions: Circular economy

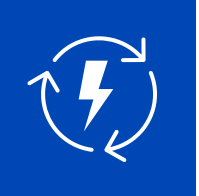
Measure	Target	Progress	Timeline	Responsible org.	Link
We are mapping the role of plastics in public procurements	Carefully considered procurements		2023–2024	Centre of Excellence for Sustainable Development	www
We are reducing emissions from transport logistics for recurring supply purchases				Finance and economy and corporate governance	www
We are reducing the use of paper and postage by moving to electronic invoicing and ordering			Continuous	Finance and economy	www
We are strengthening the low-carbon skills of procurement preparers			Continuous	Procurement Centre	www
We promote textile reuse and material recycling together with a network of partners.			Continuous	Centre of Excellence for Sustainable Development	
Preparing recycling policies for schools and kindergartens. Improving waste sorting on city properties.			TBC	Premises Department and Growth and Learning	
Share of vegetarian food in city catering			Continuous	Catering services	

National or regional measures, not in Climate Watch

Measure by the City of Espoo and the Espoo community

New measure by the City of Espoo and the Espoo community





Actions to achieve emission reductions: emissions from waste treatment (HSY)

Emission sector	Emission s in 1990kt CO2eq	Emission s in 2022kt CO2eq	Estimated emissions in 2025 kt CO2eq	Estimated emissions in 2030 kt CO2eq	kt CO2eq and % reduction 1990–2030	Measures leading to emission reductions	Timeline	Responsible organisation
Emissions from waste treatment, including household waste and all of waste water	101	22	20,1	17	-84 kt CO2eq -83 %	Landfill gas collection and recovery arrangements and landfill structure management	Continuous	HSY
						Research, method development and pilot runs on the potential for reducing process emissions from wastewater treatment	2024–2025	HSY
						Development of a bio-recycling process with new soil improvement products to reduce emissions from composting	2024–2027	HSY
						Using research to further reduce waste emissions	Continuous	HSY

National or regional measures, not in Climate Watch
Measure by the City of Espoo and the Espoo community
New measure by the City of Espoo and the Espoo community



Metrics for the climate impact of circular economy

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Waste emissions (includes landfill, bio-waste composting, wastewater treatment and sewage sludge composting)	Waste emissions	22 kt (2022)	20 kt CO2eq (calculated target)	19 kt CO2eq (calculated target)	17 kt CO2eq	HSY's emissions calculation	The new target level is based on HSY's carbon neutrality programme
Description of waste emission trends	Amount of household waste per capita	261 kg/capita (2022)			Reduction	HSY's calculation	
Number of circular economy solutions and services. Describes the potential to reduce emissions through circular economy means.	Number of companies, operators and networks offering circular and sharing economy services, products, training or collaborative activities in Espoo	917 pcs (2023)			1500 identified circular and sharing economy operators	Updating the operator mapping annually	The definitions and calculation method become more precise, so the figure for different years is indicative
Consumption emissions: an indicator of the sustainability of city procurement	Low carbon and/or biodiversity taken into account in procurements under the responsibility of the procurement department (number, %)	The baseline is defined on the basis of the 2024 level	Increased by more than 30%	Not yet determined	Not yet determined	Hansa	Includes procurement above the national threshold, excludes works contracts and design competitions. In addition, the coverage of SDGs in procurement will be monitored.



Indicators for the climate impact of circular economy

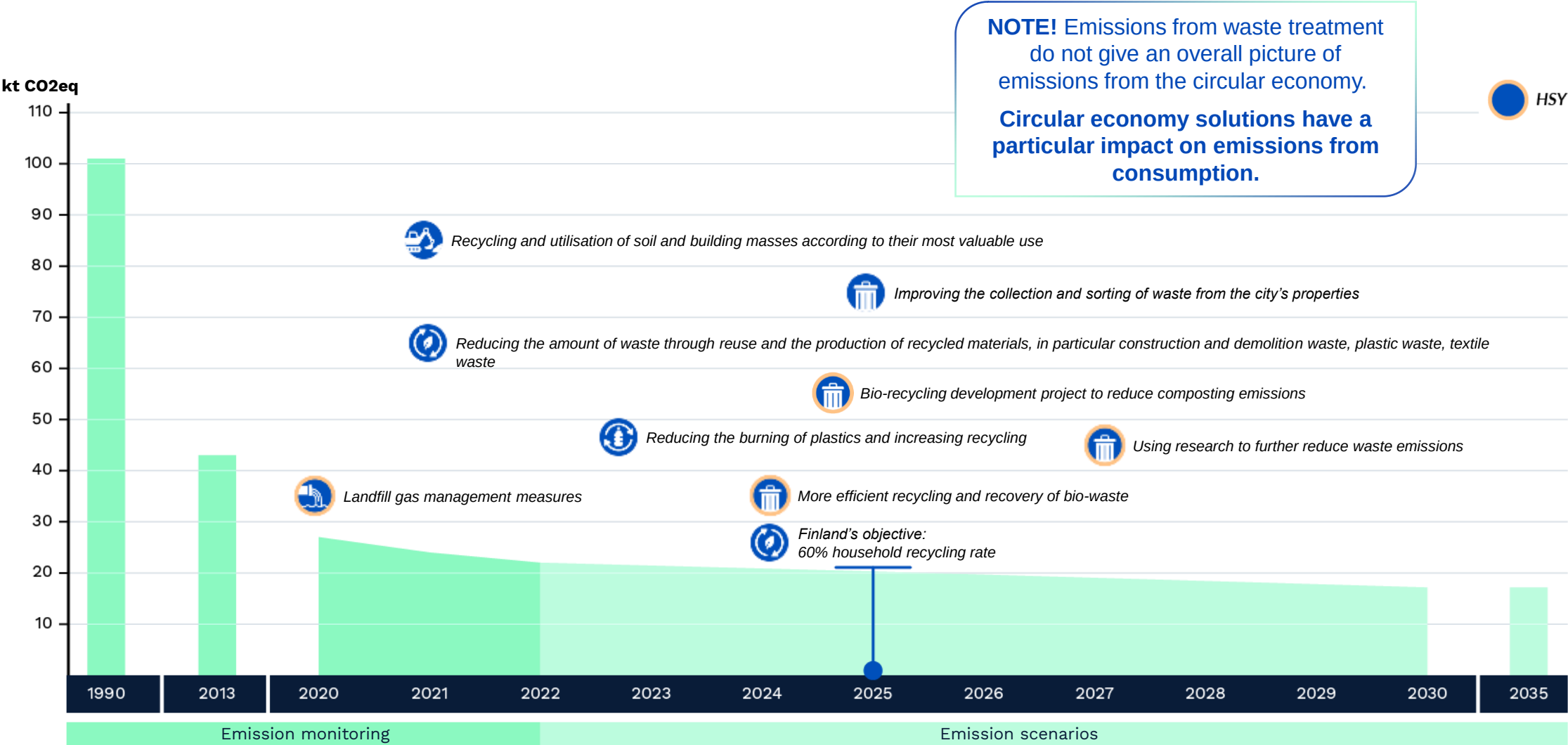
Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Waste emission trends indicator	Recycling rate of household waste	48% (2022)	HSY's calculation	The target is not Espoo-specific but regional, so it will be monitored as an indicator. Finnish target: 60% household recycling rate.
Waste emission trends indicator	Share of mixed waste from the City's own offices of the total amount of waste	51% of total waste (measured by weight) (2023)	HSY waste statistics	
Emissions from consumption: Furniture recycling	Refurbishment and recycling of furniture in the Growth and Learning sector	1824 pieces of furniture (2023)	Monitoring maintained by the Growth and Learning sector	



Roadmap for waste treatment emissions



Sources: Greenhouse gas emissions in the Helsinki Metropolitan Area HSY 2023 and Carbon-neutral Espoo 2030 roadmap scenario work, Sitowise 2022



Roadmap for circular economy emissions

Systemic change in consumption emissions and material emissions



Sources: The Kulma model, Sitowise and Luke 2023

Priority

Sustainable lifestyle

We promote change towards a more sustainable lifestyle by inspiring and supporting Espoo residents to make sustainable choices in their everyday lives, and by helping businesses, organisations and other partners to find their own ways to accelerate the transition to sustainable lifestyles.





Sustainable lifestyle

Climate neutrality will be achieved together with the whole Espoo community. Every Espoo resident will be guaranteed opportunities for a sustainable lifestyle. The city will guide the development of the city through decision-making and cooperation to allow for an increasingly sustainable everyday life. Services must be accessible and meet the needs of a diverse population.

Espoo will influence the consumption-based emissions of Espoo residents through its activities such as education, communication, construction, land use management and food services. Digital and remote services will create value in entirely new ways or improve the productivity and efficiency of existing services. Espoo's actions will also have an indirect impact on the choices of households in terms of mobility, energy, food and acquisitions. Sustainable solutions will be created without compromising the well-being and smoothness of everyday life of Espoo residents.

The City of Espoo's procurements are directed to low-carbon, circular economy-oriented, and socially and environmentally sustainable choices, by taking into consideration the overall economic cost-effectiveness of the entire procurement life cycle.

Espoo promotes sustainable tourism. Visit Espoo works in close cooperation with the operators in the industry by supporting sustainability efforts of companies in the area in obtaining environmental certificates, following the Sustainable Travel Finland path and calculating their carbon footprint. Visit Espoo participates in Visit Finland's Sustainable Travel Finland programme and is a signatory to the Glasgow Declaration, the global climate declaration for the tourism industry.



The city will contribute to reducing the carbon footprint of its residents, for example, through education and communication on sustainable development and by promoting circular and sharing economy services.



The city's procurements support the Espoo community's sustainable choices, create a market for sustainable lifestyle supply and set an example of sustainable practices.



Experience of the sustainability of one's own lifestyle and the possibility of making choices improves meaningfulness and a sense of community and increases a sense of security.



Vision for the future: Sustainable lifestyle

In the future, the rise in the cost of living and the enthusiasm for living responsibly and taking into account the climate emissions of one's own choices will increasingly steer people towards a sustainable lifestyle. The city's role in supporting the transition to a sustainable lifestyle is to be an active enabler, service provider, partner and communicator. Cooperation with different communities and organisations is key to reaching as many Espoo residents as possible.

Sustainable lifestyle options emphasise the use of services rather than ownership, the diverse use of facilities, the reduction of waste, the mainstreaming of reuse and the consideration of the resale value of a product at the point of purchase. Sharing, lending and renting promote a sense of community, social good and economic opportunity for all to live a sustainable lifestyle.

Sustainable digitalisation and remote services will increase in both public and private services. At best, this will reduce emissions from mobility and space requirements, enable efficient services for as many people as possible, lower the threshold to participate in services and purchase products as well as save costs.



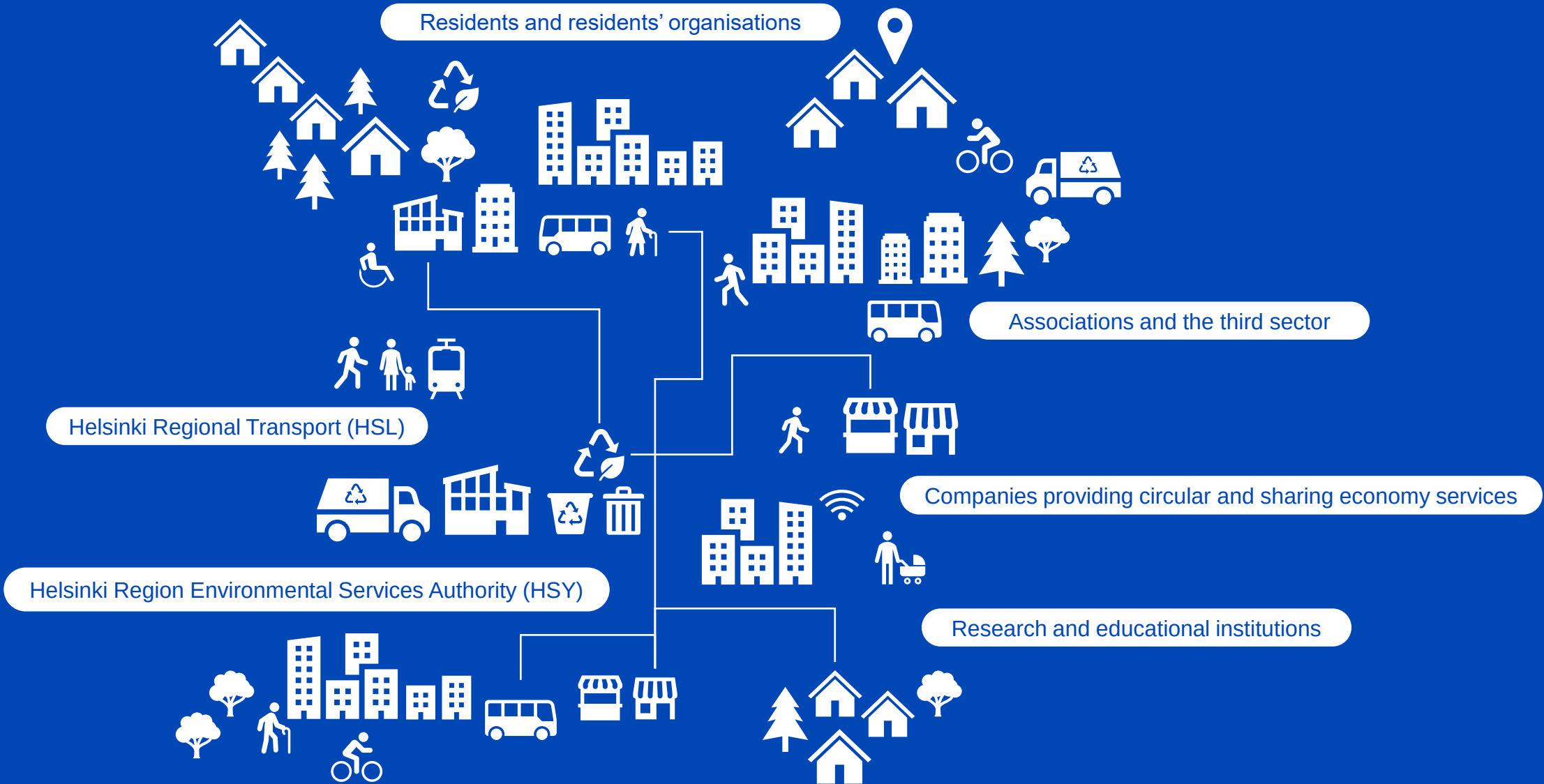
Risks

A major risk is that climate-sustainable lifestyles will not become mainstream and decisions will focus only on short-term economic sustainability and immediate convenience, without taking into account, for example, effects on health.

There is a risk of fragmentation of digitalisation promoting a sustainable lifestyle, lack of information, and problems of trust and transparency in data sharing. A risk is that digitalisation will increase consumption through efficient marketing and easy purchasing.



Stakeholders and partners





Actions to achieve emission reductions: Sustainable lifestyle

These objectives are also listed in the circular economy and transport and mobility priorities.

Measure	Progress	Timeline	Responsible org.	Link
We are improving the recycling of plastics		2022–2024	Centre of Excellence for Sustainable Development	www
We promote sustainable consumption and circular economy thinking with children and young people		Continuous	Growth and Learning	www
We chart the circular economy and sharing economy companies operating in Espoo			Centre of Excellence for Sustainable Development	www
We include children and young people in the development of more climate-friendly food		Continuous	Catering services	www
Placing vegetarian food as the first meal option in schools, in lunch lines and on menus			Catering services	www
We are reducing transport emissions by increasing remote working and services			Personnel Services and Financing and Economy	www
Share of vegetarian food in the city's catering services		Continuous	Catering services	

Climate cooperation and communication

Measure	Target	Progress	Timeline	Responsible org.	Link
We promote responsible international cooperation	Climate education		Continuous	Growth and learning	www
We provide guidance on climate-smart choices for residents			Continuous	Environmental protection	www
We offer eco-support training (ekotuki) for City of Espoo employees			Continuous	Centre of Excellence for Sustainable Development	www
We reduce the carbon footprint of tourism companies	Partnerships and sustainable business		2020–2023	Enter Espoo	www
We increase the green transition skills of companies			Continuous	Economic Development and Employment	www
We follow sustainability guidelines for events			Continuous	Sector for Economics Development, Sports and Culture	www
The partnership criteria and cooperation emphasise sustainability			Continuous	Sector for Economics Development, Sports and Culture	www
We are assessing Espoo's carbon sink situation and exploring the potential for carbon offsetting	Assessing climate impacts and reporting			Environmental protection, City Planning Department and Public Works Department	www
We report on Espoo's climate work			Continuous	Environmental protection	www



Metrics for the climate impact of sustainable lifestyle

Measuring the entire area of the City of Espoo

Only measuring the operations of the City of Espoo organisation

What measures	Metrics	Present value (data year in brackets)	Target level 2025	Target level 2027	Target level 2030	Monitoring method	Additional information
Consumption emissions	Total consumption emissions and emissions per capita	2 694 kt CO ₂ eq ja 9 t CO ₂ eq/capita (2022)			Emissions from consumption will decrease	Calculation with the Kulma model	Target levels for different years have not been defined
Consumption emissions: reuse rate	Number of products purchased from the Helsinki Metropolitan Area Recycling Centre (Pääkaupunkiseudun kierrätyskeskus), saving natural resources (luva) and saving emissions	€4.2 million objects, permit 62.59 kt, 22.39 kt CO ₂ eq (2023)			Reuse increases and saves natural resources and emissions	Annual target (rolling strategy)	Metrics of the Recycling Centre (Kierrätyskeskus)
Environmental attitudes of residents	Environmental attitude survey: several indicators, including willingness to pay for climate change mitigation and nature conservation, change in environmental behaviour, climate awareness in relation to education and income level.	Results of the 2022 survey	Positive development	Positive development	Positive development	Environmental attitude survey	No decision on the timing and implementation of the next survey. The aim is to achieve a positive trend compared to the previous survey and in relation to other metropolitan area municipalities.
Consumption emissions: carbon footprint of food	Share of schools where vegetarian food is placed as the first meal option on lines and menus	66 % (2022)			100 %	Espoo Catering reports annually	Target levels for different years have not been defined
Amount of food waste	Amount of food waste in catering services	Food waste decreased by 9% compared to previous year's level (2023)			Amount of food waste decreases	Espoo Catering reports annually	Target levels for different years have not been defined
Share of vegetarian food in the city's catering services	Vegetarian food consumption	Share of ordered kg quantity25 %			Growth in vegetarian food consumption	Espoo Catering Reported yearly	In the future, the new ERP system will allow more accurate monitoring of the quantity consumed



Indicators for the climate impact of sustainable lifestyle

Measuring the entire area of the City of Espoo

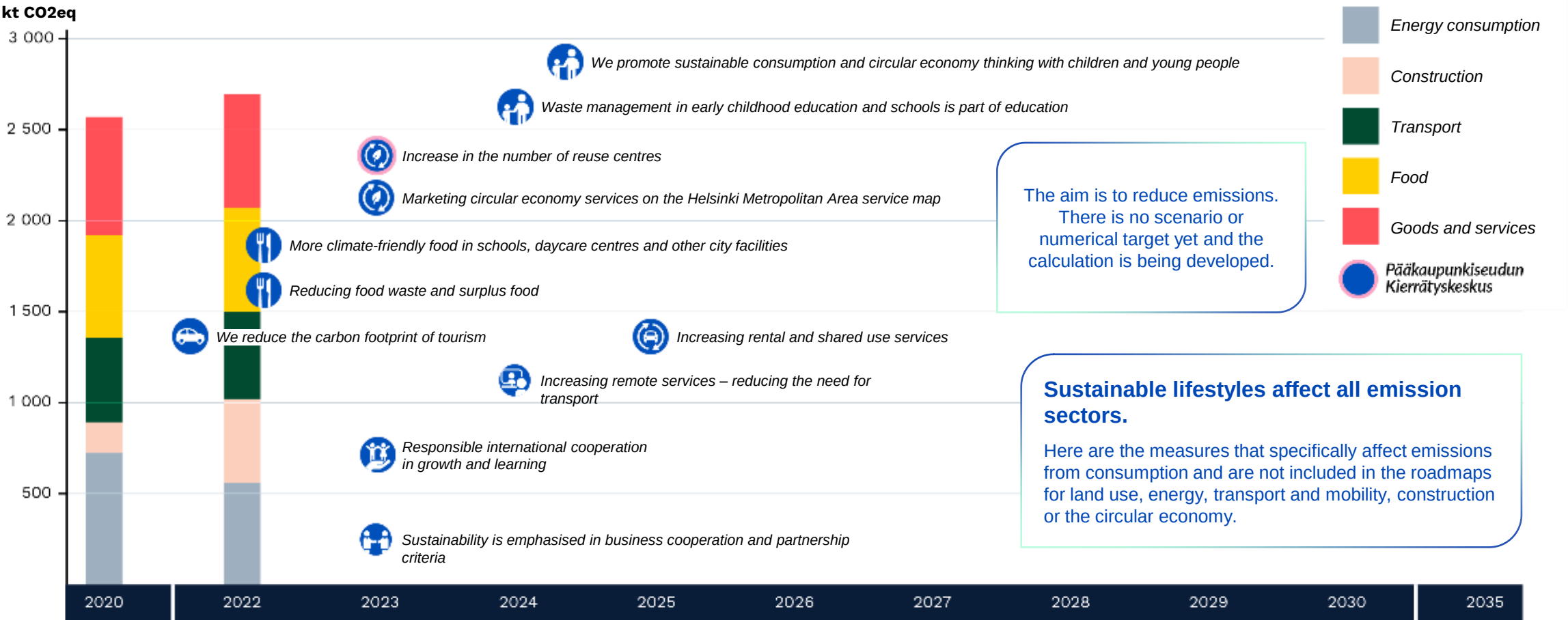
Only measuring the operations of the City of Espoo organisation

What measures	Indicators	Present value (data year in brackets)	Monitoring method	Additional information
Emissions from consumption: the carbon footprint of tourism	The area-based carbon footprint of tourism	81,4 kt CO2eq (2022)	Enter Espoo reports annually	Calculated as part of the Carbon Neutral Experience project
Consumption emissions: use of library services	The amount of goods borrowed from Espoo libraries.	Most popular items to borrow: drills and structural detectors 411 borrowings, Tapiola Sinfonietta season tickets 154 borrowings and dustpick 142 borrowings (2023)	Library	Data collection is being developed



Roadmap for sustainable lifestyle emissions

Influencing residents' choices in terms of emissions from consumption



Sources: The Kulma model, Sitowise and Luke 2023

Theme

Carbon sinks

Espoo has defined as its climate neutrality goal an 80% emission reduction from the 1990 level by the year 2030. The aim is that the remaining 20% can be either absorbed by carbon sinks or offset.



Carbon sinks

Espoo has defined as its climate neutrality goal an 80% emission reduction from the 1990 level by the year 2030. The primary means of mitigating climate change is to reduce emissions and natural sinks. The aim is that the remaining 20% can be either absorbed by carbon sinks or offset.

Carbon sinks refer to growing carbon stocks, such as forest growth. In 2019, carbon absorption into vegetation and soil accounted for about 21% of Espoo's greenhouse gas emissions. The knowledge base on the amount and development of carbon sinks is constantly being refined, and Espoo is actively involved in the development work. Carbon sinks are being addressed as part of Espoo's Master Plan for 2060. Carbon sinks will be considered in land use planning as part of the overall climate impact of land use. Biochar and biomass are already being used in the urban environment.

The Council's proposed budget increase for planting trees, bushes and other plants, as well as the creation of meadows, has been the subject of a plan of action and the practicalities of the proposal are under discussion.

The allocation is in addition to the normal annual activity of planting trees as part of various park and street schemes and thousands of afforestation trees alone are planted each year. It is estimated that the target of 10 000 trees per year will be approached.

Espoo grows annually by approximately 4,700 residents. The issues related to carbon sinks and possible carbon absorption should therefore be addressed as part of the national overall picture and on a polluter-pays principle.

Maintaining carbon sinks in the Espoo region will be challenging as the city grows and becomes more urbanised. Growth will be channelled mainly to already developed areas, in particular population centres, and along good public transport links. In this way, emissions can also be reduced as much as possible in a growing city, while maintaining a large proportion of carbon sinks and stocks.

In Espoo, we also promote wood construction. The carbon absorbed by wood is retained in structures and acts as a carbon stock.

Carbon sink issues are also part of our climate cooperation with business partners. The parties in the Espoo community are each responsible for offsetting any emissions produced by their own activities. The city also acts as an enabler to make emission reductions and offsetting measures possible.

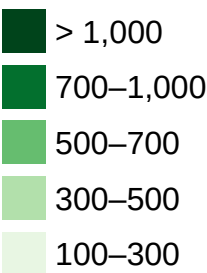
Prime Minister Petteri Orpo's "A Strong and Committed Finland 2023" Government Programme states that the Government will actively promote the large-scale introduction of technological sinks in Europe and Finland, and that the Government will set a target for the significant use of technological sinks already in the 2020s. The Finnish Government will also aim to enable voluntary carbon reduction and carbon absorption markets to operate in a supportive and transparent manner. Many research institutes and companies in the Espoo Community are also contributing to the development of technical sinks.

Total carbon stocks, including both vegetation and soil

Espoo has the best carbon stocks of soil and vegetation in the Helsinki Metropolitan Area.

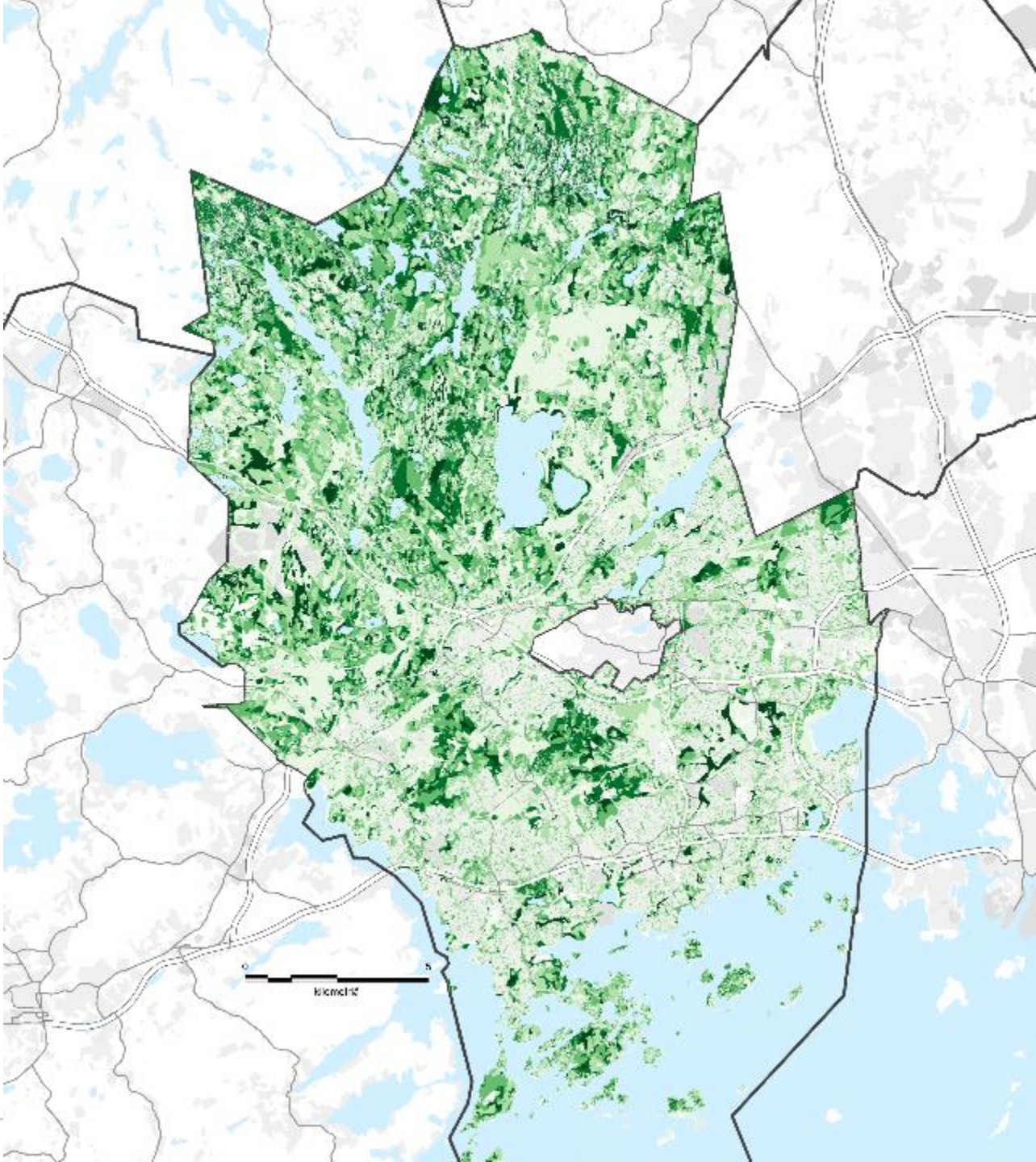
Forest areas are clearly distinguished by darker shades of green.

Total carbon stock, tCO₂/ha

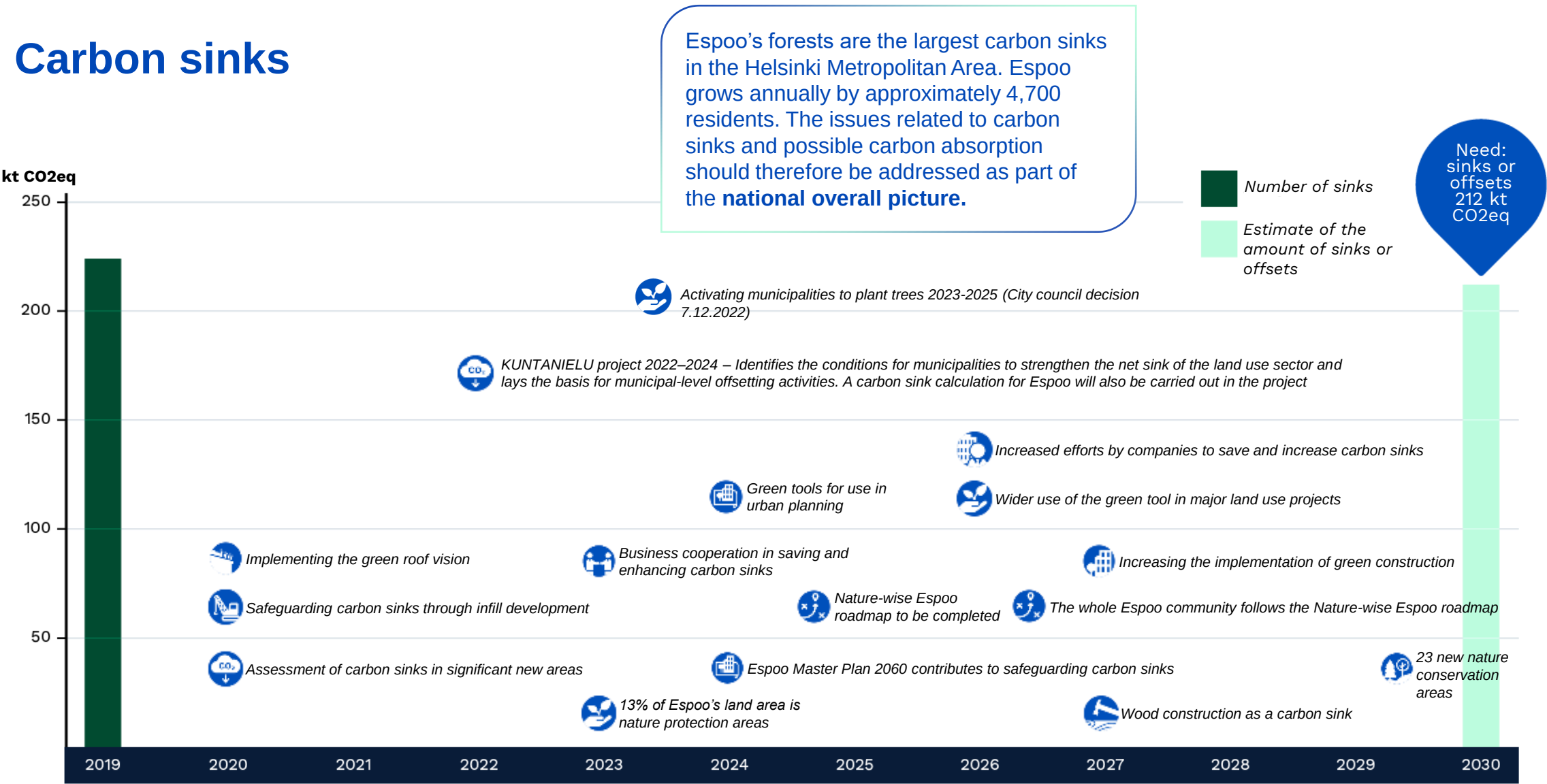


	Vegetation		Soil		Share of peatland, %
	stock, tCO ₂ /ha	flux, tCO ₂ /ha/year	stock, tCO ₂ /ha	flux, tCO ₂ /ha/year	
Espoo	181	-7.6	349	-1.8	5

Source: Helsinki Metropolitan Area's carbon sink analyses, HSY 2019



Carbon sinks



Source: Survey of carbon sinks and stocks in the Helsinki Metropolitan Area, HSY 2021

Theme

Leading and monitoring climate work



The Espoo community is building a carbon-neutral future as a forerunner of sustainable growth

The City of Espoo has developed and is systematically developing its organisational culture and management to meet the challenging goals. Espoo is developing knowledge-based, high-impact leadership and organisational learning capacity to meet the challenges of a growing city in a rapidly changing environment. Together with VTT and other partners, we will work together to learn, and to leverage the expertise of the Espoo community.

Principles of cooperation guiding the implementation of the roadmap:

- Cooperation means determined promotion of the Climate Neutral Espoo 2030 goal and measures. The objectives, content and operating model of the cooperation are defined in partnership agreements, to which the City of Espoo and its partners jointly commit.
- Cooperation also means the impact through EU and other international activities as a role model for systemic green and digital transformation.
- The community's activities are based on building and using the city's experimentation and development platforms and ecosystems, in particular for the development of technologies and solutions for energy, transport, the built environment and the circular economy.
- The community promotes the objectives of the partnership agreements through experimentation, deepening and dissemination of results, consistently emphasising the role of the city as a developer of the platform and data economy.
- The city organisation will intensify cooperation across sectors and departments and implement concrete climate actions to achieve the goals of the Climate Neutral Espoo 2030 roadmap.



Climate work in Espoo's developing urban areas

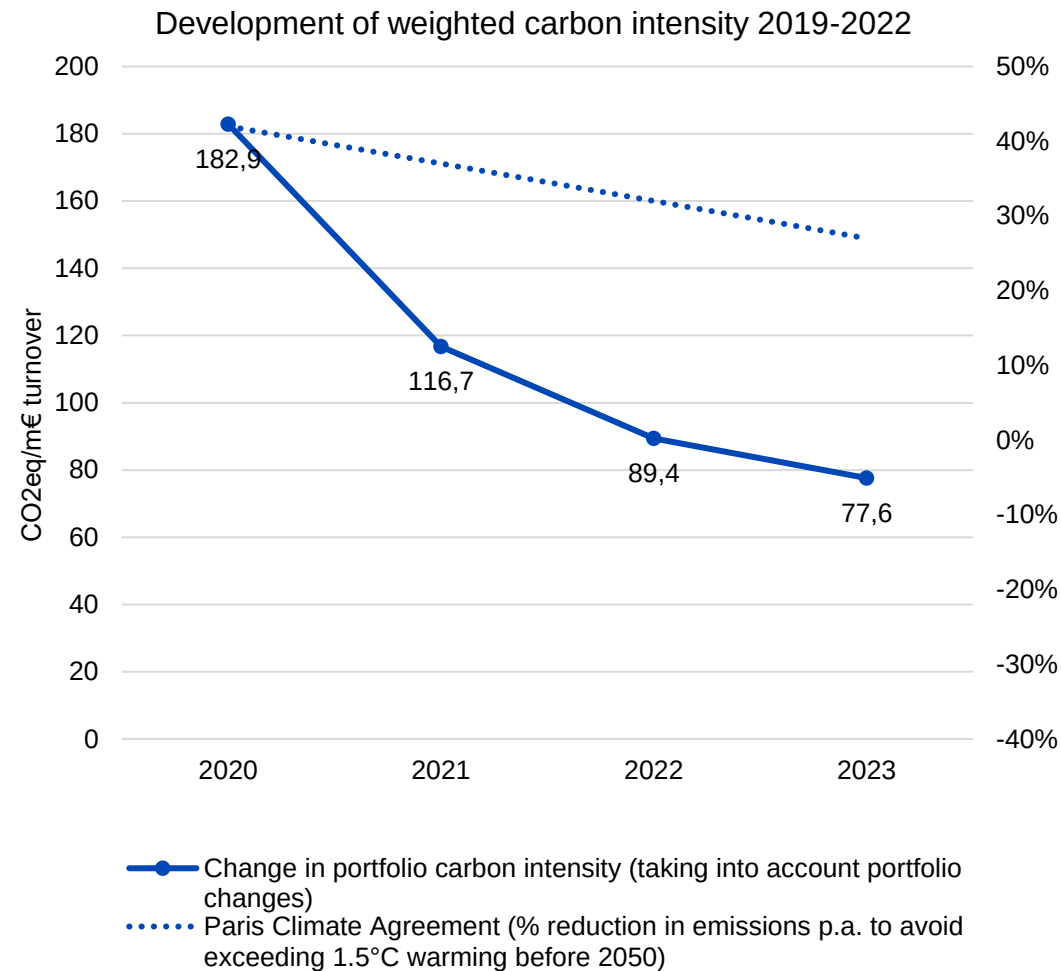
Espoo's evolving urban infrastructure and different areas provide development and experimental environments for climate-neutral and sustainable urban solutions, as well as for green transition business and research. Services and activities in the neighborhoods are developed in broad cross-administrative cooperation and together with partners and residents.

Innovative incentives and commitments to promote sustainability and territorial cooperation will be developed alongside statutory land use planning. These will be applied in particular to the strategic urban development sites identified in the Espoo story: Kera, Leppävaara, Kivenlahti and Espoo Centre, as well as the North and Central Espoo housing areas, which will be designed and implemented as international examples of sustainable development.

The neighborhoods will be developed in a holistic way, taking into account the overall sustainability, characteristics and vitality of the areas. Collaborative models for sustainability will accelerate the development and deployment of low-emission, smart and circular urban solutions.



Espoo's investments take into account sustainable development criteria



Responsibility analyses are carried out for almost all Espoo investments

Carbon intensity of the funds is in line with the Paris Agreement

- Total investment funds for basic services and land acquisition: 667.9 million euros.
- From investments 71% are in funds to promote environmental and social features or to have a direct impact (Funds under Article 8 and 9 of the EU SFDR Regulation).
- According to the carbon path and warming scenario analysis of the fund, the weighted carbon intensity of the portfolio has decreased significantly by around 22.8% p.a. from 2019. The reduction achieved by the equity investments between 2019 and 2022 has been in line with the Paris Agreement.

Adapting to climate change and Nature-wise Espoo

In Espoo's action plan for adaptation to climate change 2022–2025, we describe the ways and means that Espoo will use to prepare for the impacts of climate change and reduce the vulnerability of society and the environment.

[Espoo's action plan for adaptation to climate change 2022–2025](#)

In the Nature-wise Espoo project, we will determine how we can better secure and increase biodiversity. A roadmap which defines biodiversity preservation goals and actions will be created as a result.

[Nature-wise Espoo | City of Espoo](#)



Follow-up of previous plans

Espoo's climate programme 2016-2020 includes the targets set by the City of Espoo and how they have been achieved

In the previous climate programme, the climate neutrality goal was set for 2050. According to scenario calculations of Espoo's climate emissions carried out in 2022, climate neutrality will be achieved by 2030, i.e. 20 years earlier than the goal of the previous climate programme.

The interim goal was a 60% emission reduction per capita between 1990 and 2030. By 2022, the per capita emissions had already fallen by 51% compared to 1990, and the scenarios suggest that the goal will be reached much earlier than expected.

The monitoring is based on [HSY's monitoring of emissions](#).

City of Espoo the Sustainable Energy & Climate Action Plan

The City board approved in 2019 the Espoo's Sustainable Energy and Climate Action Plan ([SECAP](#)). Reports on the implementation of the Action Plan are submitted to the Covenant of Mayors office.

Monitoring of climate measures can be found in the [Climate Watch](#)



Find out more

- 🔗 [Espoo's climate goals, Espoo.fi website](#)
- 🔗 [Espoo's Climate Watch provides more detailed descriptions of the climate measures and an emission scenario tool](#)
- 🔗 [Climate budget for sustainable development as part of the city budget](#)
- 🔗 [Sustainable Development Goals \(SDGs\) in Espoo](#)



Preparation of the Climate Neutral Espoo 2030 roadmap

Processing of the roadmap

This roadmap was prepared from January 2022. The main principles of the roadmap were discussed as part of the City of Espoo's 2023 budget. The 2024 budget includes a climate plan and a financial overview of climate work. The roadmap specifies the implementation of the climate plan.

- City Climate steering group on 7.9.2023 and 22.4.2024. In addition, the preparation and the draft were discussed in several steering group meetings.
- Sustainable Espoo Programme steering group 25.9.2023 and 4.3.2024. In addition, the preparation and draft were discussed in several steering group meetings.
- City Performance executive group 24.10.2023 and 20.2.2024
- City executive Group 31.10.2023 and 7.5.2024
- City Board 6.11.2023 ,18.12.2023 and 13.5.2024
- City Council 20.5.2024

Leading the climate goal

Jukka Mäkelä, Mayor

Pasi Laitala, Director of Strategy and Development

Olli Isotalo, Deputy Mayor, Urban Environment Director

Maria Jyrkkä, Financial Planning Director and Development Director of Corporate steering

Creators of the roadmap

Main preparator of the Climate Neutral Espoo 2030 Roadmap: Niina Nousjärvi

EU Climate Mission and steering the process: Helena Kyrki

Land use, incl. carbon sinks: Paula Kuusisto-Hjort and Elina Kuusisto

Energy and Climate Mission Partners: Elina Wanne

Transport and mobility: Mari Päätaalo, Susanna Kaitanen, Pauliina Kuronen and Kati Borgers

Circular economy and sustainable lifestyle: Reetta Jänis, Riina Plosila and Miikka Valo

Construction: Emmi Kauhanen, Rosa Väisänen, Harri Tanska, Maija Lehtinen, Iina Kallio and Jarkko Kallio

Climate watch, MyCovenant reporting and carbon sinks: Liisa Kallio

Investments and funds: Maarit Vierunen and Antti Puranen

Economic policy: Harri Paananen, Marika Løstet and Mari Ala-Mikkula

Adapting to climate change: Saara Olsen

Climate budget: Niina Nousjärvi and Joni Mäkinen

UN Sustainable Development Goals: Ville Taajamaa and Suvi Jäntti

Financial planning: Samuli Skyttä

Corporate steering: Johanna Kattelus

Sustainable Espoo programme: Sanna Rönkkönen

Visualisation and graphic design: Tereza Dickson and Minna Ögland



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