Viable Cities

Linköping
Där idéer blir verklighet

Climate City Contract 2030

Betweeen Linköping municipality, the Swedish Energy Agency, Vinnova, Formas, the Swedish Agency for Economic and Regional Growth, the Swedish Transport Administration, the Swedish Environmental Protection Agency and Viable Cities.

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Major changes are needed throughout society in order to meet climate goals and save our planet. Doing things the way we have always done them is no longer possible, we have to work in entirely new ways. Together, we are building a movement involving many societal stakeholders in order to achieve our mission: Climate neutral cities by 2030, offering a good life for all within the boundaries of our planet.

Climate City Contract 2030 is a tool that will help us to achieve this. This is a long-term commitment ensuring a developed cooperation between cities and the government level. The starting point for the work is that an increasing number of Swedish municipalities and communities are bringing together a wide range of stakeholders and mobilising at many levels – locally, regionally, nationally and internationally – to pave the way for a faster transition to climate neutrality and sustainability in Sweden, Europe and the world. The cities and agencies working on Climate City Contract 2030 with Viable Cities are pioneers, and thus their ambition is to pave the way for a broader transition involving many more people.

Climate City Contract 2030 is a tool for collaboration in respect of governance and is used to work together beyond the direct control of stakeholders in order to realise a common goal, and it represents a systemic shift towards a holistic approach in public administration

Climate City Contract 2030 provides a context as a catalyst for new, innovative forms of cooperation between cities, the business sector, the academic community, research institutes and civil society. This strengthens the conditions for mobilising and driving joint development in a present and a society that are becoming increasingly complex. Climate City Contract 2030 meets a need for developed governance, a governance process (mobilising on multiple levels) for the climate transition. Climate City Contract 2030 is a way of working to enable stakeholders at different levels of governance to go beyond what they are directly able to control as individual stakeholders in order to realise goals and missions that involve systemic shifts. In particular, it involves moving from piecemeal operations to a holistic approach.

Together, we are building capacity step by step so that we can speed up the transition.

1. Purpose of the Climate City Contract 2030

The purpose of this Climate City Contract is to accelerate the climate transition in cities within the framework of the 2030 Agenda while also contributing to the continued recovery and evolution of the Swedish economy at a time shaped by a number of several interlinked crises.

The Climate City Contract expresses the parties' intention to raise the level of ambition in the field of sustainable urban development and climate transition. The Climate City Contract also places Sweden and Swedish cities in a favourable position to act as international pioneers in the urban climate transition. This is to be achieved by means of mutual, long-term commitments to initiatives by the signatory national agencies, the Viable Cities innovation programme and the municipality.

2. Parties

Parties to the Climate City Contract 2030 are:

- Linköping municipality.
- The agencies: Swedish Energy Agency, Swedish Governmental Agency for Innovation Systems (Vinnova), Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas), Swedish Agency for Economic and Regional Growth, Swedish Transport Administration and Swedish Environmental Protection Agency.
- The Viable Cities strategic innovation programme[1].

3. Municipal commitments

3.1. Municipal climate goals

Back in 2012, Linköping municipality defined the ambitious climate goal of making the municipal geographical region carbon-neutral by 2025. This remains in place as an interim goal in the newly adopted Climate and Energy Programme (2022–2030), while the long-term, broader climate goal means that Linköping municipality must help the municipal geographical region to achieve net zero greenhouse gas emissions by 2045. This goal expresses Linköping's ambition to take even greater responsibility and step up the pace of local climate action. By participating in Viable Cities' Climate-Neutral Cities 2030, Linköping – together with 22 other cities – aims to join forces and

[1] Viable Cities is a strategic innovation program funded by the Swedish Energy Agency, Vinnova and Formas. The program runs until 2030 and has approximately 130 memberorganisations. Hostorganisation is KTH.

mobilise for the Climate-Neutral Cities 2030 mission, providing a good life for all within the boundaries of our planet.

The long-term goal is to be achieved by reducing greenhouse gas emissions by at least 85 per cent compared to 1990 levels, and by what are known as complementary measures corresponding to up to 15 per cent of emission levels in 1990. Two interim goals will serve as checkpoints as the municipality works towards its the long-term goal of net zero greenhouse gas emissions by 2045. Besides being carbon-neutral by 2025, Linköping will have reduced total greenhouse gas emissions by 70 per cent by 2030 compared to 1990 levels.

Linköping is concentrating its efforts in the following priority areas in order to facilitate acceleration of the climate action covering all greenhouse gases:

- Energy-efficient, climate-efficient homes, premises and businesses.
- Climate-efficient building and construction.
- Sustainable mobility and resource-efficient transport.
- Proactive work towards negative emissions.
- Production and distribution of renewable and resilient electricity, heating and cooling.

This work is being conducted both internally and in cooperation with various stakeholders. In order to succeed in this, Linköping – with knowledge support from Viable Cities – is developing a mission-oriented approach that focuses on the climate goals.

The Climate and Energy Programme also includes a number of fundamental standpoints, such as the fact that the municipal group should work to promote a transition to a circular economy and a sharing economy, which includes Linköping municipality, both as an organisation and as a geographical location. Linköping must also help to reduce consumption-based emissions both within its own operations and outside the municipal organisation.

3.2. Strategy

The Linköping municipal group aims to set a good example, show the way, provide inspiration and use all available tools within its control to promote and lay the foundation for residents and businesses to make climate-conscious choices.

Linköping municipality has worked in a broad process during the year to develop a Climate Roadmap for the Linköping municipal group. Besides digital surveys, many dialogues and other forums have been held on different topics and with different stakeholders in order to gather views and suggestions, such as:

- Climate dialogue in conjunction with urban development consultations in the Berga district
- Mobility dialogue with employees in Linköping's green travel plan areas
- Dialogue with senior citizens
- Dialogue with associations
- Workshop with upper secondary school students on the topic of sustainable consumption
- Dialogues with industry clusters in innovation, logistics and construction

The purpose of the dialogue sessions has been to consolidate and provide an understanding of local climate goals and transition needs and to identify who should do what in order to ensure that the necessary activities are completed.

Clear justice perspectives are integrated in respect of factors such as children, gender equality and equality when selecting and formulating activities. The various conditions that exist for climate transition – between urban and rural areas, for example – are also taken into account. If executed properly, Linköping's climate transition should lead to a positive impact on the quality of life of the people of Linköping and a good business climate, as well as a sustainable climate.

Regional criteria, as well as national and international policy instruments, have a significant part to play in Linköping's ability to step up the pace of climate transition. That is why Linköping is communicating local needs and driving development in these arenas.

3.3. Organisation and management

The climate goals have been adopted by broad political consensus in the municipal council. The municipal board is responsible for coordinating and developing strategic climate transition work and monitoring the goals in Linköping municipality. All municipal companies, committees and administrations are responsible for integrating climate issues into decisions, processes and planning of operations.

Some of the municipality's operations are run in the form of limited companies and these, like the municipality's other operations, must work to promote Linköping municipality's core values, political programmes and goals. The collective and special ownership directives for each subsidiary, together with other policy documents, provide a strong tool for governance of these, particularly in relation to the goal of a carbon-neutral Linköping and the more long-term climate goals.

The sustainability unit for general strategic coordination work is based at the municipal management administration. The Environmental and Urban Planning

Administration has a climate unit that works with operational and project-driven implementation of strategic climate transition work, mainly in the fields of urban development processes, energy efficiency and sustainable mobility. The business and growth team has a newly created role of business development officer, with emphasis on sustainable growth.

The municipality and the municipal group have transition functions and groupings at official level with mandates, opportunities for collaboration and influence linked to Linköping's climate transition work, such as:

- Social sustainability networks and ecological sustainability networks within the municipality, where meetings of administrative representatives with mandates from their management teams are convened by the sustainability unit. This occasionally involves participation by companies owned by the municipality.
- A sustainability forum for sustainability managers and sustainability officers within the municipality and companies owned by the municipality.
- The procurement unit and the procurement network within the municipality/group, which is supported by the sustainability unit in respect of environmental/climate and social requirements.
- Linköpingsgruppen (the Linköping group) – a group-wide financial cooperation forum for development of instruments making it possible to direct capital to climate-friendly and eco-friendly investments such as green bonds.

The following new groups have been formed on the basis of the needs identified as part of the Climate-Neutral Cities 2030 project:

- A local *transition team* made up of representatives of the project partners who all have strong links to relevant stakeholder groups/areas promoting Linköping's ability to transition (these are written in brackets): Linköping University – IEI (environmental technology) and TEMA (technology and social change), RISE (data/digitalisation), Linköping Science Park (innovation and the business sector), Sankt kors fastigheter AB (municipal property and housing companies) and Campushallen/LSIF (associations)
- *A Climate Communication editorial board* for developing Linköping's communication channels and strategies.
- *A Climate Investment Plan working group* involving representatives from the municipality's sustainability unit, climate unit and business development unit, Linköping University (IEI – Department of Management and Engineering) and Tekniska verken.
- *A Strategic Coordination group* for data and IoT in Linköping with a view to collaborating, conducting dialogues and managing strategic issues related to the

development of IoT, data management and data sharing within the municipal group. Initially with emphasis on data of strategic importance for climate action and practical support for ongoing pilots and digitalisation initiatives as part of Climate-Neutral Linköping.

Linköping municipality is now working on the basis of both established and new forums to further develop a structure and processes for transition functions and arenas with a view to mobilising in order to accelerate climate transition.

Linköping municipality intends to:

- Adopt and start implementing the municipal group's climate roadmap.
- Ensure that existing and new forums, as well as altered structures and additional processes are developed and integrated into the municipality's work.
- Increase the municipality's ability to run and participate in externally funded national and international projects and calls for proposals in respect of climate.

3.4. Collaboration with the business sector, civil society, the academic community and citizens

Linköping is a place where ideas are turned into reality, and where collaboration and co-creation are deemed to be key to successful climate transition. The region and Linköping are at the cutting edge, with many innovation and development environments and well-established support systems that capture residents' ideas and turn them into reality in the form of new companies, activities, approaches and projects. Companies cooperate with other companies and the academic community, the business sector, civil society and politics, all working together in the best interests of the city and everyone. After scrutinising Linköping's transition arenas, it is evident that the municipality has well-established structures and processes for collaboration with the academic community and the business sector, but forms of collaboration with civil society in respect of transition-related activities and issues are not as established.

3.4.1 Collaboration with the business sector and the academic community

Many world-leading innovations have been developed in Linköping, and the municipality has a long tradition as a place where business and knowledge go hand in hand. There is a well-established and successful collaboration between the municipality, the region, Linköping University and the business sector. This is a major advantage as Linköping collects information and accelerates the pace of climate transition.

Ideas and opportunities are born, grow and evolve in places where people meet. A number of different business environments, knowledge clusters and collaboration

arenas with clear links to the climate and energy transition are promoting innovation and contributing to future growth and brilliance in Östergötland and Linköping, such as:

- A strongly growing tech industry – knowledge-intensive technology companies that are the target group for Linköping Science Park and the Lead incubator
- The Linköping Initiative – a climate network in which 18 of the biggest local energy-using companies and organisations, both private and public, are working together to achieve Linköping's carbon-neutrality goal.
- Vreta Cluster – a competence and development centre for green industries.
- Cleantech Östergötland – an arena for resolving society's environmental challenges with the help of knowledge and environmental technology.
- ÖBKN – Östergötland bygger klimatneutralt (Östergötland building in a climate-neutral way) – which is bringing together around 40 stakeholders in the construction and property industry in Östergötland with a view to accelerating the transition in the industry.
- Cirkulär kraftsamling i Östergötland och Örebro län (Circular consolidation in Östergötland and the county of Örebro) – using greater collaboration to persuade more companies to implement circular business models and provide support structures with access to new tools linked to circular business models. These tools can be linked to sustainable production of materials, industrial and urban symbiosis, sustainable procurement or other circular solutions.
- Logistikia – Östergötland's logistics cluster – for the transition to climate-smart transport in collaboration between the business sector and the public sector.
- Biogas Solutions Research Center – a national competence centre for research into and development of biogas solutions.
- Graduate school Just transition – A transdisciplinary collaboration on management and governance towards a climate justice transition between five public parties, three academic parties and seven doctoral students in Östergötland and Västra Götaland, where Linköping municipality, Linköping University and others are supervising a doctoral student.

Companies are able to apply for test bed vouchers as part of Climate-Neutral Linköping 2030 in order to test a product or service. This aims to reduce greenhouse gas emissions, in real environments based on the genuine needs of the municipal companies. The funding for each test bed voucher amounts to SEK 20,000, and one and the same company can apply for a maximum of two vouchers per year. The idea initially has to be consolidated in one of the municipal companies, and the test has to take place in the Ebbepark district, in Vallastaden or within Linköping municipality. A "Dragon's Den" has been arranged in order to provide companies with the

opportunity to sell their ideas to the municipal companies. The test bed vouchers and the cooperation with the municipal companies provide a unique opportunity to test and develop both technology and business models in an authentic user environment together with relevant need owners. It also gives companies an opportunity to publicise their ideas and develop them within new partnerships. So far, ten test bed vouchers have been awarded to a total of seven different companies.

Linköping municipality and Linköping University have had an extensive collaboration and exchange of knowledge for many years. With a renewed partnership agreement that was signed in 2021, the parties intend to reinforce and develop their good, long-term relationship and clarify the organisation and forms of cooperation. This will also promote the emergence of new collaborative projects in the following selected areas: Sustainable Urban Development, Sustainable Growth and Sustainable Welfare.

A theme day on Vallastaden was held between the Environmental and Urban Planning Administration and Linköping University TEMA in October in order to extend joint learning and dialogue among researchers, officials and decision-makers on this unique district and how results have been achieved to date, as well as what is to be included in future plans and processes. The theme day was highly appreciated both locally and nationally. The cooperation and format are now being developed so that they can be offered in more thematic areas going forward.

3.4.2 Collaboration with civil society and citizens

In Linköping, we perceive work on climate transition as presenting an opportunity to improve quality of life and create resource-efficient development for everyone. But how we go about achieving this is something we can only find out and implement together with the people who live and work here. Associations allow citizens to initiate and implement joint projects that help to extend democracy and bring about social, ecological and economic progress. A society in which people's voluntary and non-profit involvement is utilised forms the foundation for a strong democracy and is a prerequisite for climate transition.

An environmental and nature conservation grant is awarded annually by Linköping municipal council to an individual, non-profit association, company or organisation that has made exemplary contributions to the environment and nature in Linköping. The council also awards an annual grant for diversity, integration and equality work in order to acknowledge and recognise individuals, organisations or associations that have advanced diversity, integration or equality work in the municipality, making tangible contributions to democracy.

Dialogues and meetings with residents and associations were prioritised during the year as part of the development of the municipal group's climate roadmap, but also for exploratory purposes based on Viable Cities' encouragement to cities to develop

a transition arena, a kind of platform and framework within which local stakeholders can collaborate. Besides generating lots of useful input on activities for the municipal group's climate roadmap, these meetings have provided two interesting new forms of cooperation:

- A *Joint agreement on collaboration for greater circularity and the sharing economy*, a kind of non-profit public partnership (IOP) between Linköping municipality, the local climate group of the Swedish Society for Nature Conservation and Collaborative Economy Sweden to launch Smarta kartan Linköping (Linköping smart map) – a website that collates places where recycled goods can be hired, shared, exchanged, borrowed, repaired and bought. Furthermore, the sharing economy often leads to a greater sense of community and new encounters between people, which is in line with common missions.
- *The SPIRA network*, an initiative aimed at bringing together people from organisations and associations who share the mission of a good life for all within the boundaries of our planet. The aim is to reinforce one another's agendas and build new partnerships, learn more about one another and what is being planned, and devise more activities, events, lectures and courses both locally and regionally.

Besides this, Klimatklubben i Linköping (the Climate Club in Linköping) worked together with Ebbepark/Sankt kors to organise a major sustainability festival by the name of Terra Viva during the autumn. This was a very successful initiative that attracted some 500 visitors.

Linköping municipality intends to:

- Go on developing the forms for Linköping's transition arena(s) with the aim of mobilising more stakeholders involved in Linköping's climate transition work. This involves identifying new needs and continuing to participate and ensure coordinated and active participation with the right functions in established collaboration arenas.
- Carry on offering test bed vouchers, the aim of which is to encourage small and medium-sized companies active in the fields of climate and energy to test their products and services in Linköping. The pilot tests are to be included and reported as part of the Climate-Neutral Linköping 2030 project. After evaluating the effect of the test bed vouchers, the municipality will go on investigating the possibilities of further developing the work with the test bed vouchers after 2024, as well as ensuring that they continue after 2024 if necessary.
- Further develop the Linköping Initiative as a strong force within the framework of Climate-Neutral Linköping, in terms of both exploring and evaluating the expansion of the scope and approaches of the initiative. This work includes factors such as utilising the knowledge gained from the "Climate City Contract Malmö" case study,

which was conducted by Linköping University (IEI – Department of Management and Engineering), together with an evaluation of existing approaches within the Linköping Initiative.

- Increased and interdisciplinary learning from Vallastaden, with emphasis on ecological sustainability. A kind of monitoring and evaluation of the Vallastaden quality programme and implementation of lessons learned for future urban development projects with the municipality as landowner. This may involve calculating energy consumption and production, materials selected for buildings, mobility and in-depth dialogues with construction stakeholders involved in Vallastaden.

3.5. Climate investment plan

Work is in progress on developing a Climate Investment Plan as a complement to Linköping's climate and energy programme and the municipal group's climate roadmap. The process of developing a Climate Investment Plan is an exploratory and agile learning process that should enhance knowledge over time. The Climate Investment Plan aims to provide a view of the need for investments for climate transition and which stakeholders – the municipal group, the business sector and citizens – have control over the investments. Hence the Climate Investment Plan is an extension of the climate roadmap by adding monetary values and societal benefits for Linköping as a whole.

The Climate Investment Plan can assist with:

- A foundation for enhanced dialogue on a local level with various stakeholders and on a national level with government agencies on the need for government investment, funding, etc.
- Increased ability to evaluate, prioritise and make decisions in respect of climate actions/investments
- Greater understanding of how investments relate to EU Taxonomy, which can increase the chances of applying for external co-funding.
- Viewing and calculating investments on the basis of a systems perspective that includes different types of societal benefits, such as health and safety.
- Identifying measures and activities that are/can be conducted in order to accelerate the climate transition and create transparency

A working group made up of representatives from Linköping municipality, Linköping University (IEI – Department of Management and Engineering) and Tekniska verken has been created in order to develop the Climate Investment Plan. This work is closely linked to the municipal group's climate roadmap and budget process.

The working group is working on collecting and analysing micro data, primarily focusing on energy and transport, which are Linköping municipality's biggest emission categories. The data should show the origins of the main emissions and which stakeholders are able to influence them. Based on the data collected, dialogues will be held with the stakeholders who have the power to influence emissions in order to identify possible "shifts" to reduce emissions, the size of the investments needed for these "shifts", and how they should be funded and when such investment would be feasible. The identified "shifts" will also be evaluated on the basis of societal benefits such as safety and health so as to be able to evaluate possible investments on the basis of these aspects as well.

Another of the working group's ambitions is to create a Climate Investment Plan that is visually appealing and useful for the municipal group, the business sector, civil society and citizens. How the Climate Investment Plan can become a useful foundation for different stakeholders will be discussed in future dialogues with stakeholders.

Linköping municipality intends to:

- Go on developing and producing a first version of a Climate Investment Plan related to mobility and energy in an iterative learning process within the working group for the Climate Investment Plan and conduct dialogues with other stakeholders such as the Linköping Initiative, citizens and municipal administrations.
- Linköping municipality has received funding to conduct an environmental spend analysis of the municipal administrations' purchases; consumption-based emissions, that is. This analysis should form a basis for dialogue with relevant operations for joint identification of suitable "shifts" that can reduce climate emissions. It also involves developing procurement strategy work through factors such as category management. This work will also involve the municipal companies in a learning process in order to enhance understanding of how similar tools and approaches can be applied in the business sector in order to reduce Scope 2 and 3 emissions. The environmental spend analysis work will be integrated as part of the Linköping Climate Investment Plan.

3.6. Digital support for implementation

In Linköping, we have continued during the year to increase organisations' capacity and ability for "twinning", which is when the transition to a climate-neutral and sustainable Linköping uses the opportunities offered by digitalisation in an integrated manner. It also involves reinforcing the relationship and assignments between parties working on climate and sustainability and parties working on digitalisation within the municipal group.

The municipality's work to increase digital maturity is based on the politically adopted policy document *Digital transformation programme*. Systematic efforts are under way to develop skills and build a transition-oriented culture, and also to measure, monitor and evaluate this work internally within the municipal group within the framework of digital transformation. An action plan was adopted during the year with a view to concretising the intent of the programme and how to achieve this. Linköping's future position should be that digital infrastructure and information management will make it possible to achieve the goal of utilising data as a strategic resource.

Linköping municipality already maintains a forward-looking position both regionally and nationally by leading or participating in national projects, for example. Linköping is of the opinion that data and digital transformation are a key tool for achieving the municipality's climate goals and ambitions. Being able to visualise and share more climate data in a fact-oriented, science-oriented manner, for instance, enhances knowledge and invites greater cooperation, transparency and innovation between the business sector, universities, civil society and the public sector.

A strategic coordination group for IoT and data in Linköping has been formed after the transition team as part of Climate-Neutral Linköping identified a need to increase collaboration, conduct dialogue and manage strategic issues related to the development of IoT, data management and data sharing within the municipal group, initially with emphasis on data of strategic importance for climate action and practical support for ongoing pilots and digitalisation initiatives as part of Climate-Neutral Linköping.

A pilot test of the collection and sharing of energy data between property owners in Ebbepark and Linköping municipality is taking place within the framework of Climate-Neutral Linköping. The aim is to learn within the organisation (at property companies, energy companies and municipal administrations) how to generally work in a structured manner with climate-related data collection and sharing, and also how the city can make the best use of this information. A working group involving Sankt kors, Lejonfastigheter, Stångåstaden, Tekniska verken/Utsikt, RISE and Nationell dataverkstad has been driving the work forward since December 2022. A description of needs and a solution has been developed, and a technical solution for storing and sharing energy consumption data (property electricity, district heating/cooling, hot/cold water, solar electricity) is being developed in 2023–2024.

Linköping municipality intends to:

- Adopt and implement the digital transformation action plan

- Go on developing capabilities and criteria for increased collection and provision of climate and energy-related data (both static and streaming data); and share it as open or shared.
- Take control of its data and data-driven solutions by systematically assessing needs and seeking ownership or utilisation rights for data in future procurement procedures.
- Visualise climate statistics and data as a tool to promote better engagement, participation and consensus on the current situation and target scenario related to Linköping's climate goals.
- Participate in the Urban Twin Transition Center (UTTC) through Utsikt, a subsidiary of the municipality-owned Tekniska verken.

3.7. Innovation hub for climate neutral municipalities

In Linköping, there is a sense that all ideas can be turned into reality if you reach out and have the courage to think along new lines. There is a long tradition of strong and innovation networks here, between universities, the public sector, the business sector and society in general. The region is dynamic, and there are many strong innovation environments and incubators that are helping research results to generate growth and new businesses. Linköping and the region as a whole are talented when it comes to cooperation.

Linköping was the first city in Sweden to win the European Rising Innovative City category in the 2023 iCapital Awards. This award recognises cities in Europe that are good examples of how social and sustainability challenges can be resolved by means of innovation and development. Linköping has listed five priority societal challenges in its application: climate and environment, growing city, segregation, safety and security and ageing population. Responding to these aspects requires courage, new thinking and close cooperation between the public sector, the academic community, the business sector and civil society. The purpose of new solutions, new technologies and new approaches is to address these challenges in the short and the long term. Linköping wants to be a leader in terms of green, digital and just transition and has lofty ambitions when it comes to promoting innovation and development as enablers of this transformation. The award is worth EUR 500,000 and is presented to allow the winner to go on investing in and developing the city's innovative solutions to societal and sustainability challenges.

The municipality-owned company Linköping Science Park has grown into a world-class innovation hotspot since its inception in 1984. Sustainability is increasingly important when companies with high growth potential are being developed, and Linköping Science Park offers development programmes, networks and meeting venues for innovations, research, companies and talents.

Linköping has space for both innovation development and innovative entrepreneurs who want to adopt a position in the transition process. The LEAD business incubator is designed to help startups achieve growth and profitability, offering entrepreneurs with innovative and scalable ideas an efficient process so that they can develop their ideas quickly and safely into strong and expanding companies. There are many niche arenas for innovation, such as: Cleantech Östergötland, East Sweden Game, Innovative Materials Arena – IMA, Aerospace Cluster Sweden, IoT World, Visual Sweden, AI Sweden, Cyberly and Vreta Cluster.

Linköping is at the hub of a rapidly growing region. Five areas of advance offering potential for growth are identified in the region's smart specialisation strategy: Smart, secure and robust connected products and systems, Efficient logistics, Visualisation and simulation, Environmental benefits as a business and Advanced materials. We have successful research and prominent companies within each area of advance, and roadmaps are now being developed that should include goals, boundaries and priorities for the work going forward.

East Sweden Business Region is a collaboration between all public, regional stakeholders working with growth in some way; that is, Region Östergötland, the municipalities and organisations that promote companies. There is also a smaller group – the Innovation Power Group – within East Sweden Business Region which brings together the innovation environments, the incubator, ALMI and all the regional areas of advance and clusters.

Linköping municipality is involved in regional, national and international networks such as Eurocities, ICLEI, the Klimatkommunerna association, Fossilfritt 2030 – rena resan (Fossil-free 2030 – the clean journey) and others. Sharing and learning from the good examples set by others provides the foundation for achieving climate goals more quickly.

Linköping municipality, through the municipality-owned company Tekniska verken, provides municipal residents and businesses with a good infrastructure that includes electricity, water, sewage, heating, sanitation and other technical utilities on competitive terms, offering good quality, high delivery reliability and consideration for environmental and climate aspects. This company is an important tool and resource in these areas, and also has a part to play in building the place brand of Linköping – Future Now. Some of the new innovations that have been implemented or are ongoing include:

- A post-sorting plant in Gärstad for sorting the plastic, cardboard, food waste and metal found in residual household waste. This reduces the amount of fossil waste sent to energy recovery while increasing the percentage of waste that can be recycled. Tekniska verken is also developing a technology for measuring the

proportion of fossil material in the waste it receives. This provides customers with information on how the fossil percentage of their waste is changing over time.

- A 45-metre-high accumulator tank – a cylindrical steel container designed to serve as a heat storage facility for district heating – has been constructed. The hot water stored will come in useful during cold spells when there is a need to increase production, particularly during the hours of the morning.
- A pilot plant for climate-smart underground district heating storage in Vallastaden. Innovative heat storage reduces the need to start up backup boilers and makes district heating more reliable on cold winter days.

Lejonfastigheter, which owns and manages social care properties, has established a recycling hub for used building materials. This recycling hub is a step towards more circular construction and reduced climate impact. Lejonfastigheter had an operating provider previously, but municipal residents who are well outside the labour market are now employed for this purpose in collaboration with the Integration and Labour Market Administration.

In the spring of 2023, Linköping and the Örebro municipality have jointly worked developing a territorial strategy for sustainable urban development as part of rigging the municipal group to work systematically with test beds, with the Ebbepark test bed and Vallastaden as a way of learning from real-life scenarios. This was done within the framework of the National Regional Fund for Sustainable Urban Development led by the Swedish Agency for Economic and Regional Growth. The primary objective is a strategy for more effective collaboration and mission-driven development with the business sector with a view to addressing the sustainability challenges of cities, supported by test beds in an urban context. On 11 September, the Swedish Agency for Economic and Regional Growth made a decision not to prioritise the strategy for Örebro and Linköping, which means that the municipalities will not be given the opportunity to apply for partial funding from the Sustainable Urban Development Fund, which comprises SEK 690 million. The Swedish Agency for Economic and Regional Growth will be opening a new assessment round in 2024, with the possibility of making the strategy a priority. The municipalities are now faced with the choice of whether to continue working on a territorial strategy, and if so how.

Linköping municipality intends to:

- Build up an ability/capability to be able to work systematically and methodically with co-creative partnerships that help the municipality to tighten up its ability to mobilise and build structures for greater system innovation and increased pace of transition.
- Make the most of the strategy and test bed model devised as part of the National Regional Fund for Sustainable Urban Development. Either use selected parts of the

strategy or implement the strategy in its entirety, which largely involves building the capabilities identified that are required to create a long-term, resilient, efficient and value-added process for managing test beds.

- Depending on the placing in the ICapital Award and the intent, create a platform to boost Linköping's innovation capacity in which climate and environment present an identified societal challenge requiring new innovations.

3.8. Climate change adaptation

Climate change is a fact nowadays, and this means conditions are changing for everyone living on Earth. Whether or not we succeed in reducing our emissions now, climate impacts will affect us in the future. Major efforts are needed to seriously ensure that Linköping moves in a climate-safe direction. This requires a shift in focus from problems to solutions, and from planning to implementation. As important as it is to accept climate responsibility in order to reduce climate impact, it is every bit as important to adapt society to a new and ever-changing climate. These are interdependent aspects and should be coordinated as much as possible. This will ensure we maintain a safe and sustainable municipality for the future.

The new climate means that Linköping is likely to become warmer and see more precipitation than before. An increase in temperature, more extreme weather and flooding are expected for Linköping. The most vulnerable groups in society are often affected most by heatwaves and weather disasters. That is why it is important for the municipality to make a timely transition and adapt the city and its activities to a new climate. The municipality needs to implement measures related to approaches, infrastructure and water supply and equip care homes, for example, so that they can to cope with higher temperatures.

Linköping's Climate Change Adaptation Programme aims to make it possible for the municipality's administrations and companies to conduct the activities that the organisation is obliged to conduct even in a changing climate. It should also provide data for adaptation of the city and contribute to this adaptation. The purpose of the document is to provide an overview of the risks associated with current and future climate change. Another aim is to identify long-term directions and strategies, prioritising specific development initiatives in order to adapt the municipality's activities so as to manage these risks. The programme is concretised in an action plan that forms the basis for climate change adaptation work within the municipality's administrations and companies.

Linköping municipality is participating in a number of research projects with LiU, including the BRIGHT project. This aims to help bring about effective climate change adaptation by means of new knowledge, optimised methods, improved tools and user-adapted data to assist Swedish municipalities with better adaptation of their buildings to future heatwaves. The municipality has also conducted a workshop

together with SMHI in order to produce “Images of the Future” as a tool for climate change adaptation efforts in the municipality.

An overall climate and vulnerability analysis has been conducted for Linköping municipality in order to work out how much progress the municipality has made on its climate change adaptation work, and to ensure that measures are prioritised on the basis of risk.

Linköping municipality intends to:

- Adopt and start implementing the climate change adaptation action plan.

3.9. Climate smart mobility

The municipality’s comprehensive plan and traffic strategy define the direction for urban and traffic planning. One important element involves making the city rounder and denser, and hence more sustainable. A more concentrated city will provide more opportunities for further development of public transport and development of services and activities within walking and cycling distance.

The transport system is being transformed rapidly, driven by electrification, digitalisation and climate. Autonomous vehicles, digitally mediated carpooling, fixed and floating car and bike sharing services and mobility services such as MaaS (Mobility-as-a-Service) are just a few examples. Linköping municipality is an active partner in and facilitator of the transition to a new, more sustainable and resource-efficient passenger transport system focusing on walking, cycling and public transport in combination with access to cars and shared mobility services. With a curious and conscious approach, a number of projects have been initiated by or together with Linköping municipality as a partner, such as Ride the Future, where Linköping provides a test bed for VTI’s autonomous buses, Linköping MaaS and, most recently, a roadmap for mobility hubs together with the Uppsala municipality, the Umeå municipality and the City of Malmö within the framework of the Design Phase for System Demonstrators funded by Vinnova.

The interdisciplinary group for smart and shared mobility has been developed to include more mobility stakeholders operating in Linköping, with a view to identifying common development needs and coordinating and reinforcing initiatives in the field.

Some 40,000 people in Linköping’s largest workplace areas are currently covered by the ongoing, municipality-initiated work on “Green Itineraries”, the aim of which is to increase the proportion of climate-smart commuting and business trips to, from and at work by means of collaboration with companies, property owners and mobility operators.

The municipality is working on children's routes to school with emphasis on both road safety and sustainable travel. This is being done through cooperation between environmental coordinators, traffic planners, the municipal property company and the education administration. This initiative is focusing on two to three schools at a time for every two-year period, evaluating school routes and facilities at the school and then, if necessary, improving them by means of infrastructure measures and/or information campaigns.

The municipal group's policy on vehicles, mobility and procured transport was updated and adopted during the year. This is a policy document that will help the municipal group to achieve a goal: for the entire group's vehicle fleet, including procured vehicles and transport services, to be fossil fuel-free by 2025. This policy is also one of the prerequisites for meeting the requirements of the EU Directive on increased sustainability requirements for public organisations' own and procured transport (Clean Vehicles Directive).

For decades, Linköping has been investing in infrastructure development, operation and measures to influence behaviour in order to increase cycling. These efforts have paid off for Linköping, which reported 37 per cent cycling within the city in the latest travel habits survey (2022). This is a high figure compared to cities of the same size. Linköping also comes out on top when it comes to the number of metres of cycle path network compared to the main road network for vehicles. The impact of digitalisation on the mobility focus area is significant, and necessary in order to enable/improve planning processes and create smart, safe, sustainable and more accessible cities. The EU has identified digitalisation as one of the most important tools for reducing greenhouse gas emissions in the transport sector, including through automated transport, traffic management and various sustainable travel applications. The municipality, which collects and is able to provide these types of datasets, is a key stakeholder.

The municipality's traffic flow data has been surveyed and compiled, in part as a development assignment within the framework of the development of a new operational platform at the Environmental and Urban Planning Administration. Furthermore, sharing this type of data, either freely or under standardised and generous conditions, is in great demand by both research and the business sector and may help bring about innovations.

Linköping municipality intends to:

- Go on developing efforts to reduce emissions from transport according to the methods and activities above, and start work on developing a digital carpooling service for rural areas, starting in 2024. This service is to be developed and tested together with potential users in two rural locations in the municipality. The objective is to increase the proportion of climate-smart journeys to, from and within rural

areas. This forms part of the major “Sustainable Rural Mobility” project led by Östgötatrafiken. A number of municipalities from Östergötland are participating alongside municipalities in Latvia, as this forms is part of the EU’s “Central Baltic Programme 2021–2027”.

3.10. Reporting and monitoring

The Linköping municipal board is responsible for monitoring the goals defined in the Climate and Energy Programme. The goals will be monitored in connection with the monitoring of the action plan that is being developed, or when necessary.

4. Viable Cities’ commitments

The Viable Cities innovation programme is being conducted in broad collaboration in order to contribute to the transition to climate neutral cities by 2030 as part of the Swedish commitment to meet the goals of the 2030 Agenda and the Paris Agreement. This includes acting as international pioneers in the transition for cities.

Viable Cities is working with a wide range of stakeholders across academic disciplines, industries and sectors of society. It links outstanding research environments with enterprises of all sizes across a range of sectors, as well as public and civil society organisations.

Viable Cities will promote the following as part of its role as a strategic innovation programme:

4.1. Coordination of Climate City Contract 2030

Accelerated mobilisation in respect of the transition on a local, national and international level is now taking place using Climate City Contracts as a tool. This requires more of an ability to coordinate the efforts and go on developing the contracts in order to achieve upscaling, broadening, replicability, prioritisation and more effective coordination of meetings and dialogues between stakeholders.

That is why the Viable Cities programme office is developing a coordination function for Climate City Contract 2030 in Sweden so as to further support the Climate City Contract process, the commitments of agencies, municipalities and other relevant stakeholders being developed and refined step by step. This is being done in parallel with implementation and scaling to drive the transition more effectively. The coordination function will support the building of stakeholders’ collective capacity for transition from knowledge to implementation and develop the Climate City Contract to the next level – in a local, national and international context.

The coordination function aims to create better opportunities for municipalities and stakeholders to benefit from and manage at a local level the comprehensive policy packages at EU level that result from the European Green Deal (such as Fit for 55 and the Taxonomy Regulation for sustainable investments).

4.2. Smart policy development

Viable Cities intends to create expertise support in respect of policy and regulations with related initiatives in respect of smart policy development. This will involve providing the municipality with more of an overview of current and future Swedish and European legislation, rules and standards of relevance to the climate transition of cities (such as the Fit for 55 policy package). It will also include process support for amending regulations and standards to facilitate climate transition in practice. This will link to agencies' commitments (section 5.1) and development work on system demonstrators (see section 6).

4.3. Innovation

Viable Cities intends to develop its role as a pioneer and intermediary (linker of systems, manager of gaps, crosser of boundaries) in order to reinforce the coordinating, mobilising and facilitating efforts in the emerging ecosystem for the Climate Neutral Cities mission, offering a good life for all within the boundaries of our planet.

Viable Cities will contribute competence networks and process support to make it easier for the municipality to implement innovation that accelerates climate transition. This will include engaging other strategic innovation programmes in the further development of Climate City Contract 2030. This is particularly applicable to mobility, energy, the built environment, circular economy, health and digitalisation. Working on the basis of the partnership agreement with the Drive Sweden strategic innovation programme on climate smart mobility, collaboration will be developed further with both cities and agencies in this respect, not least with the Swedish Transport Administration.

4.4. Coordinated funding

Viable Cities will be supporting the municipality's need for climate transition funding and promoting cooperation and synergy between agencies and other stakeholders funding climate transition and sustainable urban development in the following ways.

- Viable Cities will go on working with the 23 cities and six agencies involved in Climate City Contract 2030 on developing forms of funding linked with this.
- Viable Cities will cooperate with the Swedish Agency for Economic and Regional Growth as the managing authority for the European Regional Development Fund

in Sweden and the initiatives earmarked for sustainable urban development with a view to creating synergy with Climate City Contract 2030.

- Viable Cities will be working together with the agencies to develop work on coordinated funding by means of various ongoing initiatives in respect of sustainable urban development: see 5.3 Coordinated funding.
- Viable Cities will be continuing to develop forms of climate investment plans for cities with a view to supporting all cities as part of the Climate Neutral Cities 2030 initiative.

4.5. Interaction with the EU's Climate Neutral Cities mission

Viable Cities is working in close cooperation with the support structures that are being built around the EU Climate Neutral Cities 2030 mission – both a platform for implementation of the EU mission, NetZeroCities, and CapaCITIES, a network of national nodes such as the Driving Urban Transitions (DUT) partnership programme. At EU level, closer interaction and synergies with the sister mission "Adaptation to Climate Change", as well as with the proposed "New European Bauhaus" mission, are also being discussed.

5. The agencies' commitments

The agencies are committed to working together within the scope of Climate City Contract 2030. In this way, the agencies will contribute to the purpose of the mission-driven effort to make the transition to climate neutral cities by 2030 with a good life for all within the boundaries of our planet.

In 2024, the agencies will go on developing supporting structures and new ways of working for a more coherent, strategic and learning development process. The Sustainable Cities Council (Rådet för hållbara städer) acts as a framework and strategic forum for collaboration between agencies, the Swedish Model for Sustainable Development (Svensk modell för Hållbar utveckling) as an operational platform for collaboration between agencies, and Climate City Contract 2030 as a joint innovation and test lab for the 23 cities and agencies.

As part of this, the innovation teams at the Climate City Contract agencies will hold joint responsibility for driving the following innovation processes: Policy labs (5.1), System demonstrators (5.2) and Local portfolio analysis (5.3). This work also involves participation in the Transition Lab facilitated by Viable Cities. In 2024, the agencies intend to focus in particular on the development of Climate City Contract 2030 as an innovation in governance for the Climate City Contract Arena, the meeting place for dialogue workshops between municipalities and agencies (see 6.1).

The agencies commit to continue their joint efforts in respect of the following developments in 2024 in order to support municipalities' climate transition:

5.1. Smart policy development

The agencies are working together with the municipalities to identify and contribute to development towards more appropriate regulations and other policy instruments for sustainable urban development and climate transition, and also to increase understanding and knowledge of existing regulations. The process will continue to be based on proactive dialogue and mutual learning, focusing on the development needs of municipalities in an accelerated climate transition.

In 2024, work will continue with policy labs in one or more of the challenge areas identified: inclusive mobility that promotes health, land use and land allocation, energy planning and energy streamlining, and circular resource and material flows. Joint development and planning efforts are ongoing through collaboration and dialogue in order to clarify policy challenges and identify key stakeholders, as well as ensuring the transition potential of policy labs.

5.2. Funding for research, innovation and development

The agencies are funding research, innovation, development and system innovation activities that support more rapid climate transition. The agencies' support is aimed at various types of research, innovation, application and demonstration and, to some extent, investment funding. Funding is provided through open calls for proposals and other forms such as, for example, client networks, stakeholder networks and innovation procurement[2].

In 2024, the agencies are committing to go on developing and funding new types of initiatives, such as: System Demonstrators for Climate Neutral Cities (see 6.2 for more information) and the Urban Twin Transition Center for the digitalisation of cities.

5.3. Coordinated funding

The agencies are constantly developing coordination in respect of ongoing initiatives in the field of sustainable urban development and climate transition so as to create better advance planning and comprehensive information.

In 2024, the agencies are intending to deliver aggregated output data from some of the agencies' funding to all 23 municipalities, based on the innovation process on methodology development for local portfolio analyses that was conducted in 2023. The innovation work will also continue in 2024 with a view to improving the quality and coverage of data supplied, and by means of one or more in-depth projects in collaboration with certain interested municipalities in order to streamline the process

[2] See pressannouncement from the Swedish Internet Foundation (Swedish)

and increase the benefits for recipients. The long-term goal of the portfolio analyses is to assist in efforts relating to cities' climate investment plans.

Hållbarstad.se is the joint website of the Sustainable Cities Council. Here, the agencies have undertaken to regularly publish information on funding opportunities and calls for proposals, as well as collective knowledge support from all participating agencies involved in the Sustainable Cities Council[3].

5.4. Participation in European sustainable cities initiatives

The agencies are part of and working with a number of European initiatives to support the development of sustainable cities and communities.

Efforts to support Swedish participation in the Horizon Europe 2021–2027 research programme include contributing to the formulation of activities and calls for proposals and providing information and advice to stakeholders who are planning to participate in applications regarding various European initiatives. The agencies are also cooperating on the implementation of the EU Regional Development Fund 2021–2027 with initiatives for sustainable urban development.

The agencies are continuing to participate in the Driving Urban Transitions to a Sustainable Future partnership, where calls for proposals and other activities in respect of sustainable urban development will be of relevance in the next few years, as well as the European Commission's "New European Bauhaus" initiative,[4] European Urban Initiative (EUI)[5] and Urbact[6].

The agencies are also helping to develop support functions for the cities selected for the 100 Climate Neutral Cities mission. One example is the "CapaCITIES" programme[7]. CapaCITIES is being used to initiate and reinforce national change processes in order to establish national networks and governance structures.

[3] The Swedish National Board of Housing, Building and Planning, the Swedish Energy Agency, the Public Health Agency, Formas, the county boards, the Swedish Agency for Participation, the Swedish Environmental Protection Agency, the Swedish National Heritage Board, ArkDes (the Sweden's national museum for architecture and design) the Public Art Agency Sweden, the Swedish Association of Local Authorities and Regions, the Swedish Agency for Economic and Regional Growth, the Swedish Transport Administration och Vinnova.

[4] New European Bauhaus highlights the importance of aesthetic, social and cultural assets in the green transition.

[5] The European Urban Initiative is a hub for sustainable urban development at EU level. The EUI aims to offer support to cities to improve and increase their capacity when it comes to formulating sustainable urban development strategies, policies and projects. (urban-initiative.eu)

[6] Urbact is a European cooperation programme for exchange and learning in the field of sustainable urban development, Swedish Agency for Economic and Regional Growth.

[7] The Swedish Energy Agency and Viable Cities are participating.

6. Strategic development projects for 2024

The strategic development projects are key accelerators for the emergence of an ecosystem relating to the Climate Neutral Cities 2030 mission and provide a common platform and arena for collaboration and learning.

The following strategic development projects will be conducted in 2024 within the Viable Cities Transition Lab in collaboration with other municipalities, with a view to further developing the content of Climate City Contract 2030 during the upcoming revision of the contract.

6.1. Governance

Developments in climate transition governance, both at local level and between local, national and even EU level, are fundamental to broader mobilisation and more effective systemic changes. This involves coordinating and leading different stakeholders at different levels with a view to accelerating the climate transition and slowing climate change so that a sustainable future can be built. Governance refers to the process and structure of governing, managing and regulating an organisation, society or system. It considers how decisions are made, how authority and responsibilities are allocated, and how rules and guidelines are maintained and followed. This is a complex process involving political, economic, technical and social aspects, which in turn requires cooperation and commitment from a wide range of societal stakeholders.

Mobilisation through Climate City Contract 2030 has proven to be successful and will go on being developed in order to further reinforce, scale up, broaden and accelerate the transition work. Clearer needs orientation/prioritisation and stricter commitments are required from several quarters: from the national agencies and the municipalities, and also linked to the Viable Cities role/commitments.

The Climate City Contract is a new and innovative governance tool that is building a long-term strategic process from local to international level on the basis of the collective mission of achieving sustainable and climate neutral cities by 2030. Commitments from cities, agencies and other stakeholders are revised and refined every year, and implementation takes place in interaction between the public sector, the business sector, the academic community and civil society stakeholders. The whole process is building ever stronger mobilisation of ecosystems of stakeholders and initiatives and constantly reinforcing the collective capacity for faster transition. This is a multi-level governance perspective that has also acted as an international role model when it comes to mobilising cities in a broad partnership between enterprises, the academic community, the public sector and civil society, implementing the EU's "Climate Neutral and Smart Cities" mission, which is aiming to achieve 100 climate neutral cities (municipalities) in Europe by 2030. Being the

first to set up Climate City Contracts makes Sweden a pioneer, leading the way for other European countries and the European Commission. This, in turn, will strengthen the Swedish business sector's ability to take its place and contribute to the global transition.

In the run-up to 2024, there is still a major need to develop a more in-depth understanding of what transformative governance involves and how municipalities and cities can work with it in practice. Collective analysis support for Climate City Contracts will be developed further using experience and insights from the initial steps. This work has to be done in close cooperation between Viable Cities, agencies and municipalities. This work will be coordinated by the programme office, which will ensure stronger emphasis on analysis and monitoring in the Climate City Contract Arena in 2024.

6.2. Climate investment plans

A basic tenet of mission-driven innovation is that the state and public organisations at different levels of society play an active role in co-creating and reshaping markets in interaction with the business sector and other societal stakeholders such as the academic community and civil society.

Climate investment planning is a crucial part of the transition in a municipality or from a broader perspective. Such planning makes it possible to understand what measures the various stakeholders in the city – the municipality and other stakeholders – need to implement, how these measures can be implemented in a manner that is economically viable, and which financial instruments can be used to raise the capital necessary for the transition. On average, the municipality itself is estimated to have control over about 15 per cent of the investments needed. That is why a series of stakeholders need to be involved, including citizens, civil society, enterprises (including the financial sector), the academic community and public organisations.

Climate investment plans as a key part of the work on developed governance for the mission, and in 2024 we will be focusing on climate investment plans in a number of areas; analyses and tests on how climate investment plans can be linked to regular decision-making processes, including roadmaps for climate neutrality at city level, analyses of necessary climate investments in areas with a major impact on climate emissions, such as heating/cooling, mobility, food, etc., economic analyses of multiple benefits of climate transition, such as where climate transition can both help to save money and provide quantified benefits such as better health, more jobs, security, etc., how sustainability indicators can be incorporated more systematically into commercial management and contract management

In 2024, the Viable Cities financial dashboard will undergo further development and incorporate the investment plan page, financial indicators and funding flows provided by different national agencies (see section 5.3). The functions of various financial instruments will be mapped, and a number of learning cases will be launched in areas where financial roadmaps are being developed. There will also be a developed collaboration with investors in order to discuss how to mobilise private funding for climate neutral cities.

The work on climate investment plans in Sweden is closely linked to what is happening within NetZeroCities, the platform for implementing the climate neutral cities mission at European level.

6.3. Competitiveness through transition

Strong mobilisation for the transition to climate neutrality may provide the conditions for enterprises in Sweden to develop new business strategies and entirely new markets, which in turn will provide competitiveness by driving a transition to a climate neutral, sustainable society. This is crucial for Sweden's ambition to be the world's first fossil-free welfare state and our climate policy framework. Enterprises play a key role in the climate transition; as major emitters of greenhouse gases, but also as providers of solutions for climate transition and climate change adaptation.

In 2024, Viable Cities is joining forces with the Climate Competitiveness initiative to explore – together with a range of other stakeholders – what systemic changes can accelerate collaboration between municipalities and the business sector in order to achieve the Climate Neutral Cities 2030 mission with a good life for all within the boundaries of our planet Collaboration with the agencies signing the Climate City Contract is a key aspect of this work so that policy change can be driven. The initiative is targeted primarily at the 23 cities signing Climate City Contracts for 2030, with the objective of creating knowledge that can be used in all Swedish municipalities.

The aim is to focus jointly on key areas of activity linked to the cities' transition journeys, where enterprises are mobilised and systematically engaged. One important element in this work is to reinforce one another in handling the opportunities and challenges presented by the EU's "Fit for 55" programme. Examples of areas of activity include procurement, skills supply, business development and establishment. The work includes reviewing the chances of using municipal policy documents such as procurement policy, business programmes and ownership directives for municipal companies in order to drive development. In its work, Viable Cities also engages with business-oriented organisations and initiatives at international, national and regional level where fair and inclusive transition is a key aspect.

6.4. Citizen engagement

Current societal challenges mean that a number of crises coincide with the climate crisis: the pandemic, the war in Ukraine, crises in respect of energy, food, raw materials and critical minerals, biodiversity and demography. These challenges are exacerbated by the fact that we are also experiencing a democratic development where a growing proportion of the population feels excluded.

This increases the need for initiatives aimed at inclusion and putting citizens at the centre of the transition to a climate neutral, sustainable society through initiatives such as new forms of citizen involvement (such as citizens' councils) and the development of attractive living environments (such as New European Bauhaus) and policies for the designed living environment. It is necessary to make the most of citizens' knowledge and expertise with regard to the decisions that affect their lives, and these decisions must be supported by the vast majority so that action and change can be implemented at the pace and to the extent required.

There will be further development of cooperation between cities, agencies and other stakeholders in 2024 in order to pave the way for citizen engagement in the climate transition; not least by developing new forms of citizen involvement in local Climate City Contracts and interaction with European initiatives in this respect.

A number of learning cases, tests and initiatives in respect of citizen participation will be mobilised in 2024 with a view to building on empowering citizens so as to accelerate the climate transition.

6.5. System demonstrators

System Demonstrators for Climate Neutral Cities is a strategic development project under Climate City Contract 2030. The system demonstrators are expected to play an essential role in the ability of cities to accelerate the transition, raise awareness and create plenty of engagement on a local, regional, national and international level.

The initiative focuses clearly on mission-oriented innovation, and clearly emphasises the importance of a systems perspective in the transition process. A portfolio approach, where a number of actions, initiatives and experiments combine to form a larger whole, is an important element in this form of intervention. The system demonstrators are based on key areas of Climate City Contract 2030 and are intended to assist with the development of the contract on the basis of insights from the work.

Viable Cities and the agencies undertake to help raise the profile of the system demonstrators in key contexts at national and international level, and to capitalise on the insights from the system demonstrators with a view to facilitating upscaling. All

Climate City Contract 2030 municipalities undertake to capitalise on the insights from the system demonstrators with a view to facilitating upscaling.

6.6. Climate Neutral Cities 2030 mission on an international level

In October 2021, the EU launched five missions for a new and innovative way of working together and improving people's lives in Europe and beyond. These five missions aim to tackle major societal challenges such as health, climate and the environment, and set ambitious goals with deadlines to be achieved by 2030. One of these is 100 Climate Neutral and Smart Cities by 2030 (known as the Cities Mission), which is a key element in delivering the European Green Deal with a view to making the continent climate neutral by 2050. This will involve significant reinforcement of Swedish efforts on the mission of achieving climate neutral cities by 2030 and using Climate City Contract 2030 as a tool for this.

There will be continued mobilisation and development in 2024 in order to reinforce the link between Swedish and European efforts on the Climate Neutral Cities 2030 mission. This is taking place by means of a series of initiatives involving cities, agencies and Viable Cities programmes. Examples include NetZeroCities (a platform for implementing the Cities Mission, with development work on aspects such as Climate City Contracts and Climate Investment Plans), the Driving Urban Transitions partnership (with research and innovation projects focusing on 15-minute cities, energy-positive districts and the circular urban economy) and CapaCITIES (which is developing national support platforms similar to Viable Cities in a number of countries in Europe).

At EU level, closer interaction and synergies between the Cities Mission and its sister mission "Adaptation to Climate Change", as well as with the "New European Bauhaus" initiative, are also being discussed.

Launched by the European Commission in January 2021, the New European Bauhaus initiative links the European Green Deal with our built environment. In the Cities Mission implementation plan, the European Commission points out that EU Climate City Contracts will enable participating cities to integrate the values and principles of the New European Bauhaus initiative in their climate neutrality plans and reinforce them. Work on the New European Bauhaus is taking place in collaboration with the government assignment awarded to the Swedish National Board of Housing, Building and Planning (Sustainable Cities Council, Rådet för hållbara städer) aimed at coordinating Sweden's participation in the New European Bauhaus.

7. Joint efforts on monitoring, evaluation and updating

Viable Cities and the municipality have agreed to conduct annual monitoring of the municipality's performance within the framework of Climate City Contract 2030. Viable Cities will provide documentation annual monitoring at municipal and national level.

7.1. Key updates for the municipality

Linköping municipality has continued to step up the pace of its climate transition work during the year thanks to the opportunity to work and learn provided by the Climate-Neutral Cities 2030 initiative, Viable Cities.

The latest monitoring of the Carbon-Neutral Linköping 2025 goal indicates that measures and initiatives implemented have resulted in a reduction of carbon emissions in the municipality, by just over 35 per cent per capita (2009 to 2019), while the population has increased by some 18,000 people during that period. There is a clear reduction in emissions for 2019 and 2020 compared to previous years, most of these reductions being found in the transport and household sectors. Monitoring shows that the amount of self-generated renewable or resource-efficient electricity has increased thanks to initiatives such as Tekniska verken's investment in a local photovoltaic system and wind farm near Sunne in Värmland. Reduced emissions combined with increased offsetting means that the net emissions, or emissions remaining to achieve carbon-neutrality by 2025 have been significantly reduced.

We would like to highlight the following internal processes and activities:

- Preparation and adoption of the municipal group's climate roadmap – broad participation and dialogues
- Launch of the Climate Investment Plan
- Establishment of the group-wide coordination group for IoT and data, focusing on data that is of strategic importance in climate transition initiatives
- Following mapping and analysis, the project has supported the launch of a transition arena known as SPIRA for civil society.
- The members of the Linköping Initiative are continuing to cooperate and set good examples, both internally and externally. The fact that municipal employees are now project-managing the initiative is helping to achieve a more efficient and long-term approach.

7.2. Most urgent experiences for the municipality to share

Linköping is one of the finalists in the ICapital Awards, which reinforces and confirms the strong innovation culture that we have on a local level in order to address the complex societal challenges that we face.

The municipal group's wholly owned companies are another strong factor in our climate action. These municipal companies are key stakeholders in terms of activities such as waste management, cogeneration and provision of premises and housing. Ownership directives provide an opportunity to influence the companies' activities. The companies allow Linköping municipality to reach out to and influence Linköping residents in their various roles as tenants in the municipal housing company.

The following activities with greater relevance to the transition process were implemented during the year:

- *Sankt kors fastigheter and Stångåstaden* have worked via the Ebbepark test bed to test and develop new methods leading to transition for new construction in the city. By way of example, Sankt kors built Magasinet, a wooden office building with a timber frame. According to monitoring calculations for the erected building compared to an equivalent building made of concrete, 54 per cent of emissions are saved at approximately the same cost. Stångåstaden tested climate-enhanced concrete in one building and introduced it as a requirement for all new buildings in 2023. The test involving climate-enhanced concrete also helped the contractor to learn how to work with this type of concrete, which is helping the industry to evolve throughout Östergötland.
- *Tekniska verken* is working with Vattenfall Värme and Umeå Energi on development of FossilEye. This is a measuring system that will make it possible to scan how much plastic there is in a consignment of waste. The aim of this is to increase recycling of plastics and reduce emissions from cogeneration. A post-sorting plant is also being constructed in Gärstad, which will sort plastics, metals and organic material from the waste handled by Tekniska verken. This initiative is expected to reduce global carbon emissions by about 77,000 tonnes per year. Recycling of materials will increase at the same time. Tekniska verken has also started work on expanding the biogas plant in Linköping, which will also allow carbon dioxide to be recovered through liquefaction, producing liquid carbon dioxide (carbon capture and utilisation, CCU).
- *Lejonfastigheter* is aiming to reduce climate impact by 40 per cent throughout the value chain by 2030, compared to 2019. The climate goal became part of their operational plan during the year, and a climate roadmap has been adopted within the company. Lejonfastigheter has initiated a major collaborative project together with Åhlin & Ekeroth. This project aims to reuse as much as possible when renovating the municipal building on Drottninggatan. It has conducted a thorough reuse inventory, resulting in a list of products and materials that are deemed suitable for reuse within the project itself. These products have now

been dismantled and are being stored on site. Other products in good condition have been sent to the Lejonfastigheter reuse hub – in accordance with the reuse staircase.

- *Linköping Science Park* has developed guidelines for sustainable development, including a checklist for sustainable events in order to inspire more people to make conscious choices. LiSP has also clarified its sustainability work with a "Sustainability" tab on its website, where various initiatives and activities are highlighted. Work as part of Climate-Neutral Linköping, including the option of test bed vouchers for testing solutions that could reduce carbon emissions, is key.

7.3. Key updates for Viable Cities

The work done by Viable Cities on facilitating the Climate City Contract process has undergone development in 2023. The Viable Cities programme has also prepared a new multi-year phase of the programme. Moreover, significant development work on climate investment plans has taken place and the new system demonstrator intervention has taken new steps. An EU-level process on Climate City Contracts has been established in the international cooperation on the mission and a number of Swedish cities have been successful in becoming involved in the work of the mission regarding climate-neutral cities with funding from Horizon Europe.

7.3.1 The Climate City Contract process

Work has continued in 2023 on developing the role of Viable Cities as a facilitator of the Climate City Contract process in interaction with the 23 cities and 6 government agencies that are signatories to date. The accelerated learning platform has been further developed through the Viable Cities Transition Lab Forum, City Labs, Climate Breakfasts and a series of different formats for meetings between cities and government agencies and other stakeholders. Interaction with the signing government agencies has also been developed in order to further extend the Climate City Contract 2030 process. In parallel, work has continued in the 23 cities on developing different forms of local climate contracts as part of mobilising local transition arenas with companies, the public sector, the academic community and research institutes and civil society. Mobilisation at EU level with the 112 cities that are pioneers in the Climate-Neutral Cities 2030 mission has also involved a process of establishing Climate City Contracts with the participation of Viable Cities. Viable Cities perceives an increased need to create synergies and work on developing support for learning between cities and further developing interfaces between local, national and international levels. The aim of all this is to reinforce the collective capacity for transition.

7.3.2 Strategic efforts prior to new programme phase

Scaling up relevant initiatives in various ways for greater impact and to increase the pace of transition is a crucial element in Viable Cities' work going forward. It is

also clear that further work needs to be done in a situation in which multiple crises coincide with the climate crisis. Extensive strategy work took place during the year in preparation for the next multi-year phase of the programme. In October, Viable Cities submitted an application to become one of the programmes under the new, mission-oriented Impact Innovation programme. In parallel, documentation is being submitted for the next phase as a strategic innovation programme in which an evaluation of the first six years of the programme has been completed. In various ways, Viable Cities has also provided input for the Government's forthcoming climate policy action plan and the forthcoming research and innovation bill and contributed to SALAR's planning[8] of how municipalities and regions can improve and intensify their efforts on climate change adaptation and reduced climate impact.

7.3.3 Strategic upscaling and acceleration initiatives

Continued development work on climate investments for the transition for cities has taken place both in Sweden and in European cooperation as part of the work on Climate City Contracts. Dialogue with relevant financial stakeholders has also been developed in this regard. Digitalisation efforts were also intensified during the year, and November saw the establishment of the Urban Twin Transition Centre in collaboration with Viable Cities. Work has also begun on preparing processes for enhanced citizen engagement/participation in order to create methods and insights that can be used by many cities. A Just Transitions graduate school was launched at Linköping University during the year, in cooperation with Viable Cities. Lund University, in collaboration with Viable Cities, has also launched a Massive Online Open Course (MOOC): Cities, Climate and Change: Pathways and Opportunities. Work on storytelling and communication for transition has also undergone further development. The next step in developing a new form of intervention known as System Demonstrators has been taken with funding from Vinnova and Viable Cities for two system demonstrators: CoAct in Lund, which is focusing on both sustainable mobility and energy-positive districts, and SnabbSam in Stockholm, which is focusing on a fossil-free city centre. Other cities are keen to join in with these collective learning efforts. Fifteen feasibility studies have been funded as part of Viable Cities in order to explore how we can further energise the transition of cities in three respects: citizen engagement, climate investments and regional collaboration.

7.3.4 International alliances in respect of the mission

Efforts to mobilise cities and countries in respect of the mission, in which Viable Cities is involved in a number of ways (e.g. NetZeroCities, Driving Urban Transitions, CapaCITIES, Urban Transitions Mission), are continuing. An evaluation commissioned

[8] Fair and sustainable transition for the climate - Proposal from SKR's program preparation for sustainable transition, SALAR, September 2023 (Swedish)

by the European Commission of the EU's work on the five missions[9] was published during the year. This concludes that the Climate-Neutral and Smart Cities 2030 mission (Cities Mission) has already achieved significant mobilisation to step up the pace of climate transition in cities. The evaluators highlight the fact that establishment of the Cities Mission was an important and timely initiative in order to address the "implementation gap" and the systemic challenges that individual cities' climate efforts could never handle alone.

Viable Cities has continued its efforts as one of many international NetZeroCities partners in order to facilitate the transition in the 112 cities (seven of which are Swedish). NetZeroCities, in dialogue with the European Commission, has formulated a Climate City Contract for cities throughout the EU as a tool to accelerate climate transition. Climate investments are a key element in this regard. As with everything else Viable Cities does, the ambition is for methods, tools and lessons learned to benefit many more cities as they make their transitions. Swedish cities have achieved success within the framework of NetZeroCities and been granted funding for a number of initiatives in order to reinforce their climate transition initiatives. Malmö, Uppsala and Umeå, for instance, have received funding as part of the Pilot Cities initiative (totalling around SEK 45 million); and Luleå (matched with Umeå) and Lund are just two of the cities that have been selected and matched with pilot cities under the Twinning initiative, which focuses on learning partners for transition.

New steps are being taken as part of the work that has been conducted at global level within the Climate Smart Cities Challenge for a number of years, and which involves a number of Swedish stakeholders, with a view to further developing the work. This includes linking the four system demonstrators as part of the initiative with the two Swedish ones, and also working to mobilise capital. The partnership with UN-Habitat is key to this, and a dialogue is being conducted regarding broader cooperation with UN-Habitat on the basis of climate transition for cities. Similarly, a dialogue has been initiated regarding broader cooperation with the World Wide Fund for Nature (WWF) regarding climate transition for cities in Sweden and internationally.

7.4. Key updates for the government agencies

The agencies have worked jointly on four innovation processes in 2023 as part of Climate City Contract 2030. Four challenges have been identified for policy labs as part of Smart Policy Development. System demonstrators for climate neutral cities are being trialled in two cities. A local portfolio analysis method has been trialled and scaled up. Climate City Contracts as a model for developed governance have been analysed in depth.

[9] Alasdair Reid et al. Study supporting the assessment of EU Missions and the review of mission areas - Mission areas review report. 10.2777/61143, European Commission, 2023

7.4.1 Smart policy development

In 2023, a number of joint workshops with Climate City Contract municipalities and Climate City Contract agencies were organised so that development of more appropriate regulatory frameworks and other instruments could begin. Four challenge areas were identified, and these were mapped and investigated further with a view to making decisions to launch a number of "policy labs" in one or more of the areas identified. Representatives from the agencies continued working between the workshops, processing the data that emerged and planning for future work. All the work involved forms of exploration and learning, with everyone involved.

7.4.2 System demonstrators

The emphasis on system demonstrators for climate neutral cities has continued in 2023. The call for proposals for System Demonstrators for Climate Neutral Cities – Planning Phase took place, and two cities were awarded funding. This call for proposals will be seamlessly followed in 2024 by the call for proposals for System Demonstrators for Climate Neutral Cities – Implementation Phase, which will be open only to the same two cities that were awarded funding for System Demonstrators for Climate Neutral Cities – Planning Phase.

7.4.3 Local portfolio analyses

In 2023, the agencies have carried on developing a methodology for portfolio analysis of the agencies' overall funding to cities. The methodology was trialled in discussion with five of the municipalities during the year. The aim during the year has been to investigate applications in the municipalities and enable all 23 municipalities to scale up. The year's work and completed tests were presented and further developed jointly during the Transition Lab Forum in Kristianstad in the autumn.

7.4.4 Greater collaboration between agencies

In 2023, the agencies forming the Sustainable Cities Council have been granted funding from the European Regional Development Fund's National Programme to develop a more operational inter-authority collaboration platform. This collaboration platform has been named Svensk modell för hållbar urban utveckling, the Swedish Model for Sustainable Urban Development. The aim of this is to focus on the more operational efforts of the agencies and develop a coordinated and joint initiative to reinforce the municipalities' capacity for innovation. The Sustainable Cities Council decided to review in 2023 how the Council can be strengthened in its role as a strategic forum and provide a framework for the operational collaboration platform Swedish Model for Urban Sustainable Development and Climate City Contract 2030 as a joint innovation and test lab for the 23 cities and agencies, as well as other related initiatives identified. The aim of this was to increase synergies and learning between several of the agencies' related assignments and initiatives.

7.4.5 Climate City Contracts as a governance model

Developments in climate transition governance, both at local level and between local, national and even EU level, are fundamental criteria for broader mobilisation and more effective systemic changes. In 2023, collaboration between agencies – with analytical support by Vinnova – focused on governance issues in particular A strategic analysis project entitled "Klimatomställning av städer – en svensk modell för att öka takten i omställning" (Climate transition of cities – a Swedish model to increase the pace of transition) was conducted in close cooperation with Viable Cities, and with the active participation of both the agencies and the cities. From an operational perspective, it has been possible to devise the term "governance" for climate transition on the basis of practical experience from the last two decades. Governance is used when an authority needs to go beyond what it can directly control in order to realise a goal, which also involves systemic shifts from piecemeal operations to a holistic approach to public administration. In governance, the authority collaborates with the business sector, civil society and the academic community.

9. The contract

The Parties agree that these joint commitments, as formulated above, shall apply for 2024. The first version of Climate City Contract 2030 was signed in 2020, the second in 2021 and the third in 2022. The Climate City Contract is to be updated and renewed for each new year.

Climate City Contract 2030

Betweeen Linköping municipality, the Swedish Energy Agency, Vinnova, Formas, the Swedish Agency for Economic and Regional Growth, the Swedish Transport Administration, the Swedish Environmental Protection Agency and Viable Cities.

Stockholm 2023-12-08 The Parties agree that these joint commitments, as formulated above, shall apply for 2024. The first version of Climate City Contract 2030 was signed in 2020, the second in 2021 and the third in 2022. The Climate City Contract is to be updated and renewed for each new year.

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Appendix 1 - Links to documents

Below are the links to the most relevant documents in relation to Climate City Contract 2030 for Linköping municipality (may be in Swedish).

- Climate City Contract Linköping ver 2022
- Climate and energy program for Linköping municipality 2022-2030
- Together we make Linköping more circular, action plan
- Sustainability report Linköping municipality
- The Linköping initiative's annual report 2022
- Linköping's iCapital Awards application 2023
- Klimatsmart Linköping site