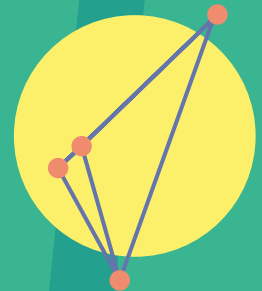
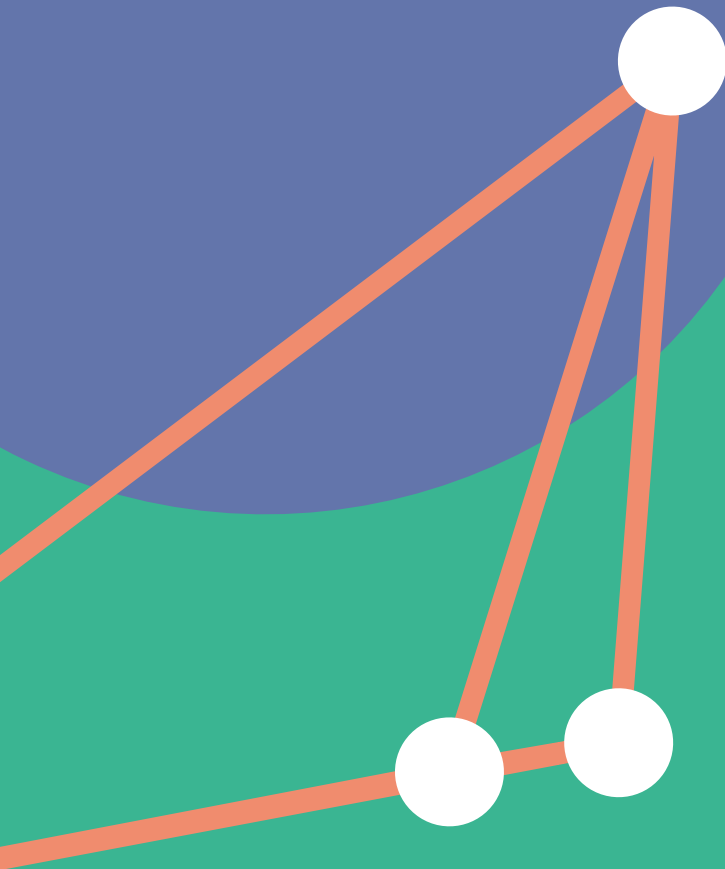


Inspiring urban initiatives for climate neutrality

Bologna, Eindhoven, Helmond, Leuven and Turku's good practices within the EU Mission "100 Climate-Neutral and Smart Cities by 2030"



CITIES 4.0

Climate Innovation Through
Interactive Ecosystem Summits

Inspiring urban initiatives for climate neutrality

Bologna, Eindhoven, Helmond, Leuven and Turku's good practices within the EU Mission "100 Climate-Neutral and Smart Cities by 2030"

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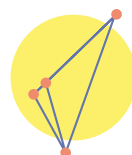
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Introduction

Hi there!

We are Brainport Eindhoven, Ecosystem Thinking Institute (ESTI), Fondazione per l'Innovazione Urbana, Leuven Mindgate and Turku Science Park and we are all part of the European project *Climate Innovation Through Interactive Ecosystem Summits 4.0 (Cities 4.0)*. We could talk extensively about what our organisations have in common, but what is more important is that we all create a positive impact and contribute to climate neutrality by accelerating the transition to innovative urban ecosystems. We achieve this by adopting a collaborative approach and using innovative tools, in addition to engaging key players and stakeholders to help us push climate neutrality forward.

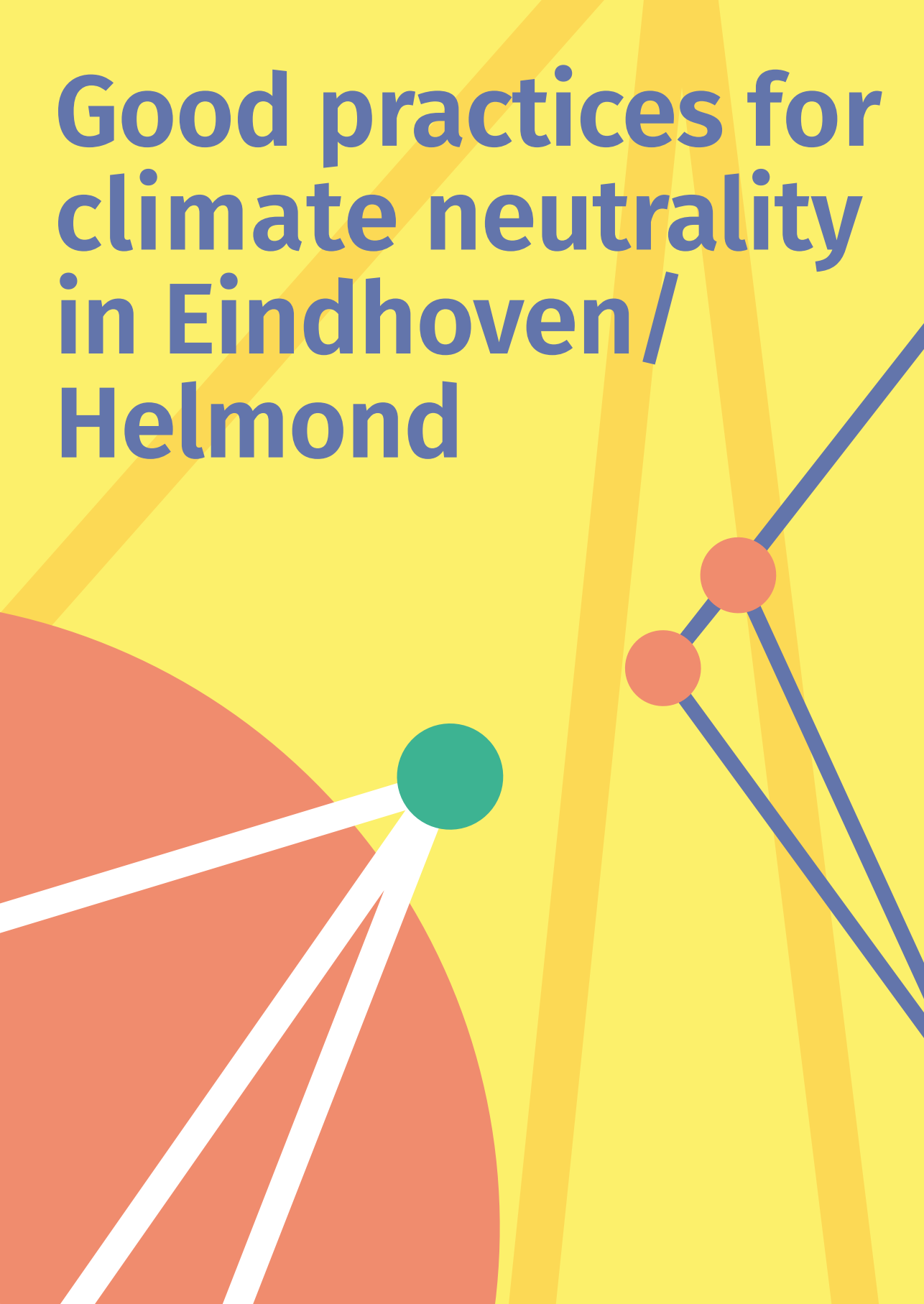
Each one of our cities has been selected as one of the 100 European cities that will have to be climate neutral by 2030 (which means 20 years before the rest of Europe!). As a result, we saw Cities 4.0 as an opportunity to exchange knowledge and join forces to offer some technical solutions to reduce CO2 emissions specifically in the transport and building sectors.

However, as if that weren't enough of a challenge in and of itself, we decided to also target other sectors that cause CO2 emissions in our cities by publishing these good practices.

The aim of this publication is to share and disseminate some relevant projects and actions regarding climate neutrality that have been, or are currently being, developed in Eindhoven, Helmond, Bologna, Leuven and Turku, in order to draw up a list of examples that can be replicated in other European cities that would like to follow in our footsteps.

We invite you to review the contents of this publication if you are looking for ideas about the steps you can take towards climate neutrality!

Good practices for climate neutrality in Eindhoven/ Helmond

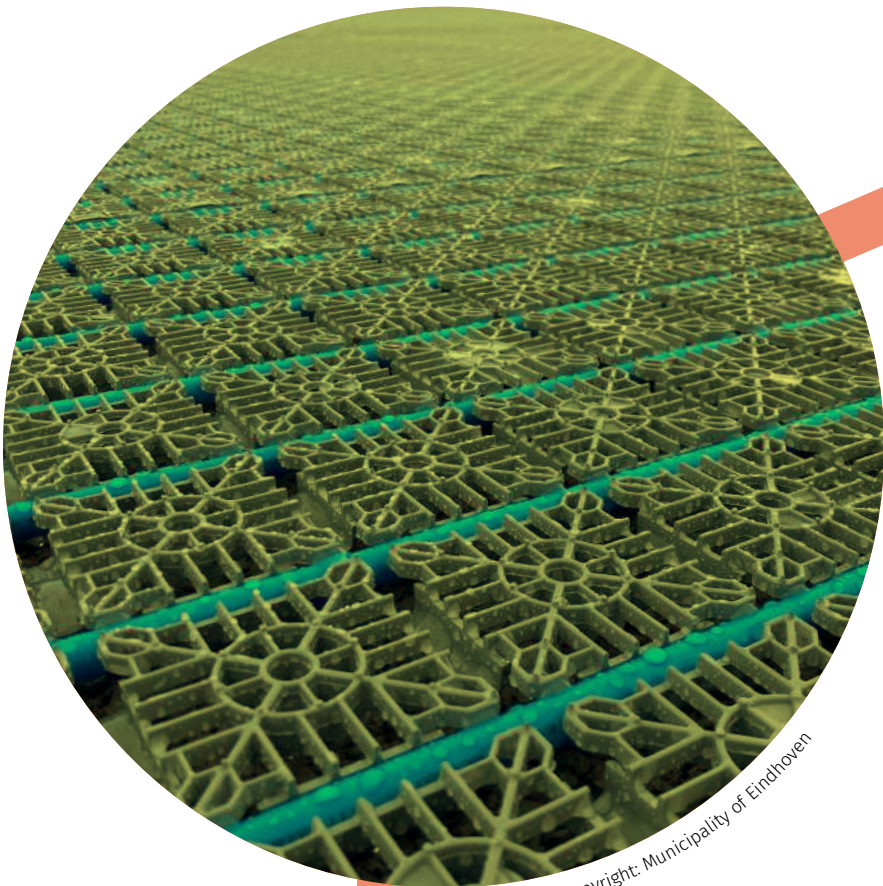


Collector Sports Field

PLAY SPORTS ON A SUSTAINABLE FIELD

It tackles the challenge of reducing CO2 emissions in Eindhoven by making smart, sustainable, and affordable real estate.

A unique sports field will be built at the district Strijp sports park in Eindhoven with an innovative combination of sun collectors and soil storage. The sports field consists of multiple layers. The top layer is the artificial grass field where different sports are played. Under the artificial grass, field pipes are placed in special tiles creating a collector field. A cold liquid flows through these pipes and absorbs heat. In turn, the heat in the liquid is stored in the soil. Heat storage also ensures that the field stays cooler in the summer.



Copyright: Municipality of Eindhoven

The project shows how we can look differently at sustainable heating solutions. We can use an existing property and transform that into a multifunctional sustainable building. The project is part of the Smart Sustainable Real Estate initiative, which aims to make municipal buildings more sustainable by having the municipality and the property owners work together. This collaboration makes it possible to build knowledge and gain experience.

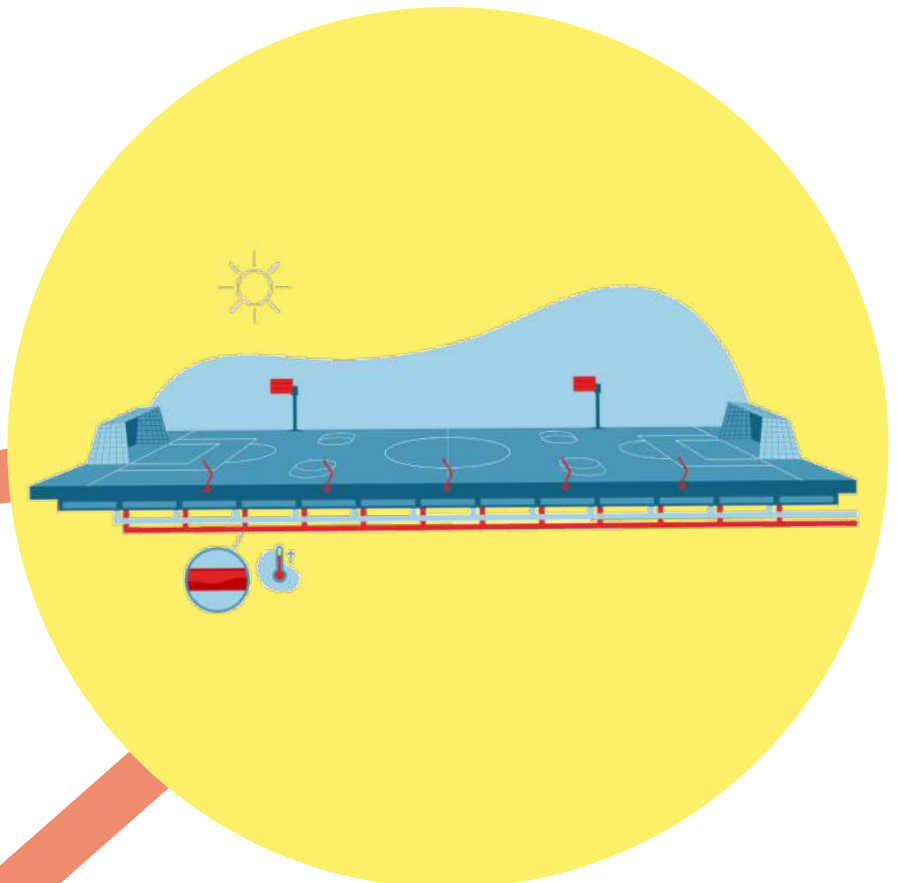
Many sustainability measures have a relatively short payback period and significantly reduce CO2 emissions. Additionally, sustainability measures can be made profitable by using an integrated approach. Property owners can reduce energy costs and extend the economic life of the property by a smart combination of maintenance costs with structural adjustments and making full use of subsidy options.

Want to explore the details of this good practice?

[Click here!](#)

Contact person

*Eva van Enk, project leader of energy transition municipality Eindhoven
contact via e.van.enk@eindhoven.nl*



Copyright: Municipality of Eindhoven



Green Deal Care Metropolitan Region Eindhoven

THE HEALTHCARE INSTITUTIONS TOGETHER FOR CLIMATE NEUTRALITY

This practice improves the environmental performance of Dutch healthcare institutions in Eindhoven. As a result, it accelerates sustainability and reduces CO2 emissions in the region.

Healthcare institutions are amongst the biggest organisations and employers in the Netherlands. Their buildings are often old and not sustainable. The Dutch healthcare system is responsible for at least 7% of the total CO2 emissions. Moreover, it produces high amounts of (often poorly degradable) waste. Eindhoven wants to be and remain a healthy, livable, and future-proof city. Green Deal Care ('Green Deal Zorg' in Dutch) aims to promote sustainability in the health sector. This is achieved by collaborating with healthcare institutions, the municipality of Eindhoven, and consultancy companies that work for more sustainable business operations. Therefore, the motto of Green

Deal Care states: 'Together you achieve more than alone.'
In three years, companies will address 18 themes such as saving energy, limiting transport movements, and using litter and water more efficiently. In return, the effort is rewarded with a quality label. The quality label can be either bronze, silver, or gold. Healthcare institutions must achieve at least the bronze level of the Environmental Thermometer Healthcare within three years of signing the Green Deal.

Find out more by visiting
[The project webpage](#)

For further information

please contact: Ilse ter Horst, advisor energy transition municipality Eindhoven
ilse.ter.horst@eindhoven.nl



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EnergyHouse Smart Living

AN INITIATIVE FOR SAVING ENERGY

This practice contributes to the energy transition by sharing (experiential) knowledge and information with residents who want to make their homes energy-neutral and/or natural gas-free. Natural gas is responsible for a massive portion of CO2 emissions in the built environment. “EnergyHouse Smart Living” (“EnergieHuis Slim Wonen”) is a Dutch citizens’ initiative that has been providing free, independent information for making homes more sustainable to residents in Helmond and seven other municipalities for about five years. This is in line with the Heat Transition Vision of Helmond and its stakeholders to heat homes, businesses, and other buildings in the built environment in a different way than with natural gas.



Copyright: Energiehuis Slim Wonen

The initiative provides information to citizens at theme events and personally at home, at libraries or in their showroom. In the showroom, people can see, feel and hear about all kinds of sustainable solutions, such as heat pumps and low temperature heating systems. Citizens can ask all their questions about sustainable living, such as: 'How do I keep my house cool in the summer?', or: 'How do I heat my house without natural gas?'

In doing so, the municipalities fulfil the task set out in the national Dutch Energy Agreement: to provide a service counter for residents who are homeowners. The goal is to eliminate the use of natural gas for about 34,200 homes in Helmond. More than 100 volunteers work as savings and energy coaches at EnergyHouse Smart Living to support this goal.

Visit this [link](#) to know more!

Any questions?

*Please contact: Bregje van Bragt, director of the foundation EnergieHuis Slim Wonen
bregje.van.bragt@energiehuisslimwonen.nl*

Brainport Bereikbaar

TARGETING WORK MOBILITY TO REDUCE EMISSIONS

Brainport Bereikbaar aims to keep the Brainport region (21 municipalities including Helmond and Eindhoven) accessible by raising awareness among citizens, employers, and (applied) universities about more sustainable and efficient travel choices. Brainport Bereikbaar is a regional program that started in 2021. Its activities focus on promoting sustainable modes of transport, working from home, and avoiding rush hours. All in all to create an optimal flow and accessibility in the Brainport region. This is substantiated by projects that include bike promotion activities and communication campaigns targeting behavioural change. This also entails the development and execution of interventions that



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lead to more flexible choices and the use of sustainable and healthy modes of transit, such as using electric and non-electric bikes. In addition, sustainable mobility collaborations for business parks are organised. Also, shared mobility and mobility hubs are promoted. Employers are inspired and advised to enable their employees to travel smartly. Concrete deals and steps are made to facilitate this. Moreover, Brainport Bereikbaar is working on a deal with all higher education institutions in the region. These institutions will work together to encourage their employees and students to travel more sustainably.

Behind the scenes, the infrastructure is monitored and data is collected. Any safety or flow issues will be promptly tackled. A solid set of data can help deal with accessibility issues and safety bottlenecks. As a result, travellers can take maximum advantage of smart innovative services.

For information, please visit:
[Brainport Bereikbaar webpage!](#)

Reach out

to the Brainport Bereikbaar team via info@brainportbereikbaar.nl



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Living LAB 040

CURIOSITY FOR FUTURE LIVING

In Eindhoven, an urban area has been arranged for discovering the future. The Living Lab 040 is a place of 8500 m² for pioneering and experimenting with 119 houses in an urban and social context. The LAB focuses on the quality of living in densified cities and therefore addresses all current transitional topics. These are captured in five innovation pillars: Well-being, Efficiency, Attractiveness, Responsibility and Agility. Here we challenge and bring together citizens, the market, knowledge institutions and municipalities to discover the new way of living. After all, the city of tomorrow requires more than just continuing along existing paths. And so, it will be an exciting and dynamic environment where creation, implementation, testing



Urban Village a radical different approach of densifying the city. Copyright: LLO40, KaiserlyR, KAW

and optimisation take place. The LAB also acts as a platform for frontrunners in transitions, a meeting place for debating on all topics that really matter.

The aim is to accelerate the needed change, by experimenting in a protected but realistic inhabited environment. We bundle innovation power that is now scattered across the market, focussing on meaningful goals. In a LAB you are allowed to make mistakes, to learn much faster than in daily practice. Since the launch of the LAB, research on many topics has been carried out and the first innovative houses have now been built. Learnings are shared widely, and success will be multiplied in other cities and the market. With this we offer a promising and sustainable outlook for the next generations. Anyone who wants to experiment or be part of the network is welcome.

Do you want to go into details about this best practice?

[Click here](#)

Contact person

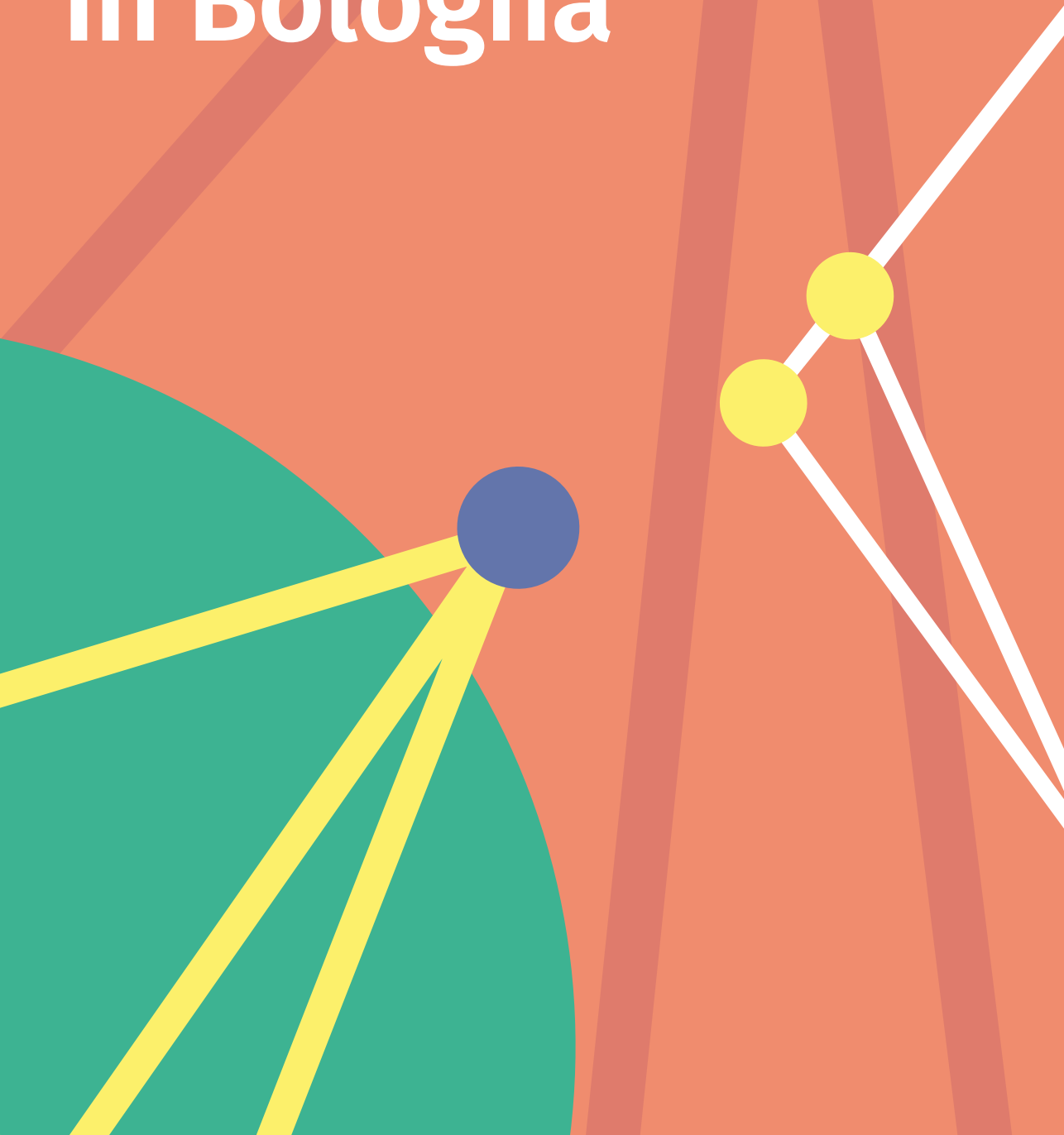
Monique Donker, director Living LAB 040

contact via: monique@livinglab040.com



The Virtual Digital Twin as a designtool. Copyright: LL040, Kaiser VR

Good practices for climate neutrality in Bologna





Let's Gov Project

CHANGING THE GOVERNANCE

This project addresses the vertical and silos-based governance adopted by the Public Administration that hinders the climate neutrality process.

Let's Gov is a project developed by 9 Italian cities that are part of the 100 Climate Neutral Cities EU Mission (Bologna, Milan, Rome, Turin, Florence, Bergamo, Parma, Padua and Prato). With the Let's Gov pilot project the 9 Italian Mission Cities teamed up to find new solutions to tackle the barriers that are slowing down the process towards climate neutrality. One of the main goals of the Mission is to promote peer-to-peer actions and a more collaborative form of governance where the responsibilities are shared between a large group of stakeholders. The aim of the Let's Gov project is to come up with a new type of municipal governance that can help to achieve climate neutrality in

some specific areas, such as the built environment. The project is still in progress and is coordinated and developed by partner universities like the University of Turin and the University of Bologna. In the next 2 years they will focus on reducing energy system-related emissions through the exploration of enhanced governance models to agree on new forms of alliances, to unlock new financial sources for the energy transition, and to define the conditions for energy-enhanced multi-level governance.

For further information, please contact:

Paola Papini, Project Manager at the European and International Projects Unit, Municipality of Bologna
paola.papini@comune.bologna.it



Energy one-stop shop

YOU HAVE A QUESTION RELATED TO ENERGY? THIS PLACE IN BOLOGNA HAS ALL THE ANSWERS!

This practice improves citizens' awareness of energy efficiency, energy services and self production. As the name itself suggests, the energy one-stop shop is a service that answers all your questions about energy and offers you a solution to your energy needs, so you won't have to trouble yourself going around asking the many different market players. It aims to improve people's knowledge of the energy industry and facilitate access to it. As a practical example, before the energy one-stop shop, the citizens of Bologna didn't know who to ask or where to go if they wanted to reduce their energy consumption and pay less hefty energy bills.

It is a service oriented toward citizens in Bologna to inform them about renewable energies, energy efficiency, energy saving, conscious consumption and measures to combat energy poverty. Citizens can contact the service by phone or by sending an email. The main objectives of the one-stop shop are to improve the citizens' knowledge of the benefits of renewable energy, to increase their awareness of their own consumption and drive their behaviour towards energy efficiency.

Moreover, the energy one-stop shop provides information about the existing energy-related incentives and economic benefits available to citizens and how to have access to them.

The one-stop shop is promoted by the Municipality of Bologna and managed by AESS, the Italian sustainable development and energy agency.

Want to know more?

Please visit [the Energy One-stop Shop weblink](#)

Got any other questions?

Please contact Chiara Cervigni, Climate Neutral City Task Force, Municipality of Bologna
chiara.cervigni@comune.bologna.it

Energy and Environment Showroom

ENERGY KNOWLEDGE FOR STUDENTS

This practice tackles limited resources and educational tools related to climate change and energy in schools.

Bologna is committed to raising awareness about good energy behaviours in order to save energy consumption. The last Climate and Energy Sustainability Action Plan of Bologna (PAESC 2019) pointed out that approximately 70% of the CO2 equivalent emissions of Bologna come from the built environment. To reduce these emissions, the municipality believes that energy education among children and students may be a powerful tool.

The Energy and Environment Showroom is the city's public educational centre for the ecological transition.

With an exhibition area of more than 250 square metres, every year it engages more than 5000 thousand students and citizens in a learning experience about the ecological transition, with a focus on energy savings, the circular economy, the use of sustainable and renewable energy resources, and global warming. The Energy Showroom hosts workshops to learn about energy production and the transformation of material.

Moreover, the Showroom activities are carried out in an interactive way to deepen the knowledge of how energy works at a practical level. Theories are important, but the hands-on approach of the Showroom enables people to understand why their consumption habits have an impact on the environment and how they can change them in a positive way.

Learn more about the Showroom by visiting [this link](#)

For further information, please contact:

Chiara Cervigni, Climate Neutral City
Task Force Municipality of Bologna
chiara.cervigni@comune.bologna.it





Digital Twin

MORE DATA TO DECIDE WHICH ARE THE BEST SOLUTIONS

The digital twin addresses the lack of data to develop data-driven solutions to pursue climate neutrality.

Bologna is the ideal location to implement one of the first Italian Urban Digital Twin projects. As a matter of fact, it is located in the heart of the Emilia-Romagna Data Valley, thanks to its centuries-old university, its research and innovation centres, as well as its competence centre. The aim is to make Bologna a resilient and sustainable city, capable of responding to future crises (health, climate, social, etc.) in a timely and effective manner, thus improving the lives of its citizens.

Furthermore, it has recently launched the Big Data Technopole which is home to Leonardo, the world's fourth most powerful supercomputer. By using supercomputing resources, artificial

intelligence, augmented reality, virtual simulations, big data analytics and IoT (Internet of Things), it will be possible to optimise and innovate urban management processes, build evolutionary scenarios and provide new services. Additionally, the Technopole will facilitate citizen participation and experimenting with cutting-edge responses, particularly in the key areas of the European Green Deal and the People's Economy.

In this context, the Municipalities of Barcelona and Bologna, the University of Bologna, CINECA and the Barcelona Supercomputing Center signed an agreement to develop Urban Digital Twins, which will promote the implementation of a decision-making and public policy model based on experimentation.

Interested in the details on this good practice?

[Visit this link!](#)

Need more information?

*Please contact: Chiara Dellacasa, Project Manager and Functional Analyst in the Data Management Division of the High Performance Computing Department at CINECA
c.dellacasa@cineca.it*



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Climate Citizens' Assembly

A DEMOCRATIC TOOL TO ENHANCE CITIZEN PARTICIPATION IN CLIMATE CHANGE POLICIES

The assembly addresses the lack of democratisation in developing climate change actions, which will be essential in the coming years. The aim of the assembly is to define proposals and recommendations for the Municipality to make Bologna the first Italian sustainable city powered by renewable energy sources, like solar power. Citizens are encouraged to propose actions for climate mitigation and adaptation, as well as administrative instruments. The Climate Citizens' Assembly is a fundamental tool to tackle the effects of climate change in a shared way. Climate change is having an enormous impact on our life and all possible mitigation and adaptation solutions should



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be co-designed and co-decided by the citizens and the public administration together.

Initially, 8 meetings are organised over a period of approximately 4 months. If necessary, the duration may be extended by another 3 months and 6 meetings by decision of the Assembly itself.

The assembly is composed of 100 participants as follows:

- 80 residents aged 16 or above; sample stratified by gender, age, neighbourhood and nationality (Italians/non Italians);
- 10 students of the University of Bologna who do not reside in Bologna (balanced by gender);
- 10 Emilia-Romagna citizens with a public transport pass who do not reside in Bologna (balanced by gender).

This is the first Citizens' Assembly in the modern history of Italy. At the end of the process the municipal council will have the responsibility of reviewing the proposals to decide whether to accept them or not.

Discover more [here!](#)

Want to ask further questions?

*Please contact: Andrea Fabbri, Climate Citizens' Assembly, Technician of Fondazione per l'Innovazione Urbana
andrea.fabbri@fondazioneinnovazioneurbana.it*



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Good practices for climate neutrality in Leuven



ELENA L.E.U.V.E.N.

JOINED FORCES FOR THE SUSTAINABLE RENOVATION OF BUILDINGS

In a significant stride toward sustainable building practices, a coalition of 24 partners, including major building owners like the city of Leuven, KU Leuven and social housing company Dijledal, united with smaller organisations aspiring to sustainable transformations. Together, they accomplished the remarkable feat of renovating 100 buildings and integrating 1000 kW peak of renewable energy, facilitated through the ELENA L.E.U.V.E.N. initiative. Under the guidance of Foundation Leuven 2030, these 24 diverse building owners found common ground. The collaboration extended beyond the boardrooms, encompassing entities such as the MPC Terbank Care Center and the Paridaens Institute. By pooling their resources, both financial and intellectual,



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and with the support of a 1.5 million euro subsidy from the European Investment Bank, they invested over 50 million euros into this green transformation.

Central to their success was the transparent exchange of knowledge and experiences. Foundation Leuven 2030 facilitated this open dialogue, enabling partners to learn from one another's challenges and solutions. This spirit of collaboration led to unexpected efficiencies. Through this collective effort, 150,000 square metres of buildings were renovated, and 1000 kilowatt peak of renewable energy was integrated, marking a significant milestone in Leuven's journey towards climate neutrality. The impact of the ELENA project resonates far beyond the physical renovations, serving as a testament to the power of collaboration and shared vision.

For more details on this transformative initiative, you can explore further at this [link!](#)

For inquiries and additional information, please feel free to contact the project coordinator Jan Aerts at jan.aerts@leuven2030.be



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Hoppin Punten

SHARING, NOT OWNING: PROMOTING A MODAL SHIFT IN LEUVEN

Leuven, a city at the forefront of sustainable urban development, is actively promoting shared mobility solutions to reduce individual car usage and curb emissions. To facilitate this paradigm shift, Leuven has strategically placed 45 Hoppin points across the city. These points serve as convenient hubs where residents and visitors can seamlessly switch between various modes of transportation, including shared cars and bicycles. The primary aim is to make shared mobility easily accessible, thereby mitigating carbon emissions, parking problems on the streets and encouraging a shift away from private vehicle ownership.



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Crucially, Leuven's efforts are not confined within city limits, but are part of a broader European initiative. The city secured funding from the Northwest European Interreg project eHUBS, which advocates for shared electric mobility as a compelling alternative to private cars. This initiative is not only about convenience but also about environmental responsibility. By promoting shared electric mobility, eHUBS strives to reduce emissions and decrease overall car usage, contributing significantly to the city's commitment to a greener future.

In essence, Leuven's initiatives are not just about facilitating shared mobility. They represent a holistic approach towards fostering a sustainable urban environment. By encouraging shared transportation, Leuven is not only addressing immediate issues, such as parking congestion, but is also making significant strides towards a cleaner, greener, and more inclusive urban future. Through these collaborative efforts, the city stands as a beacon of innovative, eco-conscious urban planning.

Would you like to know more?

Please [explore here!](#)

Got any questions?

Please get in touch with: Tim Asperges, Mobility Advisor, City of Leuven at Tim.Asperges@leuven.be



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Fonteinstraat: circular renovation of studios

SUSTAINABLE REUSE OF MATERIALS WITHIN SOCIAL HOUSING

The Fonteinstraat social housing renovation in Leuven serves as a groundbreaking model for sustainable material reuse in the realm of social housing. This initiative acts as a living laboratory, showcasing the practicality of material reuse, design for disassembly, and the incorporation of new sustainable products in housing renovations.

Led by Leuven's municipal organisation 'Stadsontwikkeling Leuven,' three studios underwent a circular renovation process. Maximum effort was made to salvage building materials, and the interior was designed for easy disassembly. The entire journey, from public tendering to construction, was meticulously documented in a publicly accessible report, offering valuable insights and transparency for future projects.

This pilot project is a valuable source of knowledge about circular construction and renovation techniques. The knowledge gained will not only refine existing methods but also inspire innovative approaches in future sustainable and affordable construction projects.

Crucially, this project aligns with the Green Deal Circular Construction of Flanders Circular, a commitment made by Stadsontwikkeling Leuven in 2019. Additionally, it serves as a pilot initiative within the international Interreg project Facilitating Reclaimed Building Materials in Northwestern Europe, contributing significantly to the discourse on sustainable construction practices, demonstrating the feasibility and benefits of integrating reclaimed materials into the construction industry.

Found out more following these links: [click here](#) and [here](#)

Do you want more information?

Please reach the project manager Wim Van Aerschot at Wim.VanAerschot@leuven.be



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Material Bank (‘Materialenbank Leuven’)

DEMOLITION WASTE IN THE URBAN CHAIN

In Flanders, the recycling of construction and demolition waste has reached an impressive 95%, primarily repurposed as a base layer for vital infrastructure projects. However, the focus has now shifted towards optimising the utility of fractions derived from this waste within the urban chain, aiming for the long-term preservation of essential raw materials.

Belgium’s construction sector carries a significant environmental burden, contributing to 40% of the nation’s CO2 emissions. Further compounding this challenge, construction and demolition waste constitutes a substantial 33.5% of the country’s total waste output. Addressing these environmental concerns head-on, Material Bank Leuven was established in 2021 as part of a pioneering European Horizon 2020 initiative.



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Initially conceived as a pilot project, it rapidly evolved into a dynamic startup, with ambitious plans to transform into a substantial player within the sector. Specialising in the repurposing of building materials and residual flows from production and transport, Material Bank Leuven stands at the forefront of sustainable innovation.

Material Bank Leuven operates on several key fronts. Firstly, salvaging building elements such as wood, natural stone, and more through meticulous and selective disassembly processes. Secondly, it processes these collected fractions into high-quality, marketable building materials, ensuring optimal utilisation of resources. Crucially, the initiative endeavours to cultivate a vibrant consumer market for circular building materials, thereby encouraging the widespread adoption of sustainable construction practices.

Want to know more?

Please visit [Materialenbank Leuven | Atelier Circuler VZW](#)

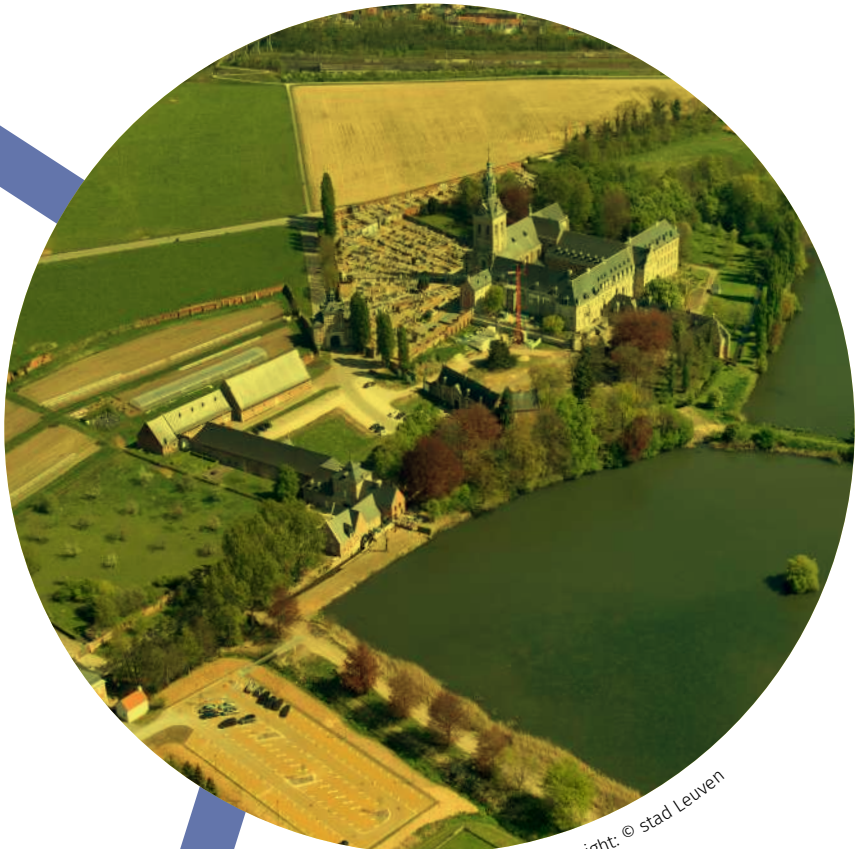
Any ideas to share?

Contact the coordinator Eva Soetaert
eva@ateliercirculer.be

Nationaal Park Brabantse Wouden

THE WATER BATTERY IN BRABANTSE WOUDEN

The Brabantse Wouden region near Leuven, is pioneering with an innovative solution to the perennial challenge of fluctuating rainfall between seasons: a complex water battery system. At its core lies the natural aquifer within the Brusselian sands, a geological marvel resting atop impermeable clay. This sand layer functions as an expansive 'water battery,' feeding the springs in Brabantse Wouden consistently and ensuring a reliable water supply. The recognition on 13 October 2023 as National Park Brabantse Wouden places a strong emphasis on restoring and maintaining this crucial water battery. The primary goal is to optimise water infiltration, encouraging each raindrop to seep into the earth effectively.



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This holistic strategy includes substantial softening efforts in urban areas and enhancing soil quality in rural landscapes. These initiatives not only cater to current water needs but also anticipate future challenges posed by scarcer yet heavier precipitation. Simultaneously, they play a crucial role in mitigating erosion and reducing the risk of mudslides.

Within the broader context of Brabantse Wouden's visionary water restoration framework, the project's focus on revitalising local water sources stands out as a significant milestone. Its approach offers a noteworthy blueprint for similar conservation initiatives globally, illustrating the transformative power of eco-conscious efforts in safeguarding our precious water resources for future generations.

Do you want to go into details about this good practice? Explore the following [link](#)

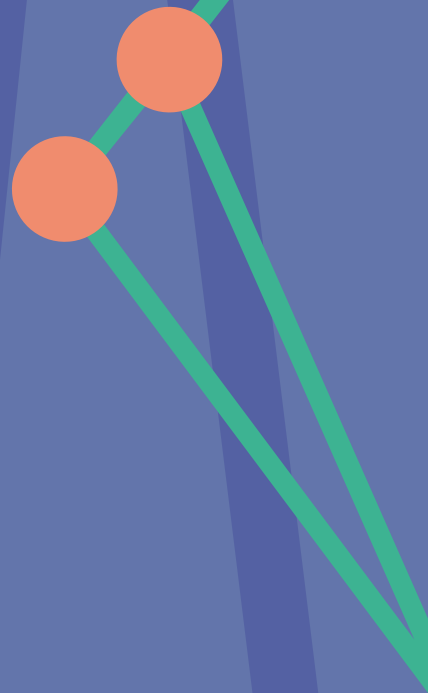
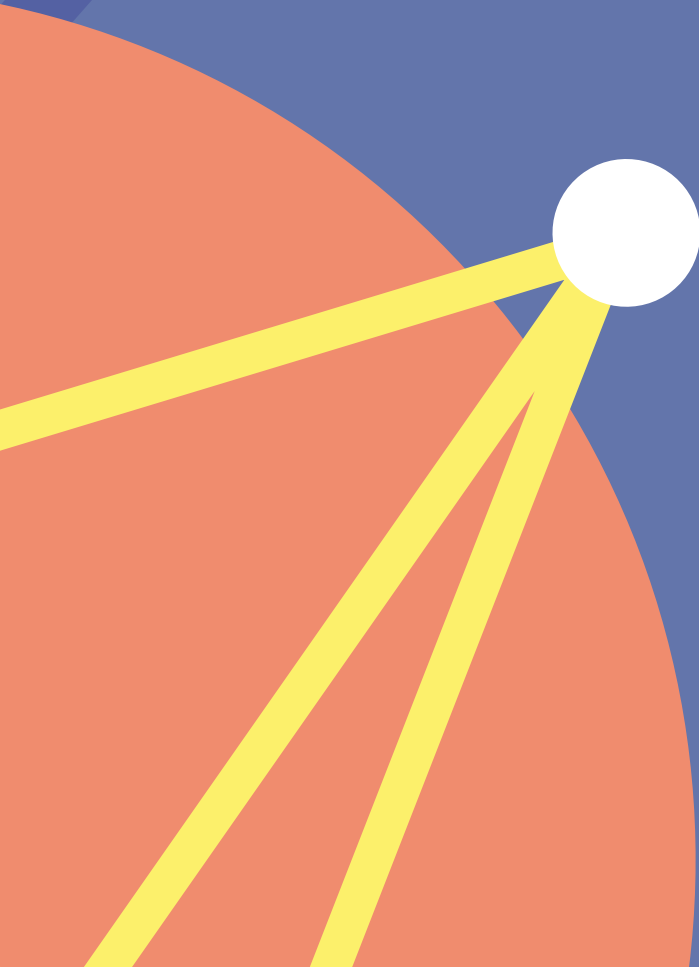
Get more information by contacting

Bart Vercoutere bart@vhm.be, board member Vrienden van Heverleebos en Meerdaalwoud, board member Leuven 2030 and President of Natuur- en Landschapszorg vzw



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Good practices for climate neutrality in Turku



The excellent quality of the Turku water

ECONOMICALLY AND ECOLOGICALLY CLEAN WATER

Turku used to be infamous for bad-tasting water. The hygienic conditions of the sea areas surrounding Turku underwent a significant change between 2008 and 2011. Now the city has implemented an advanced and sustainable drinking water production and the water quality produced by Turku Region has been evaluated among the best in the world by UNESCO ("Managing Aquifer Recharge – A Showcase for Resilience and Sustainability", 2021).

The water consumed in the Turku economic region is of excellent quality and remains very consistent all year round. Artificially infiltrated ground water is treated through an economically and ecologically friendly process. Artificial groundwater is produced by pumping water into infiltration basins, where over the course of three to four months the water is filtered and cleansed, becoming groundwater.

The water in the water supply network is comfortably cool even in the summer. This means that tap water can be used for drinking, household water and washing without property-specific filtering or other treatment or a softener. Three different sources of clean water are being used in the Turku region, which is unique even in Europe. The precise, innovative and unique method can be easily applied in other parts of the world.

Discover more: [click here](#) and [here](#)

More information can be found in Turku Regional [Water](#) Ltd.'s video.

Want to know more about this project?

Please contact Mirva Levomäki, CEO Turku Region WWTP Ltd.
mirva.levomaki@turunseudunpuhdistamo.fi

Kakola heat recovery from wastewater

HEATING AND COOLING FROM WASTEWATER IN THE TURKU REGION

In many municipalities, wastewater treatment is the biggest consumer of energy, but Turku is among the few cities where this process produces more energy than it consumes.

The Turku regional energy company's heat pump plant in Kakola, located near the city centre, utilises wastewater's heat to produce both district heating and cooling for buildings in the Turku region. With heat pumps, the remaining heat energy from the water can be recovered instead of being directly discharged into the sea. Kakola's heat pumps satisfies to the heating needs of approximately 24,000 citizens. All refinery sludge is then used to produce biogas.



Turku Waste Water Treatment Plant Kakola, Aaltonen Hammu

In many municipalities, wastewater treatment is the biggest consumer of energy, but Turku is among the few cities where this process produces more energy than it consumes.

The current wastewater treatment plant is a regional solution with neighbouring municipalities. It is located underground in the centre of the city, inside a rock. The wastewater treatment plant in Kakola is a unique plant built underground, where steady conditions enable the optimisation of the treatment process. Facilities located under the ground are not sensitive to storms, winds, rain or cold that would cause additional costs or challenges.

The costs of wastewater treatment are evened out by recovering energy from wastewater. At present, the plant produces 10 times more energy than it consumes. The plant also has solar panels for energy production, and local technologies are tested there.

Would you like to know more?

Visit this [link](#) and the Turku Regional [Water](#) Ltd.'s video

Got any questions?

Please contact: Mirva Levomäki, CEO Turku Region WWTP Ltd.
mirva.levomaki@turunseudunpuhdistamo.fi



Turku Visitors at Waste Water Treatment Plant Kakola, Lynne Antero



The sustainable city district of Skanssi



THE SUSTAINABLE CITY DISTRICT OF SKANSSI

This practice tackles the problem of heat-users being unable to manage their own energy consumption.

Turku is developing a Sustainable Development District named Skanssi, a new low-heat district heating network which is used to develop a two-way and open heat market. Two-way district heating networks allow buying the energy produced by small scale units and increasing the amount of renewable sources in heat production. This two-way system makes heat trade possible, and in the future heat users can play a more active role in managing their own energy consumption.

The goal in Skanssi district is also to research and develop other local heat production solutions like ground heat, energy piles, solar collectors, condensing heat of cooling and heat storage.

Adequate heat delivery is always ensured with the regional district heat network.

Local renewable energy production needs new technical solutions which can open new business possibilities and create new export products for the Finnish technology sector. Alongside the new heat production solution aims to develop other solutions for the district to better utilise renewable energy, smart living and electric transit.

As the goal of the city of Turku is to be carbon neutral, research in the regional energy network is vital to reach this goal.

Found out more following [this link!](#)

Do you want to ask for more information?

Lotta Lyytikäinen, Product Group Manager Turku Energia
lotta.lyytikainen@turkuenergia.fi



The sustainable city district Skanssi, City of Turku, Anne-Mari Savola



The City's fölläri bike system in Turku

AN INTEGRATED SHARING ECONOMY SOLUTION WITH A YEAR-ROUND OPTION

Turku has developed a high-quality urban bicycle system as a year-round service, as a natural combination with public transport. The current system has a total of 700 fölläri bikes and more than 200 stations in Turku. The system has the option to be put in use for the full year, but currently the season spans from April to the end of October, and in 2023 the season has been expanded to the 23rd of December. City bikes are actively used, and the amount of use has been increasing all the time towards autumn. City bikes have already made more than 253,000 trips in 2023.

The new city bike system includes stations with physical racks as well as virtual stations. In the Turku city centre area, the station network is based on stations with racks, and outside the city centre, the stations do not necessarily have any physical structures.

Instead, users can check the location of the stations from the Donkey Republic app. On the same app the city is also the first to introduce shared-use cargo bikes, as the first city in Finland. Furthermore the fölläri system is integrated with the regional public transport system, where a 30-day or more transport card holder also automatically has the right to use the fölläri city bikes, thus increasing the sustainable last- and first-mile solutions and giving the option for citizens to create smooth travel chains.

The city is responsible for maintaining the system and promotes increased use and the expansion of the network as a sharing economy solution. The initiative offers the possibility for its users to use a good urban bike system that is integrated into the city public transport network.

Want to know more? Then [visit this webpage!](#)

Any ideas to share?

*Please contact the Project Manager, Stella Aaltonen
stella.aaltonen@turku.fi*



The City fölläri bike system in Turku, City of Turku, Anne-Mari Savola

The Turku Student Foundation

SOLAR ENERGY-POWERED BUILDING

This practice addresses the sustainable energy production and distribution challenge.

Sustainable development solutions materialise as investments in, for instance, solar panels and sustainable solutions in renovations and new construction. Completed at the turn of the year 2018-2019, Aitiopaikka is an energy-intensive building with 255 student apartments and 515 roof solar panels producing enough energy for the building and excess energy to share. In 2021, the solar panels at Aitiopaikka generated 52 MWh of electricity (170.72 MWh in 2020), all of which was redirected to be used by the foundation's properties.



The Turku Student Foundation, City of Turku

The excess energy generated by the solar panels is distributed in the area. The peak power of the solar power plant is 165 kW. At best, 50% of electricity can be transferred to neighbouring buildings. The values of the Turku Student Foundation include sustainable development, and solar energy is one of the foundation's sustainable development measures.

During 2021, specific temperature devices were installed at Aitiopaikka, detecting atmospheric humidity and temperature at all housing locations. The sensor system also takes into account the prevailing weather conditions and uses its measurements to optimise the supply water temperature in the heating network, maintaining the temperature of apartments at approximately 21 degrees.

Find more details about this good practice: [click here](#) and [here](#)

For more information, please contact:

*Juuso Virtanen Project Coordinator
juuso.virtanen@turku.fi*

Credits

This publication has been developed within the framework of the European-funded project CITIES 4.0 - Climate Innovation Through Interactive Ecosystem Summit.

For more information about this publication, please contact:

Anna Paar

Brainport Development N.V.

Gebouw TQ 5 – Strijp T | Achtseweg Zuid 159H
5651 GW | Eindhoven | The Netherlands
www.brainporteindhoven.com
a.paar@brainportdevelopment.nl

Rick Wielens

ESTI Eco System Thinking Institute

High Tech Campus 10 5656 AE, Eindhoven | The Netherlands
www.esti.site
r.wielens@esti.site

Marta Meloni and Sergi Vera Ponte

Fondazione Innovazione Urbana Rusconi Ghigi
Piazza Maggiore, 6 - 40124 Bologna | Italy
www.fondazioneinnovazioneurbana.it
m.meloni@fondazioneinnovazioneurbana.it
sergi.veraponte@fondazioneinnovazioneurbana.it

Geert Vaes

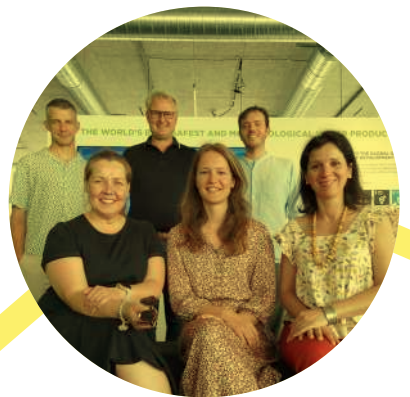
Leuven Mindgate

Vaartstraat 167, 3000 Leuven | Belgium
www.leuvenmindgate.be
geert@leuvenmindgate.be

Aino Ukkola

Turku Business region

20100 Turku | Finland
www.turkubusinessregion.com
aino.ukkola@turkubusinessregion.com



CITIES 4.0 - Climate Innovation Through Interactive Ecosystem Summit (September 2022 - September 2024) involves partners of 4 different European cities: Brainport Eindhoven, Ecosystem Thinking Institute (Eindhoven, Netherlands), Turku Science Park (Turku, Finland), Leuven Mindgate (Leuven, Belgium) and Fondazione Innovazione Urbana (Bologna, Italy). Its aim is to create new synergies between innovation ecosystems in order to achieve climate neutrality by 2030, following the guidelines of the EU Mission "100 climate-neutral and smart cities by 2030".

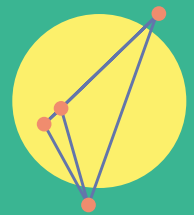
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