

ghent:



2020-2025 Climate Plan

City of Ghent | Tine Heyse, Deputy Mayor of the Environment, Climate, Housing and North-South

Colophon

City of Ghent

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Environmental and Climate Service

Publication date

November 2020

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Ghent Climate City

Together with citizens, organisations, companies and schools we turn Ghent into a climate-proof city

ENERGY-EFFICIENT HOUSING

- 1 Ghent houses will use **30 % less energy** by 2030
- 2 The City assists Ghentians with the **insulation** on their homes and with the use of **renewable energy**

COMPANIES

- 7 The City of Ghent provides assistance to **local entrepreneurs** who make their **buildings energy efficient** and use **renewable energy**
- 8 The City of Ghent saves **3 % of energy** in its own **buildings**
- 9 **Climate neutral port**

TRANSPORT

- 10 Less car travel, more travel by **public transport, bicycle, and on foot**
- 11 Ghent invests in **sustainable urban transport**
- 12 The City of Ghent invests in **electric vehicles** and **car sharing**

FOOD

Together with the **Food Council**, the City is making Ghent's food system more sustainable:

- 15 Ghentians have increased their consumptions of **vegetable food**
- 16 Ghentians are buying more **shortchain products**
- 17 **Less food is wasted**



RENEWABLE ENERGY

- 3 **Doubling** of the number of **solar panels** by 2025
- 4 **+100 MW** of wind energy by 2030
- 5 **Non-gas heating** by 2050
- 6 Expansion of **heat networks**

CIRCULAR ECONOMY

- 13 **Reinforce small-scale circular initiatives** in Ghent
- 14 **Scale up the circular economy** together with Clean Tech Cluster Regio Ghent

CLIMATE ADAPTATION

Prepare Ghent for heat, drought and heavy rain

- 18 **Less pavement**
- 19 **More green space**
- 20 **Reuse and infiltration of rainwater**

Adapt Ghent to climate change

-40 % CO₂

Preface: Climate Plan 3.0

– we are stepping up a gear

The 2020-2025 Climate Plan is the third Ghent climate plan. This plan has been developed by the entire municipal administration and overlaps with nearly all policy areas. We need to do more than build upon our previous climate plans if we wish to achieve our objective of reducing our CO₂ emissions by at least 40 % in the sectors of the Covenant of Mayors and address the indirect CO₂ emissions caused by our consumption. We clearly need to step up a gear, even if the previous climate plan was a lot more ambitious and comprehensive than the first one.

“
**A faster pace and
a broader scope**

At the same time, we need to make more structural preparations for an energy transition that ensures we do not lose sight of our ultimate objective: climate neutrality. For instance, we aim to double the annual number of (residential) renovations, expand the operations of De Energiecentrale and scale up the services provided to flats. A rolling climate fund will be created to speed up the future-proofing of the desired renovations.

In addition, we need to take steps towards non-gas heating in order to meet the energy transition target of 100 % renewable energy (green electricity and green heating). It is therefore essential to expand the existing and create additional heat and steam networks (making use of residual heat or another source of renewable energy) and to develop other alternatives. We are also making considerable efforts to boost green electricity generation in Ghent.

Within this scope, we aim at doubling the number of solar panels by 2025. To realise the wind-energy potential, approximately 30 wind turbines will be installed by 2030, mainly in the port. That total will consist of newly built wind turbines and the replacement of existing ones.



We will expand the customised coaching in terms of energy efficiency and renewable energy we provide to companies and organisations. In this context, we mainly target companies and organisations with a large real-estate portfolio, encouraging them to develop and implement a long-term vision for their real estate. The target is to become climate neutral by 2050. We are assuming the role of energy broker to achieve the exchange of heat and other waste flows between businesses. And as a shareholder, we encourage North Sea Port to work out an ambitious climate strategy.

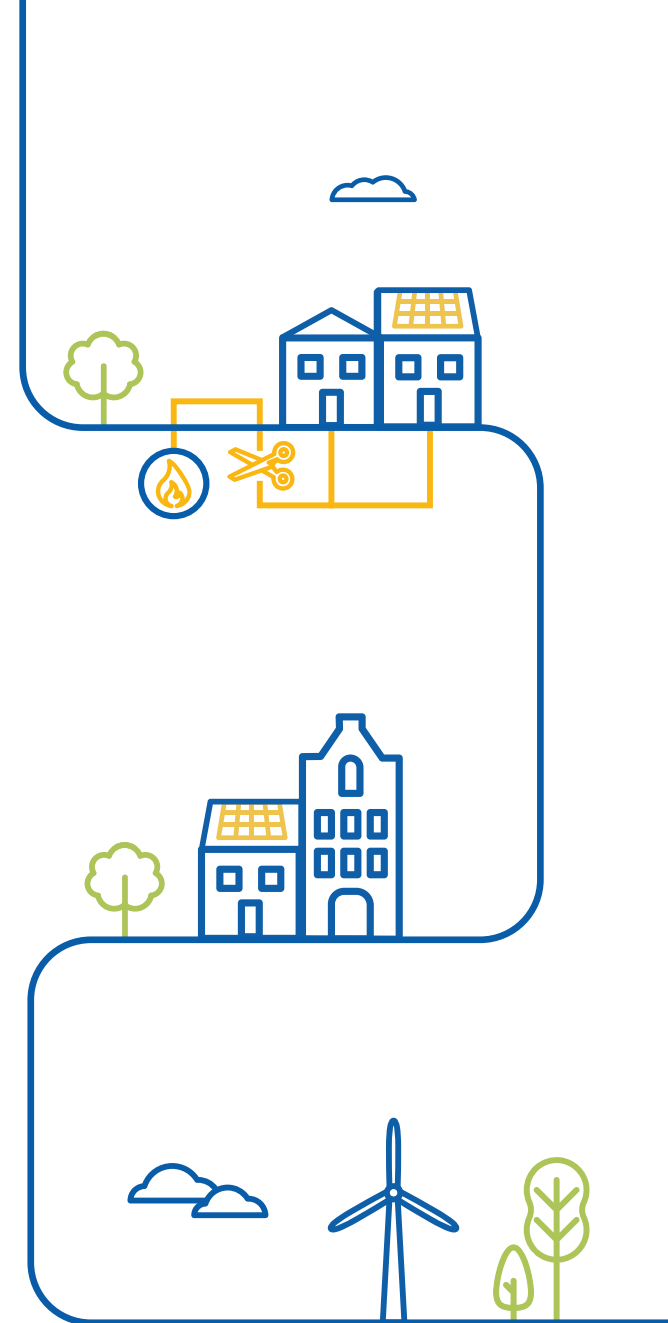


In the 2014-2019 climate Plan, we paid a great deal of attention to a local food strategy. It became clear that our food strategy had not gone unnoticed when we won the prestigious United Nations Global Climate Action Award at the end of 2019. Of course, we are continuing to develop, scale up and embed our food strategy.

During this term we are also increasing our focus on the circular economy. This makes sense given that 60 % of the total greenhouse gas emissions in Flanders are generated by activities related to materials.

Since climate change is well underway, it is essential for this city to make the necessary preparations. We are very ambitious in this respect: we aim to climate-proof the city by 2030. While our first climate adaptation plan mainly focused on pilot projects, we now need to implement a more structural climate adaptation policy and integrate it into all urban policy plans, tools and processes. We also need to continue to build up knowledge.

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Ghent conducts a social climate policy”





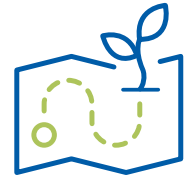
The Covid-19 crisis will keep on impacting the policy over the coming years, and rightly so, but should not distract attention from the climate crisis, which will have an even greater impact. The Covid-19 crisis has taught us a few important lessons: we have to increase our focus on high-quality housing and nearby accessible green spaces. Now is the time to make the right choices so that we can address both challenges simultaneously. That is precisely the aim of our Climate Plan 3.0.

In practice, the plan has been translated into 108 actions. It is our ambition to further strengthen our leadership position in climate policy and assume our responsibility in tackling the climate crisis. This is also good news for the inhabitants and visitors of our city.

A climate-proof city is a pleasant city to live in thanks to a high level of living comfort and lower energy bills for residents, creates local jobs thanks to the new opportunities for businesses and entrepreneurs, and gives us more control over our energy. In short: the challenge may be great, but it is more than worth the effort.

Tine Heyse, Deputy Mayor of the Environment, Climate, Housing and North-South

01. Course of the project



Ghent is a climate city. Many Ghent residents, organisations and companies are concerned about climate change and contribute to the identification of solutions, because the government authorities cannot get the job done on their own. Over the past 10 years, we have involved stakeholders and Ghentians in an intensive manner. We have resolutely opted for concrete projects in consultation with various actors.

This policy note includes a wide range of examples. Our city is abounding with enthusiastic people who apply their knowledge, creativity and expertise to make Ghent climate neutral and climate-proof. Over the coming years, we will continue to collaborate intensively with:

- citizens
- entrepreneurs
- scientists
- students
- non-profit organisations

This collaboration concerns large-scale industrial projects as well as small-scale start-ups and citizen initiatives. We initiate projects, provide assistance and support whenever possible and work in conjunction with our partners to offer them the necessary space for experimentation and help them scale up.

Additional projects were set up during the preparations for this plan:

- At the end of 2019, the Advisory Board for Nature and the Environment invited all citizens concerned to have a say in the new Climate Plan. To this end, the Advisory Board organised six interactive thematic workshops between 21 November and 10 December 2019. The final meeting was held on 21 January 2020. These meetings provided valuable input to the Climate Plan and served as a solid starting point for shaping the climate policy further with citizens and organisations.
- Companies and organisations were requested to concretise their ambitions (see ambitions on pages 70-78).
- We organised consultations on energy poverty and social climate policy with poverty experts and social organisations, which resulted in the advice to define indicators as to the climate plan's social character together with the target group.

The draft version of the climate plan was discussed at a thematic committee session on 25 June 2020. Advice provided by the Advisory Board for Nature and the Environment, Municipal Spatial Planning Committee (GECORO), Municipal Housing Board, Advisory Board for North-South Cooperation and Youth Council were included in the final version.

OBJECTIVES FOR 2030	CHAPTERS in Climate Plan 3	
-40 % CO₂	<ul style="list-style-type: none"> • Energy efficient housing • Renewable energy • Companies and tertiary sector • Transport 	Involve everyone in the climate transition
Reducing indirect emissions	<ul style="list-style-type: none"> • Food • Circular economy 	
Climate-proof	<ul style="list-style-type: none"> • Climate adaptation 	

02. Objectives

In December 2015, the Paris Agreement was signed by 195 countries, including Belgium. This historic climate agreement is aimed at limiting the increase in global average temperature to 1.5 °C. The agreement is an incentive for ending the use of fossil fuels, one of the principal causes of excessive CO₂ emissions. To achieve this objective, measures need to be taken on all levels, from the European level to that of individual citizens.

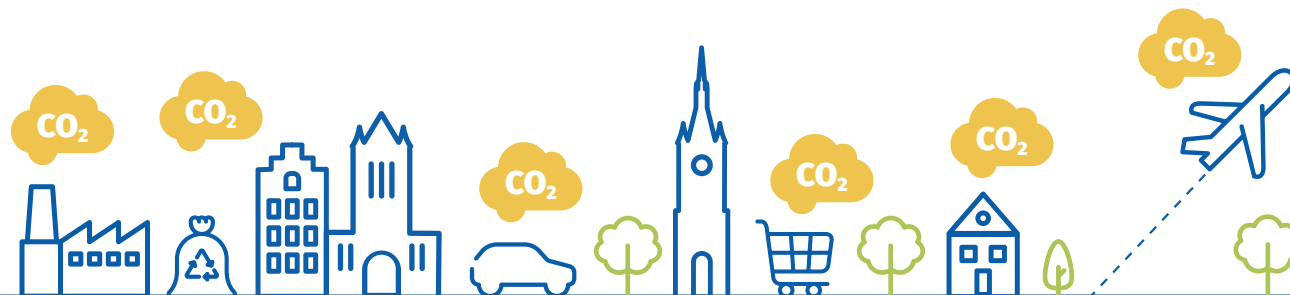
In 2009, Ghent was the first city in Belgium to sign the Covenant of Mayors, a European initiative to mobilise local authorities against climate change. Over the past decade, numerous measures have been taken and actions have been carried out to ensure that the target of a 20 % reduction in CO₂ emissions by 2020 compared to 2007 can be achieved. In addition to this Covenant of Mayors for climate mitigation and greenhouse gas emission reduction, the City of Ghent also signed a Covenant of Mayors for climate change adaptation (the response to global warming) in 2014. This formal commitment has resulted in the preparation of a strategy and action plan.

At least a 40 % reduction in CO₂ emissions by 2030, climate-proof by 2030, climate-neutral by 2050

In line with the Paris Agreement, the European Union launched the new, integrated Covenant of Mayors for Climate & Energy in 2015. Signed by the Ghent municipal council on 23 November 2015, this new covenant is aimed at a 40 % reduction in CO₂ emissions by 2030 and combines climate change adaptation and mitigation in a single action plan. The commitment towards Europe also includes the long-term objective of becoming a climate neutral city by 2050. This means zero net emissions of CO₂ into the atmosphere.

50 % locally generated energy

In addition to energy saving, local production of renewable energy (wind, solar, heat) is crucial as well. We wish to reach the highest possible level of energy self-sufficiency. Our aim is to cover 50 % of the electricity and the heat demand from households with local renewable sources by 2030.





European ambition

The European Union has come to realise that greenhouse gas emissions need to be curbed more quickly to achieve the objective of the Paris Agreement (i.e. limiting the increase in global average temperature to 1.5°C). President of the European Commission Ursula Von der Leyen has set the objective of a 55 % reduction in CO₂ emissions by 2030 for the EU.

We fully support the European Commission's proposal. There is no time to lose. We look forward to integrating this objective at all levels and in all policy areas to make the difference.

The targets of the Covenant of Mayors will probably be adapted as well. We will be able to raise our ambitions within the scope of the Covenant of Mayors with the corresponding resources and measures.

In Ghent, however, we have not waited for the European Union's enhanced ambitions. Our climate policy goes beyond direct CO₂ emissions within the city limits. We also work on our indirect CO₂ emissions by focusing on consumption, sustainable food and circularity. These are areas where important gains can be made with regard to mitigating climate change, even though they do not pertain to the sectors of the Covenant of Mayors.

The measures we are currently taking to climate-proof our cities and address precipitation extremes, groundwater depletion and heat are not our final objective. Several effects of climate change, such as sea level rise, are not yet within our scope since they will not be felt until after 2030. When it comes to adaptation, we keep our finger on the pulse and will make adjustments to the action plan if required.

By means of concrete actions and budgets, the climate plan implements the objectives set out for the period 2020-2025.

www.eumayors.eu

Covenant of Mayors
for Climate and Energy
EUROPE

As signatories to the European Covenant of Mayors, towns and cities take measures in the field of climate and energy to ensure a better future for their citizens.



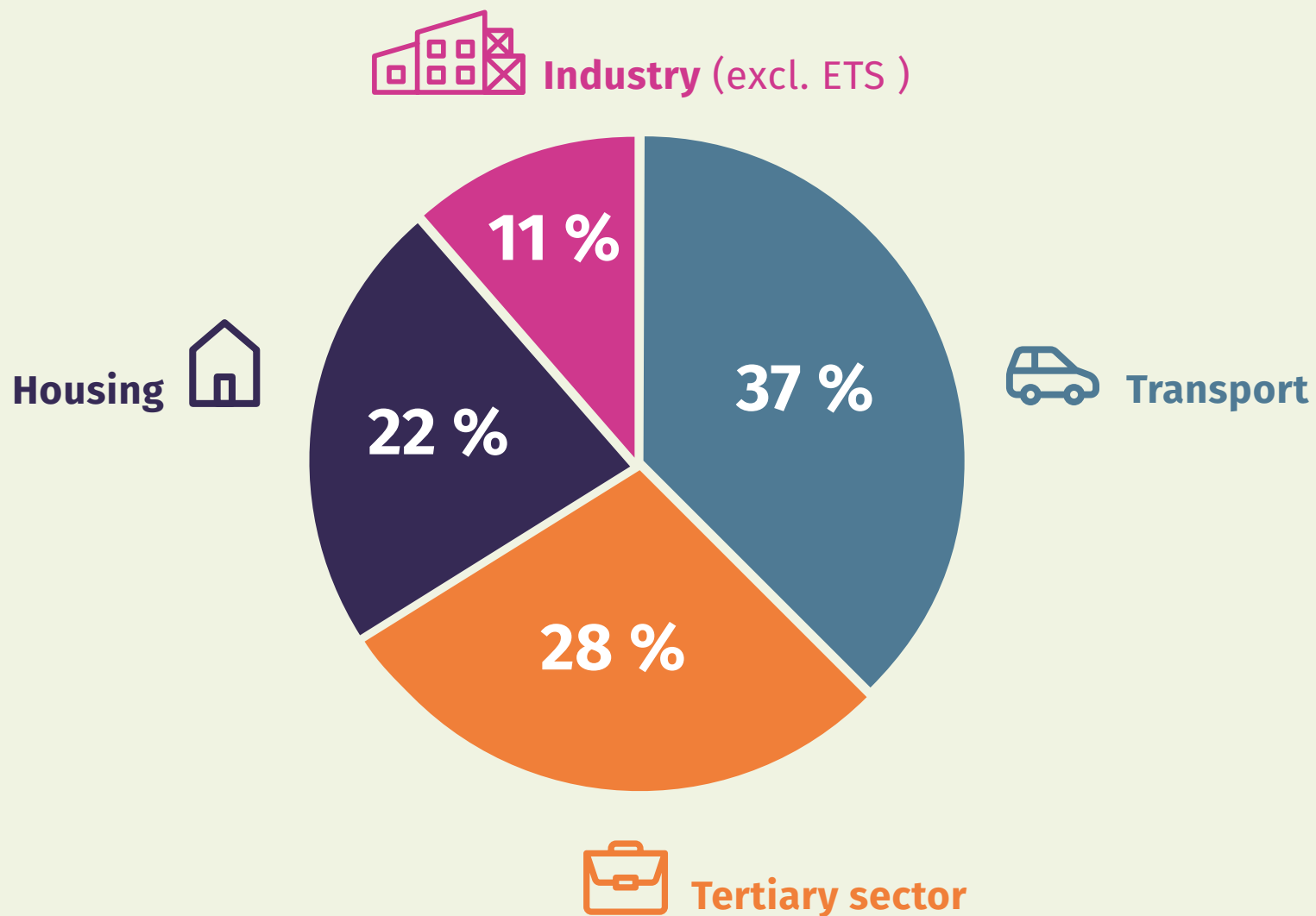
SDG 13	climate action	13 CLIMATE ACTION
SDG 7	affordable and clean energy	7 AFFORDABLE AND CLEAN ENERGY
SDG 11	sustainable cities and communities	11 SUSTAINABLE CITIES AND COMMUNITIES
SDG 12	responsible consumption and production	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
SDG 14	life below water	14 LIFE BELOW WATER
SDG 15	life on land	15 LIFE ON LAND

Sustainable development goals

Reducing CO₂ emissions and climate-proofing our city make an important contribution towards the sustainability agenda as formulated by the United Nations' Sustainable Development Goals (SDGs). Via 17 SDGs, the UN formulated an agenda for putting our planet on a path to sustainability by 2030.

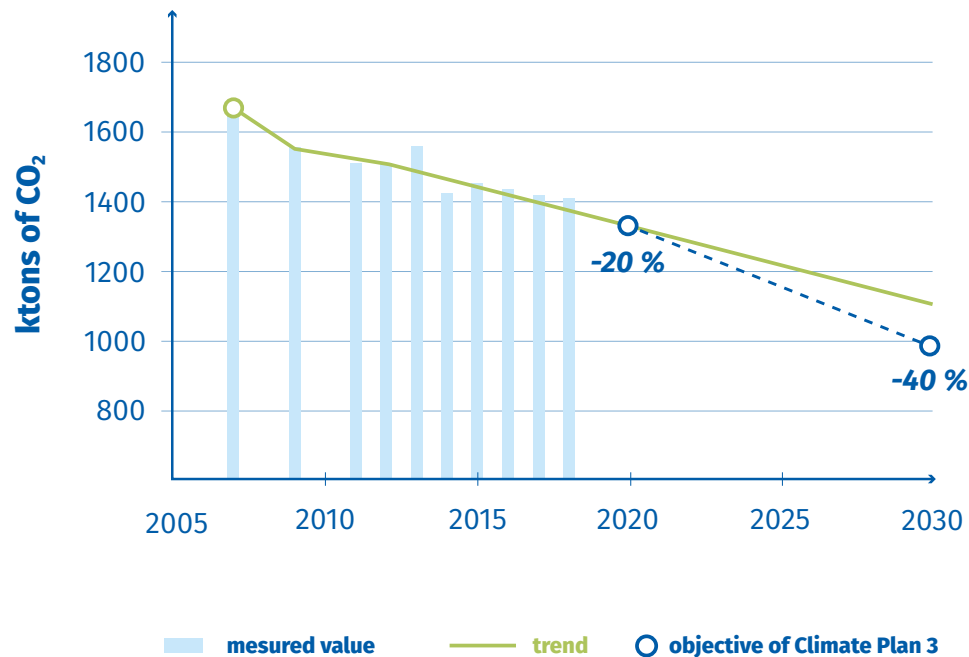
This climate plan is aimed at implementing the SDGs through concrete actions.

CO₂-emission per sector



03. Description of the current situation

Data concerning greenhouse gas emissions and the production of renewable energy are indispensable for framing climate policies, as they make it possible to determine what sectors and measures should be prioritised. Every year, the Flemish Institute for Technological Research (VITO) provides the basic data for Ghent's CO₂ emissions, complemented with local data sources (emissions from municipal buildings and fleet, public lighting, the IVAGO waste-to-energy plant and the Luminus district heating system).



A 16 % reduction in emissions

Emissions declined by 16.4 % in the 2007-2018 period. If we apply degree-day correction to the data to offset the effect of warm winters compared to cold winters in the calculations, we see a steeper decline. If all winters were equally cold, we would see a decrease of CO₂ emissions by 18.7 % in the same period. Finally, we also see a fairly strong downward trend per inhabitant, while Ghent's population grew by over 25,000 in the 2007-2018 period. This downward trend in the per capita emissions is good news.

However, it is insufficient to meet the objective of a 40 % reduction by 2030, which requires the additional efforts described in this plan.

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We are stepping up a gear



The CO₂ emissions included in the monitoring comprise four major categories

- 1. Transport** makes up the largest percentage, namely 38 %. Emissions from transport decreased by 12 % in the period from 2007 to 2018. Over half of these emissions come from motorway traffic. Emissions have remained stable on motorways and have experienced a limited decrease on local roads. The Flemish government has only included the changing vehicle mix from 2017 onwards in the update and no new vehicle kilometres. In the absence of data for 2017 and 2018, the total number of vehicle kilometres of 2016 is assumed to have remained unchanged in the subsequent years. As a result, the impact of the circulation plan has not yet been included in the data.
- 2. The tertiary sector** accounts for 28 % of Ghent's CO₂ emissions, a 17 % decline compared to the situation of 11 years ago.
- 3. Households** are the third most important category, accounting for 22 % of the emissions. The decline in emissions is most pronounced in this sector (-28 %), despite the increasing number of inhabitants.
- 4. The emissions from industry** excluding ETS amount to 11 % of the total. They declined by 24 % in the period from 2007 to 2018. The companies concerned do not fall under the European Union Emission Trading Scheme (see 'Heavy industry').

38 %



28 %



22 %



11 %



Renewable energy on schedule

In addition to the CO₂ emissions, VITO also monitors the production of renewable energy. The figures relating to renewable energy include the generation of electricity from wind turbines, solar panels and waste (biomass) incineration as well as the generation of heat from solar boilers and heat pumps. To concretise these figures, they are compared to the total energy demand of households (electricity and heating). This is called the 'self-sufficiency rate'. The ambition set by the previous climate plan was a self-sufficiency rate of 15 %. In 2018, the self-sufficiency rate increased significantly to 18.3 %, mainly thanks to the installation of new wind turbines in the port. There was also an increase in the number of photovoltaic solar panels (PV) and solar boilers. The preliminary data for 2019 point again to a strong growth in the photovoltaic solar panel segment. As a result, the intermediate objective has been met.

Food and circular economy

In addition to energy consumption, other types of behaviour also have a major impact on our CO₂ emissions and therefore on the climate: the materials we use in products and in construction, the meat, dairy or other food we consume and the waste we generate. Our behaviour also causes CO₂ emissions in other parts of the world. Over the past decade, we have acquired a great deal of expertise in the field of food. We are continuing on this path and focus on a new topic: the circular economy. By sharing, repairing and recycling used materials, we can help reduce our resource and energy consumption as well as our CO₂ emissions.

A boat powered by solar energy takes vegetables grown locally from De Goedinge in Afsnee to the centre of Ghent via the river the Leie.



**Direct CO₂ emission in Ghent
from burning fossil fuels**



**Indirect CO₂ emissions outside Ghent
from consumption by Ghentians**



Heavy industry

Ghent boasts several companies from energy-intensive industries: especially energy producers and steel, paper and cement production plants, which fall under the European Emissions Trading System (ETS), the cornerstone of the EU's policy to combat climate change. This key tool for reducing industrial greenhouse gas emissions enables companies to buy or sell emission allowances throughout the European Union. In terms of regulations and policy, there is little that local authorities can add to this. The emissions of ETS companies are therefore not included in the Covenant of Mayors. The City of Ghent nevertheless wants to focus on this aspect as well, for instance by acting as an energy broker to achieve the exchange of waste flows between major businesses. Within this context, the City has facilitated and promoted the reuse of residual heat from the Stora Enso paper mill, the IVAGO waste-to-energy plant and the Christeyns soap factory. Valuable heat that used to go to waste is now reused.

Climate change

The reduction of CO₂ and greenhouse gas emissions remains the principal measure to keep global warming to a minimum. The 2015 Paris Agreement is aimed at limiting global warming to 2°C and preferably to 1.5°C compared with the temperature in pre-industrial times.

The global temperature has already risen by 1°C. Due to climate change, we are confronted with higher temperatures and sea level rises as well as disrupted weather patterns, more extreme weather conditions and serious calamities. These effects are becoming more evident every day as heat waves, droughts, forest fires, floods, hurricanes, the melting of glaciers and the shrinking of the Arctic ice cap are regularly featured in the international press.

Thanks to its moderated climate, the weather conditions are generally less extreme in Flanders. However, the average annual temperature has already increased significantly in Flanders (+2.5°C since 1850) and the hottest years on record have all occurred recently. Tropical days ($\geq 30^\circ\text{C}$) and heat waves have been recorded more frequently in the last few years (on average 6 and 1 per year respectively), and the latter have become more intense (they last longer, 8 days on average, and are characterised by higher temperatures). The past years have seen record-breaking temperatures in Flanders, and the one-day record high of 39.7°C was registered in Uccle on 25 July 2019.

Average annual rainfall has increased, with wetter yet snowless winters, while thunderstorms have become more frequent and intense in summer. Large amounts of precipitation are produced in a very short time, while periods without precipitation are becoming longer. The last four summers were among the driest on record, and the precipitation shortfall increased consistently.



What do the climate scenarios predict?

- The average temperature may continue to rise by 2.2°C over the next 30 years and by as much as 7.2°C by 2100 if we do not succeed in drastically reducing greenhouse gas emissions.
- It is expected that more rain will fall in winter (an increase of up to 38 % by 2100), while summers will be drier (a decrease of up to 50 % by 2100). In this scenario, the number of summer days with rain will decrease, but rainfall will be more intense.
- It is possible that the rise in sea level will accelerate in the coming decades, reaching an average of 8 mm a year and totalling at least 80 cm by 2100.
- Increased precipitation in winter will lead to higher peak discharges and a higher frequency and intensity of floods.
 - The risk of rivers bursting their banks may increase by a factor of 5-10.
 - Average flood depths may increase by approximately 20 cm.
- Drier, hotter summers will go hand in hand with drought and water scarcity, which in turn may result in drinking water shortages, drying-out of nature areas and urban green spaces, yield losses in the agricultural sector, insufficient water depth for ships and water quality deterioration leading to fish mortality. Climate change will also have an impact on human health through heat waves, summer smog, hay fever and allergies, infectious diseases and polluted food and water.



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04



**INVOLVE EVERYONE
IN THE CLIMATE
TRANSITION**







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4.1. A social and equitable climate policy

The weakest members of our society are the most vulnerable to global warming. We wish to make households more resilient to energy price increases by supporting energy-saving measures. We wish everyone to have access to healthy and sustainable food. We wish to improve air quality, especially in the most vulnerable, polluted neighbourhoods. In addition to reducing CO₂ emissions and creating a better living environment, we also expect to make economic gains through job creation in sectors such as renovation, innovation and social economy.

Climate action is currently required in virtually all facets of life, from housing to mobility and food, but not everyone has the capacity to take such actions. The current municipal administration opts for an equitable climate policy. We try to involve everyone in our climate ambitions and pay particular attention to those in our society who struggle to make ends meet.



The fight against energy poverty therefore remains a priority, and we intend to increase our commitment and resources dedicated to this effort. The priorities listed below will be detailed further in the plan:

- The fight against energy poverty features prominently among the operations of De Energiecentrale. Basic housing quality for vulnerable households is integrated into the renovation support measures. More than ever, the focus will be on low-income home owners and tenants.
- A rolling climate fund will ensure that the investment's pre-financing threshold is eliminated. It will enable people with insufficient savings or who cannot get a loan to make use of subsidies.
- Just like in the previous term, the City takes the initiative to speed up the renovation of social housing units and enhance their energy efficiency. Ghent invests in energy efficient social housing through investment subsidies for renovation and new construction projects and also provides budget for energy studies.

Collectively providing more space for greenery and water, as detailed in the chapter on adaptation, also fosters a social climate policy and makes vulnerable neighbourhoods more resilient to the negative effects of climate change. We give primary consideration to hot spots or places where these effects will be felt first and where the social impact will be greatest.

At the same time, Ghent aims to be a healthy, green and accessible city. Mobility can only be really sustainable if the transport system functions well and is affordable, environmentally responsible, safe and equitable. That is why we are developing an action plan on transport poverty.



4.2. Climate policy beyond municipal boundaries

The targets set in this plan cannot be achieved without the support from the higher levels of government. In this climate plan, the City of Ghent conveys the optimistic message that we will gradually become a climate neutral and climate-proof city by further developing our actions to reduce energy consumption, combat energy poverty and promote renewable energy.

Intensive coordination and collaboration with the Flemish and Belgian governments is essential in order to exploit the full potential of our actions. Conversely, it also enables higher levels of government to accomplish real changes in practice as local governments are best placed to do so.

The Flemish government is our first point of contact when it comes to legislation. The current municipal administration is playing an incentive and facilitating role in almost every area of climate policy, which has its limitations, as a policy cannot be based on goodwill alone. We advocate ambitious targets and enforcement of the applicable legislation with the Flemish government. We will indicate possible practical bottlenecks in case the Flemish measures contravene our incentive policy.

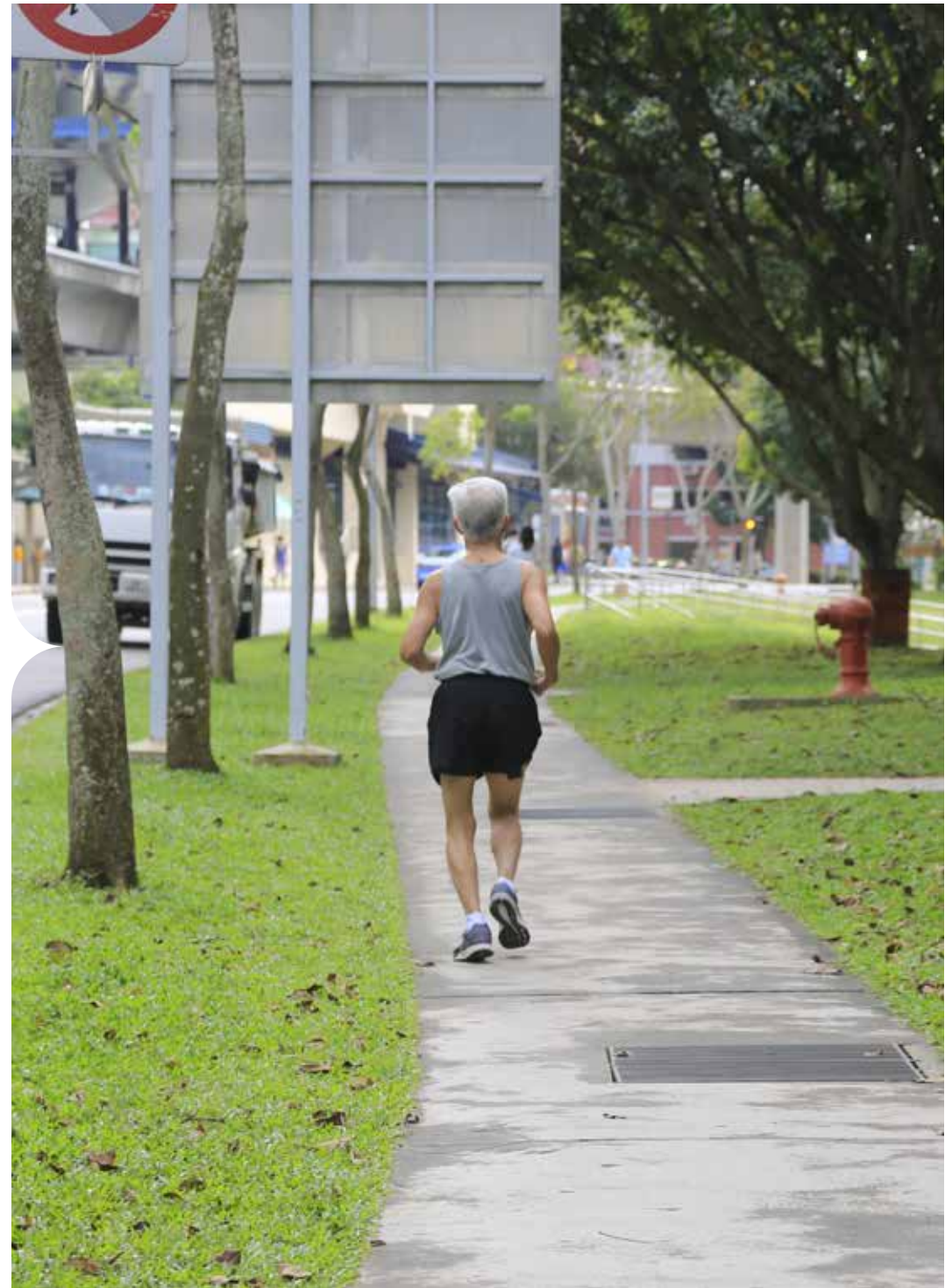
The Flemish government is also an important partner in terms of concrete actions and initiatives. In addition to their practical involvement in pilot projects, the further scale-up of such actions outside Ghent is important as well. Many actions have potential at a European or Flemish level or in another town or city. We make efforts to share lessons and best practices in our relations with the Flemish government, the climate actions of the Association of Flemish Cities and Towns (VVSG) or one-on-one relations with other government authorities.

The European Union plays a key role in steering and funding the climate policy, and will do so even more in the coming years. With its 'Green Deal', the European Commission aims to reduce the climate impact of all sectors, including energy, industry, food, mobility, infrastructure and buildings. The Commission also wishes to shape a sustainable transition by making use of all available tools: taxation, legislation, innovation, education and a considerable investment budget. The City will focus on the opportunities offered by InvestEU, the Innovation Fund (industrial innovation) and the Just Transition Scheme (transport and energy). We will also continue to rely on other European subsidy opportunities such as Horizon Europe, Interreg, LIFE and Elena. These funding channels are indispensable for the development of projects having an impact in partnership with companies, knowledge institutions and organisations.

4.3. An engaging climate policy

Of course, Ghent Climate City could not exist without its inhabitants and their innovative ideas, commitment and steady persistence. Since the City announced its commitment to achieve climate neutrality by 2050 for the first time in 2009, an unprecedented flow of ideas has been generated at transition forums and brainstorming sessions. Both large-scale and small-scale climate projects have been launched. Local residents, companies, schools and associations have worked in their own domain and in their own way on climate-proofing the city.

In the coming years, we will continue to invest in partnerships leading to a reduction in CO₂ emissions and more climate adaptation. A special focus will be on social fairness in our urban policy as to combatting energy poverty.





Action 1: Communication by Ghent Climate City

Ghent Climate City's general communication strategy is aimed at involving local residents in the ambition to become climate neutral and giving visibility to best practices developed by Gheentians.

Ghent is a pioneer in innovation thanks to citizens' initiatives such as advisory bodies, group purchases of solar panels and car sharing as well as companies leading the way in short-chain food or local energy cooperatives. We actively seek this kind of dynamism and seize the opportunity to put Gheentians who made a valuable contribution in the spotlight and support them with new tools.

The communication by Ghent Climate City should ensure that all Gheentians are aware of our ambition to keep Ghent liveable and make it climate neutral by 2050. In addition, we wish to inspire them to make their own lifestyle more sustainable and prepare for the future. To this end, we make use of Ghent Climate City's permanent digital channels (website, social media and newsletters) as well as printed materials (if required) and enter into a dialogue with local residents to keep our finger on the pulse, because working together makes us stronger.

Action 2: Support services

Gheentians are provided with workshops and expert advice to help them put their climate-friendly plans into practice without much hassle. Examples of such plans include working together with neighbours to make front yards greener, taking energy saving measures and creating a communal vegetable garden. These services are aimed at enabling residents to take swift action without excessive bureaucracy, paving the way for bigger actions and changes. They encompass all topics from this climate plan. Communication is crucial to involve local residents in this climate story, including hard-to-reach target groups.

While we are strongly convinced of the intention of Gheentians to act in a climate-friendly manner, we also believe that there are many obstacles that prevent them from doing so, such as a lack of financial resources, excessive bureaucracy in case of renovations and inadequate information. In spite of their good intentions, people often fail to act, which is all too human. Whether through nudging, changes in behaviour or choice architecture, we try to bridge the gap between intentions and actions. We have learnt from our experience with De Energiecentrale that this approach works. The provision of easily accessible workshops and expert advice should facilitate taking action as much as possible. This is a stepping stone to a wider range of services to help local residents, schools and associations prepare more large-scale interventions or a structural policy.

Action 3: Competition for innovative projects

Any good idea that contributes to solving the climate problems Ghent faces deserves our attention and a budget to start up a project. Twice during this term, we will organise a competition to look for innovative ideas that require support and have a high potential to reduce CO₂ emissions or accelerate climate-proofing the city.

Ghent Climate City promotes experimentation. By organising a competition, we aim to activate the innovative character of Gheentians. We wish to help put ideas into practice that go one step further and have sufficient potential.

Action 4: Climate event

We regularly bring together Ghentians who take action to combat climate change. In 2022, we will once again organise a festival within the scope of Ghent Climate City.

In 2018, we organised an event called 'Gent aan Zee' (Ghent by the sea) for all enthusiastic local residents who take climate action. The event was very inspiring and motivating, as shown by the high turnout and positive response. Our aim is to continue along the same lines.

Action 5: Climate arena

Every year, the Climate Arena enables young people from Ghent to ask questions about our policy's climate ambition and formulate their own proposals.

It is clear that the future belongs to our children, and they make this clear themselves as well. We wish to involve children and young people in our ambition to become climate neutral by organising participation sessions. We will also inform them through educational activities.

Action 6: Educational activities

There is a range of educational activities with regard to climate for primary and secondary schools which include accessible workshops that can be booked easily and long-term structural assistance.





05



ENERGY EFFICIENT HOUSING







5.1. Objective

In 2018, about one quarter of Ghent's CO₂ emissions came from homes. Reducing the energy consumption of homes therefore remains a crucial factor for the achievement of our climate ambitions. Only 19 % of Ghent homes are equipped with energy efficient roof insulation, glazing and heating. This means that 81 % of homes still require taking 1 or several basic steps, ranging from relatively small interventions such as installing insulation or replacing a central heating boiler to major renovations.

Making homes in Ghent more energy efficient therefore continues to be a priority, with a focus on three basic interventions: roof insulation, insulating glass and efficient heating. We make this possible for a greater number of Ghentians by providing assistance with customised services via De Energiecentrale (Ghent's one-stop-shop for Energy Renovations) ranging from once-only renovation advice, renovation consulting before and during works and financial support to neighbourhood renovations and collective projects. It is our ambition to draw up an individual step-by-step plan for Ghent homes which specifies how to reduce energy consumption and meet the remaining energy demand by means of renewable energy.

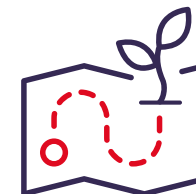
This goal can only be attained if we succeed in redoubling our current efforts during this term.

And that specifically means doubling the renovation advice, doubling the renovation consulting, doubling the number of flats we provide assistance to with and doubling the number of social housing units we make more energy efficient.

This will ensure that Ghent households will have reduced their energy consumption by 15 % in 2025 and by 30 % in 2030.



5.2. State of affairs



Promoting and assisting interventions to increase energy efficiency in existing and new Ghent homes

During the previous term, De Energiecentrale was established as a one-stop-shop for advice and consulting on increasing the energy efficiency of private homes on the property market. De Energiecentrale is a partnership between the Environmental and Climate Service and REGent vzw, assuming the role of Flemish Energy Counter for Ghentians.

The activities of De Energiecentrale are characterised by a customer-friendly approach to Ghentians. The choices made by home owners are supported and facilitated at crucial moments. The focus is on eliminating any concerns caused by increasing the energy efficiency of homes. The personal approach is key to providing appropriate service: Ghentians can choose from a range of services tailored to the state of their home, the available budget and time as well as the know-how to organise a renovation. On the basis of behavioural science and growing insight, De Energiecentrale's approach is continuously refined and adjusted to minimise thresholds.

De Energiecentrale...

- provides customised advice resulting in a long-term step-by-step plan tailored to homes and people's budget.
- consults on increasing energy efficiency insofar as necessary: finding contractors, drawing up a good invitation to tender, providing advice when tenders are compared, planning and monitoring the works.
- makes energy efficient renovation affordable to as many Ghentians as possible by helping them make use of the full range of financial support options offered by the City of Ghent as well as by other government authorities.
- promotes and supports collective renovations.



Since the creation of De Energiecentrale in 2014, its range of services has steadily expanded, and it currently provides an average of 1,000 pieces of customised advice and 400 renovation consultations a year. The focus of its activities has been on the energy efficient renovation of existing homes. Particular attention has been paid to reaching landlords and owners with limited income.

Between 2014 and 2019, De Energiecentrale's approach resulted in € 30 million of investments in Ghent homes, creating 660 new jobs in the construction sector. Thanks to these interventions, an annual total of € 1,220,000 was saved on energy bills, equivalent to 5,800 tons of CO₂ emissions a year.

In addition, many Ghentians have made their homes more energy efficient by themselves with or without De Energiecentrale's advice. Over the last decade, we have thus reduced energy consumption by 16 % and CO₂ emissions by 27.6 %.

In the past 5 years, over **10.000 Ghentians** have been reached.



5005

RECOMMENDATIONS



2111

CONSULTATIONS



4510

ENERGY SCANS



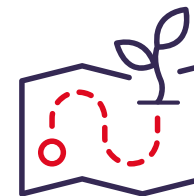
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**ENERGY
SUBSIDIES**



852

ENERGY LOANS



Prevent energy poverty

As energy pertains to people's basic needs, energy poverty is a growing concern. The costs of energy consumption take up an ever larger chunk of the family budget, and not just because of rising energy prices. In vulnerable households, energy bills are often higher than usual due to poorly insulated homes and domestic appliances that consume a great deal of energy.

The City of Ghent wishes to enable vulnerable households as much as possible to deal with high energy prices. Over the past 6 years, De Energiecentrale has worked together with the Public Centre for Social Welfare (PCSW) of Ghent to develop a two-track approach for supporting vulnerable households in lowering their energy bill:

- Promoting energy efficient behaviour by means of energy scans and subsidies for energy-saving appliances among tenants and owners who lack the financial resources for renovation.
- Promoting and supporting basic renovations to increase energy efficiency (roof insulation, insulating windows and safe, energy efficient heating) by means of higher energy subsidies and customised renovation consulting.
- The pilot project 'Dampoort Knapt Op' resulted in the accumulation of experience regarding renovation among low-income home owners and in substantial energy savings.

A total of 1,303 energy scans and 808 consultations were performed among the vulnerable target group. 69 % of the subsidy budget was granted to Ghentians with limited income. One of the criteria to define the target group in 2020 was the limit of € 37,430 for single-person households without dependent children and € 49,190 for married couples without dependent children.

In addition, investments were made to make social housing units more energy efficient. Thanks to investment subsidies, the energy efficiency of 267 social housing units was increased. By financing energy studies, the level of ambition was increased in the renovation of 2,216 homes.



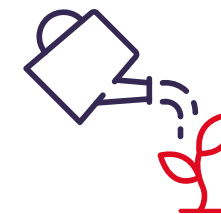
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5.3. Actions

Promoting and assisting interventions to increase energy efficiency in existing and new Ghent homes

To fulfil the ambition of reducing energy consumption by 30 % by 2030, we need to at least redouble our current efforts. We also need to address several thresholds, including basic housing quality issues, financial thresholds and inadequate knowledge of and confidence in renewable energy technologies. We also need to scale up our efforts for collective renovations, in particular in case of flats, so as to increase the renovation rate. The activities will be expanded to include new builds and thorough renovations, with a particular focus on renewable energy technologies for heating and hot water, as these homes will be the first to take the step towards fossil-fuel-free heating.



Action 7: Expansion of the activities of De Energiecentrale

The activities of De Energiecentrale will be considerably expanded to make the required scale-up possible. Additional operating budget will be earmarked and extra staff will be deployed for this purpose. In addition to continuing its regular activities, De Energiecentrale will invest in the provision of new services in the next 6 years:



- **INTEGRATION OF BASIC HOUSING QUALITY:** electricity, structural dampness and inadequate sanitary facilities hinder energy-saving interventions. The renovation consulting by De Energiecentrale integrates the monitoring of basic housing quality measures if required for energy-saving renovations in case of owners and/or occupants with limited income.
- **EXPANSION OF THE ACTIVITIES WITH REGARD TO FLATS:** making flats more energy efficient is often complex and requires a distinct approach. The activities aimed at associations of co-owners and property managers will be expanded. We wish to increase the number of renovated rental flats on the basis of a mix of owners / occupants and owners / landlords of blocks of flats.
- **TOWARDS NON-GAS HEATING:** increase the quantity of advice and consulting concerning thorough insulation and renewable energy technologies so as to prepare a greater number of homes for non-gas heating. For this aspect, we target not just existing homes, but expand the advice provided by De Energiecentrale to new residential buildings and thorough renovations.
- **TARGETED SUPPORT OF DECISION-MAKING BEHAVIOUR:** strengthen De Energiecentrale's regular activities so as to align its services to customers' decision-making behaviour. Behavioural research and permanent evaluations of the existing services are conducted with a view to adjusting the range of services in order to lower the thresholds for Ghentians. In addition to the elimination of technical concerns, renovation consultants also take care of the administrative procedures, if desired.

Action 8: A rolling climate fund will make energy-saving renovations attainable for more Ghentians

Financial thresholds continue to be the principal factor in delaying energy-saving renovations. The available subsidies can be an additional incentive, but are often insufficient. Since the subsidies are only paid after completion of the work, there may be a financial threshold for people who have difficulty advancing the costs of the investment or getting a loan from a bank. The existing energy loan partly solves this problem. However, the maximum amount of the loan (€ 15,000) is too low for those who need to prefinance several interventions while a perceptible decrease in energy bills (and therefore a shorter time needed to recover the investment) can in many cases only be realised by combining two or more energy-saving interventions.

“ Thorough renovation with low-cost energy loans

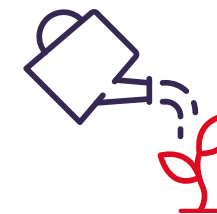
For this reason, the financial support will be gradually adjusted:

- Subsidies for energy-saving measures and the (Ghent) energy loan continue to exist in 2020.
- In addition, a rolling fund for home renovation is set up.

With this fund, we offer loans with a longer repayment term and at a low interest rate (0 % for the vulnerable target group) to renovating Ghentians. These loans not only solve the (pre)financing problem but also make it possible to carry out more significant renovations, making the decrease in energy bills immediately perceptible. The available Flemish subsidies are immediately used for partly paying back the loan, so that monthly instalments can be lowered.

For this purpose, the City is making capital available that will flow back to the fund. Via the European FALCO project, we are exploring the possibility of supplementing the fund with resources from the European Investment Bank (EIB). The instalments make it possible to keep on supporting new renovations. This support should address the financial thresholds faced by home owners and landlords.

The rolling fund is aimed at home owners who have some repayment capacity. The most vulnerable home owners who have no financial margin for renovations after purchasing a property are helped by means of ‘Gent Knapt Op’. This subsidy retention scheme is discussed in detail in the Housing policy note.



Action 9: Raising awareness about and promoting energy-saving renovations

Permanent communication is key if we wish to increase the number of energy-saving renovations. Communication campaigns need to raise awareness about existing and new services provided by De Energiecentrale and convince Ghentians of the fact that energy-saving renovations are not only required but also desirable and feasible.

Since De Energiecentrale offers a wide range of services, these campaigns are tailored to the needs of various target groups in the private housing market (owners / occupants or owners / landlords, collectives, construction professionals, etc.), the state of the property (basic interventions, thorough insulation, non-gas heating, etc.) and the socio-economic situation of individual Ghentians (in partnership with intermediary organisations).

The online tools constituting a first step in informing and engaging Ghentians will be kept up-to-date and expanded if required: a website, Check Je Huis, a heat picture and a solar map.

Action 10: Energetic condition of homes

We monitor the progress of energy-saving renovations. In 2017, a total of 1,200 Ghent homes were screened by an energy expert. We will repeat this screening in 2022.

Action 11: Support of collective renovation initiatives

We are scaling up the neighbourhood-specific approach and support new initiatives to increase the number of collective renovations (also refer to the chapter on renewable energy).

- The Wijkwerf project will be continued for at least two years within the scope of the European LIFE/BEreel project.
- Living room sessions with regard to energy-saving renovations are supported and facilitated.
- De Energiecentrale acts as BENOvatiecoach or “better renovation coach” (Fluvius) for Ghent. If feasible, De Energiecentrale will support new initiatives by third parties aimed at boosting collective renovations by making its expertise and services available.

Actie 12: Renovation of valuable buildings to increase their energy efficiency (Filip Watteeuw, Deputy Major for Urban Planning)

A specific vision and approach is required to make valuable buildings CO₂ neutral while preserving their heritage value. To this end, the Monument Conservation and Urban Archeology Department will conduct an extensive study of Ghent working-class houses. On the basis of the results of this study, De Energiecentrale will assist occupants and owners of valuable buildings in making energy saving renovations with respect for historical heritage. The advisers will check whether the building is (partly) listed and, if required, assist the owner in applying for the appropriate permits and choosing the best solution. More broadly speaking, the City of Ghent and in particular the Monument Conservation and Urban Archeology Department try to find solutions to the problem of reconciling monument and heritage conservation with making buildings more sustainable and energy efficient.

Combating energy poverty

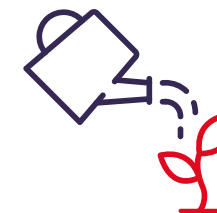
Inhabitants of cities like Ghent are particularly prone to energy poverty due to the rapidly rising housing costs (rent and real estate prices). In addition, cities have more tenants, people from the lowest income groups and single-person households – the groups most at risk of energy poverty.

Energy-saving renovations are a necessity in numerous buildings so as to ensure a future-proof solution. This is no easy task for people who have to make do with a limited budget, and in addition, numerous other

thresholds (lack of technical know-how, limited social network, language barriers, health issues, etc.) make it difficult to deal with the organisation and administration of a renovation.

In order to achieve our objective of pursuing a social climate policy, we will work together with stakeholders and target groups to develop indicators for policy evaluation and adjustment over the coming years.





Action 13: Increased and more intensive consulting for low-income home owners (together with Rudy Coddens, Deputy Major of Social Policy)

De Energiecentrale promotes sustainable renovation by low-income home owners via the 'Gent Knapt Op' project. For low-income home owners and tenants who do not qualify for 'Gent Knapt Op', a customised financial solution via the rolling fund and an organisational solution for necessary renovations are found. The integration of basic housing quality renovations is an important step in the process. Other projects have shown that assistance with more administrative follow-up and attention for participants' psychosocial situation is important to prevent them from dropping out. That is why further efforts are made to eliminate concerns: the organisational burden and administrative follow-up are taken care of by the Woonwijzer consultants in close cooperation with De Energiecentrale renovation consultants. These consultants also pay sufficient attention to the preconditions making an energy saving renovation feasible in various circumstances. Within this scope, De Energiecentrale collaborates closely with the PCSW and the Housing Department.



Action 14: Energy efficient flats and rented homes

De Energiecentrale provides advice tailored to the need of every home, including rented homes. 70 % of rented homes in Ghent are flats, and we encourage landlords to undertake energy-saving renovations with the assistance of the association of co-owners. De Energiecentrale has greatly increased its efforts with regard to flats. Various options have been looked into to encourage renovation by small-scale landlords. Financial incentives have been explored with a view to ensuring that part of this support results in lower energy bills for the tenant.

Renovation advice is provided upon intake for homes that are put up for rent via HuurlnGent or SVK. We encourage owners / landlords to go beyond the minimum energy requirements set out in the Flemish Housing Code and offer a concrete technical and financial step-by-step plan to achieve their objectives.

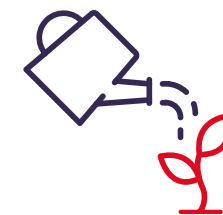
Action 15: Energy efficient social housing

Just like in the previous term, the City takes the initiative to speed up the renovation of social housing units and enhance their energy efficiency.

- Ghent invests in energy efficient social housing through investment subsidies for renovation and new construction projects and also provides a budget for energy studies. The measures taken should be sufficiently ambitious and form part of a step-by-step plan to achieve climate neutrality by 2050.
- We are investigating how to make better use of the new Flemish subsidies to promote renovations in homes rented out by a social lettings agency.
- Sharing experience: we develop a network for the exchange of user experience between social housing associations.
- In the Interreg project INDU ZERO, the City and Ghent University have explored accelerating renovation by means of prefabrication techniques.

All social housing associations in Ghent are participating in the project to make Ghent climate neutral by 2050. Some social housing associations still focus on basic interventions such as façade insulation in existing homes and will install heat pumps later on. Other social housing associations are planning the installation of heat pumps, underfloor heating and solar panels in new builds and renovated buildings. And some are experimenting with prefabrication and shallow geothermal systems.

- De Volkshaard is planning to carry out a 2050-proof total renovation for 59 homes in Mariakerke. Façade insulation will be installed in other buildings.
- De Gentse Haard has planned a new-build project in Oostakker consisting of 25 housing units with underfloor heating and heat pumps.
- Habitare+ is investing in façade insulation for 68 homes.
- ABC has planned building 43 CO₂-neutral homes with the support of the City. A new-build project with a shallow geothermal system and gas heat pump in Sassevaartstraat will be monitored by the City so that lessons can be learnt from it.
- WoninGent also focuses strongly on sustainable energy technologies with heat pumps being installed in Nieuw Gent. WoninGent has planned a prefab renovation of 18 existing homes in cooperation with Ghent University. Buildings are insulated with prefabricated construction elements such as a ready-made façade or roof surface. These large elements are transported to the construction site and mounted there. This approach has a number of advantages: the occupants do not have to move, the renovation takes place quickly, nuisance is kept to a minimum and the cost of renovation is lower. In total, WoninGent will make 354 homes more energetically sustainable with the support of the City of Ghent.



Action 16: Targeted actions to combat energy poverty (together with Rudy Coddens, Deputy Major of Social Policy & Poverty Counteraction)

Together with the Housing Department and De Energiecentrale, we take preventive measures to make homes more energy efficient and thus reduce the energy costs. The energy service of the Social Department refers households to De Energiecentrale for an energy scan to determine what energy saving measures can be taken (domestic appliances, lighting, heating, insulation and energy efficient behaviour).



5.4. Summary



Over the past few years, many Ghentians have succeeded in reducing their energy consumption. This process has been accelerated by the successful actions taken by De Energiecentrale to eliminate the concerns of the people in question. In the coming years, we will expand these activities further so that we can facilitate energy-saving renovations for any home: we will integrate basic housing quality as a prerequisite for energy-saving renovations, scale up the activities tailored to flats and pave the way for non-gas heating by expanding the advice to new builds and thorough renovation. Just like in the previous years, we will strongly focus on lowering any possible thresholds by aligning the relevant services to the decision-making behaviour of Ghentians who undertake renovations.

We continue to facilitate energy-saving renovations and make them affordable to as many Ghentians as possible. To this end, we have set up a rolling fund that grants loans at a low interest rate and with a longer repayment term to renovating Ghentians.

Finally, permanent communication and online tools ensure that all Ghentians are encouraged to renovate their home. In addition to this personal approach towards home owners, we also focus on large-scale projects: we support initiatives for collective renovations and offer alternative sustainable options for major project developments.



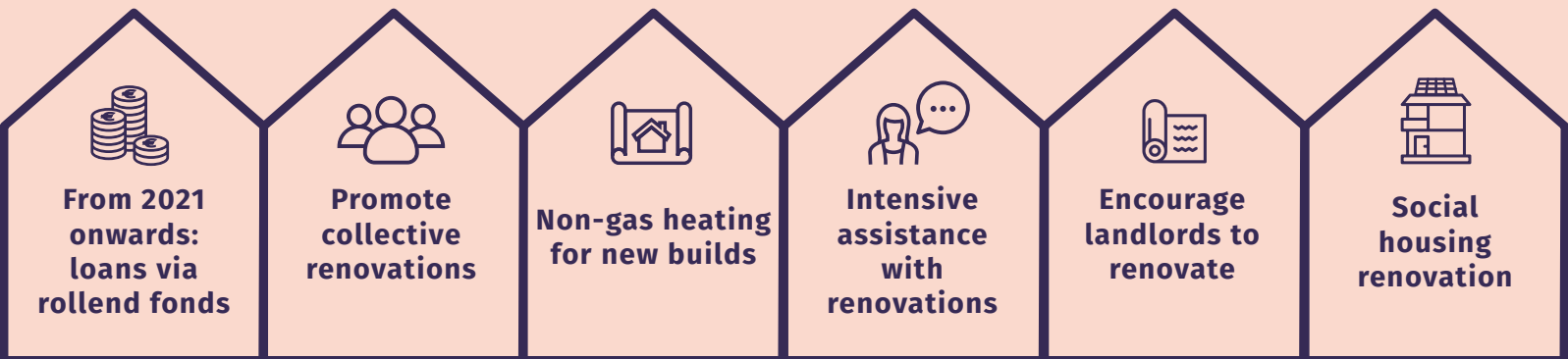
INCREASE IN EFFORTS



REDUCING THE ENERGY CONSUMPTION OF GHENT HOMES BY 30 % IN 2030

COMBATTING ENERGY POVERTY

DE ENERGIE-CENTRALE = ONE STOPSHOP FOR ENERGY SAVING RENOVATIONS



HELPING GHENTIANs



06

RENEWABLE ENERGY

solar, wind and non-gas heating



© Amaury Henderick



6.1. Objective

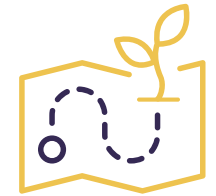
Energy efficiency alone is insufficient to achieve the objective of a 40 % reduction in CO₂ emissions by 2030. An increase in the local production of renewable energy is crucial as well. If we systematically reduce the consumption of fossil fuels, we need to develop alternatives simultaneously. We therefore maximise the available amount of renewable energy from the sun, soil, wind and waste flows. We support innovation in sustainable alternative fuels and help develop heat and steam networks wherever this is useful. At neighbourhood level, we try to bring about a revolution in heating by systematically reducing the use of fossil fuels. New builds and renovations with a sufficiently reduced energy demand are promoted and supported so as to facilitate the transition to non-gas heating.

We wish half of the household energy demand to be satisfied by locally produced renewable energy by 2030:

- We aim at **doubling the number of solar panels by 2025**.
- By 2030, a wind energy capacity of approximately 30 wind turbines will be realised, mainly in the port, by installing new wind turbines and replacing existing ones.
- Ghent aims to **create neighbourhoods with non-gas heating by 2050**.
- The existing district **heating systems** will be **expanded and made more sustainable**.



6.2. State of affairs

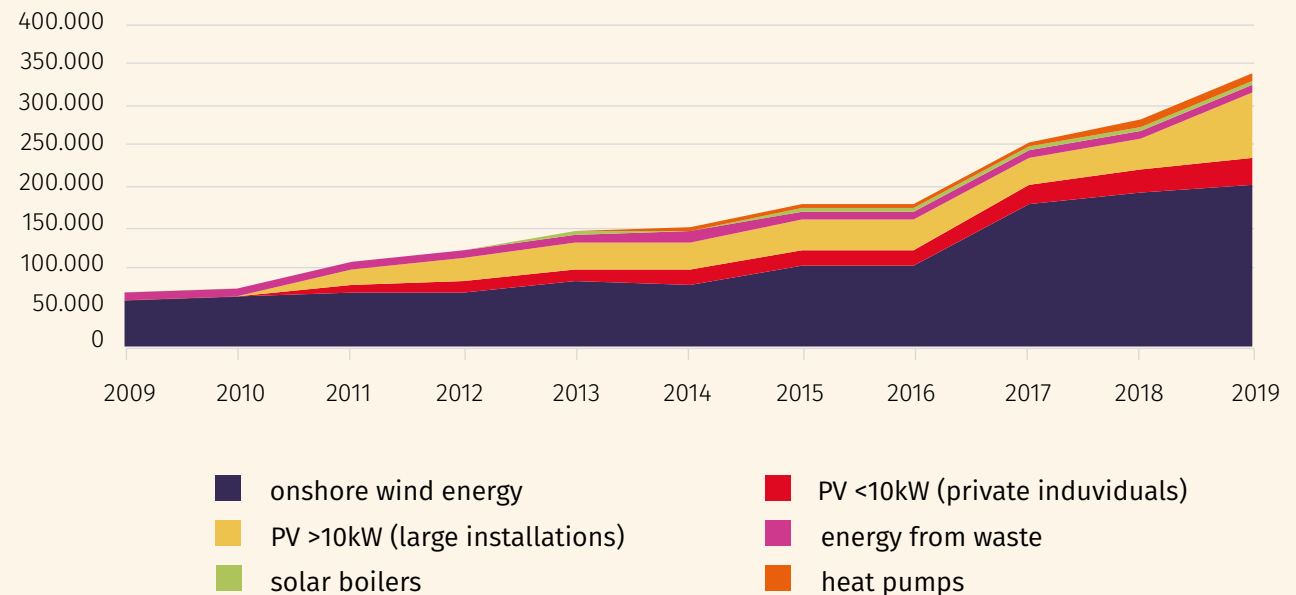


Over the past few years, the production of renewable energy has increased significantly. The table above shows the figures generated by VITO within the scope of CO₂ monitoring. An estimate was made for 2019.

- The figures indicate a strong growth of wind energy production with newly built turbines numbering 14 in 2017, 3 in 2018 and 2 in 2019 respectively.
- The figures demonstrate that Ghent households and companies once again invested strongly in solar panels after a low point in 2013. In 2019, no less than 18.7 MW of additional solar panel capacity was installed, which exceeds the capacity installed between 2013 and 2018. A striking trend is the increase in the number of large installations.

The table also shows smaller volumes of renewable energy such as green electricity generation in the IVAGO waste-to-energy plant.

PRODUCTION OF RENEWABLE ENERGY IN GHEENT



Finally, the table represents the estimated production of hot water from solar boilers and the transfer of energy by heat pumps. Heat pumps are used for heating a home in winter, cooling a home in summer and producing hot water without consuming any gas, and are therefore an excellent alternative for fossil fuels in combination with solar panels. A good heat pump uses only one unit of electricity to transfer four units of heat to a home. The three other units of heat are extracted from the immediate environment (the ground or the air, depending on the type of heat pump).

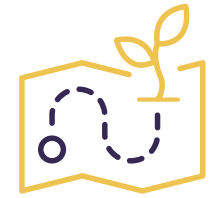
Ghentians who wish to take steps towards non-gas heating can rely on De Energiecentrale for advice and consulting on renovations. Ghent businesses can make use of energy coaching. Those who wish to install solar panels are referred to collective initiatives such as ‘Gent zonnestad’ or group purchases by the Province of East Flanders.

In Sint Amandsberg-Dampoort, the pilot project ‘Buurzame Stroom’ was launched to determine the best way to generate as much solar energy as possible at neighbourhood level. This project resulted in a doubling of the number of PV installations in that area and provided insight into the possibilities of social solar panel initiatives. Energy subsidies for heat pumps, underfloor heating and hybrid systems provided an additional financial incentive for the transition to renewable energy sources. For the installation of solar panels, Ghentians could take out an energy loan at a low interest rate.

A technical and behavioural study was conducted in the pilot neighbourhood of Muide Meulestede to prepare for the transition to non-gas heating. In addition to the energy technology scenarios, the thresholds for contractors, landlords and owners / occupants were assessed as well. The results of this study are the starting point for a concrete transition plan for this neighbourhood and other ones.

The City played a facilitating and/or coordinating role in some projects, such as the cohousing project Bijgaardehof and Wintercircus, with resources being provided for geothermal energy storage, a technique in which a heat pump extracts heat from the soil.

“
Non-fossil fuel heating is the main challenge



Ghent has three existing district heating systems and one system under construction. The primary reason for constructing a district heating system is the availability of residual heat or another important source of renewable energy. So far, the City of Ghent has already assumed various roles to map the potential for district heating and promote business cases:

Underneath Wintercircuit is a borehole energy storage field, with pipes that have been installed at depths of up to 150 metres underneath the ground and that heat and cool the building with heat extracted from the ground.



© Stad Gent sogent

- The conclusions of a climate study group concerning the recovery of waste, water and heat have contributed to the quest for a private partner for the development of Schipperskaai. This has resulted in the ZAWENT project (zero waste water with recovery of energy and nutrients) in which the new development is heated by means of recovered waste flows supplemented with residual heat from the neighbouring company Christeyns.
- In 2016, North Sea Port facilitated the supply of residual heat from Stora Enso to Volvo via a heat pipeline beneath the Ghent-Terneuzen canal.
- Thanks to the European project DOEN, we have conducted a study on IVAGO and the opportunities of a district heating system fed by extra residual heat. The DOEN project also makes it possible to map the potential for ArcelorMittal in partnership with the Province of East Flanders.

6.3. Actions

We aim at doubling the number of solar panels by 2025

Action 17: Solar map update

The solar map will be updated and integrated into the new version of 'Check je huis'. Continuous communication will ensure that every Ghentian is aware of the suitability of their roof for solar panels.

Action 18: Advice and consulting on the installation of solar panels

The consultants of De Energiecentrale investigate and promote the installation of solar panels at each home visit. Ghentians who are interested are referred to external initiatives such as 'Gent Zonnestad' or group purchases by the Province of East Flanders.

Action 19: Energy loans for the installation of solar panels

To prefinance a solar installation, Ghentians can make use of an energy loan from a rolling climate fund through De Energiecentrale.

Action 20: Continuation and expansion of Buurzame Stroom

The Buurzame Stroom consortium will be continued and possibly expanded with new partners. It facilitates the launch of projects involving the control and storage of renewable energy and the monitoring of individual projects implemented by partners. In addition, the consortium also serves as a knowledge and lobby group. The City of Ghent will continue to be a partner in this consortium which sets up and promotes new experiments.

Action 21: Investments in renewable energy by companies and organisations (together with Sofie Bracke, Deputy Mayor of Economy)

Energy coaching advises and assists both companies and organisations in taking steps towards climate neutrality and investing in renewable energy. The publication of the offer is included in the activities of the Centre for Entrepreneurial Support (Ondersteuningspunt Ondernemers Gent – OOG). OOG is the central point of contact for entrepreneurs in Ghent.



Action 22: Buildings of Groep Gent (Annelies Storms, Deputy Mayor of Facility Management, together with Sofie Bracke, Deputy Mayor of Economy and Sami Souguir, Deputy Mayor of Urban Development)

It is Groep Gent's ambition to generate 30 % of the city's electricity consumption through solar panels by 2025. The required solar panel capacity will be developed by investing in installations and by collaborating with cooperations and energy holdings to set up a participative project.



To realise the wind-energy potential, approximately 30 wind turbines will be installed, mainly in the port

Action 23: Wind turbine at Tech Lane Gent – Eiland Zwijnaarde (together with Sofie Bracke, Deputy Mayor of Economy)

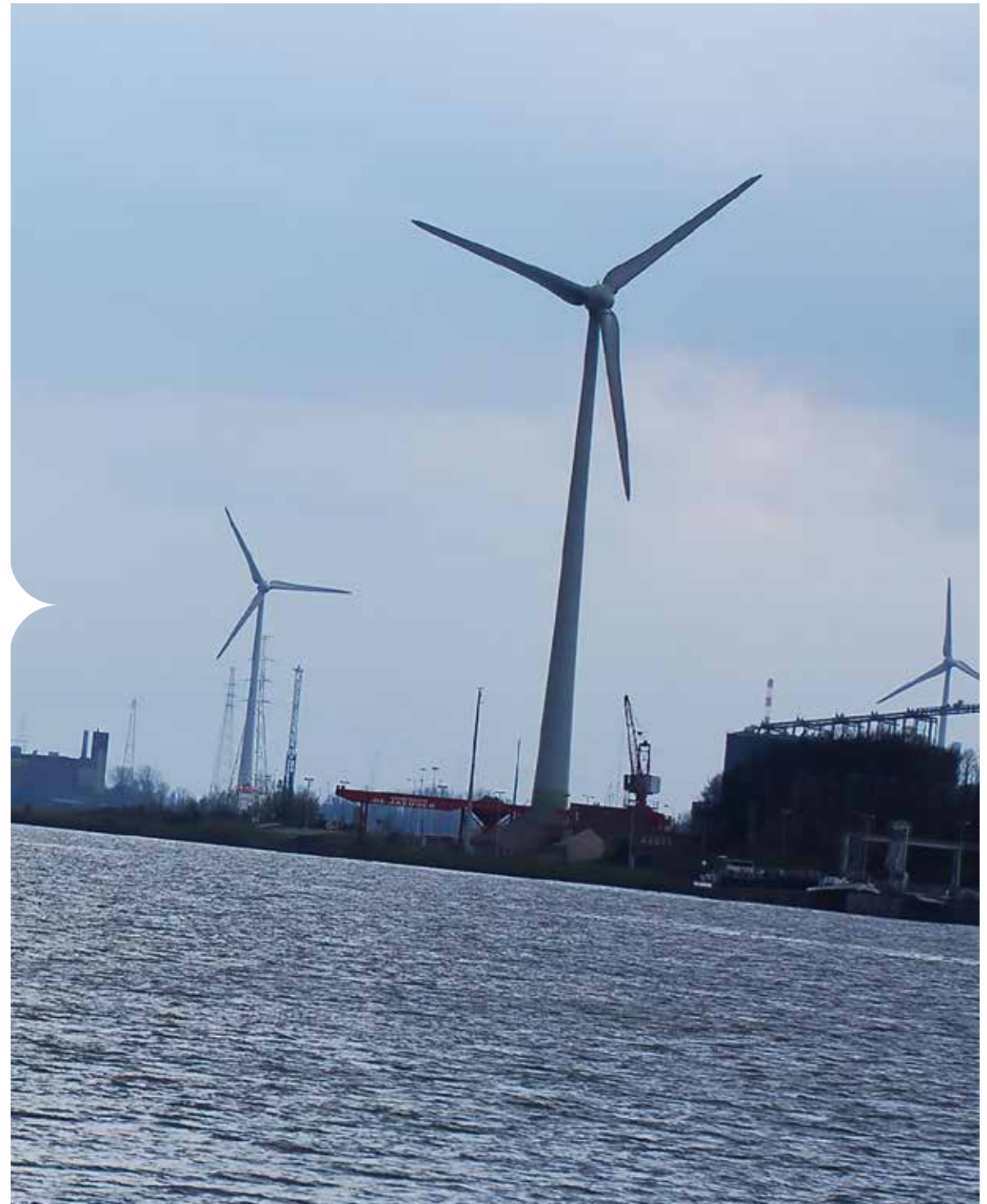
In the southern part of Tech Lane Gent – Eiland Zwijnaarde, in which the City is a partner via SOGent, we wish to participate in the construction of a wind turbine. The City strongly focuses on citizen participation in the funding of this project to ensure that citizens share in the proceeds from the wind turbine. In addition, the City of Ghent wants to use part of the proceeds from the wind turbine to finance a fund for energy loans and subsidies. This way, all Ghentians will participate in the profit from the wind turbine, including groups who lack the financial resources to invest in wind or solar energy.

Action 24: Windwerkgroep Gentse Kanaalzone
(together with Sofie Bracke, Deputy Mayor of the Port,
Filip Watteeuw, Deputy Major of Urban Planning and
Sami Souguir, Deputy Major of Urban Development)

Within Windwerkgroep Gentse Kanaalzone, we work on broadening the support for the installation of new turbines and involving local residents and companies in freeing up the potential for wind energy in Ghent, which is greatest in the port. This way, the City of Ghent aims to contribute to a broadly supported vision of wind energy development in and around the canal zone and to facilitate new wind energy projects.

Action 25: Small-scale wind energy
(together with Filip Watteeuw, Deputy Major of Urban
Planning)

The City wishes to gain insight into the opportunities for small and medium-scale wind energy developments. Ghent is aware that it is currently difficult to make these systems profitable and continues to monitor developments in this area so as to estimate when the business case could turn around. By taking part in the Flemish PIO Wind project, the City aims to acquire knowledge about the evolution and implementability of this technology. Together with relevant partners, we are mapping the opportunities for small and medium-scale wind energy developments and investigate whether a pilot project is worthwhile.



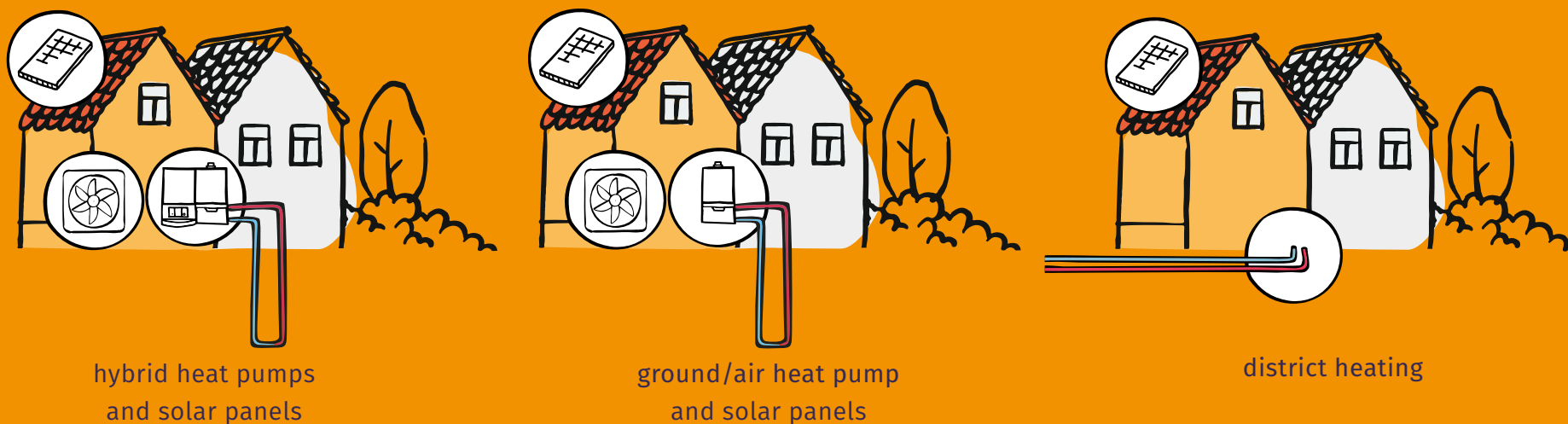


Ghent aims to create neighbourhoods with non-gas heating by 2050

By 2050, we want to have made the transition from gas to 100 % renewable energy for heating and cooking. In order to achieve this ambition, we need to begin our efforts right away, especially since many investments, such as those in domestic heating, only take place once every 20 or 30 years. There is no time to lose. Per neighbourhood, street or home type, we will determine what non-gas solution is best suited and how the City can support all residents of the neighbourhood in question in the switchover to non-gas heating.

My home and I are ready!

Has your home been insulated and have you already taken the first steps towards non-gas heating? Well done! There are options to make your home even greener.



Action 26: Raising awareness and informing

Since the knowledge of and the confidence in renewable energy technology is still insufficient, permanent communication is required to inform Ghentians about rapidly evolving techniques such as heat pumps, hybrid systems and the possibilities for connection to a district heating system.

Action 27: Ghent heat map

The Ghent heat map indicating the most suitable heating system for each home will be integrated into the updated version of 'Check je huis' and will support the advice provided by De Energiecentrale.

Action 28: Step-by-step plan to deliver renewable energy to every home

De Energiecentrale provides advice and assistance with regard to the transition to non-gas heating. The consultants from De Energiecentrale will further develop their expertise in renewable energy systems over the coming years. We primarily focus on new builds and thorough energy-saving renovations. The registration fee reduction is an additional incentive in this respect. We encourage switching to a non-gas alternative in case of homes that have already sufficiently reduced their energy consumption, which in most cases is a heat pump, collectively owned if possible.

Action 29: Energy loans from the rolling fund to make investment in renewable energy affordable

Energy loans from the rolling fund are, inter alia, used to enable a greater number of Ghentians to invest in green heating systems. In addition to the subsidies currently made available by Fluvius and the registration fee reduction, we hope these loans will be a sufficient financial incentive to convince Ghentians who are still in doubt.

Action 30: The facilitation of local energy communities

The European Union creates space to give small energy producers the same rights as bigger players if they unite into a local energy community. The relevant European legislation is currently being translated into Flemish legislation. The City of Ghent wishes to facilitate the creation and development of such local energy communities and sees opportunities in collective installations such as solar panels on large roofs.



Action 31: The pilot project ‘Muide-Meulestede+Mariakerke fossielvrij’

Muide-Meulestede and Mariakerke serve as pilot neighbourhoods for the transition to non-gas heating. We will launch a transition plan for these neighbourhoods. A concrete action plan will go beyond a technical energy scenario. The recommendations from the behavioural study will be converted into concrete actions. We will draw up a plan to eliminate the thresholds faced by residents, landlords and contractors as much as possible. This approach will be refined and further developed for other neighbourhoods on the basis of growing insight.



Action 32: Non-gas heating for larger new construction projects (together with Filip Watteeuw, Deputy Major of Urban Planning, and the Ghent City Architect)

We anticipate the Flemish government’s ambition to no longer allow connection to the natural gas network in newly developed residential areas from 2021 onwards:

- New projects built by private developers on land owned by Groep Gent will be developed in a future-proof manner with a view to maximum energy efficiency and the implementation or preparation of renewable energy technology for a smooth transition. This is already taking place in several major residential developments (e.g. Tondelier and De Nieuwe Dokken), inter alia by means of the sustainability meter. During this term, we will continue this approach and determine the most effective promotion of sustainable projects in line with the objective for 2050 in all relevant stages of the project. This will not only include energy but also climate adaptation, noise, air quality and circular construction methods.
- In case of project development on privately owned land, we encourage project developers to make integrally sustainable choices, e.g. through prior consultations on urban planning. We investigate thresholds faced by project developers and try to come up with concrete solutions. Ghent is conducting several energy studies of major private new construction projects and assumes the role of energy broker.



The district heating systems will be expanded and made more sustainable

Action 33: Expansion of the district heating system operated by IVAGO (together with Bram Van Braeckevelt, Deputy Major of Public Cleanliness and President of IVAGO)

The beneficial use of additional residual heat from the incineration of waste by IVAGO is possible. A study has been conducted which confirms that a waste-to-energy plant will continue to be the best available technique in the coming decades. In 2020, alteration work for flue gas scrubbing resulted in the production of up to 60 GWh from additional residual heat at high temperature. By optimising the waste-to-energy plant, another 40 GWh of additional residual heat can be converted into hot water instead of steam. Several potential recipients have been identified and the district heating system has been traced out. In the next few years, discussions will be held with possible recipients, and business cases will be refined to convince major recipients of the usefulness of residual heat for them. Once IVAGO has obtained a new environmental permit, the construction of a new hot water network, as an addition to the steam network, can commence.

Action 34: Making the Luminus district heating system more sustainable

The current Luminus district heating system (which distributes 70 GWh of heat a year) will be made more sustainable. Luminus has the ambition to feed the existing network with 50 % renewable energy by 2030. This challenge will be taken up in the form of a partnership.

Action 35: Collective heat supply for large new construction projects

District heating systems usually supply major energy consumers such as large companies, offices, swimming pools and blocks of flats. These consumers constitute the backbone of the district heating system's construction, as it were. The City of Ghent often receives inquiries from citizens who want a connection to a district heating system, which is economically unfeasible for individual homes. In addition, the available quantity of residual heat is not endless. The City therefore promotes collective heat supply in case of large-scale new construction projects if they are located in the vicinity of a potential district heating system.

Action 36: Urban energy broker (together with Bram Van Braeckvelt, Deputy Major of Public Cleanliness and President of IVAGO, and Sofie Bracke, Deputy Major of the Port)

Ghent is developing its role as urban energy broker via the EU project DOEN. This role is primarily applied to IVAGO. In partnership with the Province of East Flanders and North Sea Port, Ghent also looks for other possible cases in the port area with a starting point at ArcelorMittal, the Ghent thermal power plant or another site.

Action 37: Carbon Capture & Utilization Hub (with Sofie Bracke, Deputy Major of Economy and the Port)

Greenhouse gas emissions are difficult to eliminate in some industrial processes. The implementation of renewable energy and energy-saving measures as well as the capture and storage of greenhouse gases are required for the reduction of the carbon footprint of major companies in the port. The captured CO₂ can subsequently be reused via the so-called Carbon Capture & Utilisation (CCU) process. The City of Ghent is part of the CCU hub project together with public and industrial partners from North Sea Port. The CCU hub is aimed at facilitating sensible circular use, avoiding pitfalls and looking into opportunities for the supply of these resources to companies. This is explained in more detail in the chapter on Circular Economy.



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6.4. Summary

We wish half of the household energy demand to be satisfied by locally produced renewable energy by 2030. In this term, we aim to double the solar panel capacity and increase the number of wind turbines. We are also preparing for the transition to non-gas heating.

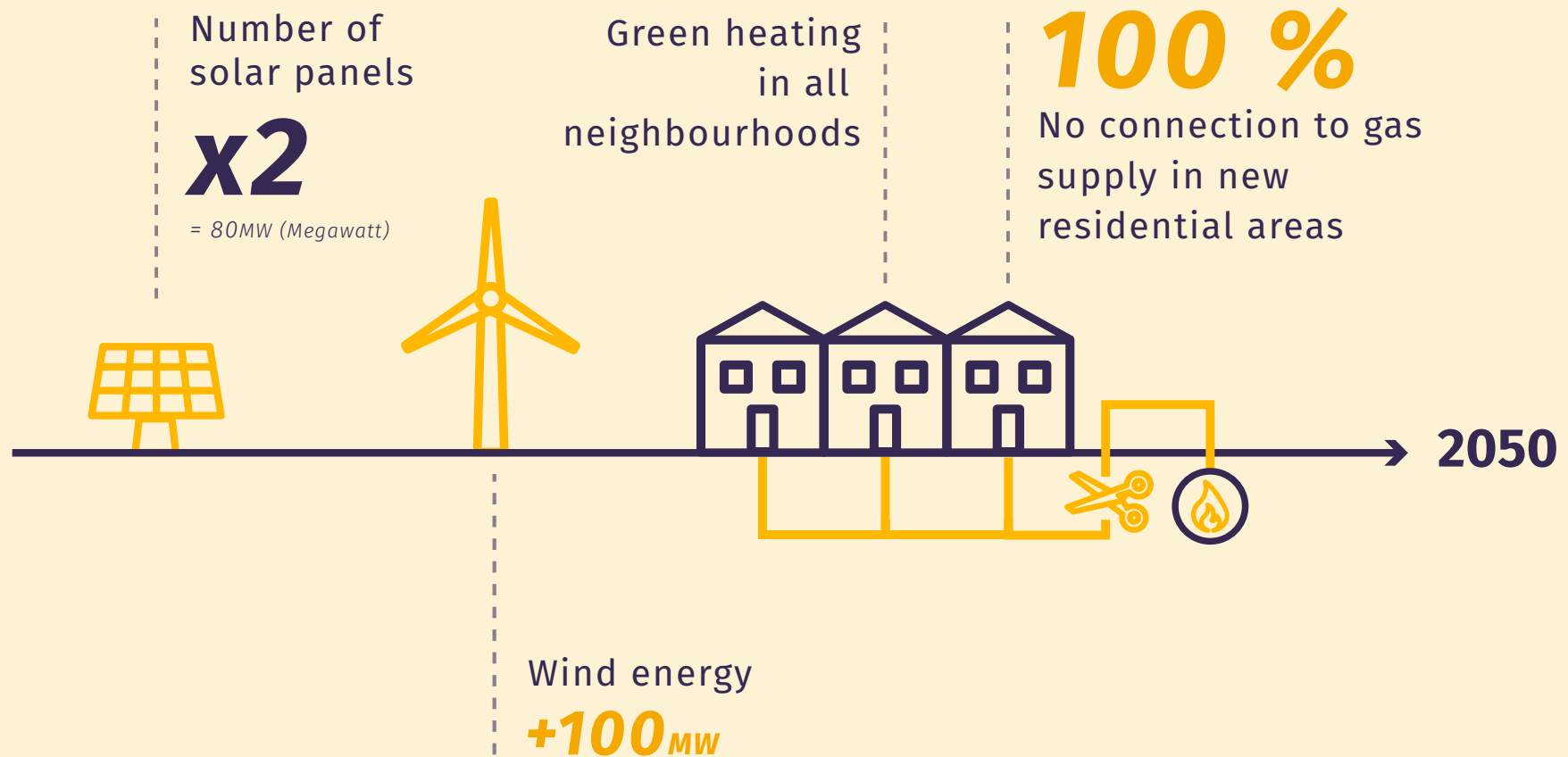
In order to achieve this, we adopt various approaches. First of all, we aim at doubling the number of solar panels by 2025. This will be facilitated by an updated solar map as well as customised advice and consulting on renovations provided by De Energiecentrale. Energy loans make this financially affordable for a greater number of Ghentians. Energy coaching encourages companies to invest in solar energy. We facilitate the creation of energy communities and lead by example by installing additional solar panels on our own buildings.

Furthermore, we encourage Ghent households to switch to renewable energy for cooking and heating. A heat map indicates the most suitable heating system for each home, and every Ghentian can rely on De Energiecentrale for a step-by-step plan tailored to their home and budget. Flemish subsidies are supplemented with the option of a Ghent energy loan. The pilot neighbourhoods of Muide-Meulestede and Mariakerke will get a concrete transition plan, which will serve as a basis for other Ghent neighbourhoods. Finally, new construction projects are steered in the direction of non-gas heating.

To further increase the supply of green energy, we invest in thirty wind turbines by installing new ones and by replacing old ones by 2030. We are setting up a participatory project in this context. In cooperation with the port and other partners, we are looking for suitable locations for buffering green electricity and heat peaks or converting it into alternative fuels. The existing district heating systems will be expanded and made more sustainable.



By 2030, half of the household energy demand will be satisfied by renewable energy





07

COMPANIES AND
TERTIARY SECTOR





7.1. Objective

The cross-border North Sea Port and Ghent's position as a regional centre have attracted a wide variety of companies to the city. This variety is reflected in the range of economic activities, the business locations, the types of business premises, the energy consumption and the number of jobs.

The average CO₂ emissions of Ghent enterprises and organisations (which do not fall under the European Emissions Trading System (ETS)) amount to approximately 40 % of the total CO₂ emissions of the sectors defined in the Covenant of Mayors. This particular group is targeted by most of the efforts of the climate plan, which is aimed at a 40 % reduction in CO₂ emissions by 2030 compared to 2007.

To achieve this objective, we help enterprises and organisations cut their energy consumption, generate renewable energy and exchange residual flows. The City of Ghent is a pioneer for the service sector. When new business premises (partly owned by the City of Ghent) are allocated, the design of the new buildings is more sustainable than legally required, both in terms of construction and in terms of processes.

What about ETS businesses in the port?

With regard to industrial emissions, Ghent is a rather atypical city: the city boasts a great deal of businesses with a thermal capacity of more than 20MW, mainly energy producers and steel, paper and cement manufacturers. This business type falls under the **European Union Emissions Trading System**, the EU's greenhouse gas emissions trading scheme.

The ETS is one of the cornerstones of the EU's policy to combat climate change and is centred around the reduction of industrial greenhouse gases. In terms of regulations and policy, there is little that local authorities can add to this. The City of Ghent nevertheless wants to focus on supporting these businesses to achieve climate neutrality, as agreed in the Paris Agreement. We do not do this at the level of individual businesses, but by coordinating the exchange of residual heat, green hydrogen, electrification and the processing of CO₂ into raw materials (CCU hub project).



For the 2020-2025 period, Ghent's approach to the climate policy for businesses and the tertiary sector is based on:

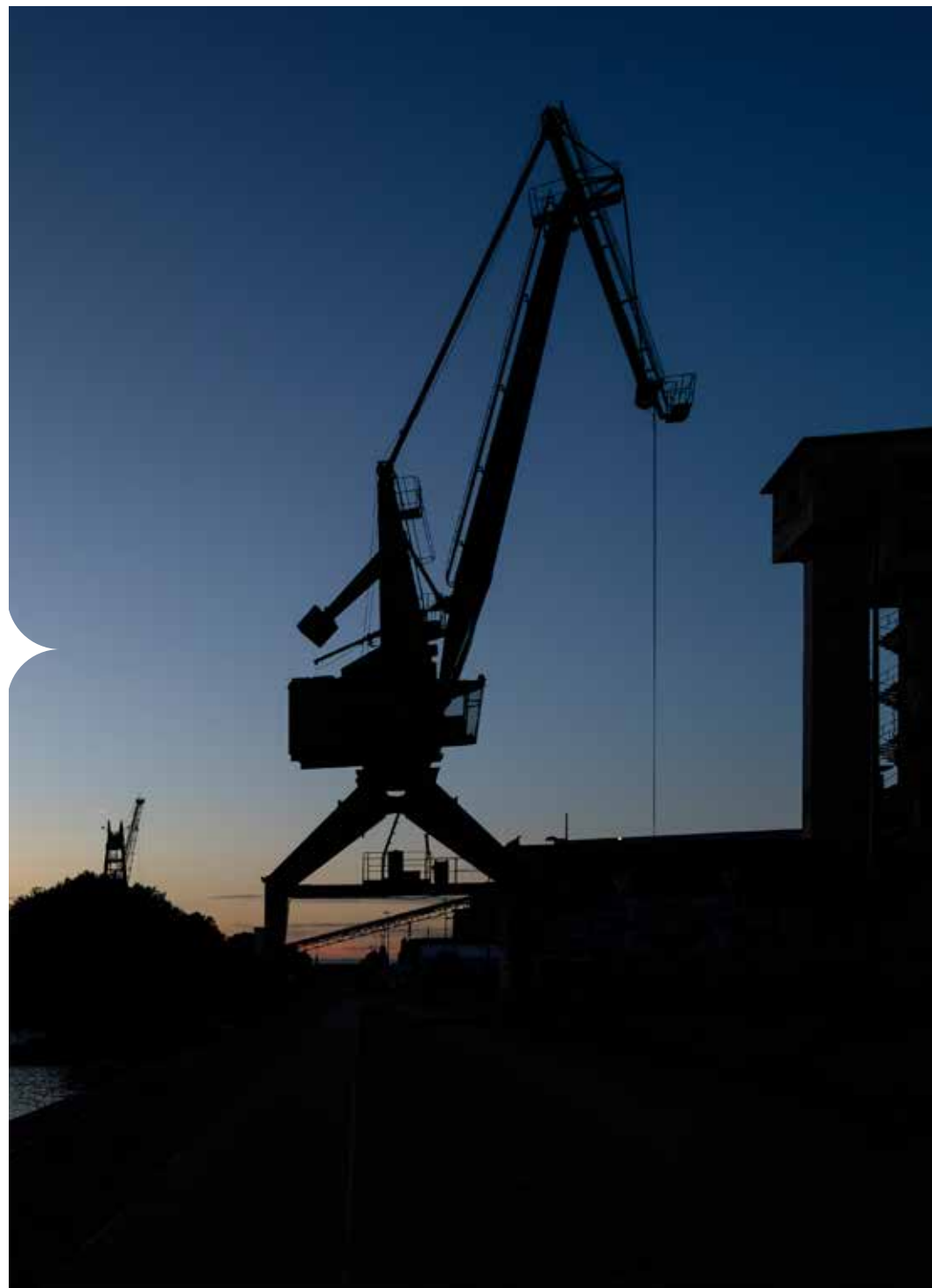
- the coaching of individual companies through customised assistance with the implementation of measures to increase energy efficiency and investments in renewable energy
- collaboration with enterprises and organisations having a sizeable real-estate portfolio
- the promotion of implementing clean technology and striving for a circular economy (see chapter on Circular Economy)
- making new industrial parks more sustainable via the allocation policy
- making the existing business premises more sustainable in partnership with the industrial park associations
- encouraging the exchange of heat and other residual flows between companies and/or residential areas
- a climate strategy for North Sea Port

7.2. State of affairs

In recent years, the focus of climate actions targeted at and in partnership with the industrial and service sectors has been on SMEs and organisations that do not fall under any agreement with a higher policy level: the European ETS system and the Energy Policy Agreement (EPA) with the Flemish government. In this context, an integrated package of tools has been developed in co-creation with the relevant stakeholders:

- energy coaching for individual companies; the elimination of companies' concerns about the implementation of measures to increase energy efficiency and investments in renewable energy
- making new industrial parks more sustainable via the allocation policy at Wiedauwkaai, where a support approach was tested in the first two allocation stages
- the promotion of sustainable renovation of business premises via a new set of rules for energy subsidies

Within this scope, 306 individual enterprises have been assisted by an energy coach over the past few years. This total includes 95 major energy consumers and 221 smaller businesses. The average reduction in energy consumption is 15 % in one year. The total annual reduction in CO₂ emissions for all enterprises amounts to 6,992 tons.



7.3. Actions



The City of Ghent helps local enterprises and organisations make use of the opportunities offered by the energy transition.

The current actions are a continuation of those from the previous term, adjusted on the basis of experiences and supplemented with new support measures. Links are established with actions from other components of the climate plan (circular economy and renewable energy). The actions are expected to have most impact by working together with several well-defined target groups which have the greatest potential to contribute to the objective of a 40 % reduction in CO₂ emissions by 2030.

Groep Gent's pioneering role is an incentive for other stakeholders to join the effort. In order to convince Ghent citizens, companies and organisations to make their home or business premises more sustainable through renovations, green roofs, green façades, etc., we need to lead by example by renovating the streets and our own buildings.

Furthermore, Ghent boasts a great deal of energy intensive businesses that emit CO₂, mostly in the port area. They have high potential for residual heat, renewable energy and alternative fuels and provide opportunities for new technologies such as the capture, storage and reuse of CO₂, thus optimising the use of raw materials and energy. We consider CO₂ storage to be a temporary solution in the transition to climate neutrality. We have joined the quest for the useful application of greenhouse gases as a raw material.

Action 38: Energy coaching for 400 enterprises and organisations

Via energy coaching, we encourage entrepreneurs to initiate a long-term project regarding energy savings and renewable energy. A professional coach, appointed by the City of Ghent, conducts an energy audit of the company and assists in drawing up and implementing an energy action plan aimed at energy savings and renewable energy installations. This offer is open to all industrial SMEs and actors from the tertiary sector (such as offices, trade, hotels, restaurant and bars, care and education). Those who made use of the offer in previous years will be contacted again. These services are provided to Ghent enterprises and organisations in partnership with the Support Service for Entrepreneurs.



Action 39: Open call for specific actors (together with Sofie Bracke, Deputy Major of Economy)

We are testing whether 'open calls' are a good instrument to promote projects, investments and feasibility studies that contribute to the CO₂ reduction objectives in collaboration with specific actors (e.g. hotels, industrial park associations, etc.). Contrary to the energy coaching action, these investments, projects and studies have a wider scope than energy. Their scope also includes the use of secondary raw materials, the closing of water cycles, waste upcycling, transport and sustainable procurement.

Action 40: Actors with a sizeable real-estate portfolio

We assist companies and organisations with a sizeable real-estate portfolio in the preparation of a long-term strategy for the climate neutrality of their buildings. This strategy will describe the different steps towards the energy-saving renovation of their buildings and investment in renewable energy. We support them to draw up investment plans with the following focus points: analysis, visualisation and benchmarking of actual energy data, optimisation of existing installations and optimal use of the natural replacement moments in buildings. We pay particular attention to educational buildings, as a high percentage of school and university buildings are characterised by high energy consumption.

Action 41: New industrial parks (together with Sofie Bracke, Deputy Major of Economy)

The sustainable approach is continued in the Wiedauwkaai industrial park: the price of the plots to be sold includes assistance provided by an energy-expert to the company in question. The expert assists the company in the design and construction of its building. After the commissioning of the building, it is checked whether all equipment has energy efficient settings and is operated correctly. In addition, companies get their (bank) guarantee back if they meet the formulated energy ambitions.

For the development of new industrial parks such as R4 Oostakker Noord, the goal is to implement a similar approach as the one adopted at Wiedauwkaai. The best strategy to be followed to achieve high ambitions concerning climate, climate adaptation and circularity is determined for each industrial park, even for parks where the city does not own any land.

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We pay particular attention to large educational buildings



Action 42: Industrial park Tech Lane Ghent - Eiland Zwijnaarde

At the industrial park Tech Lane Ghent – Eiland Zwijnaarde, we try to achieve CO₂ neutrality by investing heavily in energy efficiency and renewable energy. The industrial park is located in the Zwijnaarde cluster, one of the large-scale wind energy installation locations. A permit application has been filed to install a wind turbine in the southern part of Tech Lane Ghent – Eiland Zwijnaarde, where the City is one of the partners via SOGent. Making use of its own shares, the City of Ghent provides the possibility of citizen participation and partial financing of energy renovations by the rolling fund. If an opportunity presents itself, the feasibility of other major energy projects is continuously assessed with all stakeholders in the field. In addition, this industrial park will probably be the first one in Flanders to receive the internationally recognised sustainability label BREEAM Communities. Individual enterprises are also incentivised via a guarantee scheme to meet the BREEAM standard for their buildings, with a particular focus on the Energy topic: a minimum score of ‘excellent’ is required, which exceeds the current regulations.

Action 43: Support of Greentrack, the cultural sector network

We rely on the Greentrack Gent vzw network to support the Ghent cultural sector to reduce their energy consumption and climate impact. Greentrack has unique and proven expertise in the field of sustainability and ecology in the cultural sector. Greentrack has already brought together a significant number of players from the sector to make the sector and society in general more sustainable as well as to exchange knowledge, including with other cities.

Action 44: Investment subsidies for energy-saving measures in companies

We are continuing the investment subsidies for energy-saving measures in companies until the end of 2022. This way, we support enterprises and organisations that renovate their buildings in line with the energy reduction required to achieve the climate objectives. The conditions for the different insulation measures in the subsidy rules are regularly evaluated and adjusted. We are investigating how to eliminate the thresholds for investment in energy-saving measures in companies.

Action 45: Leading by example: energy saving in the city's real-estate portfolio (Annelies Storms, Deputy Mayor of Facility Management and Sofie Bracke, Deputy Mayor of Sports)

Groep Gent sets the bar high for its own real-estate portfolio. We aim at an annual reduction in energy consumption by at least 3 %. We investigate how to make our own buildings and fleet CO₂ neutral by 2040. For this purpose, Groep Gent is developing an integrated sustainable real-estate portfolio strategy (in the short, medium and long term) with differentiation per type of building, including sport infrastructure. Adequate monitoring and reporting is crucial in order to find out what works well and what does not, and to assess the impact of construction or renovation projects on our short-term and long-term objectives of energy efficiency and CO₂ emission reduction. An extra effort to inventory our real-estate portfolio may be necessary for the development of a transparent approach to reporting.

Action 46: Climate-friendly investing (Rudy Coddens, Deputy Mayor of Finances)

The City invests directly in companies via pension funds. We strive for a gradual divestment from energy producers that are involved in fossil fuels. We want to invest in companies with the lowest possible CO₂ footprint. We adopt a step-by-step approach to become completely independent of fossil fuels by the end of 2023. We develop a method to evaluate the progress made in divestment.

Photovoltaic panels on the roof of municipal pre-primary school Ter Leie at Gordunakaai.





Action 47: Contribution by the city to making North Sea Port climate neutral (together with Sofie Bracke, Deputy Mayor of the Port)

North Sea Port is the cross-border harbour area stretching for 60 kilometres from the Dutch town of Vlissingen by the North Sea to Ghent in Belgium. It is the second largest Belgian seaport, after Antwerp, and boasts a great deal of companies with a significant climate impact.

As a city, we continue to challenge North Sea Port to distinguish itself from other European ports by its sustainability. Together with the other shareholders, we have set targets to encourage North Sea Port to formulate concrete and smart ambitions in its sustainability strategy by mid-2021. These ambitions are situated in areas such as renewable energy and climate, climate adaptation, circular economy, mobility, air quality, logistics and economical use of space.

The City will act as a facilitator and broker to facilitate the exchange of residual flows between companies, contribute to the plans to maximise renewable energy development in the port, provide shore power and make transport within and to the port sustainable. Within this context, we investigate the expansion of the services provided by Max Mobiel, additional rail connections and mobility points, nodes for various transport modes with parking spaces for car sharing, bicycle parks and public transport stops.

Action 48: Energy efficient public lighting (Filip Watteeuw, Deputy Mayor of Public Space)

LED lamps are the standard energy efficient source of lighting. We are replacing all our public lighting (functional lighting as well as mood lighting and floodlights) by LED lamps. In addition, we are preparing a shut-off plan and are investigating whether it is appropriate to experiment with shutting off the street lights along local roads to limit light pollution and usage costs, while continuing to ensure safety.

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Making North Sea Port climate neutral by 2050

7.4. Summary

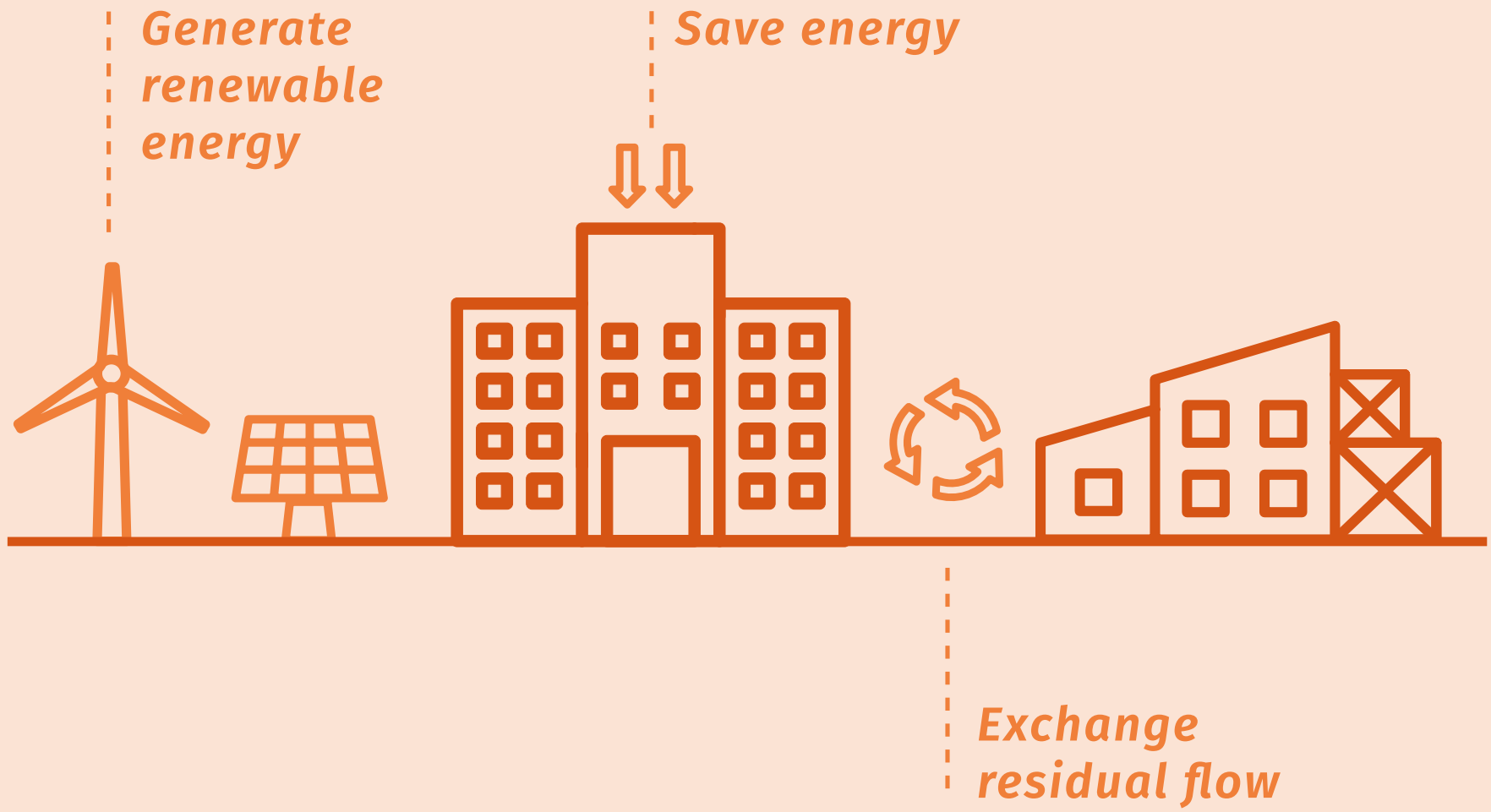


The cross-border North Sea Port and Ghent's position as a regional centre have attracted a wide variety of companies to the city. This particular group is targeted by most of the efforts of the climate plan, which is aimed at a 40 % reduction in CO₂ emissions by 2030 compared to 2007. To achieve this objective, we help enterprises and organisations cut their energy consumption, generate renewable energy and exchange residual flows.

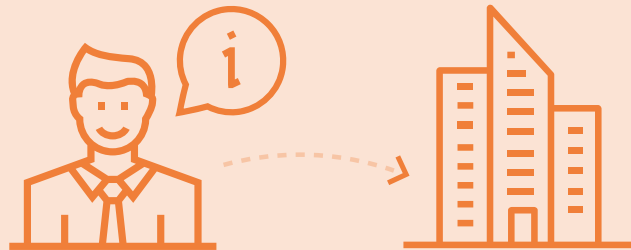


We continue the successful coaching project for individual companies. We are testing whether 'open calls' are a good instrument to promote projects, investments and feasibility studies in collaboration with specific sectors (e.g. the hospitality sector). We assist companies and organisations with a sizeable real-estate portfolio in the preparation of a long-term strategy for the climate neutrality of their buildings. In this context, we pay particular attention to educational buildings. Groep Gent sets the bar high for its own real-estate portfolio. We aim at an annual reduction in energy consumption by at least 3 %. We investigate how to make our own buildings and fleet CO₂ neutral by 2040. When new business premises (partly owned by the City of Ghent) are allocated, the design of the new buildings is more sustainable than legally required, both in terms of construction and in terms of processes.

As a city, we contribute to the objective of making North Sea Port climate neutral. The City will act as a facilitator and broker to facilitate the exchange of residual flows between companies and contribute to the plans to maximise renewable energy development in the port.



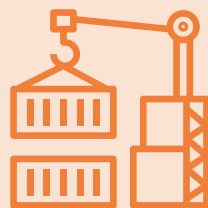
40 % reduction in CO₂ emissions from companies and the tertiary sector



*Energy coaching
for large enterprises*



Energy subsidies



*Sustainable industrial parks
and a climate-neutral port*



*Cooperation with
Ghent's cultural sector*

Vooruit also helps develop Ghent into a Climate City

Marieke De Munck

“ Inspire other cultural establishments

Kunstencentrum Vooruit has adopted a long-term approach. It is our ambition to have made the transition to fossil-fuel-free heating by 2050. Our masterplan for the 2020 - 2034 period is aimed at continuing to renovate our building in a sustainable manner. The reduction of CO₂ emissions and respect for the building's historical character go hand in hand in this process. We opt for LED lamps, low-emission glass and glass facings. We wish to replace air conditioning by flexible work spaces, awnings and night ventilation.

We already have a green roof, a vertical garden and a spacious bicycle garage. We recover rainwater and do not have a fleet of vehicles. In our cafeteria, we serve locally produced, organic fair-trade food and offer a wide range of vegetarian and vegan dishes. We will continue on this path with our sustainability plan. In the coming years, we will continue to focus on raising awareness among artists, the general public and our partners. By setting a good example, we also wish to inspire other cultural establishments.





Luminus also helps develop Ghent into a Climate City

Eric Perdu

“

Make the district heating system greener

Luminus wishes to make the district heating system greener, realise the wind-energy potential in the Ghent area and implement new sustainable technologies. These are the pillars of our commitment for the 2020 - 2025 period. We have evolved from an energy producer and supplier to a provider of energy services. This means we also invest in energy efficiency solutions. For this purpose, we will participate in the energy coaching offered by the City of Ghent. We will increase the efficiency of the district heating system and connect more customers.

In the next four years, we will investigate the use of residual heat from industrial processes and renewable sources for the district heating system. These sources provide us with the opportunity to expand and enhance the district heating system by constructing a new backbone. Luminus will also install three new wind turbines in the port of Ghent by 2023. We are investigating the feasibility of five new wind turbines on other locations in Ghent.



Artevelde University College is also collaborating on Ghent Climate City

Jo Boogaerts

“
Two new campuses with high climate ambitions

Thanks to its broad scope, Artevelde University College plays an important role as a climate ambassador. We conducted a study of our climate impact in the spring of 2020. This study laid the groundwork for an ambitious climate plan with regard to policy, education and research, infrastructure and partnerships. Our new campus located near the Watersportbaan sports facilities is a nearly Zero Energy Building (nZEB). Campus Kantienberg will be heated by means of the Luminus district heating system. The pavement in the outdoor spaces of several campuses will be largely removed, which will enable rainwater to seep into the ground.

In the coming years, we will construct two new campuses and thoroughly renovate several other ones to achieve our high climate ambitions. Solar panels will partly ensure our own energy production. We will also look into the possibility of equipping our new sustainable buildings with green roofs and energy-producing façades, applying the passive building standards. As a university college, we also commit to integrating the neighbourhood into our campuses and putting our expertise at the disposal of local residents.

Ghent University is also participating in Ghent Climate City

Rik Van De Walle

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In case of new builds and total renovations, we switch to non-fossil energy sources

Ghent University shares the European Union's ambition of becoming climate neutral by 2050. We aim to reduce the total CO₂ emissions from heating and electric power supply by an average of 15 % a year in the 2020-2030 period, and from now on we will opt for sustainable non-fossil energy sources in case of new builds and renovations. We will also strongly focus on efficient use of space and energy by having research groups, faculties and even institutions share our infrastructure, and investigate how to disconnect campuses from fossil energy and accelerate investment in on-site electricity production. Our energy policy plan is very ambitious and will be decisive for all our investments in the coming years. All other plans, policy tools and processes will have to be aligned with this energy policy plan.



Ghent University Hospital is also participating in Ghent Climate City

Lieven Deblaere

“ We aim to be a climate neutral hospital by 2050

Ghent University Hospital (UZ Gent) aims to be a climate neutral hospital by 2050. The actions we have taken over the past nine years have resulted in an 18.5 % decrease in our energy consumption. Both our demand for heat and our electricity demand have decreased considerably. Furthermore, the electricity we purchase has been 100 % renewable since 2014. As a result, our electricity consumption emits zero tons of CO₂ a year. In addition, the residual heat from the IVAGO waste-to-energy plant has satisfied 70 % of our demand for heat since 2007. As a result, our emissions from heating have decreased from 11,000 tons of CO₂ a year to 3,000 tons of CO₂ a year.

We want to continue on this path. To achieve our ambition, we will continue to invest in energy efficient buildings and the circular use of materials in the coming years. By 2030, we will have built 70,000m² of sustainable new constructions, as far as possible in line with the principles of circular use of materials. We will carry out energy-saving renovations of our buildings.

The combination of all these actions will ensure that our demand for heat will have decreased spectacularly by 2040. The next step is to continue making the energy we still require more sustainable.





North Sea Port also contributes to Ghent Climate City

Daan Schalck

“

Making the entire port sustainable from transport to production

The large-scale manufacturing plants located in North Sea Port emit 21.5 Mtons of CO₂, split evenly between Flanders and the Netherlands. North Sea Port aims to reduce these CO₂ emissions to zero by 2050, in cooperation with the industry. Efforts have already been made in the Smart Delta Resources (SDR) Roadmap and the Carbon Capture and Utilisation (CCU) Hub.

Over the past decades, the industry has focused on energy efficiency, as a result of which many companies now rank among the world's best. To further reduce its CO₂ emissions, North Sea Port facilitates the exchange of residual flows, electrification, green raw materials and the capture, storage and reuse of CO₂.

We also invest in making the transport sector more sustainable. This includes shore power points with a positive impact on CO₂ emissions and on air quality as well as giving a discount on port dues to cleaner ships. Wherever possible, North Sea Port facilitates bunkering and fuelling infrastructure for new alternative fuels. In the short term this is mainly LNG and in the long term possibly hydrogen, electricity, methanol and ammonia as well. North Sea Port has also made investments in pipeline infrastructure.



Shopping Gent Zuid also contributes to Ghent Climate City

Hera Gentbrugge

“
We will become a zero waste shopping centre

It is our ambition to convert Shopping Gent Zuid into a CO₂-neutral shopping centre by 2050. We intend to purify and recover as much as possible of our wastewater. Our waste management will aim at zero waste. We will promote a green fleet in cooperation with Interparking. Furthermore, we will dedicate ourselves to the CO₂ neutral delivery of goods and services and the greening of the existing heat grid in cooperation with the City of Ghent, local merchants and other stakeholders.

Business centre De Punt is also participating in Ghent Climate City

Piet Lietaer

“
**Invest in residual heat,
photovoltaic panels, rainwater
collection, charging stations and
shared cars together with our
neighbours**

De Punt is a social and sustainable business centre. We provide sustainable entrepreneurs with room to experiment, start up, grow and create positive impact. When the building was extended in 2016, strict energy standards were taken into account.

We have had photovoltaic panels on our roofs since then. The panels covered an area of 230 square metres, accounting for 10% of the electricity consumption of the entire business centre. In 2020, De Punt installed more photovoltaic panels with the help of EnerGent, on an additional area of 1130 m². These panels now generate 66 % of the electric power for the entire business centre.

The social and sustainable entrepreneurs who have their businesses in De Punt actively contribute to Ghent Climate City. For instance, we house a restaurant that keeps its own vegetable garden on our roof. We also offer bicycle couriers a place for their business. Various enterprises active in the field sustainable catering and events, biodiversity, transport, sustainable construction, environment and renewable energy have their headquarters in our business centre. And we all make an effort to ensure a better future.

“De Punt is but one of the many residents of the industrial estate Gentbrugge II. Together with our neighbours we want to investigate the possibilities of residual heat, photovoltaic panels on the central car park, rainwater collection, the installation of charging stations and shared cars”.



HOGENT is also participating in Ghent Climate City

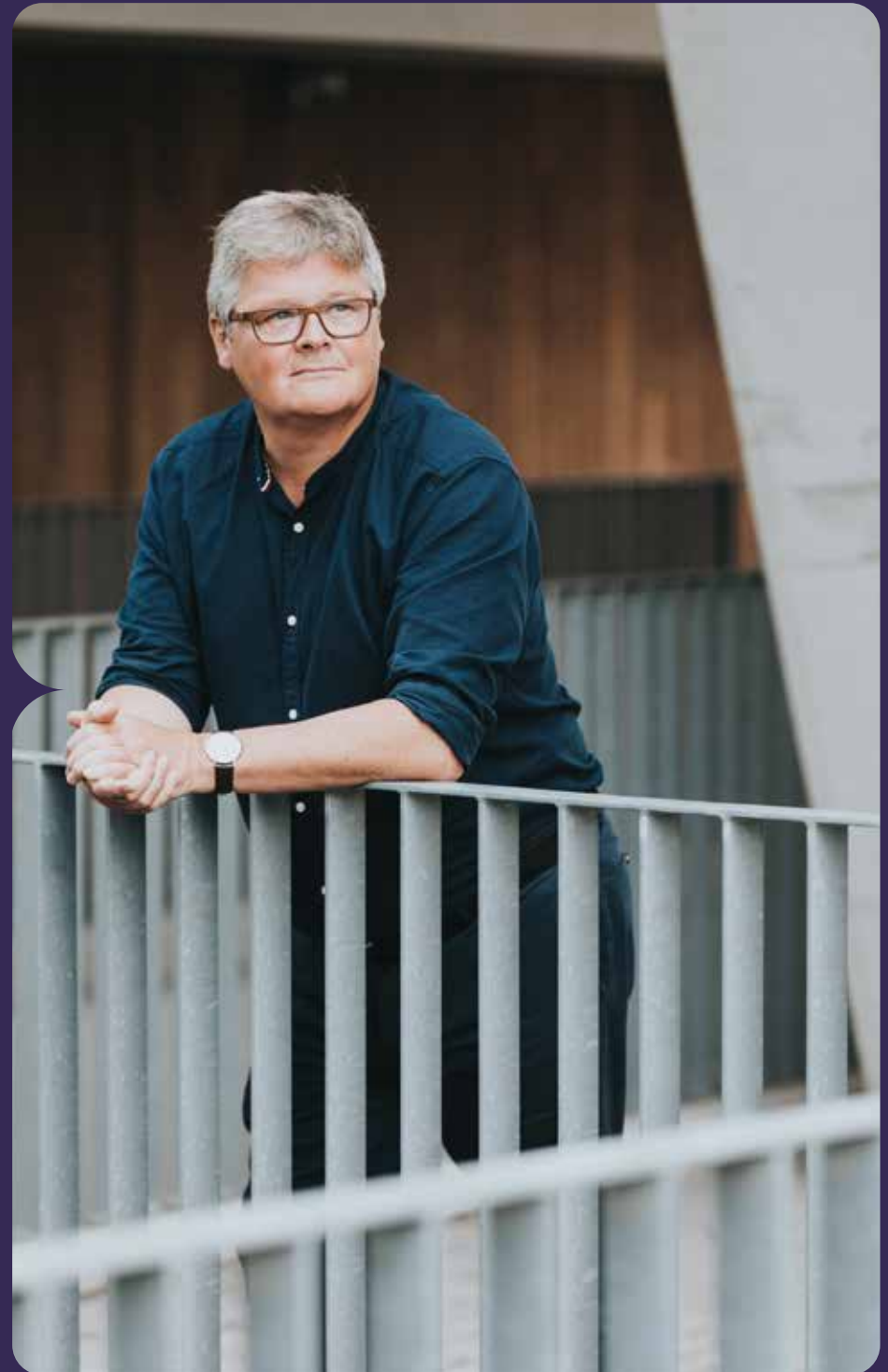
Koen Goethals

“

Lecturers, students and local residents design the campus as a green lung

The premises of the new building located on Voskenslaan will become a green lung for the neighbourhood. Lecturers, students and local residents work together in the Living Lab to design and build this green space where everyone should feel at home. The Living Lab is a place where we conduct experiments, where people are brought together and where entrepreneurship is encouraged. The campus should develop into a climate-friendly and resilient, climate-proof place. We also want to give our other campuses a climate-friendly makeover. We invest in pavement removal, green roofs, picking gardens, the planting of trees and biodiverse borders.

For our buildings, we strive for the nearly-zero-energy principle in case of new builds and major renovation projects. We have purchased 100 % green electricity for over 10 years. We implement energy accounting to take energy-saving measures in a targeted manner. In the short term, we wish to benchmark our carbon footprint together with students and the City of Ghent, and develop a sustainable collective transport plan for our staff and students and for travel between workplaces.”





08



TRANSPORT







8.1. Objective

Vehicles constitute one of the biggest sources of emissions. The challenges in this sector are enormous and call for action at several levels. For the next few years, Ghent's objective is to further reduce the number of vehicle kilometres of motorised transport, avoid unnecessary journeys and increase transport via more environmentally friendly modes of transport.

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Climate-friendly mobility also provides healthy air

It is important to reduce the number of transport movements and to keep on promoting sustainable mobility. In addition, we need to continue to support the transition towards environmentally friendly mobility, and electric (shared) mobility in particular. The local air-quality and noise problems could also be tackled by more sustainable mobility. The (sub)urban mobility system should be an attractive and comfortable alternative to private cars and should thus contribute to lowering the ecological impact of mobility.

We continue to closely monitor the technological developments in terms of both fuels and the drive systems for zero-emission and low-carbon modes of transport. To that end, not only local emissions are taken into account, but also the total ecological footprint of the production process. Innovations in connected mobility and Traffic Management as a Service (TMaaS) should enhance the system.



8.2. State of affairs



The measures from the circulation plan have an impact on road traffic. The number of cyclists has increased by 50 % in the city centre, and by 60 % from and to the city centre. The number of public transport users has increased by 6 % on a daily basis, with a 25 % increase in the evening rush hour. On the other hand, the number of cars entering and leaving the city centre has fallen sharply, on average by 17 %.

Cities should take the lead in making mobility more sustainable. There is not only potential in the short routes that are travelled in an urban environment, but also in the higher population density that makes cities the ideal testing grounds for collective and shared mobility concepts. On a strategic level, good spatial planning and traffic plans are of paramount importance to stimulate sustainable mobility, combined with a well-developed and fine-meshed walking, cycling and public transport infrastructure. Collective and customer-friendly sharing systems at mobility junctions have to be developed and interconnected. At the level of spatial planning, we create proximity by cleverly interweaving and increasing the density, and give sustainable modes the necessary space in the design of public space.

As a city, we can also support the higher levels of government in the accelerated greening of the fleet. New electric cars (with battery or fuel cell) have a positive effect both on CO₂ emissions and on the local air quality, especially if the car is charged with green electricity.

In 2020, the basic charging infrastructure of 162 additional public charging stations was developed in Ghent, at the request of Flanders. As the electric fleet expands, the capacity of both private and public charging infrastructure also needs to be expanded. The way in which this happens depends on the space available, the mobility and parking policy, as well as the location and type of electricity grid, among other things. The Low Emission Zone (LEZ) is another urban initiative that results in a health improvement by banning the most polluting modes of mobility from the city. This way, we also stimulate the transition towards cleaner vehicles. In the long term, the LEZ also offers the possibility of developing into a climate measure. Thanks to their permanent or urban routes and/or permanent locations, niche fleets such as taxis, shared cars, buses and company fleets as well as mopeds are in principle ready for the transition to fossil-free fuels.



8.3. Actions

Action 49: Modal split (Filip Watteeuw, Deputy Mayor of Mobility)

The City of Ghent's Mobility Plan provides a detailed description of the measures to realise the so-called modal split. The goal is to replace car travel with more sustainable modes of transport, such as going on foot, by bike or by public transport.



With regard to the Policy Note on Climate, we put the following actions in the spotlight:

- We concentrate spatial developments on junctions of bicycle axes and/or public transport, thus reducing the number of journeys.
- We want to increase the share of pedestrians and cyclists in the total number of journeys in Ghent. We are focusing on a change in behaviour, and will also make and keep the infrastructure as accessible as possible for pedestrians and cyclists. We enhance the position of pedestrians and cyclists from a traffic-planning point of view. We provide short and safe pedestrian routes at a neighbourhood level. Furthermore, we will signpost and improve footpaths and the cycling network. We are putting maximum effort in conflict-free intersections, safe crossing points, cycling infrastructure, bicycle sheds and dynamic traffic light regulation systems. We raise awareness, offer possibilities to specific target groups and further develop the range of bicycle services.
- We increase the importance of accessible public transport. We facilitate the collective traffic flows such as public transport, taxis, walking and shuttle buses, car sharing and bicycle sharing on the territory of Ghent and the transport region. This results in sufficient, high-quality and accessible routes and stops for public transport which is affordable to and known by everyone as well as a smooth traffic flow, among other things. We are specifically promoting public transport to and from employment centres. We develop a vision of public transport for Ghent within the wider region. We develop the existing park-and-ride sites and investigate additional locations.
- By drawing up neighbourhood mobility plans for 7 selected neighbourhoods, we want to increase the quality of life, road safety and the selective accessibility of these neighbourhoods in partnership with the residents.
- We continue with the SPITS project, together with Sofie Bracke, Deputy Mayor of Economy. This mobility coordination centre for the south of Ghent should unburden companies, for example by providing advice on mobility. We want to develop this further.



Action 50: Electric (shared) mobility (together with Filip Watteeuw, Deputy Mayor of Mobility)

The growing necessity to drastically reduce our CO₂ emissions in the next years forces us to consider the further development of clean passenger and goods transport in our city. Electric cars are the most suitable technology for this purpose. An important point of attention is that an optimal result will only be reached if the electric cars run on green energy. Electric shared mobility, of course, offers a double advantage. We are focusing on the following measures:

- We invest in the transition towards electric and shared mobility.
- In 2020, we worked on a uniform strategy and distribution plan for the further development of (semi) public charging infrastructure.
- We are increasing the share of electric vehicles in the car-sharing fleet as well as the fleet of buses and .

Action 51: City distribution (Sofie Bracke, Deputy Mayor of Economy, together with Filip Watteeuw, Deputy Mayor of Mobility)

Ghent continues with GentLevert, a supporting platform in the transition towards efficient and sustainable urban logistics. The City invests in communication, events and knowledge sharing. We are laying the foundations of a new city distribution model with a Covenant on Sustainable Urban Logistics in which the principal stakeholders are represented.

We need to develop a vision of urban (last-mile) deliveries, product bundling and the necessary physical transshipment locations.

In our action plan on goods transport, we formulate concrete actions for on-site improvements to be taken by the City itself and by the market. The options include logistic (mini) hubs, applications of the Internet of Things, logistics on the water or the use of cargo bikes.



Action 52: City fleet (Annelies Storms, Deputy Mayor of Facility Management)

With the 'Collective transport plan for travel between workplaces – City of Ghent and PCSW', we want to lead by example in terms of sustainable travel and efficient use of resources. In this context, we focus on avoiding travel between workplaces, making it more sustainable, and making the city fleet greener. Our ambition is to allow only diesel-free passenger cars and delivery vans by 2025 and only electric ones by 2030, if technically feasible.

Action 53. Eliminate transport poverty (Filip Watteeuw, Deputy Mayor of Mobility and Rudy Coddens, Deputy Mayor of Social Policy and Poverty Reduction)

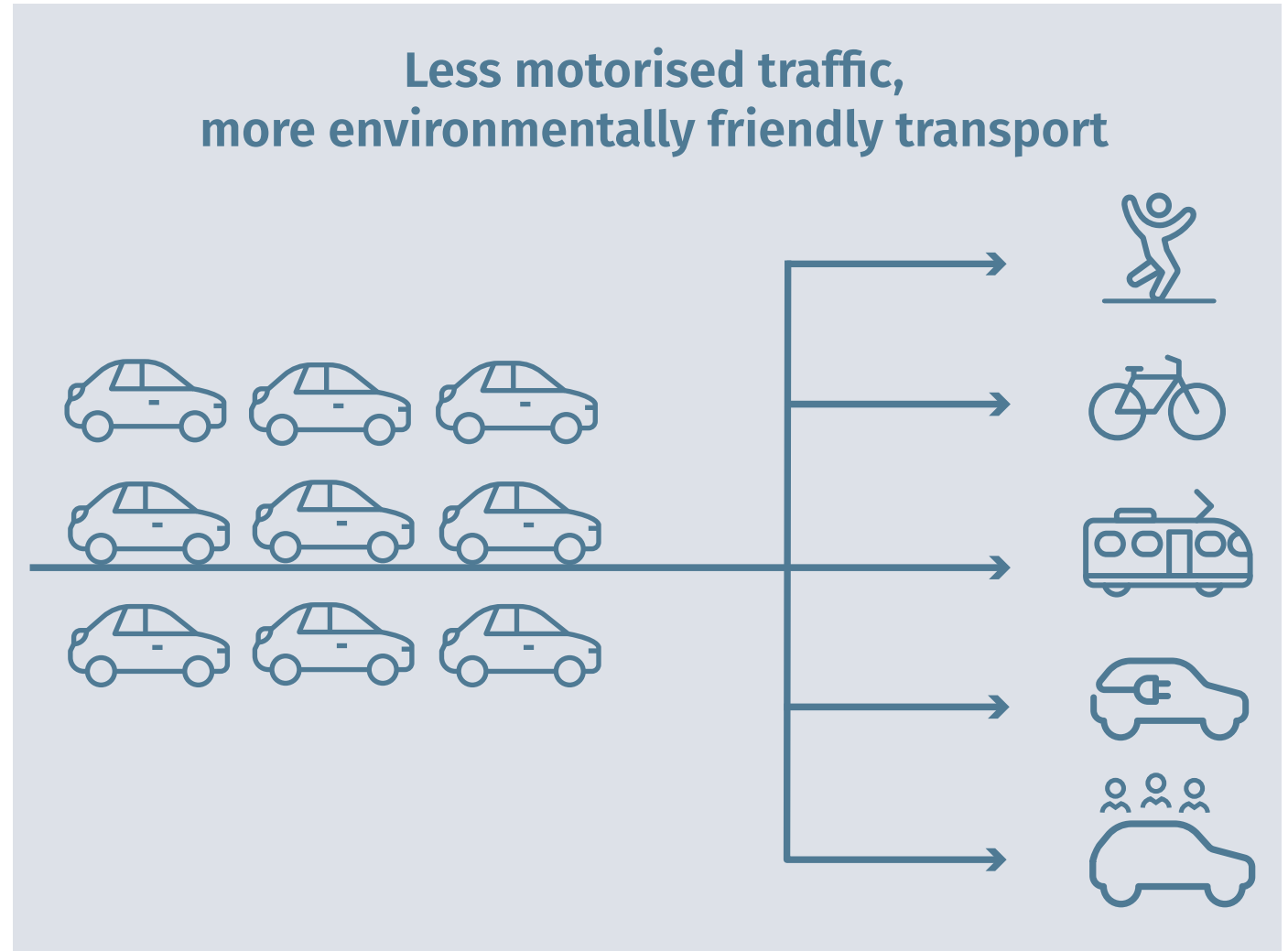
You need to be able to move within the city in order to be able to participate in urban life. People living in poverty have indicated the thresholds they face in this context. Coordinated by the Mobility Company, several municipal departments are combining their expertise on combatting transport poverty in our city. With an 'action plan on transport poverty', we specifically address the thresholds faced by people living in poverty, but a lot of other actions are also directly or indirectly targeted at this group.



8.4. Summary

Vehicles constitute one of the principal sources of emissions. The challenges in this sector are enormous and call for action at several levels. The City's mobility policy will stay focused on replacing car travel with more sustainable modes of transport, such as going on foot, by bike or by public transport. We also continue to promote electric mobility, car sharing and more sustainable logistics. With regard to the city fleet, our ambition is to allow only diesel-free passenger cars and delivery vans by 2025 and only electric ones by 2030, if technically possible. With our 'action plan on transport poverty', we specifically address the thresholds faced by people living in poverty.

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By 2025 our city fleet will be diesel free





09



FOOD





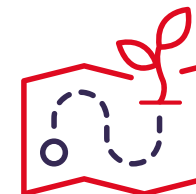
9.1. Objective

Food contributes to the environmental impact of a city in many ways. Meat production has a significant impact on greenhouse gas emissions. Halving the meat and dairy consumption in the EU would reduce the greenhouse gas emissions of the agricultural industry by 42 %. The transport, storage and preparation of food and waste production leave their mark on the environment. The Food and Agriculture Organisation of the United Nations (FAO) has stated that food wastage is one of the most important sources of greenhouse gas emissions. Only China and the United States emit more greenhouse gases.

Food plays an important and clear role in Ghent's climate footprint. Ghent wants to be and remain a leader in the development and implementation of a local sustainable food strategy. That is why we are investing in short-chain and sustainable food, better access to healthy and sustainable food as well as less food wastage.



9.2. State of affairs



In 2013, Ghent was the first Belgian city to launch its own food strategy. Under the name of 'Gent en Garde', Ghent formulated its battle plan to make Ghent's food system more sustainable. Ghent aimed at creating a sustainable food chain from production, processing and distribution to consumption and waste disposal.

Gent en Garde has 5 strategic objectives:

- A visible, short food chain
- More sustainable food production and consumption
- Stronger social added value of nutritional initiatives
- Reducing the amount of food waste
- Optimum recycling of food waste as raw materials

Over the past six years, the City of Ghent has launched numerous projects that help make the food system more sustainable. Citizens and local actors have been closely involved. With a participatory approach and a Food Council, Gent en Garde has stimulated the launch of both small-scale initiatives and more structural changes to the food system. Some examples of such projects:

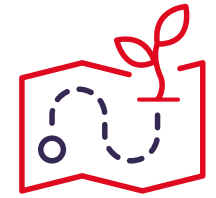
Foodsavers: 1.000 tonnes of surplus food have been redistributed

With Foodsavers, Ghent has been tackling food wastage on a large scale for two years. More than 1,000 tonnes of surplus food from supermarkets or the auction have been redistributed via poverty organisations and social restaurants. All of this takes place through social employment, together with Rudy Coddens, Deputy Mayor of Social Policy & Poverty Reduction.

School meals

School meals in municipal schools consist of more organic and fair-trade ingredients, less meat and more seasonal products. Criteria such as food wastage and animal welfare are also taken into consideration.





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Vanier: new professional short-chain platform

The City of Ghent supported the start of Vanier, an innovative cooperative platform for short-chain food. Vanier brings professional purchasers from restaurants, industrial kitchens and traders into contact with producers from the Ghent region. This way, the sales market for these producers is noticeably extended and purchasers get a closer connection to the producers and the products.

67.000 Restorestjes boxes in 180 restaurants in Ghent

In 2015, the Ghent was the first Belgian city to launch the 'Restorestje' initiative: a free, compostable box for restaurant leftovers. In five years, no less than 67,000 boxes have been distributed by 180 restaurants in Ghent.

10 years of 'Thursday Veggie Day'

The City of Ghent has promoted vegetarian food for ten years now with its campaign 'Thursday Veggie Day'. Also, all the 4,500 pupils of Ghent's municipal schools eat a vegetarian meal every Thursday, which amounts to 775,883 meals a year.

40 pick-your-own fruit spots

Since 2019, Gent en Garde has made a list of all fruit trees where citizens can go and pick their own fruit for free. On a digital map, you can see approximately 40 pick-your-own fruit spots in parks or gardens. The project has attracted many enthusiastic fruit pickers.

Online platform: hub for local food initiatives

Gent en Garde also has strong communication tools. The online platform www.gentengarde.be is a meeting place revolving around sustainable food in Ghent and has reached over 50,000 Ghentians so far. The website has listed more than 1,000 local food initiatives. The Facebook group of Gent en Garde keeps on growing every day and counts almost 3,000 members.

Supervision of 67 vegetable gardens

The City of Ghent has helped schools and local residents with communal vegetable gardens since 2014. No less than 42 schools and 25 neighbourhood vegetable gardens have received support.



9.3. Actions



Action 54: The Food Council

The Food Council is the participatory policy body of Gent en Garde where the different stakeholders of the Ghent food system come together. In the past few years, the group has literally and figuratively become a pioneer in policy making. The Food Council receives its own operating budget to steer innovative concepts in the right direction. Over the next years, the Food Council will continue to help shape Ghent's food policy and organise projects to achieve the objectives of Gent en Garde. The Food Council also organises an annual partner day to broaden its scope and to extend Ghent's network.

Since 2015, the **Ghent Food Council** has invested, together with the City, **in making the food supply chain in and around Ghent more sustainable** from production to processing and from distribution to consumption and waste disposal.

The Food Council consists of approximately 30 enthusiastic and involved actors who each play their own role in Ghent's food system:

- **AGRICULTURAL FEDERATIONS:** Boerenbond (Farmers' League), Landelijke Gilde (Rural Association), ABS (General Farmers' Syndicate), CSA (Community Supported Agriculture)
- **ASSOCIATIONS:** EVA (Vegetarian Association), Velt (Association for Ecological Living and Gardening), Oxfam
- **KNOWLEDGE INSTITUTIONS:** Ghent University
- **REPRESENTATION OF TRADE AND HOTEL & CATERING INDUSTRY:** Unizo (Union of Self-Employed Entrepreneurs), Lokaal (organic restaurant)

These partners are very important **ambassadors** of the food policy and are committed to promoting Ghent's vision of sustainable food production and consumption and to applying it to their own projects. Together they reflect on the future and the objectives of Ghent's food policy. With their own city budget, they initiate or stimulate **new innovative projects**.

In the future, Ghent wants to continue developing a **more autonomous Food Council, with strong connections to citizens and organisations**. The Food Council will experiment with **new forms of organisation and funding** to increase the impact on the food system even more.

Worldwide, Gent en Garde is **a pioneer and leader in food governance**. Gent en Garde has already won 6 international awards, including the United Nations' Climate Action Award.

Everyone eats sustainably

Action 55: Leading by example with regard to sustainable food (together with Annelies Storms, Deputy Mayor of Facility Management)

We lead by example: Ghent has already taken big steps forward when it comes to making government food purchases more sustainable. To that end, we have concentrated on organic, fairtrade, short-chain and seasonal products as well as less animal proteins. For the first time, we conducted a study of food waste from school meals. This has resulted in concrete actions to reduce food wastage. In the next years, we will continue to invest in sustainability. We want to make school and staff meals and catering at events more local and plant-based. The City strives for a noticeable reduction of the climate impact of its food purchases by 2030.



Action 56: Vegetable gardens in schools and neighbourhoods to connect Ghentians with food

Gent en Garde continues to support neighbourhood and school vegetable gardens. The support will be reformed to give even more people the chance to participate and to maximise the neighbourhood projects. In addition to projects on vegetable gardens, initiatives on neighbourhood fruit will also receive support.

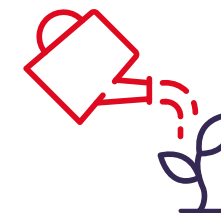
Action 57: Plant-based Ghent (together with Annelies Storms, Deputy Mayor of Facility Management)

We need a further decrease in the consumption of animal proteins in order to achieve the climate objectives. The City of Ghent opts for an ambitious policy in the field of protein transition and wants to enhance its own exemplary role and purchasing policy. A new campaign and a wider range of vegetarian alternatives should ensure a noticeable drop in meat consumption and increasing interest in plant-based food.

Action 58: From childhood (Together with Elke Decruynaere, Deputy Mayor of Education)

The City of Ghent wants to bring its citizens into contact with sustainable food from a young age. In addition to workshops on vegetarian food, we will also provide guidance to schools with information on food waste and sustainable food policy.





Short and sustainable food chain

Action 59: Scale-up of short chain with better access to the sales market for producers

Ghent is promoting the further scale-up of the short chain with the existing project Vanier. With Vanier, we want to achieve significant volumes in the short-chain turnover by connecting regional producers to professional food purchasers in the city (hotel & catering industry, industrial kitchens and local shops).

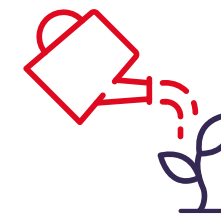
Action 60: Raising awareness about short-chain food (together with Sofie Bracke, Deputy Mayor of Economy)

Through Gent en Garde, we want to raise awareness about short-chain food. In the past few years, we have turned the spotlight on short chain, for example during the Week of the Short Chain. We continue to promote short-chain initiatives such as farmers' markets and communicate about the advantages of short-chain food. This way, we want to convince even more citizens. By bringing citizens more directly into contact with local agriculture, we also want to strengthen their appreciation for agriculture and their awareness about food (production and consumption).

Action 61: Land policy that stimulates local, sustainable food production (together with Sami Souguir, Deputy Mayor of Urban Development and Rudy Coddens, Deputy Mayor of Social Policy & Poverty Reduction)

The study 'Vision of agriculture in the urban environment of Ghent in 2030 and its spatial translation' provides the City of Ghent with a framework to develop a well-thought-out spatial agricultural policy. Agriculture and other forms of local food supply require space. Last term, 10 hectares of farmland owned by the Public Centre for Social Welfare (PCSW) were used for sustainable, socially sound and local food production. In the coming years, we will consider how to include sustainable local food production and social employment in the City of Ghent's land policy. This will be developed further in the vision statement on the management of the PCSW real-estate portfolio.





Nothing goes to waste

Action 62: Making agriculture in Ghent more sustainable

The ecological sustainability of farms in Ghent is crucial to minimising the climate impact of agriculture. However, economic and social sustainability have to be included as well. That is why a procedure is being developed to identify the needs of each type of agriculture and the steps to be taken towards enhancing the ecological, economic and social sustainability. By initiating a dialogue between different actors, a mutual learning path is developed and concrete actions become possible. A first cooperation project that supports farmers for creating wildflower meadows has already been started. We think it is important not to play off the various forms of agriculture against each other, but to look for solutions together.



Action 63: Foodsavers Ghent (together with Rudy Coddens, Deputy Mayor of Social Policy & Poverty Reduction)

This initiative made a very successful start in the last term. Every year, approximately 700 tons of fresh food surpluses are redistributed to vulnerable target groups. This way, we contribute to poverty reduction, better access to food, social employment and less food wastage. This project will be further consolidated in the coming years.

Action 64: Restorestje

Ghent's Restorestje project is a successful product that has already been adopted by numerous other cities and municipalities. At the beginning of 2020, Ghent celebrated the fifth anniversary of Restorestje. The city keeps on promoting Restorestje among Ghent restaurants.

Action 65: Less food wastage in industrial kitchens

Ghent promotes reducing food wastage among households, at schools, in its own kitchens and at care facilities by providing the necessary support.

9.4. Summary

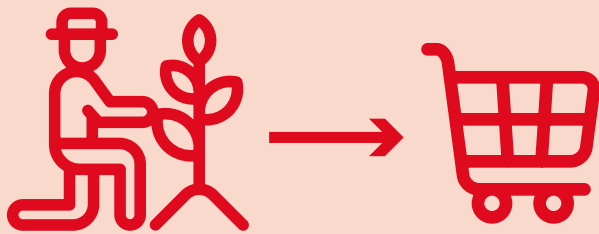
Gent en Garde knew a successful start a few years ago and has drawn worldwide attention to Ghent with a sustainable food strategy.

The coming term, we will focus on the consolidation of the initiatives that have already been launched and on further anchoring them in Ghent. We will continue to innovate with a strong Food Council and local partnerships. The City of Ghent's focus lies on enhancing the short-chain system and launching a new campaign that promotes more plant-based consumption.

Access to sustainable and healthy food for vulnerable target groups is an important point of attention in our food strategy. Ghent will continue to set the bar higher when it comes to levers held by the City itself, like its own purchases and regulations.



Together with the Food Council, the City is making the food system more sustainable



*Promote short-chain
food*



*Promote plant-based
consumption*



Avoid food wastage





10

CIRCULAR ECONOMY

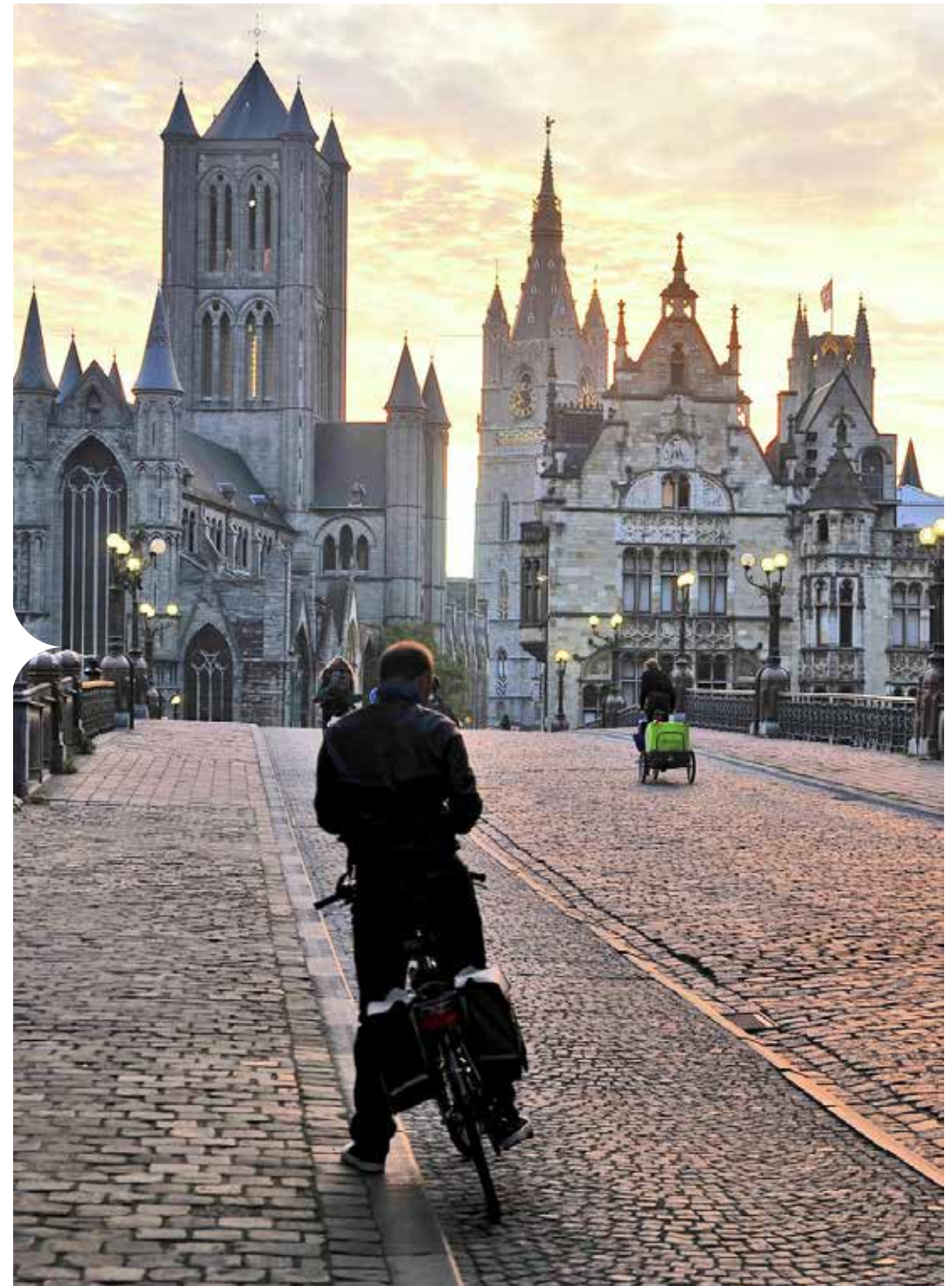




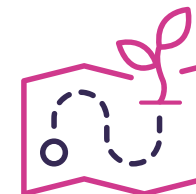
10.1. Objective

The energy measures alone will not suffice to achieve the climate objectives. Circular strategies are necessary to help close the emissions gap. At a rough estimate, 60 % of the total Flemish greenhouse gas emissions come from material-related activities. That is why we reduce the carbon footprint of the City of Ghent and North Sea Port by using less primary raw materials, and by keeping materials and products in the cycle longer.

We are taking up this challenge together with the business world, the port, the academic world, civil society and the citizens. The City of Ghent assumes an exemplary role in its internal operations, and stimulates or supports the other actors. In a circular economy, numerous strategies are applied to keep using materials and products in the economy while preserving their quality as much as possible. The transition from a linear to a circular economy requires changes in each link of the value chain at every level. The greatest progress is possible through the companies, but the power of the consumer is also considerable. We will speed up the transition to a circular economy through knowledge exchange and by setting up living labs. This way, the Ghent ecosystem is a pioneer within Europe.



10.2. State of affairs



We mainly focus on industries with a big impact on energy consumption and CO₂ emissions, like manufacturers of building materials and plastics.

Ghent Cleantech Regional Cluster was launched on 18 May 2016. In this partnership, the City of Ghent cooperates with North Sea Port, Ghent University, the Province of East Flanders, the provincial development agency of East Flanders and Cleantech Flanders on a resilient cleantech ecosystem in the Ghent region, by proactively stimulating the development and implementation of clean technology and the progress towards a circular economy. For plastics and construction materials, an analysis of the flows and the value chain was performed first. This resulted in an interactive web tool and concrete projects within these 2 industries. Other projects having a connection with circular economy were launched with European or Flemish support as well.

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We are tackling the emissions from consumption and use of materials

Plastics

- The City of Ghent is coordinator of the European project 'PlastiCity'. Within this project, we are looking for new solutions for collecting, sorting and processing plastic waste, together with cities from the Netherlands, France and the United Kingdom. For the Ghent case, we are investigating new processing methods for 'lost plastics' together with Ghent University and the relevant companies, because a lot of plastic waste from companies is technically suitable for recycling, but is not utilised effectively. The main objective of PlastiCity is to develop easily applicable strategies and solutions that can raise the recycling percentages of plastics in urban areas from 20-30 % to more than 50 %.
- A subsidy from Vlaanderen Circulair made the small-scale project 'ReDESIGN' by Ghent University, the City of Ghent and a Ghent communication agency possible. The project proves that information carriers made of polypropylene are a fully-fledged circular alternative to the usual products made of PVC (polyvinyl chloride). The research focused on road signs and roll-up banners. The City of Ghent provided a user test during the Ghent Festivities. The City of Ghent will use these results to make its communication products more sustainable.

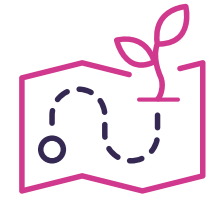
Circular building materials

- The European URBCON project wants to help reduce the considerable raw materials consumption and the high CO₂ emissions of the construction sector. Here as well, we collaborate with Ghent University (Labo Magnel) and companies with different areas of expertise. This project focuses on concrete, the most commonly used building material, and is aimed at the production of concrete with industrial by-products and captured CO₂, instead of primary raw materials. A demo project will be launched in a city school.
- The project 'Steppingstone to a circular city', funded by Vlaanderen Circulair, is aimed at demonstrating the use of Carbstone products in Ghent. The innovative Carbstone technology produces sustainable building materials from steel slags and CO₂, making a wide range of products possible, from cobbles to roof tiles, with the same technical properties as conventional concrete products but with a much lower burden on the environment. Once the studies were completed at the end of 2020, the City of Ghent launched a demo project with Carbstone cobbles in the footpath in front of Artevelde University College in Leeuwstraat.

These demo projects form an excellent opportunity to present the circular economy to a wider audience and to raise awareness about our use of raw materials and energy.

Leeuwstraat in Ghent features the first circular pavement in Belgium, with clinkers made from scrap steel and CO₂.





Innovation and network

The City of Ghent is one of the six European cities looking for eco-innovative solutions within the Horizon 2020 Project 'REPAiR' that should shape the circular economy in an urban context. Together with IVAGO and local stakeholders, a case has been developed to reduce and valorise organic waste better. During this term, the eventual tool will be an important instrument to develop the vision of and strategy on circular economy within the City of Ghent and to start the conversation with all internal and external stakeholders. To that end, we will also include other policy domains such as poverty, international solidarity, spatial planning and cleanliness.



Circular initiatives in the city

Innovation clearly is an important key to solving the challenge of developing an economic model that minimises the use of raw materials and energy without having to lose comfort. However, the circular economy is not just a high-tech story, of which a lot of small players in our city are living proof. The city is full of entrepreneurs, knowledge institutions, associations and enthusiastic citizens who consider waste a resource, who offer new, sustainable products or services, who want to share materials and products and who encourage consuming less.

The study 'Circular together' investigated the role that Ghent can play to support and accelerate the transition to a circular economy. The study shows that Ghent already hosts quite a lot of initiatives on circular economy. These initiatives are often fragmented and difficult to scale up. Bringing them together is recommended to increase their scope and impact, thus stimulating cooperation and exchange of knowledge.

In 2013, IVAGO, the City of Ghent and OCMW Gent joined forces and developed a partnership to spread the Repair Cafés in Ghent under the name of ‘Gent Repareert’ (Ghent Repairs). The community centres and local service centres of the City of Ghent and PCSW played an important role in the organisation of the Repair Cafés. IVAGO takes care of the overall communication. A large group of volunteers is currently responsible for the repair of electronics, bicycles, textile, etc. In addition, various sharing initiatives have emerged, such as Op Wielekes, Peerby and car sharing and cargo bike sharing initiatives.

As these initiatives often involve local and labour-intensive activities, social economy enterprises can also play an important role in the transition to a circular economy. During the previous term, the UCO site was transformed to accommodate social economy enterprises as well as an IVAGO recycling centre, and the focus shifted to the activation of target-group employees. Ateljee and Labeur give discarded products a new destination. At the end of 2019, ‘The Circular Hub’ was initiated in Balenmagazijn. This Hub speeds up the transition to a circular economy in Ghent by connecting as many circular entrepreneurs as possible and by encouraging (starting) entrepreneurs to opt for circular business models (e.g. via ‘Circular Kickstart’).



Reduction of the amount of waste

IVAGO has been raised awareness among citizens and has encouraged them to limit and sort household waste for years. Ghent has also taken quite a lot of measures to reduce the amount of waste produced:

- The subsidy for the purchase of **reusable nappies** was a success: last term, the subsidies amounted to € 105,737.82, with which the City of Ghent managed to support just over 1,000 households.
- The City of Ghent is a pioneer with its low-waste event management and introduced reusable cups at the Ghent Festivities. The City has also encouraged other organisers to make the switch to sustainable alternatives. They can rent **reusable cups** from IVAGO.
- By means of the local food strategy, the city promoted reducing food waste, while focusing on poverty reduction and stimulating the social economy with projects such as Restorestje and Foodsavers, for example. We have also **avoided thousands of kilos of food waste** by adjusting the serving sizes of school meals (see Food chapter).

10.3. Actions



The circular economy is a new topic within the City of Ghent's climate plan. However, quite a few projects and initiatives have already been launched. Right now, it is important to have an overview within the city, as well as to extend and enhance the existing network. By aligning the many initiatives and working together as a whole, we can present a more powerful image of the circular economy within the city and enhance our communication as well. Meanwhile, we continue to develop the strategy and vision of the circular economy within our city and we determine the ambitions in the long term. We integrate the concept into the climate objective and shape the policy together with all stakeholders: entrepreneurs, knowledge institutions, citizens and civil society.

We distinguish 4 major pillars that include all the actions regarding the circular economy:

- Upscaling the circular economy in cooperation with Ghent Cleantech Regional Cluster
- Enhancing small-scale circular initiatives in the urban fabric
- The City of Ghent's exemplary role
- Communication and the transfer of knowledge about the circular economy to the citizens

Whenever possible, we try to monitor the impact of the actions on CO₂ emissions.



Upscaling the circular economy in cooperation with Ghent Cleantech Regional Cluster

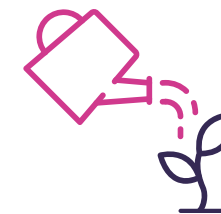
Action 66: Ghent Cleantech Regional Cluster (Sofie Bracke, Deputy Mayor of Economy and the Port)

With the Ghent Cleantech Regional Cluster, we are further developing a cleantech ecosystem that tackles the challenges in terms of energy, materials, water and mobility. Within the policy area of Economy, Deputy Mayor Bracke orients the innovation and investment policy on, among other things, the circular economy. She is also planning a hedge fund that we want to use to mobilise funds for a number of large-scale, ambitious projects. We always keep the long-term ambition and the sustainability of the climate plan in mind. We ensure an integrated policy by facilitating close cooperation between the Economy, Environment and Climate Departments. We prefer industries with a significant environmental impact or that have economic potential within the Ghent region. Therefore, our main goal is to develop a 'Ghent Economic Board', which will be responsible for the allocation of the resources.

Especially in the port, the exchange of heat and other residual flows takes priority. The actions on heat recovery are explained in the chapter on renewable energy. We are focusing on the development of a CCU (Carbon Capture and Utilization) hub in the port area to achieve our climate ambitions. The stakeholder consultation will work on a first demonstration project on green methanol production, which we want to upscale to other chemical raw materials such as green ammonia and formic acid. Ghent supports the project management of a CCU hub and contributes to the stakeholder consultation and communication. CCU hub is linked to the urban policy objectives on CO₂ reduction and the circular economy.

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Exchange of residual flows is given priority in the port



Enhancing small-scale circular initiatives in the urban fabric

Action 67: Knowledge and network building (together with Annelies Storms, Deputy Mayor of Facility Management)

We are gaining an insight into local material flows in the city (e.g. better collection of construction and demolition waste, biomass, IT hardware or textiles) and how to close the cycles. We are listing all circular actors in the city and are establishing a network. We facilitate cooperation, consultation and the exchange of knowledge. The platform makes it possible to map the needs and shape a supporting policy by the City.

Action 68: Repair Cafés (together with Bram Van Braeckevelt, Deputy Mayor of Public Cleanliness and President of IVAGO and Astrid De Bruycker, Deputy Mayor of Participation and Community Work)

Since Repair Cafés are becoming increasingly successful, we are developing the concept further. In addition to local Repair Cafés, we are making arrangements on the support of approximately six Repair Cafés per year that transcend the local level and involve a wider audience.

Action 69: Reusable cups at Overpoort (together with Mayor Mathias De Clercq and Sofie Bracke, Deputy Mayor of Economy)

Part of the Overpoort project focuses on the introduction of reusable cups in bars. We will work together on this project with the bar operators and we will commission a study on the possibilities of reusable cups, keeping their needs in mind. The results of this study will be shared with the nightlife industry.

Action 70: Business centre and social economy (UCO site/ Balenmagazijn) (Bram Van Braeckevelt, Deputy Mayor of Public Cleanliness and President of IVAGO and Ruddy Coddens, Deputy Mayor of Social policy and Poverty Reduction)

We are further promoting the role social economy enterprises can play in the transition to a circular economy. Balenmagazijn at the UCO site will be further developed to achieve the objectives of a social, sustainable economy. This topic is discussed in more detail in the policy notes 'Work and Social Economy' and 'Poverty Reduction'.

Action 71: Circular spatial policy (together with Sofie Bracke, Deputy Mayor of Economy, Filip Watteeuw, Deputy Mayor of Urban Planning)

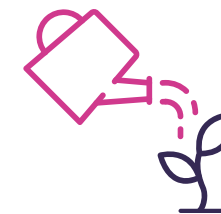
Space is scarce in an ever expanding city such as Ghent. The City of Ghent's spatial policy offers opportunities to make the transition to a circular city. The City of Ghent wants to use space more efficiently. An increase of spatial efficiency is possible through intensification, interweaving, reuse and temporary use of space. We need to interconnect residential, industrial, commercial and green areas and facilities at neighbourhood level in a well-balanced manner. The basic principle is the realisation of mixed areas for living and working with high spatial quality. Interwovenness is one of the major challenges that a growing city like Ghent faces, but we want to accept the challenge of efficient use of space, while giving space to the manufacturing economy in the city. We are working together to realise the urban ambition of integrated interwovenness. In addition to interwovenness, we strive for multifunctional use of space, comprehensive solutions and multifunctional construction.

Action 72: Research into a circular hub (Together with Sofie Bracke, Deputy Mayor of Economy and Bram Van Braeckvelt, Deputy Mayor of Public Cleanliness and President of IVAGO)

We are planning a circular hub. To that end, we are looking for an appropriate location where we can combine various initiatives on sharing, repairing, reusing and repurposing. The hub should be a place where associations and craft groups can develop, experiment and exchange knowledge, and where citizens can roll up their sleeves in repair and upcycling workshops. With the circular hub, we want to familiarise the general public with all the existing initiatives that have already found their place in the city as well.

Action 73: Research into a circular scan (together with Sofie Bracke, Deputy Mayor of Economy)

We are investigating the possibility of adding circular elements to the 'open call' from the chapter on companies and the tertiary sector. This way, we want to encourage companies and organisations not to limit their climate ambitions to energy saving and generation, but to take into account all of their business operations, including their use of materials.



The City of Ghent wants to lead by example

Circular material management is a considerable challenge in which the City of Ghent wants to be a leading organisation. By using materials in a well-thought-out way (through prevention, sharing and reuse), new purchases will decrease, there will be less waste and less CO₂ emissions.

Reusable cups on all squares during the Ghent Festivities since 2018.



Action 74: Circular solutions to urban challenges (Annelies Storms, Deputy Mayor of Facility Management)

We actively promote awareness raising and activation. We are looking for ambassadors in circular material management within the organisation. Twenty existing example projects show what circular thinking and acting looks like in practice. The City of Ghent makes testing grounds available for circular projects, bringing internal ambassadors together with external leaders. Together they will look for circular solutions to urban challenges. The results of the first ten new pilot projects will be shared with the general public by the summer of 2021.

Action 75: Circular procurement by the City of Ghent (Annelies Storms, Deputy Mayor of Facility Management and Filip Watteeuw, Deputy Mayor of Public Space)

Circular solutions are to be found at the level of circular criteria (circular procurement) and at the level of circular material management. We want to share materials that we no longer need within our own organisation with third parties. The circular economy creates new challenges for the social economy and vice versa. We also apply these principles to the design and construction of the public domain.

Action 76: The city of Ghent is experimenting with circular construction (Annelies Storms, Deputy Mayor of Facility Management and Filip Watteeuw, Deputy Mayor of Public Space)

The City of Ghent is also working on circular construction. The selection of materials, the conservation of resources and future-oriented design are very important elements in new construction, renovation and design projects in public space. A practical example is URBCON, an energy- and material-saving method to make concrete. We are developing a real-estate framework which can be used to benchmark future projects. The renovation of the service centre in Gentbrugge serves as a pilot project in the Green Deal on Circular Construction.





Communication and the transfer of knowledge about the circular economy

The inter-municipal waste cooperative IVAGO plays an important role in raising awareness among Ghentians about waste prevention and selective waste collection. By increasing the treatment level of collected waste flows, they can be valorised better within the scope of recycling. The residual waste we cannot avoid, will be valorised energetically via the waste-to-energy plant. It is highly important to reduce the amount of waste produced by making consumers aware of their impact and by intervening in the way we manage products and materials before they become waste. In other words, treatment of waste should be the very last step the Ghentians take.

Action 77: Communication strategy on the circular economy (together with Bram Van Braeckvelt, Deputy Mayor of Public Cleanliness and President of IVAGO, and Sofie Bracke, Deputy Mayor of Economy)

We work on a communication strategy to promote all the initiatives in the city that are linked to the circular economy under a single umbrella, thus sending a powerful message. IVAGO and the City of Ghent work together on a complementary basis to raise awareness among citizens. Companies and industrial parks are also exchanging knowledge, led by the Ghent University Centre of Expertise CAPTURE. The City of Ghent raises awareness to reduce the impact of consumption. We want to make circular projects visible through demo projects and make the concept of a circular economy understandable to Ghentians. By aligning the many initiatives and working together as a whole, we can enhance the image of the circular economy within the city and strengthen our communication as well.

Action 78: Support options (together with Bram Van Braeckvelt, Deputy Mayor of Public Cleanliness)

Ghentians are provided with workshops and expert advice to help them put their circular plans into practice. For example, local residents can organise a Repair Café in their neighbourhood together, share materials with their neighbours or start a bicycle library. During this term, we will provide a competition budget twice, for which we are looking for innovative ideas that can use some support. Since 2008, we have subsidised the purchase of reusable nappies. We are investigating how to use these resources more efficiently. We have therefore conducted a survey of local childcare services.

Action 79: Low-waste events (together with Bram Van Braeckvelt, Deputy Mayor of Public Cleanliness and Annelies Storms, Deputy Mayor of Events and Festivities)

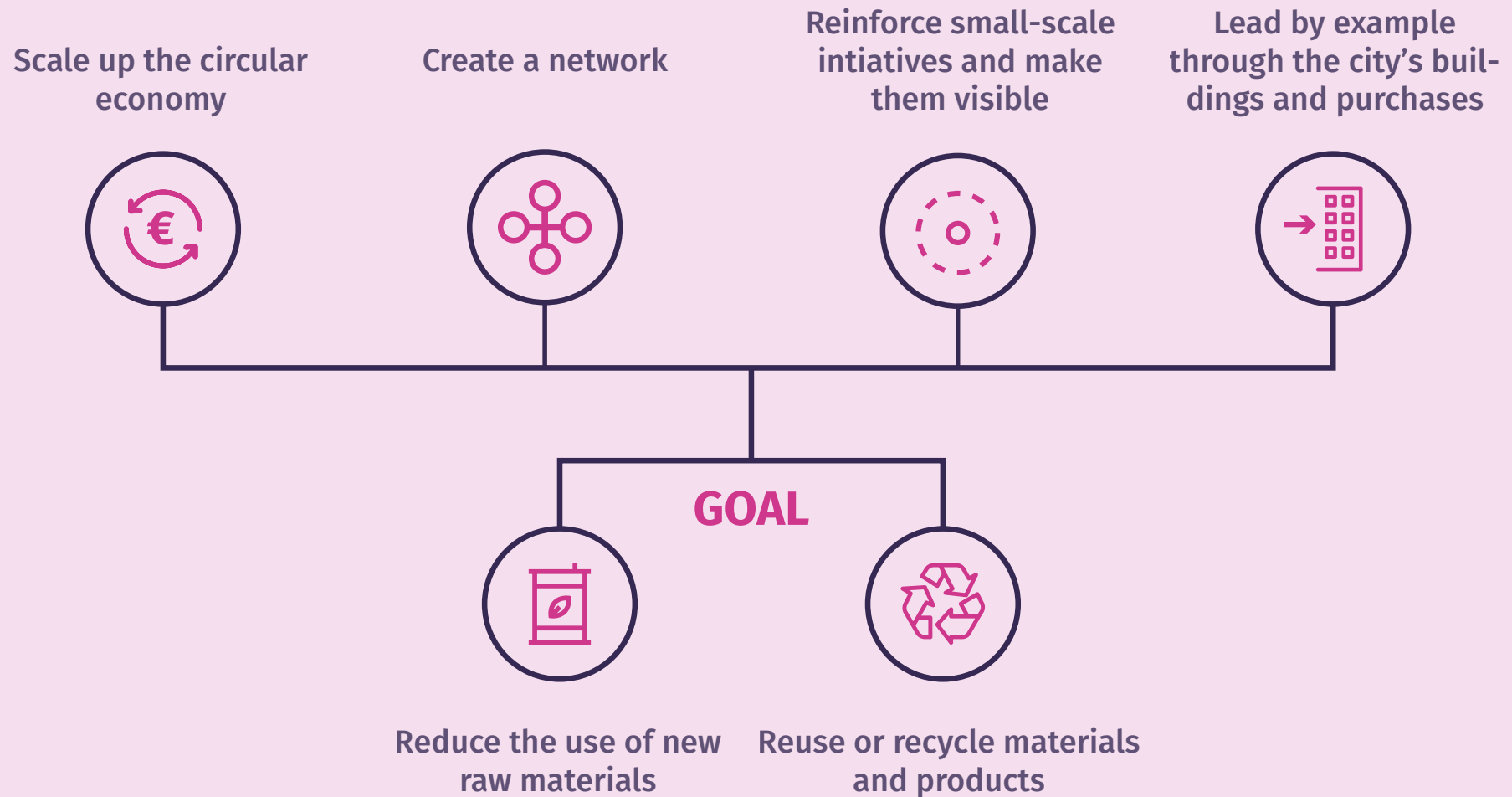
Events lead to a high level of consumption of drinks and food at the place of the event itself, which causes a lot of waste and litter. The regulations on catering materials at events are strictly adhered to, with a focus on raising awareness, informing and enforcing through subsidy rules, conditions for occupying public places and venue rental. Together with IVAGO, the offer for event organisers will be assessed and adapted if necessary.

10.4. Summary

Focusing on a circular economy and thus using materials, space, energy, water and food very sparingly is a necessary strategy to achieve our climate objectives in the field of mitigation and adaptation. That is why the City of Ghent continues its commitments via the Ghent Cleantech Regional Cluster and will support innovation as well as sustainable entrepreneurship. We give space to the manufacturing economy in the city. In addition, we stimulate, connect and welcome initiatives that contribute to the transition to a circular city. We build a network of circular actors, invest in making circular projects visible and raise awareness among Ghentians. With its procurement policy and real-estate portfolio, the City of Ghent wants to be an example in Flanders.



Transition to a circular city





11

CLIMATE
ADAPTATION





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11.1. Objective

Climate change makes Ghent more prone to heat waves, which are also more intense, more extreme rainfall and longer periods of drought. We can already experience these phenomena today. We have to prepare our city for these changes in order to keep it an attractive, liveable, healthy and safe place for our citizens, institutions and companies. That is exactly what climate adaptation means.

Our ambition for the City is to be climate-proof by 2030, which means that we want to design the city in a way that makes it resilient to floods and draughts, and that keeps it a pleasant place to live and work in during hot days.



These are our concrete objectives for a climate-proof Ghent:

- 1. The soil of Ghent acts as a sponge, minimising the impact of excessive rain and drought.**

Showers that occur only once every 20 years should not damage any buildings, roads or other municipal infrastructure in Ghent, now or in the future.

The drought objective will be determined after the drought study has been completed.

- 2. We prevent heat stress through the cooling effect of vegetation.**

Ghent remains a pleasant place to live and work in for everyone, even during hot days.



To make Ghent climate-proof, we concentrate on the following principles:

- We prevent a further net increase of soil sealing by buildings and pavement. We limit construction and pavement to the functional minimum and replace pavement with green areas, permeable pavement or pavement with natural infiltration where possible.
 - Every year, we strive for reducing pavement in the integral reconstruction of public domain by 15 % on average, across the various projects, including parks.
 - We invest maximally in at-source measures to retain rainwater locally as much as possible, in order to reuse it or to let it infiltrate into the ground through green areas or infiltration systems.
 - For the construction of infiltration and buffer facilities, we opt for designs that can be adapted to heavy rainfall in the long term.
 - New urban development projects are maximally rainwater neutral. Rainwater is collected locally and does not go to the sewage system. The space for water (in addition to green spaces) amounts to at least 7 % of the draining surface.
 - The large-scale green-blue network will be further developed: the five green poles and eight green climate axes will serve as ventilation corridors in the urban network.
- We are expanding the neighbourhood parks and the residential green areas, paying particular attention to the heavily built-up neighbourhoods in the city centre or the 19th-century belt.
 - Trees are invaluable to a climate-proof city: they provide shade, have a cooling effect, facilitate water collection and enhance biodiversity. We are therefore committed to increasing the number of trees in the city. In the reconstruction of public spaces, trees will be planted, which provide shade and lower the temperatures. The rule of thumb is to plant at least 1 tree per 5 parking spaces.
 - We opt for green roofs and façades on municipal buildings and encourage the citizens and companies of Ghent to do the same.
 - We focus on adaptive management of the various forms of urban green spaces and nature.
 - We focus on cooling infrastructure such as white-coloured materials, shade infrastructure and blinds.

11.2. State of affairs

Over the past few years, our climate adaptation approach has been twofold:

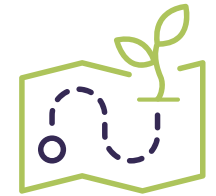
- In the first place, we invest in knowledge building as well as raising awareness and creating support for climate adaptation, both within the municipal organisation and beyond, by communicating, informing and involving as many parties as possible.
- At the same time, we take spatial and structural measures to address heat stress, groundwater depletion and flooding. We have focused on more green areas, space for water and less pavement in the city. These measures are closely intertwined and reduce heat stress as well as the risk of flooding and groundwater depletion.

Collectively expanding the space for greenery and water also fosters a social climate policy and makes vulnerable neighbourhoods more resilient to the negative effects of climate change. We give primary consideration to hot spots or places where these effects will be felt first and where the social impact will be greatest.

Knowledge building and raising awareness

A lot was achieved during the previous term. Since 2014, a municipal study group on Climate Adaptation has coordinated the internal development and dissemination of knowledge, and has supported several city departments to integrate climate adaptation into their plans and projects.





Vulnerability analyses have exposed a number of problem areas for Ghent:

- Ghent is an urban **heat island**, which means that heat waves affect those living or working in the city the most. Especially the city centre and the 19th-century neighbourhoods like Dampoort, Muide-Meulestede, Sluizeken-Tolhuis-Ham, Ledeborg and Brugse Poort are particularly vulnerable to heat stress.
- The area outside the Ringvaart canal is **vulnerable to flooding from the rivers and canals** (Leie, Boven-Schelde, Ringvaart, Zeeschelde, Moervaart).
- The city centre and districts such as Oostakker, Sint-Amandsberg and Gentbrugge are also at **risk of storm water flooding the streets** due to the drains being overwhelmed.
- At the same time, **Ghent's soil is drying** out due to ever lower groundwater and river levels as a result of increasingly longer periods without rain. This has particularly impacted the urban green spaces and natural environment as well as the Ghent harbour.

In the past few years, we have focused on raising awareness among citizens and private partners via communication campaigns. To that end, we have offered the necessary incentives: adapting the construction rules with a **maximum focus on the reuse of rainwater and local infiltration**, subsidies for green roofs, subsidies for less pavement and more green space on school playgrounds, as well as making the layout of façade gardens and climbing plants license-free.

This has resulted in more and more citizens taking the initiative to lay out a green roof or façade garden, or to remove pavement from their (front) gardens. The proposals for the Citizen Budget clearly indicated the desire for more urban green areas: half of the proposals contained ideas for a greener neighbourhood.

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We will make Ghent resistant to heavy rain, drought and heat”

Spatial and structural measures

In the public domain, an integrated approach has been adopted on a city-wide, neighbourhood, street and micro level.

The green climate axes, green poles as well as small-scale neighbourhood and residential green spaces have been further developed.

The City has drawn up several vision statements that help integrate climate adaptation into urban projects. The idea that climate adaptation is a necessary and future-proof investment for our urban environment is strongly embedded in the municipal organisation. Climate adaptation offers opportunities to enhance Ghent as an attractive city and to improve the living environment. Projects such as the Mobility Plan that is less focused on cars, the '2030 Zoning Vision – Space for Ghent', the Green Structure Plan, the Green Spatial Implementation Plan (RUP Groen), the study on green climate axes (under development), the Integral Plan for the Public Domain – part 4 (under development) and the Statement 'Water in the City' lay the foundations for further integration of climate adaptation measures in the city. This way, we can create a liveable, healthy, attractive and biodiverse city.



11.3. Action plan Climate Adaptation 2020-2025

In the next years, we will continue on the same path. As climate change continues, Ghent's ambition is big, and so are the challenges. Despite all the climate efforts, it is becoming increasingly clear that our climate is getting warmer and more extreme.

The City of Ghent also continues to change. We are adapting to a demographic and economic evolution and we need to find support for reducing the amount of pavement, interweaving, increasing the density and expanding the greenery in planned projects. We want to stimulate the residents and companies in Ghent to take initiative themselves. Therefore we need a support base.

During this term, we will focus on the further development of the climate adaptation policy in Ghent. This way, we are implementing the policy objective 'More green, nature and water create a pleasant and climate-proof Ghent' from the City of Ghent's multi-annual plan.



The Action Plan on Climate Adaptation for 2020-2025 is based on the 8 pillars of our climate adaptation strategy.

1. Political support, policy and coordination within the city organisation
2. The development of knowledge on climate change, impact and vulnerability of Ghent
3. The development of knowledge on climate adaptation measures
4. The integration of climate adaptation into urban policy plans, processes and instruments
5. Implementation and activation
6. Communication and raising awareness
7. Network, partnerships and multi-stakeholder approach
8. Monitoring and evaluation

1. Political support, policy and coordination on climate adaptation within the municipal organisation

Over the past few years, the various city services have incorporated climate adaptation into their policy as well as the implementation and financing of their own activities for the development of public space and green space as well as general urban development (see pillar 4). This integrated approach will be further consolidated. The Study Group on Climate Adaptation will continue to serve as a forum for exchange and guardian of this integrated approach. The Environment & Climate Department will continue to coordinate, enhance internal support and offer advice on climate adaptation to other municipal departments. We will continue to build knowledge by means of studies, measurements, monitoring, exchange of knowledge with (international) example cities and pilot projects for testing new techniques.



Action 80: Expansion of climate-adaptive designs to sogent, Public Centre for Social Welfare and North Sea Port (together with Sami Souguir, Deputy Mayor of Urban Development, Annelies Storms, Deputy Mayor of Facility Management and Sofie Bracke, Deputy Mayor of the Port)

We ensure the embedding of climate adaptation in the operations of sogent, PCSW and North Sea Port. We have adopted the following approach:

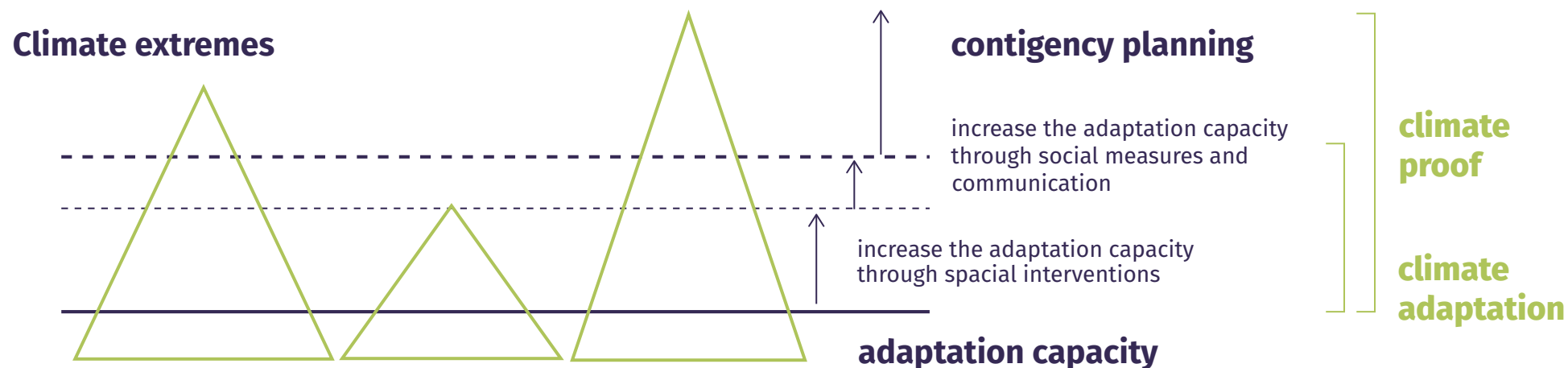
- periodic consultations with sogent to develop a further integrated approach to the urban development projects which sogent is responsible for;
- the integration of buildings owned by the PCSW into the municipal Facility Management department to pursue the same vision, principles and approach;
- identifying and tackling the challenges in terms of climate adaptation in spatial and economic projects in cooperation with North Sea Port and the other partners involved in the port area of Ghent, like Projectbureau Gentse Kanalen. The focus is on water infiltration, water buffering and less pavement.



Action 81: Contingency planning (together with Mayor Mathias De Clercq)

Ghent's climate adaptation strategy focuses on the prevention and mitigation of the negative effects of climate change. However, climate adaptation does not suffice to cope with all climatic extremes. Exceptional weather events can occur at any time and cause short or long-term disruption, requiring the city to develop contingency plans.

It is the mayor's responsibility to coordinate the contingency plan and crisis communication. Two examples of such a contingency plan are the heat plan which pays particular attention to the (socially isolated) elderly, children, the chronically ill and people living on their own, and the heat plan for events (e.g. the Ghent Festivities). Vulnerability analyses for heat, flooding and drought help keep these contingency plans up to date.



Role of disaster contingency planning in the development of a climate-proof city.

2. The development of knowledge on climate change, impact and vulnerability of Ghent

Climate change is becoming more urgent, which is why we need to keep the finger on the pulse of the evolutions and the consequences for Ghent. Through vulnerability analyses, we gain an insight into the effects of climate change on the city, our sensitivity, the potential impact and the urgency to address the problem.

Action 82: Vulnerability analysis of drought and salinisation

We are conducting a drought study to investigate the current and future impact of drought and water scarcity on Ghent (water availability, urban green space, biodiversity, agriculture, horticulture, infrastructure, water quality, water levels and salinisation). By means of a water balance model, we can map the supply and demand of all waterways in Ghent and calculate the effect of pumping, groundwater extraction, infiltration and drainage on the groundwater. On the basis of the research, we will formulate measures and policy recommendations that we can take as a local authority, in addition to the drought policy imposed by higher levels of government. We are monitoring the developments of this topic at a Flemish level (e.g. drawing up drought maps and drought measures).

Action 83: Vulnerability analysis of heat stress

The heat study from 2013 will be expanded with new heat maps that not only show the surface and air temperatures, but also the perceived temperature. Heat stress, as it is perceived outdoors during the day, can thus be visualised, and heat and cold islands can be detected. We also continue to cooperate with Ghent University to measure the urban heat island effect in Ghent (Mocca network).

Action 84: Vulnerability analysis of flooding

We monitor the further development and implementation of the Flemish flood map, which maps rainwater drainage during heavy showers. The map is an addition to our own study work on flooding, can supplement our knowledge on this topic in order to shape our policy and helps make (sewage) projects a priority. We also monitor the research into the impact of the sea level rise on Flanders.



Action 85: Vulnerability analysis of biodiversity (Astrid De Bruycker, Deputy Mayor of Public Greenery)

In order to adjust nature conservation and design to the changing climate, we need to assess the climate-sensitive vegetation and species in Ghent. To do so, we will use the biological valuation map (BWK) and the species included in the species plan as a basis. We can also add knowledge of soil, the water system and the environment (urban heat island) to show the vulnerability of biodiversity in Ghent.



3. Development of knowledge on climate adaptation measures

This includes all the studies necessary to pursue an integral and climate-proof policy in Ghent, such as applied study work for advice (e.g. rainwater-neutral urban projects), for the development of instruments (e.g. stability study for green roofs) and the development of reference frameworks and guidelines (e.g. infiltration map). Launching pilot projects and testing new techniques (e.g. shared rainwater systems in public areas) are also part of this.

Action 86: Continue to invest in pilot projects on climate adaptation (together with Filip Watteeuw, Deputy Mayor of Public Space, Astrid De Bruycker, Deputy Mayor of Public Green Areas, Annelies Storms, Deputy Mayor of Facility Management and Sofie Bracke, Deputy Mayor of Sport)

Some climate adaptation measures are based on new, recently developed methods or materials. We need to keep testing those methods and materials in pilot projects so as to gain experience. Possible pilot projects that we need to invest in are tree pits where the water can infiltrate into, disconnecting existing roofs and pavements from the sewage system, conducting research into new types of permeable pavements, reuse of drainage water, research into the possibilities for public water bodies and improving the water quality in Ghent, so that we can eventually create additional water recreation areas in addition to Blaarmeersen.



Action 87: Evaluation of the climate-adaptive design measures already taken at the public domain level (together with Filip Watteuw, Deputy Mayor of Public Space and Astrid De Bruycker, Deputy Mayor of Public Greenery)

We list, assess and monitor the climate-adaptive design measures already taken in terms of their effectiveness, technical preconditions and cost price. To that end, we should also consider the management aspect. We evaluate the following measures, among other things:

- permeable pavements (existing and new pilot projects)
- wadis, urban canals (bioswales) as well as other infiltration and buffer systems
- trees planted according to the Stockholm system and other applied planting methods for street trees
- choice of plant species and maintenance needs for climate-proof greenery

Action 88: We are using the municipal buildings to test new techniques for climate adaptation at a building level (together with Annelies Storms, Deputy Mayor of Facility Management)

A number of new techniques will be tested on municipal buildings to provide an insight into the potential of the techniques and the practical aspects of climate adaptation. Possible options are the combination of a green roof and solar panels, reuse of rainwater collected on municipal buildings by the neighbourhood, recycling grey water and nature-inclusive new constructions or renovations.



4. Integration of climate adaptation into urban policy plans, processes and instruments

Climate adaptation should definitely be part of all future urban spatial projects and planning. We can guarantee this by integrating climate adaptation into the urban policy plans, processes and instruments that constitute the framework for such projects, now and in the future.



URBAN POLICY PLANS AND VISION STATEMENTS

Action 89: Implementing 'Ruimte voor Gent' ('Space for Ghent') (together with Filip Watteeuw, Deputy Mayor of Public Space)

In the '2030 Zoning Vision – Space for Ghent', the City of Ghent concentrates on Green Climate Axes and less pavement. Greening and water permeability are a central part of the plan. Furthermore, our spatial planning should proactively make (socially) vulnerable neighbourhoods more resistant to the negative consequences of climate change, in particular by collectively giving more space to green areas, water and cooling.

Action 90: Implementation of the Spatial Implementation Plan on Green Spaces (together with Astrid De Bruycker, Deputy Mayor of Public Green Spaces, Filip Watteeuw, Deputy Mayor of Urban Planning and Sami Souguir, Deputy Mayor of Urban Development)

We are working on a thematic Spatial Implementation Plan on Green Spaces. With that plan, we give an appropriate legal destination and protection to approximately 257 hectares of public green zones and invaluable nature and woodland. We also indicate approximately 115 hectares of new green areas to be developed.

Action 91: Implementation of the Vision Statement ‘Water in the City’ and further development of the (rain)water plan (Filip Watteeuw, Deputy Mayor of Urban Planning)

Ghent is working on the implementation of the Vision Statement ‘Water in the City’, which was developed in cooperation with De Vlaamse Waterweg. A number of thematic projects from ‘Water in the City’ contribute to climate adaptation, for instance developing the integral plan for public areas with a vision of the integration of green and water elements that contribute to the sponge effect of the city and a (rain)water plan with a clear, coherent and future-oriented vision of (rain)water in the city. In addition, we are examining where former waterways such as Tichelrei and Kolveniersgang can be reopened with green banks.



Action 92: Draw up and implement the ‘Vision Statement on Green Climate Axes’ (together with Astrid De Bruycker, Deputy Mayor of Public Greenery, Filip Watteeuw, Deputy Mayor of Urban Planning and Sami Souguir, Deputy Mayor of Spatial Planning)

The green climate axes constitute a continuous recreational, ecological and scenic connection between the surrounding rural areas and the city centre. They provide the urban environment with greenery, cooling and fresh air, mitigate the urban heat island effect and prevent flooding and groundwater depletion. The City of Ghent has defined eight Green Climate Axes, along which the green poles are located. Ghent will further develop a spatial vision of the Green Climate Axes which is broadly supported, realistic and specific to each Green Climate Axis and taking into account the ambitions in terms of nature, climate, mobility, recreation and water. We will prepare structure plans for each of the eight Green Climate Axes, which will be linked to an implementation strategy for the realisation of the axes during this term and the next ones. In addition to vision development, we are focusing on concrete realisations along Green Climate Axis 4, Westerringspoor and De Pintelaan.



Action 93: Draw up and implement the Integral Plan for Public Areas – green and water elements (Together with Filip Watteeuw, Deputy Mayor of Public Space and Astrid De Bruycker, Deputy Mayor of Public Greenery)

In 2019, the development of the fourth 'Integral Plan for Public Areas' (IPOD IV) was started, which describes our vision of the future of a climate-proof public domain. The City of Ghent is drawing up plans for the future and wants to adapt to the changing climate by focusing on green and water in the city, by removing pavement, retaining water and letting it infiltrate. In addition to a vision of the future, IPOD IV will also be an instrument to organise the use of green and water elements in the public domain in Ghent by means of design sheets and a decision framework. The guidelines are a manual for each project developer in the public space in Ghent.

URBAN PROCEDURES

Action 94: Climate adaptation as part of the Integral Quality Assurance for the redevelopment of streets and squares (IKZ procedure), project development, master planning and licensing (Together with Filip Watteeuw, Deputy Mayor of Public Space and Astrid De Bruycker, Deputy Mayor of Public Greenery)

A climate-proof public domain with a high-quality water system keeps the city pleasant to live in for its citizens. We continue to focus on the prevention of further soil sealing by pavement in the public domain. Water is gaining importance as a design challenge. Water needs to be given sufficient space for infiltration, buffering or flooding to restore natural dynamics. In the future, IPOD IV (Integral Plan for Public Areas) will be the guiding principle for a climate-proof design of the public domain (Action 93). When it comes to interventions with an impact on the water system, we are investing even more in a combined analysis of rainwater, surface water and groundwater, on the scale of the project. In an urban context, where space is scarce, this requires an integral and integrated approach (both at the level of studies, design, licensing and master planning).

URBAN INSTRUMENTS

The city also develops to a large extent through private initiatives. In the past few years, a number of instruments have already been adapted in order to maximise the contribution of private developments to a climate-proof Ghent. We will continue to invest in these instruments.

Action 95: Continuation of green roof subsidy and stability study

The development of high-quality green roofs on existing buildings will be further stimulated with subsidies. Higher subsidies will be granted for this, in order to stimulate the construction of additional water-storing and biodiverse green roofs. The preparatory stability study of the roof will also be subsidised.

Action 96: Construction rules (Filip Watteeuw, Deputy Mayor of Public Space)

We are investigating the value of an additional set of instruments and/or adaptations to the General Building Regulations with regard to further use of the private domain for a climate-proof city.

Action 97: Creation of a policy framework in order to minimise pavement in the private domain (Together with Filip Watteeuw, Deputy Mayor of Public Space)

An internal study group will be established, which examines the private pavement around residential buildings, hotels and restaurants, office buildings, industrial premises and commercial buildings in order to make them more climate-proof (disconnection from the sewage system, good drainage, less pavement and more green areas). To that end, we will investigate which instruments and incentives can be used. The goal is to focus on information, regulation and enforcement.





5. Implementation and activation

To make climate adaptation visible, we also put maximum effort into the realisation of specific projects. Focal points of the implementation are moving along with planned projects, an area-oriented approach through connection with the area plans, creating added value and a joint approach. This implementation approach is developed in consultation with all parties that work on and in the city. IPOD IV (Integral Plan for Public Areas) will be at the centre of this approach.

PUBLIC DOMAIN

As mentioned above, climate adaptation is included in the (re)development projects of the public domain. An overview of planned projects can be found below.



Action 98: Implementation of planned example projects on climate adaptation in the public domain (together with Filip Watteeuw, Deputy Mayor of Public Space and Astrid De Bruycker, Deputy Mayor of Public Greenery)

A number of example projects still to be implemented were already listed in the previous climate adaptation plan. Over the coming two years, we will prioritise these projects, which include:

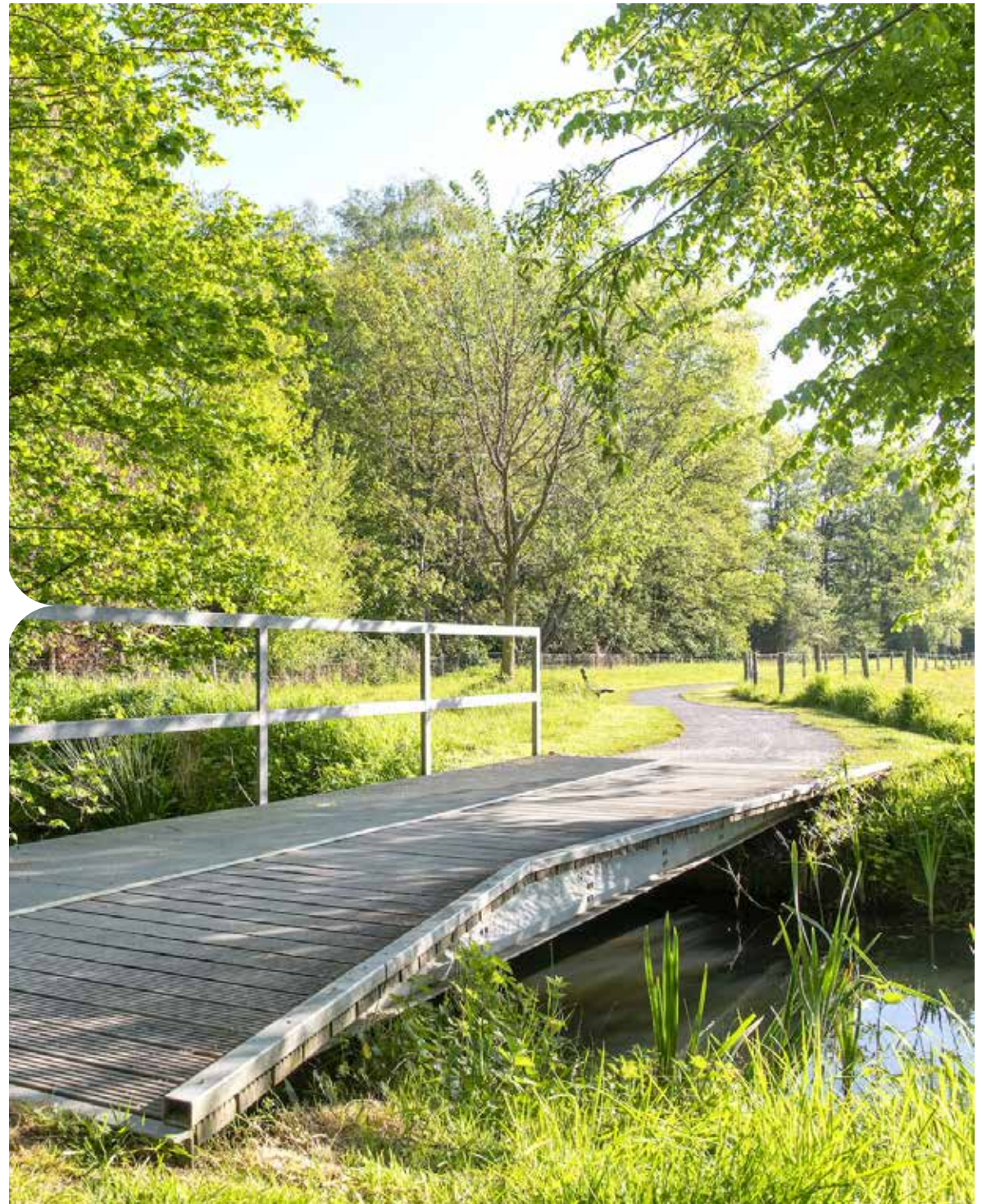
- redevelopment of Kettingplein square in the Brugse Poort neighbourhood as a climate-proof square, with disconnection from the rainwater drainage of the surrounding streets and buildings, collection of that rainwater in an underground infiltration system, extra green space (350 m² less pavement) which can also serve for water collection, extra trees for more shade, etc.
- redevelopment of Hertstraat (removal of asphalt, adding façade gardens and neighbourhood management) and Sasstraat (green façades)
- realisation of testing grounds for less pavement in Oostakker Dorp (4,000m² less pavement) and Paul de Smet de Naeyerpark (1,500m² less pavement), for which we received a Flemish subsidy
- redevelopment of Baudelohof (less pavement and making the water accessible)
- less pavement on the Gentbrugge cemetery and Vogelenzangpark (380 m² less pavement)

Actie 99: Implementation of new reconstruction projects with measures for climate adaptation (together with Astrid De Bruycker, Deputy Mayor of Public Greenery and Filip Watteeuw, Deputy Mayor of Public Space)

A lot of reconstruction projects to which the measures for climate adaptation will be applied are planned for 2020-2025. Some examples are removing asphalt and pavement, replacing car parks with green areas, redevelopment of parks, development of residential areas, façade gardens, etc.

Action 100: Climate-proof urban development projects (together with Mayor Mathias De Clercq and Sami Souguir, Deputy Mayor of Urban Development)

Climate adaptation will be further integrated into the major city projects that are on the programme, such as Muide Meulestede Morgen, En Route Dampoort – Sint-Amandsberg, Nieuw Gent, Ecowijk, Arsenaalsite, Afrikalaan and Oude/Nieuwe Dokken.





GREEN MEASURES

Action 101: Implementation of green measures (Astrid De Bruycker, Deputy Mayor of Public Greenery)



The policy plan 'Public green spaces' contributes to the climate adaptation policy. The following projects are on the programmed during this term:

- Promotion of private façade gardens (with a goal of 365 façade gardens per year) with financial support from Geveltuinbrigade in priority streets or neighbourhoods
- Realisation of 1500 m² of green façades a year, on our own walls and buildings or on private façades adjacent to the public domain
- Planting of climbing plants between the houses in narrow streets
- Investment in green streets by means of small street gardens and at least 1,500 extra street trees (goal: enabling each Ghentian to see at least 1 tree from their front door)
- (Re)development of at least 10 ha of residential green space, for example Maria Goretti and Reigerspark
- Realisation of 14 new neighbourhood parks, further development of the green poles, the three interconnecting areas in the port and the green climate axes
- Making the banks of the Lieve canal greener and doing the same for the other watercourses in Ghent in consultation with De Vlaamse Waterweg
- Making the school playgrounds greener through a participatory approach
- Opening up private green zones by means of shared use (the goal is two new green zones of at least 0.5 ha a year)
- Promotion of nature-inclusive building, a type of sustainable building whereby a structure contributes to local biodiversity and natural values, in our own as well as external building projects

Action 102: Climate adaptive management and establishment of public green spaces within the framework of biodiversity and climate adaptation (Astrid De Bruycker, Deputy Mayor of Public Greenery)

On the basis of the vulnerability analysis for biodiversity, the establishment and management of urban green spaces and natural areas is constantly adapted to make the city resistant to climate change. Adaptive management includes flexible management (changing mowing dates, for example), the phased management of extensive grasslands and ruderal areas, attention to adapted management in intermediate landscapes (gardens, industrial zones, pastures, field margins, etc.) and the management of invasive alien species.

MUNICIPAL REAL-ESTATE PORTFOLIO

Action 103: Climate-proof municipal real-estate portfolio (Annelies Storms, Deputy Mayor of Facility Management)

We will continue to invest in the implementation of the 'Vision Statement on Rainwater and Green Roofs' in municipal buildings and its expansion to the buildings owned by the Public Centre for Social Welfare. In addition, a list of example projects is drawn up for this term. Green roofs will be installed on 8 municipal schools: De Kleurdoos, Westerhem, Klaverdries, De Boekmolen, 't Kriebelhuis, Het Prisma, Centrum Voor Volwassenenonderwijs and De Spiegel.





6. Communication and raising awareness

With a number of actions and ideas we want to bring climate adaptation to the attention of households in Ghent, so that they can contribute to a liveable and resilient Ghent. Wherever necessary, we will cooperate with gardeners, tile companies, contractors and project developers in order to convince them of the importance of climate adaptation.

Action 104: Informing and making Ghentians enthusiastic about pavement removal and greening

We will build on the 2018 communication strategy, which should encourage Ghentians to use less pavement and create more green spaces on their private property. On the basis of this communication strategy, we want to test a mix of experiments, mostly to determine the exact moment when citizens change their behaviour or come into action.

Action 105: De Energiecentrale advises Ghentians about climate-proof housing

The consultants from De Energiecentrale who visit Ghentians to provide them with renovation advice, will also advise them on how to climate-proof a home and inform them about green roofs, pavement removal, permeable pavement, rainwater collection, reuse and infiltration as well as measures regarding heat stress, for example. The consultants from De Energiecentrale will also receive external training to acquire expertise in these themes.



Action 106: Ghentians contribute to climate-proof streets (together with Astrid De Bruycker, Deputy Mayor of Public Greenery)

Façade gardens and green front gardens are an important factor in making Ghent's streets greener. We specifically invest in such gardens, both in streets that are redeveloped and in other streets:

- Development and dissemination of communication on how to make a street rain and heat resistant, including all measures that can be taken to make a street or building greener, create rainwater buffers and remove pavement.
- Information sessions on 'Planting with neighbours'. If at least 15 neighbours are interested in a façade garden or climbing plants, the City of Ghent organises a free information session.
- We are looking into the organisation of 'Gent breekt uit' (Ghent breaks out), a joint action weekend to remove unnecessary pavement from (front) gardens.

Action 107: Climate adaptation route through Ghent

A route (walking/cycling tour) along the realised example projects for climate adaptation is being developed.

7. Network, partnerships and multi-stakeholder approach

Climate adaptation measures are not limited to public spaces, for which government authorities are primarily responsible. A lot of space is privately owned (for instance residential buildings, offices, company premises, car parks, warehouses, estates, gardens and green zones). In other words, climate adaptation concerns everyone. We want to collaborate with partners and involve stakeholders such as Ghent University, other knowledge and educational institutions, project developers, companies, the healthcare industry, the cultural sector, nature conservation associations and citizens. In addition, climate adaptation requires cooperation with other government authorities such as the province, the Flemish government and European institutions.





8. Monitoring and evaluation

The action plan for climate adaptation is a living document that will be complemented on the basis of new knowledge, opportunities or needs. For example, the drought study will formulate additional measures that local authorities can take to control water scarcity and drought. Opportunities like citizen budget proposals, Flemish initiatives or European subsidy projects can result in additional actions. Within the scope of the Covenant of Mayors, a two-yearly evaluation of the climate adaptation strategy is provided by means of environmental indicators (for instance, the proportion of paved surfaces) and result indicators (including the number of new street trees, m² of green roofs and m² of public space disconnected from the drainage system or where asphalt has been removed).



Action 108: Monitoring the proportion of paved surfaces in Ghent

The proportion of paved surfaces in Ghent is monitored as an overarching indicator for a climate-proof city. Informatie Vlaanderen delivers three-yearly land cover maps, which classify each square metre as covered or uncovered, on the basis of GIS data and aerial photographs. These maps will be monitored, validated if required and further analysed in order to assess the evolution of the proportion of paved surfaces (2009, 2012, 2015, 2018) as well as to gain an insight into the pavement, for example per neighbourhood or in the port area, industrial parks and gardens.



11.4. Summary

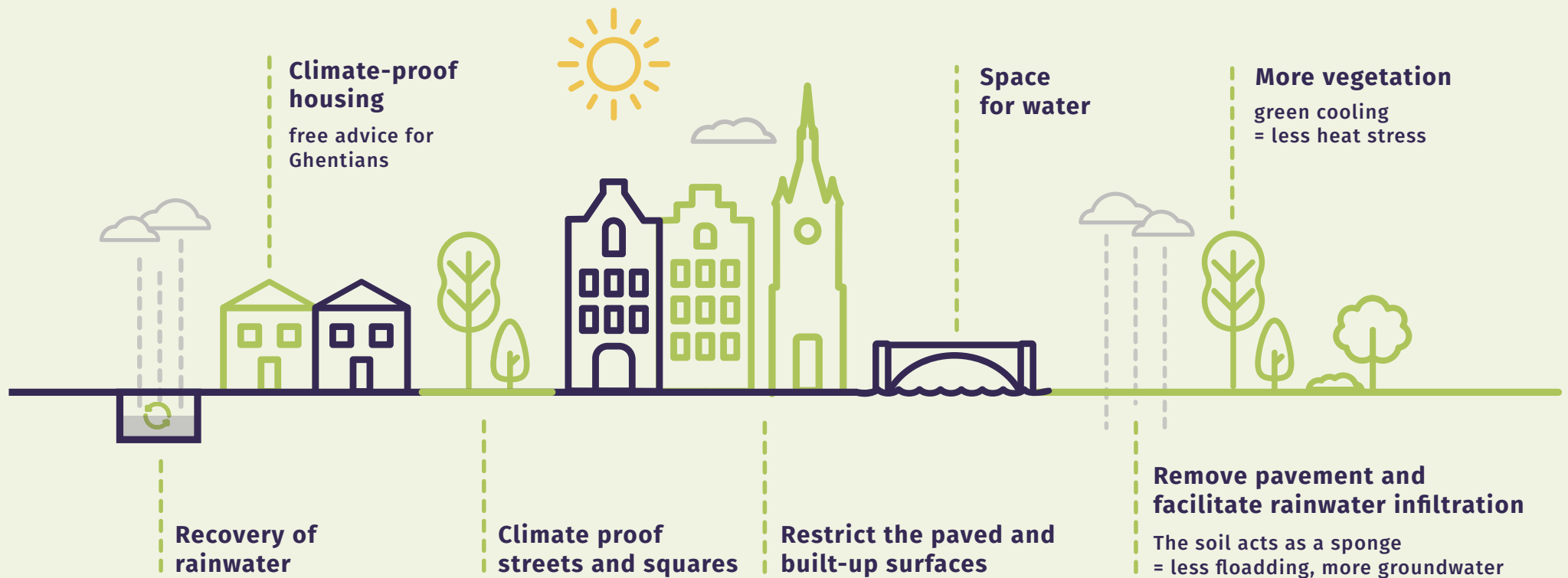
The next few years, we will continue to invest in climate proofing our city. We will make Ghent resistant to flooding and droughts by removing pavement and by investing in infiltration and the reuse of rainwater. We will prevent heat stress by cooling Ghent with more green-blue networks as well as more green public spaces and by making buildings heat-resistant.

By climate proofing Ghent, we are simultaneously adding quality to the city by increasing its liveability, improving health, creating attractive outdoor spaces and enriching biodiversity.

“
This will make Ghent an even more pleasant and safe place to live, work and stay in for people, plants and animals

Ghent will be climate proof by 2030

Resistant to flooding, drought and heat



Annexes

12.1. Indicators

Covenant of Mayors

By signing the Covenant of Mayors, the City of Ghent commits to monitoring the CO₂ emissions. The subsequent monitoring starts from a baseline measurement, followed by a CO₂ inventory.

As a basis for Ghent's climate policy, the CO₂ emissions in Ghent were measured in 2007 (baseline measurement) and 2009 by a consultancy firm and the Flemish Institute for Technological Research (VITO). Since 2011, the Flemish government has commissioned VITO to annually prepare a CO₂ monitor for every Flemish municipality. VITO ensures a uniform methodology and data collection. This uniformity increases the transparency and reliability. Being the first city in Flanders to prepare a CO₂ monitor, Ghent has helped pave the way to a standardised approach for all Flemish municipalities. The figures for 2007 and 2009 were recalculated according to the new VITO method.

The guidelines of the Covenant of Mayors determine the scope. As already indicated, the ETS companies are not included in the CO₂ measurement, and shipping is not part of the scope either.

The following environmental indicators are updated annually:

Indicator: **The total CO₂ emissions (excl. ETS)**

- Description: The emissions from the industry (excl. ETS), tertiary sector, municipal buildings, households, agriculture, transport and public lighting
- Objective: A 40 % reduction in total CO₂ emissions by 2030 compared to 2007.
- Situation in 2007: 1,682 ktons of CO₂
- Situation in 2018: 1,406 ktons of CO₂
- Objective in 2030: 1,009 ktons of CO₂

Indicator: **The self-sufficiency rate in terms of energy**

- Description: Production of renewable energy (wind/solar energy) in Ghent compared to the electricity and heat demand from households
- Objective: Increase the percentage of locally produced renewable energy to 15 %.
- Situation in 2007: 3.88 %
- Situation in 2019: 22.13 %
- Objective in 2030: 50 %

The majority of these data come from the Flemish Institute for Technological Research (VITO). The CO₂ emissions from municipal buildings, the municipal fleet and public lighting are calculated on the basis of internal data.

Further research should give an insight into a number of important objectives, of which the following are specific to this plan:

- **Energy performance screening of homes (Action 10)** with the progress of energy-saving renovations being monitored. This will give us an insight into the objective to double the number of residential renovations.
- **Monitoring the proportion of paved surfaces in Ghent (Action 108)**, keeping in mind the objective to 'prevent a further net increase of soil sealing by buildings and pavement' on the basis of aerial photography.

In addition to monitoring at an environmental level, reporting will also take place at an action level. The process will be described per Action in a report and numerous indicators are monitored as well. The results are published in the financial statements of the City of Ghent, which is presented to the municipal council every year in June. These are the main indicators:

- Indicators concerning the operations of De Energiecentrale are the number of renovation recommendations, renovation consultations and apartments under supervision. The operation of the rolling fund is monitored as well, not only in terms of numbers, but also in terms of the type of work performed. We also investigate whether we reach the social target group when it comes to energy poverty.
- As to renewable energy, we monitor the number of loans for renewable energy from the rolling fund, investments in renewable energy that are a result of the energy coaching of companies, the results of the 'Buurzame Stroom' project and the progress of the installation of solar panels on municipal buildings. We also keep track of the amount of residual heat that is used additionally.
- With regard to the actions for companies and the tertiary sector, we report the number of companies and organisations that use energy coaching and check how much energy is saved as a result. We do the same for new industrial parks. As for the subsidies, we monitor the number of investments and the type of investments. Energy savings in our own buildings are also monitored, just like the energy consumption of public lighting.
- In addition to reports by the Mobility Company (as to the pedestrian network, cycling infrastructure, Park & Ride sites, etc.), transport is monitored by keeping track of (shared) electric mobility, which includes the number of charging stations, subsidies for electric shared cars, subsidies for the deletion of number plates, reimbursements for registration fees for car sharing, etc. When it comes to the municipal fleet, we monitor the diesel, CNG, petrol and electricity consumption.
- For food, we continue to monitor the current indicators: food surpluses distributed by Foodsavers, vegetable garden groups, Restorestjes, communication coverage, etc. For school meals, we follow a process for detailed calculation of the reduction of CO₂ emissions as a result of the measures taken.
- Regarding climate adaptation, a large number of measures are to result in less pavement and the greening of public spaces. Numerous indicators are monitored within the scope of the policy note on green spaces. We keep track of the surface of pavement that has been removed in specific pilot projects. In addition, we monitor the objective to reduce pavement by 15 % in integral reconstruction projects. The green roofs on municipal buildings are taken into account, as are the green roof subsidies for citizens and companies.

12.2. CO₂-monitoring



Ghent CO ₂ -monitoring 2007-2018 (kton CO ₂)										
	2007	2009	2011	2012	2013	2014	2015	2016	2017	2018
Industry excl. ETS	196	147	178	182	212	182	176	170	160	148
Tertiary sector	460	473	437	441	436	387	428	419	402	398
Municipal buildings	22	23	22	24	26	20	19	19	19	19
Households	395	382	338	345	353	303	311	323	307	299
Agriculture	8	7	5	5	5	4	6	6	5	5
Transport	598	554	550	549	557	564	553	535	532	530
Local road traffic	nb	nb	269	270	271	283	262	245	244	241
Motorway traffic	nb	nb	266	265	271	268	278	277	275	276
Bus and tram	11	11	13	13	12	12	12	12	11	11
Municipal fleet	2	2	2	2	2	1	1	1	1	1
Public lightning	5	5	4	4	4	4	3	3	3	3
Not attributed	21	21	23	20	27	23	25	26	25	22
Total	1.682	1.590	1.536	1.546	1.593	1.466	1.502	1.482	1.434	1.406
evolution comp. to 2007	100,0 %	94,5 %	91,3 %	91,9 %	94,7 %	87,1 %	89,3 %	88,1 %	85,2 %	83,6 %
	hot	average	hot	average	cold	very hot	hot	average	hot	hot
degree-day correction	117 %	104 %	119 %	99 %	91 %	12 6 %	109 %	99 %	107 %	110 %
Total incl degree-day correction	1.757	1.592	1.606	1.520	1.518	1.552	1.519	1.450	1.440	1.429
evolution comp. to 2007	100,0 %	90,6 %	91,4 %	86,5 %	86,4 %	88,3 %	86,4 %	82,5 %	82,0 %	81,3 %

Table: CO₂-emissions from sectors falling under Ghent's Covenant of Mayors 2007-2018

Ghent CO₂-monitoring 2007-2018 (kton CO₂)

	2007	2009	2011	2012	2013	2014	2015	2016	2017	2018
COM sectors	1.682	1.590	1.536	1.546	1.593	1.466	1.502	1.482	1.434	1.406
ETS enterprises	10.022	7.849	9.166	9.572	10.067	10.086	9.895	10.805	11.082	10.852
Total	11.704	9.439	10.702	11.118	11.660	11.552	11.396	12.287	12.516	12.258

Table: CO₂ emissions from sectors falling under Ghent's Covenant of Mayors (COM) and ETS enterprises 2007-2018



12.3. 2020-2025 budget

This table provides an overview of the budget (exclusive of staff costs) for the various chapters of the Climate Plan, on the basis of the City of Ghent's multi-annual strategic plan for 2020-2025. As to the actions in the middle column, climate policy is the main objective, even though they also have an impact other areas. The right column shows actions that substantially contribute to the achievement of the City's climate objectives, such as the construction of the cycling infrastructure or public green spaces, and that originate from other objectives.

This annex provides a detailed breakdown of these budgets.

CHAPTER	2020-2025 BUDGET Actions 100 % aimed at climate	2020-2025 BUDGET Actions with climate as a secondary goal
Involve everyone	1.600.000	7.000.000
Energy efficient housing	26.400.000	33.000.000
Renewable energy	3.700.000	-
Companies and tertiary sector	2.400.000	93.000.000
Transport	3.250.000	111.000.000
Food	755.000	-
Circular economy	670.000	4.900.000
Climate adaptation	2.800.000	50.000.000

Involve everyone in the climate transition

Ghent Climate City's general communication strategy (Action 1) is budgeted at € 180,000. The Innovative Projects Competition (Action 3) receives a budget of two times € 100,000. The climate event (Action 4) and other activities are budgeted at € 250,000. Action 2, support services for Ghentians with climate-friendly projects, is budgeted together with Action 5, the Climate Arena for young people from Ghent and Action 6, educational activities, at € 980,000 in total. The neighbourhood budget can be used by residents, organisations and enterprises to set up projects. Climate is not the only goal, but a number of projects will definitely be connected with the goals described in this plan. The neighbourhood budget amounts to € 7 million.

Energy efficient housing

The operations of De Energiecentrale (Action 7) are budgeted at € 5.6 million. € 14 million has been allocated to the rolling climate fund (Action 8). In 2020, the budget for subsidies for energy-saving measures and energy loans amounted to € 1.2 million and € 850,000 respectively.

Raising awareness about and promoting energy-saving renovations (Action 9) through permanent communication is budgeted at € 625,000. € 120,000 is allocated to Action 10, a new energy performance screening for residential buildings. Actions 12, 13, 14 and 16 (approach to historical real-estate portfolio, guidance of low-income home owners, renovation of apartments and the performance of energy scans) are partly included in the operations of De Energiecentrale and partly performed by the partners. € 4 million is allotted to Action 15, energy efficient social housing. In addition, € 33 million is allocated to the multi-annual budget for building, renovating and replacing social housing units (with climate as a secondary goal).





Renewable energy: solar, wind and non-gas heating

Action 17, the update of the Solar Map for the new version of 'check je huis' is budgeted at € 10,000. Action 18, advice and assistance in installing solar panels, is part of the operations of De Energiecentrale (Action 7). An energy loan can be taken out for solar panels from the rolling fund (Action 8). A budget of € 500,000 is provided for continuing and scaling up the 'Buurzame Stroom' project (Action 20). Action 21, advice and assistance on solar panels for companies, is included in the energy coaching budget (Action 38). € 1 million is allotted to Action 22 concerning solar panels on top of Groep Gent's buildings.



€ 1 million is provided for Action 23, participation in the turbine project at Tech Lane. There is no specific budget for Action 24 and 25 concerning Windwerkgroep Gentse Kanaalzone and the development of a vision of small-scale wind energy.

Action 26, informing Ghentians about new techniques, and Action 27, a heat map of Ghent, are largely financed with the communication budget of De Energiecentrale (Action 9). Action 28, a roadmap towards renewable energy, and Action 29, energy loans for renewable energy, are budgeted within the resources of De Energiecentrale (Action 7 and Action 8). An additional operating budget of € 1 million is provided for Actions 26 to 29, Action 30 concerning energy communities and Action 31 concerning the fossil-fuel free area of Muide-Meulestede+Mariakerke. Our ambition is to supplement this municipal budget with a European investment budget. The range of energy studies for construction projects which is still to be developed (Action 32) can also make use of this budget.

A budget of € 100,000 is allocated to the further development of the IVAGO district heating system (Action 33). This will provide the city with the necessary insight to assume the role of urban energy broker in the future (Action 36). No funds have been earmarked for making the Luminus district heating system more sustainable, nor for Action 35 concerning collective heat supply in new construction projects. We are using our expertise, however. The CCU Hub, Action 37, is financially supported during the development of the project with € 30,000 a year.

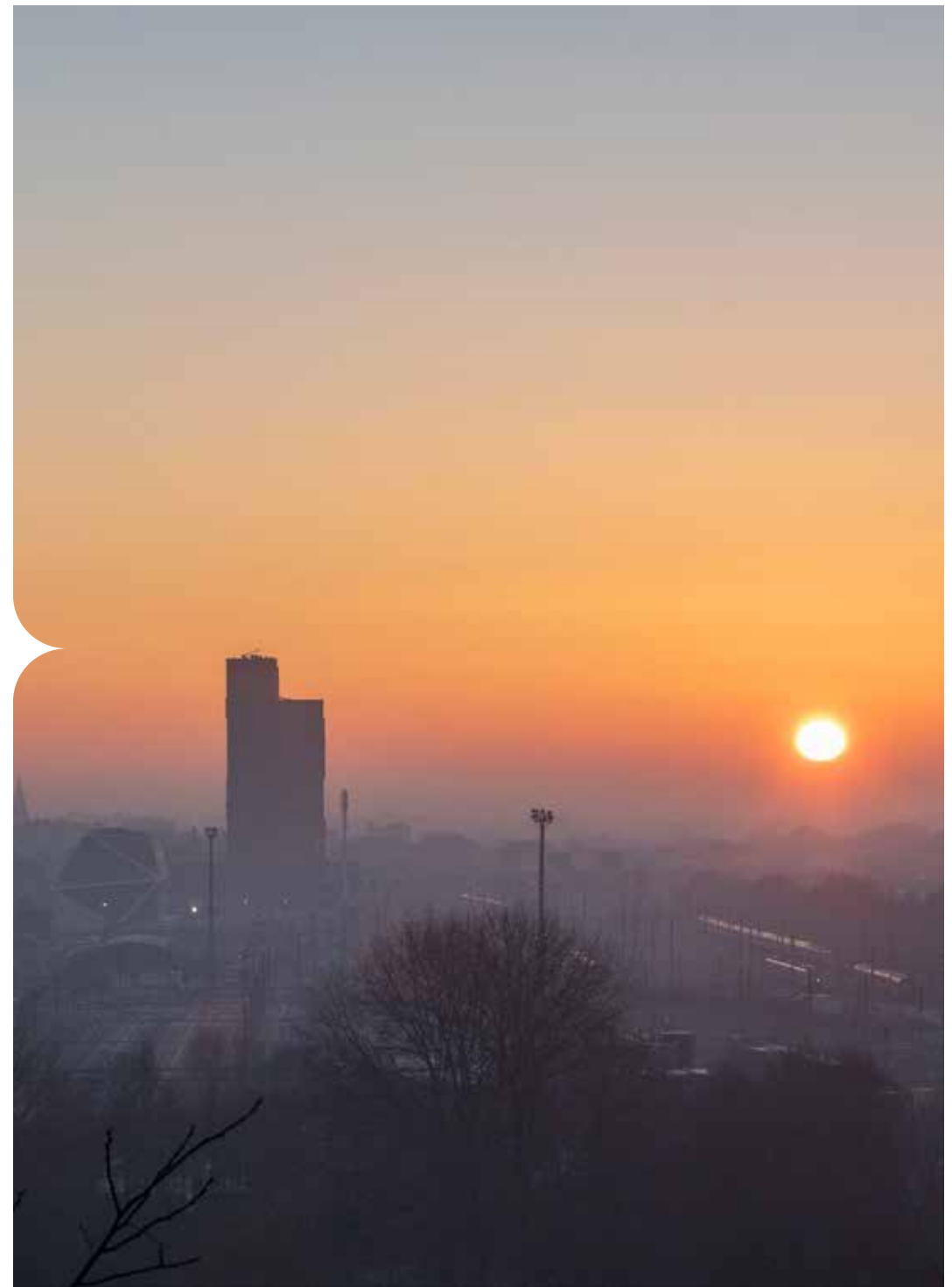
Companies and tertiary sector

The budget for energy coaching provided to companies and organisations (Action 38) is € 1,200,000. That budget is used to assist individual companies, to test whether 'open calls' towards a specific industry or for a particular topic are a good tool (Action 39) and to carry out actions for companies and organisations with a sizeable real-estate portfolio (Action 40).

As to Action 41, energy coaching in industrial parks, the assistance provided to a company by an energy expert is included in the selling price of the property. In other words, Action 41 does not involve any expenses. For the time being, a budget of € 60,000 is provided for Techlane industrial park, Action 42, as an incentive to obtain the BREEAM certificate. Greentrack supports cultural establishments in terms of climate impact, which is also budgeted at € 60,000.

A budget of € 900,000 is earmarked for investment subsidies, Action 44, for companies and organisations. The total budget for municipal buildings (€ 93 million) includes energy savings in our own real-estate portfolio (Action 45), with 'climate' as a secondary goal.

A study budget of € 16,000 is provided for Action 46, climate-friendly investment. Action 47, helping North Sea Port become a climate-neutral port, will receive several budgets, including a climate budget of € 180,000 and a mobility budget. Action 48, low-energy lighting, is part of the maintenance budget of the Roads, Bridges & Waterways Department.





Transport

The budget provided to reduce the CO₂ emissions from transport is connected with the operations of several municipal departments. The target is included in each (re)construction of a public space. The allocation of one specific budget to Action 49 concerning the replacement of cars with more sustainable mode of transport is therefore rather difficult. The multi-annual plan allots € 111 million to better streets and squares. That budget partly fits in the objectives of this climate plan.



The most important project of this administration in terms of mobility is drawing up and implementing neighbourhood mobility plans, which takes place in consultation with the residents across the different mobility topics. The ambition of these neighbourhood mobility plans is improving the quality of life in and the accessibility of the 7 selected neighbourhoods, which requires the necessary operating resources. The IAA Mobility Company is responsible for the preliminary investigation and the evaluation budgets. The Roads, Bridges & Waterways Department plans the necessary investment and operating budgets for the actual realisation, for a total amount of € 1.2 million.

The main investment project at Mobility Company is the realisation of additional Park & Ride sites. Furthermore, investments are made in the relocation of Fietsambassade to the S-building on Mathildeplein square, the additional indoor bike garages in the city centre and the extra bike garages across the entire territory.

In terms of operating resources, additional funds are invested in a better pedestrian policy and the necessary guidance and support for the activities of the transport region.

Additional funds are allocated to the transition to electric and shared mobility (Action 50). A budget of € 1,050,000 is available in addition to the preparation of a strategy for the further development of charging infrastructure.

Operating resources of € 20,000 a year are provided to GentLevert as a supporting platform for the transition to efficient and sustainable urban logistics (Action 51). € 3.1 million will be invested in making the municipal fleet more sustainable (Action 52).

An action plan on transport poverty is still being developed (Action 53). Once the plan is completed, it will be clear which funds are allotted specifically to the action plan.



Food

In the next few years, the Food Council (Action 54) will get the opportunity to help shape the food policy. To that end, the Food Council has € 60,000 at its disposal every year to promote innovative concepts. Moreover, a budget of € 360,000 is allocated to a number of actions: making school meals and catering more sustainable (Action 55), a new campaign that invests in plant-based food (Action 57), raising awareness about short-chain food (Action 60), Restorestje (Action 64) and reducing food wastage in industrial kitchens (Action 65). Some of these actions are part of the support services as formulated under Action 2, more specifically assistance with community and school vegetable gardens (Action 56) as well as projects on sustainable food policy at school (Action 58).

A budget of € 35,000 is allocated to Action 59, which focuses on upscaling short-chain products in the hotel and catering industry, industrial kitchens and local shops. So far, no budget has been allotted to Action 61 concerning land policy. In conclusion, Action 63 (Foodsavers) is conducted by the social services company within its budget.



Circular economy

Within the scope of Action 66, the innovation and investment policy is oriented towards a number of concrete societal challenges, including the circular economy. A hedge fund will be provided, which we want to use to mobilise external funds for a number of large-scale, ambitious projects, such as the exchange of heat and other waste flows in the port. For the 2020-2025 period, investments amounting to € 4,400,000 and operating resources amounting to € 500,000 are allocated to such projects, with climate as a secondary goal. In addition, part of the budget earmarked for energy coaching (Action 38) may be allocated to a circular scan for individual companies (Action 73).

€ 500,000 has been allotted to actions that enhance small-scale circular initiatives in the urban fabric, namely knowledge building and network (Action 67), Repair Cafés (Action 68), research into a circular hub (Action 72) and a communication strategy on the circular economy (Action 77).

€ 120,000 is budgeted for Action 79, support for low-waste events, and € 50,000 is budgeted for Action 69, reusable cups at Overpoort. No specific budget is allocated to Action 74 (circular solutions for urban challenges), Action 75 (circular procurement) and Action 76 (circular construction), as they are part of the procurement or construction budget.

Climate adaptation

As with the chapter on Transport, allocating a budget to the topic of adaptation is not easy. The Environment & Climate Department coordinates this topic, acquires knowledge and offers advice to other municipal departments (the Parks & Gardens Department, Urban Planning and the Roads, Bridges & Waterways Department, for example). Over the past few years, those services have integrated climate adaptation into the implementation and financing of their own projects for the construction of public spaces. The multi-annual budget has provided € 50 million for the construction and renovation of parks, with climate adaptation as an important secondary goal.

A budget of € 60,000 is provided for Action 82, the vulnerability analysis for drought. An investment budget of € 400,000 is provided for specific pilot projects (Action 85) on climate adaptation, which can be used in addition to investments already planned.

Action 103, green roofs on municipal buildings, received a budget of € 450,000. The subsidy for the construction of green roofs on existing buildings continues to exist and is budgeted at € 300,000 a year. A budget of € 20,000 has been allocated to Action 104, informing and making Ghentians enthusiastic about pavement removal and greening.

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