



Climate City Contract

2030 Climate Neutrality Action Plan

2030 Climate Neutrality Action Plan of the Cities of Eindhoven & Helmond

Gemeente Helmond



EINDHOVEN

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Table of Contents

Table of Contents	2
List of figures	3
List of tables.....	3
Abbreviations and acronyms	4
Reader's Guide.....	5
Introduction	9
Part A – Current State of Climate Action.....	23
1.1 Module A-1 Greenhouse Gas Emissions Baseline Inventory	23
1.2 Module A-2 Current Policies and Strategies Assessment.....	29
1.3 Module A-3 Systemic Barriers and Opportunities to 2030 Climate Neutrality.....	42
Part B – Pathways towards Climate Neutrality by 2030.....	51
1.4 Module B-1 Climate Neutrality Scenarios and Impact Pathways	52
1.5 Module B-2 Climate Neutrality Portfolio Design	61
1.6 Module B-3 Indicators for Monitoring, Evaluation and Learning	71
Part C – Enabling Climate Neutrality by 2030	75
1.7 Module C-1 Governance Innovation Interventions.....	75
1.8 Module C-2 Social Innovation Interventions	78
Outlook and next steps.....	80
2 Annexes.....	82
B1: Description of the 22 Missions	82
B2: Process: dialogue with the cities	82
B3: Baseline and gap analysis 2023	82
Annex B1: Description of the 22 Missions.....	83
Annex B2: Process: dialogue with the cities.....	106



List of figures

The list of figures **identifies the titles and locations** (page numbers) of **all visual elements**: figures, drawings, photos, maps, etc. used in the CCC Action Plan.

Figure №	Figure title	Page №
Figure 1	Overview of Existing Emissions & Reduction Path	6
Figure 1.1	Spearheads and guiding principles	10
Figure 1.2	Process with the cities	11
Figure 1.3	Solutions Lab	12
Figure 1.4	City themes, missions, existing and new projects	13
Figure 1.5	Approach CO ₂ -reduction Eindhoven-Helmond	14
Figure 1.6	Estimated impact of current local policies and projects and their acceleration (in kton CO ₂).	15
Figure 1.7	Figure 1.7. (Qualitative) impact of the 22 Missions on the 3 spearheads.	17
Figure 1.8	Website overview of all Missions	18
Figure 1.9	Website project overview	19
Figure 1.10	Example dashboard ClimateOS	20
Figure A-1.1	Baseline and forecast regarding CO ₂ emissions in 2030	26
Figure A-1.2	Cumulative effect of forecasted current policy	27
Figure 5.11	Transition team Eindhoven - Helmond	81

List of tables

The list of tables **identifies the titles and locations** (page numbers) of **all tables** used in the CCC Action Plan.

Table №	Table title	Page №
Table I-1.1	Climate Neutrality Target by 2030	21
Table A-1.1	Final energy use by source sectors	23
Table A-1.2	Emission factors applied	23
Table A-1.3	GHG emissions by source sectors (kton CO ₂)	24
Table A-1.4	Activity by source sectors	24
Table A-1.5	Baseline and forecast regarding CO ₂ emissions in 2030	26
Table A-1.6	Current greenhouse gas emissions in Eindhoven-Helmond	27



Abbreviations and acronyms

The list of abbreviations and acronyms **identifies the abbreviations** (a shortened form of a word used in place of the full word) **and acronyms** (a word formed from the first letters of each of the words in a phrase or name) used in the CCC Action Plan.

Abbreviations and acronyms	Definition
AP	Action Plan
BENG	Bijna Energie Neutrale Gebouwen <i>(lit. almost energy neutral buildings)</i>
EV	Electric Vehicle
IP	Investment Plan
KPI	Key Performance Indicator
MEL	Monitoring Evaluation & Learning
MRV	Monitoring Reporting Verification
VVE	Dutch: Vereniging van Eigenaren English: Owners' Association
WP	Work Package



Reader's Guide

Ambition

This Climate Investment Plan maintains the 80% ambition outlined in our Expression of Interest (EoI) with an interim target of a 55% CO₂ reduction by 2030. Originally, the 80% target was coupled to a timeline until 2030. However, since the EoI and the development of the Climate City Contract (CCC), a number of challenges have arisen in the preparation of several of the planned actions that lie outside of the municipalities' control, but which may nonetheless hinder the planned implementation of our earlier defined impact pathways and action portfolios to reach our 80% reduction ambition. Among these unexpected challenges are delayed investments in the national energy infrastructure, (resulting and continued) grid congestion, a shortage of qualified personnel and lack of viable business cases, especially in relation to district heating projects.

As a result, our updated estimates forecast that the 80% reduction on our way to climate neutrality will be achieved later than previously anticipated. More specifically, we expect that the impact pathways and action portfolios identified prior to the surfacing of these new challenges, i.e. acceleration of current local policies and projects, will result in a total emission reduction of 55% or 1.067 kton in 2030. With a continuation of these pathways, an emission reduction of 80% is aimed for by 2035 instead. According to the new estimates, the emissions gap in 2030, the amount necessary to achieve net-zero, is estimated to be an absolute value of 485 kt CO₂e.

As such, choosing to adopt a realistic approach, the CIP and CAP take as their point of departure a 55% emission reduction target in 2030 while providing sporadic insight into the additional efforts necessary to achieve the aforementioned 80% ambition. Nonetheless, as the pathways and action portfolios listed in the CAP and CIP are the result of an extensive stakeholder engagement and co-creation process, we have not had the opportunity to come up with additional pathways and actions to make sure we reach 80% by 2030 according to the new estimates. In the future iterations of the CCC, Eindhoven and Helmond are committed towards working to reduce this gap as much as possible through further actions, thus aiming to bring the 80% emission reduction forward from 2035.

In that regard, both municipalities consider the Climate City Contract (CCC) as a crucial tool to achieve their ambition of becoming a climate-neutral cities. Firstly, the CCC outlines current and planned actions, placing them in a broader EU context. Secondly, and perhaps most importantly, using the networks and tools associated with the Mission label as well as the support from the National Support Structure, will allow both municipalities monitor the implementation of the CCC and use data from ClimateOS and other support mechanisms to explore further opportunities and approaches to close the emission reduction gap and bring the 80% goal closer to 2030 in future CCC iterations. We will publish updated versions, and each updated version will offer more detailed answers and solutions.

While these new estimates are a setback, having this insight now, allows the municipalities to already take action to minimise delays or to accelerate projects, if applicable. Both municipalities remain committed to collaborating with their local stakeholders, local and national governments as well as with European networks and institutional bodies to overcome these barriers, The National Support Structure will be leveraged as a vehicle to address implementation barriers and target policy breakthroughs. Furthermore, the cities recognise that the climate neutrality transition is shared responsibility and will adopt a methodology to reflect this shared ownership of the climate investments they foresee.



CO₂ REDUCTION PATHWAY EINDHOVEN & HELMOND

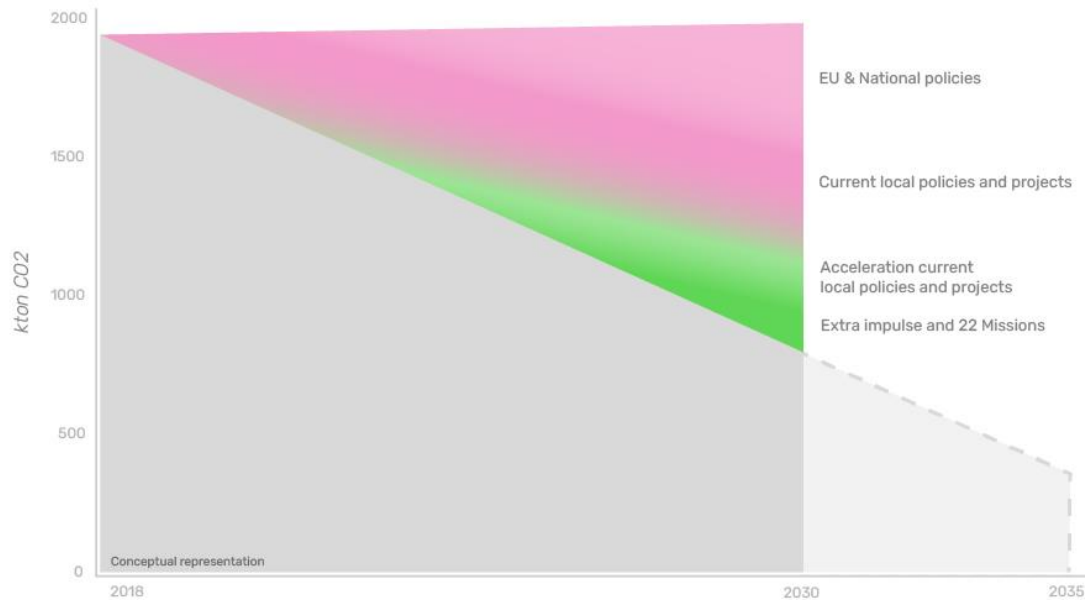


Figure 1: Overview of Existing Emissions & Reduction Path

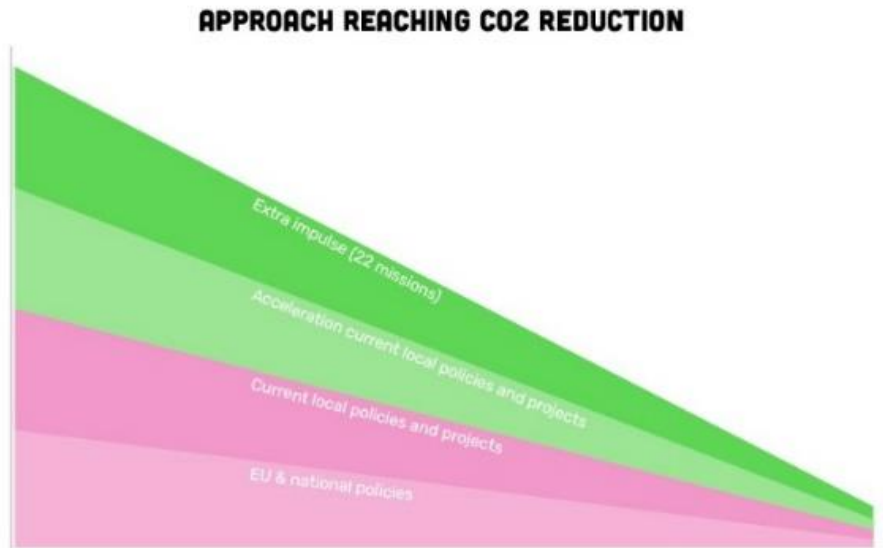
Methodology & Approach to CO₂ Reduction

The municipalities of Eindhoven and Helmond understand that the transition towards climate neutrality is a joint effort. On the one hand, this is true when it comes to the different (political) levels at which climate action is pursued. Climate neutrality policies are put in place both at the European and national level as well as on the level of local governments, such as municipalities. As such, reaching climate neutrality targets will depend on the joint effects of policies and initiatives at each of these levels. Figure 2 represents the multi-level governance nature of climate action. Moreover, it also highlights that in order to reach climate neutrality targets, additional efforts, in particular at the local level, are required.



Definitions

Definitions regarding the approach in CO₂ reduction



EU / National policies	Current policies and projects at National and EU level which are already being implemented.	Based on a <u>sectoral</u> approach: - Built environment - Mobility - Industry
Current local policies and projects	Current policies and projects at regional and local level which are already being implemented (GAP analysis)	
Acceleration current local policies and projects*	“acceleration” pertains to both the “regular” acceleration of current policies and projects as well as the scope of further policies and projects which are necessary to at least achieve the “threshold” 55% emission reduction target.	divided into 12 <u>investment actions</u> .
Extra impulse through 22 missions*	New projects emerging from the missions are in support of three categories defined above. Based on the 22 Missions and its projects.	Based on <u>City themes</u> as explained in the table below

* The acceleration and additional impulse are to be achieved through the realization of projects ahead of time and through increased engagement of the involved stakeholders in the Climate Action Plan of both cities.



Definitions – regarding the Climate Delta Plan Eindhoven-Helmond	
Climate Delta Plan Eindhoven-Helmond	The broader approach by Eindhoven and Helmond to realize the necessary transition on the long term, which goes beyond the reduction of CO ₂ only. An important milestone on the road to this ambition is of course to work towards climate neutrality by 2030.
Spearheads	The three spearheads of the Climate Deltaplan consist of cities which are: <ol style="list-style-type: none"> 1. fossil-free 2. circular 3. climate-resilient
Guiding Principles	Six guiding principles apply to all three spearheads and are essential for reaching the goal of climate neutrality. These principles include: <ol style="list-style-type: none"> 1. leadership 2. ownership 3. behaviour 4. Impact 5. Inclusiveness 6. Innovation
City themes	The Climate Delta Plan is focused on 4 city themes, which are based on the geographical boundaries of coherent parts and groups of stakeholders in the cities. <ol style="list-style-type: none"> 1. Vital City Centre 2. Liveable Neighbourhoods 3. Sustainable Businesses 4. Robust region
Missions	The Delta Plan consists of 22 missions – or impact pathways – which have been formulated for each city theme. Stakeholders have committed to one or more missions each.
Mission projects	The 22 missions consist of various projects, which were set up by the stakeholders. The overview of which is available on the website www.knaphe.nl



Introduction

Introduction

This introduction provides a comprehensive overview of the efforts by the cities of Helmond and Eindhoven to achieve climate neutrality as part of the EU Mission on Climate-Neutral and Smart Cities. It begins by outlining their commitment to the mission, then details the strategic framework, including the Climate Delta Plan, which guides their transition towards fossil-free, circular, and climate-resilient cities. It covers the collaborative process involved in the Climate City Contract, the key city themes that will drive this transformation, and the integration of ongoing policies and projects. Additionally, it explores the development and prioritization of 22 missions designed to stimulate private sector involvement and investment. The section concludes with a discussion on the tools and platforms being used to monitor progress, including the innovative ClimateOS system, and emphasizes the adaptive nature of the Climate City Contract, which will evolve continuously to meet future challenges and opportunities on the path to 2030 and beyond.

Expression of Interest EU Mission on Climate-Neutral and Smart Cities

With the Expression of Interest, the cities of Helmond and Eindhoven expressed their strong commitment to engage as a front runner city consortium in the context of the EU Mission on Climate Neutral Cities. Through a committed partnership with the European Commission, these cities aim to establish a Climate City Contract that not only targets an 80% reduction in CO₂ emissions by 2030 but also fosters long-term sustainability and resilience. However, recognizing the challenges in meeting this ambition by 2030, Helmond and Eindhoven have set an interim target of reducing CO₂ emissions by 55% by 2030 and are now aiming for 80% reduction by 2035.

The municipalities of Helmond and Eindhoven are uncertain whether a 55% reduction in emissions by 2030 will be sufficient for the European Commission to grant the mission label. With the Action Plan being assessed by the JRC and the Investment Plan by the EIB, please note that both cities are willing to engage in discussions with the evaluating bodies to verbally explain their ambitions and the feasibility of these goals for 2030 and 2035 during the assessment phase. Both institutions are encouraged to take advantage of this opportunity.

Climate Delta Plan Eindhoven-Helmond

For Eindhoven and Helmond the (EU) Mission has a broader focus on the long term to realize the necessary transition. Eindhoven and Helmond are committing to a approach with three spearheads. A Climate Delta Plan Eindhoven-Helmond that sets the course for gradually working towards fossil-free, circular and climate-resilient cities by 2050 at the latest. An approach that goes further than just reducing CO₂. An important milestone on the road to this ambition is of course to work towards climate neutrality, as both cities confirmed in the Expression of Interest.

Focusing on these ambitious climate objectives (fossil-free, circular, climate-resilient) inevitably raises various questions and poses challenges. The initial response might be, "we need to move faster and do more!" However, this issue requires a fundamental shift in thinking and action, moving away from traditional growth-oriented models to embrace a circular and sustainable economic model. This new economy prioritizes sustainability objectives, harnessing the economic opportunities that innovation and the scaling up of climate and energy technologies can bring to the region. It departs from the exclusive focus on economic growth, instead emphasizing a reimagined approach to resource extraction,



production, distribution, consumption, and waste management—all while maintaining high levels of well-being and staying within the regenerative limits of Earth's ecosystem.

Achieving broad behaviour change requires strong leadership and a sense of responsibility (ownership), which can inspire others to take action. This can create a self-reinforcing movement, leading to turning points where lasting change becomes possible. The strategy focuses on six guiding principles that apply to all three spearheads—fossil-free, circular, and climate-proof—and are essential for reaching the goal of climate neutrality by 2030. These principles include leadership, ownership, behaviour, impact, inclusiveness, and innovation.

The figure below (figure 1.1) shows the three spearheads and six guiding principles that are central to the Eindhoven-Helmond approach.

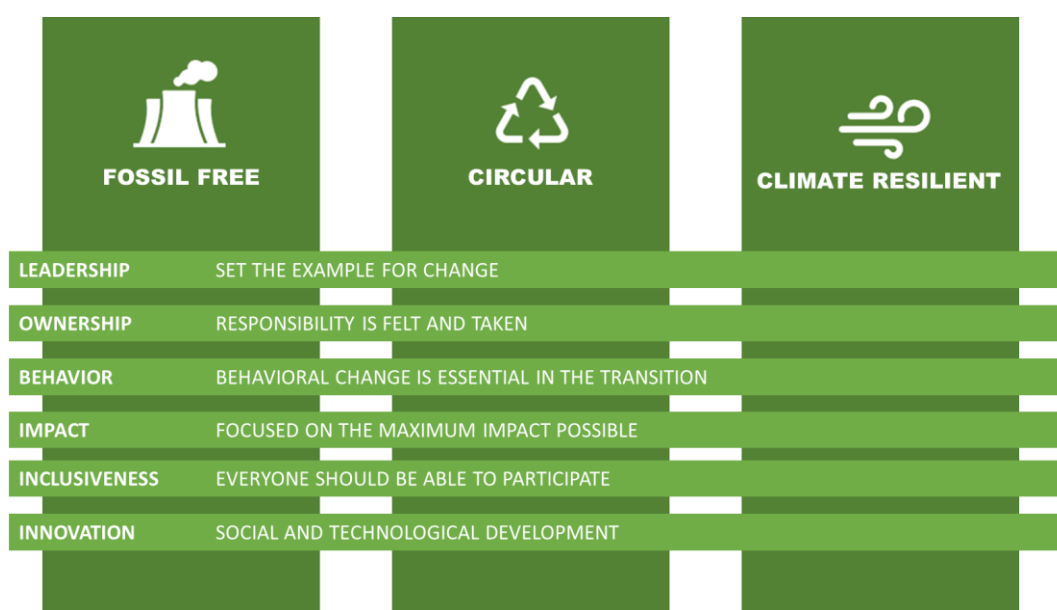


Figure 1.1: Spearheads and guiding principles

Process: dialogue with the cities

A Climate City Contract can only succeed if it is supported by society. That is why cooperation and co-creation is needed between citizens, governments, companies, educational and knowledge institutions and other organizations in our two cities and in the region. A broad and an integral dialogue - Dialogue with the Cities - has been set up with the two cities for this purpose. As part of the dialogue with the city, three interactive stakeholder events, called 'labs', have been organized: a Breakthrough Lab, a Solutions Lab and a Transition Lab. In addition to the Labs, two Climate Conferences were organized in both cities, where input was collected from citizens for the mission. During the labs and climate conferences, a large number of parties indicated their willingness to commit to the EU Mission. We now convert the dialogue into a collaboration, in which coalitions of involved parties and residents are working on different missions within city themes. Figure 1.2 shows the process with the two cities.



Figure 1.2: Process with the cities and its stakeholders



Figure 1.3 Solutions Lab - over 200 representatives from businesses, societal organizations and knowledge institutions listened to speakers like Minister Rob Jetten and other climate experts (March 13th 2023).

City Themes for a broad and integral perspective on stakeholder engagement.

Instead of sectors we chose to work on four city themes in the context of our Climate City Contract. The city themes are based on the geographical boundaries of coherent parts and groups of stakeholders in the cities. We will of course map out the impact on the relevant sectors, in line with the way we monitor and in accordance with the information requested from Europe.

We distinguish the following four city themes:

1. Vital City Centre
2. Liveable Neighbourhoods
3. Sustainable Businesses
4. Robust region

We have opted for city themes because each city theme has its specific characteristics and issues, which in our vision requires a specific approach. Current challenges regarding sustainability, urbanization, climate and accessibility come together in the four city themes and provide a better context to engage with our stakeholders. Sectoral policies alone are no longer sufficient. A broad perspective is needed in which physical and social challenges are linked, with a wide range of parties and social partners. We build on the strategic networks, strategies and (professional) communities that are already in place within the four city themes. The scale of the city themes is manageable, and cooperation often goes without saying. People will make the difference here: enterprising, talented and committed people with passion, ambition and drive.

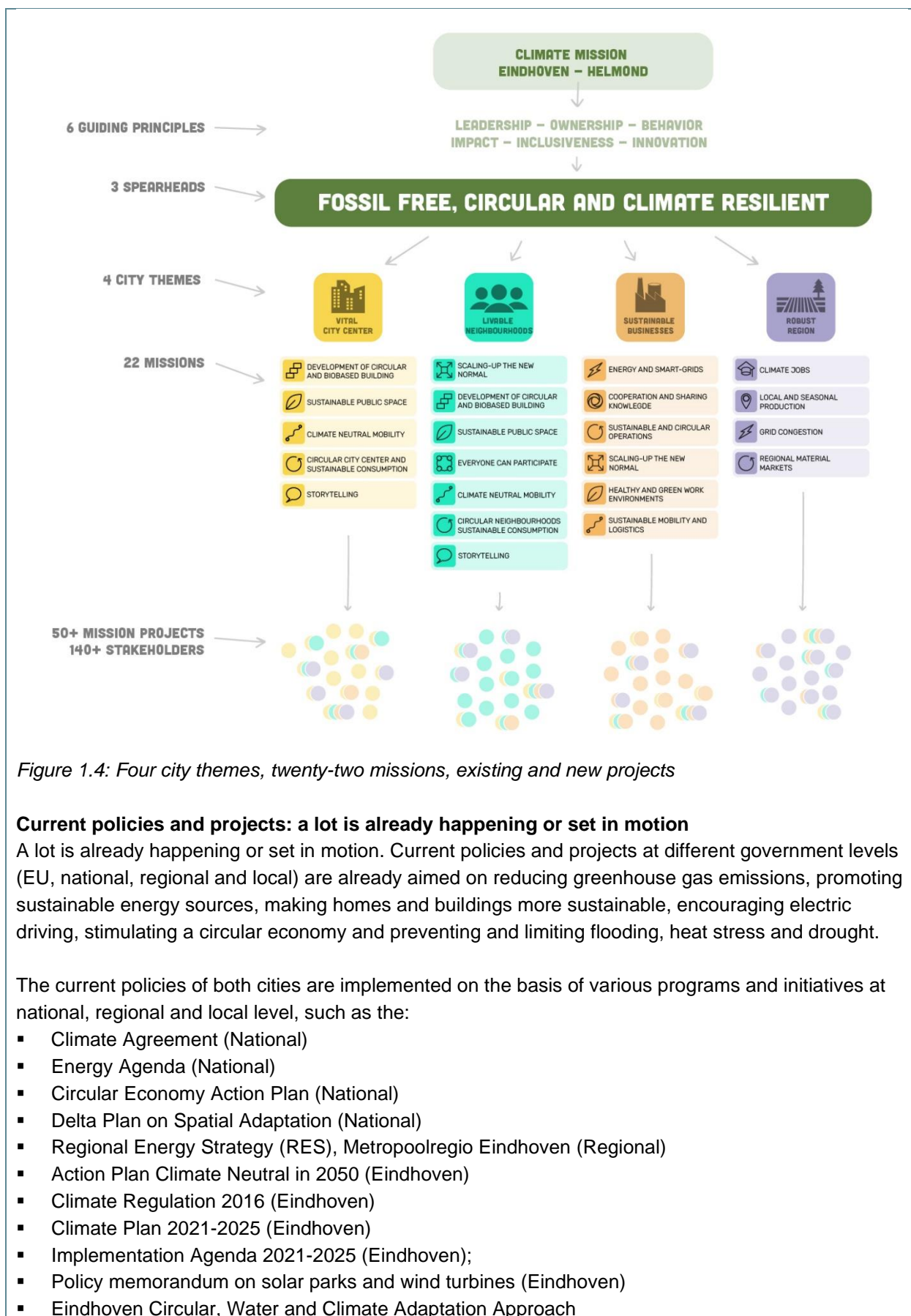


Figure 1.4: Four city themes, twenty-two missions, existing and new projects

Current policies and projects: a lot is already happening or set in motion

A lot is already happening or set in motion. Current policies and projects at different government levels (EU, national, regional and local) are already aimed on reducing greenhouse gas emissions, promoting sustainable energy sources, making homes and buildings more sustainable, encouraging electric driving, stimulating a circular economy and preventing and limiting flooding, heat stress and drought.

The current policies of both cities are implemented on the basis of various programs and initiatives at national, regional and local level, such as the:

- Climate Agreement (National)
- Energy Agenda (National)
- Circular Economy Action Plan (National)
- Delta Plan on Spatial Adaptation (National)
- Regional Energy Strategy (RES), Metropoolregio Eindhoven (Regional)
- Action Plan Climate Neutral in 2050 (Eindhoven)
- Climate Regulation 2016 (Eindhoven)
- Climate Plan 2021-2025 (Eindhoven)
- Implementation Agenda 2021-2025 (Eindhoven);
- Policy memorandum on solar parks and wind turbines (Eindhoven)
- Eindhoven Circular, Water and Climate Adaptation Approach



- Climate Neutral Plan in 2035 (Helmond)
- Sustainable Strategic Program and Healthy City (Helmond)
- Economic Policy Vision (Helmond)Decarbonizing Strategy (Helmond/Eindhoven)
- Climate-resilient Implementation Agenda 2021-2025 (Helmond)

Part A includes an overview of the relevant policy documents regarding climate, energy and sustainability. Policies are constantly being developed to ensure that we can meet the national climate targets. With the implementation of current policies emissions are partly reduced. An acceleration in the reduction of CO₂ can be achieved by speeding up the existing policies and projects (see figure 1.6). In addition, we are committed to providing an extra impulse together with stakeholders and residents. This multi-layered approach to CO₂-reduction is visualized in figure 1.5 below.

APPROACH REACHING CO₂ REDUCTION

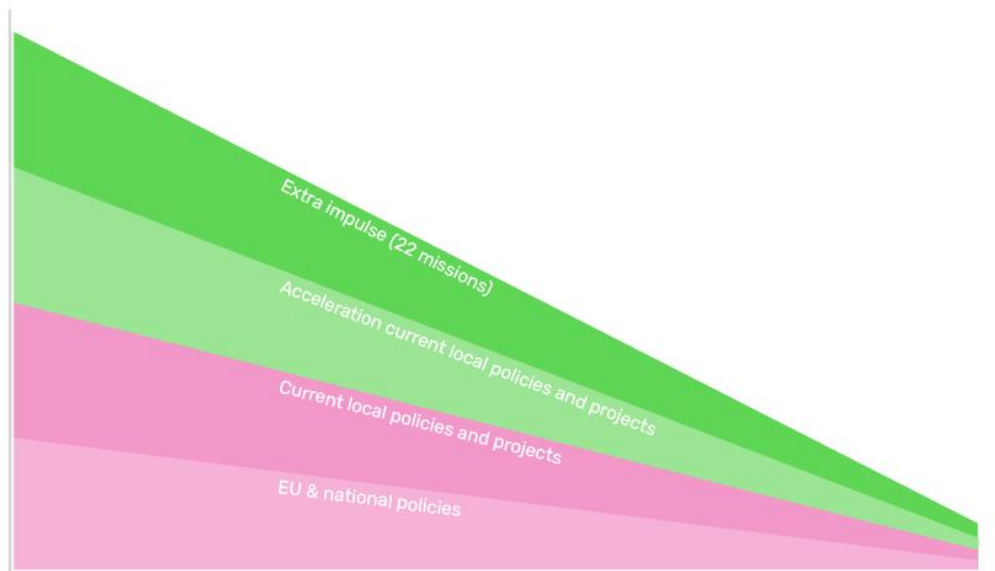


Figure 1.5: Approach on reaching CO₂-reduction Eindhoven-Helmond



Figure 1.6. Estimated impact of current local policies and projects and their acceleration (in kton CO₂) and their relation to the city themes

Climate mission impulse: focus on 22 Missions

Together with stakeholders and citizens, missions – or impact pathways (see table B-1.1) – have been formulated for each city theme. In the participation process (Dialogue with the cities) that started in 2023, breakthroughs and measures were developed together with the stakeholders and citizens. The resulting 22 missions consist of various projects. Stakeholders have committed themselves to the missions by setting up or joining projects, as shown in the overviews on the <https://www.knaphe.nl/en> (KnapHE – Klimaat Actieplatform Eindhoven-Helmond – Climate Action Platform Eindhoven-Helmond) website (see figure 1.8 and 1.9).



To drive the needed breakthroughs, we will build on existing policies and projects initiated by the cities and various organizations. In collaboration with stakeholders and citizens, we are accelerating these efforts and complementing them with new projects emerging from the defined missions. These missions also emphasize raising awareness, promoting behavioral change, and implementing essential system changes.

The implementation of all missions is essential to achieving the objectives; however, given the significant financial and personnel demands, not all projects can be launched simultaneously. Securing funding, developing the necessary human resources, and efficiently utilizing resources are therefore crucial. A total of 22 missions have been developed, each comprising various projects and measures. To prioritize these efforts, projects are selected based on their impact on CO₂ reduction, with the most critical initiatives advancing first on the path to climate neutrality.

For each of the four city themes, the impact of the extra impulse via the missions is identified and assigned to the relevant sectors housing, mobility, industry and business and public services.

In the Investment Plan, the 22 missions and four city themes play a secondary role as they are not directly tied to city investments. Instead, they are intended to engage the private sector and attract investments through that route. The Investment Plan primarily focuses on the three sectors requiring the most significant investments, structured around specific actions. This bottom-up approach calculates the net costs of these projects, such as house insulation, new infrastructure, and heating systems, clarifying which entities—public government, housing organizations, or citizens—are responsible for these expenses.



	FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
STORYTELLING	↓	✓✓	👍
DEVELOPMENT OF CIRCULAR AND BIOBASED BUILDING	↓	✓✓✓	
SUSTAINABLE PUBLIC SPACE	↓ ↓ ↓		
CLIMATE NEUTRAL MOBILITY	↓	✓✓✓	👍
CIRCULAR CITY CENTER AND SUSTAINABLE CONSUMPTION	↓ ↓ ↓	✓	👍
STORYTELLING	↓	✓	👍
SCALING-UP THE NEW NORMAL	↓ ↓ ↓		
DEVELOPMENT OF CIRCULAR AND BIOBASED BUILDING	↓ ↓ ↓	✓	👍
SUSTAINABLE PUBLIC SPACE	↓		👍👍👍
EVERYONE CAN PARTICIPATE	↓	✓	👍
CLIMATE NEUTRAL MOBILITY	↓ ↓ ↓	✓	👍
CIRCULAR NEIGHBOURHOODS SUSTAINABLE CONSUMPTION	↓	✓✓✓	
ENERGY AND SMART-GRIDS	↓ ↓ ↓		
COOPERATION AND SHARING KNOWLEDGE	↓	✓	👍
SUSTAINABLE AND CIRCULAR OPERATIONS	↓ ↓	✓✓	
SCALING-UP THE NEW NORMAL	↓ ↓	✓	👍
HEALTHY AND GREEN WORK ENVIRONMENTS	↓		👍👍👍
SUSTAINABLE MOBILITY AND LOGISTICS	↓ ↓ ↓	✓	
CLIMATE JOBS	↓	✓	👍
LOCAL AND SEASONAL PRODUCTION	↓ ↓	✓	
GRID CONGESTION	↓ ↓ ↓		
REGIONAL MATERIAL MARKETS	↓ ↓ ↓	✓✓✓	👍

Figure 1.7. (Qualitative) impact of the 22 Missions on the 3 spearheads.



The city platform: KnapHE - website

In support of the Climate City Contract an online [platform](#) was created. The platform reflects the process of cooperation and co-creation with the stakeholders as well as their commitment to the Action Plan. It showcases the Missions itself, the organizations which have committed and the projects which were set up until now. Moreover, it includes the feedback of our citizens.

The website is in fact a smart and dynamic Action Plan: as the work on the Climate City progresses, new organizations can commit to a mission by setting up or joining a project, and current projects report information like targets, barriers and actions on the platform. In the future, the website will help us to analyse this data using AI to generate systemic information for instance on barriers or citizen involvement. The latter was already done once successfully when processing elaborate input of citizens on the missions.

<https://www.knaphe.nl/en/missies> (please click to view the platform)

(KnapHE – Klimaat Actieplatform Eindhoven-Helmond – Climate Action Platform Eindhoven-Helmond)

The screenshot shows the 'MISSION PATHWAYS' section of the KnapHE website. At the top, there is a navigation bar with 'Overview', 'Themes', 'Missions', 'Organizations', 'Projects', 'Eindhoven', 'Helmond', and 'Login'. Below this is a search bar and several category filters: 'Vital City Center', 'Liveable Neighbourhoods', 'Sustainable Business Activity', and 'Robust Region'. The main content area is a grid of mission cards, each with a unique icon, title, and a 'POST-ITS STUCK' status. The cards are:


- (FORWARD) DEVELOPMENT OF NEW CONSTRUCTION CHAINS AND APPLICATION OF SUSTAINABLE BUILDING MATERIALS** (77 POST-ITS STUCK): The city centers of Helmond and Eindhoven have a significant urbanization challenge. All new homes that we add will be built in a biobased, circular, and climate-neutral way.
- (DE)VELOPMENT OF NEW CONSTRUCTION CHAINS AND APPLICATION OF SUSTAINABLE BUILDING MATERIALS IN THE NEIGHBORHOODS** (138 POST-ITS STUCK): In redevelopments and renovations in our neighborhoods, we will ensure that this is carried out in a biobased, circular, and climate-neutral manner.
- SCALING UP THE NEW NORMAL IN THE NEIGHBORHOODS** (114 POST-ITS STUCK): Homes need to be quickly made more sustainable so that living costs less water and energy; at the same time, living in well-insulated homes is much more pleasant. To speed things up, we will need to renovate and make existing rental and owned homes more sustainable in a collective manner, relieving the residents of burdens.
- COLLABORATION AND KNOWLEDGE SHARING** (30 POST-ITS STUCK): Together we increase awareness and engage ambassadors, frontrunners, and exemplary projects aimed at the sustainability of business activities in our cities.
- CIRCULAR CITY CENTER AND SUSTAINABLE CONSUMPTION** (139 POST-ITS STUCK): In our cities, there are many opportunities for a circular economy. According to the principles of the R-ladder, we will ensure that raw materials, components, and products lose their value as little as possible and that we focus on reusing as much as possible.
- CIRCULAR NEIGHBORHOODS AND SUSTAINABLE CONSUMPTION** (138 POST-ITS STUCK): There are also many opportunities for a circular economy in our neighborhoods. According to the principles of the R-ladder, we will ensure that raw materials, components, and products lose their value as little as possible and that we focus on as much reuse and sharing concepts as possible.
- STORY LIVABLE NEIGHBORHOODS** (114 POST-ITS STUCK): Outline the perspective for livable neighborhoods in 2030-2040-2050.
- SCALING UP SUSTAINABLE BUSINESS PARKS** (30 POST-ITS STUCK): Sustainability of a business park requires a collective approach. This means cooperation between entrepreneurs (association), property owners, suppliers, advisors, and the government.
- TOWARDS CLIMATE-NEUTRAL MOBILITY IN THE CITY CENTER** (131 POST-ITS STUCK): A large part of the CO₂ emissions in the city comes from
- EVERYONE CAN PARTICIPATE.** (130 POST-ITS STUCK): Sustainable solutions must be affordable and available to everyone, regardless of one's place of residence.
- SUSTAINABLE AND CIRCULAR BUSINESS OPERATIONS** (94 POST-ITS STUCK): A sustainable and circular economy focuses on reducing consumption, production, and the reuse of products, materials, and raw materials. Companies play an important role in this.
- CLIMATE JOBS** (30 POST-ITS STUCK): For the transition to a sustainable economy, people are needed with new knowledge and skills. This applies to construction, the energy transition, and the greening of existing homes. This requires appropriate training programs, both in vocational and scientific education. There are also pathways needed to retrain people or to impart knowledge about sustainability.


Figure 1.8: Website overview of all Missions, each mission has a unique icon



PROJECTS

All the projects contributing to the climate mission will be listed here soon.

search_projects 

list_view 





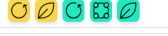
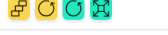
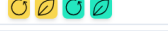


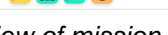
Project Name	Contributes to:	Impact on:			
		Fossil-Free	Circular	Adaptive	Scalability
RAW MATERIALS ROUNDABOUT (COLLECTIVE COLLECTION ROUND)		+++	???	♥	
LOCAL RAW MATERIALS MARKET (OPPORTUNITY FOR KNOWLEDGE SHARING THROUGH PLATFORM)		+++	???	♥	
SUSTAINABILITY OF INDUSTRIAL PARK DE HURK		+++	??	♥♥	
RAW MATERIALS HUB/ CIRCULAR HUB		+++	???	♥♥	
VVE TRANSITION CENTER BRABANT		+++	?	♥	
FROM LAND TO PROPERTY / BRABANT RENOVATES NATURALLY SMART		+++	???	♥♥	
MORE TREES NOW EINDHOVEN/HELMOND		+++	???	♥♥♥	
DEVELOPMENT OF DISTRICT HEATING NETWORKS		+++	??	♥♥	
CIRCULAR CITY EINDHOVEN		+	???	♥	
CLIMATE NEUTRAL ACTION PLATFORM					???

Figure 1.9: Website overview of mission projects

Figure 1.9 shows a selection of projects on the website with a focus on circularity. Most projects contribute to several targets and therefore relate to multiple missions. This is shown in the second column of the project overview.

Monitoring our progress: ClimateOS

In the cities of Helmond and Eindhoven, CO₂ is emitted in different ways, by different sources, parties and sectors. Based on the climate monitor that both cities use direct emissions in the cities are divided into four sectors: housing, mobility, industry and business and public services. The sectors Waste disposal and Energy are included as part of the industry sector. Periodic reporting on CO₂ reduction is done based on this classification into these four sectors.

In the context of the Climate City Contract, all measures that have an impact on the CO₂ emissions of the two cities are mapped out. First of all, to indicate where we stand (baseline) and what the remaining task is towards 2030 and beyond (gap). The gap analysis is an analysis of the current (gross) CO₂ emissions minus the expected (net) CO₂ reduction in 2030 from the current policy goals. The residual task (gap) forms the basis of the climate task that the Climate City Contract focuses on.

The 2030 target covers the entire administrative territory of the cities. Motorways (national), air traffic and shipping are excluded and are the responsibility of the National government. Since we collaborate within the Brainport Region with 21 municipalities, the boundary of influence of measures will be - in some cases - larger than the city boundaries.

CO₂ emissions are now being monitored using both a national database and the cities own data. To improve the monitoring, the cities will implement a new tool, ClimateOS, which has been specifically designed for cities to plan and monitor their climate action plan. The dashboard itself is helpful in designing the right pathway and gaining the insights needed to design actions and align stakeholders. Moreover, it is helpful in communicating with stakeholders on the progress made and including everyone in the journey towards net zero. ClimateOS can also be used to build the investment case to execute the action plan, this will be done in a next update.



Figure 1.10: Example dashboard ClimateOS

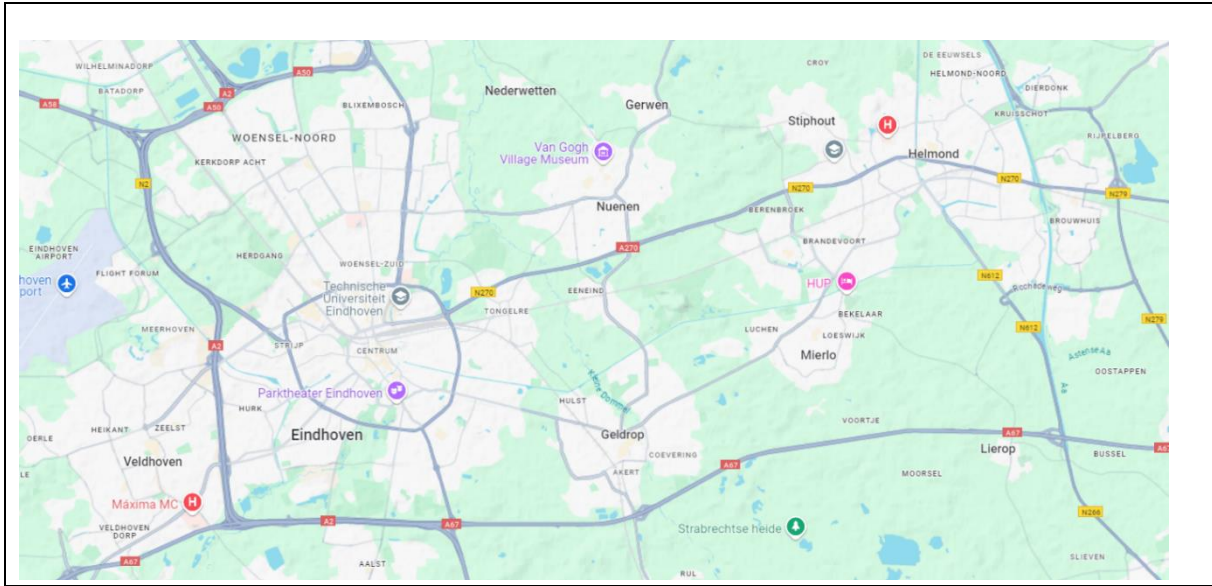
Future updates of the Climate City Contract

The participation process is immediately followed by implementation, in which the details of the missions are further refined and negotiated with the different stakeholders, the financing of the implementation of measures is concretized and impact monitoring is established. The Climate City Contract Eindhoven-Helmond is an adaptive strategy that must be continuously updated to changing conditions. The Climate City Contract will therefore be permanently supplemented, refined, reviewed and adapted. This may mean that some of the measures developed here are redundant in the future, but also that windows of opportunity or conditions arise that enable or require new or different measures. On the road to 2030, the impact will be continuously and transparently presented by the monitoring tool Climate View. Once a year, an update is provided on the status of CO₂ reduction via the city climate monitor. The progress of the projects is monitored on the <https://www.knaphe.nl/en> (Climate Action Platformwebsite). Periodically, an evaluation takes place, and we recalibrate this document based on the insights into the progress of achieving the goals with regard to fossil-free, circular and climate-proof.



Table I-1.1 contains an overview of the emission sources, greenhouse gases and geographical boundaries that are included in the contract.

Table I-1.1: Climate Neutrality Target by 2030			
Sectors	Scope 1	Scope 2	Scope 3
Stationary energy	Included: CO ₂ , N ₂ O, PFCs, NF ₃ , CHA, HFCs, SF ₆	Included: CO ₂ , N ₂ O, PFCs, NF ₃ , CHA, HFCs, SF ₆	To be defined
Transport	Included: CO ₂ , N ₂ O, PFCs, NF ₃ , CHA, HFCs, SF ₆	Included: CO ₂ , N ₂ O, PFCs, NF ₃ , CHA, HFCs, SF ₆	To be defined
	Air-traffic, motorways, marine freight is excluded.	Air-traffic, motorways, marine freight is excluded.	
Waste/wastewater	Included	Not applicable	To be defined
	list exclusions (if any) in terms of sources or greenhouse gases	Not applicable	
IPPU	Included	Not applicable	Not applicable
	list exclusions (if any) in terms of sources or greenhouse gases	Not applicable	
AFOLU	Included	Not applicable	Not applicable
	list exclusions (if any) in terms of sources or greenhouse gases	Not applicable	
Other	Not applicable		
Geographical boundary	Same as city administrative boundary	Smaller than city administrative boundary	Larger than city administrative boundary
(Tick correct option)			
Specify excluded/additional areas	Motorways, air traffic, shipping (National)	Motorways, air traffic, shipping (National)	Required information
Map			
Administrative territory of the cities Eindhoven and Helmond. Motorways (national), air traffic and shipping are excluded and are the responsibility of the National government.			





Part A – Current State of Climate Action

1.1 Module A-1 Greenhouse Gas Emissions Baseline Inventory

GhG Emissions Baseline inventory						
The baseline is the gap analysis for 2018, which is included in the Annex. E: Eindhoven, H: Helmond						
A-1.1: Final energy use by source sectors						
Base year	2018					
Unit						
	Scope 1	Scope 2		Scope 3		
Buildings	E: 9.637 H: 3.095	E: 906 H: 281		To be defined		
(Fuel type/ energy used)	TJ (mostly gas, rest electricity)	GWh electricity (included in scope 1)				
Transport	E: 6.295 H: 1.481					
(Fuel type/ energy used)	TJ (fossile fuels)					
Waste	Aggregated with industry					
(Fuel type/ energy used)						
Industrial Process and ProductUse (IPPU)	E: 2.635 H: 2.272	E: 386 H: 262				
(Fuel type/ energy used)	TJ (electricity and gas)	GWh electricity (included in scope 1)				
Agricultural, Forestry and Land Use (AFOLU)	E: 24 H: 305					
(Fuel type/ energy used)	TJ					
A-1.2: Emission factors applied						
(Please specify for primary energy type and GHG emission factor according to methodology used).						
For calculation in t or MWh of primary energy						
Primary energy/ energy source	Carbon Dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	F-gases (hydrofluorocarbons and perfluorocarbons)	Sulphur hexafluoride (SF ₆)	Nitrogen trifluoride (NF ₃)
National method (CBS)	0,290 (kg/kWh)(electricity) 1,785 kg/m ³ (gas) and 35,970 (Kg/gj) (Heath)	National method (CBS)	National method (CBS)	National method (CBS)	National method (CBS)	National method (CBS)



A-1.3: GHG emissions by source sectors (kton CO₂) E: Eindhoven, H: Helmond				
Base year	2018			
Unit	kton CO ₂			
	Scope 1	Scope 2	Scope 3	Total
Buildings				
- Residential	H 107 E 283	H 28 E 83	n.n.	930
- Non-residential	H 79 E 150	H 21 E 179		
Transport	H 98 E 237			335
Waste				
Industrial Process and Product Use (IPPU)	H 165 E251	H 43 E 216		675
Agricultural, Forestry and Land Use (AFOLU)	Sources (positive emissions)			Not applicable
	Sinks (negative emissions)	H 19,2		Not applicable
Total				1940

A-1.4: Activity by source sectors E: Eindhoven, H: Helmond			
Base year 2018			
	Scope 1	Scope 2	Scope 3
Buildings			n.n.
- Residential	H 107 E 283	H 28 E 83	
- Non-residential	H 79 E 150	H 21 E 179	
(Activity)	Heating, DHW-demand	Electricity	
Transport	H 98 E 237		
(Activity)	Vehicle kilometers		
Sector: Waste			
(Activity)			
Sector: Industrial Process and Product Use (IPPU)	H 165 E251	H 43 E 216	
(Activity)	Production processes, heating	Electricity	
Sector: Agricultural, Forestry and Land Use (AFOLU)	H 19,2		
(Activity)	n.n.		



Method and disclaimer

The gap analysis is based on the base year 2018, because the information from 2018 is the most accurate. The target year is 2030. Per sector is determined what the reduction task is: the current policy goals have been translated towards CO₂ reduction targets and potential. Part A and the annex contains an overview of all relevant policies and projects for the cities of Eindhoven and Helmond in the field of climate, energy and sustainability:

- Overview existing policies and projects, City of Eindhoven.
- Overview existing policies and projects, City of Helmond.

The CO₂ reduction that will be achieved by existing policies (on national, regional and local level) has been calculated as part of the gap analysis (A-1). As much as possible Eindhoven and Helmond use the same method. Some parts of the analysis are still in progress at this stage and partly based on assumptions. There is an accuracy margin of plus/minus 20%. The gap analysis continues to develop with insights in the coming years. In this way the calculations are also becoming increasingly accurate.

Monitoring of greenhouse gases has been taking place for some time, including through the climate monitor of both cities. For the other two spearheads of circularity and climate-proofing, monitoring needs to be further developed in order to obtain a good picture of the baseline and gap. That requires further elaboration. Based on the actions and measures taken, the progress of the implementation is reviewed and insight is gained into what works and what does not work and what can be improved. We also continuously look ahead by periodically updating the residual statement. This way we know whether we are on course and whether additional actions are needed.

The gap analysis is based on the following sectors, which is in line with the classification used in the context of climate monitoring in both cities:

1. Housing: all dwellings.
2. Services: other buildings in the built environment (e.g. shops, schools, sports centres, offices outside large industrial estates, etc.).
3. Mobility: road traffic, excluding traffic on highways, air traffic and shipping.
4. Industry: all emissions from the companies in both cities and emissions from waste disposal.

The current policies have been mapped out for each sector. Waste disposal is included as part of the industry sector. In the tables of the baseline inventory, the emissions are presented according to the requirements (template and guidance) of the Climate City Contract.

Scope 1 and 2 emissions

For the time being, only direct CO₂ emissions (scope 1 and 2) have been included in the analysis, in line with the principles of the European climate mission in which scope 1 and 2 emissions count. At this stage, scope 3 emissions from the climate mission are not yet required.

Scope 3 emissions

At the moment there is insufficient data available to perform a gap analysis for indirect CO₂ emissions (scope 3). To do this, we depend on sound, uniform and national monitoring methods. It is also desirable in the future to gain insight into the waste and consumption behaviour of both cities. To date, too little data is available for this. The aim is to also include scope 3 as part of the further elaboration of the Climate Contract, especially since the contract is not only about fossil-free but also focuses on circularity.



Baseline and scenarios 2030

The gap-analysis indicates where we stand (baseline) and what the remaining task is towards 2030 and beyond (gap). Figure A-1.1 shows Baseline and forecast of effects of current policy regarding CO₂ emissions in 2030. This policy effect scenario is based on the acceleration that Europe, the National Government and Eindhoven-Helmond have deployed through for instance non-binding agreements with various sectors and the assumption that this will be fully implemented by 2030 at the latest. Figure A-1.1 shows the National 'Electricity Mix' separately in the 2030 scenario. Electricity Mix concerns National Government policy regarding energy saving. The assumption is that it will be fully implemented.

Gap to the Mission target

The residual task (gap) forms the basis of the climate task that the Climate City Contract focuses on, when it comes to the first spearhead 'fossil-free'. The regular EU target is to reduce emissions by 55% compared to 1990. For Eindhoven-Helmond this amounts to 832 kton CO₂. Residual target is the amount of emissions that still needs to be reduced in order to become climate neutral. The 80% target for Eindhoven-Helmond amounts to a maximum emission level of 388 kton CO₂.

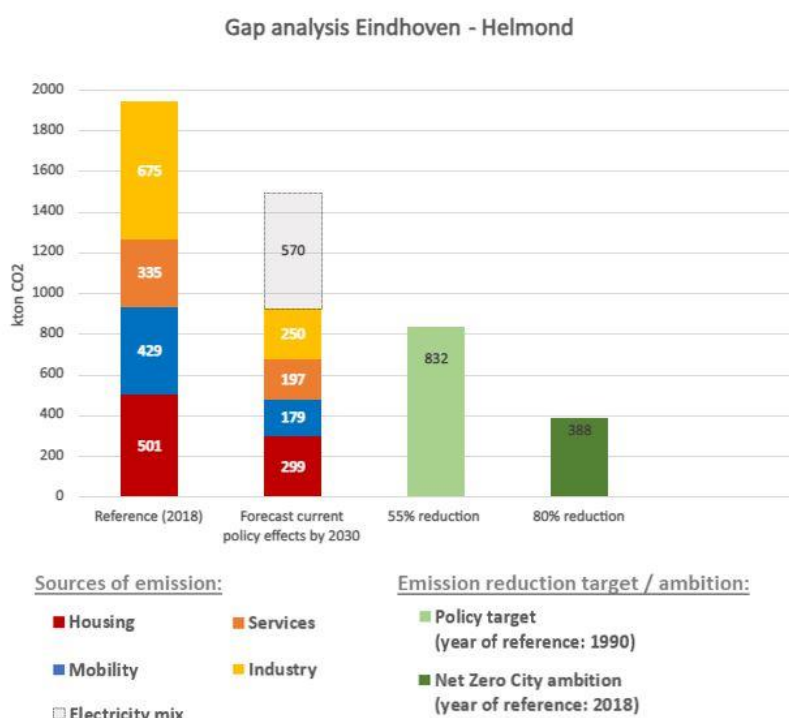


Figure A-1.1: Baseline and forecast of effects of current policy regarding CO₂ emissions

Sector	Emissions 2018 (in kton CO ₂)*	Emissions Forecast regarding effects of current policy in 2030 (in kton CO ₂)**
Housing	501	299
Services	429	179
Mobility	335	197
Industry	675	250
Electricity Mix		570
Total	1941	1495

Table A-1.5: Baseline and forecast of effects of current policy regarding CO₂ emissions

* Gross emissions are the emissions for the reference year 2018.

** Reduction of emissions compared to 2018 based on (the expected forecast) current policy and existing projects.

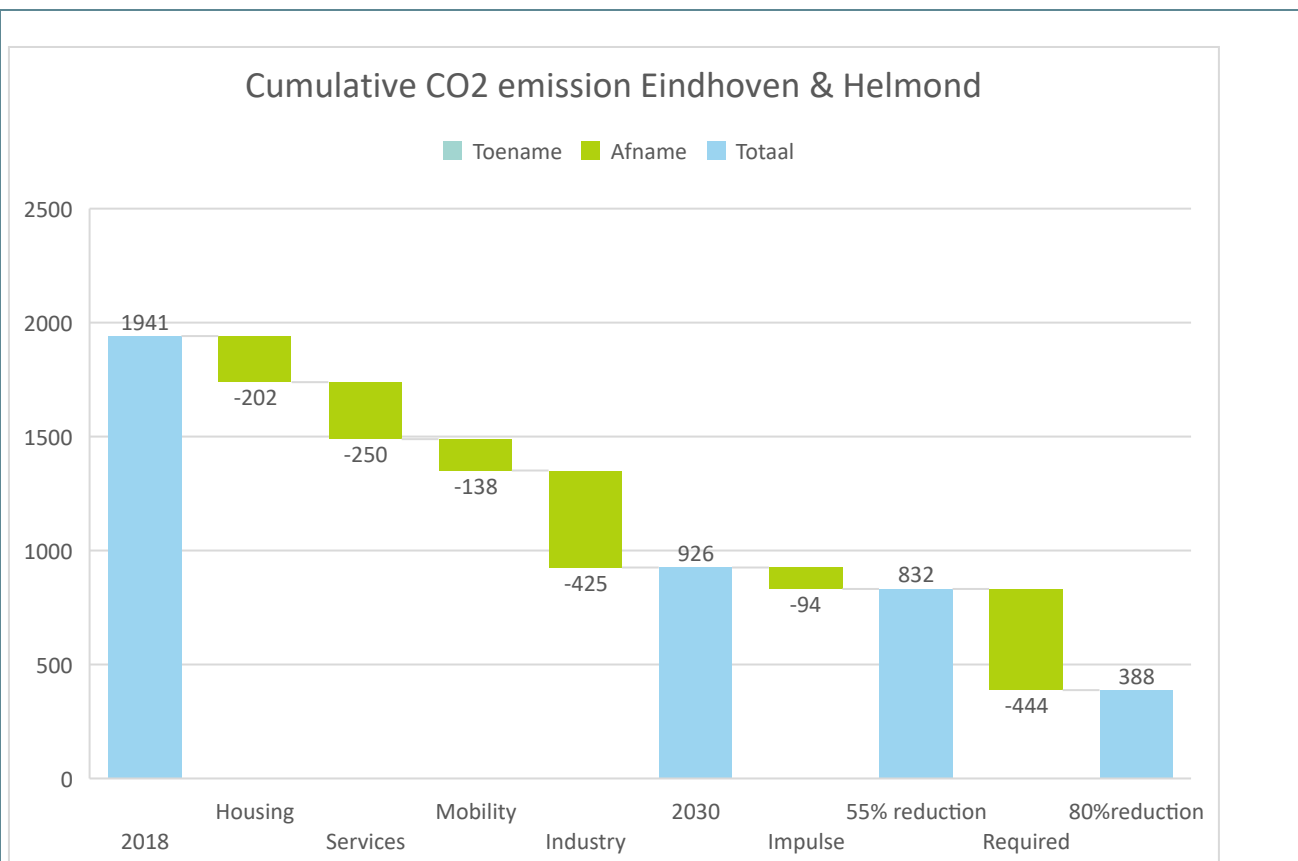


Figure A-1.2: Cumulative effect of forecasted current policy regarding CO₂ emissions

Total emissions (1940 kton CO ₂)	Housing	Services	Mobility	Industry
100%	26%	22%	17%	35%
	Natural gas, heat and electricity consumption in homes.	Natural gas, heat and electricity consumption by services and social buildings	Fuel consumption traffic and transport	Natural gas, heat and electricity consumption, fuel consumption and other greenhouse gases

Table A-1.6 : Current greenhouse gas emissions in Eindhoven-Helmond

Below is an explanation of the gap analysis for the different sectors:

- **HOUSING**

About 26% of total emissions come from homes. With the implementation of current policy, such as the National Insulation Program and the Local Decarbonising Strategies, emissions are partly reduced. An acceleration can be achieved by, for example, putting more effort in expanding the heating networks and installing more solar panels on the roofs of homes.
- **SERVICES**

Approximately 22% of the emissions, as calculated in the gap analysis, come from the other built environment in Eindhoven and Helmond (no housing or industry). It is expected that these emissions will be reduced by approximately a third by 2030 with current policy. Part of this is, among other things, the



policy principle that all offices and utility buildings are made sustainable to a minimum energy label C, but also compliance with the European EED guidelines. The residual task can be reduced by making the heat supplies more sustainable and by developing heat networks.

- **MOBILITY**

Approximately 17% of the emissions, as calculated in the gap analysis, are from mobility. Mobility is responsible for almost 40% of the total CO₂ emissions in the municipality of Helmond. There is still a great deal to be done here in terms of sustainability. The net reduction as currently calculated is largely based on an estimate of various measures from various studies. These include making the center car-free and setting up a zero-emission zone.

- **INDUSTRY**

Emissions from the industry of both cities, according to the calculation in the gap analysis, account for about 35% of the total emissions. Many initiatives are currently underway to reduce industry emissions. Consider, for example, the installation of heat networks. The industry's emissions are expected to be reduced by approximately two thirds by 2030 if current climate policy is implemented. Acceleration can be achieved by focusing on hydrogen and more heat networks on industrial estates, but also by electrifying more business processes.

Based on the gap analysis, there are three factors that have a relatively large impact on the further reduction of CO₂:

1. a reduction in energy consumption through extra efforts to save energy, insulating homes, adapting all post-war homes to energy label A/B and pre-war homes to energy label D, adapting non-residential buildings to label C for savings and energy label A/B for insulation and adapting business premises to energy label C;
2. a reduction in the use of fossil fuels for industrial processes through electrification or the use of hydrogen;
3. and an acceleration to sustainable forms of energy supply such as heat networks and all-electric.

These factors are taken into account in speeding up existing policies and projects. The missions are aimed at giving an extra impulse and providing incentives to further accelerate the sustainability of homes and businesses, together with all parties involved.

Furthermore as part of the missions there are broad interventions that relate to all three spearheads. For instance circular and biobased building and renovation, sustainable mobility and sustainable business areas.



1.2 Module A-2 Current Policies and Strategies Assessment

A-2.1: Description & assessment of policies

Current policies and projects

The current policies and projects are implemented on the basis of various programs and initiatives at EU, National, Regional and Local level, such as the Climate Agreement, the Energy Agenda, the Circular Economy Action Plan and the Delta Spatial Adaptation Plan on the National level, the Regional Energy Strategy, and on a local level the Climate Neutral Action Plan in 2050 (Eindhoven) and the Climate Neutral Action Plan in 2035 (Helmond). The policies as described in the tables A-2.1.1, A-2.1.2 and A-2.1.3 are at different stages: implemented, in the process of implementation, or in preparation. Existing policies are already aimed at reducing greenhouse gas emissions, promoting sustainable energy sources, making homes and buildings more sustainable, encouraging electric driving, stimulating a circular economy and preventing and limiting flooding, heat stress and drought. And policy is constantly being developed to ensure that we can meet the national climate targets.

So far in the cities of Eindhoven and Helmond, a relatively limited reduction of CO₂ emissions has already been achieved compared to 2018. Assessments and the gap-analysis for 2030 show that further measures will be necessary. On the one hand this regards intensification or speeding up the current policies and projects as described. On the other hand, given the urgency of the climate issue, an extra effort on top of this is necessary to achieve the national goals and to be climate neutral by 2030. This extra effort is filled in by the cities city themes and missions approach as described in part B of this Action Plan.



A-2.1.1: List of relevant international/European policies, strategies & regulations						
Type	Name & Title	Year of Publication	Emission domain(s)	Description	Stakeholders	Need for action
(regulation/ policy/ strategy/ action plan)	(Name of policy/ strategy/ plans)			(Description of policy/ strategy/ plans)		(Reference to Module C-1)
United Nations Treaty	Paris Agreement	2015	All	Treaty signed by 196 UN parties to goal is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”	All	Framework for most actions in this list.
EU Policy	EU Emissions Trading System	2005	All	System based on the ‘cap and trade’ principle. A cap is a limit set on the total amount of greenhouse gases that can be emitted by the sectors covered by the system. The cap is reduced annually in line with the EU’s climate target.	Energy sector, industry, building sector and road transport	EU-policy to reduce emissions. Link with all missions/actions aimed at reducing CO ₂
EU Policy	European Green Deal	2019	All	Package of policy proposals for reducing net greenhouse gas emissions by at least 55% by 2030.	Governments, production industry, consumers.	The European Green Deal (europa.eu). Link with all missions/ actions aimed at reducing CO ₂
EU Policy	EU Climate Law	2020	All	European Union commitment for the target to be climate neutral by 2050 with identified 2030 target and pathway proposals to reach both targets.	All	Making the EU climate-neutral by 2050 (europa.eu)
EU Regulation	TEN-T policy	1990	Mobility	Coherent, efficient, multimodal, and high-quality transport infrastructure across the EU.	All	Establishment of local SUMP and development of indicators



EU Regulation	Alternative fuels infrastructure regulation (AFIR)	2021	Mobility	2025-2030 deployment targets for recharging and refuelling stations for alternative fuels (to fossil fuels)	Energy providers, network providers, drivers, transportation sector.	Placing sufficient number of charging stations for trucks, also in urban areas
EU Regulation	Regulation 2023/851 Actualised CO ₂ emission standards performance standards for cars and vans	1992-present	Mobility, built environment	Introducing stricter CO ₂ emissions targets for cars and vans in line with the EU reduction targets for cars and vans of 100% by 2035.	Industry, transport sector, consumers	Link with action plan air quality, link with local mobility vision and implementation
EU Regulation	Actualised CO ₂ emission standards performance standards for heavy-duty vehicles	1992-present	Mobility, built environment	Introducing stricter CO ₂ emissions targets for heavy-duty vehicles in line with the EU reduction targets for cars and vans of 100% by 2035.	Industry, transport sector	Link with action plan air quality, link with local mobility vision and implementation
EU Action Plan	Circular Economy Action Plan	2020	Circular economy	Action plan with measures to produce more sustainable products, decrease waste and promote circularity in the EU. Part of European Green Deal.	Governments, production industry, consumers.	Link with missions on circular and sustainable inner cities, neighbourhoods and businesses
EU Strategy	EU Biodiversity strategy 2050	2020	Built environment	EU Strategy to halt the decline of biodiversity and help biodiversity increase by 2030. Part of European Green Deal.	Governments, developers, housing associations	Link with missions/ actions on green and water as a base



EU Policy	EU Nature Restoration Law	2023	Built environment, circular economy	Set of rules to restore biodiversity and ecosystems within the EU aiming to have at least 20% of EU's land and sea covered by recovery measures by 2030 and all ecosystems by 2050.	Governments, agricultural sector, heavy industry, EU residents.	Link with missions/ actions on green and water as a base
EU Action Plan	Zero Pollution Action Plan	2021	All	Action plan to drastically decrease pollution within the EU. Target of zero pollution in 2050 and 25-55% percent decreases in different types of pollution by 2030.	Governments, industrial polluters, transportation sector, residents of the EU.	Zero pollution action plan (europa.eu)



A-2.1.2: List of relevant national and provincial policies, strategies & regulations						
Type	Name & Title	Year of Publication	Emission domain(s)	Description	Stakeholders	Need for action
(regulation/ policy/ strategy/ action plan)	(Name of policy/ strategy/ plans)			(Description of policy/ strategy/ plans)		(Reference to Module C-1)
Policy	National Climate Agreement	2018	All	Agreement between large group of national stakeholders committing to bringing national CO ₂ -emissions down by at least 49% by 2030 and 95% by 2050 compared to 1990	All	Framework for most actions in this list.
Strategy	Energy Agenda	2016	All	The main lines of future energy policy for the period up to 2050.	All	Link with local missions on speeding up energy saving, insulating and renewable energy.
Action Plan	Delta Rhine Corridor	2023	Industry, energy Sector	A collection of initiatives to simultaneously construct multiple underground pipelines and direct connections between Rotterdam and the German border, via Moerdijk and Geleen. This involves the construction of a pipeline for the transport of hydrogen.	Industry, energy sector, governments	Link with missions/ actions on renewable energy and circular and sustainable industry Delta Rhine Corridor DRC (delta-rhine-corridor.com)
Strategy	National Approach Mobility Transition	Multi-year approach	Mobility	Accelerating the mobility transition through a joint approach by all governments.	All	Measures aimed at structurally improving mobility. Link with local mobility vision and implementation.
Vision paper	Mobility vision 2050	2023	Mobility	National vision paper about the future of mobility	All	Framework for policies on mobility.



Policy proposal	Wetsvoorstel Collectieve Warmte	2022	Energy Transition	Proposed bill to facilitate the development of district heating by designating public parties to develop said networks, thus giving the public sector more control.	Governments, energy suppliers, housing associations, residents	Framework for developing district heating.
Action plan	National Insulation Program	2022	Energy transition	National program to accelerate the insulation of households in order to decrease energy consumption and prepare for non-fossil fuel heating sources in 2.5 million households by 2030.	Governments, housing associations, home owners, insulation companies, occupants of housing needing insulation.	Link with local missions on speeding up energy saving and insulating. Nationaal Isolatieprogramma
Program	Building Balance	Multi-year approach	Buildings, homes, industry	Initiating, encouraging and supporting independent regional and national chains for biobased building.	Farmers, producers, builders, government, homeowners	Link with all missions/ actions to speed up existing policies. Bouwmaterialen van eigen bodem - Building Balance
Action Plan	Provincial multiple year plan on infrastructure, energy and climate (pMIEK)	2023	Energy transition, built environment	Integrated provincial analysis on the most important decisions to make to ensure a functioning energy system beyond 2030.	All	Link with missions aimed at countering netcongestion.
Action Plan	Delta Plan on Spatial Adaptation (National)	2018	Built environment, rural areas	Limit flooding, heat stress, drought and the consequences of flooding.	All	Link with missions/ actions on green, water and climate proof as a base. Deltaplan Ruimtelijke adaptatie Drie thema's Deltaprogramma
Agenda	Energy Agenda 2019-2030 (Province)	2019	All	Guideline for action of the province. This with the aim of being in place by 2050, 100% sustainable energy and a reduction of 90% of CO ₂ emissions compared to 1990.	All	Link with local missions on speeding up energy saving and insulating.



Program, Action Plan	De Grote Oogst (Province)	Multi-year approach	Industrial areas	With 'Grote Oogst', the province is working on structural collaborations in 12 industrial areas with concrete action plans to make the industrial estates more sustainable and green together with partners.	Real estate owners, businesses, governments	Link with all missions/ actions to speed up existing policies.
Action Plan	Operatie Steenbreek	Multi-year approach	Built environment, public space	National knowledge and network organization that provides support in sustainably greening our living environment.	Municipalities, provinces, water boards, project developers, housing associations, knowledge and educational institutions and other social organizations.	Link with missions/ actions to speed up existing policies regarding green, water and climate proof as a base. Stichting Steenbreek Samen van verstening naar vergroening
Policy	National Performance Agreements (NPA) Housing Associations	2023	Energy transition, built environment	Agreements that state that housing associations will phase out the EFG labels in all their social housing stock by 2028 at the latest. In order to achieve the objectives of the NPA, a further acceleration in efforts is needed.	Housing Associations, Renters	Link with local missions on speeding up energy saving and insulating.



A-2.1.3: List of relevant regional and local policies, strategies & regulations						
Type	Name & Title	Year of Publication	Emission domain(s)	Description	Stakeholders	Need for action
(regulation/ policy/ strategy/ action plan)	(Name of policy/ strategy/ plans)			(Description of policy/ strategy/ plans)		(Reference to Module C-1)
Strategy	Regional Energy Strategy (Brainport region)	2021-present	Energy transition, built environment,	Regional strategy for increased production of renewable energy on land, for saving energy and sustainable heat generation	All	Link with local missions on speeding up energy saving and insulating, renewable energy and decarbonizing buildings. RES Metropoolregio Eindhoven Energieregio MRE
Program	Implementation program Future-proof Brainport Electricity Network (UTEB, Brainport Region)	2023	Energy transition, built environment, industry, transport	21 municipalities in the Brainport area, the province of North Brabant and Brainport Development collaborate to limit the consequences of net congestion.	All	Link with missions aimed at countering netcongestion.
Agenda, Action Plan	Brainport Sustainability Plan (Brainport region)	2023	Industry, businesses, governments, transport, buildings	Projects and activities in the field of circularity and sustainability with a focus on circular chains.	High tech industry, businesses, governments	Link with missions/ actions with regard to circular and sustainable businesses and industrial areas.
Agenda, Program, Action Plan	Peel Positief (Helmond and Peel region)	Multi-year approach	All	Projects and activities in the field of circularity and sustainability.	Businesses, governments, citizens, civil society	Link with all missions/ actions to speed up existing policies. Peel Positief



Agenda, program	Green and smart mobility (Brainport region)	Multi-year approach	All	Realize innovative technological breakthroughs in electrification, hydrogen applications and future-oriented digital infrastructure in mobility.	Industry, businesses, knowledge institutions, governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program	Brainport Bereikbaar (Brainport region)	Multi-year approach	All	Optimal flow and accessibility of the Brainport region. Facilitate and encourage mobility solutions that are faster, cleaner and healthier.	Governments, businesses, knowledge institutions, education, citizens	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ . Homepage - Brainport Bereikbaar
Action Plan	Towards a climate neutral Eindhoven	2020	All	Eindhoven wants to reduce the city's CO ₂ emissions by 55% in 2030 and 95% in 2050 compared to 1990 emissions.	All	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ . Ambitie Eindhoven Duurzaam
Program	Implementation Agenda 2021-2025 (Eindhoven)	2020	All	An adaptive implementation agenda in which the CO ₂ impact of projects is made transparent.	All	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Regulation	Climate Regulation 2016 (Eindhoven) Climate Regulation Helmond by 2035	2016 2009	All	Step-by-step reduction of greenhouse gas emissions compared to emissions in 1990	All	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Strategy	Sustainable Strategic Program and Healthy City (Helmond)	2020-2025	All	Strategy focused on sustainability and climate adaptation.	All	Link with all missions/ actions to speed up existing policies.



Action Plan	Climate Neutral Plan in 2035 (Helmond)	2021	All	Helmond want to be climate neutral as a city in the period 2035-2045.	All	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ . Home Heel Helmond duurzaam
Program	Annual climate budget (CO ₂ , energy-use) Eindhoven	2023	All	Report on progress towards CO ₂ reduction goals.	Citizens, businesses, civil society, governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program	Annual climate budget (CO ₂ , energy-use) Helmond	2021	All	Report on progress towards CO ₂ reduction goals.	Citizens, businesses, civil society, governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Strategy	Decarbonizing Strategy 2050 (Eindhoven, Helmond)	2021	Buildings, industry, services, energy sector	Heating and cooling homes, businesses and other buildings within the built environment in a different way than with natural gas.	House owners, industry, services, energy sector	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Strategy, program	Mobility Vision and Implementation Program (Eindhoven, Helmond)	2023	All	Vision on the future mobility system and what is needed to achieve this.	All	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program, Action Plan	Circular City Eindhoven	2021	Buildings, industry	To be a circular city in 2050 that uses (raw) materials in a sustainable way.	House owners, developers, builders, housing associations, governments, industry	Link with missions/ actions with regard to circular and biobased building. Cirkelstad Eindhoven - Cirkelstad
Action Plan	Sustainability Pact (Eindhoven) and Performance Agreements (Helmond)	Multi-year approach	Homes, buildings	Agreements with housing associations about making homes more sustainable.	Housing associations, governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .



Program	Energieket, Energiehuis (Eindhoven, Helmond)	Multi-year approach	Homes, buildings	Helping home-owners making homes more sustainable	Home-owners	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program	De Groene Zone (Eindhoven, Helmond)	Multi-year approach	Homes, buildings	Initiative with the aim of providing as many homes as possible with insulation and solar panels.	Home-owners, Real estate owners, governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Action Plan	Green Deal Healthcare (Eindhoven, Helmond)	Multi-year approach	Healthcare, buildings	Improve the performance of healthcare institutions by saving energy, using waste and water more efficiently, combating food waste and limiting transport movements.	Healthcare institutions, governments	Link with all missions/ actions to speed up existing policies.
Action Plan	Green Deal Offices (Eindhoven, Helmond)	Multi-year approach	Businesses, buildings	In 2023, every office with an area of more than 100 m ² must have at least energy label C. Office owners are challenged to go a step further by opting for energy label A. In return, they receive a postponement of the legal obligation and they will be helped to achieve this result.	Businesses, governments, office owners	Link with all missions/ actions to speed up existing policies.
Action Plan	Green Deal Utility (Eindhoven)	Multi-year approach	Businesses, buildings	Improve the performance of utility construction companies by saving energy, preventing waste, limiting transport movements.	Businesses, governments	Link with all missions/ actions to speed up existing policies.
Action Plan	Green Deal Events (Eindhoven)	Multi-year approach	Recreation, businesses, citizens	The Green Deal Events focuses on the themes of energy, materials and plastic, food and drinks, mobility, and diversity and inclusion.	Businesses, citizens, event organizers, governments	Link with all missions/ actions to speed up existing policies.
Action Plan	Business Investment Zone De Hurk (Eindhoven)	Multi-year approach	Industrial area, industry, businesses, energy sector, mobility	Real estate owners and businesses work together on activities in the areas of quality of life, safety, sustainability, greenery, mobility and accessibility.	Real estate owners, businesses, governments	Link with all missions/ actions to speed up existing policies.
Program	Stichting Bedrijventerreinen Helmond (Helmond)	Multi-year approach	Industrial area, industry, businesses, energy sector, mobility	Real estate owners, businesses and the city of Helmond work together on activities in the areas of quality of life, safety, sustainability, greenery, mobility and accessibility.	Real estate owners, businesses, governments	Link with all missions/ actions to speed up existing policies.



Program, Action Plan	Smart Synergy Helmond	2020	Industrial area, industry, businesses, energy sector	Program in which businesses work with each other and with the municipality. The projects individually contribute to the energy transition, but collectively they ensure accelerated sustainability of the Helmond industrial estates.	Real estate owners, businesses, governments, financial organizations	Link with all missions/ actions to speed up existing policies.
Program, Action Plan	Making Municipal Buildings Sustainable (Eindhoven, Helmond)	Multi-year approach	Buildings	Approach for making municipal buildings (including schools and sport facilities) more sustainable and at the same time work smartly with real estate owners to make all buildings in the city more sustainable.	Governments, real estate owners	Link with local missions on speeding up energy saving and insulating, renewable energy and decarbonizing buildings.
Program, Action Plan	Policy memo on solar parks and wind turbines (Eindhoven)	2020	Buildings, energy sector	Approach to accelerate solar and wind generation in urban areas.	Governments, businesses, energy cooperatives, citizens	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program, Action Plan	Vision and policy Solar fields and solar roofs (Helmond)	2020	Buildings, energy sector	Framework and conditions for solar fields and solar roofs.	Governments, businesses, energy cooperatives, citizens	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .
Program, Regulation	Socially Responsible Ordering an Purchasing (Eindhoven, Helmond)	Multi-year approach	All	The policy of the cities of Eindhoven and Helmond is to purchase as sustainably and socially as possible.	All	Link with all missions/ actions to speed up existing policies.
Program	Water and Climate Adaptation Approach (Eindhoven)	2023	All	Program for making the city of Eindhoven (more) climate resilient.	All	Link with missions/ actions to speed up existing policies regarding green, water and climate proof as a base.
Program	Climate-resilient Implementation Agenda 2021-2025 (Helmond)	2021	All	Program for making the city of Helmond (more) climate resilient.	All	Link with missions/ actions to speed up existing policies regarding green, water and climate proof as a base
Program	Urban Lighting Program (Eindhoven, Helmond)	-	Public space	Program for making public lighting more sustainable.	Governments	Link with missions/ actions to speed up existing policies aimed at reducing CO ₂ .



	(1) Baseline emissions	(2) Emissions Reduction Target 2030		(3) Emission reduction through other Action Plans		(4) Emissions Gap		(5) Emissions reduction through the CCC Action Plan to address the Gap		(6) Residual emissions	
	Baseline emissions (ideally not older than 2018) - referring to the inventory used for target setting	The emissions reduction target for 2030 ideally achieves a minimum 80% reduction from the baseline, as reported in Section 2 of the Commitments document of the CCC. The overall target should be absolute or net-zero (i.e. including the compensation of any residual emissions).		These are the emissions reductions that would be achieved through existing policies, and plans, outlined in Section A-2.1. Those actions are by definition not part of the action portfolio in section B. If they are fully or partially incorporated in module B-2, their associated reduction potential should be referenced in column (5) and not be included here. WARNING if the baseline is a BAU scenario: If the BAU modelling includes any of these existing measures, please also do not include the associated emissions reduction in this column as otherwise it would be double counted.		(4) = (2) – (3)		This column is used to present the already quantified emission reduction associated with the action portfolios outlined in module B-2. Ideally, this equals the gap. If there is a difference between the reduction potential of the actions specified in module B-2 (for instance because their reduction potential has not been fully estimated or because additional measures will be identified in future iterations), the CCC AP should be explicit about this difference and explain how the difference will be closed. In principle, as long as the difference has not been addressed, it would be considered as part of the residual emissions.		(6) = (1) – (2)	
	(absolute) (specify units)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)
Buildings	930	847	48	417	48	430	48	347	48	83	48
Transport	335	306	17	69	8	237	26	208	28	29	17
Waste	Included in IPPU	Included in IPPU		Included in IPPU		Included in IPPU		Included in IPPU		Included in IPPU	
Industrial Process and Product Use (IPPU)	675	615	35	377	44	238	26	178	24	60	35
Agricultural, Forestry and Land Use (AFOLU)	Not applicable	Not applicable		Not applicable		Not applicable		Not applicable		Not applicable	
Total	1.940	1.768	100	863	100	905	100	733	100	172	100



1.3 Module A-3 Systemic Barriers and Opportunities to 2030 Climate Neutrality

A-3.1: Description of urban systems, systemic barriers, and opportunities

Introduction

In the current situation, there are several barriers that need to be overcome in order to realize the stated ambitions. These relate to different systems such as technological, infrastructural, policy and regulation, organisational, financial, political, social and behavioral systems. The necessary conditions for sustainability are pressing in various areas, which means that the requested pace cannot be achieved. For example, the capacity of the electricity network in our region is insufficient to keep up with the speed of the energy transition. And that while the demand for and supply of sustainable electricity is only going to increase. The network capacity is therefore not only limited in terms of the sustainability task, but also the housing task and the transition of our industrial estates will be affected by this. In addition, the capacity of our workforce is not sufficient to carry out all the necessary measures. The question is how to prevent shortages leading to delays in implementation. This does not only apply to capacity in human capital, but also to the necessary materials.

At the same time there are opportunities to overcome the barriers and accelerate the transition. Preconditions from the national government and the EU in areas such as finance, legislation and regulations, the tax regime and local policy space are crucial to be able to implement the ambitions locally. In the context of this climate mission, priority must be given to creating the necessary preconditions on the one hand and solving bottlenecks that could delay or hinder implementation on the other. This section describes the joint analysis of barriers and opportunities of the Dutch mission cities for the relevant domains and systems. Together they have mapped out what is needed to achieve the goals with regard to climate neutrality in 2030.

Dutch mission cities are prepared to move ahead

The recent Climate and Energy Outlook by the Dutch environmental planning agency PBL shows that the CO₂ reduction target for 2030 is feasible for the first time, if everything works out and goes well (due to local and regional constraints, this is however not feasible for the cities of Eindhoven and Helmond). The Dutch mission cities are prepared to move ahead of other Dutch municipalities in their sustainability policy. We are responsible for roughly 20% of Dutch CO₂ emissions through energy consumption. The goods that fuel our cities have much more environmental impact. So scope 3 emissions have to be taken into account. On a national level the 7 Dutch mission cities and the national government are at the brink of setting up a National Support Structure. This helps with information exchange between the cities and the national level, but is also a channel for the cities to the respective government departments to address needs for action on national level, being on funding and finance, legislation and regulation or e.g. to overcome and resolve electricity grid overload problems.

Systems, barriers and opportunities

As Dutch mission cities we need three things from the (National) government in a generic sense:

1. Policy freedom to experiment with the measures needed at local level to achieve the sustainability transition. For example, the local freedom to introduce a zero-emission zone or road pricing and to impose statutory requirements on the built environment. The purpose of the mission is to explore where we can accelerate, for which we need policy freedom.



2. Cooperation between decentralized authorities, the national government and the EU. On the one hand, to be able to work together where freedom of policy is not possible. This can help you deal with existing legislation and regulations in an agile manner. On the other hand, this collaboration helps to embed the lessons learned at local level in national and European policy and to achieve sufficient market demand and supply through sustainable purchasing.
3. Financial cooperation to realize the physical preconditions required for the ecological transition. Consider, for example, financial space to realize heating networks, or cooperation to mobilize private capital for the sustainability transition.

More specifically, we currently see the following barriers and acceleration opportunities:

Building the cities of tomorrow together

The housing construction challenge leads to the addition of a large number of homes in the Netherlands. With the current standards and the announced harmonization of these standards, these homes will not be built future-proof. For example, from BENG 2 (BENG stands for 'Almost Energy Neutral Buildings'), a terraced house that is currently being planned and will be delivered in 2030 can consume 600 m³ of natural gas. At the same time, it could happen that this house may not be built due to a possible construction stop due to a surplus of emissions in the chain. The measures in the letter to Parliament on circular and sustainable housing are inadequate. Harmonizing this makes the mission more difficult for mission cities to achieve and places an unexpected bill on home owners. At the same time, we also realize the necessity of the housing construction challenge. To resolve this dilemma, we want to discuss the balance between the housing construction task and making the Netherlands more sustainable with the government.

Points of interest in that respect for us are:

- It is necessary to increase the focus on bio-based and nature-inclusive insulation and construction. Together we can take the steps to do this. Through stricter standards and subsidies, the mission cities can scale up bio-based construction and insulation and thus prevent additional CO₂ emissions and a construction freeze in the near future. We ask our government to set up this process together, and, for example, to contribute to the additional costs in order to get the chain in motion. In addition, we must have the option to standardize this at a local level, or to tackle this more strictly through national legislation.
- Adjustments in the BENG. This policy is currently resulting in divestments at national level. BENG 2, for example, provides for allowing fossil energy consumption of up to 50 kWh/m² per year. This amounts to approximately 580 cubic meters of natural gas per year for a terraced house. This is not compatible with climate policy. We want stricter national requirements, or opportunities to do this at a local level.
- The possibilities to impose extra-legal requirements on the building decree at local level, for example to enable nature-positive development.
- Resources to implement the government's water and soil management principles in order to guarantee multi-layer safety in the housing construction task.
- Jointly investigating the impact of the Water Framework Directive in view of the ecological water quality on the housing construction task.

Climate justice

- More opportunities to fairly distribute the benefits and burdens of the ecological transition. Consider, for example, possibilities to price pollution at a local level, such as additional taxation of owners of poorly insulated rental properties or CO₂-intensive mobility.



- Creating financing constructs that help tenants and citizens with less financial capacity or self-reliance to become more sustainable.
- Work with the National government to draw up a basic definition of an affordable offer for building owners in the context of the transition to sustainable, natural gas-free buildings.

A sustainable built environment

- Without good legislation and structural financial resources, our cities cannot program and implement the heat transition. Prevent further delays in legislation (WCW, WGIW, Energy Act). Adjust the Heat Networks Investment Subsidy (WIS) so that the subsidy is sufficient to actually implement the projects because the WIS minimizes the unprofitable top of heat networks. Switching to a more sustainable alternative should not be more expensive than using gas. As one government, we must look at financial incentives that make the transition to natural gas-free financially interesting.
- Making SME's more sustainable: large consumers pay less energy tax than SME's. We advocate a fair energy tax, which closes the gap between large consumers and SME's at a national level, for example.
- Improving the investment capacity of housing associations, as they have insufficient financial scope to contribute to sustainable new construction and sustainability of their existing stock. Especially now it is extra important that they invest in advance. Every ton of CO₂ emissions saved now has a lasting effect in preventing global warming.

The transition to a circular economy

For an (accelerated) transition to a circular economy, we ask for a structural partnership/consultation structure between the government, local authorities and the business community in which agreements are made about the design of the circular economy and what is needed to create this economy, including financing. As one government, we must facilitate the dialogue about what is necessary and possible to decouple the well-being of Dutch people from material use. More specifically, we ask the government:

- Collaboration between the layers of government in making the national circular economy plan feasible in combination with a MIRT-MIEK-like structure and financing methodology.
- Waste should be regarded as a raw material as much as possible, which is why we ask the government to commit to ambitious EU legislation in the field of eco-design, which should, among other things, establish a mandatory percentage of recycled raw materials in new products, stronger regulation and standards (including enforcement) to achieve a level playing field in which equal opportunities are guaranteed. Circular economy goals must be included in the law.
- Greening the tax system, including shifting taxes from labour to raw materials. Reward the use of secondary raw materials over primary raw materials. Policy high on the R ladder at European level is essential to stimulate and enforce different design choices and adjustments in consumption patterns.

The transition to cities that are emission-free and accessible

In the realization of emission-free cities, the mission cities advocate the application of customization, based on an integrated consideration between measures that prevent mobility (proximity to facilities, traveling outside rush hour and/or working from home), change (use of bicycle, public transport, shared mobility > car, logistics hubs) and cleaning (zero-emission fleet). This also means policy that takes into account differences between mobility needs in the city and in the countryside. It is important to emphasize that in such a policy package the focus must obviously be on creating support among citizens, companies and fellow authorities. Key points are:



- We are not on track to achieve the goals for a zero-emission fleet on time, which is crucial for achieving the climate goals for mobility.
- New financial incentive for zero-emission transition is needed when the current policy expires (2026), so that the growth of electric transport (EV) and hydrogen cars (in combination with fuel cells) does not stagnate.
- We will not achieve the goals simply by making the fleet emission-free, an increased focus on achieving a 'modal shift' is necessary.
- For a 'modal shift' there must be enough capacity in sustainable transport alternatives: this can be done by scaling up supply and an increased focus on spreading and avoiding.
- The affordability of public transport, bicycle and (electric) shared transport is a point of attention, as is the impact of policy on groups with high car dependence.

Our cities would like to see national cooperation on preventing mobility, changing travel behaviour and changing mobility, which the mission cities can connect with their plans. We draw attention to the transition in all mobility sectors: in addition to passenger mobility, also freight traffic, mobile equipment and inland shipping. A transition in these sectors is not only necessary to reduce CO₂ emissions, but also contributes to clean air and thus prevents unnecessary deaths.

This is important for the quality of life and attractiveness of cities. The mission cities also emphasize the link with accessibility. Other choices for passenger transport and freight logistics are simply necessary to ensure the accessibility of our cities, especially for the rest of the Netherlands.

In line with the above story, the mission cities have drawn up a number of measures. They argue for the following points to the government, working towards a more balanced policy approach aimed at preventing, changing and improving mobility through the right policy mix between subsidizing, pricing and standardizing measures:

1. Pricing and/or standards that guarantee the influx of EVs into the national fleet (focus on business inflow and guaranteeing total cost of ownership (TCO) electric driving < fossil driving). Proposals from the IBO Climate for inspiration: EV discounts within the tax on passenger cars and motorcycles (BPM) or Motor Vehicle Tax (MRB), ban on new fossil business cars as of 2025 (segments A to E) and an increased annual obligation for biofuel blending .
2. Subsidy (second-hand) EV focused on lower incomes (depending on private car), in combination with an approach aimed at inflowing EV's onto the market via business parties. This should guarantee the retention of EV within the Dutch market.
3. Targeted rollout of the National Charging Infrastructure Agenda (NAL), taking into account grid congestion and the availability of sustainable transport alternatives.
4. Possibility within the upcoming legislative decree 'Payment according to use' (BNG) for possible future adjustments regarding BNG differentiated based on location.
5. Opportunities for municipalities to work towards zero-emission zones and possibly through speed reductions (on parts of the) ring roads.
6. Include broader social values (liveability, inclusion, environment and climate) in addition to costs when considering infrastructure and mobility investments, making the CO₂ effect transparent (and making integrated considerations for sustainable mobility possible).
7. Structural investments in operation, lines and affordability of public transport, by increasing BDU and provincial fees (in order to create space in public transport for 'modal shift').
8. Commitment to 'public mobility', which requires recognition from the government that the perception of public transport is currently too limited and that other (commercial) mobility concepts are also of value.



9. Policy aimed at making shared transport (financially) attractive, for which the cost chain of shared transport must first be made transparent.
10. Creating a formal position for Regional Mobility Plans (RMPs) within the climate plans (including support and budget) with direction from an umbrella organization (for example the interprovincial consultation), with inspiration from the Regional Energy Strategy (RES).
11. Clarity about enforcement and possible sanctions in a scenario in which employers do not voluntarily comply with the collective emissions ceiling (as of 2024) set from the recently tightened 'CO₂ target for work-related personal mobility'.
12. Increased efforts in the 'Employer Approach', such as through the Coalition for Different Travel.]
13. Supervision by the government on the proximity of social facilities and high-rise buildings around existing public transport hubs within the NOVEX program.

Preventing divestments and passing on the consequences of climate change

In order to realize the ecological transition, it is necessary that the government has a better picture of the financial and economic-social consequences of ecological degradation and climate change. With this image, we can jointly use the resources that society makes available to us more effectively to achieve the ecological transition and prevent damage. In concrete terms we want:

- Means to work on multi-layer safety in our spatial planning, to comply with the water and soil management principles from the NOVEX.
- Find out together what the consequences of the water framework directive are, given the ecological water quality in the Netherlands. What does the water quality standard mean for densification and sustainability in urban areas?
- Deepen the relationship between the energy system and climate adaptation. What does water and soil management mean for the energy infrastructure in the Netherlands? To what extent are our water boards robust?

The energy system of the future

It is crucial for both area development and sustainability that problems surrounding grid congestion are solved. The Dutch mission cities therefore are a partner of the government and provinces to, among other things, arrive at smart solutions to use the grids more intelligently, expand them and work on a clear social prioritization framework. It is important that there are sufficient resources for innovations and additional costs for solutions. The intended investments must therefore continue unabated. In addition to the resources, we need the government to accelerate the expansion of the networks. Accelerated licensing procedures by the government contribute to a faster rollout of the networks, which contributes to reducing network congestion problems. In addition, it is necessary to simultaneously view and coordinate the coherence of the energy system with spatial development at multiple scale levels on a structural basis. The point of attention is that the energy system is viewed integrally and not in a compartmentalized manner.

EU Mission label

There is a need for much more explicit and structural cooperation between government levels. This point may seem trivial, but we find it essential that a climate contract (usually an agreement between different parties) not only sets out the commitment of one party, but describes the commitment and contributions of all concerned. The Mission label could be the central instrument to realize this. The Mission Label is, therefore, an important instrument and we urge the European Commission to load the Mission label in a meaningful way, giving it the added value we expect it to bring.



Table A-3.2 provides an overview of engagement of other governments and stakeholders in Eindhoven-Helmond and beyond, to what degree it positively or negatively affects the transition to climate neutrality (high, medium, low) as well as the level of positive or negative concern with the transition to climate neutrality (high, medium, low).

A-3.2: Systems & stakeholder mapping			
System	Stakeholders	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Governments	EC, Network Climate Neutral and Smart Cities	High	High. Support and accelerate the transition toward Climate Neutral Cities.
	National government	High	High. Support and accelerate the climate transition. Roadmaps for different sectors have been developed describing actions needed to reach climate neutrality or to become fossil-free.
	National government and Dutch Climate Neutral and Smart Cities	High	High. Collaboration ministries and the Dutch cities specific for the EU Mission, setting up a support structure (National Support Structure).
	City staff and departments	High	Medium. The objective is to further integrate sustainability into the various sectors, develop the capacity and strengthen internal and external collaboration.
Regional collaboration	Metropool Regio Eindhoven	High	High. Carrying out the regional energy transition together with 21 municipalities, province, water boards and grid operators.
	Brainport Eindhoven	Medium	Medium. Brainport focuses on enhancing the innovative power of the region, ensuring the availability of sufficient highly qualified talent and improving the living and business climate in the region.
	Innovatiehuis De Peel	High	High. Aim is to make the Peel region as part of the Brainport region net positive through intensive collaboration between citizens, youth, education, government and business.
	EnergyHouse Smart Living (EnergieHuis Slim Wonen)	High	High. EnergieHuis Smart Wonen is the energy counter for the municipalities of Helmond, Asten, Someren, Laarbeek, Geldrop-Mierlo, Nuenen, Deurne and Gemert-Bakel. They provide independent information about energy saving and generation to home-owners.
	Regional Energy Counter (Regionaal Energieloket)	High	High. Regionaal Energieloket is the energy counter for Eindhoven. They provide independent information about energy saving and generation to home-owners.
	Green Deal Healthcare	High	High. Fourteen large health institutions and eleven municipalities jointly signed the Green Deal Healthcare Eindhoven/MRE. The aim of the Green Deal Healthcare is to improve the environmental performance of healthcare institutions by saving energy, using waste and water more efficiently, combating food waste and limiting transport movements.



Local collaboration with housing associations	Sustainability Pact (Duurzaamheidspact)	High	High. The city of Eindhoven wants to make homes and buildings more sustainable smarter and faster. To this end, the municipality, housing associations 'thuis, Sint Trudo, Woonbedrijf and Wooninc. and the tenant representation PEK (Platform Eindhoven Customer Councils) joined forces and concluded the Sustainability Pact.
	Performance agreements (Prestatieafspraken)	High	High. The city of Helmond makes annual agreements with the housing associations and the tenant interest groups. This concerns the housing associations Woonpartners, Volksbelang, Compaen, woCom, Bergopwaarde, Woonbedrijf and the respective tenant interest groups. They strive for energy-neutral construction and a climate-proof living environment and to gradually work towards 100% energy neutrality.
Business collaboration	Brainport Sustainability Plan	High	High. High tech industry produces as sustainably and cleanly as possible on the basis of the cleanest and most sustainable possible use of energy and materials.
	Stichting Bedrijventerreinen Helmond	High	High. Aim is stimulating, coordinating and optimizing sustainable cooperation between the Helmond industrial areas and the business located there. To realize circular, climate-neutral and social business parks.
	Brainport Development	High	High. Accelerate the introduction of energy innovations to the market and the large-scale use of them. This applies to electric transport, LED lighting, charging infrastructure and generation options such as thin-film solar cells.
	Smart Synergy	High	High. Smart Synergy is a collaboration on the industrial areas BZOB and Groot Schooten in Helmond. The four ongoing projects under Smart Synergy Helmond are: Heating network Groot Schooten, Process water factory and WWTP BZOB, Industrial symbiosis BZOB and InduSym Residual flows platform & waste collective.
	Indusym	Medium	High. InduSym stands for industrial symbiosis, a form of circular economy: the residual flow from one company is the raw material of another. With the information that is collected from companies, Indusym support sustainability projects on a small-scale and regional level.
	Business Investment Zone (BIZ) De Hurk	Medium	High. A BIZ is a demarcated area where entrepreneurs and/or property owners jointly invest energy, time and money, for example in making their industrial park safer and more sustainable. For Business Park De Hurk in Eindhoven a BIZ is implemented.
National collaboration	Building Balance	High	High. Building Balance is a national transition program that accelerates the use of bio-based raw materials in construction so that climate goals and circular goals can be achieved.



	Cirkelstad	High	High. Cirkelstad stimulates and facilitates public and private leaders in the circular and inclusive construction sector.
	Programma Aardgasvrije Wijken	High	High. The aim of PAW is to learn how the district-oriented approach can be organised and scaled up. The living labs form the basis for learning ("learning by doing"). PAW consists of three tracks: Testing, Knowledge and Policy Track.
Technological	Multi-year Infrastructure Energy and Climate Program (pMIEK)	High	High. The coalition has taken a first step towards realizing structural solutions for the current bottlenecks in the electricity grid. Broad collaboration of the Association for Dutch Municipalities, the Ministry of Infrastructure and Water Management, the Ministry of Economic Affairs and Climate, the Ministry of the Interior and Kingdom Relations, Netbeheer Nederland, the National Regional Energy Strategy Program, the Netherlands Enterprise Agency, the Dutch Organization for Applied Scientific Research and the joint provinces.
Research and education	Eindhoven Institute for Renewable Energy Systems	Medium	High. The aim of the Eindhoven Institute for Renewable Energy Systems (EIRES) is to accelerate the energy transition by bringing together TU/e researchers from different departments, working on materials, processes and systems for energy storage and conversion.
	Programme agency Green & Smart Mobility	Medium	High. Implementation of the innovation programmes Electrification, Hydrogen and Digital Infrastructure for Future Mobility. Within each programme, work is carried out cross-sectorally in a national innovative ecosystem. In the consortia, dozens of public and private parties work together intensively in the automotive, maritime and aviation sectors. Within the consortia, large companies, SMEs and start-ups work together with knowledge partners.
	University (TU/e), colleges (Fontys) and vocational education (Summa, ROC Ter Aa)	Medium	High. In education sustainability is or is becoming one of the key strategic priorities. This is done in collaboration with stakeholders in the two cities and the wider region.
Civil society	Brabant Environmental Federation (Brabantse Milieufederatie)	Medium	High. The Brabant Environmental Federation Foundation (BMF) works on a sustainable future for Brabant together with residents. The BMF has been doing this since its founding in 1972, independently of any political, philosophical or social conviction. The BMF covers more than 100 affiliated (volunteer) organizations in the field of nature, environment and landscape in Brabant and is part of the national Nature and Environment Federations.
	JongRES	Medium	High. JongRES is committed to young people at a regional level who are often not involved or heard. JongRES is an organization that makes the voices of young people from the regions of the Netherlands heard. They want



			to create a living environment that young people are proud of. An environment where you can still live in fifty years and your children can grow up. That is why they are committed to a sustainable future in all regions.
	All lights are green (Alle Lichten op Groen)	Medium	Medium. All lights are green is the sustainability platform of the municipality of Helmond. To share stories and sustainable examples from residents, companies and associations. More sustainable energy, less CO ₂ emissions and more space for high-quality greenery and water. These are the ambitions in Helmond for which all lights go green.
	Struikroven	Low	Medium. Struikroven save existing greenery from front and back gardens and give it a new purpose in the area.
	Living Lab 040	Medium	Medium. The mission is to develop cities in which people's well-being is central. Where they take responsibility and consciously deal with everything the earth offers. A city that is efficiently organized and therefore affordable and has no pollution. A city that is agile and also attractive to live in, for everyone. The Living LAB 040 is also a real living LAB. It will be physically realized in Eindhoven on 8500m ² with 119 experimental homes in an equally experimental area.
	Climate Grandparents (grootouders voor het klimaat)	Medium	Medium. If we want to keep the earth livable for future generations, we will have to accelerate our move towards a 100% sustainable energy supply. That transition is already underway and the Grandparents for the Climate are committed to this and stand up for all children and grandchildren.
	Nature Platform Helmond (Natuurplatform Helmond)	Medium	Medium. Nature Platform Helmond is a partnership of volunteer organizations active in the Municipality of Helmond, which are expressly concerned with involving and/or raising awareness of citizens, government and other institutions in the importance of nature and nature experience.
	Youth Council (Jeugdgemeenteraad Helmond)	Medium	Medium. The aim of this council is to educate the youth about politics and governing a city. On the other hand, the city council can learn about what lives among our youth.
	Youth Council (Jeugdraad Eindhoven)	Medium	Medium. The members of the Youth Council meet three times per topic and then write advice and present it to the municipal council. Topics such as climate, traffic, inclusion, mental well-being and culture are discussed.
	Young 040 (Jong040 Eindhoven)	Medium	Medium. Jong040 is a group of youth ambassadors with young people from 15 to 27 years old. They give advice to Eindhoven politicians on current topics in Eindhoven.



Part B – Pathways towards Climate Neutrality by 2030

Section B-1.1 is structured around the city themes and missions central to the Eindhoven-Helmond approach. It details the "Climate Neutrality Scenarios and Impact Pathways" along the 22 missions.

Section B.2-1 is structured around the 3 sectors and 12 investment actions. These are based on current and existing policies which have then been translated into an action portfolio.

The inter-relationship between the 12 investment actions and the city themes is explained below:

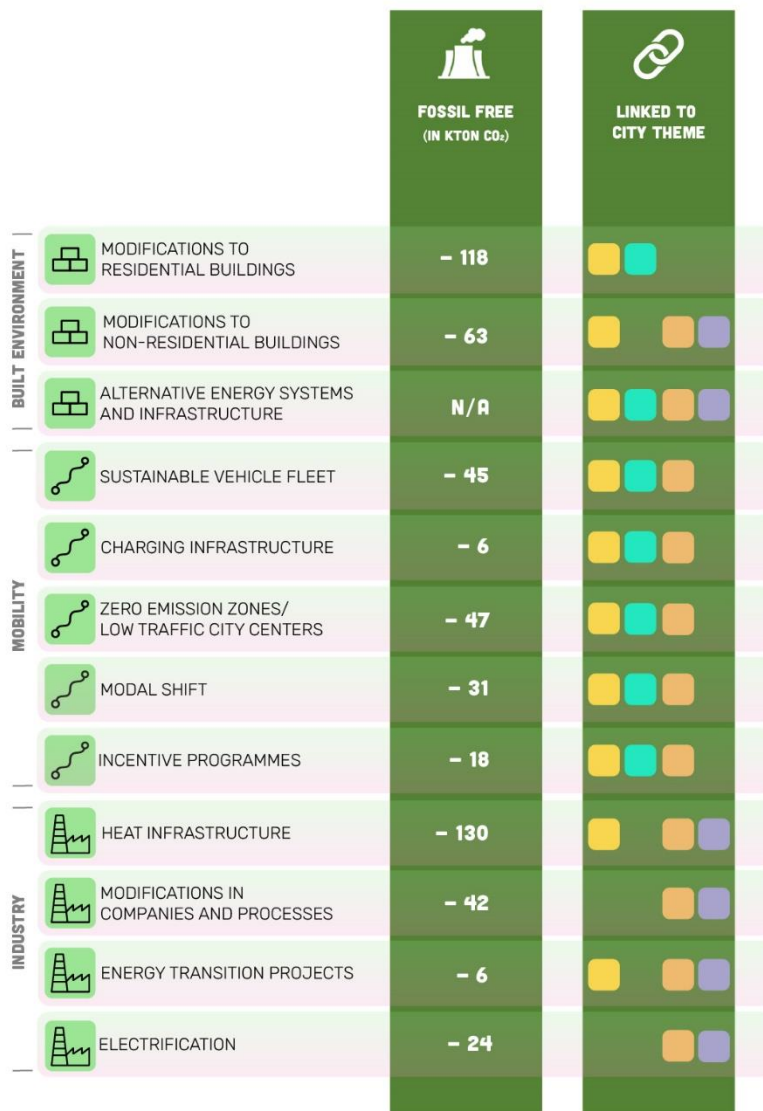


Figure 2.1: Overview City Themes versus subsectors related investments



1.4 Module B-1 Climate Neutrality Scenarios and Impact Pathways

Section B-1.1 details the "Climate Neutrality Scenarios and Impact Pathways," structured around the city themes and missions central to the Eindhoven-Helmond approach. These pathways, based on the NetZeroCities Theory of Change and the CCC Action Plan Guidance, outline early and late outcomes, as well as direct and indirect impacts (co-benefits) of the cities' climate initiatives. The structure of Table B-1.1 reflects how these missions influence various fields of action, supporting the acceleration of existing policies and projects crucial for achieving the revised targets.

Although these missions are not directly tied to city investments, they play a pivotal role in engaging stakeholders and fostering collaboration across different levels of governance—local, national, and European. This section emphasizes the adaptive nature of the Climate City Contract (CCC), which will be continuously updated to address emerging challenges and explore opportunities to close the emissions gap, potentially bringing the 80% goal closer to 2030.

Table B-1.1 closely aligns with the structure and goals of the Reader's Guide by outlining Impact Pathways that correspond to the city's climate ambitions and challenges. It reflects the guide's emphasis on multi-level governance, shared responsibility, and the revised targets for CO₂ reduction, showing how missions drive early and late outcomes across key sectors. The table also integrates with the investment actions in the Investment Plan, linking missions to sectors like Built Environment, Mobility, and Industry. Additionally, it highlights indirect impacts (co-benefits) such as health improvements and social cohesion, aligning with the guide's focus on stakeholder engagement and co-benefits beyond CO₂ reduction. Overall, the table supports the adaptive strategy detailed in the guide, allowing for continuous improvement towards the climate goals. Table B-1.1 also lists the existing policies and projects (as mentioned in the Reader's Guide) that will be influenced by acceleration strategies to enhance their impact. For a more detailed description of the missions, please refer to Annex 1.



B-1.1: Impact Pathways

**CITY THEME:
VITAL CITY CENTRE**

Missions	Systemic levers	Early changes (1-2 years)	Late outcomes (3-4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)	Fields of action
MISSION: <i>1. Storytelling Vital City Center</i>	<ul style="list-style-type: none"> Social innovation: ownership, inclusivity and behavioral change 	Storymaking <ul style="list-style-type: none"> Make information easy accessible for everyone. Target group-oriented communication. 	Storytelling <ul style="list-style-type: none"> Joint communication campaigns in the two cities. Ambassadors and frontrunners tell the story. 	Indirect (influence on sector buildings, transport and waste)	<ul style="list-style-type: none"> Awareness More sustainable behaviour 	
MISSION: <i>2. Circular City Center and sustainable consumption</i>	<ul style="list-style-type: none"> Social innovation: leadership, ownership, inclusivity and behavioral change Collaboration Financing/Investment Economic innovation: Circular business models 	Awareness and knowledge development <ul style="list-style-type: none"> More selective and sustainable purchasing behaviour. The elimination of single-use products, more recovery and partial use of goods and services and a strongly locally oriented economy. Applying new circular business models. 	Targeted action campaigns <ul style="list-style-type: none"> Joint responsibility by residents, producers, distributors, stores and advertising agencies. Stimulating circular entrepreneurship. Exchange shops in top locations, repair cafés and circular hotspots in the inner cities. Focus on 100% circular sustainable procurement. 	Indirect (scope 3)	<ul style="list-style-type: none"> Awareness Reduce consumption emissions Longer lifespan of products Stimulation the local economy 	
MISSION: <i>3. Developmen t of circular and biobased building</i>	<ul style="list-style-type: none"> Technological innovation Policy and regulations Market stimulation Financing/Investment Collaboration Knowledge Information and data 	Facilitating <ul style="list-style-type: none"> Boosting the market and strengthening the chains for biobased and circular construction Ensuring the availability and accessibility of circular and biobased materials. Optimizing legislation and regulations, including requirements in tenders. Expanding and sharing knowledge and data about new building materials and residual flows. 	Upscaling <ul style="list-style-type: none"> Stimulate and organize large-scale and collective development of biobased, circular and climate neutral houses and buildings. 	Indirect (scope 3)	<ul style="list-style-type: none"> Capturing CO₂ Reduction in the use of raw materials Improvement of the comfort of dwellings Health improvement New businessmodels for producers Job creation 	
MISSION: <i>4. Climate neutral mobility in the city center</i>	<ul style="list-style-type: none"> Policy and regulations Behavioral change Finance/Investment Technological innovation Collaboration 	Mobility vision and implementation program <ul style="list-style-type: none"> Focus on less car-oriented mobility and more on sustainable alternatives. Starting with the quick wins. 	Implementation <ul style="list-style-type: none"> Further adjusting the design of the city centre. Accelerating greening of the current vehicles. Accelerating the current network of charging infrastructure and e-fuel points. Stimulating sustainable alternatives. 	Scope 1	<ul style="list-style-type: none"> More attractive public spaces Health improvement Reduction of noise and air pollution More space for climate adaption More access to mobility 	



<p>MISSION: 5. Sustainable public space in the city center</p>	<ul style="list-style-type: none"> Policy and regulations Finance/investment Collaboration Technical innovation Social innovation 	<p>Vision and implementation program</p> <ul style="list-style-type: none"> Green and water leading in spatial planning, climate-proof city design. Greening were possible. Creating space for pilots and best-practices. 	<p>Implementation</p> <ul style="list-style-type: none"> Creating more space for green and water. Scale-up climate-adaptive solutions. 	<p>Indirect (scope 3)</p>	<ul style="list-style-type: none"> More attractive public spaces Health improvement Prevent a 'heat-island effect' Mitigate effects of extreme weather Enhancing social cohesion Enhancing bio-diversity 	
<p>EXISTING POLICIES AND PROJECTS</p>	<ul style="list-style-type: none"> Finance/Investments Capacity Collaboration Policy and regulations 	<p>Explore and develop strategies for speeding up existing policies and projects.</p>	<p>Accelerating existing policies and projects on energy-saving, insulating, renewable energy, decarbonising the heating and cooling systems, circular and biobased building, sustainable mobility, climate adaption and urban greening and sustainable purchasing.</p>	<p>Scope 1+2</p>	<ul style="list-style-type: none"> Improvement of the comfort of dwellings Lowering energy bills More attractive public spaces Health improvement Reduction of noise and air pollution 	<p>Buildings Transport Waste</p>
<p>CITY THEME: LIVABLE NEIGHBOURHOODS</p>						
<p>Missions</p>	<p>Systemic levers</p>	<p>Early changes (1-2 years)</p>	<p>Late outcomes (3-4 years)</p>	<p>Direct impacts (Emission reductions)</p>	<p>Indirect impacts (Co-benefits)</p>	<p>Fields of action</p>
<p>MISSION: 6. Storytelling</p>	<ul style="list-style-type: none"> Social innovation: ownership, inclusivity and behavioral change 	<p>Storymaking</p> <ul style="list-style-type: none"> Make information easy accessible for everyone. Target group-oriented communication. 	<p>Storytelling</p> <ul style="list-style-type: none"> Joint communication campaigns in the two cities. Ambassadors and frontrunners tell the story. 	<p>Indirect (influence on buildings, transport and waste)</p>	<ul style="list-style-type: none"> Awareness More sustainable behaviour 	
<p>MISSION: 7. Circular Neighbourhoods and sustainable consumption</p>	<ul style="list-style-type: none"> Social innovation: leadership, ownership, inclusivity and behavioral change Collaboration Financing/Investment Economic innovation: Circular business models 	<p>Awareness and knowledge development</p> <ul style="list-style-type: none"> More selective and sustainable purchasing behaviour. The elimination of single-use products, more recovery and partial use of goods and services and a strongly locally oriented economy. Applying new circular business models. 	<p>Targeted action campaigns</p> <ul style="list-style-type: none"> Joint responsibility by residents, producers, distributors, stores and advertising agencies. Stimulating circular entrepreneurship. Exchange shops in top locations, repair cafés and circular hotspots in neighbourhoods. Focus on 100% circular sustainable procurement. 	<p>Indirect (scope 3)</p>	<ul style="list-style-type: none"> Awareness Reduce consumption emissions Longer lifespan of products Stimulation the local economy 	
<p>MISSION:</p>	<ul style="list-style-type: none"> Capacity Finance/Investment Collaboration 	<p>Develop a collective approach</p> <ul style="list-style-type: none"> Making our existing rental and owner-occupied homes more sustainable on a 	<p>Upscaling</p> <ul style="list-style-type: none"> Jointly implement the collective approach and roadmap for renovation (NIP). 	<p>Indirect (scope 3)</p>	<ul style="list-style-type: none"> Improvement of the comfort of dwellings Lowering energy bills 	



<p>8. Scaling up the new normal</p>	<ul style="list-style-type: none"> Policy and regulations 	<p>large scale, collectively and in an integrated manner.</p> <ul style="list-style-type: none"> Encourage exemplary action through leaders and ambassadors in the neighbourhood and through energy communities. 				<p><i>Buildings Transport Waste</i></p>
<p>MISSION: <i>9. Development of circular and biobased building</i></p>	<ul style="list-style-type: none"> Technological innovation Policy and regulations Market stimulation Financing/Investment Collaboration Knowledge Information and data 	<p>Facilitating</p> <ul style="list-style-type: none"> Boosting the market and strengthening the chains for biobased and circular construction Ensuring the availability and accessibility of circular and biobased materials. Optimizing legislation and regulations, including requirements in tenders. Expanding and sharing knowledge and data about new building materials and residual flows. 	<p>Upscaling</p> <ul style="list-style-type: none"> Stimulate and organize large-scale and collective development of biobased, circular and climate neutral houses and buildings. 	<p>Indirect (influence on buildings and waste)</p>	<ul style="list-style-type: none"> Capturing CO₂ Reduction in the use of raw materials Improvement of the comfort of dwellings Health improvement New businessmodels for producers Job creation 	
<p>MISSION: <i>10. Climate neutral mobility in the neighbourhoods</i></p>	<ul style="list-style-type: none"> Policy and regulations Behaviorial change Finance/Investment Technological innovation Collaboration 	<p>Mobility vision and implementation program</p> <ul style="list-style-type: none"> Focus on less car-oriented mobility and more on sustainable alternatives. Mobility-hubs in neighbourhoods. Starting with the quick wins. 	<p>Implementation</p> <ul style="list-style-type: none"> Further adjusting the design of the neighbourhoods Accelerating greening of the current vehicles. Accelerating the current network of charging infrastructure and e-fuel points. Stimulating sustainable alternatives. 	<p>Scope 1</p>	<ul style="list-style-type: none"> More attractive public spaces Health improvement Reduction of noise and air pollution More space for climate adaption More access to mobility 	
<p>MISSION: <i>11. Everyone can participate</i></p>	<ul style="list-style-type: none"> Finance/Investment Social innovation Awareness 	<p>Develop a collective approach</p> <ul style="list-style-type: none"> Information is made easy accessible for everyone. Target group-oriented communication. More attention for social equality in the implementation of possible solutions. 	<p>Implementation</p> <ul style="list-style-type: none"> A structural, multi-year approach to involve everyone in the missions. 	<p>Indirect (influence on buildings and waste)</p>	<ul style="list-style-type: none"> Awareness Reducing social inequality Large support for the mission 	
<p>MISSION: <i>12. Sustainable public space</i></p>	<ul style="list-style-type: none"> Policy and regulations Finance/investment Collaboration 	<p>Vision and implementation program</p> <ul style="list-style-type: none"> Green and water leading in spatial planning, climate-proof city design. Greening were possible. 	<p>Implementation</p> <ul style="list-style-type: none"> Creating more space for green and water. Scale-up climate-adaptive solutions. Connect with citizen-initiatives. 	<p>Indirect (CO₂ capturing)</p>	<ul style="list-style-type: none"> More attractive public spaces Health improvement Prevent a 'heat-island effect' 	



	<ul style="list-style-type: none"> Technical innovation Social innovation 	<ul style="list-style-type: none"> Creating space for pilots and best-practices. Bring citizens together. 			<ul style="list-style-type: none"> Mitigate effects of extreme weather Enhancing social cohesion Enhancing bio-diversity 	
EXISTING POLICIES AND PROJECTS	<ul style="list-style-type: none"> Finance/Investments Capacity Collaboration Policy and regulations 	Explore and develop strategies for speeding up existing policies and projects.	Accelerating existing policies and projects on energy-saving, insulating, renewable energy, decarbonising the heating and cooling systems, circular and biobased building, sustainable mobility, climate adaption and urban greening and sustainable purchasing.	Scope 1+2	<ul style="list-style-type: none"> Improvement of the comfort of dwellings Lowering energy bills More attractive public spaces Health improvement Reduction of noise and air pollution 	
CITY THEME: SUSTAINABLE BUSINESS						
Missions	Systemic levers	Early changes (1-2 years)	Late outcomes (3-4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)	Fields of action
MISSION: <i>13. Sustainable and circular operations.</i>	<ul style="list-style-type: none"> Technological innovation Policy and regulations Market stimulation Financing/Investment Collaboration Knowledge Information and data Behavioral change 	Awareness and knowledge development <ul style="list-style-type: none"> Awareness campaign. Focus on more selective and sustainable production processes. Working according to the principle of 'reuse' to 'refuse' & 'rethink'. Develop instruments Realizing innovation-space by granting more room for experimenting in the business models. Optimizing legislation and regulations, including requirements in tenders. Creating an investment fund for Small- and Medium-sized Enterprises. 	Upscaling <ul style="list-style-type: none"> Scaling up circular business models. Creating an autonomous raw-material market. 	Scope 1+2	<ul style="list-style-type: none"> Reduce production emissions Longer lifespan of products Stimulation of the local economy 	
MISSION: <i>14. Scaling up sustainable business areas</i>	<ul style="list-style-type: none"> Collaboration Information and data Knowledge Technological innovation Capacity Financing/Investment 	Develop a collective approach <ul style="list-style-type: none"> Further extend cooperation in a collective approach. Organizing finance and capacity. 	Upscaling <ul style="list-style-type: none"> Cooperation under a common flag. Accelerate where possible. 	Indirect (influence on buildings, transport, waste and IPPU)	<ul style="list-style-type: none"> More attractive business areas Health improvement Prevent a 'heat-island effect'. Mitigate effects of extreme weather Innovation on climate adaptive initiatives. 	Sectors: <i>Buildings Transport Waste IPPU</i>



<p>MISSION: 15. Sustainable Mobility and Logistics</p>	<ul style="list-style-type: none"> Policy and regulations Behavioral change Finance/Investment Technological innovation Collaboration 	<p>Mobility vision and implementation program</p> <ul style="list-style-type: none"> Focus on less car-oriented mobility and more on sustainable alternatives. Zero-Emission Logistics. Starting with the quick wins. 	<p>Implementation</p> <ul style="list-style-type: none"> Accelerating greening of the current vehicles. Accelerating the current network of charging infrastructure and e-fuel points. Stimulating sustainable alternatives. Smart Mobility solutions. Employer approach. 	<p>Scope 1</p>	<ul style="list-style-type: none"> Health improvement Reduction of noise and air pollution More space for climate adaption, green and bio-diversity More access to mobility 	
<p>MISSION: 16. Healthy and Green Work Environments</p>	<ul style="list-style-type: none"> Policy and regulations Financing/investment Collaboration Social and Technological Innovation 	<p>Develop a collective approach</p> <ul style="list-style-type: none"> Implement a knowledge bank Explore financial opportunities Start with no-regret Collective employer approach 	<p>Upscaling</p> <ul style="list-style-type: none"> Creating more space for green. Green and water as base for designing work environments. Scale-up climate-adaptive solutions. 	<p>Indirect (capturing CO₂)</p>	<ul style="list-style-type: none"> More attractive work-environments Health improvement Prevent a 'heat-island effect'. Mitigate effects of extreme weather 	
<p>MISSION: 17. Energy and Smart Grids</p>	<ul style="list-style-type: none"> Financing/Investment Technological innovation Collaboration Policy and regulations Information and data Knowledge 	<p>Develop Smart Energy Solutions</p> <ul style="list-style-type: none"> Create room for experiments and pilots. Knowledge transfer. Make better use of the existing network. Stimulating exchange of electricity and heat between companies. 	<p>Upscaling</p> <ul style="list-style-type: none"> Create a marketplace for energy exchange. Public access to data. Business model for exchanging energy. Network expansion and optimization. 	<p>Scope 2</p>	<ul style="list-style-type: none"> Self-sustainable energy consumption Less usage of existing infrastructure New business models 	
<p>MISSION: 18. Cooperation and Sharing Knowledge</p>	<ul style="list-style-type: none"> Policy and regulations Financing/Investment Collaboration Information and data Capacity Knowledge 	<p>Develop awareness</p> <ul style="list-style-type: none"> Start an awareness campaign Start a strong ambassador network Knowledge-transfer 	<p>Upscaling</p> <ul style="list-style-type: none"> Linking education and business along impactful transition lines Implement a uniform monitoring system 	<p>Indirect (influence on all sectors)</p>	<ul style="list-style-type: none"> Cross-over in innovations 	
<p>EXISTING POLICIES AND PROJECTS</p>	<ul style="list-style-type: none"> Finance/Investments Capacity Collaboration Policy and regulations 	<p>Explore and develop strategies for speeding up existing policies and projects.</p>	<p>Accelerating existing policies and projects on energy-saving, insulating, renewable energy, decarbonising the heating and cooling systems, circular and biobased building, sustainable mobility, climate adaption and urban greening and sustainable purchasing.</p>	<p>Scope 1+2</p>	<ul style="list-style-type: none"> Lowering energy bills for businesses More attractive industrial areas Health improvement Reduction of noise and air pollution 	<p><i>Buildings Transport Waste IPPU</i></p>



CITY THEME: ROBUST REGION						
Missions	Systemic levers	Early changes (1-2 years)	Late outcomes (3-4 years)	Direct impacts (Emission reductions)	Indirect impacts (Co-benefits)	Fields of action
MISSION: 19. Local and Seasonal (Food) Production	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Market stimulation ▪ Financing/Investment ▪ Collaboration ▪ Knowledge ▪ Information and data ▪ Behavioral change 	Awareness and market development <ul style="list-style-type: none"> ▪ Start information and promotion campaigns on sustainable and healthy eating and seasonal products. ▪ Stimulate cooperation on demand and product development. 	Upscaling <ul style="list-style-type: none"> ▪ Create marketplace for local and seasonal (food) production. ▪ Make land available for local/seasonal production. 	Indirect (influence on waste and AFOLU)	<ul style="list-style-type: none"> ▪ Reduces the transport distance of goods ▪ Narrowing the gap between consumers and producers ▪ New business models ▪ Job creation 	Sectors: Buildings Waste IPPU AFOLU
MISSION: 20. Regional Materials Market	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Market stimulation ▪ Collaboration ▪ Knowledge ▪ Information and data 	Feasibility study Investigating the possibility of a regional raw materials market.	Implementation <ul style="list-style-type: none"> ▪ Set up of regional market and digital platform. ▪ Setting a no-waste construction site and company as the standard. A new way of tendering: CO2-driven instead of cost-driven.	Indirect (influence on buildings and waste)	<ul style="list-style-type: none"> ▪ Positive consequence for nature and biodiversity ▪ Reduction of greenhouse emissions 	
MISSION: 21. Grid Congestion	<ul style="list-style-type: none"> ▪ Financing/Investment ▪ Technological innovation ▪ Collaboration ▪ Policy and regulations 	Optimise available grid capacity <ul style="list-style-type: none"> ▪ Intensify lobby's with network operators and national government. ▪ Set up a monitoring instrument for energy usage. ▪ Set up collaboration. Expand pilots and local solutions.	Expand grid capacity <ul style="list-style-type: none"> ▪ Generation and storage of energy in one place. Create necessary grid-space.	Indirect (speeding up renewable energy)	<ul style="list-style-type: none"> ▪ Self-sustainable energy consumption ▪ Lower costs ▪ Job creation 	
MISSION: 22. Climate Jobs	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Finance/Investment ▪ Collaboration ▪ Information and data ▪ Capacity 	Human Capital Agenda <ul style="list-style-type: none"> ▪ Make a human capital agenda with partners (government, education and business). Include sustainability themes in education.	Implementation <ul style="list-style-type: none"> ▪ Transition to 'more manpower'. Live-long learning and working.	Indirect	<ul style="list-style-type: none"> ▪ Job creation 	



<p>EXISTING POLICIES AND PROJECTS</p>	<ul style="list-style-type: none"> ▪ Finance/Investments ▪ Capacity ▪ Collaboration ▪ Policy and regulations ▪ Behavioral change 	<p>Explore and develop strategies for speeding up existing policies and projects.</p>	<p>Accelerating existing policies and projects on renewable energy, gridcongestion, circularity and jobs.</p>	<p>Scope 1+2</p>	<ul style="list-style-type: none"> ▪ Positive consequence for nature and biodiversity ▪ Reduction of greenhouse emissions ▪ Stimulating the regional and local economy ▪ Less effect due to gridcongestion ▪ Speeding up the energy transition. ▪ Behavioral change 	<p>Sectors: <i>Waste IPPU AFOLU</i></p>
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B-1.2: Description of impact pathways

The impact pathways defined in B-1.1 are translated for the structure of both the CAP and CIP into the sectors and investment actions of B-2.1. The 22 missions are intended to support the defined investment actions and are thus not included in the CIP and CAP, but are described in greater detail in Annex 1.



1.5 Module B-2 Climate Neutrality Portfolio Design

The climate neutrality portfolio is designed along 3 sectors and 12 action lines. This section describes these in greater detail.

B-2.1: Description of action portfolios		
Sector	Portfolio description	
	List of investment actions	Descriptions
Built environment	1. Modifications to Residential Buildings	- Insulation of Homes - Alternative Heating & Cooling in Homes Main responsible stakeholders: Citizens
	2. Modifications to Non-Residential Buildings	- Insulation of Utilities & Other Buildings - Alternative Heating & Cooling in Utilities & Other Buildings Responsible stakeholders: Mainly public organizations and companies
	3. Alternative Energy Systems & Infrastructure	- Removal of Gas Infrastructure - Deployment of Alternative Heating and Electricity Infrastructure Main responsible stakeholders: Energy companies and utility providers
Mobility	4. Sustainable Vehicle Fleet	ZE-ring (47K Vehicles) Main responsible stakeholders: Citizens and companies
	5. Charging Infrastructure	- Charging Infrastructure (9000 Stations) Main responsible stakeholders: Municipalities and utility providers
	6. Zero Emission Zones/ Low-Traffic City Centre	- Creating Low Traffic Zones Main responsible stakeholder: Municipality
	7. Modal Shift	- Alternative Transport (Transferia, Bicycle Stations) Main responsible stakeholder: Municipality and transport industry
	8. Incentive Programmes	- Setting up Incentive Programmes (smart grids etc.) Main responsible stakeholders: Municipalities and utility providers
Industry	9. Heat Infrastructure	- Adjustment Heating infrastructure - Adjustment Electricity infrastructure Main responsible stakeholders: Municipalities and utility providers
	10. Interventions in Companies & Processes	- Adjustments to Companies and Processes: MJA, EML, EED Main responsible stakeholders: Municipalities and utility providers
	11. Energy Transition Projects	- Sustainable Energy Projects Main responsible stakeholders: Municipalities and utility providers
	12. Electrification	- Electrification Industry (Phasing Out Natural Gas in Company Processes) Main responsible stakeholders: Municipalities, companies and utility providers



Relationship between themes and investment actions

This Investment Plan is structured around those actions that require (additional) investment, i.e. the implementation of specific policies and projects. As such, the CIP will focus predominantly on the three sectors and twelve investment actions targeted for investment while making only sporadic references to the 22 missions defined in the Climate Action Plan. The following overview maps the relationship between these investments and the previously mentioned themes. As the table shows, sectors in the Climate Investment Plan may relate to one or more of themes.

Sector	Investment actions	Vital City center	Liveable neighbourhoods	Sustainable Business	Robust region
Built environment	Modifications to Residential Buildings	x	x		
	Modifications to Non-Residential Buildings	x		x	x
	Alternative Energy Systems & Infrastructure	x	x	x	x
Mobility	Sustainable vehicle fleet	x	x	x	
	Charging infrastructure	x	x	x	
	Zero Emission Zones/Low traffic City Centre	x	x	x	
	Modal Shift	x	x	x	
	Incentive programmes	x	x	x	
Industry	Heat infrastructure	x		x	x
	Modifications in Companies and Processes			x	x
	Projects	x		x	x
	Electrification			x	x



B-2.2 Individual action outlines		
Action outline 1	Modifications to Residential Buildings	
	Investment type	Energy Efficiency & Renewable Energy Investments
	Investment description	Insulation of Homes Alternative Heating & Cooling in Homes
Reference to impact pathway	Mission	Scaling up the new normal
	Systemic levers	Capacity, Finance/Investment, Collaboration, Policy and regulations
	Outcome (according to module B-1.1)	Early changes (1-2 years): Develop a collective approach for making homes more sustainable on a large scale. Late outcomes (3-4 years): Jointly implement the collective approach and roadmap for renovation (NIP).
Implementation	Responsible bodies/person for implementation	National, regional and local governments, housing associations, citizens, construction industry
	Action scale & addressed entities	Regional, city, households, construction industry
	Involved stakeholders	Citizens, construction industry, energy companies, knowledge institutions, local authorities
	Comments on implementation	Requires coordinated action across multiple levels of government and private sector incentives.
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of fossil fuel use due to improved energy efficiency.
	GHG emissions reduction estimate (total) per emission source sector	Expected reduction of 100 Kiloton CO ₂ + 19 Kiloton CO ₂ impulse reduction
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 835 mln.
Action outline 2	Modifications to Non-Residential Buildings	
	Investment type	Energy Efficiency & Renewable Energy Investments
	Investment description	Insulation of Utilities & Other Buildings Alternative Heating & Cooling in Utilities & Other Buildings
Reference to impact pathway	Mission	Sustainable and circular operations
	Systemic levers	Technological innovation, Policy and regulations, Market stimulation, Financing/Investment, Collaboration, Knowledge, Information and data, Behavioral change
	Outcome (according to module B-1.1)	Early changes (1-2 years): Awareness campaign and focus on more selective and sustainable production processes. Late outcomes (3-4 years): Scaling up circular business models.



Implementation	Responsible bodies/person for implementation	National, regional and local governments, facility managers, private sector
	Action scale & addressed entities	Regional, city, commercial entities, public institutions
	Involved stakeholders	Facility managers, energy companies, construction industry, local authorities
	Comments on implementation	Requires public-private partnerships, especially in large commercial developments
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of fossil fuel use due to improved energy efficiency
	GHG emissions reduction estimate (total) per emission source sector	Expected reduction of 57Kiloton CO ₂ + 6 Kiloton CO ₂ impulse reduction (total 63 Kiloton CO ₂)
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 451 mln.
Action outline 3	Alternative Energy Systems & Infrastructure	
	Investment type	Infrastructure Investment
	Investment description	Removal of Gas Infrastructure Deployment of Alternative Heating and Electricity Infrastructure
Reference to impact pathway	Mission	Energy and Smart Grids
	Systemic levers	Financing/Investment, Technological innovation, Collaboration, Policy and regulations, Information and data, Knowledge
	Outcome (according to module B-1.1)	Early changes (1-2 years): Develop Smart Energy Solutions and create room for experiments and pilots. Late outcomes (3-4 years): Create a marketplace for energy exchange, public access to data, network expansion, and optimization.



Implementation	Responsible bodies/person for implementation	National, regional and local governments, energy companies
	Action scale & addressed entities	National, regional, city, utilities
	Involved stakeholders	Energy companies, utilities, local authorities, citizens
	Comments on implementation	Long-term infrastructure project requiring significant capital investment and regulatory support
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of natural gas and other fossil fuels
	GHG emissions reduction estimate (total) per emission source sector	Expected reduction of XXX Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 684 mln.
Action outline 4	Sustainable Vehicle Fleet	
	Investment type	Transportation Investment
	Investment description	Sustainable Civilian & Corporate Vehicle Fleet
Reference to impact pathway	Mission	Climate neutral mobility in the city center
	Systemic levers	Policy and regulations, Behavioral change, Finance/Investment, Technological innovation, Collaboration
	Outcome (according to module B-1.1)	Early changes (1-2 years): Mobility vision and implementation program focusing on less car-oriented mobility and more sustainable alternatives. Late outcomes (3-4 years): Further adjusting the design of the city center, accelerating greening of vehicles, and expanding charging infrastructure.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, fleet operators, private companies
	Action scale & addressed entities	Regional, city, corporate entities, citizens
	Involved stakeholders	Automobile manufacturers, public transport companies, logistics companies, citizens, local authorities
	Comments on implementation	Requires incentives for EV adoption and charging infrastructure development
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of petrol and diesel use
	GHG emissions reduction estimate (total) per emission source sector	Part of sector mobility> Total GHG emissions reduction for sector mobility: Expected reduction of 38 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 218 mln.



Action outline 5	Charging Infrastructure	
	Investment type	Infrastructure Investment
	Investment description	Charging Infrastructure for Vehicle Fleet
Reference to impact pathway	Mission	Climate neutral mobility in the city center
	Systemic levers	Policy and regulations, Behavioral change, Finance/Investment, Technological innovation, Collaboration
	Outcome (according to module B-1.1)	Early changes (1-2 years): Implementation of a mobility vision with a focus on expanding the network of charging infrastructure and e-fuel points. Late outcomes (3-4 years): Accelerating the current network of charging infrastructure and e-fuel points.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, energy companies, private sector
	Action scale & addressed entities	National, regional, city, corporate entities, citizens
	Involved stakeholders	Energy companies, utilities, private sector, local authorities
	Comments on implementation	requires strategic placement and investment in fast-charging stations
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of petrol and diesel use
	GHG emissions reduction estimate (total) per emission source sector	Part of sector mobility> Total GHG emissions reduction for sector mobility: Expected reduction of 6 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 76 mln.
Action outline 6	Zero Emission Zones / Low Traffic City Centre	
	Investment type	Urban Planning & Transportation Policy
	Investment description	Creating Low Traffic Zones
Reference to impact pathway	Mission	Climate neutral mobility in the city center
	Systemic levers	Policy and regulations, Behavioral change, Finance/Investment, Technological innovation, Collaboration
	Outcome (according to module B-1.1)	Early changes (1-2 years): Mobility vision and implementation program with a focus on less car-oriented mobility. Late outcomes (3-4 years): Further adjusting the design of the city center, reducing car traffic, and enhancing public spaces.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, urban planners, transport authorities
	Action scale & addressed entities	City-wide, affecting all residents and businesses
	Involved stakeholders	Citizens, urban planners, transport companies, local businesses
	Comments on implementation	Requires comprehensive traffic management plans and public buy-in



Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of petrol and diesel use in urban centres
	GHG emissions reduction estimate (total) per emission source sector	Part of sector mobility> Total GHG emissions reduction for sector mobility: Expected reduction of 49 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 12 mln.
Action outline 7	Modal Shift	
	Investment type	Transportation Investment
	Investment description	Alternative Transport (Transferia, Bicycle Stations)
Reference to impact pathway	Mission	Climate neutral mobility in the neighbourhoods
	Systemic levers	Policy and regulations, Behavioral change, Finance/Investment, Technological innovation, Collaboration
	Outcome (according to module B-1.1)	Early changes (1-2 years): Implementation of mobility hubs in neighbourhoods and promotion of sustainable alternatives. Late outcomes (3-4 years): Accelerating the greening of vehicles and expansion of sustainable transport options.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, transport authorities
	Action scale & addressed entities	Regional, city, citizens
	Involved stakeholders	Citizens, public transport companies, urban planners, local authorities
	Comments on implementation	requires infrastructure investment and behavioral change campaigns
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of petrol and diesel use
	GHG emissions reduction estimate (total) per emission source sector	Part of sector mobility> Total GHG emissions reduction for sector mobility: Expected reduction of 33 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 1,5 mln.
Action outline 8	Incentive Programmes	
	Investment type	Financial Policy
	Investment description	Setting up incentive programmes
Reference to impact pathway	Mission	Scaling up the new normal
	Systemic levers	Capacity, Finance/Investment, Collaboration, Policy and regulations
	Outcome (according to module B-1.1)	Early changes (1-2 years): Developing collective approaches for sustainability. Late outcomes (3-4 years): Joint implementation of incentive programs and roadmap for sustainable practices.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, financial institutions



	Action scale & addressed entities	National, regional, city, citizens, businesses
	Involved stakeholders	Financial institutions, citizens, businesses, local authorities
	Comments on implementation	Needs well-designed programs that target key behaviors and sectors
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of fossil fuel use
	GHG emissions reduction estimate (total) per emission source sector	Part of sector mobility> Total GHG emissions reduction for sector mobility: Expected reduction of 20 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 1,5 mln.
Action outline 9	Heat Infrastructure	
	Investment type	Infrastructure Investment
	Investment description	Adjustment Heating Infrastructure Adjustment Electricity Infrastructure
Reference to impact pathway	Mission	Energy and Smart Grids
	Systemic levers	Financing/Investment, Technological innovation, Collaboration, Policy and regulations, Information and data, Knowledge
	Outcome (according to module B-1.1)	Early changes (1-2 years): Development of smart energy solutions and optimization of grid capacity. Late outcomes (3-4 years): Expansion of smart grid infrastructure and public access to data.
Implementation	Responsible bodies/person for implementation	National, regional and local governments, energy companies, utilities
	Action scale & addressed entities	National, regional, city, utilities
	Involved stakeholders	Energy companies, utilities, local authorities, construction industry
	Comments on implementation	Requires long-term planning and integration with broader energy transition strategies
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of natural gas and other fossil fuels
	GHG emissions reduction estimate (total) per emission source sector	Part of sector industry> Total GHG emissions reduction for sector industry: Expected reduction of 119 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 60,4 mln.



Action outline 10	Modifications in Companies and Processes		
	Investment type	Energy Efficiency & Process Optimization	
Investment description	Adjustments to Companies and Processes: MJA, EML, EED		
Reference to impact pathway	Mission	Sustainable and circular operations	
	Systemic levers	Technological innovation, Policy and regulations, Market stimulation, Financing/Investment, Collaboration, Knowledge, Information and data, Behavioral change	
	Outcome (according to module B-1.1)	Early changes (1-2 years): Awareness campaign and focus on more selective and sustainable production processes. Late outcomes (3-4 years): Scaling up circular business models and optimization of regulations.	
Implementation	Responsible bodies/person for implementation	National, regional and local governments, industry leaders, energy managers	
	Action scale & addressed entities	National, regional, industry	
	Involved stakeholders	Industry, energy managers, local authorities, regulatory bodies	
	Comments on implementation	Requires strong regulatory framework and industry buy-in	
Impact & cost	Generated renewable energy (if applicable)	n.a.	
	Removed/substituted energy, volume or fuel type	Reduction of fossil fuel use in industrial processes	
	GHG emissions reduction estimate (total) per emission source sector	Part of sector industry > Total GHG emissions reduction for sector industry: Expected reduction of 44 Kiloton CO ₂	
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 214mln.	
Action outline 11	Energy Transition Projects		
	Investment type	Innovation & Infrastructure	
Investment description	Sustainable Energy Projects (smart grids etc.)		
Reference to impact pathway	Mission	Energy and Smart Grids	
	Systemic levers	Financing/Investment, Technological innovation, Collaboration, Policy and regulations, Information and data, Knowledge	
	Outcome (according to module B-1.1)	Early changes (1-2 years): Develop smart energy solutions and create room for experiments and pilots. Late outcomes (3-4 years): Create a marketplace for energy exchange, public access to data, network expansion, and optimization.	
Implementation	Responsible bodies/person for implementation	National, regional and local governments, energy companies, technology innovators	
	Action scale & addressed entities	National, regional, city, utilities, tech industry	



	Involved stakeholders	Energy companies, tech companies, local authorities, research institutions, start-ups
	Comments on implementation	Requires cross-sector collaboration and significant R&D investment
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of fossil fuel use
	GHG emissions reduction estimate (total) per emission source sector	Part of sector industry> Total GHG emissions reduction for sector industry: Expected reduction of 8 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 16,9 mln.
Action outline 12	Electrification	
	Investment type	Industrial & Energy Sector Investment
	Investment description	Electrification Industry (Phasing Out Natural Gas in Company Processes)
Reference to impact pathway	Mission	Scaling up sustainable business areas
	Systemic levers	Collaboration, Information and data, Knowledge, Technological innovation, Capacity, Financing/Investment
	Outcome (according to module B-1.1)	Early changes (1-2 years): Develop a collective approach for industrial electrification and phasing out natural gas. Late outcomes (3-4 years): Cooperation under a common flag and accelerate where possible.
Implementation	Responsible bodies/person for implementation	European, national, regional and local governments, industrial companies
	Action scale & addressed entities	European, national, regional, industry
	Involved stakeholders	Industrial companies, energy providers, regulatory bodies, research institutions
	Comments on implementation	requires large-scale investment and access to low-carbon electricity
Impact & cost	Generated renewable energy (if applicable)	n.a.
	Removed/substituted energy, volume or fuel type	Reduction of natural gas and other fossil fuels
	GHG emissions reduction estimate (total) per emission source sector	Part of sector industry> Total GHG emissions reduction for sector industry: Expected reduction of 31 Kiloton CO ₂
	Total costs and costs by CO ₂ e unit	Estimated total cost of € 102,1 mln.



B-2.3: Summary strategy for residual emissions

Residual emissions after 2030 will be addressed through the continued implementation and iteration of the Climate City Contract (CCC), which includes exploring further opportunities and approaches to reduce CO₂ emissions beyond the initially identified pathways. The municipalities of Eindhoven and Helmond plan to leverage the support from the National Support Structure and tools like ClimateOS to identify and implement additional actions aimed at closing the emission reduction gap. By accelerating projects, enhancing stakeholder engagement, and iterating on the CCC, they aim to bring the 80% CO₂ reduction goal forward from 2035, thereby minimizing residual emissions post-2030.

1.6 Module B-3 Indicators for Monitoring, Evaluation and Learning

Module B-3 “Indicators for Monitoring, Evaluation and Learning” contains a selection of indicators to monitor and evaluate progress along the selected impacts pathways and fields of action described in Module B-1. as well as a monitoring and evaluation plan, i.e., metadata on each indicator selected, in addition to milestones and timeline. More specifically:

- *An overview table listing the indicators selected per outcome and impact including targets and evaluation points (B-3.1);*
- *A metadata table for each indicator selected (B-3.2).*

ClimateOS

Knowledge and monitoring are essential to continue to monitor the course of the Climate City Contract and to guarantee a continuous learning process. On the one hand, there is the monitoring of CO₂ emissions in Eindhoven and Helmond. We are in line with the system of the existing climate monitors in both cities. These charts progress in relation to the CO₂ reduction targets. It looks at the total figures, but also zooms in on the housing, services, mobility and industry sectors.

In addition to the general data collection on greenhouse gas emissions, additional indicators will also be used to measure the concrete impact of one specific mission or project on those emissions. On the other hand, the progress of the missions themselves must also be monitored. Action will have to be taken in so many areas at the same time, whereby it is important to keep a central record of which actions are being taken by whom and how they are progressing.

Eindhoven and Helmond will use the interactive tool 'Climate View'. With Climate View, the emissions and sources of greenhouse gases can be mapped and scenarios can be developed to reduce greenhouse gas emissions. Climate View is an integrated and data-driven platform with visualization and modelling capabilities. By processing the gap analysis in Climate View, the impact can be monitored and made visible relatively easily. Existing policy, new policy and measures of organizations can be added to the tool so that it quickly becomes clear what the impact is of different scenarios and the contribution of the various sources in the cities. This creates a more concrete insight into the possibilities for adjustment and acceleration. Climate View can also be used to visualize financial scenarios, on the basis of which the necessary investments can be substantiated. Financial and non-financial aspects can be integrated. Therefore, the cities do not utilize CDC-ICLEI or MyCovenant for this purpose.

In the field of monitoring, there is cooperation with other organizations in the region, such as Brainport Development and the regional partnership 'Metropoolregio Eindhoven', when it comes to sharing data and reporting the progress of policy and missions in an unambiguous manner.



Table 3

Sector	Indicator	Indicator Unit
Transportation		
<ul style="list-style-type: none"> Reduction of emissions 	CO2 emissions mobility	kton CO2
<ul style="list-style-type: none"> Smart mobility 	Modal split (bike, walking, public transport, electric car, fossil fuel car)	%
	Shared mobility service	Number of available vehicles
	Zero-emission vehicles	Number of vehicles
<ul style="list-style-type: none"> Sustainable and clean mobility 	Car traffic in city center	Indicator related to 2019 = 100
	Friendliness of walking, bicycle and public transport facilities	1-10 indicator
	30km/h zones in city centre	Number of streets
<ul style="list-style-type: none"> Mobility safety 	Traffic safety - car accidents	Number of serious accidents per year
<ul style="list-style-type: none"> Smooth mobility 	Cyclists using cycling lanes	Number of cyclists
	Traffic flow on ring road	Floating car data
	Additional slowlanes (fast lane exclusively for bicycles)	km
	HOV-lane (fast lane exclusively for high speed bus)	km
	Renewal of traffic lights	Number renewed
<ul style="list-style-type: none"> Airport 	Estimated LTO (Landing – take off) emissions of Eindhoven airport	kton CO2-equiv
Built Environment		
	CO2 emissions housing	kton CO2
	CO2 emissions cultural, sports and leisure activities	kton CO2
	CO2 emissions public buildings, schools and public services	kton CO2
	Energy consumption industry and commercial services	TJ
	Average energy consumption per household (gas, electric, district heating, other)	TJ
<ul style="list-style-type: none"> Housing 	Energy labels of dwellings (sub divided into privately owned and rental)	Number of dwellings per label category (A-F)
	Exiting dwellings converted to (hybrid) all-electric or district heating	Number of dwellings converted
	Collective purchase energy saving measures	Number of participating households
	Energy saving boxes	Number of boxes handed out
	Online helpdesk energy saving measures	Number of unique website visitors
	Vouchers to purchase energy saving measures	Number of vouchers handed out



<ul style="list-style-type: none"> Municipal buildings 	Smart renovation of municipal buildings (above regular standards) (performance indicators on: energy, comfort, materials, mobility, water, biodiversity, visibility, social, maintenance, futureproof)	Multiple indicators related to each theme (32 in total)
<ul style="list-style-type: none"> Office buildings 	Energy labels	Number of offices per label category (A-F)
Industry		
	CO2 emissions industry, commercial services and offices	kton CO2
	Monitoring of action plan Industry is currently being developed. Indicators will cover emissions, energy sources, PV, green and water, circular economy, mobility of employees and logistics. These will be added in an update.	
Energy Systems		
	Type of energy installation in housing (gas, electric, district heating, other)	%
Green Infrastructure and Nature Based Solutions		
	Satisfaction with the design of the green infrastructure in the residential area	% of inhabitants
	Satisfaction with the maintenance of green infrastructure in the residential area	% of inhabitants
	Biodiversity species groups	Degree of improvement
	Visits to one of the major urban parks every year	Number of inhabitants
	Accessibility of the public green space	Number of dwellings within 5 minutes walking or bicycling distance from green public space
	Climate proof built environment (Rekentool Klimaatopgave)	Climateproof indicator with building permit
	Reducing the paved area by 10% when renewing public space	Number of areas
	Areas with less than 75m2 of public green space per dwelling	Number of areas
	Reducing the paved area in private space	Number of participants / m2 turned into green space
	Green roofs on existing buildings	m2
	School playgrounds changed into green space	Number of schools / m2
Waste and Circular Economy		
	Residual waste	% of total waste
	Amount of waste per inhabitant	kg/inhabitant
	Industrial waste and circular economy will be addressed in the theme Field Industry	



B-3.1: Impact Pathways

Outcomes/ impacts addressed	Action/ project	Indicator No. (unique identified)	Indicator name	Target values
<p>At this time, we are unable to complete Tables 3.1 and 3.2 due to missing information. For details on the missions and their impact on the three spearheads, please refer to Figure 1.7 in the introduction. Additional information can also be found on the KNAPHE website (https://www.knaphe.nl/en). These tables will be updated in a future review cycle.</p>				

B-3.2: Indicator Metadata

(For each indicator selected)	
Indicator Name	
Indicator Unit	
Definition	
Calculation	
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	[yes/no]
If yes, which emission source sectors does it measure?	Fields of action according to GHG inventory format – Module A-1
Does the indicator measure indirect impacts (i.e., co- benefits)?	[yes/no]
If yes, which co-benefit does it measure?	Specify co-benefit
Is the indicator useful for monitoring the output/impact of action(s)?	[yes/no]
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	[yes/no]

Data requirements	
Expected data source	
Is the data source local or regional/national?	
Expected availability	
Suggested collection interval	
References	
Deliverables describing the indicator	
Other indicator systems using this indicator	



Part C – Enabling Climate Neutrality by 2030

This section aims to outline any enabling interventions, i.e., regarding organizational setting or collaborative governance models or related to social innovations – designed to support the climate action portfolios (Module B-2) as well as aiming to achieve co-benefits outlined in the impact pathway (Module B-1). These interventions also address the identified opportunities, gaps and barriers identified Module A-2 and A-3.

1.7 Module C-1 Governance Innovation Interventions

This module details the city’s governance innovations for achieving city climate neutrality by 2030, describing innovations in institutional design, in leadership, and in collaborative and outreach processes, whether they are inter-organisational or internal to the key organisations responsible for the city’s climate neutrality target. It also describes expected outcomes, for example how these governance innovations enable climate actions and their co-benefits (outlined in Modules B-1 and B-2), and how they address the opportunities, gaps and barriers identified in Modules A-2 and A-3. This content aims to include:

C-1.1: Description or visualisation of the participatory governance model for climate neutrality

Intervention: Climate Delta Plan Eindhoven-Helmond

Because we need space to realize long-term plans and transitions take time, we are focusing on a ‘Climate Deltaplan’ for the two cities. We must treat this issue as the crisis it is, so that laws and regulations can also be amended and modified where necessary. This should lead to the necessary breakthroughs needed to achieve the climate goals for both cities. We ensure that everyone can participate in the transition. Accelerating existing projects or scaling them up is not enough to realize the required acceleration. It requires connecting social challenges, cross-domain collaboration, system innovations and creative solutions and the removal of barriers in order to achieve the necessary breakthroughs together. It is the start of a journey that stops at a fossil-free, circular and climate-proof Eindhoven and Helmond.

It is about stimulating a paradigm shift: from investing in ‘economic growth’ to a circular and sustainable economic model. An economy that focuses on achieving sustainability objectives, and that responds to the economic opportunities that innovation and scaling up ‘climate and energy technology’ can offer the region. And moves away from the path of solely economic growth and focuses on organizing raw material extraction, production, distribution, consumption and how we deal with our waste in a different way. Where levels of well-being remain high and we remain within the regenerative limits of the earth’s ecosystem.

The approach in Eindhoven-Helmond is based on six guiding principles that apply to all three spearheads (fossil free, circular and climate resilient) and that are necessary to achieve the broad objective of ‘climate neutral in 2030’. It concerns the following principles: Leadership, Ownership, Impact, Inclusion, Innovation and Behaviour. See also part A. Commitments for further explanation.

Intervention: National Support Structure

Cooperation Dutch mission cities, Dutch Ministries (EZK, BZK), the Netherlands Enterprise Agency (RVO). Focused on removing barriers (f.i. legal) and policy freedom to experiment with the



measures needed at local level to achieve the sustainability transition. Financial cooperation to realize the physical preconditions required for the transition.

Intervention: Sustainability policy municipal organization

Sustainability is becoming increasingly important within the municipal organizations of Eindhoven and Helmond. The organization and policies are (re-)designed in such a way that sustainability is taken into account broadly and at the highest possible level within the organization. This applies both to Eindhoven and Helmond.

Intervention: Climate View

To improve the monitoring, the cities will implement a new tool, ClimateOS, which has been specifically designed for cities to plan and monitor their climate action plan. The dashboard itself is helpful in designing the right pathway and gaining the insights needed to design actions and align stakeholders. Moreover, it is helpful in communicating with stakeholders on the progress made and including everyone in the journey towards net zero. ClimateOS can also be used to build the investment case to execute the action plan, this will be done in a next update.

Intervention: Approach grid congestion

There is enormous scarcity on the electricity network in the Brainport region. Due to the rapid pace the region is becoming more sustainable and other developments, the problem is even greater here than in the rest of the Netherlands. Brainport has been designated as a 'priority area' for tackling grid congestion. Grid operators Enexis and Tennet have been asked to make additional manpower available to strengthen the electricity grid and, if that is not possible, to develop 'innovative solutions in the form of energy hubs, battery storage and congestion management'.

Intervention: Regional Energy Strategy

To achieve the measures set out in the Climate Agreement, public authorities, residents, businesses, grid operators, energy collectives and social organisations need each other. The energy transition does not end at the council boundary. This is why these parties are working together on a Regional Energy Strategy: the RES. This is happening in 30 energy regions in the Netherlands.

Together they consider the options. Where are suitable locations for generating sustainable energy? And how much? Should they choose wind turbines or go for a solar panel collective? Is there a connection to the electricity grid and can it cope with the energy? What heat sources are there that can be used to make neighbourhoods and buildings fossil gas-free? And: is there enough support among parties involved and is it financially viable? All these considerations together form the RES. The RES is a way of working together on the energy transition.

C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways

Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
<i>(Indicate name of intervention)</i>	<i>(Describe the substance of the intervention)</i>	<i>(Refer to barriers and opportunities)</i>	<i>(List leaders and all stakeholder involved and affected,</i>	<i>(Describe how intervention enables climate neutrality)</i>	<i>(Indicate how intervention helps achieve</i>



		<i>identified in Module A-3)</i>	<i>referring to the stakeholders mapped in Module A3)</i>		<i>the impact listed in Module B-1)</i>
Climate Delta Plan Eindhoven-Helmond	An overall and long term approach in achieving the ambition of fossil free, circular and climate resilient cities.	All	All relevant stakeholders. The municipal organizations are facilitating the process.	Speeding up existing policies and projects and giving an extra impuls by carrying out 22 missions for 4 city themes.	Greener, healthier, more sustainable and resilient.
National Support Structure	Cooperation between the Dutch mission cities and the national government.	All	Dutch mission cities, Dutch Ministries (EZK, BZK), Netherlands Enterprise Agency (RVO)	Policy freedom to experiment with the measures needed at local level to achieve the sustainability transition. Cooperation between decentralized authorities, the national government and the EU. Financial cooperation to realize the physical preconditions required for the transition.	Speeding up the transition to fossil free and circular cities.
Sustainability policy municipal organization	The organization and policies are (re-)designed in such a way that sustainability is taken into account broadly and at the highest possible level within the organization.	All	Other government, alle stakeholders within the cities, citizens.	Speeding up existing policies and projects.	Speeding up the transition to fossil free and circular cities.
Climate View	Monitor the progress of CO2 reduction, making scenario's	Knowledge Behavioral change	Cities, regional and national government.	Provide insight into the effects of measures.	Encouraging other parties to take measures.
Approach grid congestion	Grid operators make additional manpower available to	Capacity Innovation	Cities, regional and national government, Brainport, grid	Speeding up the transition and speeding up innovations	Self-sustainable energy consumption , lower costs, job creation



	strengthen the electricity grid and, if that is not possible, to develop 'innovative solutions.		operators, businesses		
Regional Energy Strategy (RES)	Carrying out the regional energy transition together with 21 municipalities, province, water boards and grid operators.	Collaboration Knowledge Innovation	Municipalities regional and national government, water board, province, grid operators, advisory board.	Energy saving and transition to renewable energy.	Speeding up the transition to fossil free and circular cities.
Socially Responsible Commissioning and Purchasing	Cities do everything they can to purchase as sustainably and socially as possible.	Policy and regulations Leadership	Municipalities Businesses	Transition to fossil free and circular cities.	Leadership, set the example

1.8 Module C-2 Social Innovation Interventions

This module lists the actions taken by the city to support and foster social innovation initiatives or non-technological innovation more broadly (e.g., in entrepreneurship, social economy, social awareness & mobilization, social cohesion and solidarity, etc) aimed to address the systemic barriers and leverage the opportunities identified in Module A-3¹.

C.2.1 Relations between social innovations, systems, and impact pathways					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Dialogue with the cities	Commitment has been raised for the various missions. They are missions of the city, with the city and in the city. From	All	All	Speeding up existing policies and projects and giving an extra impuls by carrying out 22 missions for 4 city themes.	Greener, healthier, more sustainable and resilient.

¹ For more guidance on social innovation, please refer to the [NetZeroCities Quick Read on Social Innovation](#), to the [NetZeroCities Report on indicators & assessment methods for social innovation action plans](#) and the [Social Innovation Toolkit](#). [Social innovation case studies](#) are also available on the NetZeroCities website.



	individual choices to imposed collective decisions that change the system.				
The city platform the wat-als-het-ons-lukt ('what-if-we-succeed') website	The platform reflects the process of cooperation and co-creation with the stakeholders as well as their commitment to the action plan. It showcases the Missions itself, the Organizations which have committed and the Projects which were set up until now. Moreover, it includes the feedback of our citizens.	Collaboration Behaviorial change Capacity Inclusive	All	Insight into the progress of the missions.	Encouraging other parties to take measures.
Citizens Advisory Group	Help guide the further process of the Climate City Contract.	Citizen involvement	Citizens	Support for the missions	



C-2.2: Description of social innovation interventions

Intervention: The city platform : KnapHE website

In support of the Climate City Contract an online platform was created. The platform reflects the process of cooperation and co-creation with the stakeholders as well as their commitment to the action plan. It showcases the Missions itself, the Organizations which have committed and the Projects which were set up until now. Moreover, it includes the feedback of our citizens.

The website is in fact a smart and dynamic Action Plan: as the work on the Climate City progresses, new organizations can commit to a mission by setting up or joining a project, and current projects report information like targets, barriers and actions on the platform. In the future, the website will help us to analyse this data using Artificial Intelligence (AI) to generate systemic information for instance on barriers or citizen involvement. The latter was already done once successfully when processing elaborate input of citizens on the missions. No new organizational structures are set up or administrative consultation structures are built. An online platform provides insight into the progress of the missions: wat-als-het-ons-lukt.vercel.app.

Intervention: Citizens Advisory Group

A Citizens Advisory Group group has been set up to help guide the further process of the Climate City Contract.

Outlook and next steps

Plans for next CCC and CCC Action Plan iteration

The content of this document is still under development. This document will be supplemented on the basis of the concrete elaboration of the missions into action and investment plans. Periodically, an evaluation takes place and we recalibrate the document based on the insights into the progress of achieving the goals with regard to fossil-free, circular and climate-proof.

Next steps: Implementation Climate View and drawing-up project-sheets for actions and projects within the missions.

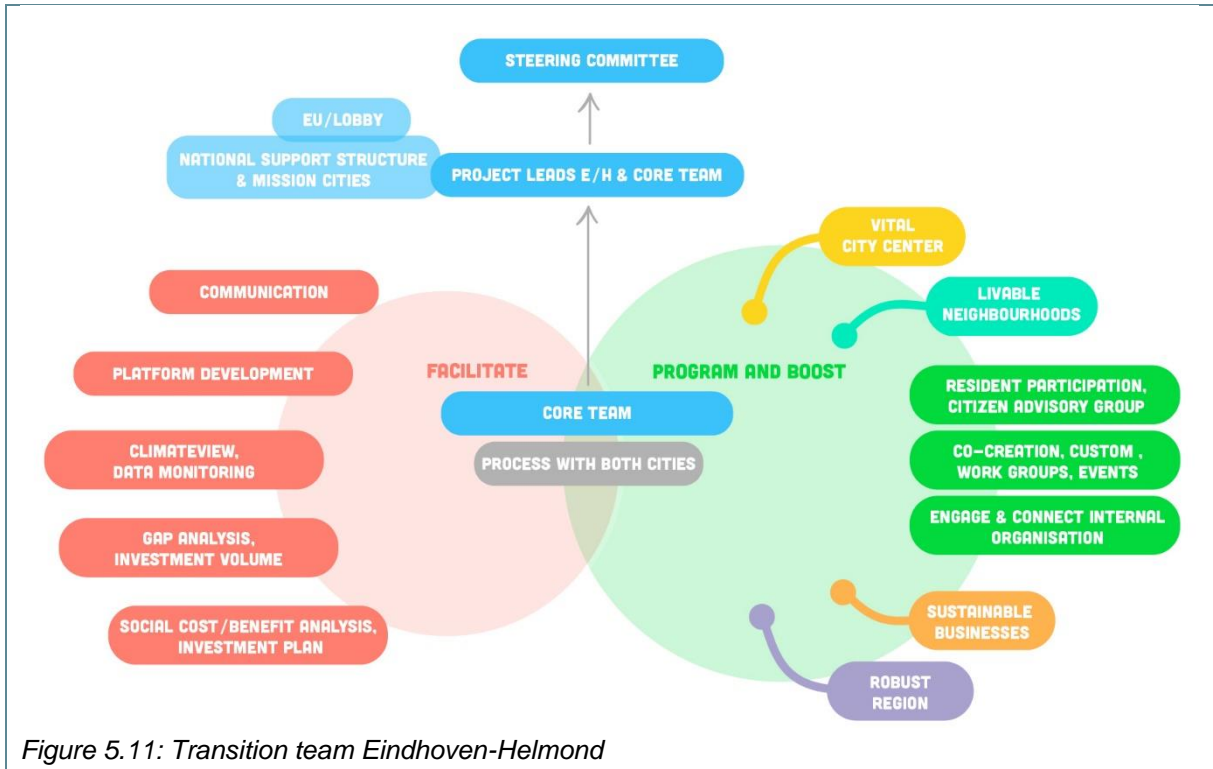


Figure 5.11: Transition team Eindhoven-Helmond



2 Annexes

B1: Description of the 22 Missions

B2: Process: dialogue with the cities

These appendixes have been added as a separate document and can also be accessed through the following link:

- a. [Verslag_Doorbraaklab_Helmond](#)
- b. [Verslag_Doorbraaklab_Eindhoven](#)
- c. [Verslag_Solutionslab](#)
- d. [Verslag_Transitielab](#)

B3: Baseline and gap analysis 2023

This appendix has been added as a separate document.



Annex B1: Description of the 22 Missions

**CITY THEME:
VITAL CITY CENTER**

In the inner cities, the greatest challenge lies in setting a transition in motion, based on the characteristics of a densely populated city, without placing a disproportionate pressure on quality of life, social inclusion and environment. Governments, entrepreneurs and residents must jointly take responsibility for this. The inner cities of Helmond and Eindhoven are facing a major urbanization challenge. In Helmond, 10,000 homes are being built in the center, and in Eindhoven 21,000 homes within the city ring. This offers both challenges and opportunities to bring about changes to homes, infrastructure and nature in a green and climate-friendly manner and to ensure that this task contributes to the opportunities available to residents and entrepreneurs. We are of course also aware that the spatial integration of the necessary climate tasks is a challenge in an existing urban environment. An integrated approach based on tomorrow's objectives is a prerequisite. The following missions have been formulated for this city theme:

1. STORYTELLING VITAL CITY CENTER

What we will do

The focus is going to be on easily accessible information for everyone who wants to take action themselves, but also on communication for specific targeted groups that involves more people in the climate story and encourages them to take action. For many people, the climate story is still abstract and does not relate to their lifestyle. A joint communication campaign can contribute to tell the story what the inner cities of Eindhoven and Helmond will look like in 2030, 2040 and 2050 to the people of both cities.

What it takes

Ambassadors and front runners are needed to tell the story and to motivate, inspire and enthusiast others. The story must also be consistent (for both Eindhoven and Helmond) and become part of a consistent story. Here too, an integrated view of the city and its development must form the base.

Result

A broad coalition of Eindhoven and Helmond actors is committed to promoting fossil-free, circular and climate-proof (inner) cities.





2. CIRCULAR CITY CENTER AND SUSTAINABLE CONSUMPTION

What we will do

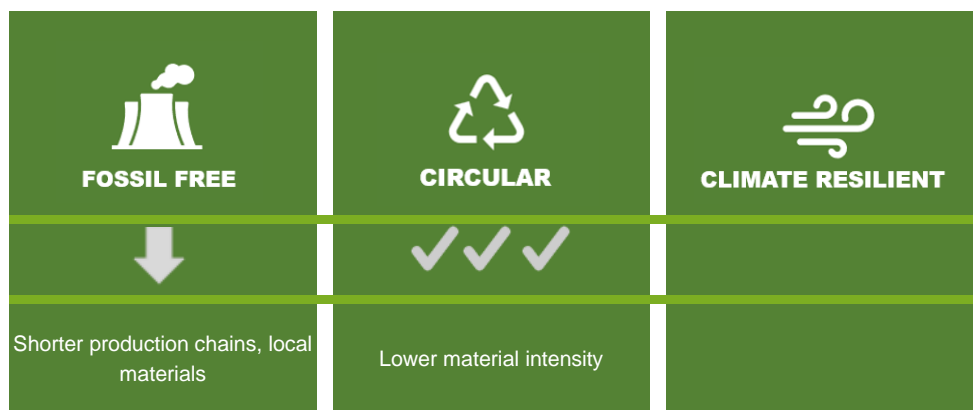
Consumption behaviour forms a large part of our CO₂ footprint. Most consumer goods are produced outside the Brainport region and the emissions are most in scope 3. But the impact of these goods is significant and the contribution to the climate challenge is enormous. In this mission, (behavioral) change from the consumer is central. Based on the steps of the R-ladder, the focus is on more selective and sustainable purchasing behaviour, more recovery and partial use of goods and services, the elimination of single-use products and a strongly locally oriented economy. Awareness is an important first step. There is a clear link with the mission story of the city. Since we are not only committed to the climate challenge, but also see that health and a responsible relationship between animal and vegetable products are important, food consumption also becomes part of this mission.

What it takes

A direct link to the circular business and local and seasonal production missions. A change in our mindset is needed. Joint responsibility has to be taken, not only by residents, but also by producers, distributors, stores and advertising agencies. This can be achieved through targeted action campaigns, rewarding good behaviour, stimulating circular entrepreneurship and applying new circular business models. Where possible, we should immediately focus on 100% circular sustainable procurement. And it is necessary to make circular and sustainable really accessible: with exchange shops in top locations, repair cafés and circular hotspots in the inner cities.

Result

The objective is to drastically reduce consumption emissions by consuming more selectively. Due to different (purchasing) behaviour of the consumer and a longer lifespan of products, fewer products are made and purchased. This reduces CO₂ emissions and makes a relatively large contribution to a circular economy.





3. CIRCULAR AND BIOBASED BUILDING

What we will do

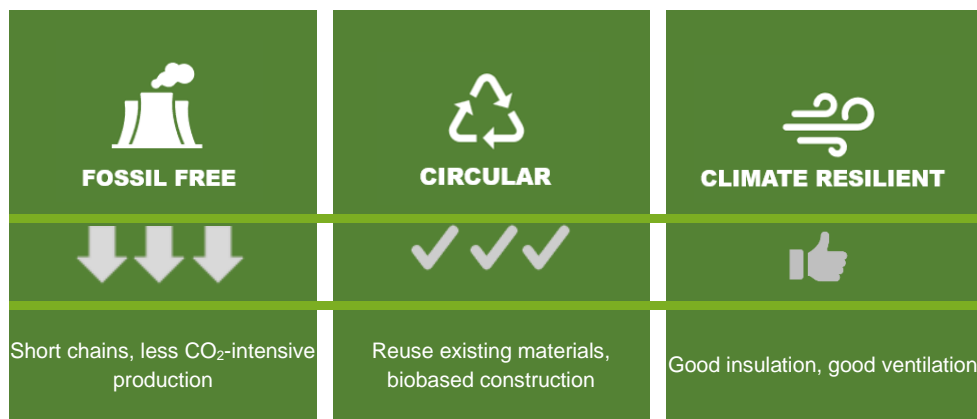
The inner cities of Helmond and Eindhoven have a major urbanization challenge. To ensure that the associated new buildings doesn't lead to an increase in CO₂ emissions (we are not building the city of yesterday for tomorrow), the starting point is to build (in phases) only biobased, circular and climate-neutral. This means that materials are reused before new production and that if new materials are used, there will be as little CO₂ emissions and other environmental damage associated with their production as possible. In order to reduce the heat-demand of the buildings as much as possible, maximum efforts must be made on insulation, airtightness, ventilation and sustainable heat emission. We also provide all new developments with a materials passport so that we at least have insight into how and with what the physical environment was created and what it can offer us for the future. In addition, it is necessary to make the best possible use of the existing housing stock and buildings of companies in both cities and to fully focus on saving and insulating.

What it takes

It is necessary to work together with all parties on the new vision on building. This includes boosting the market and strengthening the chains for biobased and circular construction, together with producers, banks, builders, housing associations and governments. Ensuring the availability and accessibility of circular and biobased materials. The housing deal is a good first step in this regard. It also involves optimizing legislation and regulations and including requirements in tenders. The knowledge and data about new building materials and residual flows must be expanded and shared, both for professionals and private individuals. Clear information about materials and costs (true pricing) is important. It builds on existing initiatives such as Building Balance, Circle City and the Urban Development Initiative. Here is a strong link to the "locally sourced materials" mission.

Result

The result is that energy is saved on a large scale, CO₂ is captured and emissions due to the use of CO₂-intensive materials are prevented. By using recycled, local and/or biobased materials as much as possible, we reduce the need for new material. We also build homes and buildings that match the objective and contribute to the task of climate resilience.





4. CLIMATE NEUTRAL MOBILITY IN THE CITY CENTER

What we will do

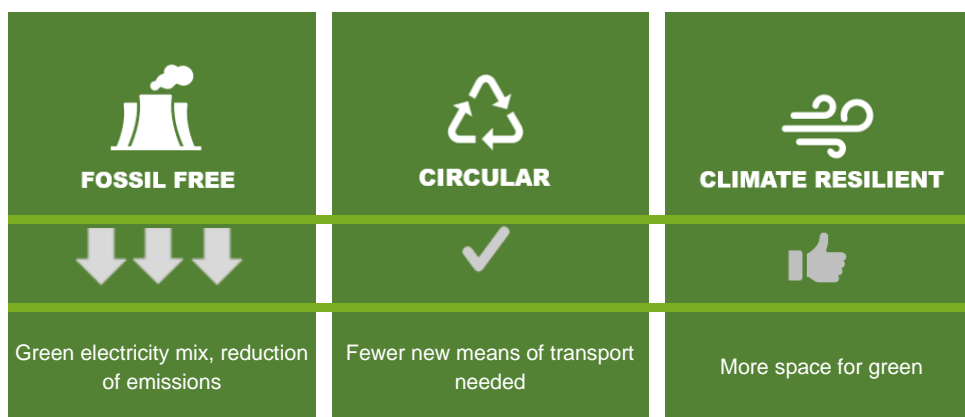
The inner cities of Helmond and Eindhoven have a major urbanization challenge. In order to keep the cities accessible and to guarantee a good quality of life, mobility in the city center must be dealt with in a different way. To promote sustainable alternatives, a different layout of the inner cities is needed. With less focus on the car and where facilities (shops, greenery, sports, culture) can be reached within 10-15 minutes from the place of living/working, on foot, by bicycle or by public transport. On the one hand, this means a shift from individual car use to more sustainable alternatives such as walking and cycling, public transport and shared mobility. By adjusting the design of the city centre, we aim for a transition to other modalities. In that case space is created for more green in the city centres. On the other hand, it also requires a greening of the current vehicles, innovation and investments in the vehicle, but also in the current network of charging infrastructure and e-fuel points.

What it takes

There is a direct link with the mission regarding “the story of the inner city” and “consumer behaviour”, and “green and water as a base”. This includes a different design of public space. Public transport must be made more attractive (a national and regional task) and shared mobility must be promoted (a regional task) with good connections to public transport (a regional task). Electrification and emission-free distribution will be further stimulated (through national or European regulations). Locally, network congestion should not be an inhibiting factor.

Result

CO2 emissions in the city center are reduced and fewer new means of transport are needed. The quality of the public space will be increased with more space for green, climate adaptation, walking, cycling and children playing.





5. SUSTAINABLE PUBLIC SPACE

What we will do

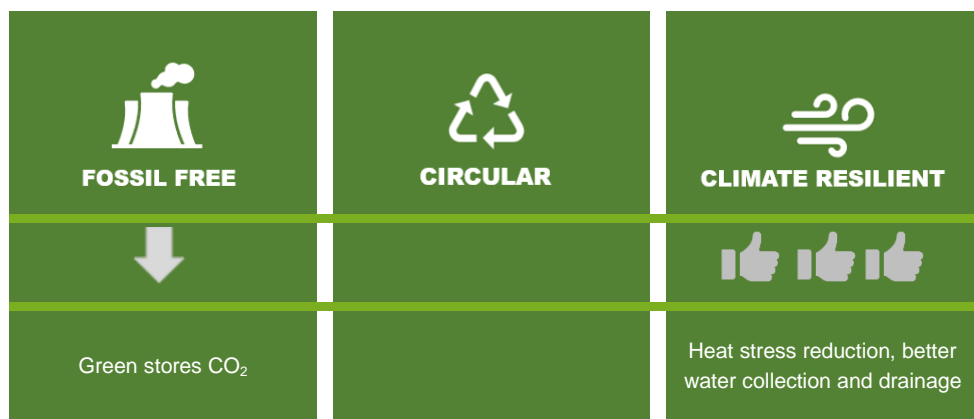
The residential quality of the public space in the city center is crucial. Green and water form the base. A green, sustainable and healthy public space has an important function for social activities, shopping and recreation. Existing builded space is used more efficiently by combining functions, but also by designing inner cities to be car-free. This creates more space in the city center for green. The existing and vacant space in the city center must also be made climate-adaptive. This could include preventing the so-called 'heat island effect' in the cities or taking measures against extreme weather such as heavy rainfall. A change in the current approach is needed by allowing greenery, water and nature to guide the design of the public space in the inner cities. A public space that invites encounters and that is created with the direct commitment and involvement of residents and social organizations. A coordinated approach together with other tasks (e.g. the heat transition, mobility) is necessary

What it takes

Making the benefits of a green and sustainable public space visible (social costs and benefits). Learning from pilots and best practices is important for this. The challenge in the outdoor space requires a joint approach under the direction of the municipality. After all, developments in the built environment also require space for greenery, energy generation and recreation.

Result

The quality of the public space is increased with more space for green and meeting places. This contributes to climate-proof cities, and green CO₂ is also captured.





**CITY THEME:
LIVABLE NEIGHBOURHOODS**

The residential areas of Helmond and Eindhoven offer many opportunities for sustainability and improving quality of life. Think of a neighbourhood-oriented approach for isolation and creating awareness in consumer behaviour and mobility behaviour, for example. Of course, a district-oriented approach alone is not sufficient to achieve the objectives, but more decisiveness can be achieved in this way. The biggest challenge lies in bringing about lasting behavioural change among the residents. The contributions of government, companies, organizations and individual residents are crucial for achieving the objectives. The following missions have been formulated for this city theme:

6. STORYTELLING LIVABLE NEIGHBOURHOODS

What we will do

There is a focus on easily accessible information for everyone who wants to take action themselves. We also use targeted communication that involves more people in the climate story and encourages them to take action. For many people, the climate story is still 'far from their bed'. A joint targeted communication campaign can contribute to this. It tells the story of what the neighbourhoods of Eindhoven and Helmond will look like in 2030, 2040 and 2050.

What it takes

Ambassadors and front runners are needed to tell the story and to motivate, inspire and enthusiast others. The story must also be consistent (for both Eindhoven and Helmond) and become part of a consistent story. An integrated view of the city and its development must be the basis.

Result

A broad coalition of Eindhoven and Helmond actors is committed to promoting and promoting fossil-free, circular and climate-proof cities and districts.





7. CIRCULAR NEIGHBOURHOODS AND SUSTAINABLE CONSUMPTION

What we will do

There are also many opportunities for a circular economy in the neighbourhoods. According to the principles of the R-ladder, the starting point is that raw materials, parts and products lose their value as little as possible and that we focus on reuse and sharing concepts as much as possible. In the field of food consumption, the emphasis is on stimulating a healthy, responsible ratio between animal and vegetable products. Another point of attention is the associated issue of preventing waste as much as possible.

What it takes

It is necessary that residents and entrepreneurs start thinking differently about waste and reuse: waste is a raw material. At the same time, it is necessary to facilitate the circular economy more, for example by rewarding repair cafés, second-hand markets, tool lending and sustainable behaviour. A district-oriented approach is necessary to create awareness, to deal with waste in a target group-oriented manner and to purchase sustainably, for example by means of a district covenant. We must also further encourage the use of locally produced food.

Result

The objective is to drastically reduce consumption emissions by consuming more selectively. Due to different (purchasing) behaviour of the consumer and a longer lifespan of products, fewer products are made and purchased. This reduces CO₂ emissions and makes a relatively large contribution to a circular economy.





8. CIRCULAR AND BIOBASED BUILDING

What we will do

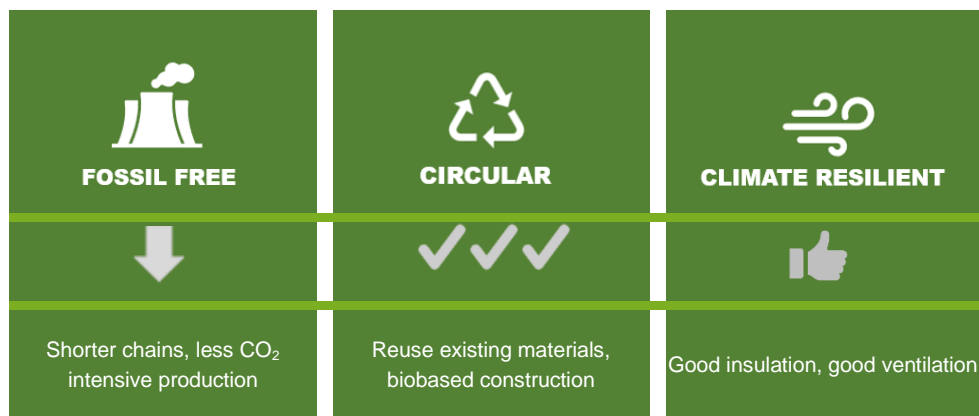
To ensure that new building in neighbourhoods do not lead to an increase in CO₂ emissions, the starting point is to only build biobased, circular and climate neutral. This means reuse of materials before new production. If new materials are used, there should be as little CO₂ emissions as possible and the production should cause as little environmental damage as possible. In order to reduce the heat demand of the buildings as much as possible, maximum efforts must be made on insulation, airtightness, ventilation and sustainable heat emission.

What it takes

It is necessary to make the best possible use of the existing housing stock in both cities and to fully focus on saving and insulating. In addition, it is necessary to work together with all parties on the new vision on construction. This includes boosting the market and strengthening the supply-chains for biobased and circular construction. It also involves optimizing laws and regulations and including requirements in tenders. The knowledge and data about new building materials and residual flows must be expanded and shared, both for professionals and private individuals.

Result

The result is that energy is saved on a large scale, CO₂ is captured and emissions are prevented through the use of CO₂-intensive materials. We also build homes and buildings that match the objective and contribute to the task of climate resilience.





9. MAKING THE EXISTING BUILD ENVIRONMENT SUSTAINABLE: THE NEW NORMAL

What we will do

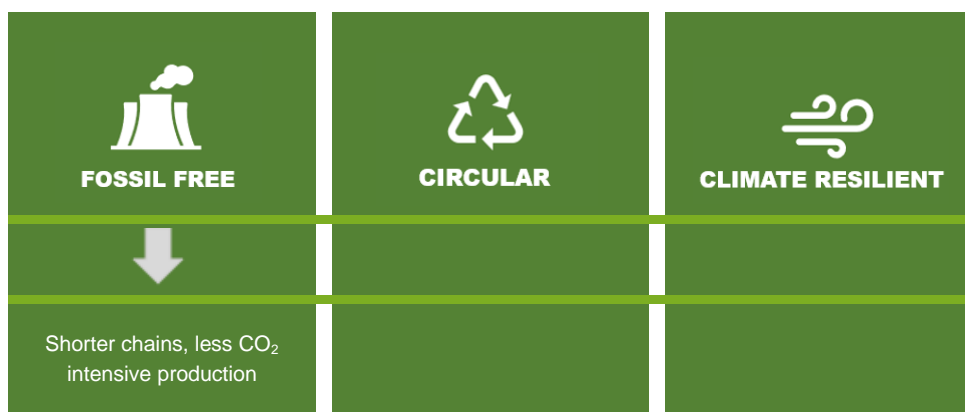
In the neighbourhoods, acceleration is needed for large-scale, collective sustainability of existing rental and owner-occupied homes. Making the built environment more sustainable requires a multi-stakeholder approach and active approach and support from building owners. This approach and support can be district-specific, but in most cases homeowners must be approached on an individual basis and supported during, for example, renovations or relocations.

What it takes

This task calls for action to remove barriers in the current regulations, to stimulate sustainability through support measures and also a strategy to accelerate sustainability. Making the built environment more sustainable requires, on the one hand, a smart collective approach and roadmap to achieve upscaling, and, on the other hand, an active approach and support for tenants and owners in which people are central. It calls for exemplary behaviour via initiators and ambassadors in the neighbourhood. It also calls for supra-regional cooperation with, for example, Tilburg and Midpoint, where steps are also being taken with new construction chains and the application of sustainable materials. We are in line with current processes such as the Urban Development Initiative (UDI), which focuses on the energy transition in the built environment and innovation in construction.

Result

The result is that energy is saved on a large scale, the living comfort in the homes is improved and energy costs are reduced.





10. CLIMATE NEUTRAL MOBILITY IN THE NEIGHBOURHOODS

What we will do

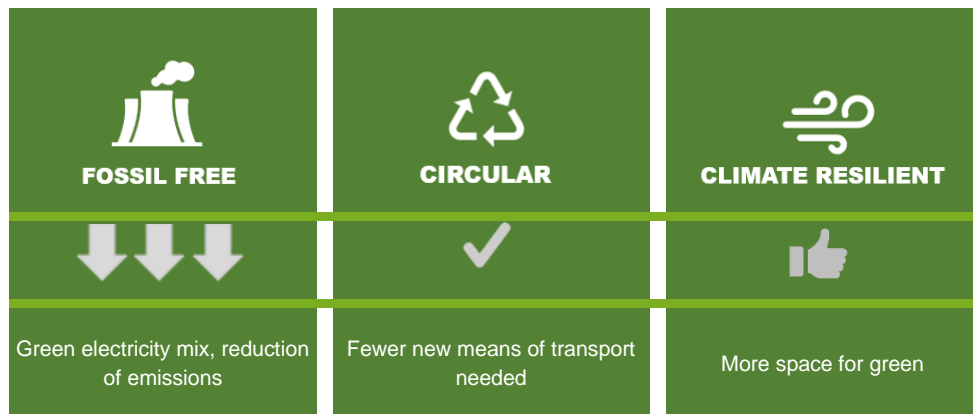
In order to ensure that the neighbourhoods remain accessible and that a good quality of life can be guaranteed, mobility must be dealt with in a different way. On the one hand, this means a shift from individual car use to more sustainable alternatives such as active mobility (walking and cycling), public transport and shared mobility. On the other hand, it also requires a network of nodes where many movements converge, so-called neighbourhood hubs. Think of places where you can switch to a shared bike or car, but where also packages and small groceries can be picked up. This can also have a positive effect on social cohesion in the neighbourhoods. The (re)design of public space must be aimed at encouraging cycling and public transport. Among other things, by dividing transport flows and setting up multifunctional areas.

What it takes

Public transport must be made more attractive and shared mobility must be promoted with good connections to public transport. Electrification and emission-free distribution will be further stimulated. There is a direct link from this mission to the story of the city, changing consumer behaviour, green and water as a basis and of course the issue of network congestion.

Result

CO2 emissions in the neighbourhoods are reduced. The quality of the public space is increased with more space for greenery, and for pedestrians, cyclists and children playing. That contributes to all spearheads.





11. EVERYONE CAN PARTICIPATE

What we will do

Climate neutrality can only be achieved through the joint efforts of all parties and residents involved. The implementation of the mission must not lead to social inequality. Everyone must be able to participate. The implementation of the missions must not be an obstacle to life and work for the various social groups in Eindhoven and Helmond. Apart from awareness of the tasks, the financial details are the main point of attention. The preconditional obstacles that arise in this respect, such as state aid, regulations on social assistance, tendering and legal equality, must provide scope for tackling this properly.

What it takes

There should be constant attention for awareness of the themes within missions, and the stimulation of new and existing (residents') initiatives that contribute to and can strengthen the missions. Targeted communication should be ensured. It is important that it will be necessary to decompartmentalize the resources to be deployed and that the necessary regulations will have to be adjusted. A commitment to more structural solutions instead of sticking plasters is of great importance.

Result

A structural, multi-year approach in which governments and other parties such as housing associations, building owners, businesses and civil society organizations will work together more closely to involve everyone in the missions.





12. GREEN, SUSTAINABLE AND HEALTHY PUBLIC SPACE

What we will do

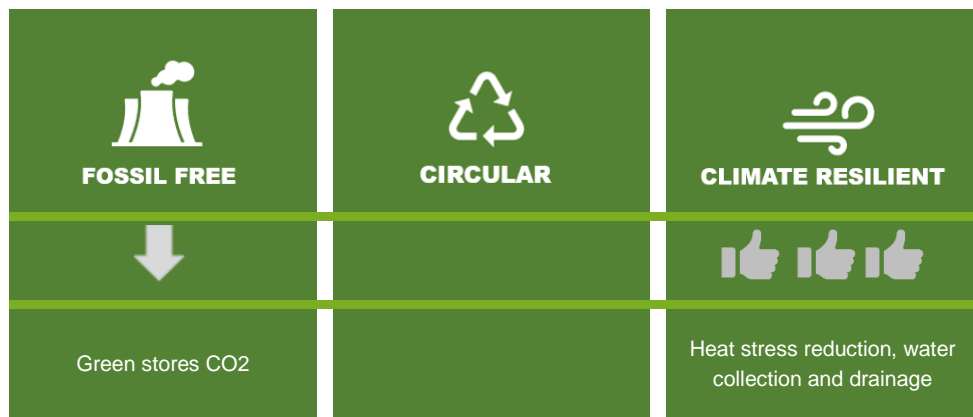
Water and greenery form the basis for the public space in the neighbourhoods. A green, sustainable and healthy neighbourhood has an important function for social activities, shopping and recreation. This is done in two ways. On the one hand, space must be made available for sustainability. This can be done by using existing built-up space more efficiently and combining functions, but also by designing neighbourhoods that are less car-dominated, for example. This frees up more space in the neighbourhoods for greening, which is currently being used by car traffic. Existing and vacant space in the neighbourhoods must also be made climate-adaptive. This could include, for example, greening front gardens, parks, terraces and flat roofs. Just as in the inner cities, a change in the current approach is needed in the neighbourhoods by allowing greenery, water and nature to guide the design of public space. This is achieved with the direct commitment and involvement of the residents and social organizations. And coordinated with other tasks (e.g. the heat transition).

What it takes

Showing the benefits of a green and sustainable public space is important, learning from pilots and best practices. This requires decompartmentalization of the deployment of resources and a statement regarding the use of the limited space in our existing city.

Result

The quality of the public space is increased with more space for greenery, climate adaptation and meeting. This contributes to climate-proof cities, and green CO₂ is also captured.





***CITY THEME:
SUSTAINABLE BUSINESS***

Eindhoven and Helmond are home to innovative companies in areas such as foodtech, automotive, chip technology and design and the manufacturing industry. The current impact of activities in this region on the climate is significant. It is therefore important that the business parks, offices, production facilities and revenue models of these companies are made more sustainable. The biggest challenge in addition to the transition to an economy is the transition to a green climate-proof working environment, especially at business parks, the transition to innovative sustainable revenue models and circular process optimization in collaboration with other companies. Cooperation between companies and the exchange of information, materials, energy and heat are crucial here. The following missions have been formulated for this city theme:



13. SUSTAINABLE AND CIRCULAR OPERATIONS

What we will do

A sustainable and circular economy is not only aimed at reducing, but also at a different way of production in which the reuse of products, materials and raw materials is central. Companies have an important role in this. By focusing more on local, seasonal production and sustainable processing of (residual) products and materials, the local economy is also strengthened. The principles here are 'rethink' and 'reuse', so that the use of raw materials can be reduced by thinking differently about production processes, but also 'redesign', the design of products differently with more attention for later reuse, repair, maintenance and recycling. Sustainable business operations also contribute to a transition to sustainable behaviour among both employees and consumers, the missions story of the task, sustainable consumption and local production are therefore linked to this task.

What it takes

It is necessary to work according to principles such as the R ladder and a CO₂ budget. Companies must also switch to sustainable business models. Awareness campaign helps to draw attention to the importance of circularity. It is also necessary to identify frontrunners and good examples, so that a start can be made on the basis of best practices. Brainport companies show leadership and get to work with sustainability, circularity and electrification of their business processes. It is about using the right financial instruments/start-up subsidies and ensuring the right infrastructure, such as a marketplace for raw materials. SMEs may ask for extra support to become more sustainable, for example through an investment fund. It links up with ongoing initiatives such as the Sustainability Plan of Brainport Development and Peel Netto Positief of Innovatiehuis De Peel.

Result

The result is that energy is saved on a large scale and CO₂ emissions are reduced, CO₂ is captured and emissions through the use of CO₂-intensive materials are prevented. It contributes to the spearheads 'fossil-free' and 'circularity'.





14. SCALING UP SUSTAINABLE BUSINESS AREAS

What we will do

Making business parks more sustainable requires a different approach than for other buildings. The main challenge here lies in the reduction of energy consumption for the processes and the maximum recovery and reuse of residual heat. The way in which the various companies can best be made more sustainable is complex because the variation in buildings, operational management and energy needs is much greater at business parks than in the city centre.

What it takes

Making a business park more sustainable requires a collective approach. This means (more) intensive cooperation between entrepreneurs (associations), property owners, suppliers, consultants and the government. Here too we use best practices for scaling up, for example the concept of business investment zones. The necessary capacity and finances will have to be organized for this. We scale up existing initiatives and ensure that there is cooperation under the flag of, for example, Helmond Industrial Estates Foundation (SBH) and Brainport Development.

Result

The result is that energy is saved on a large scale and CO₂ emissions are reduced. And that business parks are designed to be more sustainable, greener and more climate-resistant.





15. SUSTAINABLE MOBILITY AND LOGISTICS

What we will do

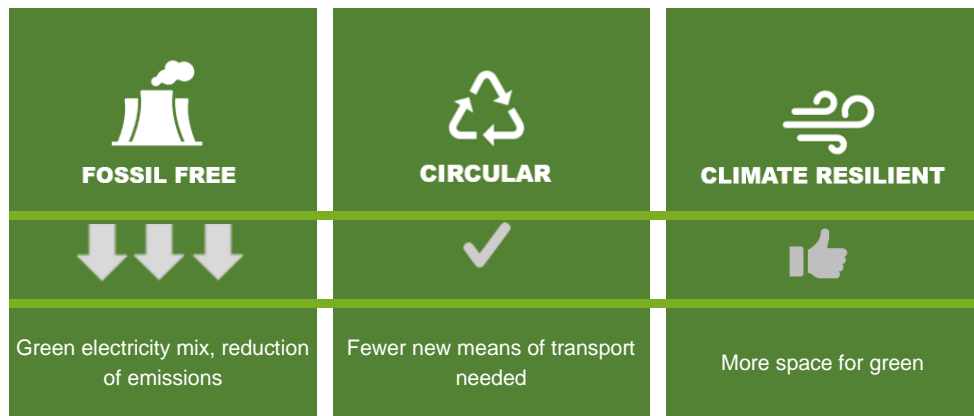
Making mobility and logistics more sustainable can make a meaningful contribution to the objectives of a transition to sustainable mobility. The discussion should be conducted in order to organize the flow of goods as efficiently as possible and with the least possible damage for the environment. Business areas, construction hubs and the introduction of a zero-emission zone for trucks, vans (business use) and buses can help with this. The aim is to organize the flows of goods - especially distribution transport and courier services - more efficiently, so that their frequency and negative effects can be limited. Together with the business community, work should be done on better regulation of freight traffic and logistics and an employer's approach to make commuting more sustainable.

What it takes

It is necessary that employers and other organizations get to work on further stimulating sustainable commuting and logistics. Public transport must be made more attractive and shared mobility must be promoted with good connections to public transport. The approach to electrification, greening of transport and emission-free distribution must be intensified. Companies and institutions are also taking the lead in this by encouraging alternative mobility for their employees and making it financially attractive.

Result

CO₂ emissions from mobility are reduced. Material intensity also decreases when fewer vehicles are used.





16. HEALTHY AND GREEN WORK ENVIRONMENTS

What we will do

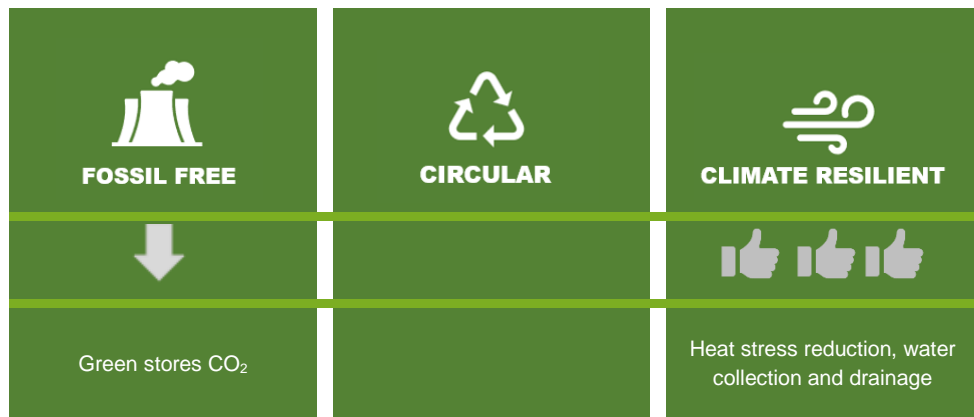
On business areas, the risk of flooding and heat is often high because there is little green and a lot of paved surfaces. Damage and nuisance caused by climate change on business areas can be prevented by making them green and shady. This makes business parks more climate-resistant and increases the quality of the living and working environment. The challenge for a healthy working environment is broader than just greening. A focus on the health and well-being of employees is also important. In addition to collective spatial interventions on industrial estates, this also requires a collective (employers') approach so that the health and well-being of employees on and outside the industrial estates is optimally stimulated.

What it takes

Making visible that green and water yields more by preventing damage from weather extremes, healthier working environment, etc. Collaboration and knowledge sharing (knowledge bank) is necessary to be able to take steps and to ensure the right financial instruments / start-up subsidies.

Result

Green, climate-proof and energy-efficient business parks, where employees can work comfortably in a healthy environment.





17. ENERGY AND SMART GRIDS

What we will do

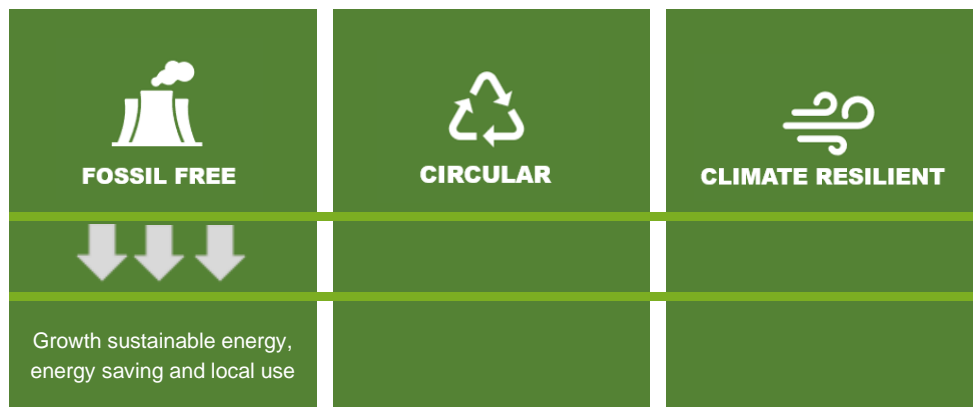
Business parks are major consumers of energy. And more and more sustainable energy is generated by sun and wind. Generating and switching to sustainable energy has consequences for the capacity of the electricity grid. The network will therefore have to be expanded, but that takes a lot of time. The currently available grid capacity will therefore have to be smartly distributed. This can be done by bringing together the generation and storage of energy in one place and by intensively monitoring its consumption. Business parks are ideal locations for the further development of this system of so-called 'smart grids'.

What it takes

It is necessary to continue developing smart energy solutions at the business parks, to make better use of the existing network and to ensure the exchange of electricity and heat between companies, for example via a marketplace or data platform. Public access to data and transparency based on trust is a precondition for this. Room for experimentation and knowledge sharing and exchange is a precondition for this. Investments (from the business community and government) will also be necessary. This mission is strongly linked to the task of network congestion.

Result

Companies can supply or purchase energy from their own generation. This provides financial benefits and encourages the installation of solar panels. Insight into energy consumption and supply helps to prevent overloading of the network.





18. COOPERATION, KNOWLEDGE- AND MATERIAL SHARING

What we will do

In the Brainport region, innovation and knowledge building are central, including in the field of battery technology, hydrogen transition, CO₂-neutral industry and the upscaling of energy innovations and products. With the conclusion of this climate contract, a pioneering role is being taken in the climate transition. Due to our own research and innovation with the numerous knowledge partners in the region, constant attention will have to be paid to new insights from the Netherlands and abroad. At a local level, companies can support and strengthen each other by providing insight into raw materials and residual flows and optimizing them. In our pursuit of more sustainable business parks, we draw inspiration from the principles of industrial symbiosis.

What it takes

The Brainport region is committed to standardization and the ability to scale up developed technology, such as new battery technologies and new forms of energy carriers, such as hydrogen and metal powder, that can be used in a CO₂-neutral manner. This requires close cooperation between governments, OEMs, manufacturing companies and knowledge and educational institutions. To accelerate this, an awareness campaign and a strong ambassador network are needed. Focused on creating co-ownership, leadership and a joint approach. It is also necessary to provide insight into where we stand through monitoring (to measure is to know). Linking education and business along the most impactful transition lines contributes to the acceleration. There is a strong link here with the previous mission. We also link this mission to the preconditions for monitoring and we use the same monitoring system, CO₂ budgets and communication as much as possible.

Result

Collaboration and knowledge sharing accelerates the transition because there is better insight into the (best) possibilities and the parties individually do not have to keep reinventing the wheel.





**CITY THEME:
ROBUST REGION**

The rural region and the urban area need each other to achieve the mission objectives. The region benefits from a greater purchase of locally produced sustainable materials and consumer goods. The regional areas need specialized workers, more innovative methods of production (processes). The region is needed to accelerate geothermal energy in Southeast Brabant and to realize local generation and storage of electricity. The greatest challenge lies in maintaining a joint pace with the acceleration of the city and region, but also in scaling up local production chains and methods and providing sufficient labour potential. This requires good cooperation between governments, agricultural companies, schools and knowledge institutes. The following missions have been formulated for this city theme:

19. LOCAL AND SEASONAL (FOOD) PRODUCTION

What we will do

Making local and seasonal production and sales via a short chain the norm not only reduces the transport distance, but also increases the consumer's consumptive awareness. Consumers gain more insight into the origin and value of products and the producer gains more respect and appreciation for the work done. A short chain can provide a better margin for the farmer and contribute to a stronger local and regional economy.

What it takes

Commitment to information and promotion campaigns on the theme of 'sustainable and healthy eating' and an environment that supports this, at schools, at companies and in the street scene. And commitment to cooperation and stimulating demand and product development, together with local entrepreneurs, financiers, governments, retail chains, restaurants and the like. This task is linked 1:1 with the transition of our rural area and the issue of silent dust.

Result

The local sustainable production and marketing of food not only reduces the transport distance, but it also narrows the gap between consumer and producer. It contributes to the spearheads 'fossil-free and 'circularity'.





20. REGIONAL MATERIALS MARKET

What we will do

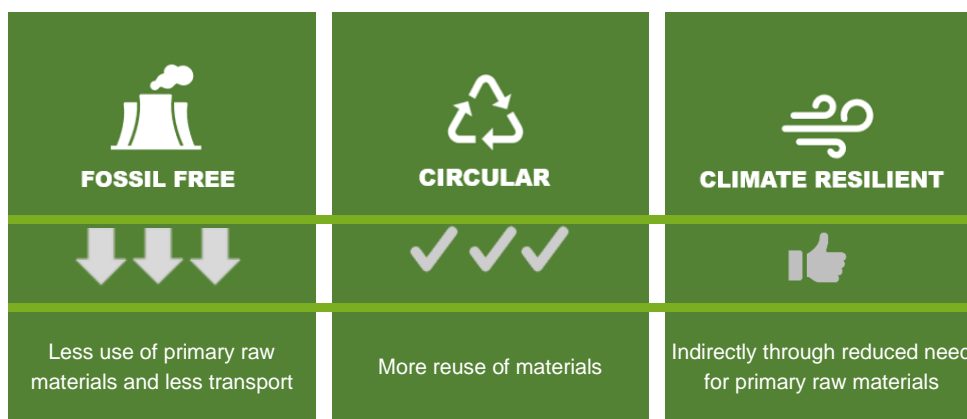
To prevent new raw materials from being used in construction and industry, a circular raw materials bank in the region can offer a solution. Reusable materials are registered and offered here.

What it takes

The use of primary raw materials will have to be taxed more heavily. Regulations will have to be adapted and raw material passports will have to be developed. Digital platforms are needed where the raw material data of available components are stored safely and conveniently, so that parties in the chain can work together more efficiently in recycling and reuse. New ways of asking questions are needed to achieve greater use of reusable materials.

Result

The use of primary raw materials is decreasing with positive consequences for nature and biodiversity. Another advantage is the reduction of greenhouse gas emissions





21. GRID CONGESTION

What we will do

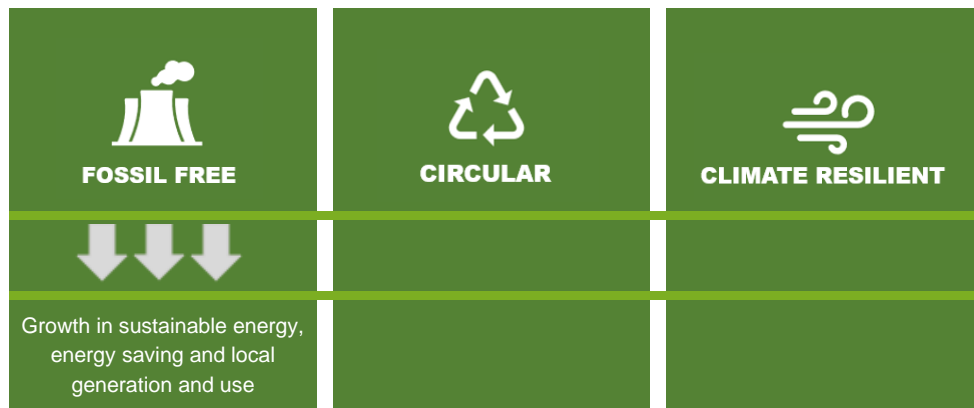
Generating and switching to sustainable energy has consequences for the capacity of the electricity grid. The network will therefore have to be expanded, but that takes a lot of time. The currently available grid capacity will therefore have to be smartly distributed. This can be done by bringing together the generation and storage of energy in one place and by intensively monitoring its consumption. Parts of our cities are now facing scarcity in both cities. Despite the current medium and long-term processes (which unfortunately will not create space again until 2030), we are looking for local solutions with companies, neighbouring cities, knowledge institutions and government. We are joining ongoing pilots, such as De Kempen Energy Landscape.

What it takes

Without space on the network or local solutions, the climate-neutral task in 2030 cannot proceed. Adjustment of laws and regulations, room for experimentation and financial support is necessary in order not to be dependent on room that will only be available after 2028. This requires intensive lobbying with the network operators and the national government.

Result

The result is that we, as cities, are not inhibited in the growth of renewable electricity generation, can make optimal use of the capacity of the electricity network and can use sustainably generated energy locally as much as possible. It contributes to the reduction of CO₂ emissions.





22. CLIMATE JOBS

What we will do

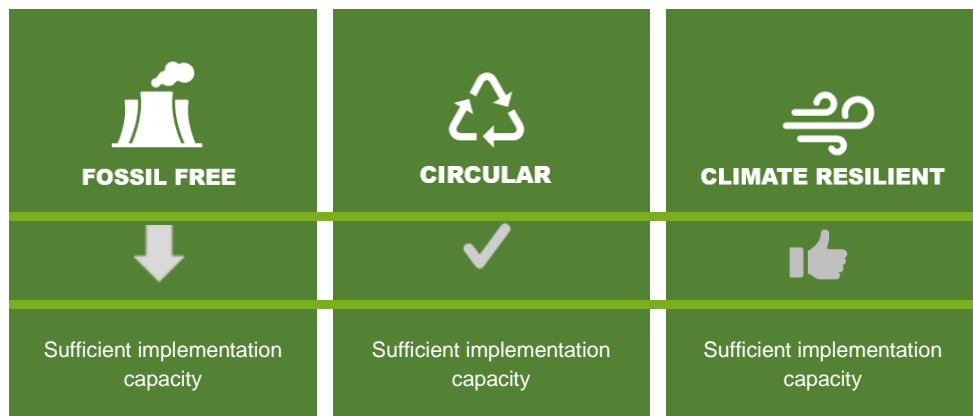
The change to a sustainable economy requires people with new knowledge and skills. This applies to construction, to the energy transition and to making existing homes more sustainable. This requires appropriate training, both in vocational and academic education. Pathways are also needed to retrain people or to impart knowledge about sustainability. Together with partners such as Brainport Eindhoven, we are writing a Human Capital Agenda that maps the path to this mission for the coming years. The lack of hands is a condition for the execution of almost all missions described in this contract. Without this transition, the intended implementation and speed will not be achieved.

What it takes

Linking education and the labor market with demand from the business community. We do ensure that the question is clearly defined in the light of the objectives. So on the basis of a green, new circular economy where other urban planning tasks, social issues and the necessary hands (who implement all tasks) are also necessary. It is important to focus on lifelong development.

Result

The result is that we, as cities, are not inhibited in the growth of our sustainability ambitions by ensuring sufficient availability of manpower and brainpower in good time





Annex B2: Process: dialogue with the cities

Process: dialogue with the cities

A Climate City Contract can only succeed if it is supported by society. That is why cooperation and co-creation is needed between residents, governments, companies, educational and knowledge institutions and other organizations in our two cities and in the region. A dialogue has been set up with the two cities for this purpose.

Breakthrough, Solutions and Transition Lab

As part of the dialogue with the city, three interactive stakeholder events, 'labs', have been organized: a Breakthrough Lab, a Solutions Lab ([Solutionslab | Heel Helmond duurzaam](#)) and a Transition Lab.

The Breakthrough Lab in Helmond (February 6) and Eindhoven (February 13) had the goal to arrive at a joint vision on the climate challenge. Looking at where we as cities stand within the climate task and which breakthroughs can be achieved.

In the Solutionslab (March 13), more than 200 partners, residents and experts were asked to define possible solutions to realize the Climate Mission of Eindhoven and Helmond. Many new solutions have been devised, additional on what is already been done in the region in the field of climate measures. The solutions for the four city themes (vital inner city, liveable neighbourhoods, sustainable business and robust region) formed the basis for the missions (Action Plan) and necessary investments (Investment Plan) for the two cities that are explained later in this document.

The breakthroughs and solutions from the previous meetings were then taken to the Transition Lab (April 14). The missions were presented here, and the involved parties could indicate their commitment to the Climate City Contract and could sign up for one or more missions for the four urban themes. In this way, the transition to a fossil-free, circular and climate-proof Helmond and Eindhoven has been initiated together.

Climate conferences

In addition to the Labs, two Climate Conferences were organized in both cities, where input was collected from residents for the mission. During the 1st climate conference residents discussed on the future of their city with each other. Discussion took place in an 'open space' setting and residents jointly set to work with possible solutions, topics and suggestions around the various themes and questions. Together with the breakthroughs and solutions from the previous lab meetings, the suggestions of the residents have been taken to the Transition Lab. The second Climate Conference focused on how residents and experts can enforce each other in implementing initiatives, projects and ideas.

During the labs and climate conferences, a large number of parties indicated their willingness to commit to the mission. We used the input to arrive at the joint missions.

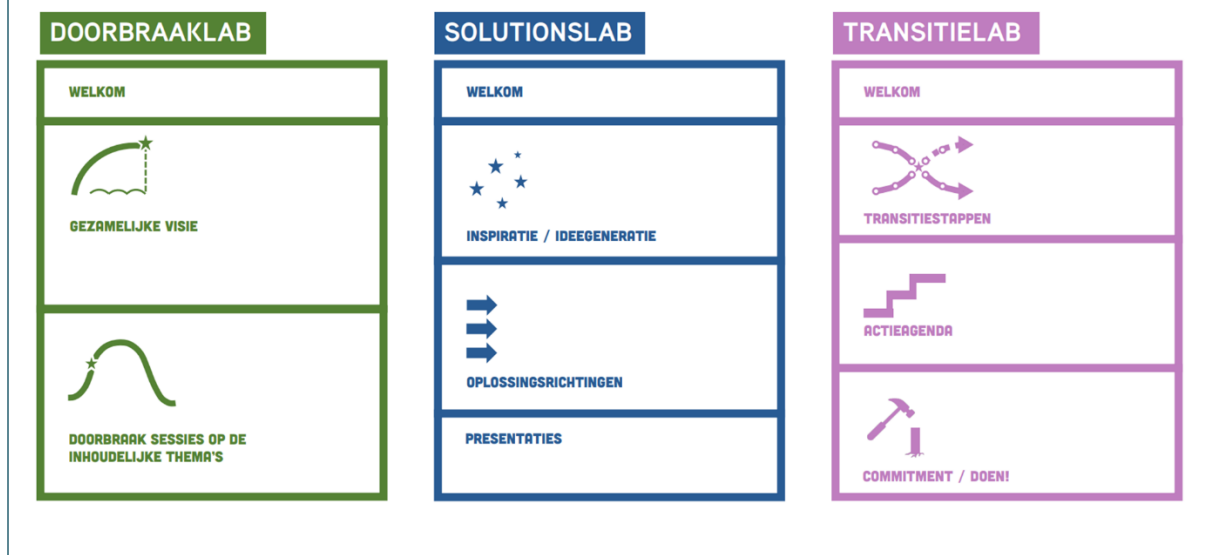
From dialogue to cooperation

This is the beginning. The start of a journey towards a fossil free, circular and climate resilient Eindhoven and Helmond. We convert the dialogue into a collaboration, in which coalitions of involved parties and residents are working on projects and actions within the city themes. Mission teams are formed for each city theme. The members of a mission team work intensively (together) on a mission. The teams include parties from governments, educational and knowledge institutions, the business community, social organizations and residents. Together, the mission teams will determine how and what needs to be done around a mission. The focus is on achieving the necessary breakthroughs and the required acceleration. In the appendix an overview is presented of the existing (what we already do) and new missions (what we will do) for the four city themes. In addition, the overview indicates who the lead partners are, what is needed, what the system changes/breakthroughs entail,



what other parties we need and what the required investments are. This will be further elaborated to point out for which tasks cooperation is required with the national government and/or Europe.

The mission teams are supported and facilitated by both municipalities. This will be further elaborated. There is no blueprint or standard process for this. We know quite well what to do, but we know less better how to do it. The right approach must be found for the various missions.



The individual reports have been added as a separate document and can also be accessed through the following link:

- a. [Verslag Doorbraaklab Helmond](#)
- b. [Verslag Doorbraaklab Eindhoven](#)
- c. [Verslag Solutionslab](#)
- d. [Verslag Transitielab](#)