

Climate City Contract

2030 Climate Neutrality Action Plan

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



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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

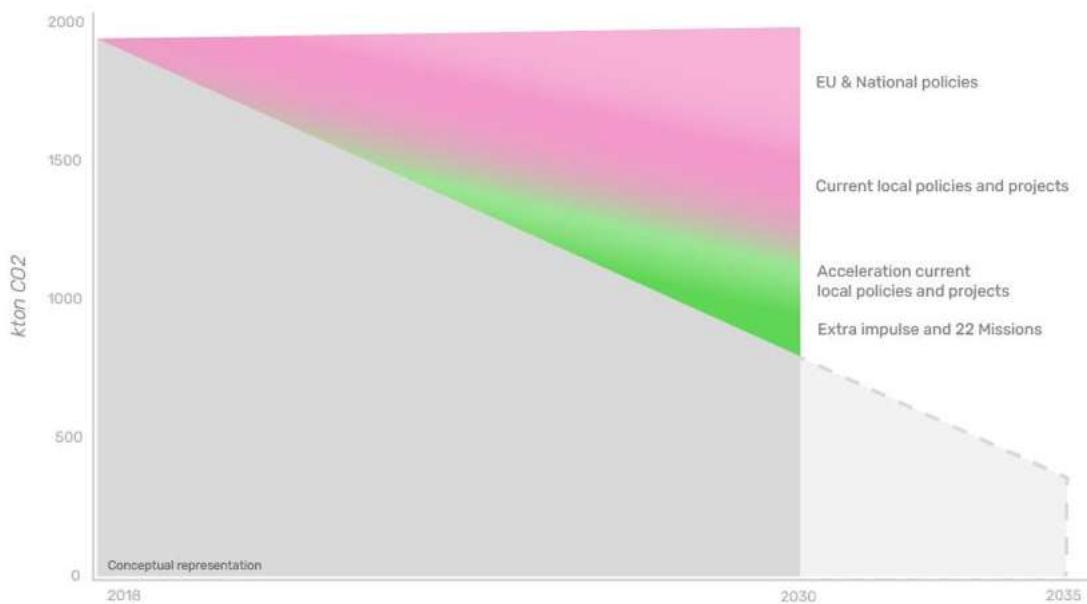


Figure 1: Overview of Existing Emissions & Reduction Path

Methodology & Approach to CO₂ Reduction

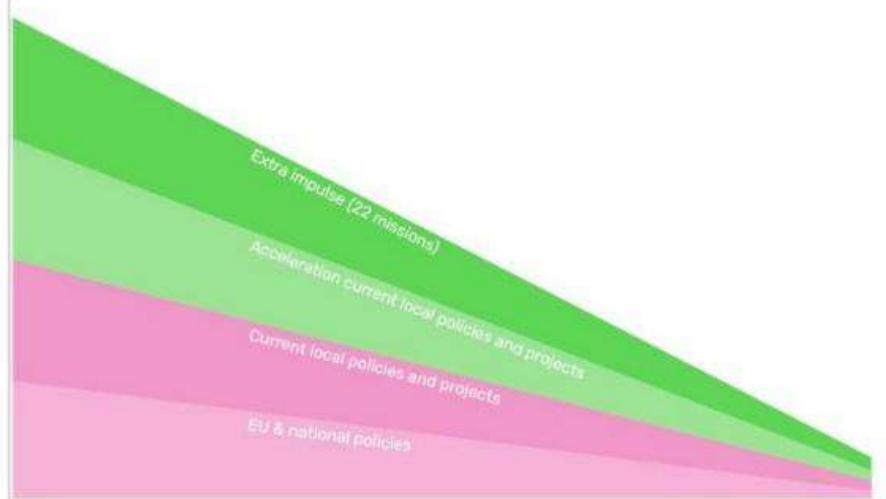
The municipalities of Eindhoven and Helmond understand that the transition towards climate neutrality is a joint effort. On the one hand, this is true when it comes to the different (political) levels at which climate action is pursued. Climate neutrality policies are put in place both at the European 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

APPROACH REACHING CO₂ REDUCTION



EU / National policies	Current policies and projects at National and EU level which are <u>already</u> being implemented.	Based on a <u>sectoral</u> approach: - Built environment - Mobility - Industry divided into 12 investment actions.
Current local policies and projects	Current policies and projects at regional and local level which are <u>already</u> 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.	
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.

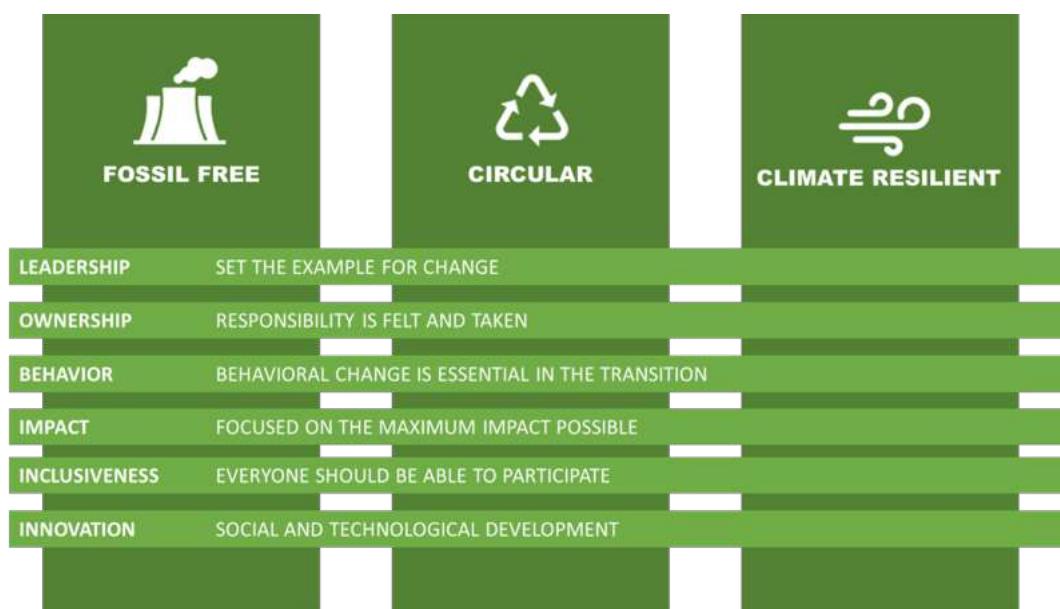


Figure 1.1: Spearheads and guiding principles

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.

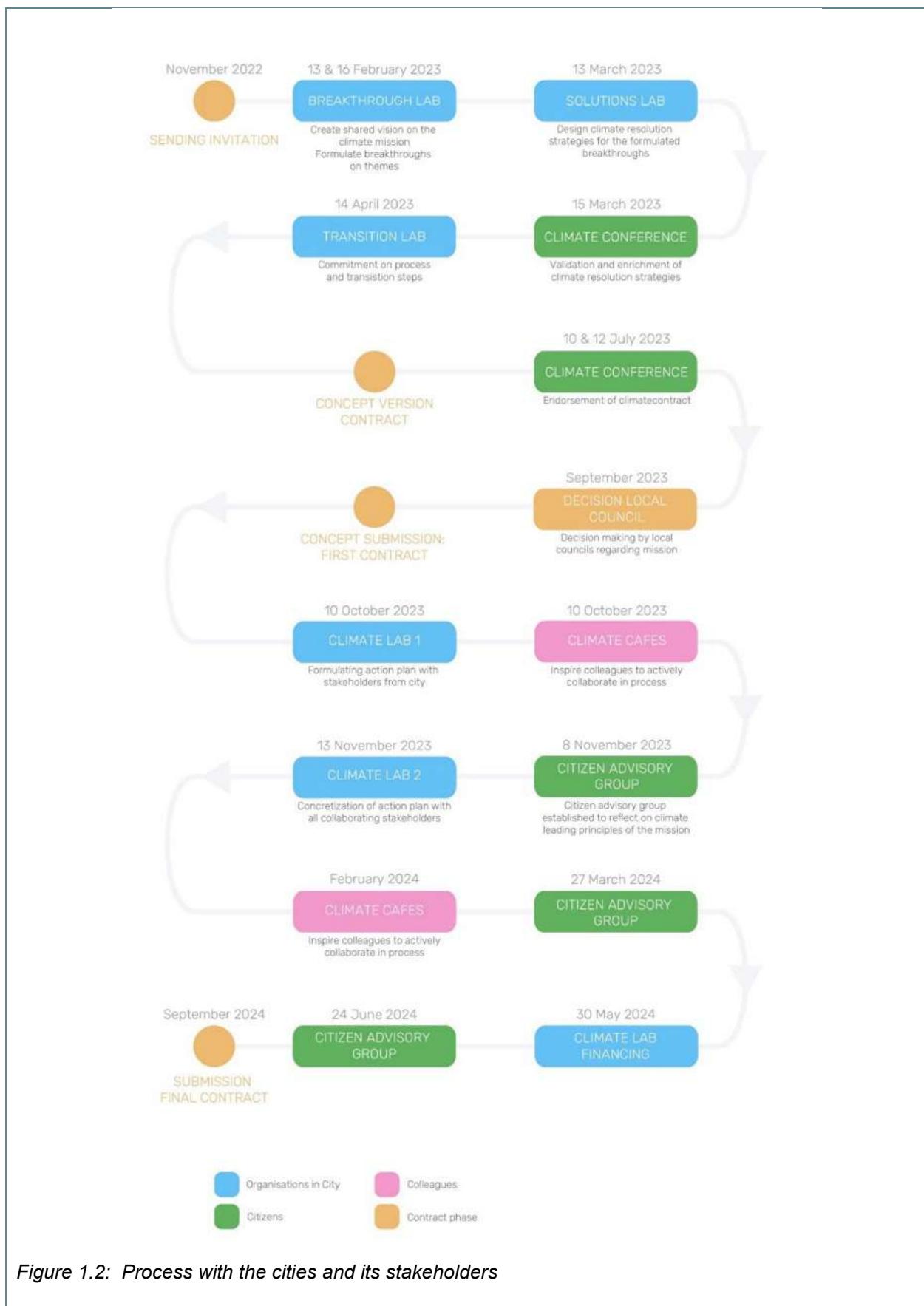


Figure 1.2: Process with the cities and its stakeholders



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.

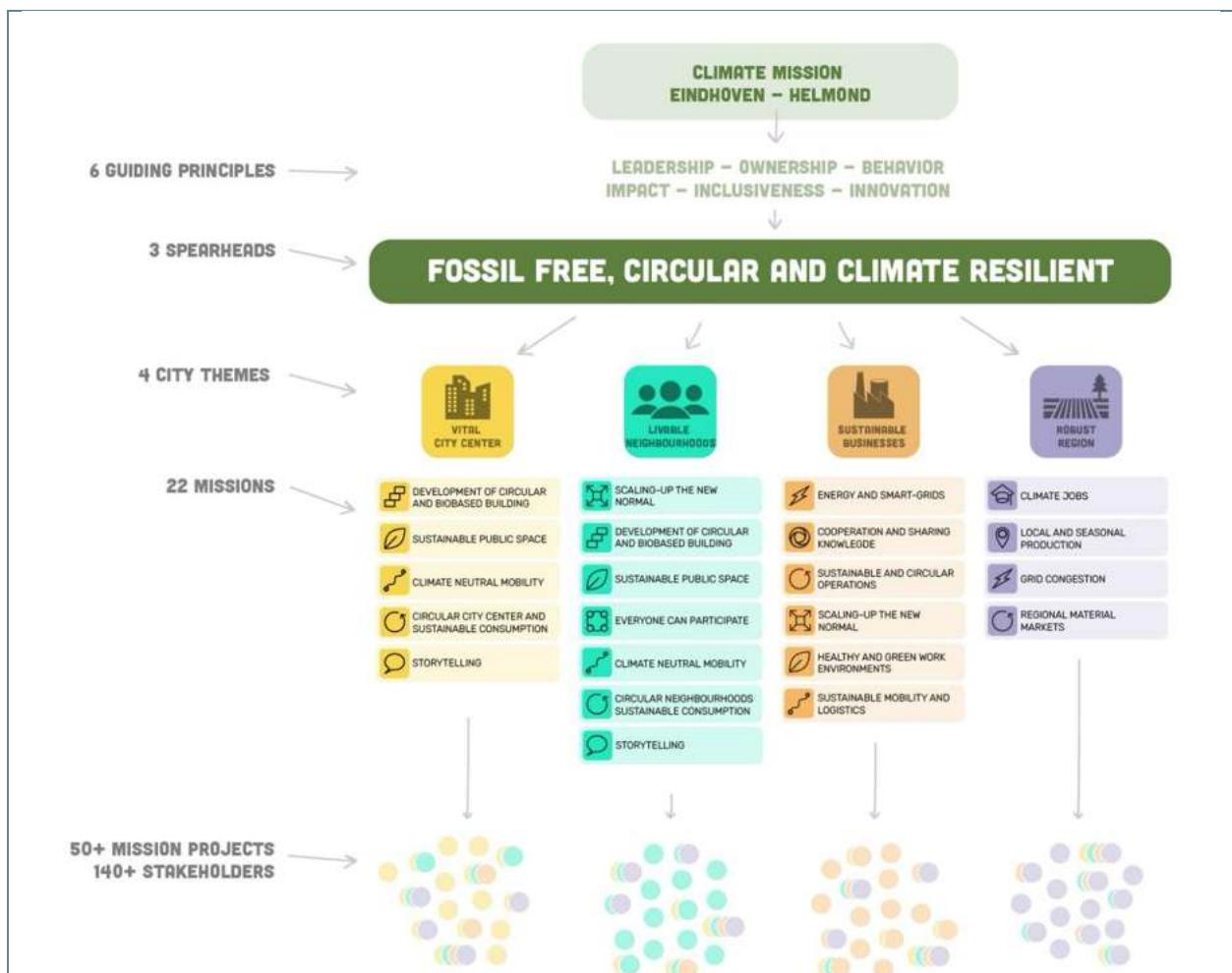


Figure 1.4: Four city themes, twenty-two missions, existing and new projects

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

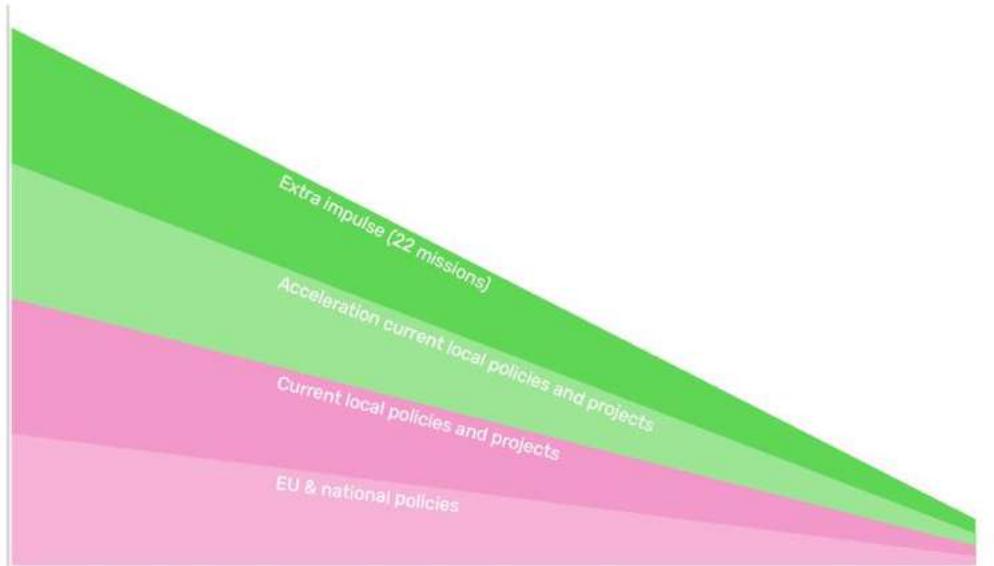


Figure 1.5: Approach on reaching CO₂-reduction Eindhoven-Helmond



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)

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.

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

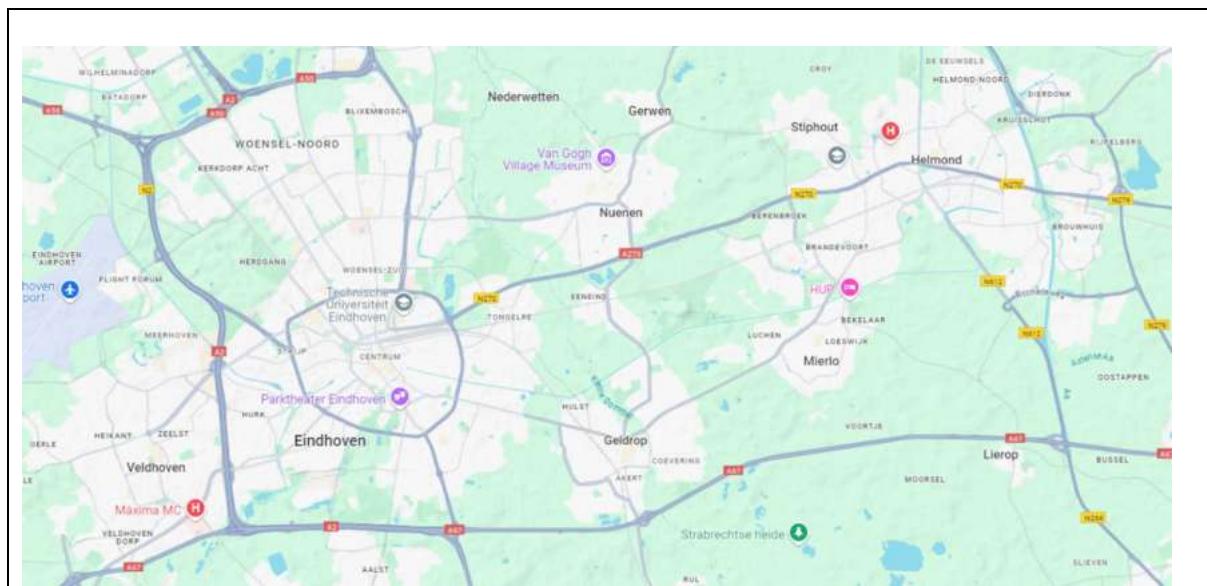
Future updates of the Climate City Contract

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 Platform website. 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.

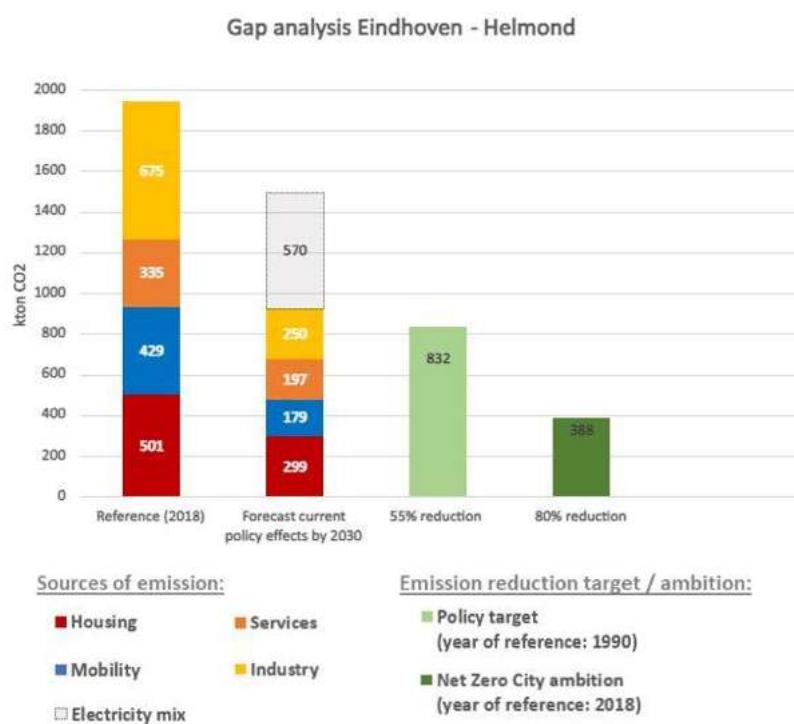


Figure A-1.1: Baseline and forecast of effects of current policy regarding CO₂ emissions

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.

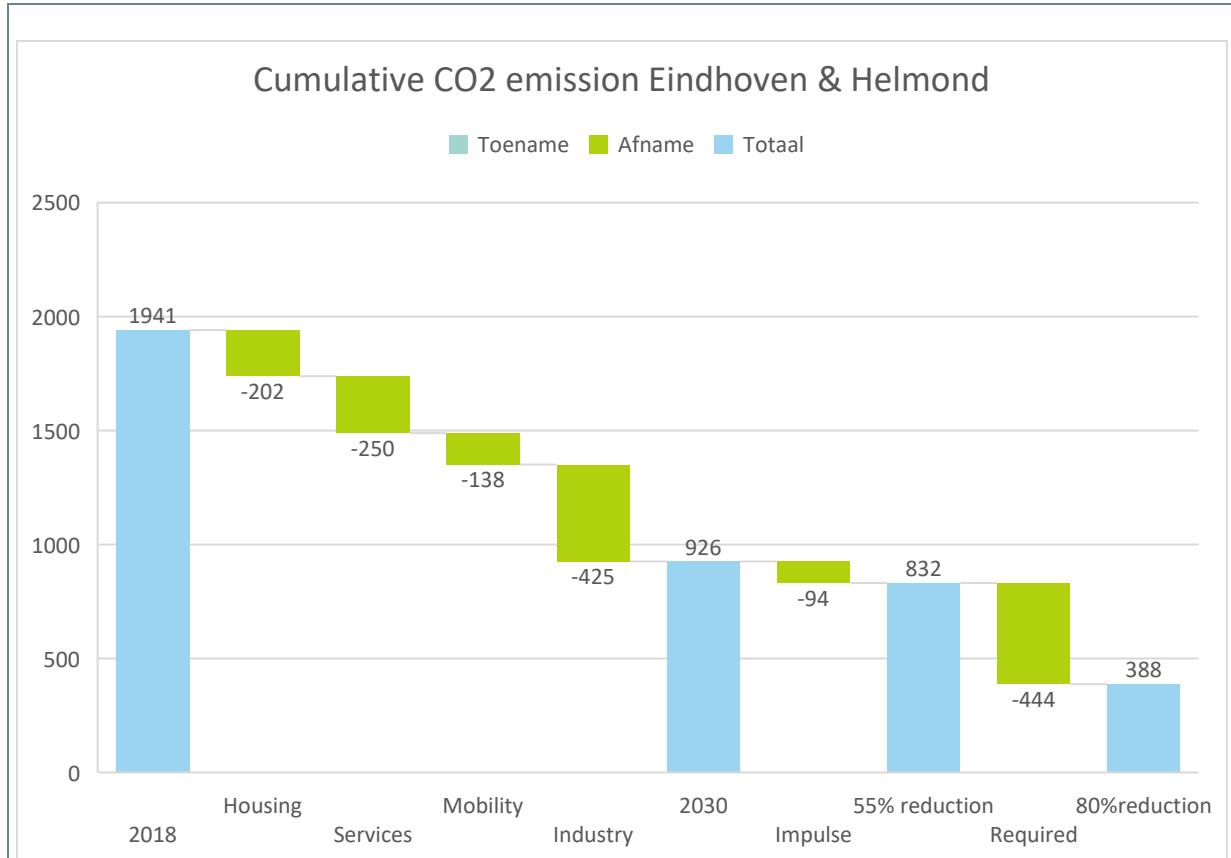


Figure A-1.2: Cumulative effect of forecasted current policy regarding CO₂ emissions

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. Nationale 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, home-owners	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. <u>Stichting Steenbreek Samen van versterking naar vergroening</u>
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	Energieloket, 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 and 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).		<p>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.</p> <p>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.</p>		(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 the 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.
National collaboration	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.
	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



			<p>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.</p>
	<p>All lights are green (Alle Lichten op Groen)</p>	Medium	<p>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 CO₂ emissions and more space for high-quality greenery and water. These are the ambitions in Helmond for which all lights go green.</p>
	<p>Struikroven</p>	Low	<p>Medium. Struikroven save existing greenery from front and back gardens and give it a new purpose in the area.</p>
	<p>Living Lab 040</p>	Medium	<p>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 8500m² with 119 experimental homes in an equally experimental area.</p>
	<p>Climate Grandparents (grootouders voor het klimaat)</p>	Medium	<p>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.</p>
	<p>Nature Platform Helmond (Natuurplatform Helmond)</p>	Medium	<p>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.</p>
	<p>Youth Council (Jeugdgemeenteraad Helmond)</p>	Medium	<p>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.</p>
	<p>Youth Council (Jeugdraad Eindhoven)</p>	Medium	<p>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.</p>
	<p>Young 040 (Jong040 Eindhoven)</p>	Medium	<p>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.</p>



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. Development 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 	<i>Buildings Transport Waste</i>
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 	



MISSION: 5. Sustainable public space in the city center	<ul style="list-style-type: none"> Policy and regulations Finance/investment Collaboration Technical innovation Social innovation 	Vision and implementation program <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. 	Implementation <ul style="list-style-type: none"> Creating more space for green and water. Scale-up climate-adaptive solutions. 	Indirect (scope 3)	<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 	<i>Buildings Transport Waste</i>
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:
LIVABLE NEIGHBOURHOODS**

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: 6. Storytelling	<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 buildings, transport and waste)	<ul style="list-style-type: none"> Awareness More sustainable behaviour 	
MISSION: 7. Circular Neighbourhoods and sustainable consumption	<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 neighbourhoods. 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:	<ul style="list-style-type: none"> Capacity Finance/Investment Collaboration 	Develop a collective approach <ul style="list-style-type: none"> Making our existing rental and owner-occupied homes more sustainable on a 	Upscaling <ul style="list-style-type: none"> Jointly implement the collective approach and roadmap for renovation (NIP). 	Indirect (scope 3)	<ul style="list-style-type: none"> Improvement of the comfort of dwellings Lowering energy bills 	



8. Scaling up the new normal	<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. 				Buildings Transport Waste
MISSION: 9. Development of circular and biobased building	<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. 	Indirect (influence on buildings en waste)	<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: 10. Climate neutral mobility in the neighbourhoods	<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. ▪ 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. 	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 	
MISSION: 11. Everyone can participate	<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. 	Indirect (influence on buildings and waste)	<ul style="list-style-type: none"> ▪ Awareness ▪ Reducing social inequality ▪ Large support for the mission 	
MISSION: 12. Sustainable public space	<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. 	Indirect (CO ₂ capturing)	<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: Buildings Transport Waste IPPU



MISSION: 15. Sustainable Mobility and Logistics <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. ▪ Zero-Emission Logistics. ▪ Starting with the quick wins. 	Implementation <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. 	Scope 1	<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 	<i>Buildings Transport Waste IPPU</i>
	MISSION: 16. Healthy and Green Work Environments <ul style="list-style-type: none"> ▪ Policy and regulations ▪ Financing/investment ▪ Collaboration ▪ Social and Technological Innovation 	Develop a collective approach <ul style="list-style-type: none"> ▪ Implement a knowledge bank ▪ Explore financial opportunities ▪ Start with no-regret ▪ Collective employer approach 	Upscaling <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. 	Indirect (capturing CO ₂)	<ul style="list-style-type: none"> ▪ More attractive work-environments ▪ Health improvement ▪ Prevent a 'heat-island effect'. ▪ Mitigate effects of extreme weather
	MISSION: 17. Energy and Smart Grids <ul style="list-style-type: none"> ▪ Financing/Investment ▪ Technological innovation ▪ Collaboration ▪ Policy and regulations ▪ Information and data ▪ Knowledge 	Develop Smart Energy Solutions <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. 	Upscaling <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. 	Scope 2	<ul style="list-style-type: none"> ▪ Self-sustainable energy consumption ▪ Less usage of existing infrastructure ▪ New business models
	MISSION: 18. Cooperation and Sharing Knowledge <ul style="list-style-type: none"> ▪ Policy and regulations ▪ Financing/Investment ▪ Collaboration ▪ Information and data ▪ Capacity ▪ Knowledge 	Develop awareness <ul style="list-style-type: none"> ▪ Start an awareness campaign ▪ Start a strong ambassador network ▪ Knowledge-transfer 	Upscaling <ul style="list-style-type: none"> ▪ Linking education and business along impactful transition lines ▪ Implement a uniform monitoring system 	Indirect (influence on all sectors)	<ul style="list-style-type: none"> ▪ Cross-over in innovations
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"> ▪ Lowering energy bills for businesses ▪ More attractive industrial areas ▪ Health improvement ▪ Reduction of noise and air pollution



					Less effect due to gridcongestion	
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 	<p>Awareness and market development</p> <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. 	<p>Upscaling</p> <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 	<p>Feasibility study</p> <p>Investigating the possibility of a regional raw materials market.</p>	<p>Implementation</p> <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. <p>A new way of tendering: CO2-driven instead of cost-driven.</p>	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 	<p>Optimise available grid capacity</p> <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. <p>Expand pilots and local solutions.</p>	<p>Expand grid capacity</p> <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 	<p>Human Capital Agenda</p> <ul style="list-style-type: none"> ▪ Make a human capital agenda with partners (government, education and business). <p>Include sustainability themes in education.</p>	<p>Implementation</p> <ul style="list-style-type: none"> ▪ Transition to 'more manpower'. Live-long learning and working. 	Indirect	<ul style="list-style-type: none"> ▪ Job creation 	



EXISTING POLICIES AND PROJECTS	<ul style="list-style-type: none"> ▪ Finance/Investments ▪ Capacity ▪ Collaboration ▪ Policy and regulations ▪ Behavioral change 	Explore and develop strategies for speeding up existing policies and projects.	Accelerating existing policies and projects on renewable energy, gridcongestion, circularity and jobs.	Scope 1+2	<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 	Sectors: Waste IPPU AFOLU

**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	<ul style="list-style-type: none"> - Insulation of Homes - Alternative Heating & Cooling in Homes <p>Main responsible stakeholders: Citizens</p>
	2. Modifications to Non-Residential Buildings	<ul style="list-style-type: none"> - Insulation of Utilities & Other Buildings - Alternative Heating & Cooling in Utilities & Other Buildings <p>Responsible stakeholders: Mainly public organizations and companies</p>
	3. Alternative Energy Systems & Infrastructure	<ul style="list-style-type: none"> - Removal of Gas Infrastructure - Deployment of Alternative Heating and Electricity Infrastructure <p>Main responsible stakeholders: Energy companies and utility providers</p>
Mobility	4. Sustainable Vehicle Fleet	<ul style="list-style-type: none"> ZE-ring (47K Vehicles) <p>Main responsible stakeholders: Citizens and companies</p>
	5. Charging Infrastructure	<ul style="list-style-type: none"> - Charging Infrastructure (9000 Stations) <p>Main responsible stakeholders: Municipalities and utility providers</p>
	6. Zero Emission Zones/ Low-Traffic City Centre	<ul style="list-style-type: none"> - Creating Low Traffic Zones <p>Main responsible stakeholder: Municipality</p>
	7. Modal Shift	<ul style="list-style-type: none"> - Alternative Transport (Transferia, Bicycle Stations) <p>Main responsible stakeholder: Municipality and transport industry</p>
	8. Incentive Programmes	<ul style="list-style-type: none"> - Setting up Incentive Programmes (smart grids etc.) <p>Main responsible stakeholders: Municipalities and utility providers</p>
Industry	9. Heat Infrastructure	<ul style="list-style-type: none"> - Adjustment Heating infrastructure - Adjustment Electricity infrastructure <p>Main responsible stakeholders: Municipalities and utility providers</p>
	10. Interventions in Companies & Processes	<ul style="list-style-type: none"> - Adjustments to Companies and Processes: MJA, EML, EED <p>Main responsible stakeholders: Municipalities and utility providers</p>
	11. Energy Transition Projects	<ul style="list-style-type: none"> - Sustainable Energy Projects <p>Main responsible stakeholders: Municipalities and utility providers</p>
	12. Electrification	<ul style="list-style-type: none"> - Electrification Industry (Phasing Out Natural Gas in Company Processes) <p>Main responsible stakeholders: Municipalities, companies and utility providers</p>



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 investments 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 CO2e 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 CO2e 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		
• Reduction of emissions	CO2 emissions mobility	kton CO2
• 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
• 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
• Mobility safety	Traffic safety - car accidents	Number of serious accidents per year
• 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
• 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
• 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



• 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)
• 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 futher 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
(Indicate name of intervention)	(Describe the substance of the intervention)	(Refer to barriers and opportunities)	(List leaders and all stakeholder involved and affected,	(Describe how intervention enables climate neutrality)	(Indicate how intervention helps achieve



		<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, circulair 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-succed') 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 Behavioral 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

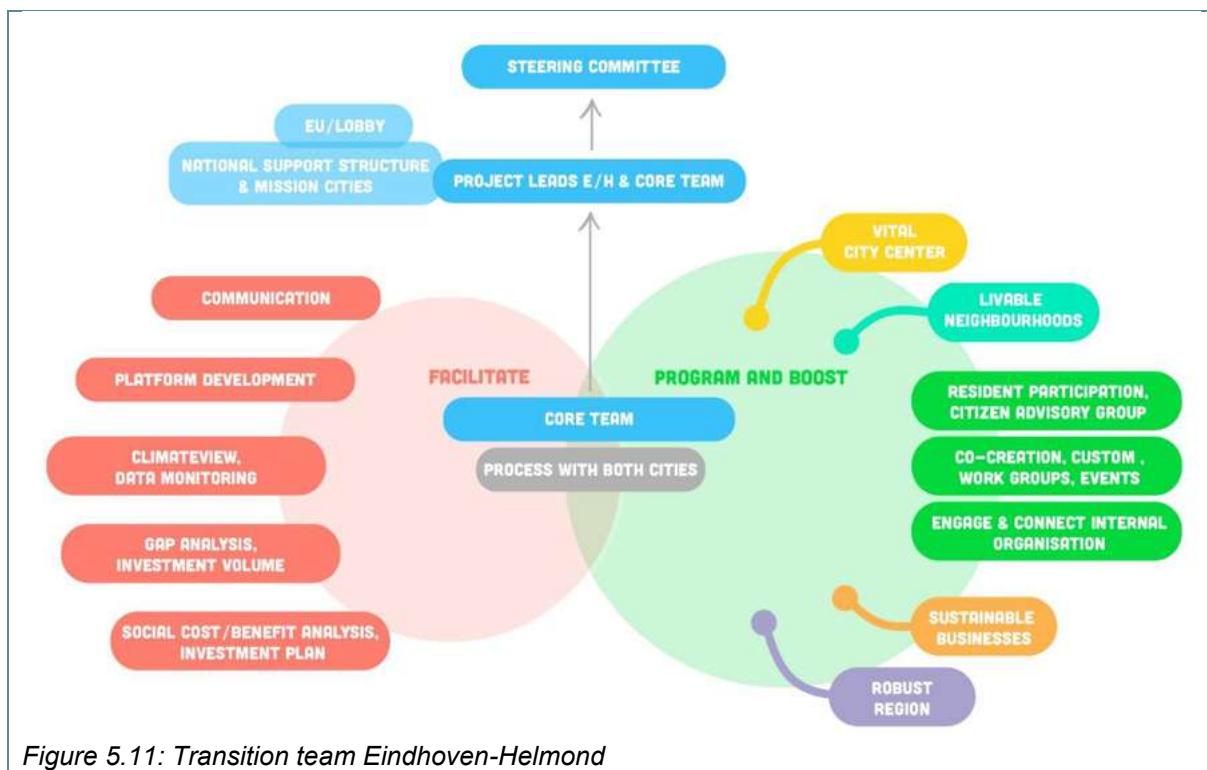
A Citizens Advisory Group group has been set up to help guide the further process of the Climate City Contract.

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.





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.

New Annex: Request for clarification and for additional information by EC/JRC July-September 2025

NB This Annex is uploaded as a separate document in the NZC-portal and not included in this 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.

FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
 FOSSIL FREE	 CIRCULAR	 CLIMATE RESILIENT
	✓✓	👍
Promote long-term behaviour change and actions	Promote long-term behaviour change and actions	Promote long-term behaviour change and actions



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

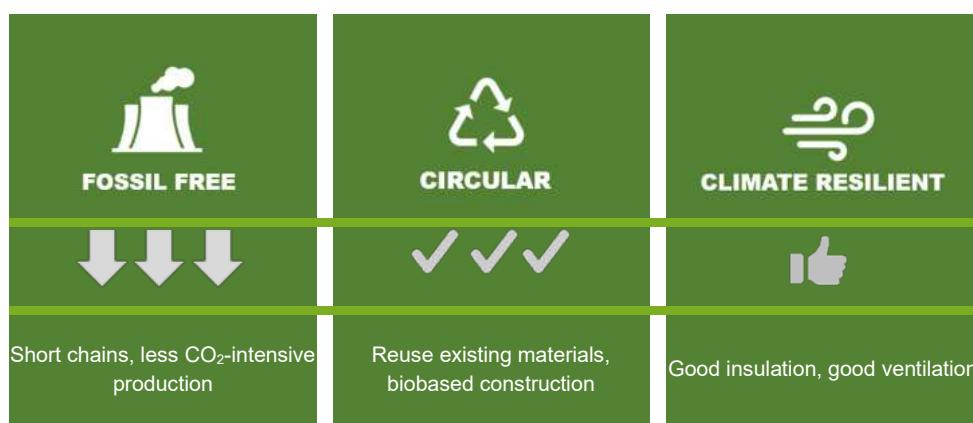
The inner cities of Helmond and Eindhoven have a major urbanization challenge. To ensure that the associated new buildings doesn't lead to an increase in CO₂ emissions (we are not building the city of yesterday for tomorrow), the starting point is to build (in phases) only biobased, circular and climate-neutral. 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 built 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

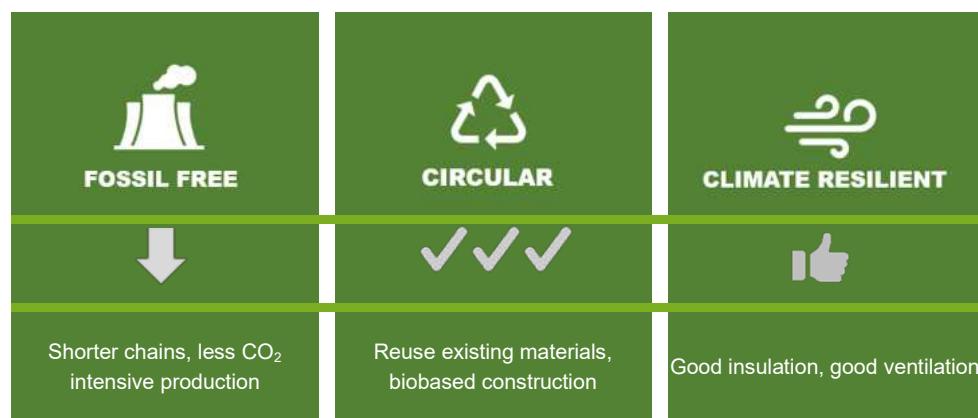
To ensure that new building in neighbourhoods do not lead to an increase in CO₂ emissions, the starting point is to only build biobased, circular and climate neutral. This means reuse of materials before new production. If new materials are used, there should be as little CO₂ emissions as possible and 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.

FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
 FOSSIL FREE	 CIRCULAR	 CLIMATE RESILIENT
		
Green electricity mix, reduction of emissions	Fewer new means of transport needed	More space for green



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

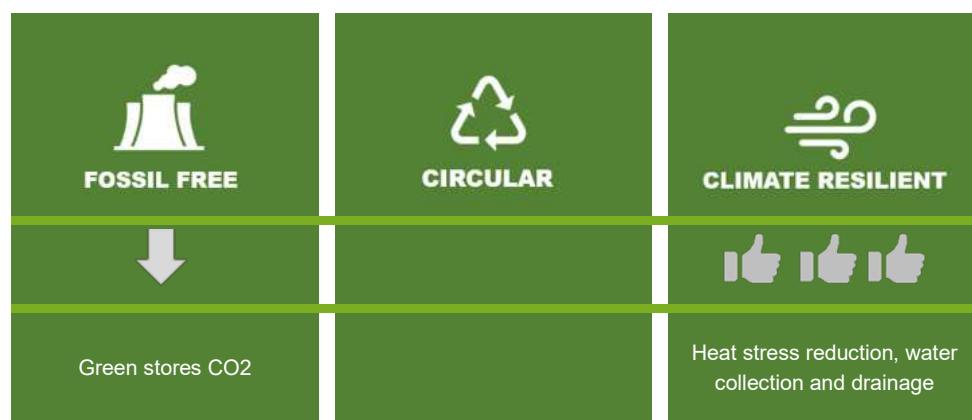
Water and greenery form the basis for the public space in the neighbourhoods. A green, sustainable and healthy neighbourhood has an important function for social activities, shopping and recreation. This is done in two ways. On the one hand, space must be made available for sustainability. This can be 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

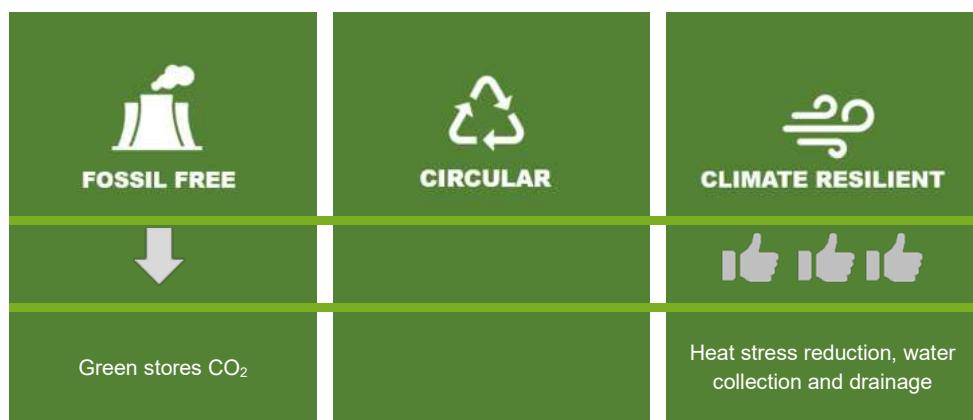
On business areas, the risk of flooding and heat is often high because there is little green and a lot of paved surfaces. Damage and nuisance caused by climate change on business areas can be prevented by making them green and shady. This makes business parks more climate-resistant and increases the 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.

FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
 FOSSIL FREE	 CIRCULAR	 CLIMATE RESILIENT
		
Promote knowledge exchange and long-term behaviour and change in business operations	Promote knowledge exchange and long-term behaviour and change in business operations	Promote knowledge exchange and long-term behaviour and change in business operations



**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'.

 FOSSIL FREE	 CIRCULAR	 CLIMATE RESILIENT
		
Less emissions due to shorter chains	More attention to sustainability 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

FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
 FOSSIL FREE 	 CIRCULAR 	 CLIMATE RESILIENT 
Less use of primary raw materials and less transport	More reuse of materials	Indirectly through reduced need for primary raw materials



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

FOSSIL FREE	CIRCULAR	CLIMATE RESILIENT
		
Sufficient implementation capacity	Sufficient implementation capacity	Sufficient implementation capacity



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.

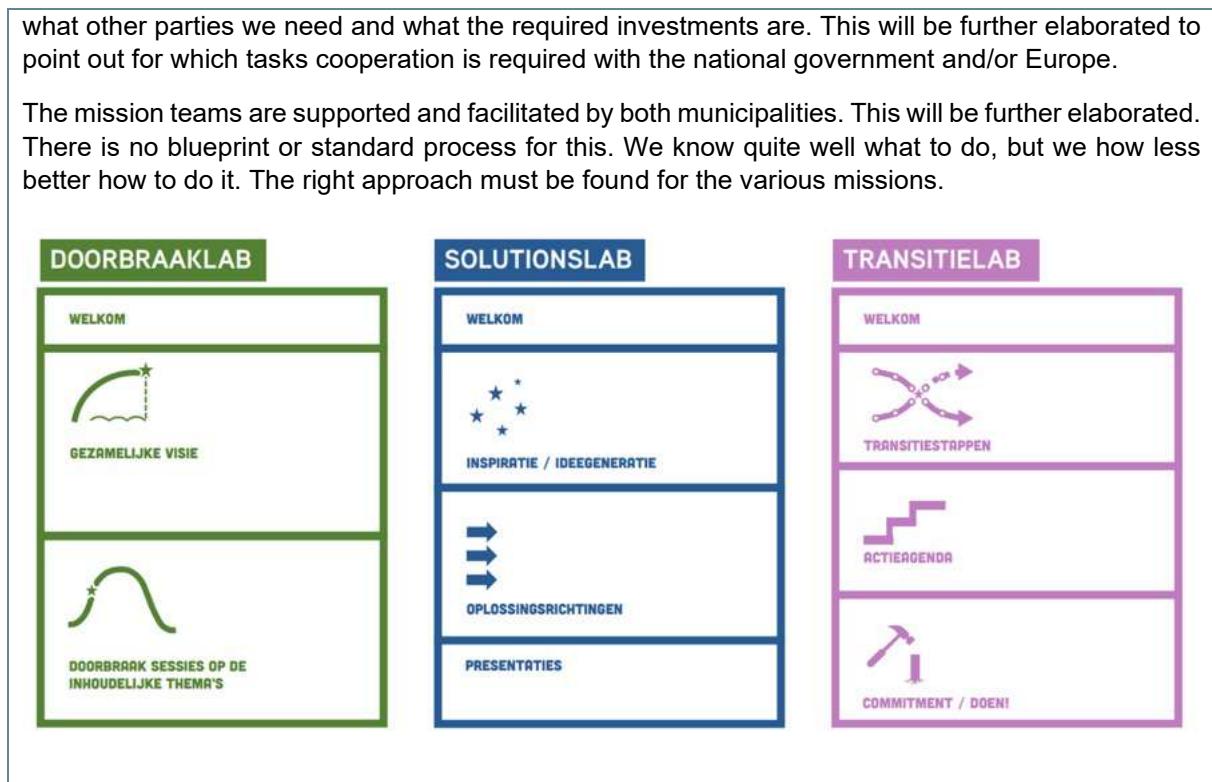
From dialogue to cooperation

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:

- [Verslag_Doorbraaklab_Helmond](#)
- [Verslag_Doorbraaklab_Eindhoven](#)
- [Verslag_Solutionslab](#)
- [Verslag_Transitielab](#)

Annex Request for clarification and for additional information by EC and JRC

July-September 2025

Introduction

The review of the Climate Action Plan of the Cities of Eindhoven & Helmond has led to questions regarding:

1. The exclusions and inclusions in emissions targets and inventories;
2. The residual emissions by 2030 and the residual emissions strategy;
3. The potential impact of all actions incl. the additional actions that are being considered;
4. The refinement of emissions gap table.

In this Annex we clarify our baseline inventory and target, our emissions gap table and our strategy to reduce and compensate the residual emissions including the quantification of individual actions/measures on reduction. We also describe how we will scout for additional data to fill the remaining gaps and continuously improve our Climate City Contract and Climate Action plan. The annex is linked to the CCC and forms an integral part of it (see reference in the CCC). Where there is a difference between information provided in the CCC and the annex, the information in the annex is leading. We want to underline our commitment to the mission goal of accelerating the climate transition.

The results of the review by JRC have made us realize that our next iteration of the Climate Action Plan has to be more in line with the provided format compared to the current version of the Action Plan. The way we've developed Climate Action Plan (with the 4 city themes, the 22 missions and the 12 investment actions to accelerate current policies) has been extremely helpful when it comes to stakeholder engagement and an integral approach to fossil free, circular and climate resilient cities. However, it has made our Climate Action Plan apparently less clear for reviewers since we needed to strike balance between our narrative for the engagement of stakeholders in the mission and the way to make the metrics fit with the template of the Action Plan. In the paragraphs below we will enlighten our approach to further improvements and clarifications.

1. Exclusions and inclusions

In module A1 (Greenhouse Gas Emissions Baseline Inventory) of our Climate Action Plan we've presented our baseline inventory (base year 2018) in which we've included energy-related CO₂-emissions for housing, services, mobility and industry, including the facilities for the treatment of waste and wastewater. In our national monitor data on energy use of buildings and data on energy use of processes can't be separated. That's why we've chosen to report the aggregated energy-related CO₂-emissions (buildings, transport and processes) as follows:

Sector	Reported under	Scope
Housing	Buildings – residential	1 and 2
Services	Buildings – non-residential	1 and 2
Mobility	Transport	1
Industry, including facilities for treatment of waste and wastewater	Industrial Process and Product Use (IPPU)	1 and 2

We understand that this leads to questions. That's why we will consider reporting the energy use of all buildings under stationary energy in the next iterations of the CCC in line with international practice.

Our baseline inventory covers the entire administrative territory of both cities, excluding national motorways, air traffic and shipping. In response to the comments made by the JRC we provide some extra clarification about other exclusions below.

Waste/wastewater

In our 'Expression of Interest' we confirmed that we would include the scope 3 emissions associated with waste/wastewater, as outlined in the Info Kit. The information for residual (remaining, non-recycled) household waste is available for our base year 2018:

City	Amount of residual household waste (ton)
Eindhoven	54.532
Helmond	22.908
Total	77.440

Source: <https://afvalmonitor.databank.nl>

With an (average) emission factor of 520 kilogram CO₂ per ton residual household waste this leads to: 40 kton CO₂. Compared to our reported total emission of 1.940 kton CO₂ the contribution is very limited (ca. 2%). It is likely that household waste contributes marginally to all waste and wastewater scope 3 emissions. But at the moment we don't have reliable data for:

- Commercial/industrial waste;
- Wastewater.

In consultation with business representatives (commercial and industrial waste) and wastewater facility managers we will work on completing the scope 3 data and strive to include them in the following iteration of our Action Plan (both the inventory and the target/gap-analysis). Although we've failed to include the scope 3 emissions of waste/wastewater in our first baseline inventory, actions that lead to the reduction of scope 3 emissions reduction are already part of our climate action portfolio (current policies, acceleration and 22 missions). A few examples:

- Existing policy plans on circularity and the reduction of residual (remaining, non-recycled) household waste;
- Green deals such as the Green Deals Health Care;
- Missions and concrete projects focusing on circularity (e.g. the collection of industrial waste and the realization of circular hubs, see Knaphe.nl).

At the moment we can't quantify the CO₂-effect of the scope 3 measures (see 3. Impact of Actions), but we are working towards more insights.

Non-energy related CO₂-emissions and other GHG emissions

The non-energy related CO₂-emissions and the other GHG emissions of all sectors (e.g. waste, IPPU and AFOLU) are not included in our first Action Plan. The required information for the baseline wasn't available when our CCC was developed. In the meantime this has changed, although the information is still incomplete for our base year 2018). See below for the data available at this moment (kton CO₂ and CO₂-eq in 2019):

	Eindhoven	Helmond	Total
Non-energy CO ₂ -emission total	37,3	13,8	51,1

Source: <https://klimaatmonitor.databank.nl>

	Eindhoven	Helmond	Total
Other GHG emissions Buildings	9,0	3,1	12,1
Other GHG emissions Transport	10,4	3,1	13,5
Other GHG emissions Industry	21,1	1,3	22,4
Other GHG emissions Agriculture	3,8	14,3	18,1
Other GHG emissions other	4,7	3,3	8,0
Other GHG emissions total	49,0	25,1	74,1

Source: <https://klimaatmonitor.databank.nl>

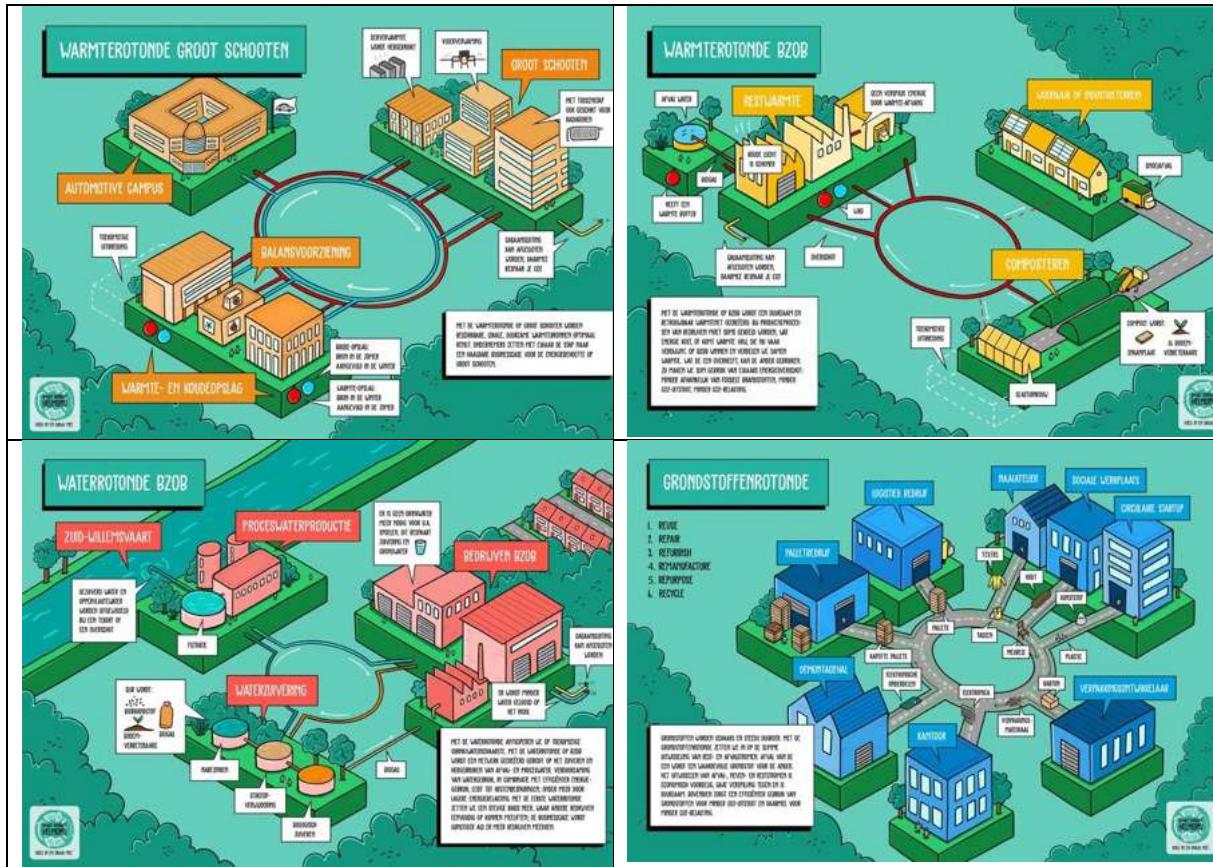
We will work on completing the data and bridge the data gaps, so that non-energy CO₂ emissions and other GHG emissions can be included in the baseline, the targets (including the gap-analysis) and the action portfolio. We will aim to include relevant emissions and actions as soon as possible in the iterations of the CCC.

We emphasize that current national policies and sectoral plans like the ‘Betonakkoord’ (concrete and cement industry) already lead to a reduction of non-energy CO₂-emissions. Projects related to our 22 missions (like the Regional Materials Network) also attribute to this. At the moment we can't quantify the effect of measures focusing on non-energy related CO₂-emissions and other GHG-emissions (see 3. Impact of Actions), but we are working towards more insights.

IPPU and AFOLU

As stated above, we've only included energy-related CO₂-emissions for the industry (buildings and processes) and reported them under IPPU in our first CCC. To address the concerns of the JRC we will make sure that in the next iteration of the CCC we will bridge the data gaps and include the IPPU-emissions in the inventory, the target and the actions. Actions that lead to reduction of all industry related emissions are already part of our climate action portfolio (current policies, acceleration and 22 missions). A few examples:

- Existing approach to enforce national sustainability standards for companies;
- Collaborations on industrial areas to scale up sustainable business areas (e.g. Grote Oogst);
- Missions and concrete projects focusing on industry (e.g. the ‘material roundabout’ and the realization of circular hubs and smart grids, see Knaphe.nl) on e.g. saving energy, saving water, reduce CO₂-emissions and the re-use of raw materials.



Some of the actions are part of the 12 investment actions that are already quantified (see 3. Impact of Actions). Others can't be quantified yet, but we are working towards more insights based on the concrete business cases which are currently under development.

The agricultural sector in Eindhoven and Helmond is extremely small and the emissions of CO₂ and other GHG are limited. That's why we have chosen to exclude them in our first CCC. At the same time we plan to use AFOLU sinks to get to net-zero (see 2. Residual Emission Strategy) and we've already reported some negative emissions for Helmond in module A1 (Greenhouse Gas Emissions Baseline Inventory) of our Climate Action Plan. We will work on completing the AFOLU-information:

- All emissions (CO₂ and other GHG);
- Actions/initiatives to reduce the emissions (mostly based on national policies);
- AFOLU carbon sinks as part of the residual emissions strategy.

Transport

As stated above, we've included scope 1 emissions for mobility in our first CCC and reported them under Transport. We realize that the scope 2 emissions of transport, related to the consumption of electricity for electric vehicles, are growing and are becoming a more essential part of the total transport emissions. In our base year (2018) this was not the case and at the time we developed our CCC, detailed information wasn't available. The information about scope 2 emissions of (semi)public charging stations has become available recently: 1,1 kton CO₂ in 2019 (2018 is not available). A national survey of Elaad.nl shows that in 2020 about a third (34%) of the 'electric kilometers' were charged at public charging stations. There's no information about that percentage for 2018, but based on the figures mentioned above we can state that the total scope 2 emissions for transport in 2018

were small. We expect to gain more insight in this important part of the total transport emissions and include this in the next iteration of our CCC. This means that we commit to including all scope 2 emissions in the inventory and the target in this next iteration and design actions to reduce the emissions.

ETS facilities

ETS facilities are not included in the target and the baseline inventory.

2. Residual emissions and the residual emissions strategy

Like all Dutch mission cities we are still eager to realize the ambition of the '100 Climate-Neutral and Smart Cities Mission' (climate neutrality by 2030). However, as summarized in the joint statement of the Dutch Cities, we question the feasibility of achieving full climate neutrality by 2030 considering current systemic barriers, such as national policies, infrastructure constraints, labor market constraints and a (lack of) funding mechanisms. It's not a lack of commitment that's hindering us to achieve climate neutrality by 2030, but boundary conditions and systemic barriers beyond our direct control. Holding an unrealistic target is in conflict with a city's legal obligation of good governance. That's why we strive for at least 80% emission reduction by 2035, with an interim target of at least 55% reduction by 2030.

With an acceleration of current local policies (investment actions) and the start of new missions and projects we aim to achieve an emission reduction of 80% by 2035, as described in our Action Plan (see 3. Impact of actions). We've also stated that we remain committed to collaborating with local stakeholders, governments and institutional bodies to accelerate the mitigation process through further actions and ultimately bring the 80% goal closer to 2030. But most probably, there will still be residual emissions in 2030/2035.

Although we haven't explicitly described specific compensation measures to address these residual emissions, our climate adaptation measures will certainly contribute to it. As described in our Action Plan (current policies on adaptation, 22 missions, journey towards climate resilience) we have plans to improve the green and blue infrastructure in our cities, especially when it comes to public space, neighborhoods and industrial areas. In addition to that, the project 'Van land naar pand' (Building Balance: biobased building) stimulates carbon capture on agricultural land. We don't have complete calculations on the carbon capture potential of these plans and projects yet (only some estimates, see 3 and 4), but we realise that it's limited and we will need other solutions.

That's why we will explore carbon compensation measures and develop a suitable residual emissions strategy to 100% climate neutrality which we will include in the first iteration of our Action Plan. To be more specific we will...

- use our monitoring tools to re-assess the residual emissions in 2030 and 2035 on a two-yearly basis and improve the level of detail (sectoral contributions);
- estimate the carbon capture impact of our existing policies and additional plans and projects, including the missions that attribute to compensation;
- explore the effectiveness and impact of additional compensation measures such as:
 - a) participation in carbon sink projects, preferably in our cities/region, but if necessary also outside our territory (peatland restoration in De Peel, reforestation through the

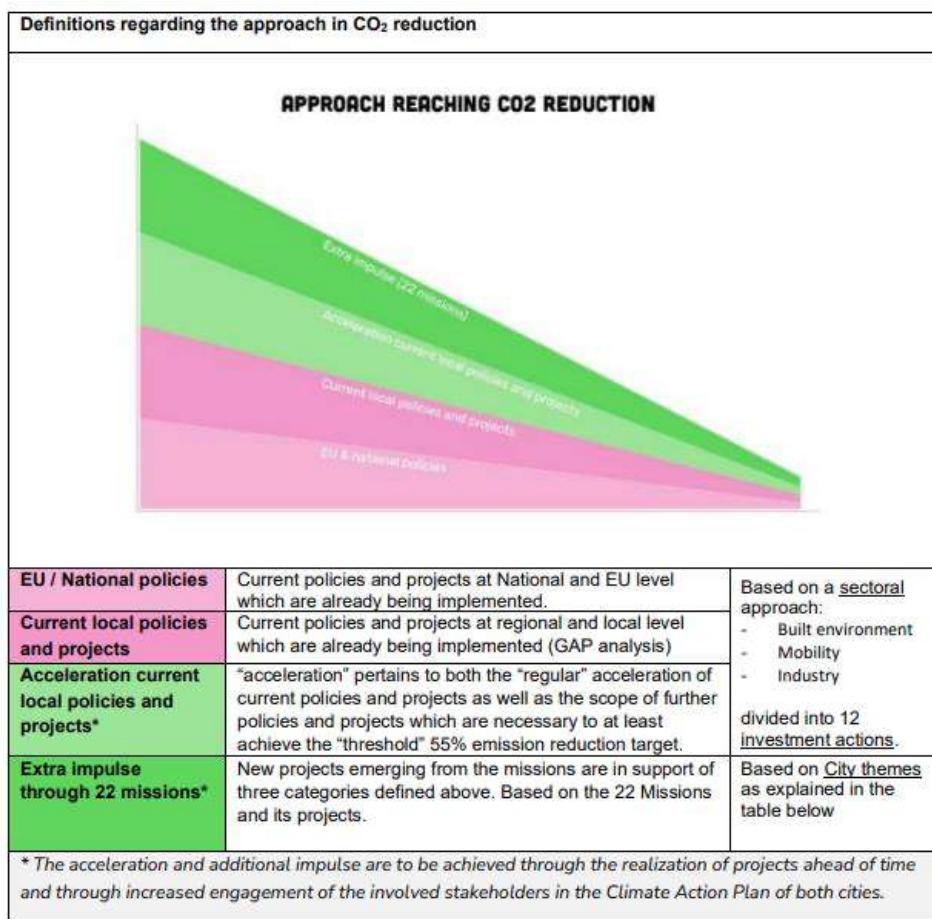
Trees for Netherlands or Trees for All programs, carbon sequestration on agricultural land).

- b) more innovative/technological carbon capture initiatives such as the Eindhoven based Dutch Direct Air Capture (DAC) company Carbyon. They launch their first demonstrator in 2025 and aim to scale up manufacturing capacity to 50,000 systems per year with a capacity of 50t each by 2031.
- c) investing in carbon credits.

At this stage we cannot commit ourselves to specific measures and a timeline to implement them nor can we estimate the amount of CO₂ addressed by the measures under a, b and c. But we will explore and develop an additional strategy which we will describe in the first iteration of the CCC.

3. Impact of actions

Our approach in CO₂-reduction can be summarized by the figure below:



In order to accelerate the current policies and projects we've identified 12 investment actions of which we have quantified the estimated impact until 2030. In attachment A to this annex we specify these quantifications (including motivation and sources). Until 2030 the sum of the emission reduction attributed to the 12 investment actions leads to 1.049 kton CO₂ reduction, which represents ca. 55% of the 2018 baseline emissions (energy-related CO₂-emission). The acceleration of our current policies and projects through the investment actions doesn't stop in 2030, but continues in the period between 2030 and 2035 working towards an overall CO₂ reduction of at least 80%.

Next to the 12 investment actions, we've identified 22 missions and new projects with stakeholders emerging from those missions (see Attachment B). It's a growing portfolio of projects of which a large part has already started. The impact of the missions and mission projects is harder to determine and most of them cannot yet be quantified exactly. In Attachment B we've already given some estimates, for projects focusing on the development of circular and biobased buildings (carbon capture), the further acceleration of our health program (extra impulse), climate neutral mobility including behavioral change and the development of smart grids (619 kton). The projects have a high potential, but cannot be specified in detail. The rough estimates, that are far from complete, lead to an extra emission reduction and a residual emission of ca. 20% of the total (energy related CO₂-emissions and other emissions). As soon as extra acceleration of current policies and the additional mission projects can be quantified in more detail, we will include them in the tables and in our monitoring system ClimateView.

4. The refinement of emissions gap table.

Taken into account all the information provided above, we include a refined emission gap table below (all emissions in kton CO₂eq). We emphasize that we will include more complete/accurate information about scope 3 emissions for waste/wastewater, scope 2 emissions for transport, non-energy related CO₂-emissions and other GHG-emissions in our next iteration. We also emphasize that the extra impact mentioned in the penultimate column is based on rough estimates and far from complete.

Sector	Baseline 2018 ¹	Other emissions ²	Impact 12 investment actions (2030) ³	Estimates extra impact, not complete ⁴	Residual emissions 2035 ⁵
Buildings -residential and services	930	12,4	468		
Transport	335	13,5	138		
Waste		40,0			
Industry – buildings and processes	675	22,4	443		
Agriculture – buildings and processes		18,1			
Non-energy CO ₂ and GHG undefined		59,1			
Total	1.940	165,2	1.049	618,8	437,4

1. Baseline 2018: energy-related CO₂-emissions for housing, services, mobility and industry
2. Other emissions: scope 3 waste/wastewater, scope 2 transport, non-energy CO₂ (2019), other GHG (2019), will be completed and included in the next iteration
3. Impact of 12 investment actions, designed to address energy-related CO₂-emissions (55% of baseline 2018)
4. Incomplete estimates: acceleration, mission projects on reduction and some compensation (carbon capture)
5. Residual emissions: current insights, other emissions (2) and estimates extra impact (4) not complete, 20% of baseline 2018 + other emissions

In the next iteration of our CCC we will provide a more clear and detailed gap analysis table, with an overview of the emissions reductions and residual emissions by 2030 and 2035 (CO₂ and other GHG), distributed across the different sectors which also includes the effects of our residual emissions strategy. As stated in the introduction of this annex, the chosen outline of our first Action Plan gives rise to unclarity and questions. That's why we will work on an iteration that is more in line with the provided format. Hence in the next iteration of the CCC we'll include a table which is fully consistent

with the target and provide a clear and concise overview of the emissions reduction and residual emissions by 2030, distributed across the different sectors and a second emissions gap table for 2035 to outline the ultimate climate neutrality goal.

Attachment A: Quantification of 12 investment actions (2030)

B-2.1: Description of action portfolios			Eindhoven	Helmond	Motivation and source	
Sector	Portfolio description					
	List of investment actions	Descriptions				
Built environment	1. Modifications to Residential Buildings	Insulation of Homes	23	3	Insulation approach (EBA/NIP and Energy Poverty): 19,885 dwellings in Eindhoven, 13,557 dwellings in Helmond	
		Alternative Heating & Cooling in Homes	9	5	All-electric districts Blixembosch (Eindhoven) and districts Helmond, Initial analysis Netherlands Environmental Assessment Agency (PBL)	
		Main responsible stakeholders: Citizens				
	2. Modifications to Non-Residential Buildings	Insulation of Utilities & Other Buildings	13		EED and minimum label B steering	
		Alternative Heating & Cooling in Utilities & Other Buildings	15	16	District heating networks with Utility sector, Initial analysis Netherlands Environmental Assessment Agency (PBL)	
		Responsible stakeholders: Mainly public organizations and companies	179	34	Electricity mix: greening of grid infrastructure and electricity supply, KEV as a basis	
	3. Alternative Energy Systems & Infrastructure	Removal of Gas Infrastructure	14	24	District heating networks (Helmond city center, Eeuwsels Binderen, and Eindhoven station area, City Hall Square, North), Initial analysis Netherlands Environmental Assessment Agency (PBL)	
		Deployment of Alternative Heating and Electricity Infrastructure	83	50	Electricity mix: greening of grid infrastructure and electricity supply, KEV as a basis	
		Main responsible stakeholders: Energy companies and utility providers				
			336	132		
Mobility	4. Sustainable Vehicle Fleet	ZE-ring (47K Vehicles)	37	10	Study CE Delft extrapolated to Helmond	
		Main responsible stakeholders: Citizens and companies				
	5. Charging Infrastructure	Charging Infrastructure (9000 Stations)	26	12	National Charging Infrastructure Agenda calculated for Eindhoven and Helmond: 47,240 EVs in Eindhoven, 23,354 EVs in Helmond	
		Main responsible stakeholders: Municipalities and utility providers				
	6. Zero Emission Zones/ Low-Traffic City Centre	Creating Low Traffic Zones	7		Estimate: Eindhoven Study	
		Main responsible stakeholder: Municipality				
	7. Modal Shift	Alternative Transport (Transferia, Bicycle Stations)	21	10	Estimate based on Eindhoven Mobility Vision: Eindhoven study used as basis, extrapolation for Helmond	
		Main responsible stakeholder: Municipality and transport industry				
Industry	8. Incentive Programmes	Setting up Incentive Programmes (smart grids etc.)	4	11	Estimate: parking measures and smart transport. For Helmond this is based on KEV	
		Main responsible stakeholders: Municipalities and utility providers				
			95	43		
	9. Heat Infrastructure	Adjustment Heating infrastructure				
		Adjustment Electricity infrastructure		6	Participation district heating BZOB (Helmond): connection of 4 companies	
		Main responsible stakeholders: Municipalities and utility providers				
	10. Interventions in Companies & Processes	Adjustments to Companies and Processes: MJA, EML, EED	34	29	MJA/EML/EED steering and steering on autonomous sustainability improvements: 10% reduction based on RVO reference values	
		Main responsible stakeholders: Municipalities and utility providers				
	11. Energy Transition Projects	Sustainable Energy Projects	216	43	Greening of the network and increasing primary sustainable energy use, KEV as a basis	
		Main responsible stakeholders: Municipalities and utility providers				
	12. Electrification	Electrification Industry (Phasing Out Natural Gas in Company Processes)	91	24	Electrification of an estimated 1,500 companies (partly) for production and heating processes: 1,000 companies in Eindhoven, 500 companies in Helmond	
		Main responsible stakeholders: Municipalities, companies and utility providers				
			341	102		
Total			772	277		

Attachment B: Outcome and impact of the 22 Missions (including estimates)

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)	CO2 /GHG	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 Social innovation: leadership, ownership, inclusivity and behavioral change Collaboration Financing/Investment Economic innovation: Circular business models 	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)	n.a.	<ul style="list-style-type: none"> Awareness More sustainable behaviour 	<i>Buildings</i>
							<i>Transport</i>
		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)	n.a.	<ul style="list-style-type: none"> Awareness Reduce consumption emissions Longer lifespan of products Stimulation the local economy 	<i>Waste</i>

MISSION: <i>3. Development of circular and biobased building</i>	<ul style="list-style-type: none"> ▪ Technological innovation 	Facilitating	Upscaling	<p>Indirect (scope 3)</p>	<p>The program Building Balance aims on a 30% use of biobased materials. The impact is calculated for Helmond and Eindhoven: 30% of 50.000 new homes and of renovation, 7% renovation grade/year during 10 years for housing associations: in total 118,8 kton</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
	<ul style="list-style-type: none"> ▪ Policy and regulations 	<ul style="list-style-type: none"> ▪ Boosting the market and strengthening the chains for biobased and circular construction 	<ul style="list-style-type: none"> ▪ Stimulate and organize large-scale and collective development of biobased, circular and climate neutral houses and buildings. 			
	<ul style="list-style-type: none"> ▪ Market stimulation 	<ul style="list-style-type: none"> ▪ Ensuring the availability and accessibility of circular and biobased materials. 				
	<ul style="list-style-type: none"> ▪ Financing/Investment 	<ul style="list-style-type: none"> ▪ Optimizing legislation and regulations, including requirements in tenders. 				
	<ul style="list-style-type: none"> ▪ Collaboration 	<ul style="list-style-type: none"> ▪ Expanding and sharing knowledge and data about new building materials and residual flows. 				
	<ul style="list-style-type: none"> ▪ Knowledge ▪ Information and data 					
	<ul style="list-style-type: none"> ▪ Policy and regulations 	Mobility vision and implementation program	Implementation	Scope 1	Already in the action list:	<ul style="list-style-type: none"> ▪ More attractive public spaces

MISSION: <i>4. Climate neutral mobility in the city center</i>	<ul style="list-style-type: none">▪ Behavioral change▪ Finance/Investment▪ Technological innovation▪ Collaboration	<ul style="list-style-type: none">▪ Focus on less car-oriented mobility and more on sustainable alternatives.▪ Starting with the quick wins.	<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.		National Agenda Loading infrastructure (ministry of traffic) estimates a growth to 22666 BEV's in Eindhoven in 2030 and 11283 BEVS in Helmond. Combined with 18768 (eindhoven) and 8646 (Helmond) charging units. This will lead to an shift of 38kTon reduction. The shift to EV freight transport is not well known and will be issued in the future.	<ul style="list-style-type: none">▪ Health improvement▪ Reduction of noise and air pollution▪ More space for climate adaption▪ More access to mobility	
	<ul style="list-style-type: none">▪ Policy and regulations▪ Finance/investment▪ Collaboration▪ Technical innovation▪ Social innovation	Vision and implementation program <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.	Implementation <ul style="list-style-type: none">▪ Creating more space for green and water.▪ Scale-up climate-adaptive solutions.	Indirect (scope 3)	n.a.	<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 biodiversity	
	<ul style="list-style-type: none">▪ Finance/Investments▪ Capacity	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,	Scope 1+2		<ul style="list-style-type: none">▪ Improvement of the comfort of dwellings▪ Lowering energy bills	<i>Buildings</i>

	<ul style="list-style-type: none"> ▪ Collaboration ▪ Policy and regulations 		sustainable mobility, climate adaption and urban greening and sustainable purchasing.		<ul style="list-style-type: none"> ▪ More attractive public spaces ▪ Health improvement ▪ Reduction of noise and air pollution 		Transport
CITY THEME: LIVABLE NEIGHBOURHOODS							
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: 6. Storytelling		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 buildings, transport and waste)		<ul style="list-style-type: none"> ▪ Awareness ▪ More sustainable behaviour 	

<p>MISSION:</p> <p>7. Circular Neighbourhoods and sustainable consumption</p>	<ul style="list-style-type: none"> Social innovation: leadership, ownership, inclusivity and behavioral change 	<p>Awareness and knowledge development</p> <ul style="list-style-type: none"> Collaboration 	<p>Targeted action campaigns</p> <ul style="list-style-type: none"> More selective and sustainable purchasing behaviour. 	<p>Indirect</p> <p>(scope 3)</p>	<ul style="list-style-type: none"> Awareness Reduce consumption emissions 	
	<ul style="list-style-type: none"> Financing/Investment 	<ul style="list-style-type: none"> The elimination of single-use products, more recovery and partial use of goods and services and a strongly locally oriented economy. 	<ul style="list-style-type: none"> Stimulating circular entrepreneurship. 		<ul style="list-style-type: none"> Longer lifespan of products 	<i>Buildings</i>
	<ul style="list-style-type: none"> Economic innovation: Circular business models 	<ul style="list-style-type: none"> Applying new circular business models. 	<ul style="list-style-type: none"> Exchange shops in top locations, repair cafés and circular hotspots in neighbourhoods. Focus on 100% circular sustainable procurement. 		<ul style="list-style-type: none"> Stimulation the local economy 	<i>Transport</i>
<p>MISSION:</p>	<ul style="list-style-type: none"> Capacity Finance/Investment 	<p>Develop a collective approach</p> <ul style="list-style-type: none"> Making our existing rental and owner-occupied homes more sustainable on a large scale, collectively and in an integrated manner. 	<p>Upscaling</p> <ul style="list-style-type: none"> Jointly implement the collective approach and roadmap for renovation (NIP). 	<p>Indirect</p> <p>(scope 3)</p>	<ul style="list-style-type: none"> Improvement of the comfort of dwellings 	<i>Waste</i>
					<p>See Biobased insulation and build: G16</p>	
					<ul style="list-style-type: none"> Lowering energy bills 	

<p><i>8. Scaling up the new normal</i></p>	<ul style="list-style-type: none"> ▪ Collaboration ▪ Policy and regulations 	<ul style="list-style-type: none"> ▪ Encourage exemplary action through leaders and ambassadors in the neighbourhood and through energy communities. 					
<p>MISSION:</p> <p><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 en 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:</p>	<ul style="list-style-type: none"> ▪ Policy and regulations 	<p>Mobility vision and implementation program</p>	<p>Implementation</p>	<p>Scope 1</p>		<ul style="list-style-type: none"> ▪ More attractive public spaces 	

<p><i>10. Climate neutral mobility in the neighbourhoods</i></p>	<ul style="list-style-type: none"> ▪ Behavioral change ▪ Finance/Investment ▪ Technological innovation ▪ Collaboration 	<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. 	<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. 		<ul style="list-style-type: none"> ▪ Health improvement ▪ Reduction of noise and air pollution ▪ More space for climate adaption ▪ More access to mobility 	
<p>MISSION:</p> <p><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:</p> <p><i>12. Sustainable public space</i></p>	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Finance/investment ▪ Collaboration ▪ Technical 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. ▪ 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' ▪ Mitigate effects of extreme weather 	

	<ul style="list-style-type: none"> Social innovation 	<ul style="list-style-type: none"> ▪ Bring citizens together. 				<ul style="list-style-type: none"> ▪ Enhancing social cohesion ▪ Enhancing biodiversity 	
EXISTING POLICIES AND PROJECTS	<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>	Scope 1+2	<p>Roughly 19885 houses (Eindhoven) are planned and with an extra impuls we can scale up to 70332 (eindhoven) houses. In Helmond we are planning 15668 houses and were are scaling up to 29720. We are foreseeing the health transition as it is calculated by our Ministry (planbureau voor de leefomgeving, startanalyse 2021). This will reduce an amount of 311 KTon CO2 (houses and Utility buildings)</p>	<ul style="list-style-type: none"> ▪ Improvement of the comfort of dwellings ▪ Lowering energy bills ▪ More attractive public spaces <ul style="list-style-type: none"> ▪ 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: 13. Sustainable and circular operations.	<ul style="list-style-type: none"> ▪ Technological innovation ▪ Policy and regulations ▪ Market stimulation 	<p>Awareness and knowledge development</p> <ul style="list-style-type: none"> ▪ Awareness campaign. ▪ Focus on more selective and sustainable production processes. 	<p>Upscaling</p> <ul style="list-style-type: none"> ▪ Scaling up circular business models. ▪ Creating an autonomous raw-material market. 		not known	<ul style="list-style-type: none"> ▪ Reduce production emissions ▪ Longer lifespan of products ▪ Stimulation of the local economy 	

	<ul style="list-style-type: none"> ▪ Financing/Investment ▪ Collaboration ▪ Knowledge ▪ Information and data ▪ Behavioral change 	<ul style="list-style-type: none"> ▪ 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. 		Scope 1+2			
MISSION: 14. Scaling up sustainable business areas	<ul style="list-style-type: none"> ▪ Collaboration ▪ Information and data ▪ Knowledge ▪ Technological innovation 	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)	n.a.	<ul style="list-style-type: none"> ▪ More attractive business areas ▪ Health improvement ▪ Prevent a 'heat-island effect'. ▪ Mitigate effects of extreme weather 	Sectors: Buildings Transport Waste IPPU

	<ul style="list-style-type: none"> ▪ Capacity ▪ Financing/Investment 					<ul style="list-style-type: none"> ▪ Innovation on climate adaptive initiatives. 	
MISSION: 15. Sustainable Mobility and Logistics	<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. ▪ Zero-Emission Logistics. ▪ Starting with the quick wins. 	Implementation <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. 	Scope 1	<p>Behavior in driving and in using other modalities are estimated by ClimateView. Walking+ cycling, ecodriving, carsharing etc. All together result in a potential of 90-120kton. Freight transport is hard to estimate. ClimateView gives a potential of 38kTon in Eindhoven and 8kton in Helmond for Electrical transport. Bio-fuels are even more potential.</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 	
MISSION: 16. Healthy and Green Work Environments	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Financing/investment ▪ Collaboration ▪ Social and Technological Innovation 	Develop a collective approach <ul style="list-style-type: none"> ▪ Implement a knowledge bank ▪ Explore financial opportunities ▪ Start with no-regret ▪ Collective employer approach 	Upscaling <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. 	Indirect (capturing CO ₂)	n.a.	<ul style="list-style-type: none"> ▪ More attractive work-environments ▪ Health improvement ▪ Prevent a 'heat-island effect'. ▪ Mitigate effects of extreme weather 	
MISSION:	<ul style="list-style-type: none"> ▪ Financing/Investment 	Develop Smart Energy Solutions	Upscaling			<ul style="list-style-type: none"> ▪ Self-sustainable energy consumption 	

<p>17. Energy and Smart Grids</p>	<ul style="list-style-type: none"> ▪ Technological innovation 	<ul style="list-style-type: none"> ▪ Create room for experiments and pilots. 	<ul style="list-style-type: none"> ▪ Create a marketplace for energy exchange. 	<p>Scope 2</p>	<p>Both in Eindhoven and Helmond (e.g. Automotive Campus), smart grids are in development. The outcome would be that the energy use is more efficient (20%). Therefore a rough estimate of a 20 reduction could be valid. However the scope is still under investigation. The estimated reduction will be delivered when the scop of the projects are clear.</p>	<ul style="list-style-type: none"> ▪ Less usage of existing infrastructure 	
	<ul style="list-style-type: none"> ▪ Collaboration ▪ Policy and regulations ▪ Information and data ▪ Knowledge 	<ul style="list-style-type: none"> ▪ Knowledge transfer. <ul style="list-style-type: none"> ▪ Make better use of the existing network. ▪ Stimulating exchange of electricity and heat between companies. 	<ul style="list-style-type: none"> ▪ Public access to data. ▪ Business model for exchanging energy. ▪ Network expansion and optimization. 			<ul style="list-style-type: none"> ▪ New business models 	
<p>MISSION:</p> <p>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>	<p>n.a.</p>	<ul style="list-style-type: none"> ▪ Cross-over in innovations 	

EXISTING POLICIES AND PROJECTS	▪ Finance/Investments	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	▪ Lowering energy bills for businesses ▪ More attractive industrial areas ▪ Health improvement ▪ Reduction of noise and air pollution Less effect due to gridcongestion	Buildings
	▪ Capacity ▪ Collaboration Policy and regulations					Transport Waste IPPU

**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)	n.a.	<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: <i>20. Regional Materials Market</i>	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Market stimulation ▪ Collaboration ▪ Knowledge ▪ Information and data 	Feasibility study <p>Investigating the possibility of a regional raw materials market.</p>	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)	n.a.	<ul style="list-style-type: none"> ▪ Positive consequence for nature and biodiversity ▪ Reduction of greenhouse emissions 	
	<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)	n.a.	<ul style="list-style-type: none"> ▪ Self-sustainable energy consumption ▪ Lower costs ▪ Job creation 	
MISSION: <i>21. Grid Congestion</i>	<ul style="list-style-type: none"> ▪ Policy and regulations ▪ Finance/Investment 	Human Capital Agenda <ul style="list-style-type: none"> ▪ Make a human capital agenda with partners (government, education and business). 	Implementation <ul style="list-style-type: none"> ▪ Transition to 'more manpower'. 	Indirect	n.a.	<ul style="list-style-type: none"> ▪ Job creation 	

22. Climate Jobs	<ul style="list-style-type: none"> ▪ Collaboration ▪ Information and data ▪ Capacity 	Include sustainability themes in education.	Live-long learning and working.		
EXISTING POLICIES AND PROJECTS	<ul style="list-style-type: none"> ▪ Finance/Investments ▪ Capacity ▪ Collaboration ▪ Policy and regulations ▪ Behavioral change 	Explore and develop strategies for speeding up existing policies and projects.	Accelerating existing policies and projects on renewable energy, gridcongestion, circularity and jobs.	Scope 1+2	<ul style="list-style-type: none"> ▪ Positive consequence for nature and biodiversity <ul style="list-style-type: none"> ▪ Reduction of greenhouse emissions ▪ Stimulating the regional and local economy ▪ Less effect due to gridcongestion ▪ Speeding up the energy transition. ▪ Behavioral change <p>Sectors:</p> <p><i>Waste</i></p> <p><i>IPPU</i></p> <p><i>AFOLU</i></p>

Climate City Contract

Commitment (September 10th, 2024)

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





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1.1 Introduction

Transition is no longer a choice

By participating in this climate mission, Eindhoven and Helmond acknowledge that climate change must be addressed faster and better. It requires a drastic and structural change, and it has consequences for the way we design and arrange our inner cities, neighbourhoods and industries. It affects how we build, generate and use heat and electricity, how we move, reuse materials and train our (future) workforce in this region.

For Helmond and Eindhoven this mission has a broader focus on the long term to realize the necessary transition: a Climate Delta Plan Eindhoven-Helmond that sets the course for gradually working towards fossil-free, circular and climate-proof cities by 2050 at the latest. An important milestone on the road to this is the 55% CO₂ reduction target in 2030 and the ambition to achieve 80% reduction on our way to climate neutrality by 2035.

This Climate City Contract is created with the input and involvement of a large group of stakeholders from the two cities and its region. Stakeholders whose contribution is crucial to realize the ambition of fossil-free, circular and climate-resilient cities. A lot of support and commitment has been shown and input is provided. This contract is the result of this jointly completed process. At the same time, such a major change leads, inevitably, to uncertainties and questions because there is no such thing as a fixed transition.

The baseline is clear, projects and plans are already formulated, commitment is set, but a more detailed elaboration of the actions and investments is needed. At this moment the parties are going to work together in several collaborative coalitions to achieve this. With this effort the cities and its region focusses on the energy transition, making cities more sustainable and adapting the environment to the consequences of climate change.

But local authorities and parties can't do this alone! The needed system change will only produce the desired results if these are implemented at all levels of government, including the national and EU level. The support from Europe, as well as the national government is crucial in reaching this target. Long-term involvement of the government and the EU is necessary to make the systemic changes needed to achieve climate neutrality. It requires new forms of cooperation, new investment programs and new financing models. Even if the necessary legislation is not yet in place. We therefore ask the National Government and Europe, on the basis of this first version of the contract, to express clarity about their role and concrete contribution in the implementation of the climate mission in Eindhoven and Helmond.

In support of the Dutch mission cities, the national government has set up a National Support Structure (NSS). The Ministry of Housing and Spatial Planning, the Ministry of Climate and Green Growth, and the Ministry of Infrastructure and Water Management support the cities of Eindhoven and Helmond in their application for the 100 Climate Neutral and Smart Cities Mission Label. Their letter of support is included in the annex.



1.2 Goal: Climate neutrality by 2030

A Climate Deltaplan Eindhoven-Helmond

Eindhoven and Helmond are ambitious: the cities are growing rapidly, but at the same time they also want to become greener, more sustainable and healthier. To ensure that the cities are pleasant and healthy places to live, work and recreate now as well as in the future. Eindhoven and Helmond must continue at full speed with the energy transition that has been set in motion, making the cities more sustainable and absorbing the consequences of climate change.

Because we need space to realize long-term plans and transitions takes time, we are focusing on a 'Climate Deltaplan'¹ 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.

The current commitment of the municipality of Eindhoven aims to reduce greenhouse gases by at least 55% in 2030 and at least 95% in 2050. The current commitment of the municipality of Helmond is to be a climate-neutral city by 2035. In recent years, a number of external challenges have arisen that significantly hinder the execution of our policies and reaching our ambition. As a result, our updated estimates forecast that the 80% reduction on our way to climate neutrality will be achieved later than previously anticipated. Through the European climate mission, the two cities want to achieve a significant acceleration which has become necessary to reach the 55% reduction target in 2030. The 80% reduction on our way to climate neutrality will inevitably be postponed, and therefore we are now aiming for 2035. At the same time, the cities focus on circularity and climate resilience.

This mission should lead to the necessary breakthroughs needed to achieve the climate goals for both cities. We scale up existing projects and start new projects. We also focus on awareness, behavioural change and the necessary system changes.

Achieving the goals offers opportunities for our residents, our cities and the region. Tackling climate change contributes to a green, pleasant and healthy city to live in. Insulating and making our homes more sustainable ensures lower energy bills. In addition, the knowledge and innovation ecosystem of the Brainport region can contribute like no other to smart solutions that play a global role in combating climate change. Greater independence from other countries with regard to energy and materials increases our resilience to the consequences of geopolitical developments.

Deviation of original Expression of Interest

Due to recent developments related to the energy transition in The Netherlands, particularly (1) the net congestion, (2) heating companies are putting a halt on the construction on district heating networks and the lack of viable business cases, (3) the stagnation of solar panel due to the upcoming abolition of the net metering scheme and the reduction of feed-in tariffs, (4) the sale of electric vehicles (EV's) is under pressure due to lower subsidies. These are all factors that were not at play two years ago (when we submitted our Expression of Interest), but now have a significant impact on our ability to actually reduce greenhouse gases.

As we approach 2030, the municipalities of Eindhoven and Helmond request, an exemption from the net zero emissions target by 2030, as initially stated in the Expression of Interest. The challenges prompting this request are thoroughly outlined in the Climate Action Plan.

¹ A few weeks after the flood disaster of 1953 in the southwest of The Netherlands a Deltaplan was launched to prevent parts of the Netherlands from being flooded and guarantee the safety of the inhabitants of those vulnerable areas.



- Proposal for a revised local target of achieving net zero emissions by 2035, still aligned with the Mission 2030: 100 Climate Neutral and Smart Cities. This revised target remains highly ambitious and relevant, yet more feasible given the current circumstances.
- Based on recent developments in the local context, the target has been updated. Both Eindhoven and Helmond pledge to reduce GHG emissions by at least 55% by 2030 and aim for at least 80% by 2035 with a maximum of 20% compensation.

Declaration:

The Municipalities of Eindhoven and Helmond, commits to the following climate mitigation goals as part of the Mission '2030: 100 Climate Neutral and Smart 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 but also fosters long-term sustainability and resilience.
- However, recognizing the challenges in meeting this ambition by 2030 due to recent developments in local context, Helmond and Eindhoven have set an interim target of reducing CO₂ emissions by 55% by 2030 and are now aiming to achieve the 80% reduction goal by 2035 with a maximum of 20% compensation.
- Mitigating climate change while ensuring that the transition to a zero-emission society enhances the well-being of all inhabitants, is inclusive and affordable, especially for vulnerable groups, is connected to climate adaptation, and contributes to a sustainable economic system.
- Basing our policies and actions on real-world data and realistic modelling, and communicating clear and realistic expectations to our stakeholders, especially our inhabitants.
- Engaging and incentivizing all stakeholders at the local, regional, national, and European levels to join our efforts and commitments towards achieving climate neutrality.

These commitments cover the entire administrative area of the Municipalities of Eindhoven and Helmond.

Comment:

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.



1.3 Key priorities and strategic interventions

Three spearheads: fossil free, circular and climate resilient

Eindhoven and Helmond are committing to a broad approach with three spearheads: fossil free, circular and climate resilient. An approach that goes further than just reducing CO₂. It is a widely supported climate contract in which organizations, companies and residents from both cities are involved. Because innovation and acceleration is not possible if it is not embraced by the inhabitants and entrepreneurs of both cities and the region. 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

1. Fossil free

Both cities aim for a fossil-free urban environment. The cities intend to address all Greenhouse Gases (GHGs) and sectors/sources of emissions to reach climate neutrality as defined by the Cities Mission. Emissions from the various sectors/sources such as the built environment, industry and mobility must then be reduced by at least 80%. Any residual emissions must be stored or offset. Initially, the focus is on direct emissions (scope 1 and 2): the emissions caused on the territory of Eindhoven and Helmond and the emissions elsewhere due to the production of electricity for use in Eindhoven and Helmond. The cities also cause indirect emissions, outside their own territory (scope 3), such as through movements to and from the city and the production of goods and food outside the cities. The reduction of these 'scope 3' emissions is also a responsibility of the cities, which means that the challenge is even more complex. Mapping the indirect emissions requires further elaboration, such as a thorough monitoring method.

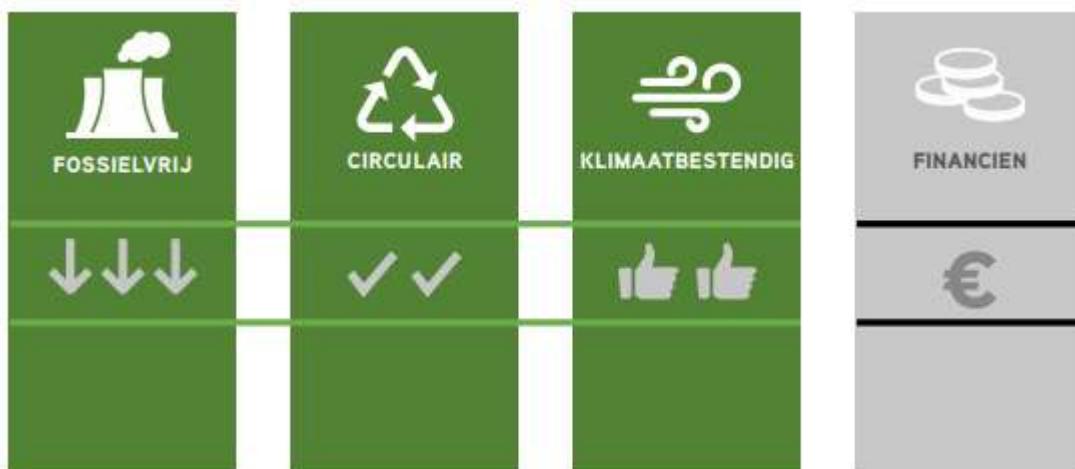
2. Circular

Both cities strive for a more circular production and consumption society. Circularity is about value retention and the reuse of materials and products. This is done by stimulating sustainable consumption behaviour and by making circular chains the norm. The so-called R-ladder indicates the degree of circularity. The R-ladder has six steps (rethink, refuse, reduce, reuse, repair, recycle) that represent different strategies of circularity. Strategies higher up the ladder save more resources. The higher a strategy is on the R-Ladder, the more circular the strategy is.

3. Climate resilient

Both cities are constantly working on the design of the city, the public space, the urban green and the water management. They are faced with the question of how to include the aspect of climate resilience in this. Both cities strive for a climate proof public space in which green and water are the base to make the cities safer, more pleasant and healthier.

Implementation of this urban climate contract will ensure that we accelerate our work towards a fossil-free, circular and climate-resilient society. For each mission the impact is indicated on the three spearheads fossil-free, circular and climate-proof (see example below). This qualitative assessment will be quantified and supplemented with information regarding emission reduction and investments.



Strategic investment priorities

In the Climate Investment Plan (CIP), existing and accelerated policies and projects have been classified according to three sectors:

- Built Environment
- Mobility
- Industry

Subsequently these sectors have been further subdivided into twelve investment actions. In the CIP an overview of the sectors and investment actions, including project descriptions which give some more specific indications of the type of projects and actions foreseen. The three sectors and twelve investment actions represent the structural “umbrella” of this Climate Investment Action. The three sectors and twelve investment actions outline focus on triggering investment for specific projects on the ground.

To achieve these goals, it is necessary for all involved parties to be informed and engaged. To do so, the municipalities of Eindhoven and Helmond have defined the following 4 city themes:

These themes are:

1. Vital City Center
2. Liveable Neighbourhoods
3. Sustainable Businesses
4. Robust Region

The 4 city themes consist of 22 missions that aim to engage stakeholders, encouraging them to adopt climate-friendly behaviours and partake in climate neutrality investments. Thus, the underlying 22 missions primarily serve as supportive actions to realise investments and actions (i.e. acceleration) by the municipalities, homeowners, companies, citizens. Investments within each of the investment actions defined should not be financed solely by the municipalities. In fact, the largest investments need to be made by other stakeholders. The missions support this by providing information, networks and platforms to increase engagement and willingness to invest. This joint effort (public and private) aims to achieve the intended goals, ensuring that the cities are vital, liveable, economically future-proof, and strong. Eindhoven and Helmond will be attractive to both residents and businesses if the intended actions are conducted within the set timeframes.



Barriers and opportunities

In the current situation there are several barriers that need to be broken to realize the ambitions. The preconditions for sustainability constraints in various areas and that means that the requested pace can't be achieved.

Grid congestion

A crucial barrier is the capacity of the electricity network in our region. The capacity of the electricity network is insufficient to maintain the speed of the energy transition. And this while the demand for and supply of sustainable electricity will only increase. Network capacity is not the only problem regarding the sustainability task, also the housing construction and the transition of our industrial areas will have to deal with this.

Execution capacity

Sufficient (implementation) capacity will be needed to be able to implement the ambitions in this Climate Contract. In addition, the capacity of our labour potential will not be sufficient to be able to implement all necessary measures. The question is how we can prevent those shortages in labour capacity leads to delays in implementation. This does not apply, by the way only for the workforce, but also for the necessary materials.

Preconditions from the National Government and the EU

Preconditions from the national government and the EU in areas such as finance, legislation and regulations, tax regime and local policy space are crucial for local implementation. Intensive lobbying, together with the other mission cities, is necessary for this. In the context of this climate mission, this must become a priority given to the creation of necessary preconditions on the one hand and the solving bottlenecks that could delay or hinder implementation on the other hand.

On the other hand, there are opportunities. Opportunities because we have already started by existing policies and projects for all spearheads and missions. And we are developing our policies and actions further by learning from previous experiences. Opportunities also as part of the Brainport region where companies and organizations work on social and technical innovations in the field of climate and energy.



1.4 Principles and process

Guiding principles

Think different, act different

The focus on the spearheads therefore raises various questions and challenges. A first impulse is: 'it has to be faster; we have to do more.' In this way, we also attach our current growth thinking to the sustainability issue. However, this issue requires thinking and acting differently. 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:

1. Leadership

Major social challenges such as these require leadership. Parties, organizations and residents who do not wait for national politics or policy but take the lead in the change themselves. There are already a large number of front runners in Eindhoven and Helmond: residents and entrepreneurs who invest a lot of time in making the city more sustainable and encouraging others. These frontrunners are crucial for driving and accelerating change. They pioneer new solutions, share their knowledge and experiences and inspire others to get started as well. Especially when there are collective initiatives, frontrunners can have a lot of impact. Important choices call for choosing the long term on the basis of a clear vision and for that reason to choose sometimes for more difficult paths for the short term.

2. Ownership

A successful transition benefits from local ownership and feeling and taking responsibility. This leads to initiatives for change. This means giving space to residents who are making their homes, streets, neighbourhoods or districts more sustainable. This means for instance stimulating local ownership in energy supply and sustainable mobility solutions. For example, solar panels, collective heat networks, or shared electric vehicles. To be able to scale up, new forms of ownership, financing, cooperation and a different role for the government are needed. The municipalities can help initiatives in the city to grow. But perhaps just as important, it also requires ownership at administrative and management level. So that difficult choices are made, and responsibility is also taken for this. After all, we are now taking decisions that we can only test in the long term whether they will lead to visible solutions.

3. Behaviour

Behaviour is complex and if you want to change it, you need to understand what moves people. The transition requires behavioural change. It is necessary to think in the interests of residents and entrepreneurs. This can be done for instance by making the transition concrete for people by making clear how they can contribute themselves. For behavioural change it is not only necessary to inform, but also to inspire, stimulate and make visible what we can do now.

4. Impact

This concerns the impact of sectors or activities on, for example, greenhouse gas emissions. Based on insight into the state of affairs, priorities can be determined, and efforts can be directed where the impact is greatest.



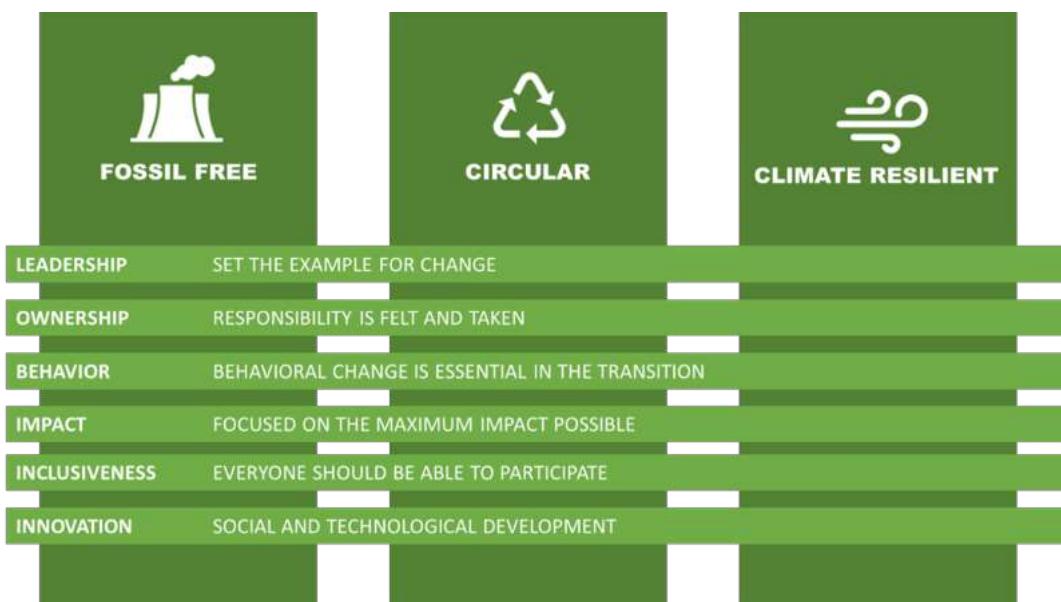


5. Inclusiveness

The energy transition and the necessary actions directly affect the daily lives of the inhabitants. Everyone must be able to participate in the transition to a climate-neutral 2030. The consequences of the transition to fossil free, circular and climate resilient cities are not the same for everyone. Some residents or neighbourhoods are more vulnerable or benefit less from the opportunities offered by the transition. Extra attention is needed for residents with low and middle incomes to ensure that there is a fair distribution of benefits and burdens. It is important that all residents can talk, think and act in the transition. Additional effort is required for this. The diversity of the cities must be visible in the followed approach.

6. Innovation

Tackling climate problems requires new knowledge and the upscaling of innovative processes, both technically and socially. This should be further encouraged and facilitated.



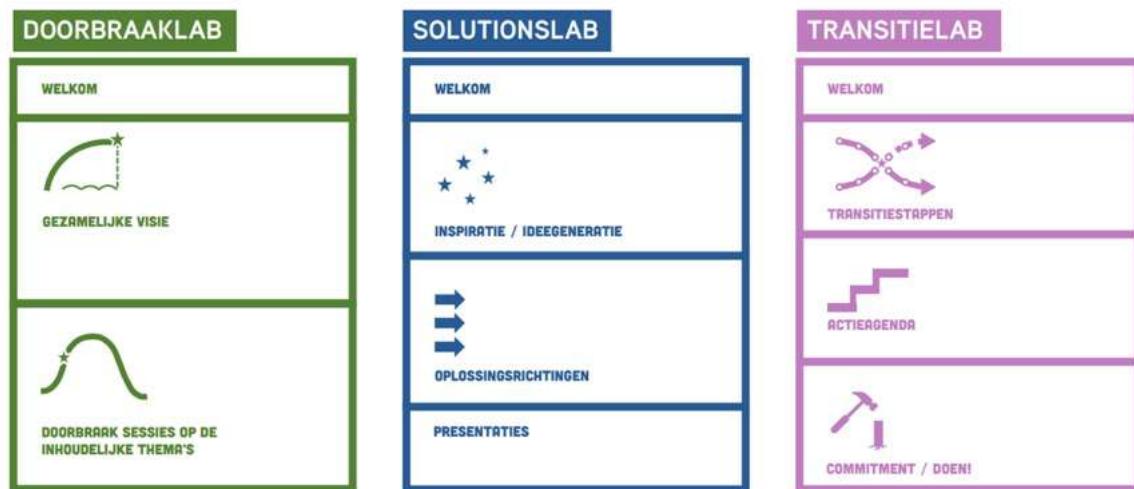


Process: dialogue with the cities

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 in 2023: a Breakthrough Lab, a Solutions Lab and a Transition Lab.



The Breakthrough Lab in Helmond and Eindhoven 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, 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. 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.



1.5 Signatories

Commitments

We have gathered commitment from more than 70 organizations in the two cities. Parties have signed up to participate in one or more missions, both professional parties and social initiatives.

An overview of all missions, reactions and organizations involved can be found via the following link: <https://www.knaphe.nl/en>. As we move forward, more organizations join the missions and the number of initiatives grows along.

We refer to: <https://www.knaphe.nl/en/organisaties> for the parties which have expressed their commitment.

We, the undersigned, hereby commit to reduce greenhouse gas emissions by at least 55% by 2030 and aim for at least 80% by 2035 with a maximum of 20% compensation. We agree on the joint ambition and commitments, as formulated in the Climate City Contract of Eindhoven and Helmond.

Date of signature

Name

Signature

J.R.V.A. Dijsselbloem

Mayor of City of Eindhoven

Date of signature

Name

Signature

P.J.M.G. Blanksma-van den Heuvel

Mayor of City of Helmond



Annex A1: Letter of support

Letter of support for the application of the cities of Eindhoven and Helmond for the 100 Climate Neutral and Smart Cities Mission Label from the Ministry of Housing and Spatial Planning, the Ministry of Climate and Green Growth, and the Ministry of Infrastructure and Water Management.



NetZeroCities has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.



Cities of Eindhoven and Helmond
Addressed to
Rik Thijs (Aldermen of Eindhoven for
Climate, Energy, Land and Greening)
& Arno Bonte (Aldermen of Helmond
for Sustainability, Climate Adaptation,
Mobility and Energy Transition,
Mobility, and Resources)

www.rijksoverheid.nl

Reference

Your reference

Stadhuisplein 1
5611 EM Eindhoven

Date September 5th 2024

Subject Letter of support for the application of the cities of Eindhoven and Helmond
for the 100 Climate Neutral and Smart Cities Mission Label

Dear members of the CCC reviewing team of the European Commission,

The Ministry of Housing and Spatial Planning, the Ministry of Climate and Green Growth, and the Ministry of Infrastructure and Water Management take note of and support the participation of the Dutch cities of Amsterdam, Eindhoven, Helmond, Groningen, Rotterdam, The Hague, and Utrecht in the EU Cities Mission, and their application for the Mission Label. We recognise the important role these seven Dutch Mission cities play as frontrunners in implementing climate change mitigating action and as innovative pathfinders.

The Dutch national government has expressed its support for the Dutch Mission cities twice before in the form of two formal letters of support by the former Director General (DG) for Housing and Spatial Planning, currently the DG for Housing and Construction Chris Kuijpers. Furthermore, the national government took the initiative to set up a national platform in support of the Dutch Mission cities; the 'Nationale Samenwerkingsstructuur (NSS)'. The NSS organises a series of 'deep dive' trajectories to address priority barriers highlighted by the cities, and facilitates breakthroughs using a bottom-up, case-based approach. In particular, the NSS will take the initiative in analysing all Dutch CCC's, in order to create an aggregate picture of the challenges that all Dutch (Mission) cities are facing in their transition. The NSS will try to help in resolving these challenges if possible.

We value and support the efforts of the Dutch Mission cities, both because accelerating these cities' emissions reductions will enable the Netherlands to meet the overall 2050 climate goals, and because of the learning opportunities this project encompasses. The initiative allows other Dutch cities, the national government, and other stakeholders to benefit from new insights, tools, innovative opportunities, and solutions to help them overcome the barriers that the frontrunner cities face in their path to accomplish their mission.

Kind regards,

Chris Kuijpers
Director General of Housing and Construction
Ministry of Housing and Spatial Planning

Michel Heijdra
Director General of Climate and Green Growth
Ministry of Climate and Green Growth

Kees van der Burg
Director General of Mobility
Ministry of Infrastructure and Water Management



EUROPESE KLIMAATMISSIE

Stedelijk klimaatcontract Helmond
Verslag doorbraaksessie 13 februari



KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?



PROGRAMMA DOORBRAAKLAB

13.00

HELMOND KLIMAATNEUTRAAL IN 2030

360° PERSPECTIEVEN

14.45

PAUZE

15.00

KLIMAATCONTRACT EN OPGAVEN

DOORBRAAKSESSIES

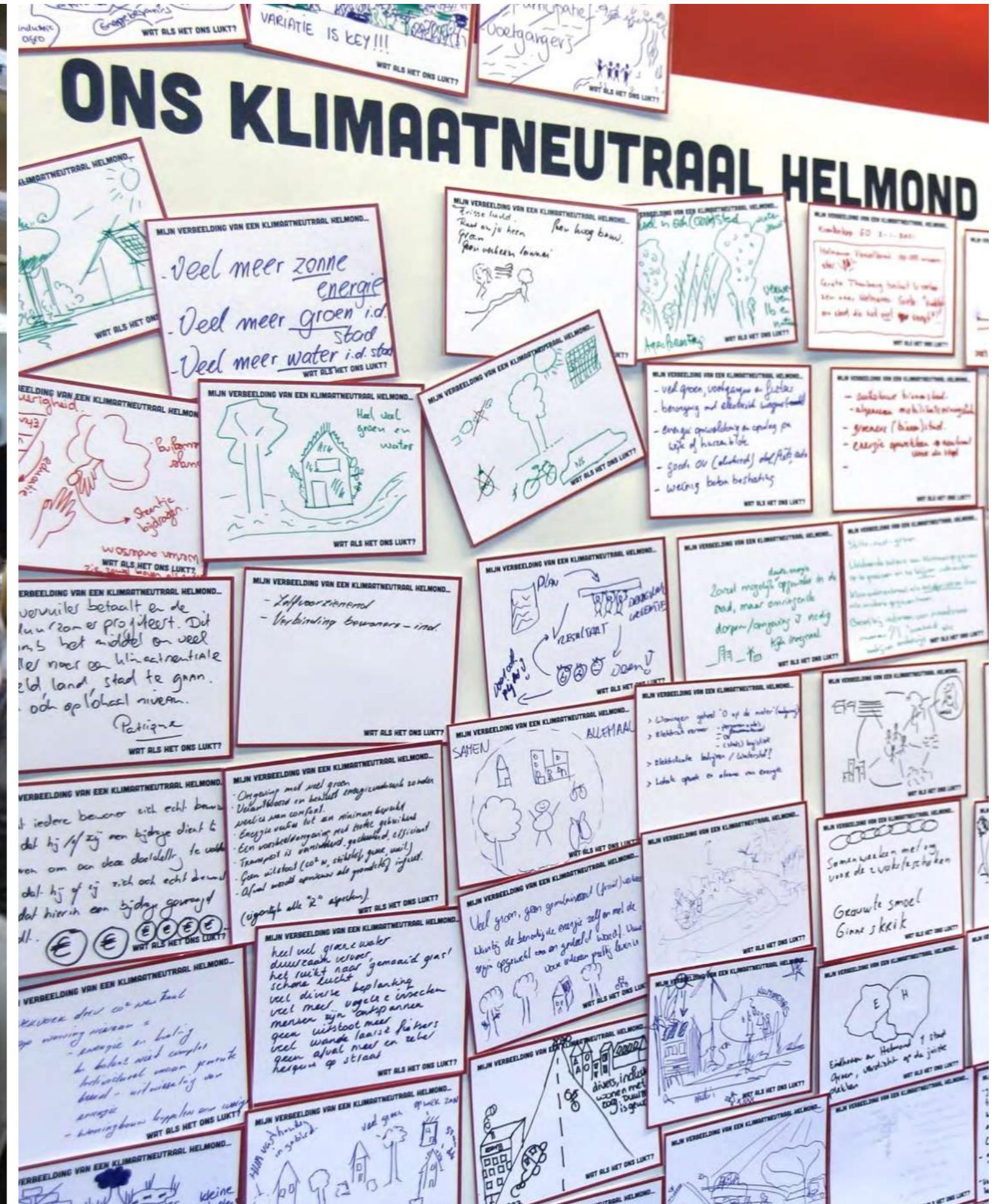
17.00

PRESENTATIES

HELMOND KLIMAATNEUTRAAL IN 2030



ONS KLIMAATNEUTRAAL HELMOND IN 2030



360° PERSPECTIEVEN



Gaby van den Waardenburg

Wethouder Stedelijke ontwikkeling, Wonen en Grondzaken

Schaal- kwaliteitssprong Helmond



Jifke Sol

Lector Circulaire Transities @ Fontys

Leiderschap en transformatie, moet je leren



Martijn Junggeburth

Manager Duurzaamheid @ Bavaria

Hoe naar een circulaire bedrijfsvoering?



Jasmijn Kleij & Loes van Rooij

JongRES

Waarom moeten we de jeugd bij beleidskeuzes betrekken?

Integraliteit is belangrijk.

Ongemak is de juiste weg. Maak er een avontuur van.

Door het groter worden en bouwen zorgen dat we klimaat positief worden.

We zitten al in de chaos en er komt nog meer chaos aan.

Met de groei van de stad zorgen dat alle voorzieningen meegroeien.

Maar het komt goed.

Verantwoordelijk voor eigen impact, maar we hebben elkaar nodig.

Het positief businessmodel levert ons echt iets op.

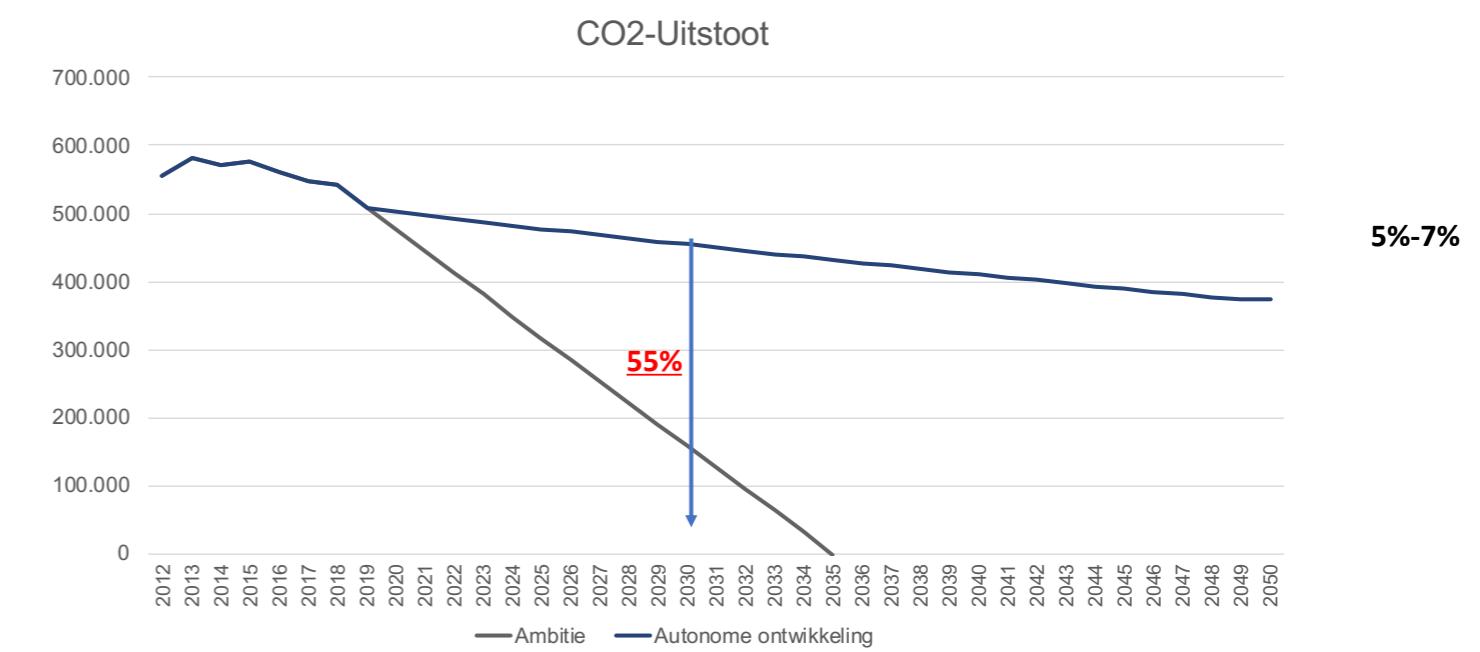
Meten is weten. Van greenwashing geen sprake.

Betrek jongeren bij dit proces.

Geef jongeren een gelijkwaardige stem.

Vraag jezelf af bij het participatieproces: hebben we ook echt jongeren bereikt?

HOE STAAT HET ERVOOR?



STADSTHEMA'S



FOSSIELVRIJ EN CIRCULAIR BOUWEN

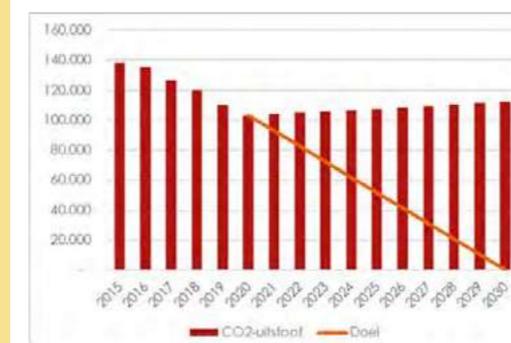


KLIMAATOPGAVE

Er worden 10.000 woningen toegevoegd aan ons centrum in de komende 10 jaar. Het bouwen van woningen heeft een hoge energie en materiële intensiteit. Dit moeten we doen op een manier die modern en duurzaam is in plaats van extra milieu belastend. Hoe past deze opgave in een circulaire maatschappij? Hoe passen we dit vraagstuk binnen de Telos-driehoek (People, Planet, Profit)?

Hoe kunnen we de 10.000 nieuwe woningen in ons centrum duurzaam en zonder extra milieubelasting bouwen? Hoe voegen we geen bestaande woningen toe?

FEITEN EN CIJFERS



- CO2 opgave uitgaande van de centrumontwikkeling op basis van bouwbesluit.
- Dit is voor de gebruiksfase van de woningen en de winkels/ kantoren.

BELEID

Landelijk:

- CO2 uitstoot in 2030 55% gedaald ten opzichte van 1990. Helmond heeft nu 5% behaald.
- Bouwbesluit: BENG norm is de eis: ENG en energiepositief niet. Aandeel eigen opwek is beperkt. De nadruk ligt niet op de schil van een pand.
- Kantoren moeten EnergieLabel C hebben in 2023. Naar verwachting is dat in 2030 label A. Ook dit betekent een beperkt sturend kader voor verreikende stappen.
- Afspraken corporatie woningen Label A in 2028.
- Circulair in 2030, Landelijk 50% van de opgave is in 2030 circulair.



DOORBRAAK

Wat als het ons lukt om...

1. De bestaande voorraad beter te benutten.
2. Vanaf nu klimaatneutraal en circulair te bouwen in de regio.
3. Een keten van circulaire bouwmaterialen op lokaal niveau te organiseren en daarvoor de kansen in de peil te benutten.

BEREIKBAAR EN LEEFBAAR HOUDEN VAN DE BINNENSTAD

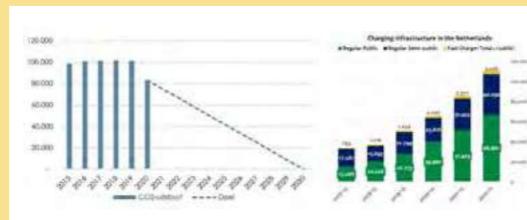


KLIMAATOPGAVE

Er gaat veel veranderen in de binnenstad en daarbij is de bereikbaarheid en leefbaarheid van de stad belangrijk. Met de komst van 10.000 nieuwe woningen in het centrum en 10.000 nieuwe arbeidsplaatsen is een transitie in mobiliteit extra nodig. De transitie van de nieuwe en bestaande woningvoorraad is een complexe opgave. Hierbij zijn we niet alleen afhankelijk van elkaar, maar ook van onze inwoners. Modernisering van mobiliteit vergt aanpassingen van de stad en een verandering van de denkwijze van haar bewoners. De schaalsprong biedt mogelijkheden om de bereikbaarheid en de leefbaarheid van de stad te vergroten door integraal opgaves met elkaar af te wegen.

Hoe zorgen we voor een duurzame transitie in de mobiliteit, waarbij we de bereikbaarheid en leefbaarheid houden?

FEITEN EN CIJFERS



Gap mobiliteit = 83.244 ton CO2

Mobiliteitstransitie: toename Laadinfra:

- Tot 2024: 150 palen erbij.
- Prognose: in binnenstad parkeerplaatsen: laadstraten.

BELEID

Onze stedelijke structuur in Helmond is decennia lang volledig rond de auto opgebouwd. Daarbovenop wordt er een groei van Helmond met 15.000 woningen en arbeidsplaatsen voorzien in de periode tot 2040. Dit zorgt voor een toename van meer dan 100.000 vervoersbewegingen in Helmond per dag. De mobiliteitstransitie dient permanent en robuust vormgegeven te worden om een situatie te bereiken waarin het aantal autoverplaatsingen niet groeit of zelfs afneemt. Daarnaast stellen we ons tot opgave om de leefkwaliteit in Helmond te verbeteren, waartoe de dominante aanwezigheid van de auto verder teruggedrongen moet worden. Dat levert een opgave op om het aandeel verplaatsingen met de fiets, gecombineerd met een nieuw OV systeem te verdubbelen, en het aandeel autoverplaatsingen meer dan te halveren. Dit vraagt ook vooral een gedragsverandering.



DOORBRAAK

Wat als het ons lukt om...

1. De ontwikkelaar mee verantwoordelijk te maken voor duurzame mobiliteit.
2. De openbare ruimte te ontwerpen vanuit verblijfskwaliteit.
3. Duurzame mobiliteit te belonen
 - Wegstrekken van de auto gaat niet werken
 - Gewoon beginnen! De auto wordt steeds duurzamer

NATUUR EN KLIMAATADAPTATIE



KLIMAATOPGAVE

Klimaatverandering heeft gevolgen voor mens en dier. Het centrum van een stad, met respectievelijk weinig groen en waterwegen, is kwetsbaar voor aanhoudende hitte, droogte of wateroverschot.

Hoe kunnen we de binnenstad klimaatbestendig maken en de aandacht voor groen vergroten, om bij te dragen aan klimaatadaptatie en biodiversiteit? Hoe kunnen we de beperkte ruimte op een multifunctionele en leefbare manier indelen?

FEITEN EN CIJFERS



Hittestress
Er is met name sprake van hittestress in het centrum.

Wateroverlast
Ook worden (delen van) wegen onbegaanbaar en tunnels geblokkeerd na een bui van 70 mm in één uur.

BELEID

Uitgangspunten Rijksbeleid:

- Nederland is in 2050 klimaatbestendig.
- In 2020 is beleid hiervoor vastgelegd bij alle overheden.
- Koppeling met instrumentarium Omgevingswet (o.a. omgevingsvisie en -plan)regelgeving.

Stimulering derden:

- Regeling groene daken/regenton/biodiversiteit (met waterschap) voor inwoners en bedrijven.
- Versnellingsagenda Duurzaamheid Educatie en communicatie: uitrol programma SPRAAKwater voor groepen 7 en 8 op basisscholen in Helmond via Cultuurcontact.
- Samen met Peelgemeenten en waterschap communicatie over het veranderende klimaat en wat mensen zelf kunnen bijdragen aan klimaatadaptatie.

Eigen projecten:

- Uitvoeringsagenda klimaatadaptatie.
- Afkoppelprojecten en aanpassingen in de openbare ruimte (onderhoud riolering i.c.m. weg- en groenonderhoud).
- Specifieke aanpak van wateroverlast Twijnsterhof en Zwanenbeemd.
- 2000-bomen-plan.
- Vergroenen van het stadshart in zowel grotere gebieden (Havenpark, Watertorenpark) als op straatniveau.
- Aanleg van parken in woongebieden zoals Park Goorloop en Weverspark.
- Vergroenen van daken van gemeentelijke gebouwen en bedrijven(terreinen).

NATUUR EN KLIMAATADAPTATIE

1 - Introductie van de opgave - 10 min.

KLIMAATOPGAVE

Klimaatverandering heeft gevolgen voor mens en dier. Het centrum van een stad, met respectievelijk weinig groen en waterwegen, is kwetsbaar voor aanhoudende hitte, droogte of wateroverschot.

Hoe kunnen we de binnenstad klimaatbestendig maken en de aandacht voor groen vergroten, om bij te dragen aan klimaatadaptatie en biodiversiteit? Hoe kunnen we de beperkte ruimte op een multifunctionele en leefbare manier indelen?

2 - Doogronden van de opgave - 30 min.

FEITEN EN CIJFERS

BELEID

WAT GAAT GOED

BARRIERES

DOORBRAAK

Wat als het ons lukt om...

1. Groen, water, natuur als insteek (i.p.v. grijze eisen) te kiezen? Vanuit trots, maatschappelijke waarde, nut, noodzaak.
2. Rekening te houden met de verschillende functies van groen.
3. Natuur en groen samen te gebruiken voor sociale cohesie.

CIRCULARITEIT EN AFVALSTROMEN

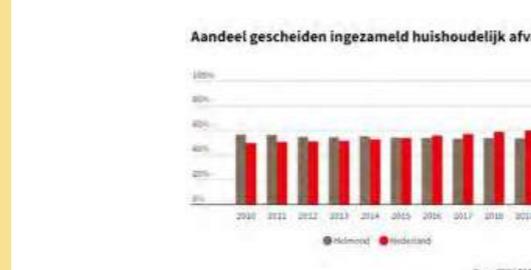
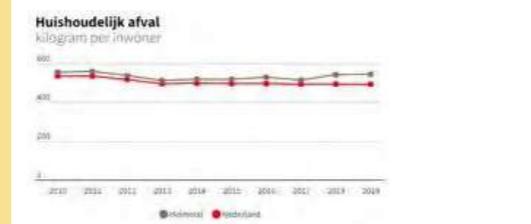


KLIMAATOPGAVE

Alleen het verminderen van de directe uitstoot van fossiele brandstoffen is niet voldoende voor de verduurzaming van een stad. Niet alleen de opwarming van de aarde moet tegengegaan worden, maar ook het verminderen van materialintensiteit en het tegengaan van afvalverbranding en opslag in de bodem. Materialintensiteit verminderen en materiaal en afvalstromen circulair maken is cruciaal. We weten echter ook dat bij een levendige binnenstad waar wordt gewoond, gewerkt en gerecreëerd vele materialstromen komen kijken.

Hoe zorgen we voor afvalvermindering, het circulair maken van afvalstromen en duurzaam consumeren in Helmond?

FEITEN EN CIJFERS



BELEID

Landelijk:

- Bouwbesluit: Onderdeel Circulariteit: Milieu Prestatie Gebouwen norm (MPG < 1).

Lokale akkoorden:

- Prestatieafspraken: geen afspraken op MPG niveau wel Pilot circulariteit.

Landelijk in 2050 circulair en in 2030 50% minder gebruik van grondstoffen.



DOORBRAAK

Wat als het ons lukt om...

1. Direct 100% circulair duurzaam in te kopen.
2. Jongeren te enthousiasmeren om deel uit te maken van de missie
3. Regelgeving en het systeem aan te passen.

LEEFBAARHEID WIJKEN

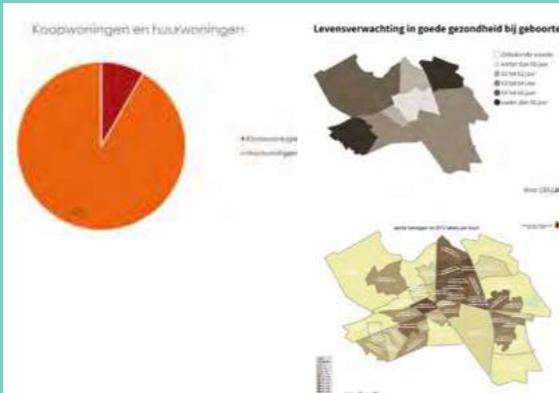


KLIMAATOPGAVE

De klimaatopgave om wijken te verduurzamen mag de maatschappelijke situaties in wijken, zoals armoede, niet vergroten, maar waar mogelijk juist verkleinen. De duurzaamheidsopgave draagt bij aan onze ambitie 2040: om de sociale tweedeling te verminderen. Daarbij zorgen we voor passende en betaalbare woningen en een duurzame wijk die de leefbaarheid vergroot. We hebben aandacht voor kwetsbare doelgroepen om ervoor te zorgen dat iedereen kan meedoen. Welke kansen bieden energie en klimaat om de leefbaarheid te vergroten en sociale tweedeling tegen te gaan?

Op welke manier kan de verduurzaming van wijken bijdragen aan het verminderen van de sociale tweedeling en vergroting van leefbaarheid?

FEITEN EN CIJFERS



BELEID

Inkomens tot 150% van de bijstandsuitkering-grens: aanmerking energietoeslag.

Slechtere energielabels: renovatie

- Ofwel via aanpak energiearmoede en NIP.
- Ofwel door Woco's: Aedes afspraken.

Aanpak laaggeletterdheid
Transitie mobiliteit
Preventief gezondheidsbeleid (lage SES wijken)



DOORBRAAK

Wat als het ons lukt om...

1. Het heel eenvoudig te maken (regels, ontzorgen oplossingen etc.)
2. Andere sociale normen te realiseren.

NATUUR EN KLIMAATADAPTATIE

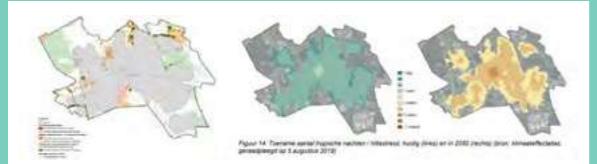


KLIMAATOPGAVE

Net als het centrum moeten de wijken klaargemaakt worden voor klimaatverandering en een gezonde leefomgeving vormen voor mens en dier. Het beschermen en verder ontwikkelen van natuur en biodiversiteit, groen en landschap en de kwaliteit van ons leefmilieu (water, bodem en lucht) horen bij onze opgave voor een duurzame stad. Ook moeten we in beeld brengen en afwegen hoe de schaalsprong in contradictie kan zijn met sommige doelen voor een klimaatneutraal Helmond. Hiervoor kan compensatie aan de orde zijn, zodat de generaties na ons de vruchten kunnen plukken van de schaalsprong en van een klimaatneutraal Helmond.

Hoe kan aandacht voor groen en natuur bijdragen aan klimaatadaptatie en verhoogde biodiversiteit, en hoe kunnen we de beperkte ruimte op een multifunctionele en leefbare manier indelen?

FEITEN EN CIJFERS



Wijken van Helmond kennen geen groot hitte probleem. Maar naar 2050 toe kan het wel ontstaan. Verharden van tuinen is de trend.

BELEID

Uitgangspunten Rijks- en lokaal beleid:

- Nederland is in 2050 klimaatbestendig.
- Hiervoor is met de uitvoeringsagenda klimaatbestendig Helmond een eerste stap vastgelegd in lokaal beleid.
- Koppeling met instrumentarium Omgevingswet (o.a. omgevingsvisie).

Stimulering derden:

- Regeling groene daken/regenton/biodiversiteit (met waterschap) voor inwoners en bedrijven.
- Versnellingsagenda Duurzaamheid Educatie en communicatie: uitrol programma SPRAAKwater voor groepen 7 en 8 op basisscholen in Helmond via Cultuurcontact.
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- Aanleg van parken in woongebieden zoals Park Goorloop en Weverspark.
- Vergroenen van daken van gemeentelijke gebouwen en bedrijven(terreinen).
- Vergroenen van bedrijven(terreinen) en vergroten biodiversiteit.



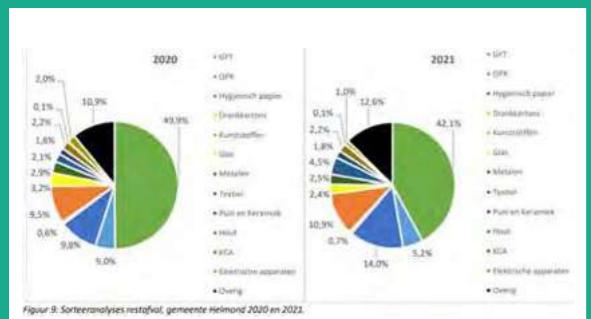
CIRCULARITEIT EN AFVALVERMINDERING



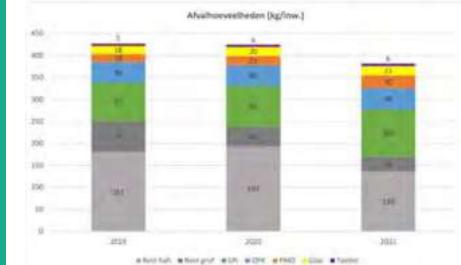
KLIMAATOPGAVE

De opgave voor onze stad is groot en we zien dat we met enkel het fossielvrij maken van onze stad niet klimaatneutraal kunnen worden. Onze vraag en verbruik is te groot om dit met enkel verduurzaming op te lossen. We moeten daarom minderen en het anders aanpakken. We weten echter ook dat bij een levendige stad waar wordt gewoond, gewerkt en gerecreëerd vele materiaalstromen komen kijken.

Hoe kunnen we afval- en consumptie stromen verminderen, waarbij gekeken wordt naar gedragspatronen in de wijken?



Afvalstroom (kg/inw/j)	2019	2020	2021
Restafval	245	242	170
Gft-afval	87	93	107
OPK (papier en karton)	48	48	48
Glas	18	20	21
Textiel	5	6	6
PMD (verpakkingen)	18	21	30
Scheidingspercentage	51%	53%	63%



Afvalstroom (kg/inw/j)	2019	2020	2021	Midden	2020
Ondergrond restafval (Ondergrond)	185	135	136	82	
Ondergrond restafval (gras)	70	45	34	20	
Totaal restafval (ongescheiden)	255	230	211	102	108
Van al het grondstoffen	176	130	121	76	
Gft-afval grondstoffen**	74	67	64	35	
Totaal geschoten afval (A)	250	227	215	111	
Totaal afval (B)	303	252	243	136	
Ante de afvalreductie (A/B)	100%	63%	62%	77%	

FEITEN EN CIJFERS

Wat leveren de containerwissels ons op?

Meer dan de helft van de inwoners in appartementen scheide etensresten in de nieuwe verzamelcontainer, 4 op de 5 gebruikt hier voor het gratis aangeboden afvalbakje.

Wat leveren de afvalcoaches ons op?

1% van de inwoners geeft aan dat zij via afvalcoaches geïnformeerd willen worden over het beter scheiden van afval. Dit % ligt hoger onder mensen in appartementen waar nieuwe containers zijn geplaatst. Hier noemt een kwart dat zij het liefst geïnformeerd worden door een afvalcoach. 19% zegt contact gehad te hebben.

Wat levert het mobiele grondstoffen inleverpunt (GRIP) ons op?

Tevreden inwoners (gemiddelde cijfer 9,1). 1/3 van het afval dat gebracht werd, werd daarvoor niet gescheiden. Ongeveer 4 op de 10 bezoekers gaat afval door GRIP beter scheiden.

BELEID

Landelijk afvalstoffenbeheerplan (LAP)

- 2030 – 50% minder gebruik van grondstoffen.
- 2050 – een economie zonder afval.



DOORBRAAK

Wat als het ons lukt om...

Een wijkaanpak vorm te geven waarin we bewustwording creëren en samen op een doelgroepgerichte manier met afval om te gaan. Ondernemers en bewoners stimuleren om anders te gaan denken over afval (Afval is grondstof). Denken en kennis omzetten in gedrag.

Inwoner <----> systeem

FOSSIËLVRIJ EN ENERGIE-OPGAVE



KLIMAATOPGAVE

In Helmond staan veel oude woningen met lage energie labels. Voor het verduurzamen van de wijken is renovatie cruciaal. Woningen verschillen sterk, en niet elke woning is even geschikt voor verduurzaming.

De transitievisie warmte geeft hiervoor een eerste aanzet. Daarin hebben wij prioritaire wijken aangewezen. Het gaat hierbij om zowel koop als huurwoningen en VVE's. Ook vanuit het Rijk lopen er op dit moment verschillende trajecten. Maken we één aanvalsplan voor heel Helmond? Is gezamenlijk aanbesteden een optie? Hoe nemen we inwoners mee in een collectieve opgave?

Kortom: Hoe kunnen we in Helmond een gezamenlijke transitie naar een fossielvrije bestaande woningvoorraad realiseren, waarbij deze verduurzaming voor iedereen beschikbaar, betaalbaar en bereikbaar is?

FEITEN EN CIJFERS



- Ongeveer 36.281 woningen in de wijken (excl. centrumbuurten).
- Ruim 4.208 EFG labels, met D label erbij ruim 11.827.
- Woningbouwcorporaties staat voor het grootste deel voor de DEFG labels.

BELEID

- Uitvoeren Transitievisie warmte: potentie voor veel warmtenetten. 12900 woningen. Kans, geen verplichting.
- Wet op Collectieve Warmtevoorzieningen en Wet Gemeentelijke Instrumenten stuurt op publieke warmtenetten toe en maakt verplichte afkoppeling mogelijk.
- Energieremoede: EFGD labels worden verduurzaamd. Particulieren in de laagste inkomensgroep krijgen ondersteuning.



DOORBRAAK

Wat als het ons lukt om...

1. Grootchalig bestaande huur- en koopwoningen te verduurzamen door samen met Woco's, gemeente, banken etc. van individueel naar collectief te gaan (wijkenpak).
2. Door de mens centraal te stellen daarin (persona's > klantreis).
3. Onze bestaande woningen te isoleren met isolatiemateriaal dat in de Peel is geproduceerd.

CIRCULAIRE KLIMAATNEUTRALE BEDRIJVEN/ECONOMIE



KLIMAATOPGAVE

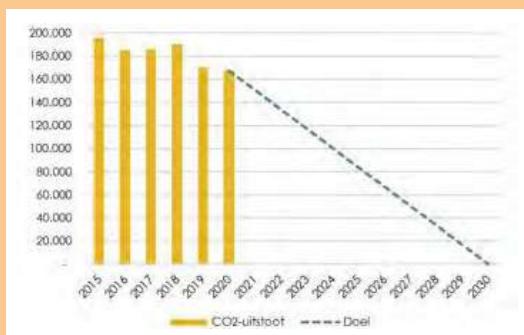
Waar ligt de potentie om duurzamer te ondernemen en produceren in en rondom Helmond? Voor duurzaamheid is het belangrijk om, tijdens economische groei, te focussen op het 'loskoppelen' van groei en uitstoot: verhoogde productie en groei mag niet leiden tot exponentieel hogere uitstoot van broeikasgassen.

In deze klimaatopgave wordt meegenomen waar en in welke sectoren de meest klimaat belastende vormen van ondernemen plaatsvinden in Helmond. Zo kan worden gekeken waar de belangrijkste verduurzamingsstappen moeten worden genomen en hoe die eruit moeten zien.

Voor klimaatneutrale bedrijventerreinen is het belangrijk om een onderscheid te maken tussen direct en indirect watergebruik, materiaal intensiteit en CO2 uitstoot. Niet alleen moeten de bedrijven en kantoren op de bedrijventerreinen zelf klimaat neutraal worden, de productieketens vergen ook aandacht. Ten slotte kunnen bedrijventerreinen een bijdrage leveren aan een duurzame arbeidsmarkt die bereikbaar is en met werk voor iedereen (ook groepen die momenteel een afstand tot de arbeidsmarkt ervaren).

Kortom: Hoe komen we in Helmond tot klimaatneutrale en circulaire bedrijventerreinen die bijdragen aan een duurzame arbeidsmarkt?

FEITEN EN CIJFERS



BELEID

Landelijk:

- Klimaatakkoord: landelijk 20 megaton minder CO2 en 50% grondstoffen uit circulaire economie.
- Green deals: 16% duurzame energie in 2023, 100% in 2050.
- Bouwbesluit 2012: Kantoren moeten EnergieLabel C hebben in 2023. Naar verwachting is dat in 2030 label A.

EU:

EED plicht: grote bedrijven moeten volgens een EED-plan verduurzamen.



DOORBRAAK

Wat als het ons lukt om...

1. Groot Schooten CO2 neutraal en circulair te maken.
2. De koppeling onderwijs - bedrijfsleven te maken op de meest impactvolle transitielijn.
3. OGT of GT mogelijk maken / experimenteerruimte in "energie".

SAMENWERKING EN KENNISUITWISSELING



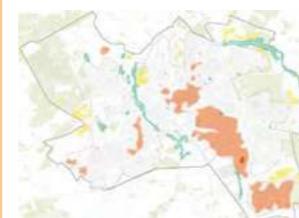
KLIMAATOPGAVE

Samenwerking en kennisuitwisseling kunnen een enorm verschil maken voor verduurzaming. Verhoogde samenwerking kan leiden tot meer materiaal en energie uitwisseling tussen bedrijven en kennisuitwisseling stimuleert duurzaam ondernemen. Tevens moeten we met elkaar bestendige bedrijfsterreinen ontwikkelen, waarbij we samen inzetten om de weerbaarheid van de locaties te vergroten. We lopen tegen schaarste op het elektriciteitsnet aan. Intensieve samenwerking is daardoor en daarvoor noodzakelijk. In deze klimaatopgave wordt gezocht naar optimalisatie voor ketensamenwerkingen, netwerktransparantie en bewustwording. Smart Synergy Helmond is de samenwerking tussen gemeente en bedrijven in Helmond om de bedrijfsterreinen te verduurzamen. Daarbij wordt gewerkt aan slimme (warmte)netten, proces- en afvalwater netten, klimaatbestendig maken van terreinen en aan collectieve inzameling van reststromen voor hergebruik.

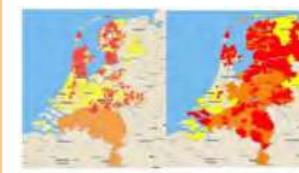
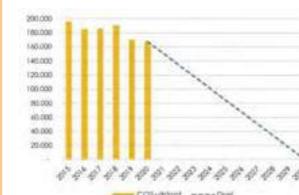
Voor samenwerking is transparantie, vertrouwen en monitoring nodig.

Hoe creëren we inzicht in de gezamenlijke en individuele opgaven die bedrijven hebben en welke afspraken zijn daarvoor nodig?

FEITEN EN CIJFERS



Groen = overstroming
Geel = droogte
Oranje/rood = hittestress
Blauw = wateroverlast



Gap industrie = 169.854 ton CO2 eq



DOORBRAAK

Wat als het ons lukt om...

1. Oprecht samen te werken en informatie te delen.
2. Te werken aan een gezamenlijk doel, samen verantwoordelijkheid nemen.
3. Het klimaatcontract ons lange termijn plan te laten zijn.
4. Commitment te krijgen van partners, stad, EU en ministeries.

EEN NETTO POSITIEVE REGIO



KLIMAATOPGAVE

De regio rond Helmond kampt met verstedelijgingsopgaven, energietransitie, klimaatadaptatie en de landbouwtransitie. We zullen op een multifunctionele manier gebruik moeten maken van de omgeving met ruimte voor: duurzame en circulaire landbouw, energie intensiteit, water intensiteit en biodiversiteit. Samen met inwoners, onderwijs, gemeenten, jongeren en het bedrijfsleven moeten we een transitie in gang brengen waarbij we ons richten op 100% circulair, 100% inclusief en meer opnemen dan uitstoten.

Om het vliegwielen van pioniers te vergroten, de kennisbank en – overdracht uit te breiden én een meetinstrument te ontwikkelen is er veel nodig. Het vraagt om samenwerking, vertrouwen, transparantie, gekoppelde doelen en tijd. Hoe kunnen we de beweging in gang zetten?

Hoe kunnen we een beweging creëren om de regio rond Helmond circulair, inclusief en netto positief te maken?

FEITEN EN CIJFERS

- Nu slechts 2.400 hectare vlas en 1.900 hectare hennep in Nederland (in Noord-Brabant hebben we 75.153 hectare cultuurgrond).
- Aantal Biologische landbouwbedrijven in Noord-Brabant is tussen '15 en '20 met 43% toegenomen tot 196 stuks.
- De prognose is dat in de periode '17-'30 tot 2.16 miljoen m² agrarische bebouwing vrij komt.

BELEID

Landelijk:

- Stikstofbeleid, stimulering kringlooplandbouw.

Provinciaal:

- VABIMPULS: beleid en stimulering alternatief gebruik vrijkomende agrarische opstallen.



DOORBRAAK

Wat als het ons lukt om...

1. De regio en de stad dichter bij elkaar te brengen.
2. Met inspirerende voorbeelden en meetinstrumenten een grotere groep mensen in actie te krijgen.
3. De "pijn" zichtbaar te maken.

ENERGIE TRANSITIE



KLIMAATOPGAVE

Het buitengebied biedt mogelijkheden voor het produceren, transporteren en opslaan van duurzame energie t.b.v. de energietransitie, waar dit in andere gebieden moeilijker is. We hebben natuurlijk in de Regionale energiestrategie al een eerste aanzet gedaan. Zowel ten aanzien van warmte als voor elektra opwek zoeken we hier verbinding. De energietransitie vraagt immers niet alleen om praktische oplossingen maar ook om een andere samenwerking. Is een gezamenlijke ambitie voor bijvoorbeeld energiebesparing een mooie eerste stap? Hoe kunnen we ons zo min mogelijk aantrekken van gemeentegrenzen? Zien we nog meer kansen voor het opwekken van energie in de regio? Zijn er kansen voor een structurele samenwerking? Zo ja, hoe kunnen we die invullen? Kunnen we gezamenlijk prioriteren? Gezamenlijk optrekken in oplossingen voor netcongestie?

Welke stappen moeten boven op de RES genomen worden om duurzame energie in het buitengebied te produceren, transporteren en opslaan en om een structurele samenwerking te realiseren voor de energietransitie?

FEITEN EN CIJFERS



BELEID

Regionaal:

- RES: focus op besparen.
- Zo veel mogelijk zon op dak en 0,57 TWh opwekken in de zoekgebieden.
- Langs grootschalige infrastructuur en op industriële plassen (geen natuur).
- Op braakliggende grond.
- Niet in Natura 2000.

Lokaal:

- Visie zonnevelden en zonnedaken Helmond 2020.
- Betaalbaarheid, haalbaarheid en betrouwbaarheid voor de eindgebruiker staan voorop.
- De gemeente is regisseur maar hanteert het principe samen.
- We kiezen voor een buurtgerichte aanpak.
- Indien het kan wordt keuzevrijheid geboden voor inwoners en bedrijven.



DOORBRAAK

Wat als het ons lukt om...

1. Tot een systeembenedering te komen (flexibel) om de verschillende thema's aan elkaar te verbinden (regionaal).
2. Samen te bepalen, met toestemming van het Rijk, wie het mag ontwikkelen (energie positief voorrang).
3. Interne samenwerking te structureren.
4. Samen te werken als je als regio dezelfde opgave hebt in plaats van los van elkaar zaken uit te zoeken.

DOORBRAKEN



FOSSIËLVRIJ EN CIRCULAIR BOUWEN

DOORBRAAK

1. De bestaande voorraad beter te benutten.
2. Vanaf nu klimaatneutraal en circulair te bouwen in de regio.
3. Een keten van circulaire bouwmaterialen op lokaal niveau te organiseren en

BEREIKBAAR EN LEEFBAAR HOUDEN VAN DE BINNENSTAD

DOORBRAAK

1. De ontwikkelaar mee verantwoordelijk te maken voor duurzame mobiliteit.
2. De openbare ruimte te ontwerpen vanuit verblijfskwaliteit.
3. Duurzame mobiliteit te belonen
 - Wegstrekken van de auto gaat niet werken
 - Gewoon beginnen! De auto wordt steeds duurzamer

NATUUR EN KLIMAATADAPTATIE

DOORBRAAK

1. Groen, water, natuur als insteek (i.p.v. grijze eisen) te kiezen? Vanuit trots, maatschappelijke waarde, nut, noodzaak.
2. Rekening te houden met de verschillende functies van groen.
3. Natuur en groen samen te gebruiken voor sociale cohesie.

CIRCULARITEIT EN AFVALSTROMEN

DOORBRAAK

1. Direct 100% circulair duurzaam inkopen.
2. Jongeren enthousiasmeren om deel uit te maken
3. Regelgeving + systeem aanpassen.

CIRULaire KLIMAATNEUTRALE BEDRIJVEN/ECONOMIE

DOORBRAAK

1. Groot Schooten CO2 neutraal en circulair te maken.
2. De koppeling onderwijs - bedrijfsleven op de meest impactvolle transitielijn.
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SAMENWERKING EN KENNISUITWISSELING

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3. Het klimaatcontract ons lange termijn plan te laten zijn.
4. Commitment van partners, stad, EU en ministeries.



LEEFBAARHEID WIJKEN

DOORBRAAK

1. Het heel eenvoudig te maken (regels, ontzorgen oplossingen etc.)
2. Andere sociale norm te realiseren.

CIRCULARITEIT EN AFVALVERMINDERING

DOORBRAAK

Een wikaanpak vorm te geven waarin we bewustwording creëren en samen op een doelgroepgerichte manier met afval om te gaan. Ondernemers en bewoners stimuleren om anders te gaan denken over afval (Afval is grondstof). Denken en kennis omzetten in gedrag.
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EEN NETTO POSITIEVE REGIO

DOORBRAAK

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3. Interne samenwerking te structureren.
4. Werk samen als je met de regio dezelfde opgave hebt in plaats van los van elkaar zaken uit te zoeken.

SLOTWOORD



HELMOND KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?





EUROPESE KLIMAATMISSIE

Stedelijk klimaatcontract Eindhoven
Verslag doorbraaksessie 16 februari



EINDHOVEN KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?



PROGRAMMA DOORBRAAKLAB

13.00

EINDHOVEN KLIMAATNEUTRAAL IN 2030

360° PERSPECTIEVEN

14.45

PAUZE

15.00

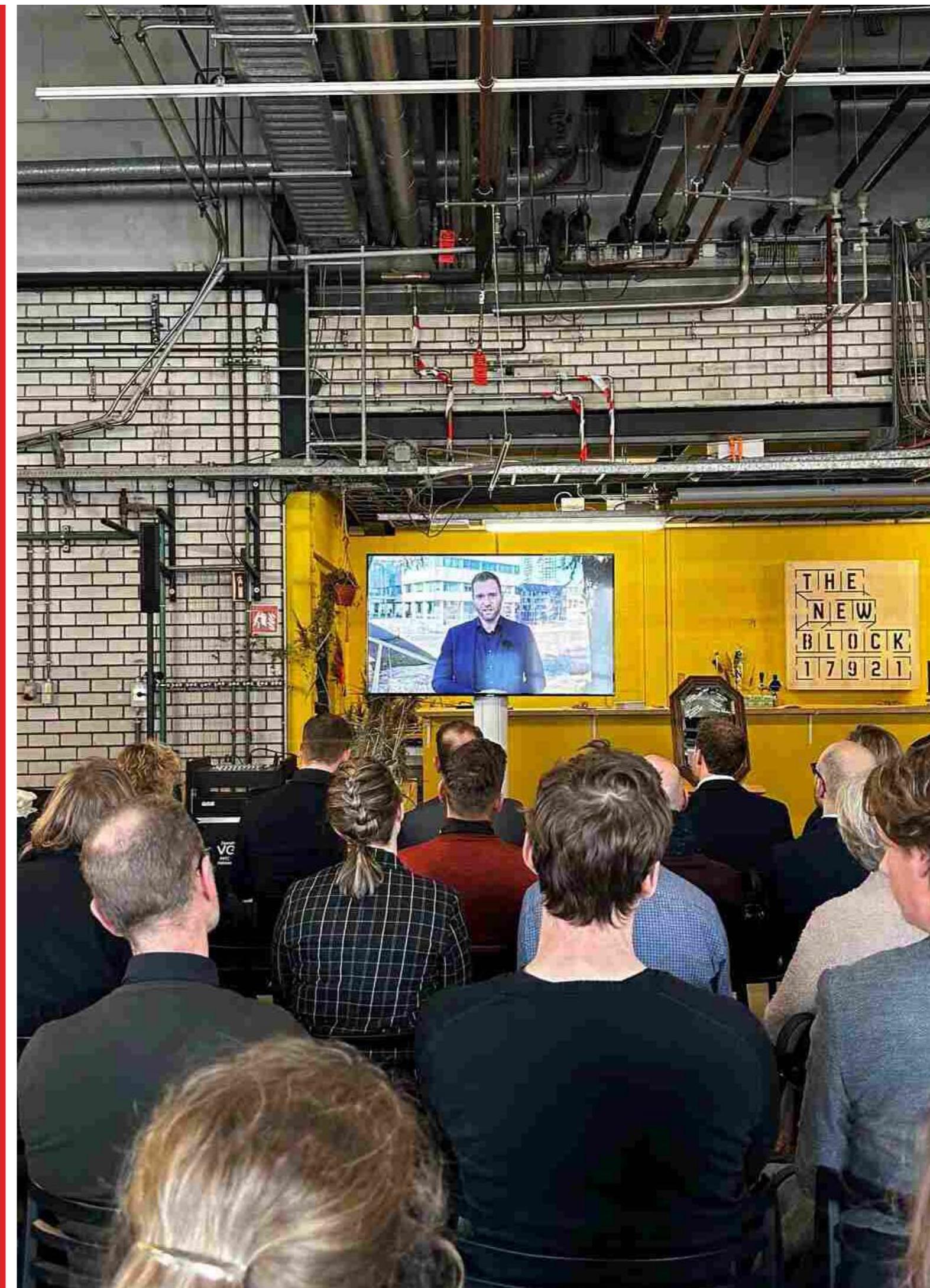
KLIMAATCONTRACT EN OPGAVEN

DOORBRAAKSESSIES

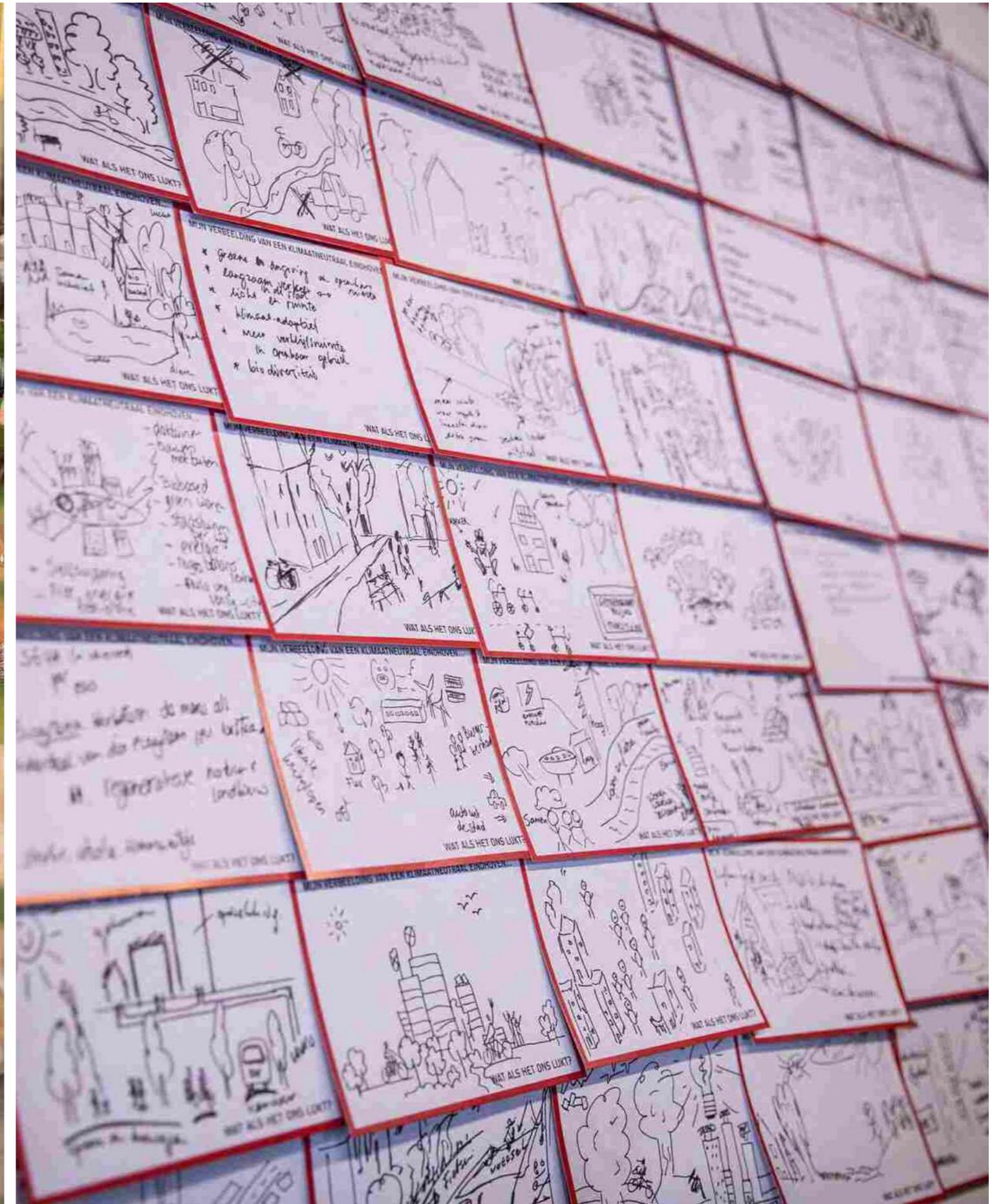
17.00

PRESENTATIES

EINDHOVEN KLIMAATNEUTRAAL
IN 2030



ONS KLIMAATNEUTRAAL EINDHOVEN IN 2030



360° PERSPECTIEVEN



Paul Schenderling

Schrijver, econoom



Thomas Leenders

Hoofd Public & Government Affairs Benelux & Europe Signify.



Anke Verhagen

Klimaatburgemeester, Manager Duurzaamheid en Innovatie Rabo SmartBuilds



Jifke Sol

Lector Circulaire Transitie Fontys

Er is leven na de groei

- Integraliteit
- Waar zit de impact?
- De-individualiseren
- Radicaal anders denken
- Nationaal vs. internationaal
- Gedragsverandering
- Zoek het bij de bron
- Bewustwording

Strategie voor verduurzaming

- Geen spullen maar service aanbieden
- Nieuw businessmodel
- Sociale componenten
- Ketens langer maken
- Maak het concreet, doe het

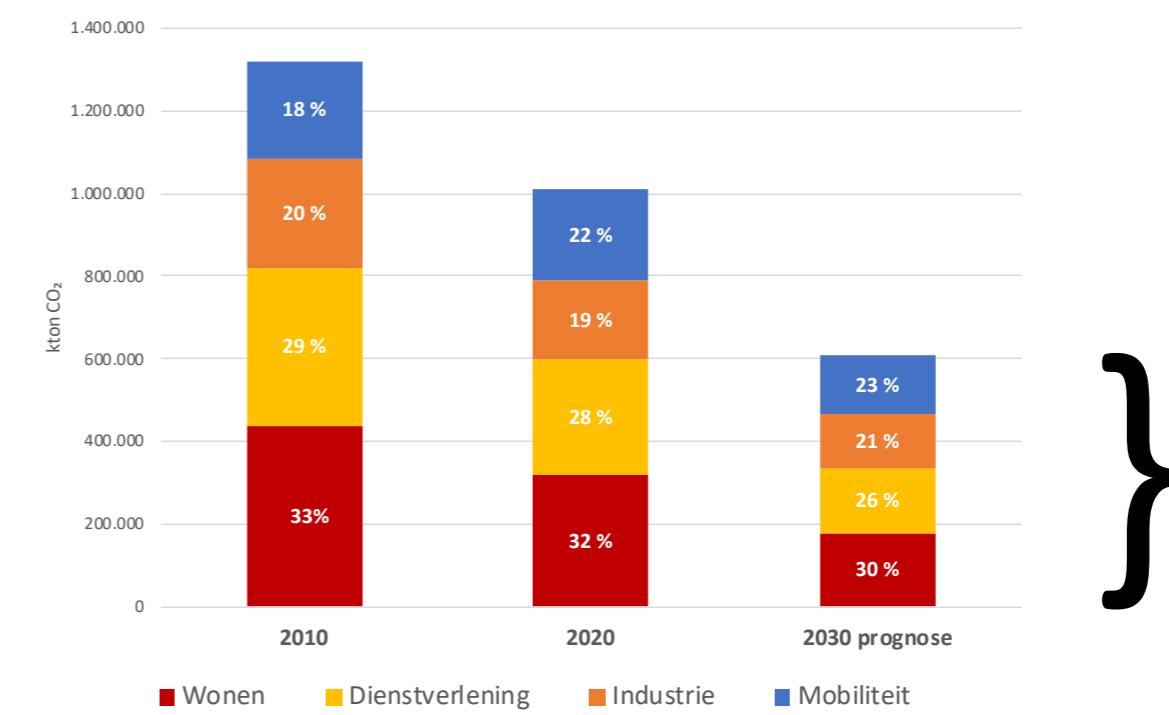
Hoe snel, veel, betaalbaar én duurzaam bouwen

- Grote spelers in het systeem zijn ook onderdeel van de oplossing
- Lef en samenwerking
- Zicht op betaalbaarheid
- Indirecte invloed
- Flexibiliteit
- Probleem oplossen en de wereld beter maken > positieve impact
- Zowel als professional en als inwoner iets kunnen doen

Leiderschap en transformatie, moet je leren

- Hier in deze zaal zit de voorhoede van de CE Eindhoven
- Je staat niet alleen, er zijn zeker 5 maatjes te vinden
- Wees nieuwsgierig en kwetsbaar, blijf lerend en durvend

HOE STAAT HET ERVOOR?



STADSTHEMA'S



EEN KLIMAATNEUTRAAL EN EMISSIEVRIJ CENTRUM

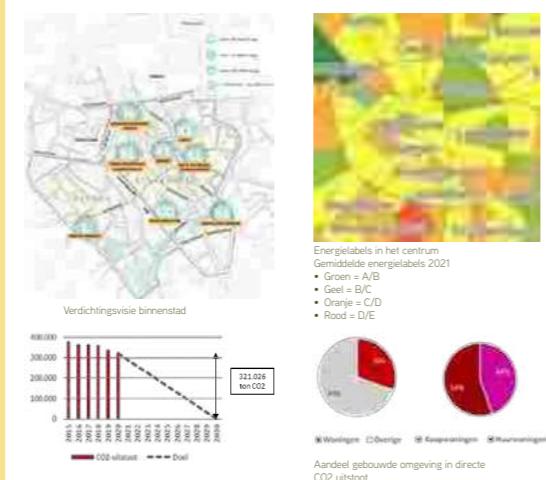


KLIMAATOPGAVE

In 2030 hebben wij een klimaatneutrale binnenstad. De verdichting van de binnenstad en het terugdringen van CO₂ emissies staan op gespannen voet met elkaar. Dit heeft grote gevolgen voor bestaande gebouwen en nieuwbouw, de infrastructuur in de ondergrond, de stadslogistiek en energiesystemen. Het meest ambitieuze scenario voor de binnenstad 'Eindhoven City' zet in op het hoogstedelijk karakter van het centrum met 30.000 woningen binnen de ring, een toevoeging van zowel basis- als stedelijke voorzieningen en een hoogstedelijke woon-en werkomgeving met een toevoeging van 7.000 arbeidsplaatsen. Om de vereiste reductie in CO₂ uitstoot te realiseren is op termijn een volledig aardgasloze verwarming van de gebouwde omgeving en een volledig CO₂-emissievrije mobiliteit noodzakelijk.

Hoe kunnen we in de binnenstad komen tot circulaire en klimaatpositieve gebouwen?

FEITEN EN CIJFERS



BELEID

- Aardgasvrij verwarmen.
- Duurzame energie gebruiken en opwekken.
- Vervoer zonder uitlaatgassen.



DOORBRAAK

Wat als het ons lukt om...

1. Vanuit een verneeld verhaal 2030... 40... 50... - *Hoe ziet Eindhoven eruit over ... jaar? te kijken met inwoners/gebruikers:*

- Vanuit thema's naar gebieden
- Hoe versterken thema's elkaar
- Verdicht in oude dorpskernen. Breng voorzieningen terug

2. Regie vanuit de Gemeente/provincie te pakken - *Hoe sturen we daarop?*

- Warmtebedrijf
- Collectieve smeden
- Stimuleren OV/transferia/auto's eruit
- Verharding eruit > groen erin

3. De klimaatopgave aan kwaliteit van leven te koppelen - *Welke effecten willen we bereiken?*

Voor de inwoners/gebruikers

- Regelgeving
- 'Dit niet', 'Dat wel'
- Wetgeving

Mobiliteit = sleutel
Energietransitie = hefboom

DUURZAME CONSUMPTIE



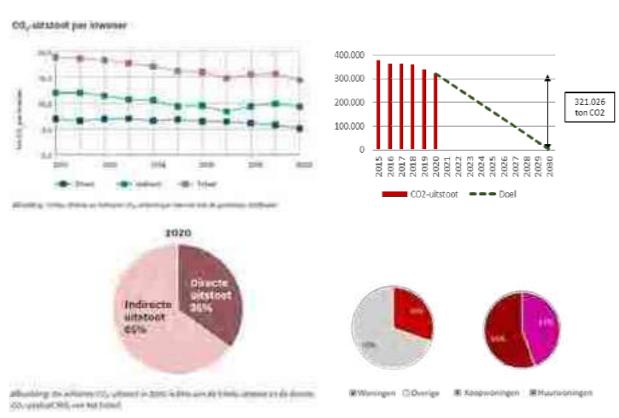
KLIMAATOPGAVE

Grofweg twee derde van de totale CO₂ emissies van Eindhoven zijn afkomstig van indirecte uitstoot. Indirecte CO₂-uitstoot komt vrij tijdens het produceren en vervoeren van producten die door Eindhovenaren gekocht en gebruikt worden, maar ergens anders zijn gemaakt (zoals: bouwmaterialen, elektronische producten, kleding en levensmiddelen). De indirecte CO₂-uitstoot is de afgelopen vijf jaar weer gestegen terwijl de uitstoot moet dalen. Oorzaken hiervan zijn het stijgende inwoneraantal van Eindhoven en bestaande consumptiepatronen. Kortom, er is een dalende trend van het consumptiegedrag nodig.

We willen een circulaire stad worden waar producten in gesloten technologische en biologische kringlopen gebruikt worden. (Grond)stoffen, materialen en producten die we gebruiken hebben geen negatieve effecten op mens en milieu, niet bij winning of productie, niet bij transport of gebruik en dus ook niet aan het einde van de levensduur.

Hoe kunnen we in een gezamenlijke aanpak met de ondernemers in de binnenstad van Eindhoven een verandering in consumptiepatronen bij inwoners realiseren (gericht op verlagen van de consumptie, hergebruik van producten, nieuwe producten volledig circulair)?

FEITEN EN CIJFERS



BELEID

In ons plan van aanpak CE 2018-2020 hebben we de Rijksambitie om in 2050 een circulaire economie te hebben onderschreven net als de ambitie om in 2030 50% minder primaire grondstoffen te gebruiken. Dat is gericht op:

- Gebruik van duurzame materialen.
- Geen afval produceren.
- Flexibel en demontabel bouwen.
- Deeleconomie bevorderen.

In 2025 creëren we maximaal 150 kg restafval per inwoner en maximaal 33% huishoudelijk afval, dit is exclusief de reductie die met de NSI (nascleidingsinstallatie) gerealiseerd kan worden.



DOORBRAAK

Wat als het ons lukt om...

1. Goed gedrag te belonen: bijv. de trein = goedkoper dan de auto.
2. Onze mindset te veranderen: we nemen collectieve verantwoordelijkheid en vertrouwen voor het voorkomen van afval.
3. Circulair en duurzaam écht toegankelijk te maken: met ruiwinkels op toplocaties en circulaire hotspots (evoluon?).
4. Ondernemers collectieven (en eigenaars) te laten bloeien op circulaire businessmodellen en circulaire marketing.

EEN FIJNE PLEK OM TE WONEN, TE VERPOZEN EN TE RECREËREN



KLIMAATOPGAVE

Eindhoven heeft een centrumfunctie voor de regio, de stedelijke structuur is decennia lang volledig rond de auto opgebouwd. De binnenstad heeft relatief weinig groen en veel autoverkeer, waardoor er wateroverlast en hittestress ontstaat.

We willen graag groen versterken in het centrum. Groen is nodig om ons aan te kunnen passen aan het veranderend klimaat, voor biodiversiteit, voor een gezonde lucht, bodem en water. Voor recreatie, ontspanning en elkaar ontmoeten. En ter voorkoming van droogte en hitte. Daarnaast willen we meer en betere fysieke leefruimte voor het toenemend aantal inwoners creëren: het autoverkeer maakt plaats voor een gezonde leefruimte voor inwoners en bezoekers. Hier kunnen we aanvullende voorzieningen aanbrengen voor jong en oud, om te kunnen bewegen, verblijven en elkaar te ontmoeten.

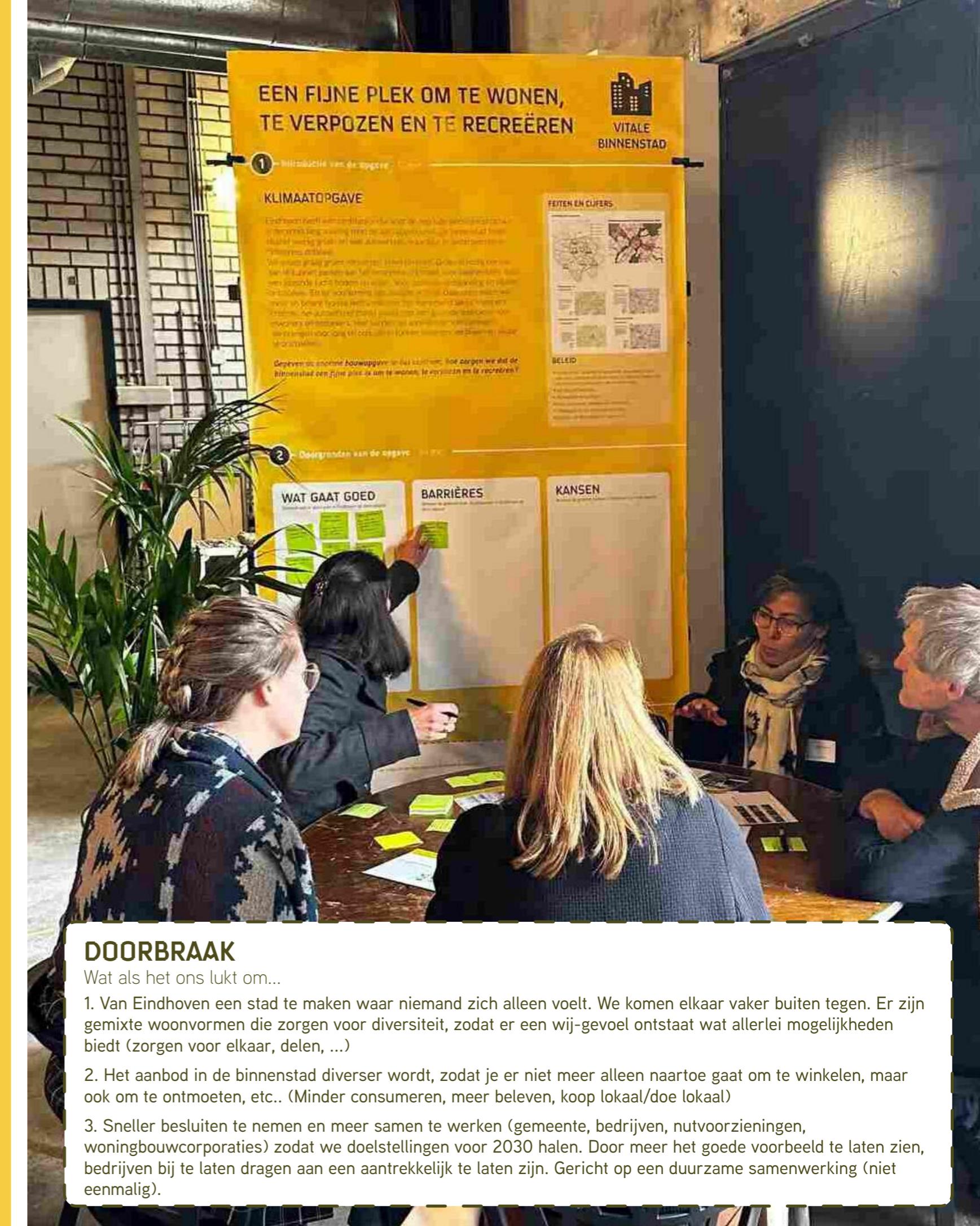
Gegeven de enorme bouwopgave in het centrum, hoe zorgen we dat de binnenstad een fijne plek is om te wonen, te verpozen en te recreëren?

FEITEN EN CIJFERS



BELEID

- Huidig beleid: Vergroten biodiversiteit, versterken groene identiteit, stadsdekkend groen netwerk, robuuste bodem- en watersystemen, aanpassen aan extreem weer.
- Een gezond leefmilieu.
- Autoverkeer terugdringen.
- Meer ruimte voor bewegen en ontmoeten.
- Dubbelgebruik van ruimte als oplossing.
- Gebruik van de ondergrond regisseren.



DOORBRAAK

Wat als het ons lukt om...

1. Van Eindhoven een stad te maken waar niemand zich alleen voelt. We komen elkaar vaker buiten tegen. Er zijn gemixte woonvormen die zorgen voor diversiteit, zodat er een wij-gevoel ontstaat wat allerlei mogelijkheden biedt (zorgen voor elkaar, delen, ...)
2. Het aanbod in de binnenstad diverser wordt, zodat je er niet meer alleen naartoe gaat om te winkelen, maar ook om te ontmoeten, etc.. (Minder consumeren, meer beleven, koop lokaal/doe lokaal)
3. Sneller besluiten te nemen en meer samen te werken (gemeente, bedrijven, nutvoorzieningen, woningbouwcorporaties) zodat we doelstellingen voor 2030 halen. Door meer het goede voorbeeld te laten zien, bedrijven bij te laten dragen aan een aantrekkelijk te laten zijn. Gericht op een duurzame samenwerking (niet eenmalig).

LEEFBARE WIJKEN EN GEZONDE INWONERS



KLIMAATOPGAVE

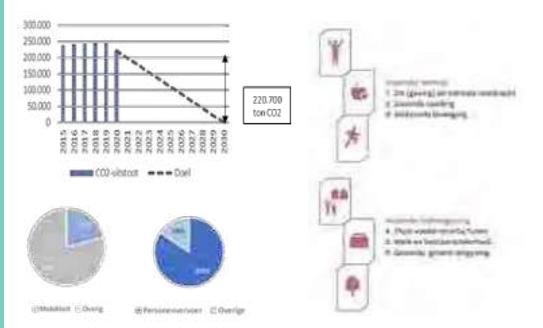
Eindhoven wil een stad zijn met vitale inwoners: mensen die goed in hun vel zitten en gezond zijn. Als gemeente zetten wij hier samen met de inwoners en partners komende jaren vaart achter. We dagen hen - en zeker ook onszelf - uit om het echt anders te gaan doen. Om bij te dragen en met elkaar te zorgen dat elke Eindhovenaar zich fitter kan gaan voelen. Met als stip op de horizon, een plus: drie extra gezonde levensjaren erbij voor iedereen.

Groen is nodig om ons aan te kunnen passen aan het veranderend klimaat, voor biodiversiteit, voor een gezonde lucht, bodem en water. Voor recreatie, ontspanning en ontmoeten. En ter voorkoming van hitte en droogte. Met eenvoudige (zichtbare of onzichtbare) voorzieningen aan gebouwen, kan veel bereikt worden voor de biodiversiteit en leefbaarheid in de stad.

Daarnaast willen we meer en betere fysieke leefruimte creëren voor het toenemend aantal inwoners: het autoverkeer maakt plaats voor een gezonde leefruimte voor inwoners en bezoekers. Hier kunnen we aanvullende voorzieningen aanbrengen voor jong en oud, om te kunnen bewegen, verblijven en elkaar te ontmoeten. We willen daarnaast dat iederéén kan meedoen.

Hoe kunnen we energie en klimaat inzetten om de leefbaarheid te vergroten en sociale tweedeling tegen te gaan in de wijken van Eindhoven?

FEITEN EN CIJFERS



• Prognose elektrische personenauto's: 25% van de personenauto's is elektrisch in 2030.

• Nu (2021): 2,5% van het totale elektrisch --> 2500 auto's in Eindhoven.

BELEID

- Vergroten biodiversiteit, versterken groene identiteit, stadsdekkend groen netwerk, robuuste bodem- en watersystemen, aanpassen aan extreem weer.
- Een gezond leefmilieu.
- Meer actieve verplaatsing bevorderen, autoverkeer terugdringen.
- Meer ruimte voor bewegen en ontmoeten.
- Gebruik van de ondergrond regisseren.

In 2030 heeft iedere Eindhovenaar er drie gezonde levensjaren bij en is er een afname van de gezondheidsverschillen.



DOORBRAAK

Wat als het ons lukt om...

1. In iedere wijk een sterk voorbeeld te realiseren dat dient als ontmoetingsplek tot gezond en duurzaam leven.
2. Genoeg inwoners te verenigen in de wijk om tot een goede basis en een zelfvoorzienend leven te komen (bijv. school)
3. Via gemeentelijke opgaven (warmtetransitie) de wijk te redesignen (bijv. autovrij) gericht op sociale en duurzame ontwikkelingen.

KLIMAATNEUTRAAL BOUWEN EN RENOVEREN

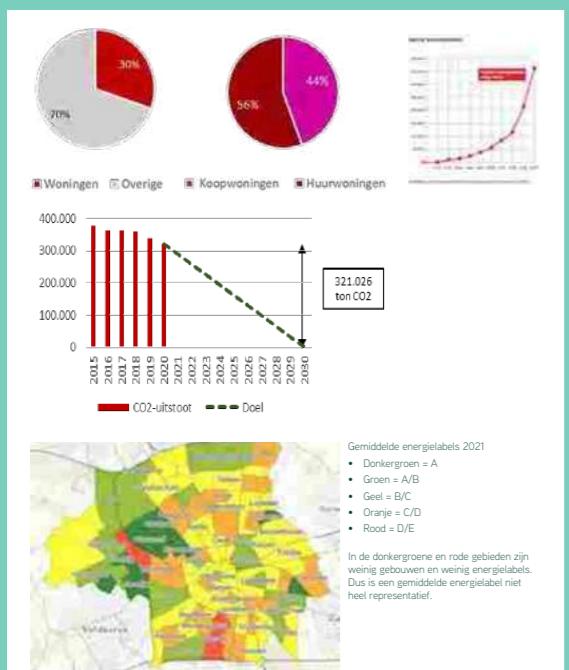


KLIMAATOPGAVE

Het overgrote deel van de huur- en koopwoningen moet nog verduurzaamd worden. De opgave, is ook zonder te versnellen, enorm: het gaat om 3.000 woningen per jaar en meer dan 100 buurten in Eindhoven. Het streven vanuit het klimaatakkoord is om dienstverlening en wonen woonlastenneutraal te realiseren.

Hoe zorgen we voor verduurzaming van huidige woningen (betaalbaar voor iedereen) en duurzame nieuwbouw?

FEITEN EN CIJFERS



BELEID

Terugdringen CO₂: Eindhoven onderschrijft het klimaatakkoord van Parijs door de in 2016 vastgestelde Klimaatverordening040. Hierin is vastgelegd dat de CO₂ emissie van de stad teruggedrongen moet worden met 55% in 2030 en 95% in 2050. Referentiepunt daarbij is de emissie in het jaar 1990.

Het huidige beleid is gericht op:

- Aardgasvrij verwarmen.
- Duurzame energie gebruiken en opwekken.
- Vervoer zonder uitlaatgassen.

A photograph showing a group of people gathered around a table for a discussion at a booth. The booth has a green banner with the text 'KLIMAATNEUTRAAL BOUWEN EN RENOVEREN' and 'LEEFBARE WIJKEN'. The banner also features sections for '1 - Introductie van de opgave' and '2 - Doorgroonden van de opgave'. Below these are sections for 'WAT GAAT GOED', 'BARRIERES', and 'KANSEN'. A small graphic titled 'FESTEN EN CUPERS' is also visible. The people are engaged in conversation, with one man in a blue jacket and jeans seated at the table, and several others standing around him. The background shows a white building with windows and a door.

DOORBRAAK

Wat als het ons lukt om...

De uitvraag/opdracht vanaf 2025 te standaardiseren voor bouwen en renoveren met bio-based als meetbare norm in de woningbouw en bedrijfsutiliteit/bouw.

CIRCULAIRE WIJKEN



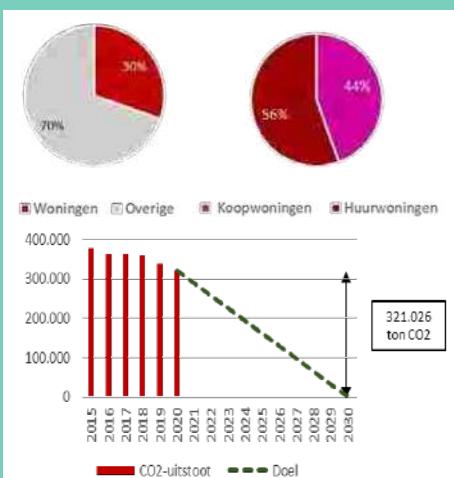
KLIMAATOPGAVE

Grofweg twee derde van de totale CO₂ emissies van Eindhoven zijn afkomstig van indirecte uitstoot (indirecte CO₂-uitstoot komt vrij tijdens de productie en het vervoer van producten die door Eindhovenaren gekocht en gebruikt worden, maar ergens anders zijn gemaakt. Zoals: bouwmaterialen, elektronische producten, kleding en levensmiddelen).

De indirecte CO₂-uitstoot is de afgelopen vijf jaar weer gestegen terwijl de uitstoot moet dalen. Oorzaken hiervan zijn het stijgende inwoneraantal van Eindhoven en bestaande consumptiepatronen. Kortom, er is een dalende trend van het consumptiegedrag nodig. We willen een circulaire stad worden waar producten in gesloten technologische en biologische kringlopen gebruikt worden. (Grond)stoffen, materialen en producten die we gebruiken hebben geen negatieve effecten op mens en milieu, niet bij winning of productie, niet bij transport of gebruik en dus ook niet aan het einde van de levensduur.

Hoe stimuleren we gedragsverandering gericht op minder consumptie, minder uitstoot en minder afval?

FEITEN EN CIJFERS



BELEID

Doele: in 2050 een circulaire economie. In 2030 50% minder gebruik van primaire grondstoffen. Dit bereiken we door:

- Gebruik van duurzame materialen
- Geen afval produceren
- Flexibel en demontabel bouwen
- Deeleconomie bevorderen

In 2025 creëren we maximaal 150 kg restafval per inwoner en maximaal 33% huishoudelijk afval, dit is exclusief de reductie die met de NSI (nascheidingssinstallatie) gerealiseerd kan worden.



RUIMTE VOOR WATER EN GROEN

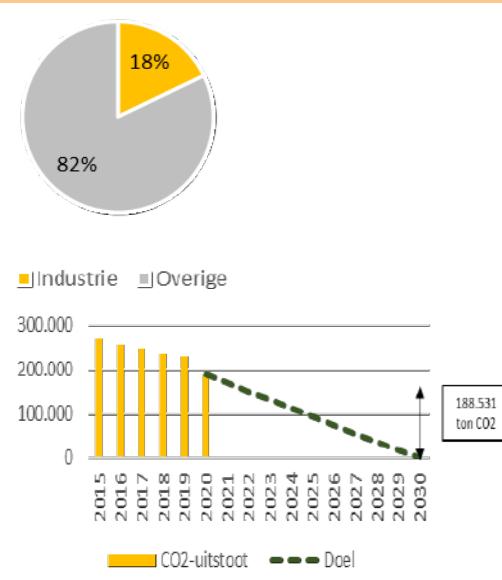


KLIMAATOPGAVE

De meeste bedrijventerreinen in Eindhoven zijn overwegend versteend en verhard. Er is weinig groen en beperkte mogelijkheid voor wandelen en fietsen. In de zomer is het op bedrijventerreinen veel warmer dan in de omgeving. Hittestress vergroot de vraag naar koelen en mensen zijn doorgaans minder productief. Door hevige buien neemt wateroverlast toe. De hemelwaterafvoer is vaak onvoldoende. Overlast en schade worden groter als maatregelen uitblijven. Door ruimte te maken en te benutten voor groen en water worden bedrijventerreinen een 'bedrijvenpark' in plaats van een bedrijventerrein. Veel versteening kan worden omgezet in groen en water, mede door innovatief centraal parkeren. Dit maakt werken op bedrijventerreinen aangenamer en aantrekkelijker.

Hoe kunnen we versteende en verharde bedrijventerreinen door meer groen en water te creëren ombouwen tot aangename en aantrekkelijke werkomgevingen?

FEITEN EN CIJFERS



BELEID

- In 2030 is de ruimte voor groen en water verder toegenomen. Het percentage verhard oppervlakte is afgangen van 90% naar 75%.
- Reducie van het aantal parkeerplaatsen op het maaiveld met 25% in 2030.
- Totale reductie van 15% van het aantal parkeerplaatsen als gevolg van mobiliteitsaanpak en betere bezettingsgraad van parkeerplaatsen in 2030.



DOORBRAAK

Wat als het ons lukt om...

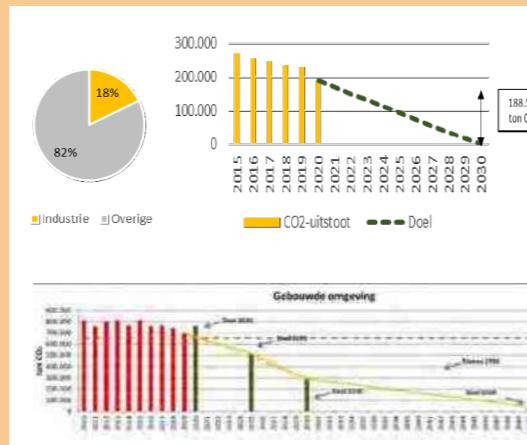
- Er voor te zorgen dat groen en water meer oplevert dan grijs. (welzijn, financieel- belasting/beheerkosten, minder schade door wateroverlast) = gewenst gedrag belonen.
- Mede-eigenaarschap te creëren - gezamenlijk oplossen van probleem.
- Te zorgen voor mobiliteitsoplossingen, zodat er minder parkeerplekken nodig zijn: een kabelbaan van het station naar Flight Forum, deelmobilitet.

DUURZAAM VERBOUWEN

Veel bedrijfspanden op bedrijventerreinen zijn verouderd, waardoor ze onvoldoende duurzaam economisch functioneren. Bedrijventerrein de Hurk is het eerste bedrijventerrein in Eindhoven dat d.m.v. een collectieve, een integrale aanpak wordt verduurzaamd. In totaal heeft Eindhoven 18 bedrijventerreinen die nog aangepakt moeten worden. Duurzaam verbouwen om energie te besparen en een gezonder en fijner werkclimaat te realiseren dragen direct bij aan de doelen voor energie, economie, leefmilieu/ klimaat en gezondheid. Een collectieve aanpak ontzorgt bedrijven bij het plannen van de financiering, gespecialiseerde en gekwalificeerde lokale leveranciers en voldoende capaciteit voor realisatie.

Hoe kunnen we door middel van een collectieve aanpak verouderde bedrijfspanden duurzaam verbouwen met als doel het besparen van energie én het creëren van een beter werkclimaat? (en daarmee eveneens bijdragen aan onze bredere energetische, economische en klimaatdoelen)

FEITEN EN CIJFERS



BELEID

- In 2026 voldoen alle bedrijfspanden (kantoren en overige panden) minimaal aan energielabel C. In 2030 voldoen ze aan energielabel A.
- Bouwbesluit 2012: Kantoren moeten EnergieLabel C hebben in 2023. Naar verwachting is dat in 2030 label A.
- EU: EED plicht: grote bedrijven moeten volgens een EED-plan verduurzamen.



CIRCULAIRE ECONOMIE

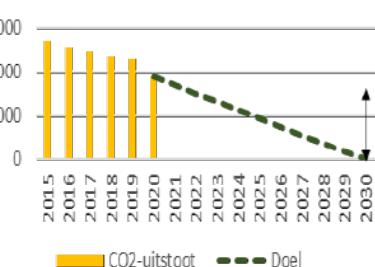
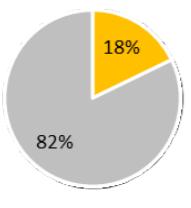


KLIMAATOPGAVE

De vraag naar grondstoffen wordt door de groeiende bevolking en toenemende consumptie steeds groter. Het is belangrijk om niet-hernieuwbare grondstoffen zo efficiënt mogelijk te (her)gebruiken. Bedrijven op bedrijventerreinen en de gemeente willen daarom circulair werken: minimaal gebruik van primaire grondstoffen, hoogwaardig hergebruik van grondstoffen in een gesloten kringloop, het verlengen van de levensduur en het produceren van zo min mogelijk afval. Om dit te laten slagen is samenwerking tussen bedrijven nodig. Bijvoorbeeld door grondstoffen en (rest) materialen uit te wisselen via een marktplaats.

Hoe kan samenwerking tussen bedrijven op bedrijventerreinen bevorderd worden om circulair te werken en de gebruikte grondstoffen efficiënt (her)te gebruiken?

FEITEN EN CIJFERS



BELEID

- In 2030 wordt op bedrijventerreinen 50% minder primaire grondstoffen gebruikt en in 2050 is het industriegebied volledig circulair.
- We zetten een materialen depot op voor hergebruik.

Lokaal:

- Cirkelstad: Eindhoven is sinds 2020 actief als Cirkelstad. In de regio Eindhoven werken we aan een regionale circulaire strategie van opdrachtgeverschap, in samenwerking met de markt en aan de hand van 'Het Nieuwe Normaal'. Inmiddels zijn meer dan 20 partijen aangesloten.



DOORBRAAK

Wat als het ons lukt om...

1. Bedrijfsinvesteringszones op te schalen en te concretiseren
 - Opschalen op andere terreinen
 - Geld goed besteden
 - Circulaire doelen opbreken in kleine haalbare doelen
 - Capaciteit
 - Daadkracht
2. Een marktplaats voor grondstoffen uit te bouwen
 - Van Helmond naar Eindhoven
 - Van 'Reuse' naar 'Refuse' & 'Rethink':
 - minder inkopen (!)
 - meer infrastructuur delen
 - meer repareren
 - redesign/ecodesign
 - standaardisatie (!)

DUURZAME ENERGIE



KLIMAATOPGAVE

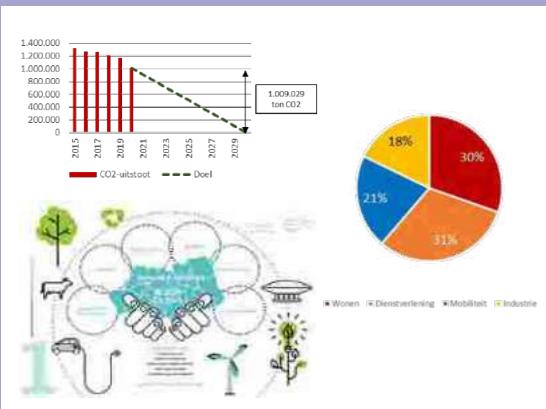
De mondiale opgave van de energietransitie biedt uitdaging en werkgelegenheid voor onze hightech regio om duurzame innovaties te ontwikkelen. De opgave is een integrale benadering van de energietransitie met een gezonde groei van de stad. Een duurzame stad met groene gebieden en gezonde lucht, bestand tegen voorspelde weerextremen.

De elektriciteitsbehoefte van Eindhoven was de afgelopen jaren rond de 1.300 GWh per jaar. Met het oog op ontwikkelingen rondom de energietransitie is de verwachting dat de elektriciteitsbehoefte de komende decennia sterk zal stijgen. Grove schattingen over de beoogde groei van de stad, gecombineerd met het elektrisch verwarmen van woningen en de toename van elektrische mobiliteit, laten voor 2050 een jaarlijks elektraverbruik van ruim 4.000 GWh zien. Dat is een verdriedubbeling van het huidige verbruik. De opgave is dit elektraverbruik duurzaam op te wekken.

Binnen de missie wordt aansluiting gezocht bij lopende trajecten en startende transities. Om deze missie te laten slagen is er dus ook een rol voor de regio weggelegd, want stad en regio hebben elkaar hierin nodig.

Hoe kunnen we ervoor zorgen dat we met slimme innovaties en samenwerking de netcongestie aanpakken?

FEITEN EN CIJFERS



BELEID

De gemeente Eindhoven blijft zich inzetten voor de RES (Regionale Energie Strategie). Wij hebben als regio Zuidoost-Brabant het doel om vanaf 2030 2 TWh per jaar aan duurzame elektriciteit grootschalig op te wekken. Op dit moment wordt in de regio jaarlijks 0.46 TWh aan duurzame elektriciteit opgewekt. De congestie op het elektriciteitsnet is hierbij een van de grootste uitdagingen.

Huidig beleid:

- Regionale Energie Strategie RES (ook regionaal).
- Duurzaamheidsagenda Brainport.
- Aanpak netcongestie op bedrijventerreinen.



DOORBRAAK

Wat als het ons lukt om...

1. Te schakelen van energie- markteconomie naar energiegemeenschap (anders produceren/economisch systeem)
 - onafhankelijkheid
 - lokale economie
 - zeggenschap
2. Lokaal aan te jagen via doorbraakteam (TH) met doorzettingsmacht.
3. Transparantie te creëren over (energie)data om samenwerkingskansen (bedrijven, particulieren, netbeheerder)

KLIMAATBANEN - ARBEIDSMARKT EN ONDERWIJS

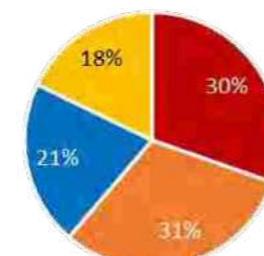


KLIMAATOPGAVE

De energietransitie is een enorme opgave voor de arbeidsmarkt. We hebben meer technisch personeel nodig, en een prioritering in de opgave zodat we weten welk personeel op welk moment nodig is voor welk type werk. Hiervoor is een goede aansluiting van het onderwijs op de arbeidsmarkt nodig. Leer-werktrajecten en omscholing zijn belangrijk, zodat werknemers tijdig worden bijgeschoold voor het gevraagde werk.

Hoe zorgen we dat de 'klimaatbanen' in tijd en aantal aansluiten op de vraag in de energietransitie?

FEITEN EN CIJFERS



■ Wonen ■ Dienstverlening ■ Mobiliteit ■ Industrie



DOORBRAAK

Wat als het ons lukt om...

1. Onbenut arbeidspotentieel in te zetten > activeren 40.000
2. Stapelbanen te realiseren > niet traditioneel een baan/beroep. Afspraken met bedrijven over medewerkers > systeem daarop aanpassen (bijv. belasting).
3. Traditioneel onderwijs los te laten > snelcursus (geen diploma) > systeemverandering voor regelgeving (studiefinanciering).
4. Herwaardering waarden (bijv. wonen veel goedkoper), daarmee tijd voor andere banen. > meerwaarde aan klimaatbanen

NETTO POSITIEVE REGIO

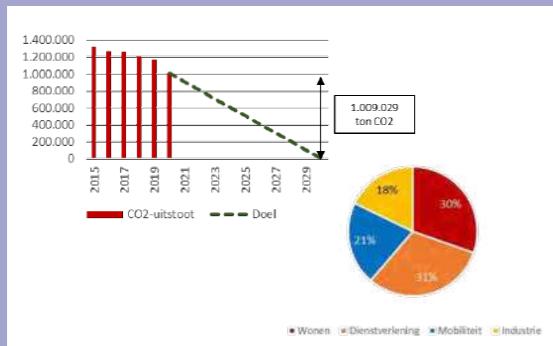


KLIMAATOPGAVE

De vraag naar grondstoffen wordt door de groeiende bevolking en toenemende consumptie steeds groter. Het is belangrijk om niet hernieuwbare grondstoffen zo efficiënt mogelijk te (her)gebruiken. Bedrijven op bedrijventerreinen en de gemeente willen daarom circulair werken: minimaal gebruik van primaire grondstoffen, hoogwaardig hergebruik van grondstoffen in een gesloten kringloop, het verlengen van de levensduur en het produceren van zo min mogelijk afval. Om dit te laten slagen is samenwerking tussen bedrijven nodig. Bijvoorbeeld door grondstoffen en (rest)materialen uit te wisselen via een marktplaats. Om het vliegwielen van pioniers te vergroten, de kennisbank en –overdracht uit te breiden én een meetinstrument te ontwikkelen is er veel nodig. Het vraagt om samenwerking, vertrouwen, transparantie, gekoppelde doelen en tijd.

Hoe kunnen we een beweging en/of ketens creëren om de regio Eindhoven circulair en netto positief te maken?

FEITEN EN CIJFERS



BELEID

Landelijk:

- Stikstofbeleid, stimulering kringlooplandbouw.

Provinciaal:

- VABIMPULS: beleid en stimulering alternatief gebruik vrijeplaatsen.

Lokaal:

- Cirkelstad: Eindhoven is sinds 2020 actief als Cirkelstad. In de regio Eindhoven werken we aan een regionale circulaire strategie van opdrachtgeverschap, in samenwerking met de markt en aan de hand van 'Het Nieuwe Normaal'. Inmiddels zijn meer dan 20 partijen aangesloten.

- Nu is slechts 2.400 hectare vlas en 1.900 hectare hennep in Nederland (in Noord-Brabant hebben we 75.153 hectare cultuurgrond).
- Aantal Biologische landbouwbedrijven in Noord-Brabant is tussen '15 en '20 met 43% toegenomen tot 196 stuks.
- De prognose is dat in de periode '17-'30 tot 2.16 miljoen m² agrarische bebouwing vrij komt.



DOORBRAAK

Wat als het ons lukt om...

1. Een bouwmarktplaats te creëren + certificaten + afval weer hergebruiken + arbeid. "Industriemarktplaats" - virgin materialen zwaarder belast

- Geen materiaal Eindhoven in en geen afval uit het perceel
- No waste bouwplaats te creëren
- No waste industrie
- Geen virgin materialen bij bouw + industrie
- Prijsmodel (Bula) = CO2 gedreven i.p.v. kostengedreven
> nieuwe manier van uitvragen

DOORBRAKEN



VITALE
BINNENSTAD

EEN KLIMAATNEUTRAAL EN EMISSIEVRIJ CENTRUM

DOORBRAAK

1. Een verbeeldend verhaal 2030... 40... 50... - *Hoe ziet Eindhoven eruit over ... jaar? (met inwoners/gebruikers)*
 - Vanuit thema's naar gebieden
 - Hoe versterken thema's elkaar
 - Verdicht in oude dorpskernen. Breng voorzieningen terug
2. Regie vanuit Gemeente/provincie - *Hoe sturen we daarop?*
 - Warmtebedrijf
 - Collectieven smeden
 - Stimuleren OV/transferia/auto's eruit
 - Verharding eruit > groen erin
3. Koppel klimaatopgave aan kwaliteit van leven - *Welke effecten willen we bereiken?*
Voor de inwoners/gebruikers
 - Regelgeving
 - 'Dit niet', 'Dat wel'
 - Wetgeving

Mobiliteit = sleutel
Energietransitie = hefboom

DUURZAME CONSUMPTIE

DOORBRAAK

1. Goed gedrag te belonen: bijv. de trein = goedkoper dan de auto.
2. Onze mindset te veranderen: we nemen collectieve verantwoordelijkheid en vertrouwen voor het voorkomen van afval.
3. Circulair en duurzaam écht toegankelijk te maken: met ruilwinkels op toplocaties en circulaire hotspots (evolutie?).
4. Ondernemers collectieven (en eigenaars) te laten bloeien op circulaire businessmodellen en circulaire marketing.

EEN FIJNE PLEK OM TE WONEN, TE VERPOZEN EN TE RECREËREN

DOORBRAAK

1. Van Eindhoven een stad te maken waar niemand zich alleen voelt. We komen elkaar vaker buiten tegen. Er zijn gemixte woonvormen die zorgen voor diversiteit, zodat er een wijk-gevoel ontstaat wat allerlei mogelijkheden biedt (zorgen voor elkaar, delen, ...)
2. Het aanbod in de binnenstad diverser wordt, zodat je er niet meer alleen naartoe gaat om te winkelen, maar ook om te ontmoeten, etc.. (Minder consumeren, meer beleven, koop lokaal/doe lokaal)
3. Sneller besluiten te nemen en meer samen te werken (gemeente, bedrijven, nutvoorzieningen, woningbouwcorporaties) zodat we doelstellingen voor 2030 halen. Door meer het goede voorbeeld te laten zien, bedrijven bij te laten dragen aan een aantrekkelijk te laten zijn. Gericht op een duurzame samenwerking (niet eenmalig).



LEEFBARE
WIJKEN

LEEFBARE WIJKEN EN GEZONDE INWONERS

DOORBRAAK

1. In iedere wijk een sterk voorbeeld te realiseren dat dient als ontmoetingsplek tot gezond en duurzaam leven.
2. Genoeg inwoners te verenigen in de wijk om tot een goede basis en een zelfvoorzienend leven te komen (bijv. school)
3. Via gemeentelijke opgaven (warmte transitie) de wijk te redesignen (bijv. autovrij) gericht op sociale en duurzame ontwikkelingen.

KLIMAATNEUTRAAL BOUWEN EN RENOVEREN

DOORBRAAK

De uitvraag/opdracht vanaf 2025 te standaardiseren voor bouwen en renoveren met bio-based als meetbare norm in de woningbouw en bedrijfsutiliteit/bouw.

CIRCULAIRE WIJKEN

DOORBRAAK

In buurthuizen een circulaire economie kunnen faciliteren waardoor mensen weer ontmoeten en structureel waarde toevoegen aan de buurt, elkaar en de spullen (repair café, rommelmarkt, kledingmarkt, gereedschapsuitleen, troep troopers, struikrovers). Ondersteund met (digitale) website/app waarin zaken op buurtniveau geleerd/gehuurd kunnen worden.

DOORBRAKEN



BESTENDIGE
BEDRIJVENTERREINEN

RUIMTE VOOR WATER EN GROEN

DOORBRAAK

1. Om ervoor te zorgen dat groen en water meer oplevert dan grijs. (welzijn, financieel- belasting/beheerkosten, minder schade door wateroverlast) = gewenst gedrag belonen.
2. Mede-eigenaarschap te creëren - gezamenlijk oplossen van probleem.
3. Mobiliteitsoplossingen zodat er minder parkeerplekken nodig zijn: een kabelbaan van het station naar Flight Forum, deelmobiliteit.

DUURZAAM VERBOUWEN

DOORBRAAK

1. Op een andere manier uit te vragen
2. Door middel van een collectieve aanpak nieuwe bouwketens te creëren.

CIRCULAIRE ECONOMIE

DOORBRAAK

1. Bedrijfsinvesteringszones op te schalen en te concretiseren
 - Opschalen op andere terreinen
 - Geld goed besteden
 - Circulaire doelen opbreken in kleine haalbare doelen
 - Capaciteit
 - Daadkracht
2. Een marktplaats voor grondstoffen uitbouwen
 - Van Helmond naar Eindhoven
 - Van 'Reuse' naar 'Refuse' & 'Rethink':
 - minder inkopen (!)
 - meer infrastructuur delen
 - meer repareren
 - redesign/ecodesign
 - standaardisatie (!)



ROBUUSTE
REGIO

DUURZAME ENERGIE

DOORBRAAK

1. Omschakelen van energie- markteconomie naar energiegemeenschap (anders produceren/economisch systeem)
 - onafhankelijkheid
 - lokale economie
 - zeggenschap
2. Lokaal aanjagen via een doorbraakteam (TH) met doorzettingsmacht.
3. Transparantie over (energie)data om samenwerkingskansen (bedrijven, particulieren, netbeheerder)

KLIMAATBANEN - ARBEIDSMARKT EN ONDERWIJS

DOORBRAAK

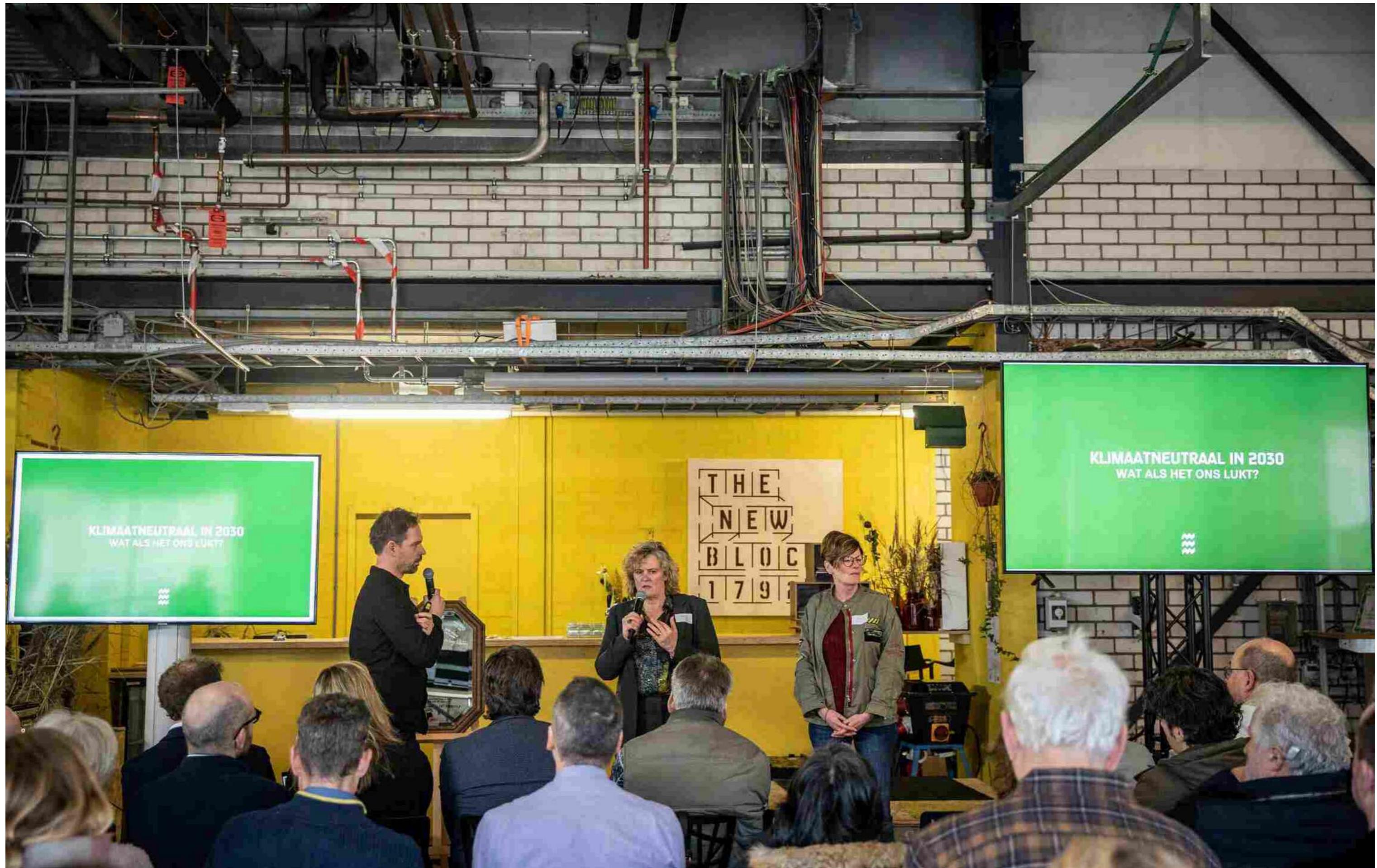
1. Inzetten onbenut arbeidspotentieel > activeren 40.000
2. Stapelbanen > niet traditioneel een baan/beroep. Afspraken met bedrijven over medewerkers > systeem daarop aanpassen (bijv. belasting).
3. Traditioneel onderwijs loslaten > snelcursus (geen diploma) > systeemverandering voor regelgeving (studiefinanciering).
4. Herwaardering waarden (bijv. wonen veel goedkoper), daarmee tijd voor andere banen.
> meerwaarde aan klimaatbanen

NETTO POSITIEVE REGIO

DOORBRAAK

1. Bouwmarktplaats + certificaten + afval weer hergebruiken + arbeid. "Industriemarktplaats" - virgin materialen zwaarder belast
 - Geen materiaal Eindhoven in en geen afval uit het perceel
 - No waste bouwplaats te creëren
 - No waste industrie
 - Geen virgin materialen bij bouw + industrie
 - Prijsmodel (Bula) = CO2 gedreven i.p.v. kostengedreven
 - > nieuwe manier van uitvragen

SLOTWOORD



EINDHOVEN KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?





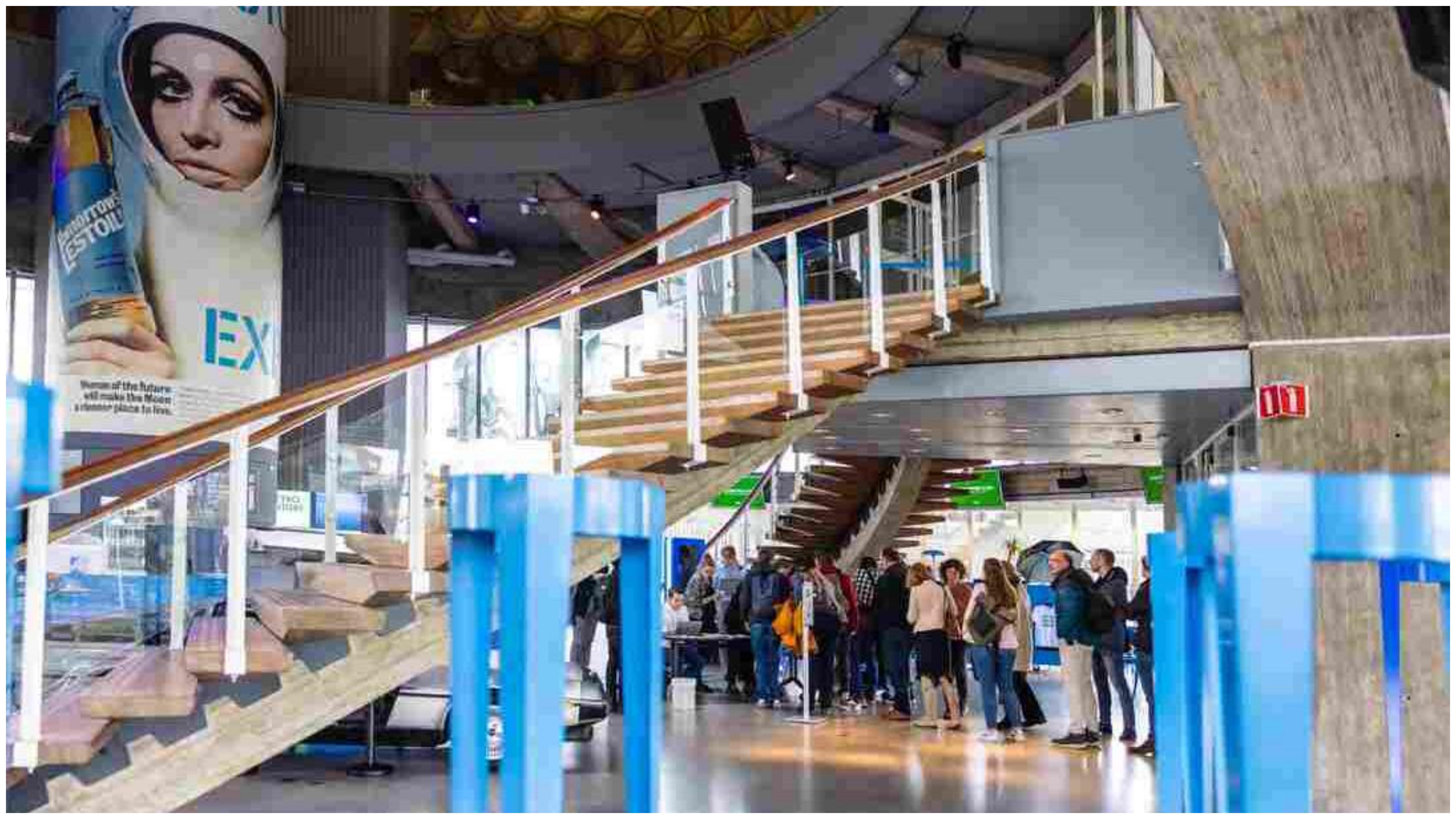
SOLUTIONSLAB EUROPESE KLIMAATMISSIE

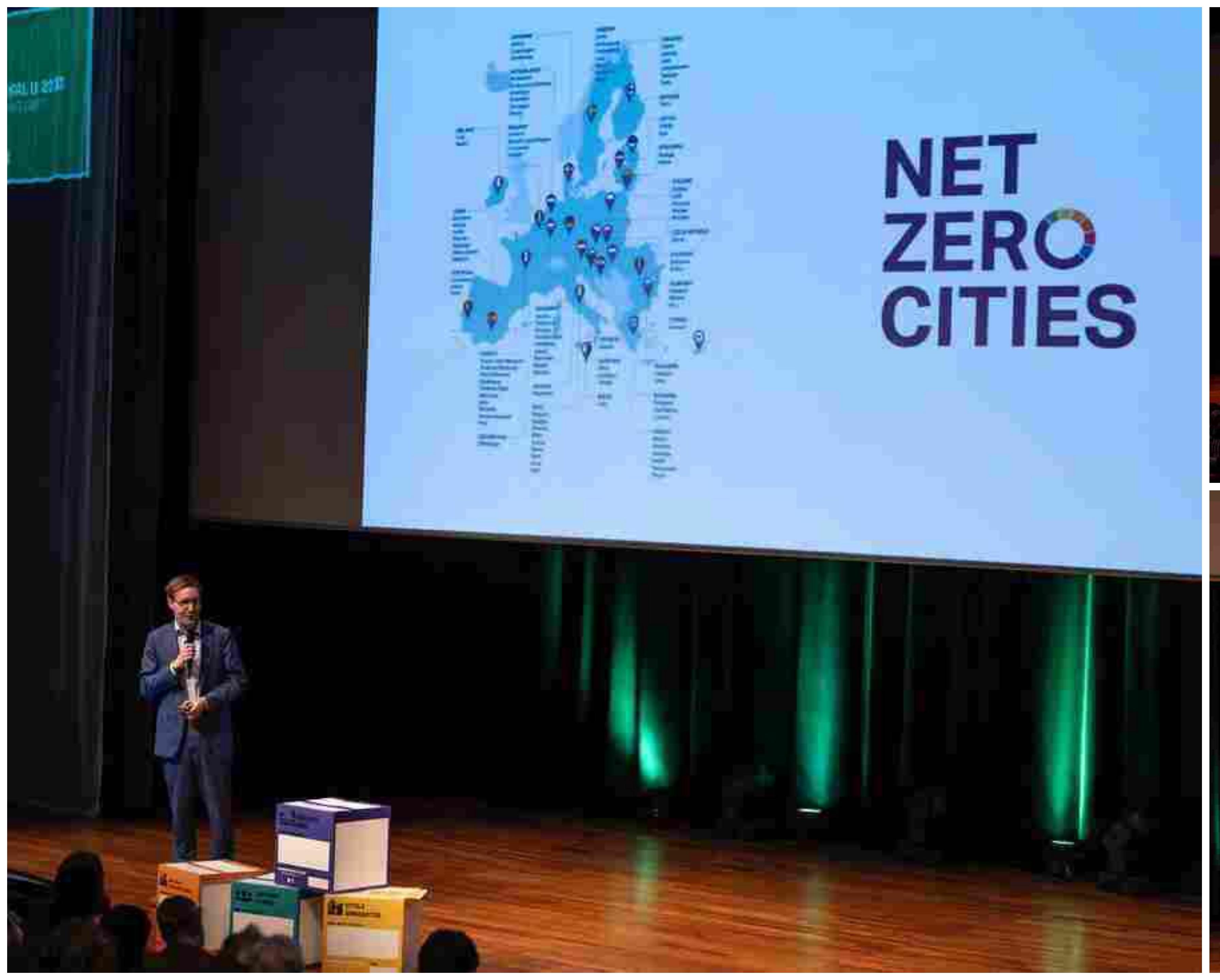
EVOLUON EINDHOVEN - 13 MAART 2023



PROGRAMMA

12.30	WELKOM
13.00	BLIK OP DE TOEKOMST KOERT VAN MENSVOORT
13.30	SESSIE 1: IDEEGENERATIE OP DOORBRAKEN
14.30	PAUZE
14.45	LEIDERSCHAP OM MOGELIJK TE MAKEN HAJAR YAGKOURI
	SESSIE 2: OPLOSSINGSRICHTINGEN DEFINIËREN
16.15	PANELDISCUSSIE / WOORD VAN DE MINISTER MET O.A. MINISTER VAN KLIMAAT & ENERGIE ROB JETTEN
16.45	AFSLUITING EN VOLGENDE STAP WETHOUDER RIK THIJS



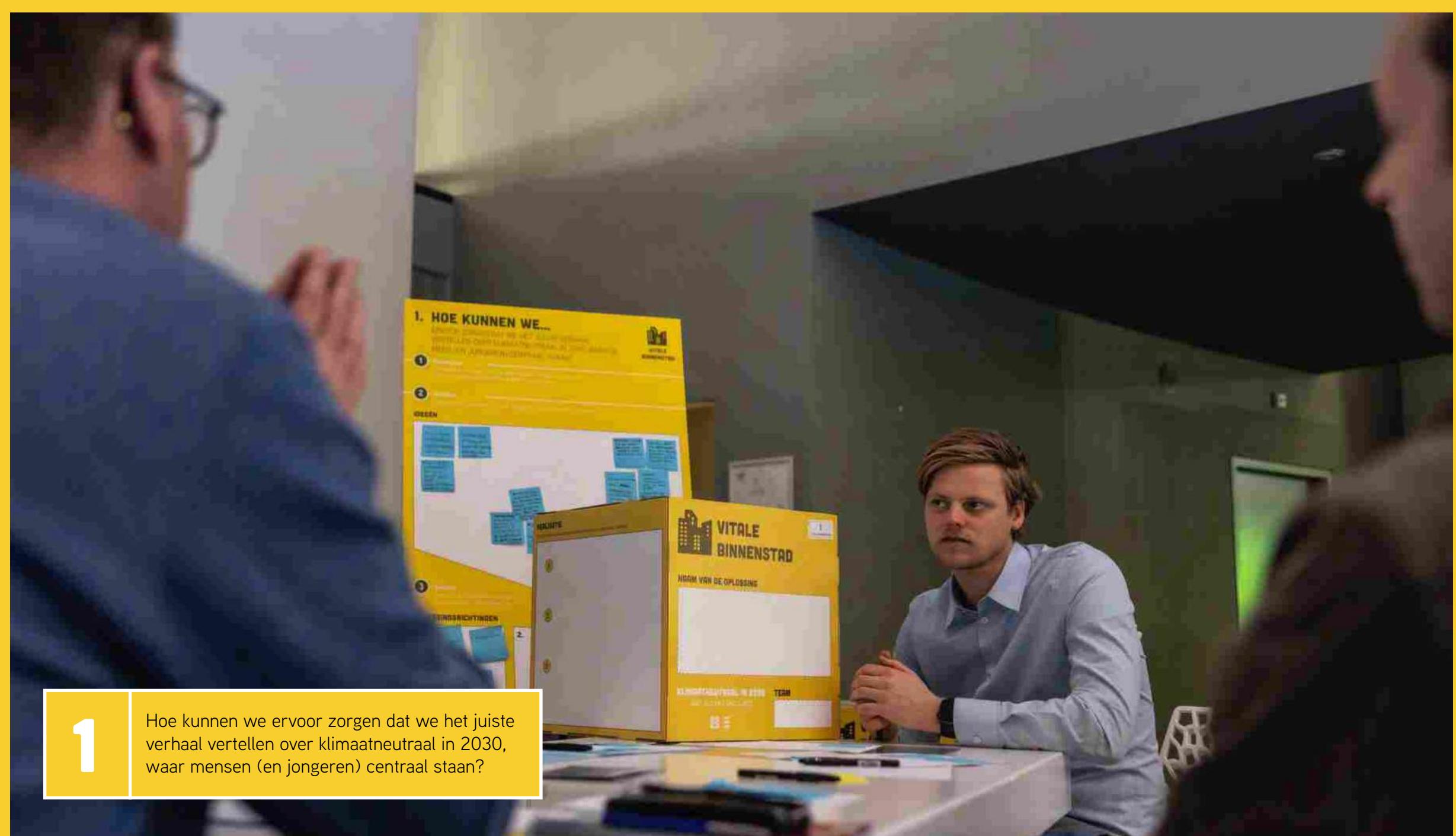




VITALE BINNENSTAD

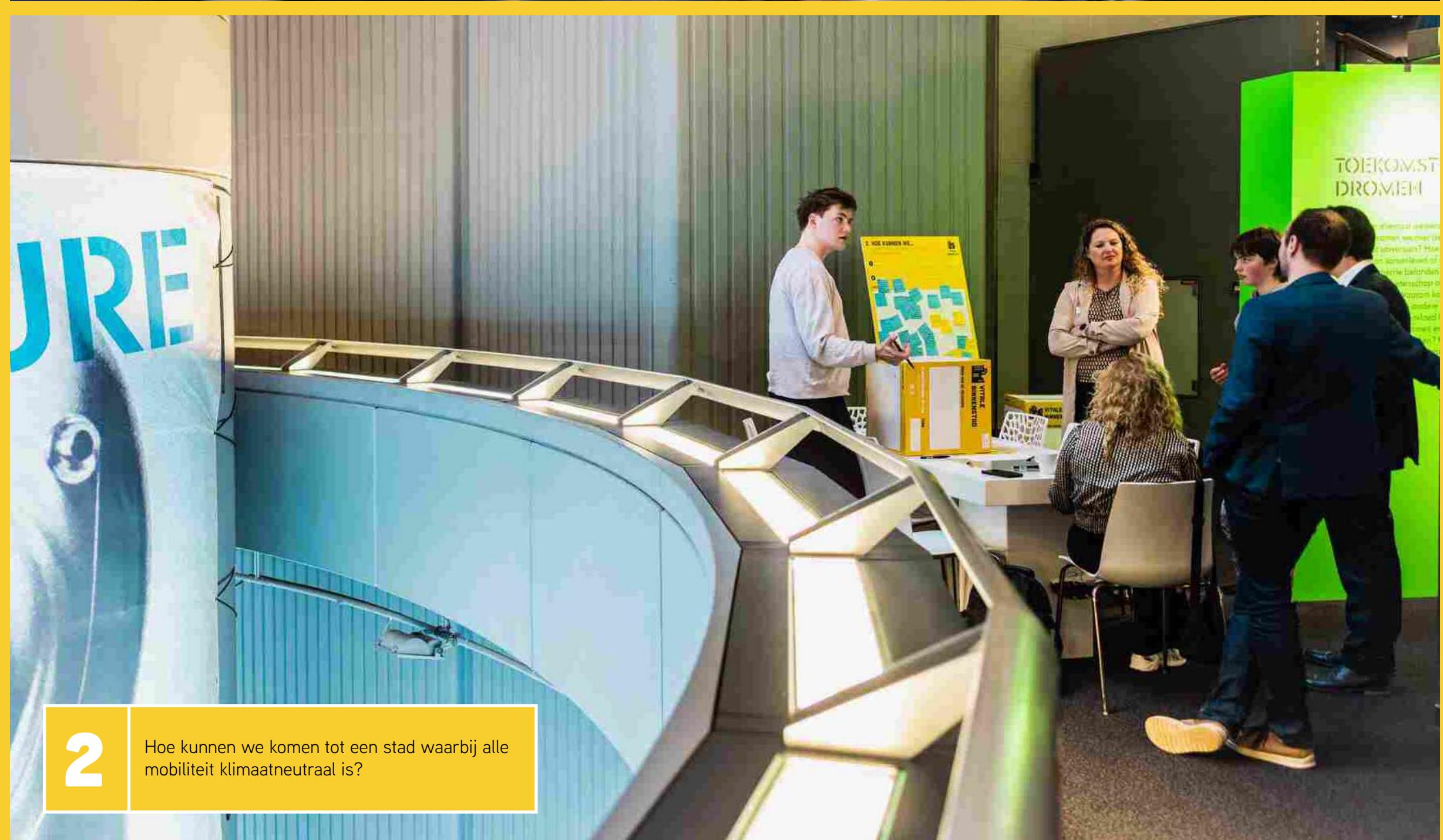
In de binnensteden van Helmond en Eindhoven komt een forse verstedelijkingsopgave op ons af. In Helmond worden 10.000 woningen in het centrum en in Eindhoven 60.000 woningen gebouwd. Dit biedt zowel uitdagingen als kansen: om de veranderingen aan woningen, infrastructuur en natuur op een groene en klimaatvriendelijke manier tot stand te brengen.

In de binnensteden is het de kunst om gebruik te maken van de gunstige eigenschappen van een dichtbevolkte stad en transities in beweging te brengen waar het anders moet. Hiervoor nemen gemeenten, ondernemers en inwoners samen de verantwoordelijkheid. We zorgen ervoor dat alle toegevoegde woningvoorraad past bij de doelstelling: biobased, circulair en energie neutraal.



1

Hoe kunnen we ervoor zorgen dat we het juiste verhaal vertellen over klimaatneutraal in 2030, waar mensen (en jongeren) centraal staan?

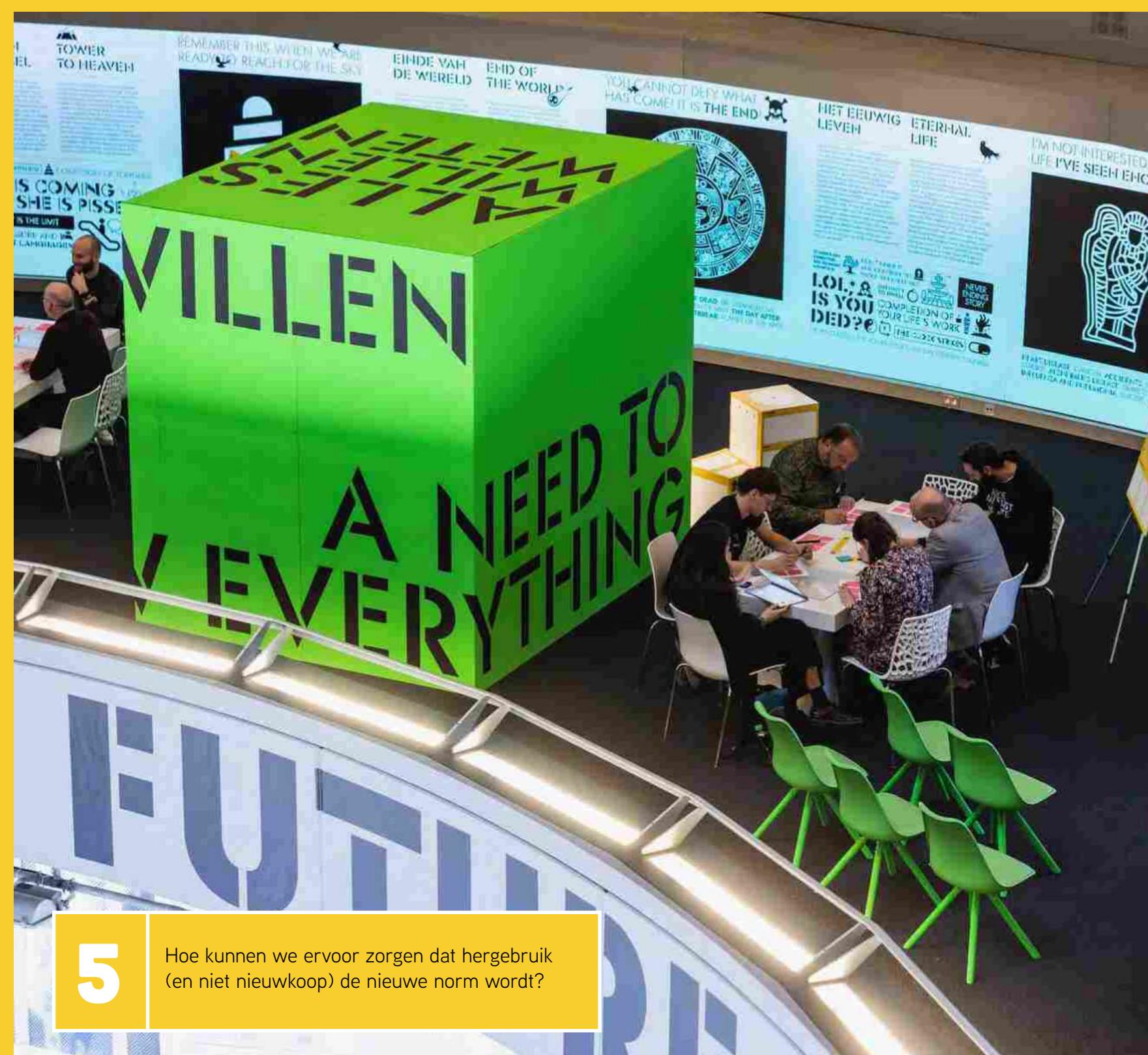


2

Hoe kunnen we komen tot een stad waarbij alle mobiliteit klimaatneutraal is?



3 Hoe kunnen we de stad van de toekomst biobased en klimaatneutraal bouwen?



5 Hoe kunnen we ervoor zorgen dat hergebruik (en niet nieuwkoop) de nieuwe norm wordt?



6 Hoe kunnen we 'groen' en 'blauw' de basis maken voor de leefomgeving en verblijfsruimte?



4 Hoe kunnen we ervoor zorgen dat de markt uitgedaagd wordt om klimaatneutraal en biobased te bouwen?



7 Hoe kunnen we de (binnen)stad ontwerpen vanuit de maatschappelijke meerwaarde (ontmoeten, diversiteit, gemengde woonvormen etc.)?



TELEPATHY

CASTLES IN THE SKY

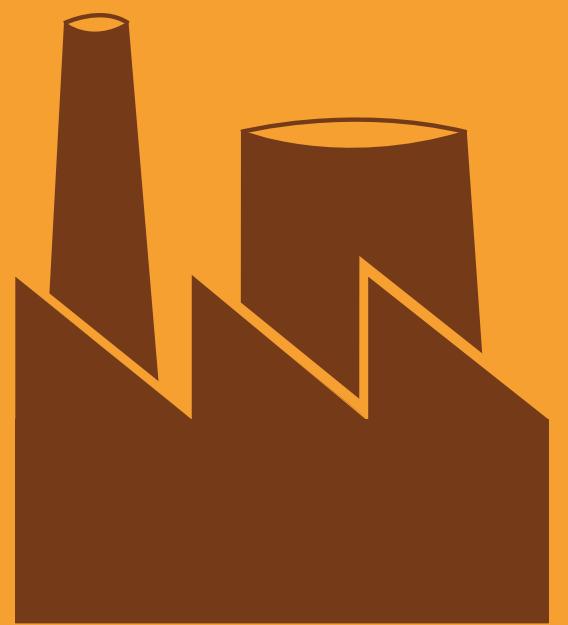
PARADISE ON

VILLEN
WETEN

VOC

EP

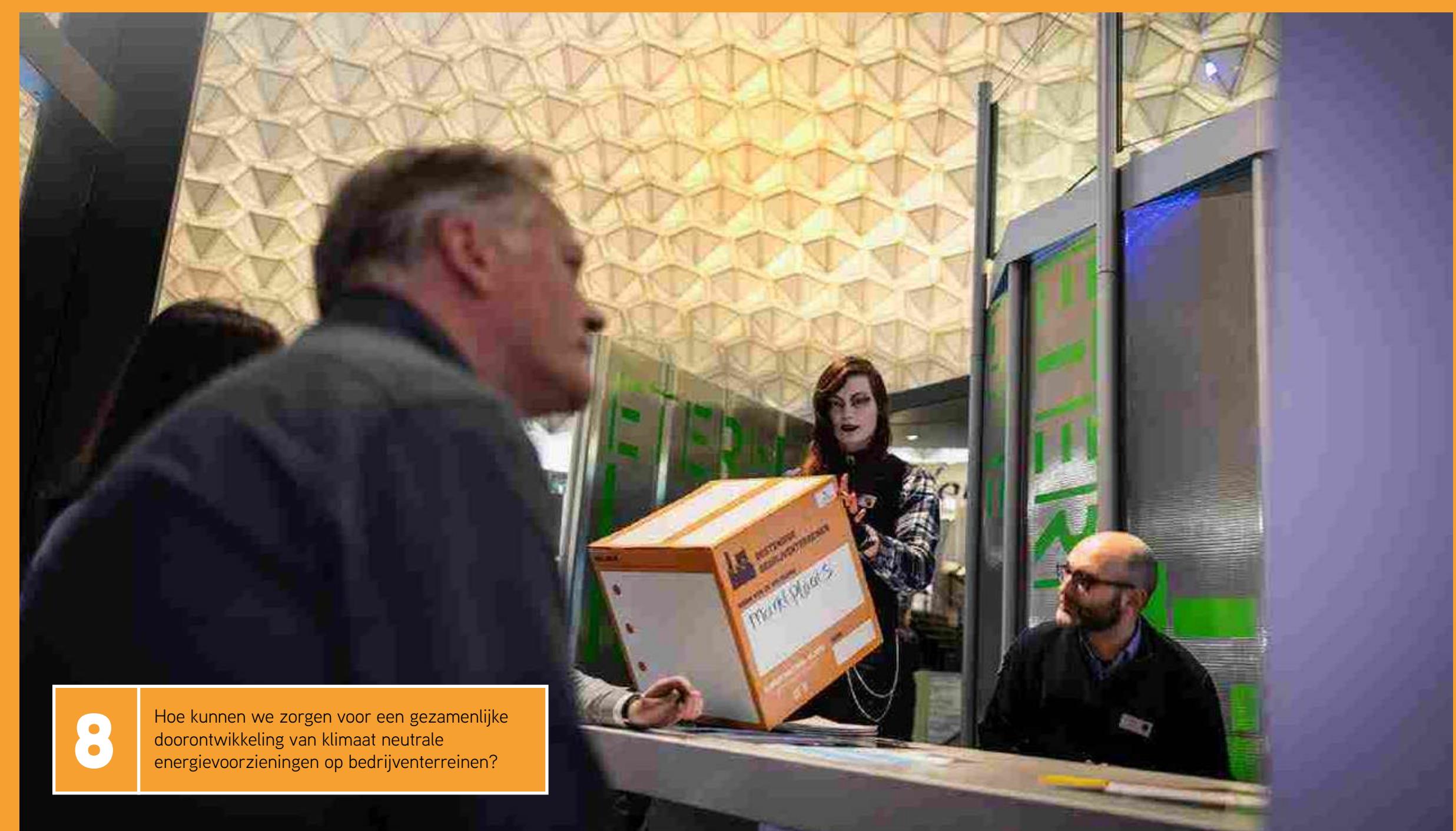
EP



BESTENDIGE BEDRIJVEN

In Eindhoven en Helmond hebben we vooruitstrevende bedrijven op het gebied van foodtech, automotive, chiptechnologie, design etc. Het is belangrijk dat de bedrijventerreinen, kantoren, productiefaciliteiten en verdienmodellen van bedrijven verduurzamen.

Samenwerking tussen bedrijven en uitwisseling van informatie, materialen, energie en warmte zijn hierbij cruciaal. We streven naar groene klimaatbestendige bedrijventerreinen, innovatieve duurzame verdienmodellen en circulaire procesoptimalisatie in samenwerking met andere bedrijven.



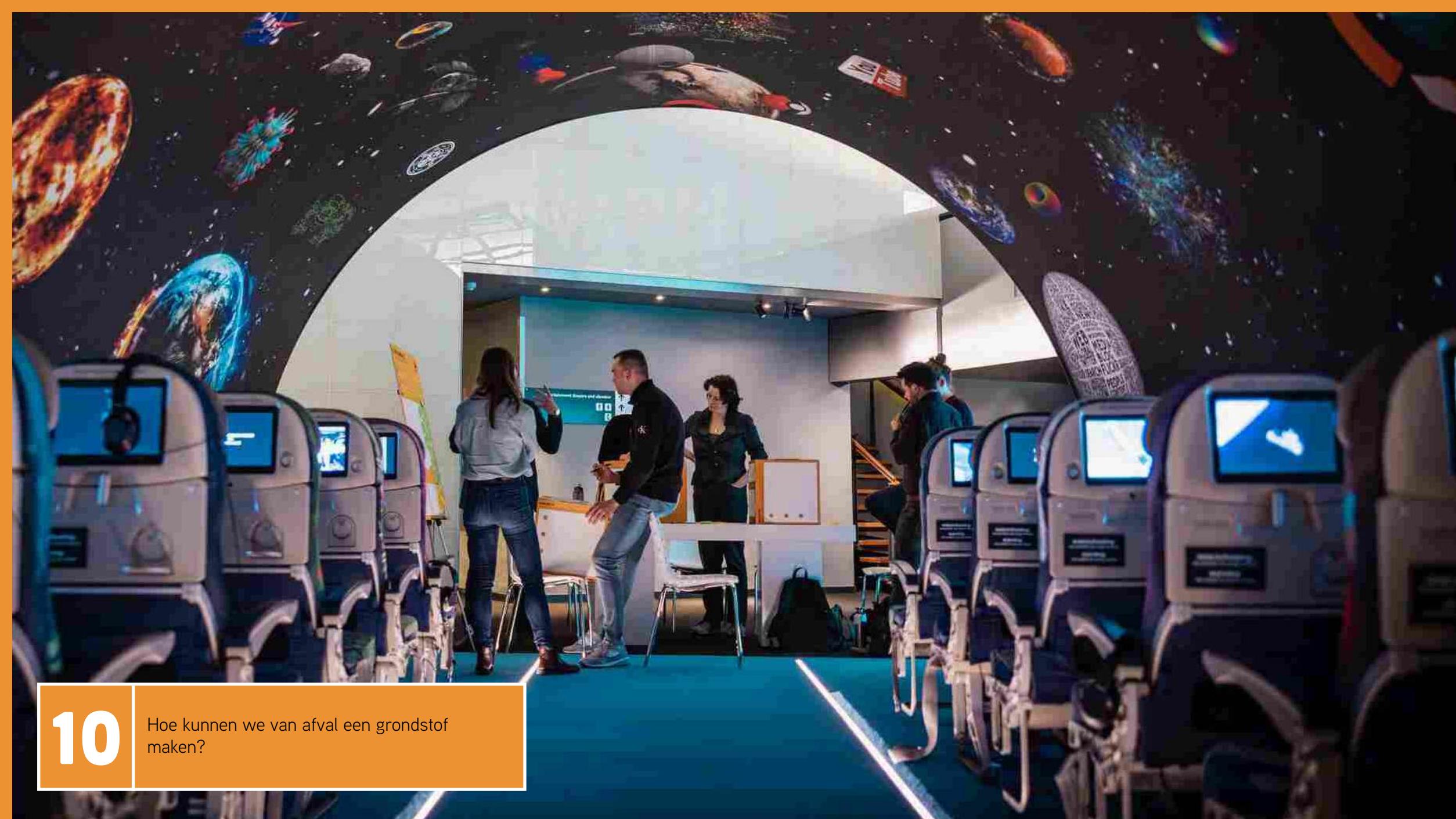
8

Hoe kunnen we zorgen voor een gezamenlijke doorontwikkeling van klimaat neutrale energievoorzieningen op bedrijventerreinen?



9

Hoe kunnen we in 2025 50% van de bedrijventerreinen circulair maken?



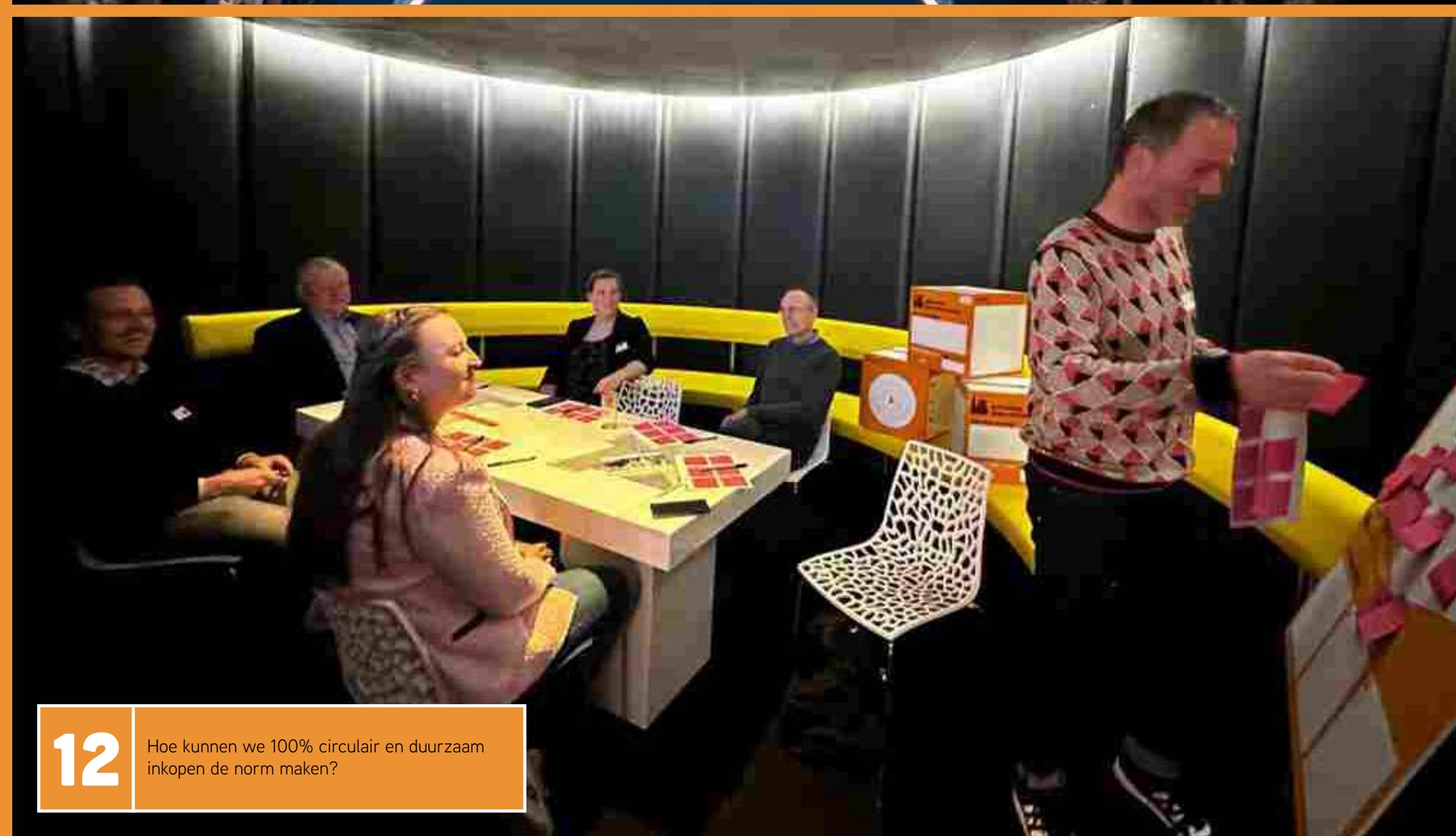
10

Hoe kunnen we van afval een grondstof maken?



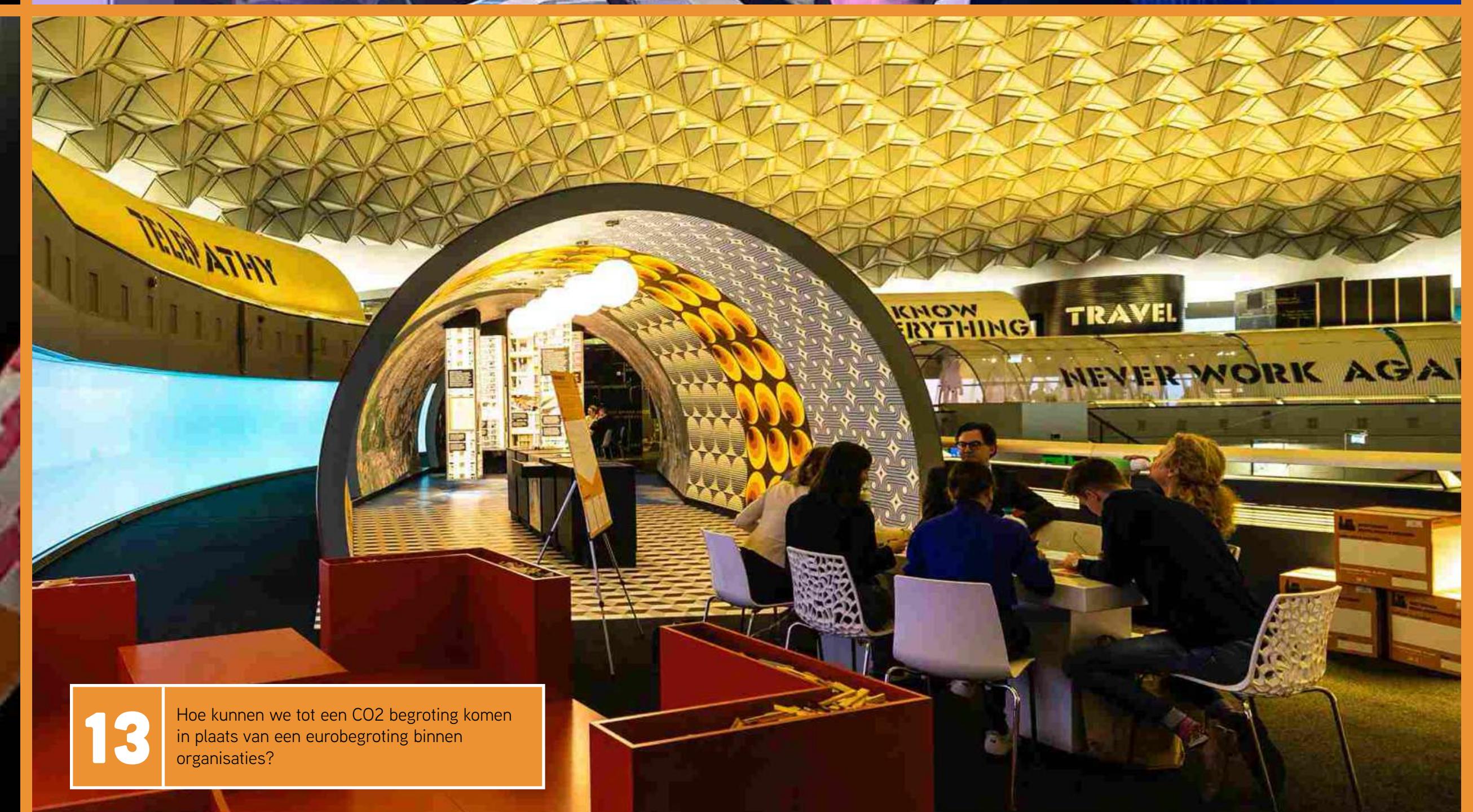
11

Hoe kunnen we 'groen' en 'blauw' gebruiken als basis voor een gezonde werkomgeving?



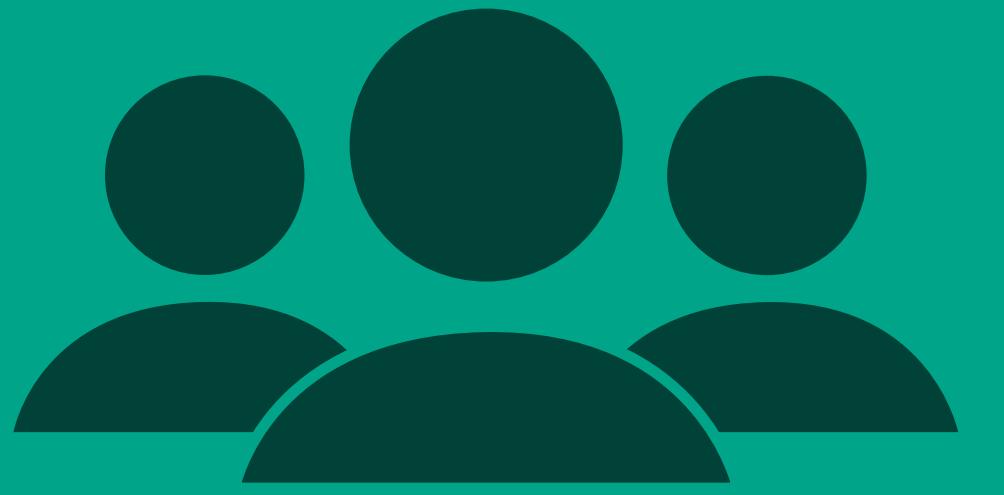
12

Hoe kunnen we 100% circulair en duurzaam inkopen de norm maken?



13

Hoe kunnen we tot een CO2 begroting komen in plaats van een eurobegroting binnen organisaties?



LEEFBARE WIJKEN

De woonwijken bieden veel kansen voor verduurzaming en het verhogen van de leefbaarheid. In Helmond en Eindhoven gaan deze twee hand in hand. Huizen moeten verduurzaamd worden, zodat wonen minder water en energie kost. Wonen in geïsoleerde woningen verhoogt het wooncomfort en is veel prettiger. Om een klimaat neutrale stad te worden, is het belangrijk om consumentengedrag en mobiliteitspatronen te verduurzamen.

Bij het in gang zetten van transities moet goed worden nagedacht wie waarvoor verantwoordelijk is en welke samenwerkingen nodig zijn voor het tot stand brengen van duurzame veranderingen. Samen kijken we naar hoe we duurzame verandering kunnen stimuleren en hoe duurzaam gedrag aantrekkelijk gemaakt kan worden. De bijdrage van zowel de gemeenten, bedrijven als individuele inwoners is cruciaal voor het behalen van onze doelstellingen.



14

Hoe kunnen we zorgen voor de gedachte "afval bestaat niet"?



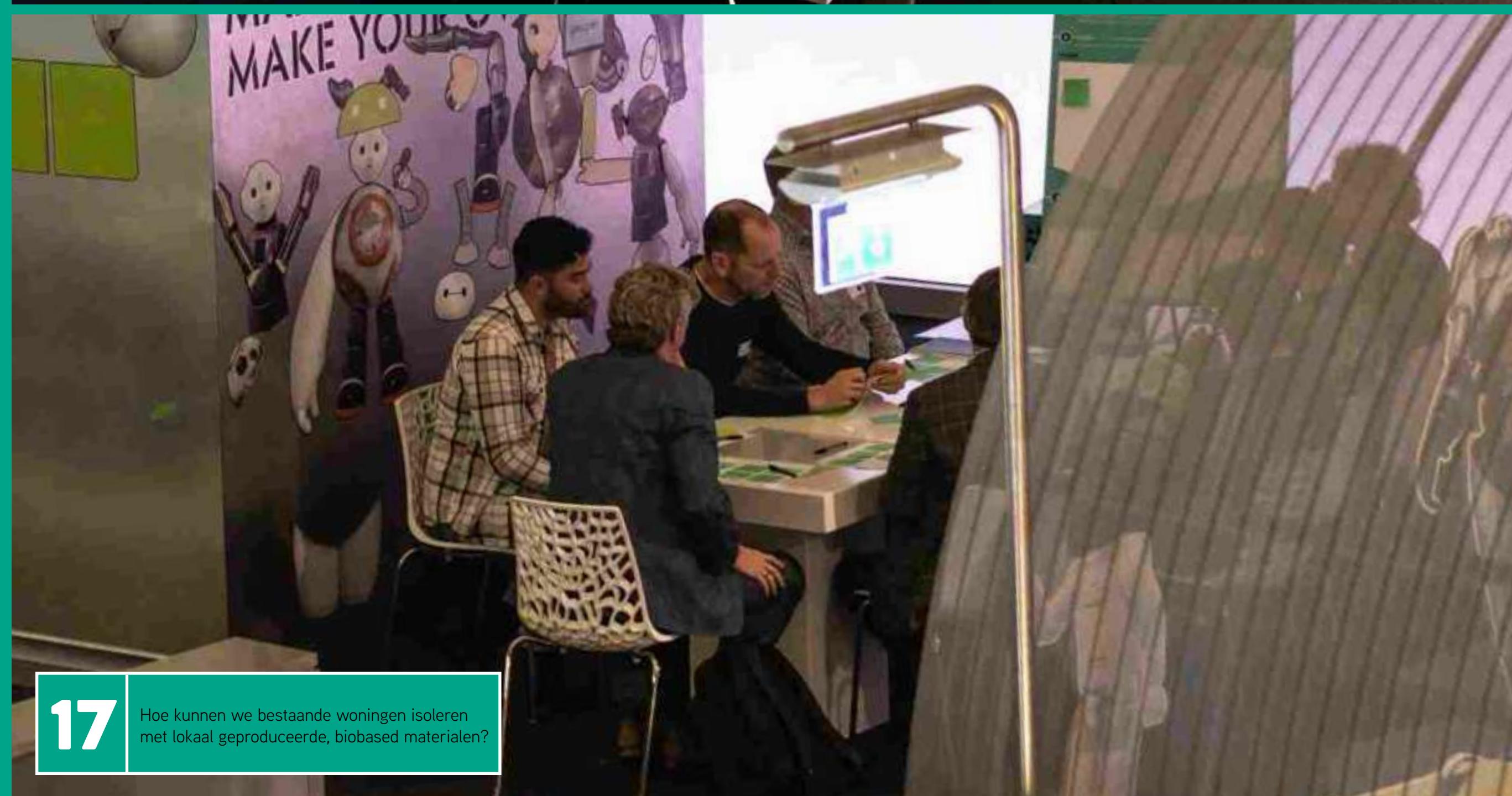
15

Hoe kunnen we een tien minuten stad ontwerpen?



16

Hoe kunnen we bestaande huur- en koopwoningen op een collectieve manier renoveren?



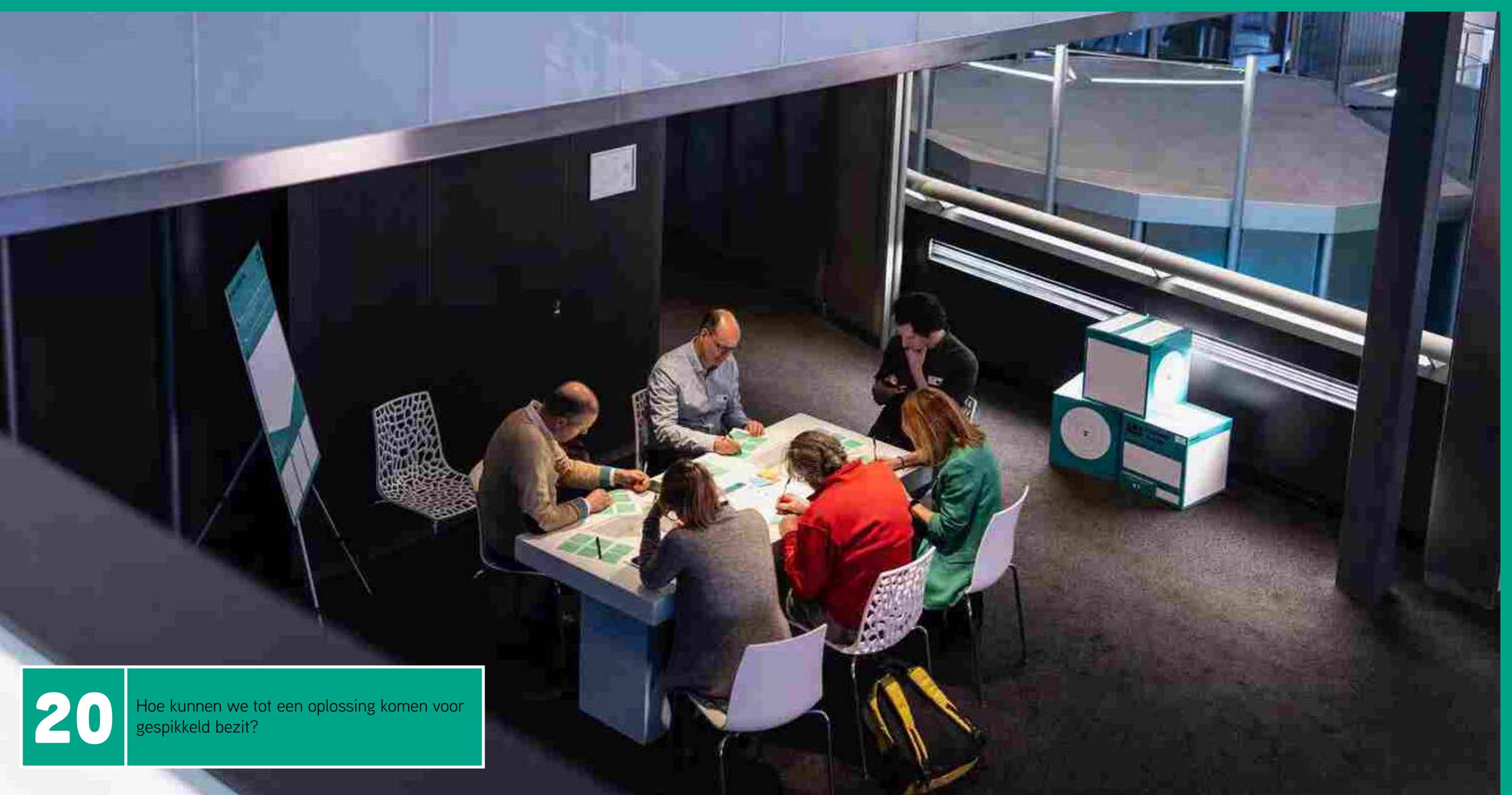
17

Hoe kunnen we bestaande woningen isoleren met lokaal geproduceerde, biobased materialen?



18

Hoe kunnen we ervoor zorgen dat duurzame consumptie en elkaar ontmoeten elkaar versterken?

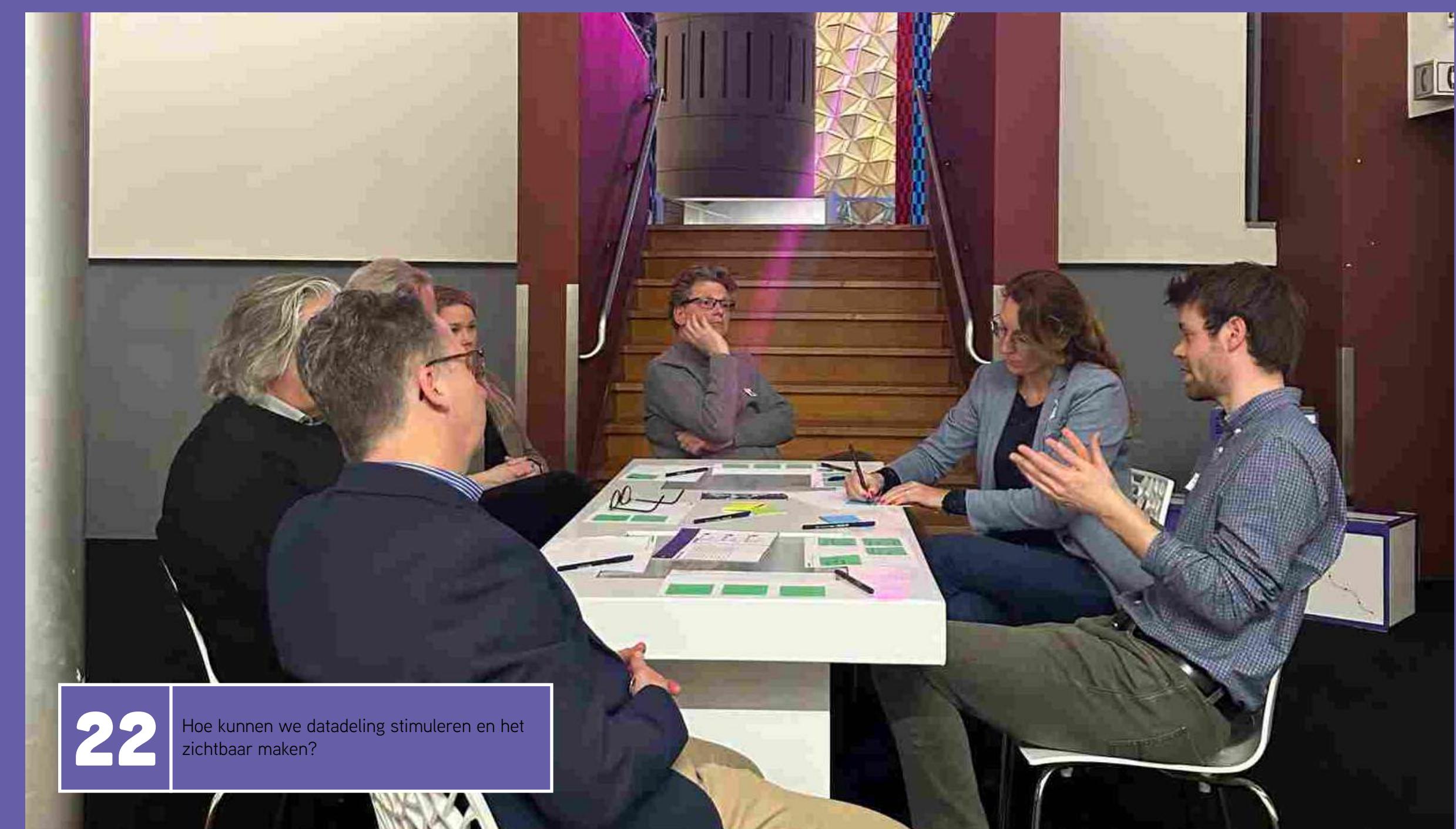




ROBUUSTE REGIO

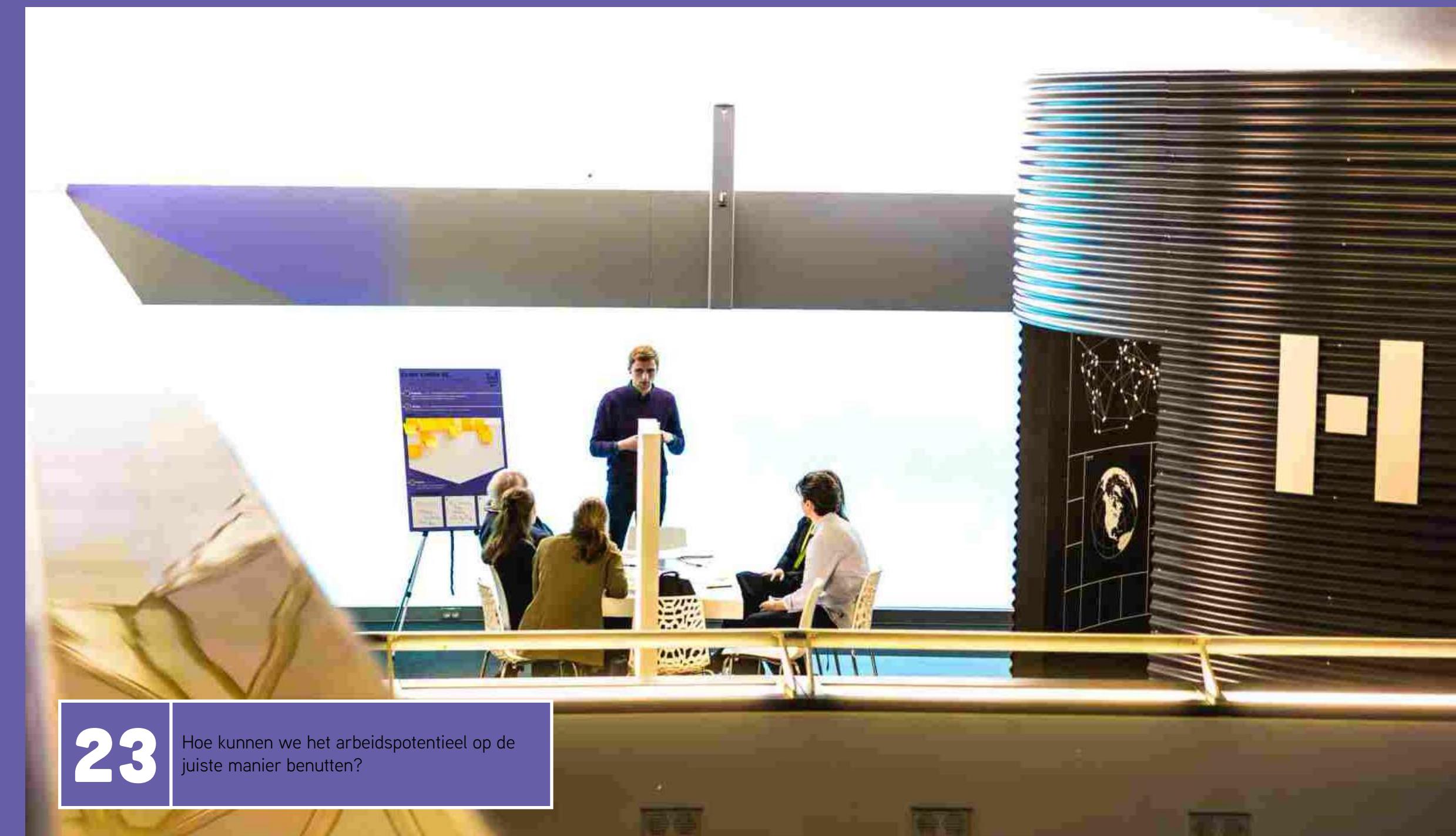
De regio en de stad kunnen elkaar goed helpen. De stad heeft duurzame materialen en energie nodig, de regio heeft behoefte aan arbeidskrachten, samenwerking met onderwijsinstituten en inzicht in haar productieprocessen.

Hechtere samenwerking brengt kansen voor lokale productieketens, biobased bouw- en isolatiemateriaal, het versnellen van geothermie in Zuid Oost-Brabant en het tot stand brengen van lokale opwek en verkoop van stroom. Uitgebreide dataverzameling en analyse geeft de mogelijkheid om monitoring en optimalisatie te versterken.



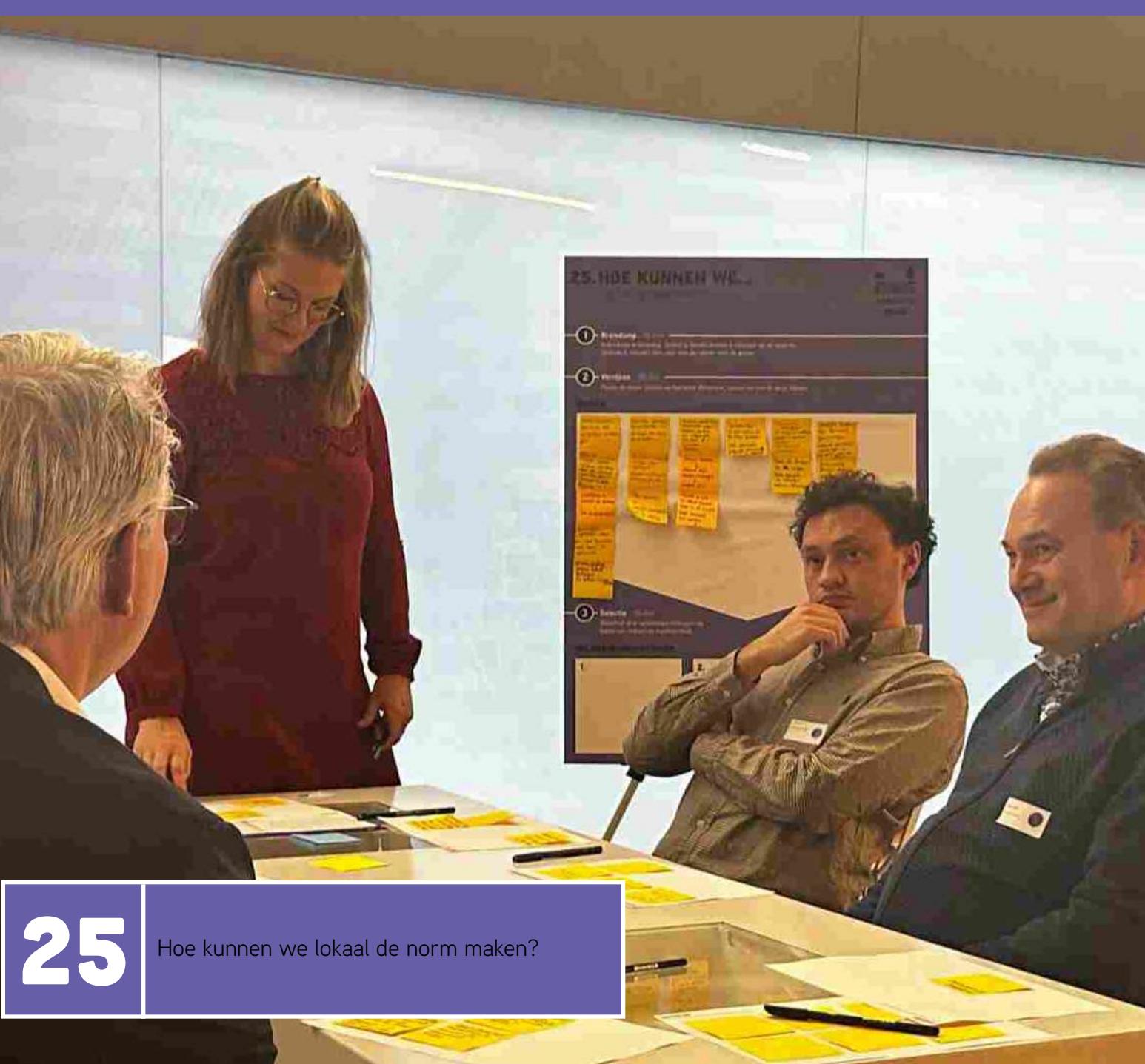
22

Hoe kunnen we datadeling stimuleren en het zichtbaar maken?



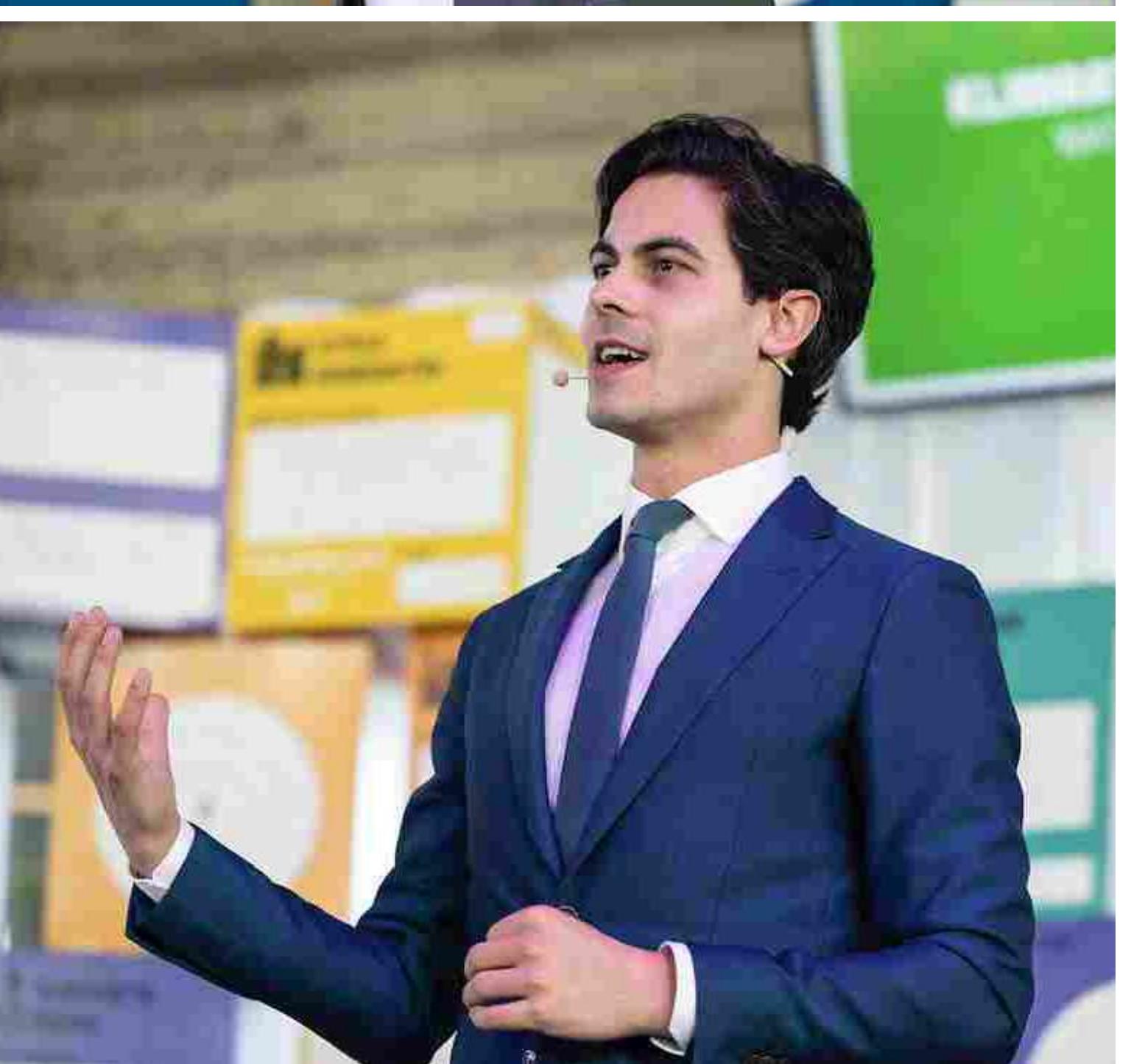
23

Hoe kunnen we het arbeidspotentieel op de juiste manier benutten?









KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?



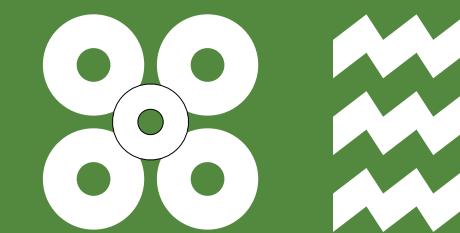


TRANSITIELAB EUROPESE KLIMAATMISSIE

‘Wat als het ons lukt?’ is het uitgangspunt dat we als Helmond en Eindhoven gebruiken voor de missie naar klimaatneutraliteit. En dat is geen toeval. Het woordje ‘ons’ gaat over de combinatie van steden, maar vooral over alle partijen die hier een rol in hebben. Van inwoner tot ondernemer, van corporatie tot netbeheerder en van universiteit tot overheid.

Dat begon bij het samen benoemen van de benodigde doorbraken in februari en het samen creëren van oplossingen in maart. In dit beeldverslag kijken we terug op het Transitielab van 14 april, waar partijen samenkwamen om zich committeren. Commitment kwam er. Ruim 160 professionals gaven tijdens het Transitielab aan mee te willen doen aan deze missie. En niet alleen op de gehele missie. Ook de bereidheid om mee te werken aan de ruim 20 missietrajecten die tot dusver uit de labs kwamen, is overweldigend. Opgeteld bij de talloze initiatieven die al lopen in onze regio, waarvan verschillende mooie voorbeelden in dit verslag zijn opgenomen, kunnen we met recht spreken over ‘ons’.

En dit is slechts het begin. Het begin van een reis die stopt bij een klimaatneutraal Helmond en Eindhoven.







LANGE TERMIJN KLIMAAT DELTAPLAN EINDHOVEN – HELMOND

FOSSIËLVRIJ – CIRCULAIR – KLIMAATBESTENDIG

IMPACT – INCLUSIEF – INNOVATIE – LEIDERSCHAP – GEDRAG

KLIMAATNEUTRAAL IN 2030



VITALE
BINNENSTAD



BESTENDIGE
BEDRIJVIGHEID



LEEFBARE
WIJKEN



ROBUUSTE
REGIO

MISSIETRAJECTEN:

VERDUURZAMING VAN DE
OPENBARE RUIMTE IN DE
BINNENSTAD 17

CIRCULaire BINNENSTAD
EN DUURZAAM
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NAAR KLIMAATNEUTRALE
MOBILITEIT IN DE
BINNENSTAD 15

VERHAAL VITALE
BINNENSTAD 17

(DOOR)ONTWIKKELING VAN
NIEUWE BOUWKETENS EN
TOEPASSING DUURZAME
BOUWMATERIALEN 27

MISSIETRAJECTEN:

SAMENWERKING EN
KENNISDELING 38

OPSCHALING DUURZAME
BEDRIJVENTERREINEN 26

ENERGIE EN
SMART-GRIDS 36

GEZONDE GROENE
WERKOMGEVING 17

DUURZAME MOBILITEIT
EN LOGISTIEK 19

...

DUURZAME EN
CIRCULaire
BEDRIJFSVOERING 23

MISSIETRAJECTEN:

VERHAAL LEEFBARE
WIJKEN 24

HET NIEUWE NORMAAL
OPSCHALEN 22

(DOOR)ONTWIKKELING VAN
NIEUWE BOUWKETENS EN
TOEPASSING DUURZAME
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IEDEREEN KAN
MEEDOEN 26

MISSIETRAJECTEN:

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LOKAAL IS DE NORM 16

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REGIONALE
GRONDSTOFFENMARKT 19

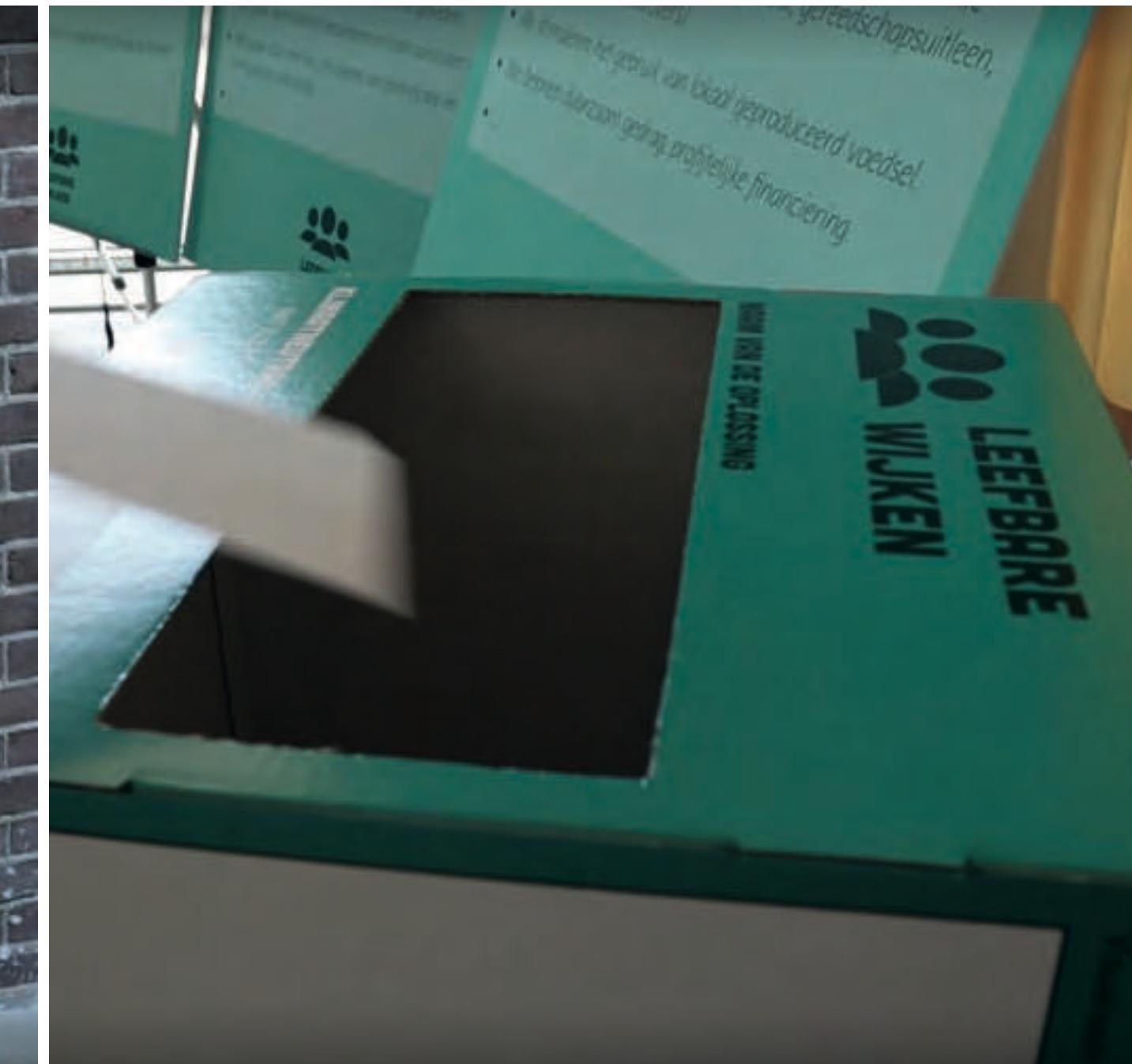
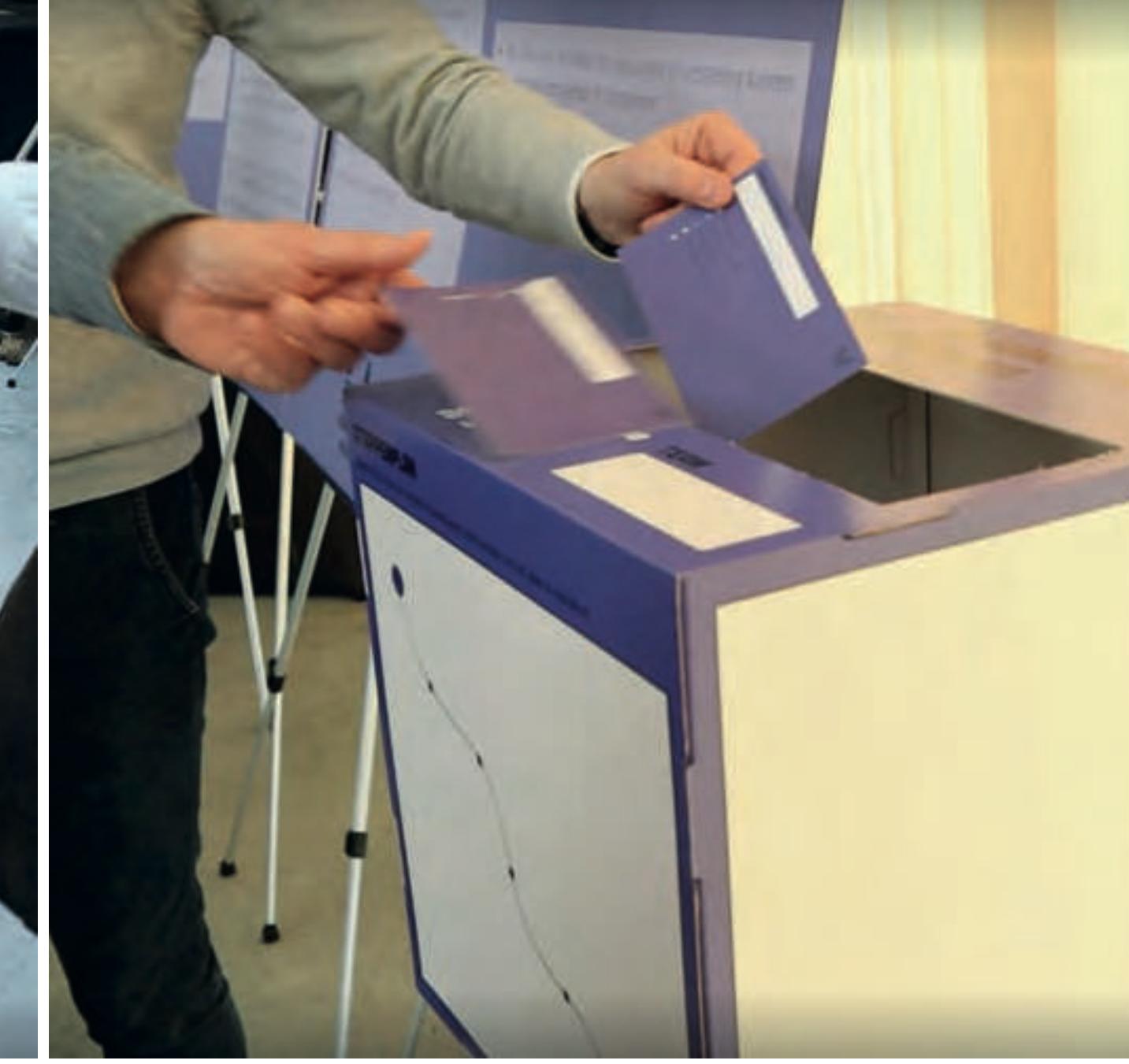
...

Het aantal organisaties dat tijdens het Transitielab heeft aangegeven mee te willen werken aan deze missietrajecten.





- COMMITMENT VAN 70+ ORGANISATIES
- GEMIDDELD 20+ ORGANISATIES PER MISSIETRAJECT
- 50+ BETROKKEN ORGANISATIES PER STADSTHEMA



SELECTIE VAN BESTAANDE INITIATIEVEN, TER INSPIRATIE:



ADOOT EEN STRAAT!



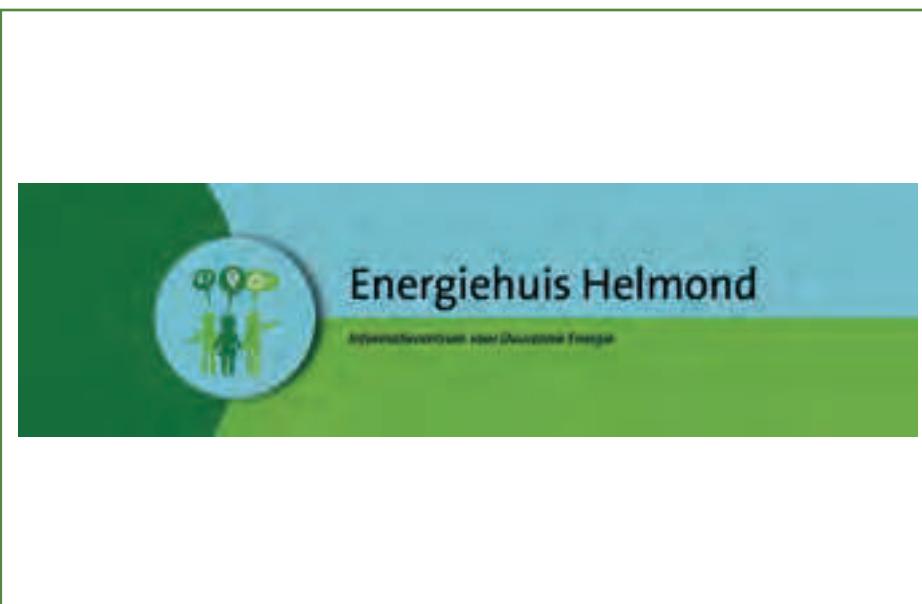
CIRKELSTAD



BUILDING BALANCE



DUURZAAMHEIDSPACT EINDHOVEN



ENERGIEHUIS HELMOND



DE GROENE ZONE



PROGRAMMA AARDGASVRIJE WIJKEN



PEEL POSITIEF



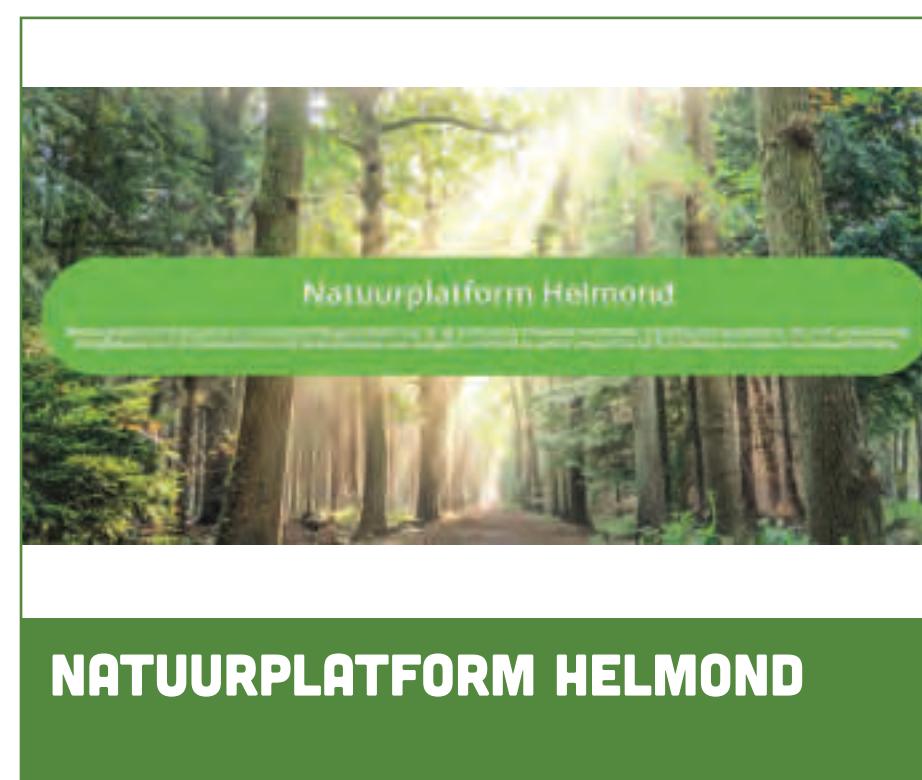
SMART SYNERGY HELMOND



DE HURK INDUSTRIEPARK



STRUIKROVEN



NATUURPLATFORM HELMOND



GREEN DEAL DUURZAME ZORG



LIVING LAB 040

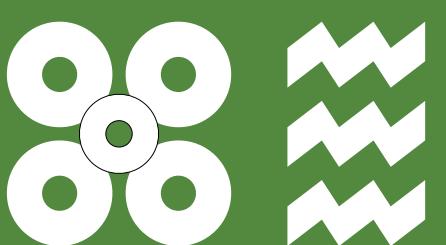


BRAINPORT SMART DISTRICT



KLIMAATNEUTRAAL IN 2030

WAT ALS HET ONS LUKT?



Gapanalyse

Klimaatmissie Eindhoven & Helmond:
Klimaatneutraal in 2030

Door: Kernteam Klimaatmissie

Datum: 31 mei 2023

Context

Definities:

- Bruto gap = huidige CO₂-uitstoot
- Netto gap = Verwachte CO₂-uitstoot 2030 met uitvoering huidig beleid
 - Netto gap = Huidige CO₂-uitstoot – doelstellingen huidig beleid

Doel:

- Weten wat de opgave is voor de klimaatmissie per sector
- Eerste inzicht krijgen in knoppen waar we aan kunnen draaien (kansen)

Scope:

- Directe CO₂-uitstoot
- Voor indirecte CO₂-uitstoot nog niet genoeg gegevens beschikbaar om gap analyse uit te voeren

Methode & Disclaimer

- Huidige beleidsdoelen vertaald naar CO₂ reductie
- Prognostiseren richting 2030 is lastig
- Meest nauwkeurige methode gebruikt met gegevens die we nu hebben
 - Startjaar 2018 is het nauwkeurigst
- Veel aannames nodig → Nauwkeurigheid ± 20%
- Zoveel mogelijk geprobeerd om dezelfde methode te gebruiken voor Eindhoven en Helmond
- Let op: huidige beleidsdoelstellingen ook al vrij ambitieus
 - Halen van netto gap ook al flinke opgave

Wonen - Eindhoven

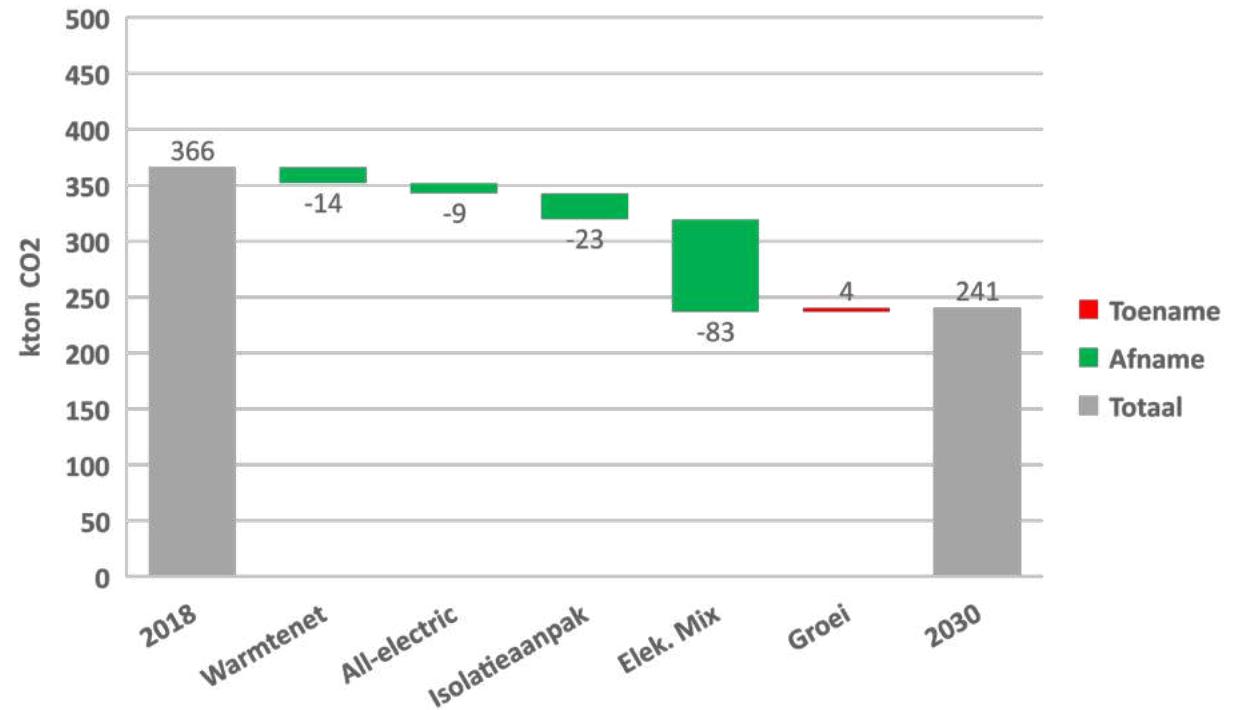
Conclusie

- We verwachten een reductie van 125 kton tussen 2018 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 241 kton

Huidig beleid

- Transitievisie warmte:
 - 40.500 woningen isoleren
 - 10.000 woningen op warmtenet
 - 5.500 woningen all-electric → warmtepomp
- Nationaal Isolatie Programma

Wonen - Eindhoven



Kansen

- Versnellen zon op dak
- Isolatie verder verbeteren
- Warmtenetten uitbreiden

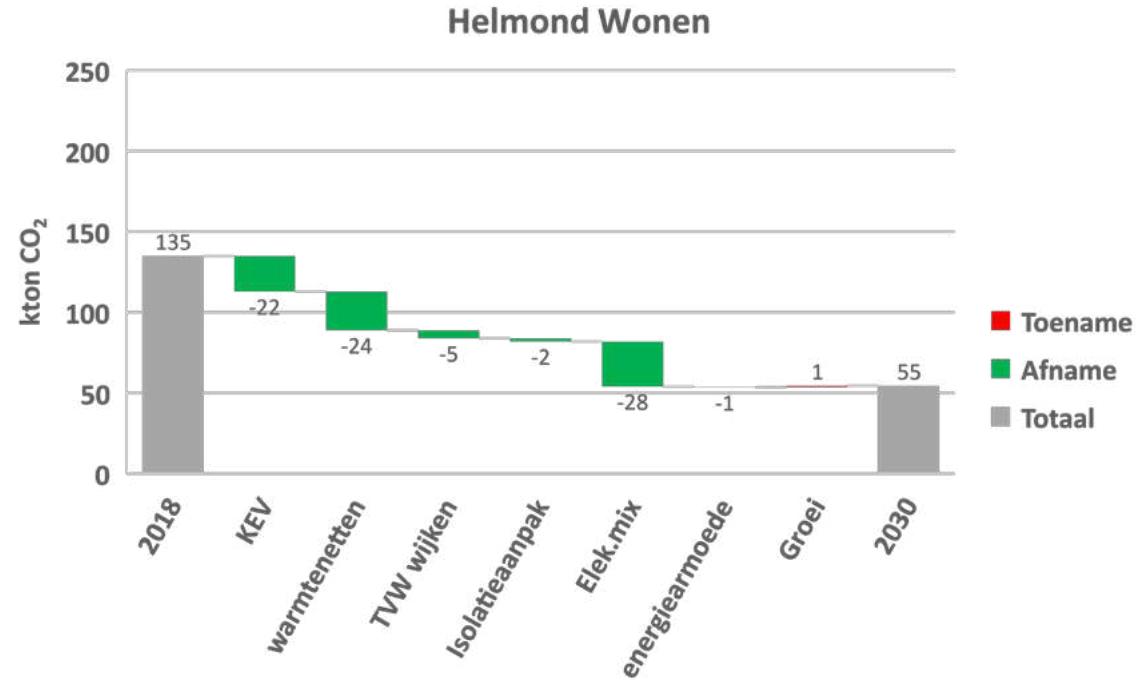
Wonen- Helmond

Conclusie

- We verwachten een reductie van 80 kton tussen 2018 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 55 kton

Huidig beleid

- Nationaal Isolatie Programma (incl GZI)
- Energiearmoede aanpak
- Verduurzamen warmtenet Ennatuurlijk
- 6 prioritaire buurten Transitievisie warmte



Kansen

- Versnellen zon op dak
- Meer isoleren
- Meer warmtenetten neerleggen
- Uitbreidingen in wijken die niet prioritair zijn: strakven, dierdonk

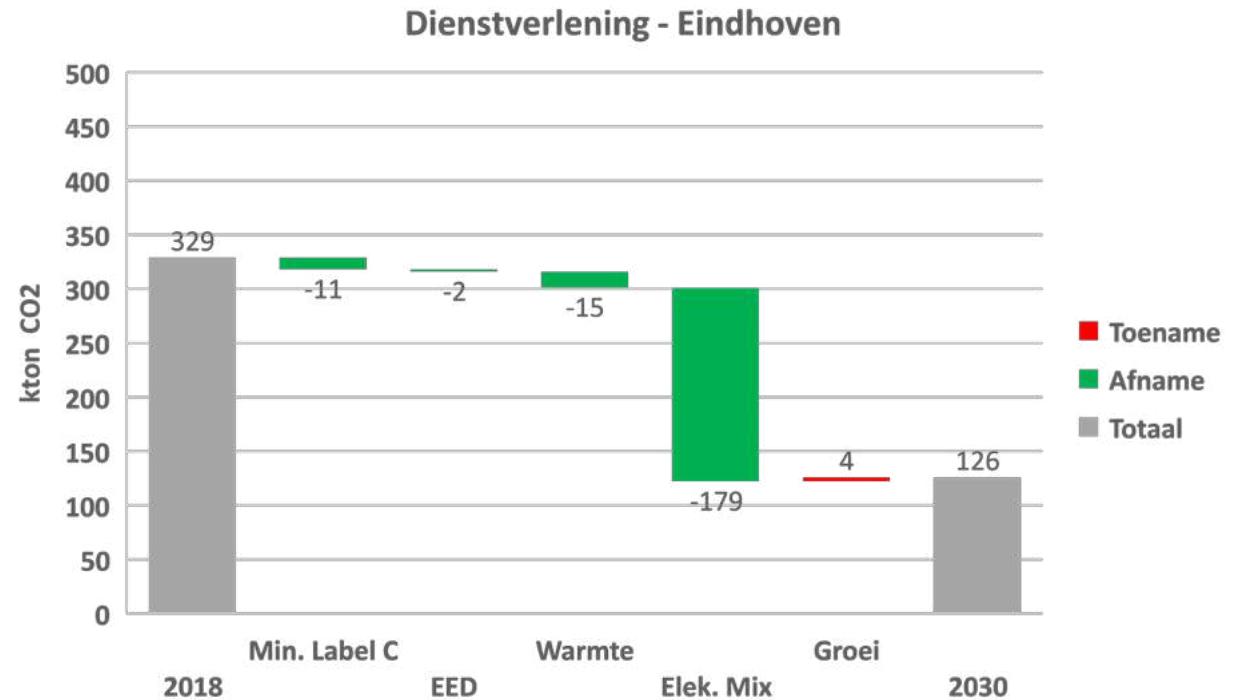
Dienstverlening - Eindhoven

Conclusie

- We verwachten een reductie van 203 kton tussen 2020 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 126 kton

Huidig beleid

- Volgen van maatregelen van utiliteit en industrie CE Delft rapportage:
 - Alle kantoor en utiliteitsgebouwen minimaal label C
 - Duurzame warmte d.m.v. warmtepomp
 - EED



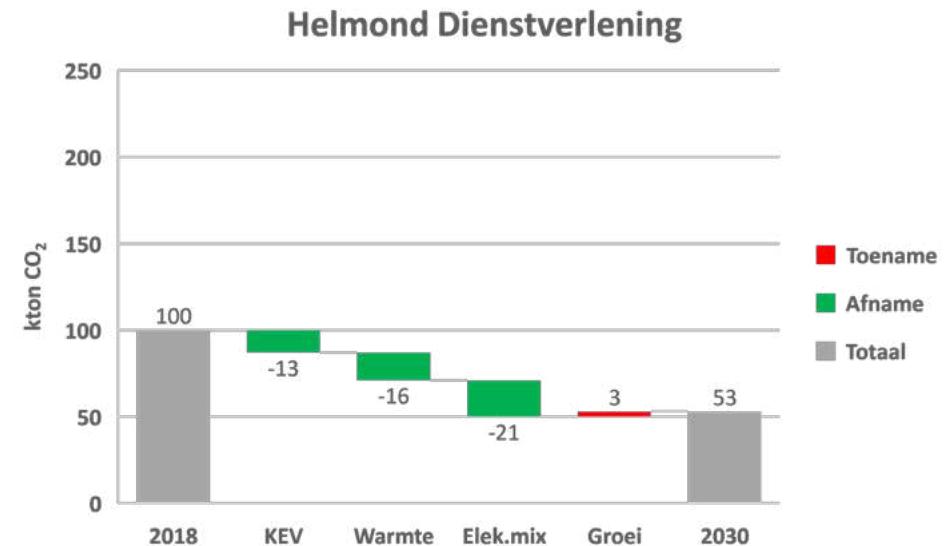
Kansen

- Verduurzaming warmtevoorziening
- Ontwikkelen warmtenet
- Isolatie verder verbeteren

Dienstverlening Helmond

Conclusie

- We verwachten een reductie van 47 kton tussen 2020 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 53 kton



Huidig beleid

- Kantoren label C en vervolgens A
- Elektrificatie en warmtenetten

Kansen

- Meer isoleren
- Meer warmtenetten neerleggen

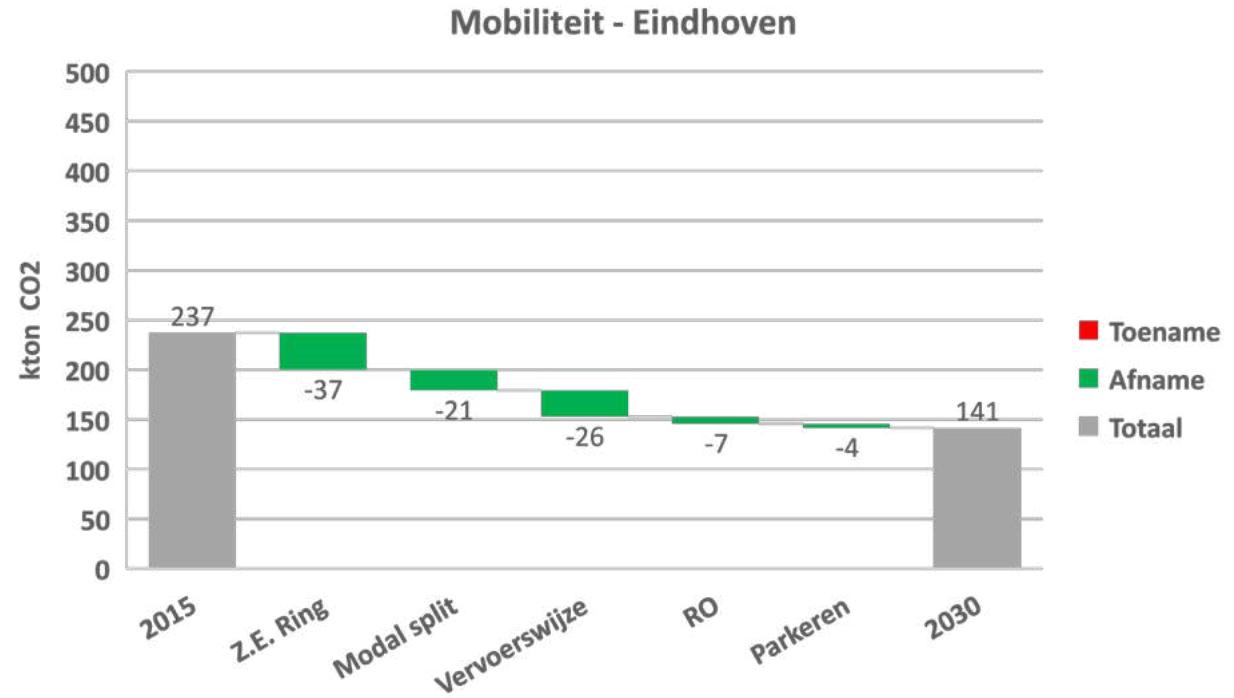
Mobiliteit - Eindhoven

Conclusie

- We verwachten een reductie van 96 kton tussen 2020 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 141 kton

Huidig beleid

- Volgen van CE Delft rapport mobiliteit:
 - Zero emission binnen de ring
 - Transitie van auto naar OV, fiets en deelvervoer
 - Elektrificatie wagenpark
 - Ruimtelijke ordening en parkeren
- Zonder snelwegen
- Groei is inbegrepen in maatregelen



Kansen

- Stimuleren emissievrij rijden
- Verbeteren en verduurzamen OV

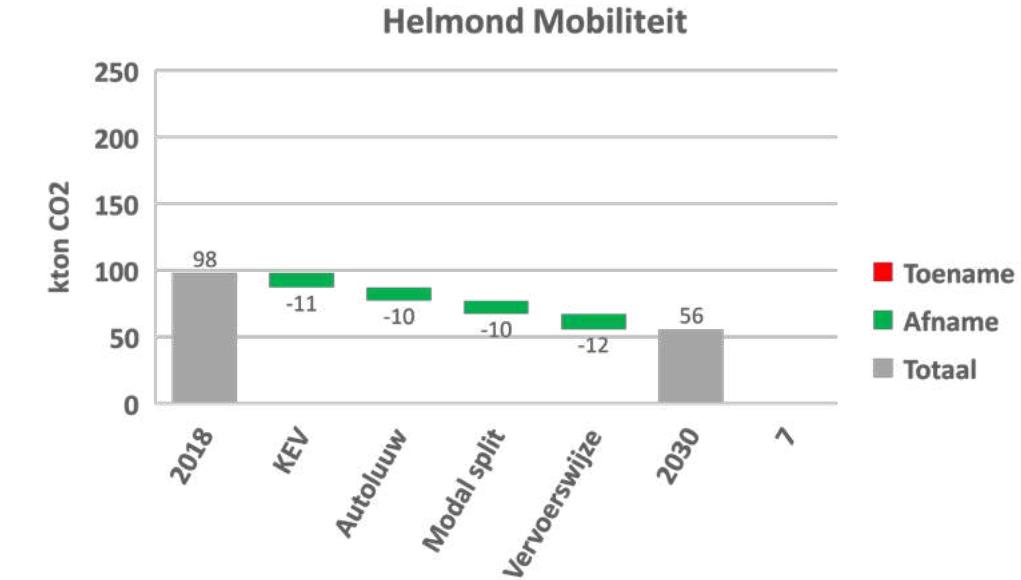
Mobiliteit Helmond

Conclusie

- We verwachten een reductie van 42 kton tussen 2020 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 56 kton

Huidig beleid

- Mobiliteitsvisie en laadvisie wordt gemaakt maar gaat uit van elektrificatie en modal shift/split
- Lussenstructuur en autoluw maken van de binnenstad zijn ingeschatt



Kansen

- transferia

Industrie Eindhoven

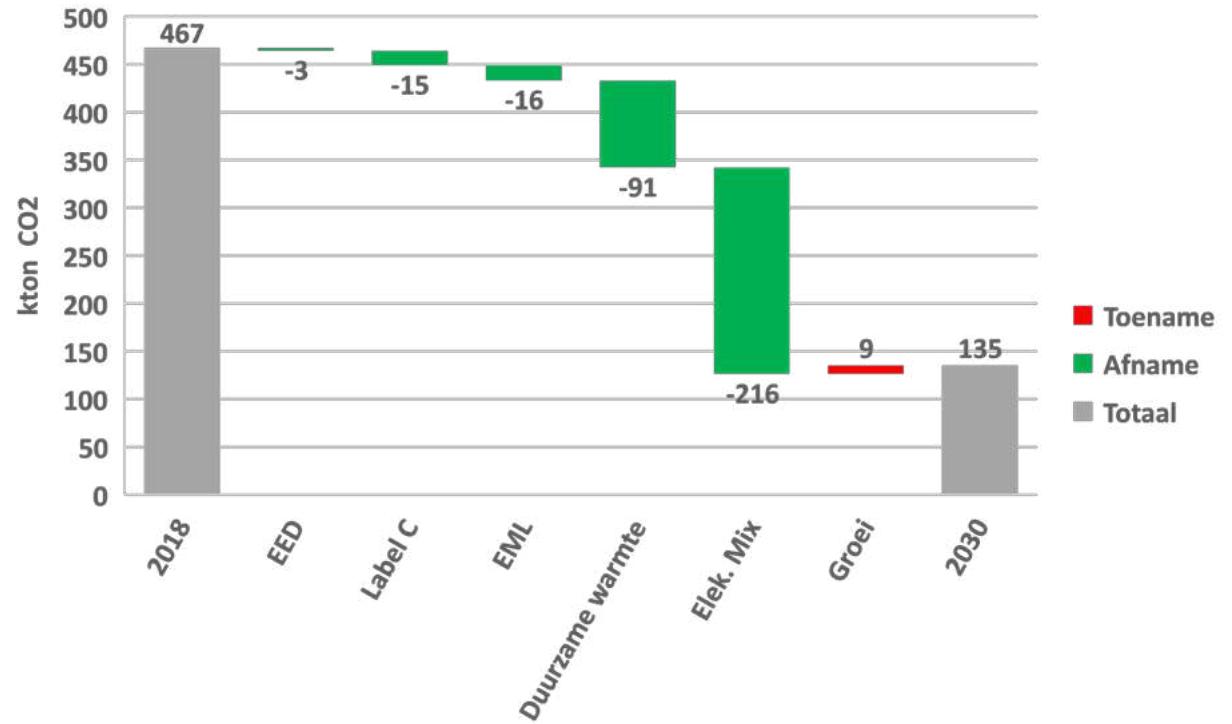
Conclusie

- We verwachten een reductie van 332 kton tussen 2020 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 135 kton

Huidig beleid

- Basis CE Delft rapport vertaald in maatregelenlijst

Industrie - Eindhoven



Kansen

- Warmtenetten industrie gebieden
- Waterstof
- Elektrificeren processen
- Lokale energie handel

Industrie Helmond

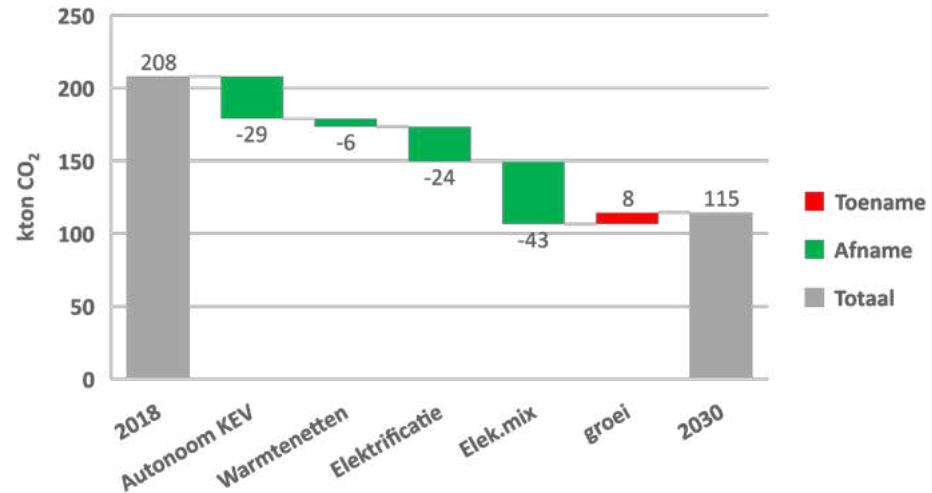
Conclusie

- We verwachten een reductie van 94 kton tussen 2018 t/m 2030 met het huidig beleid.
- Opgave klimaatmissie: 115 kton

Huidig beleid

- Warmtenetten op GS en BZOB
- Smart grids Hoogeind (Grote Oogst)
- Elektrificatie en verduurzaming naast EED/MJA/EML:

Helmond Industrie



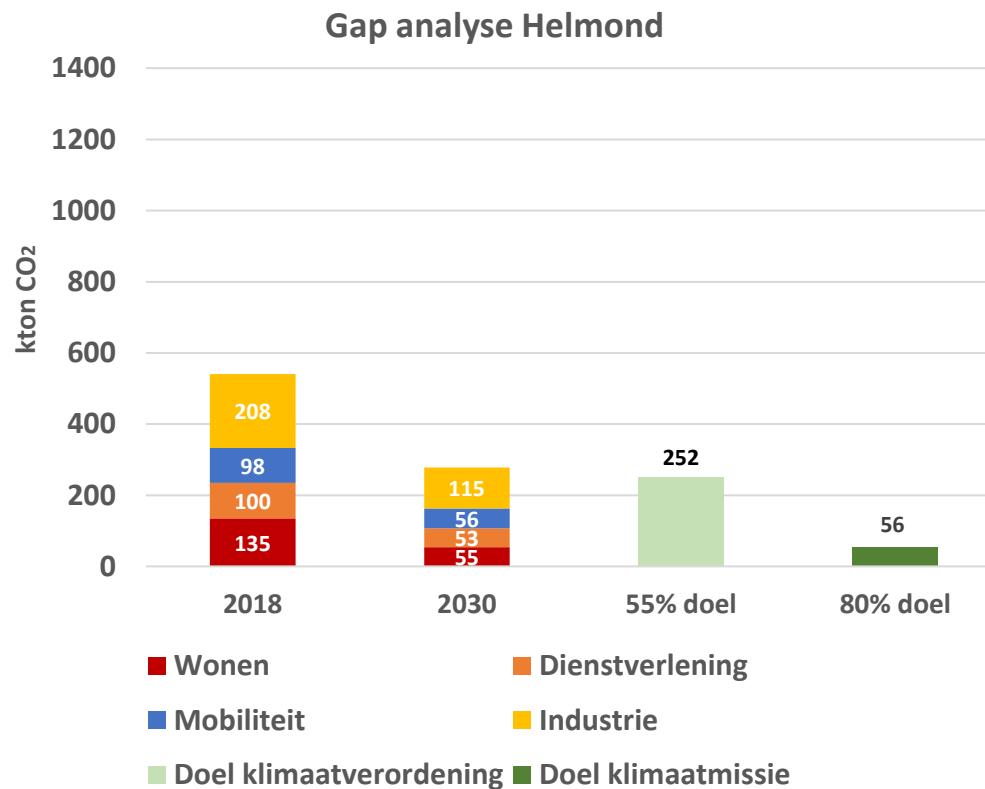
Kansen

- Waterstof BZOB/Hoogeind

Conclusie

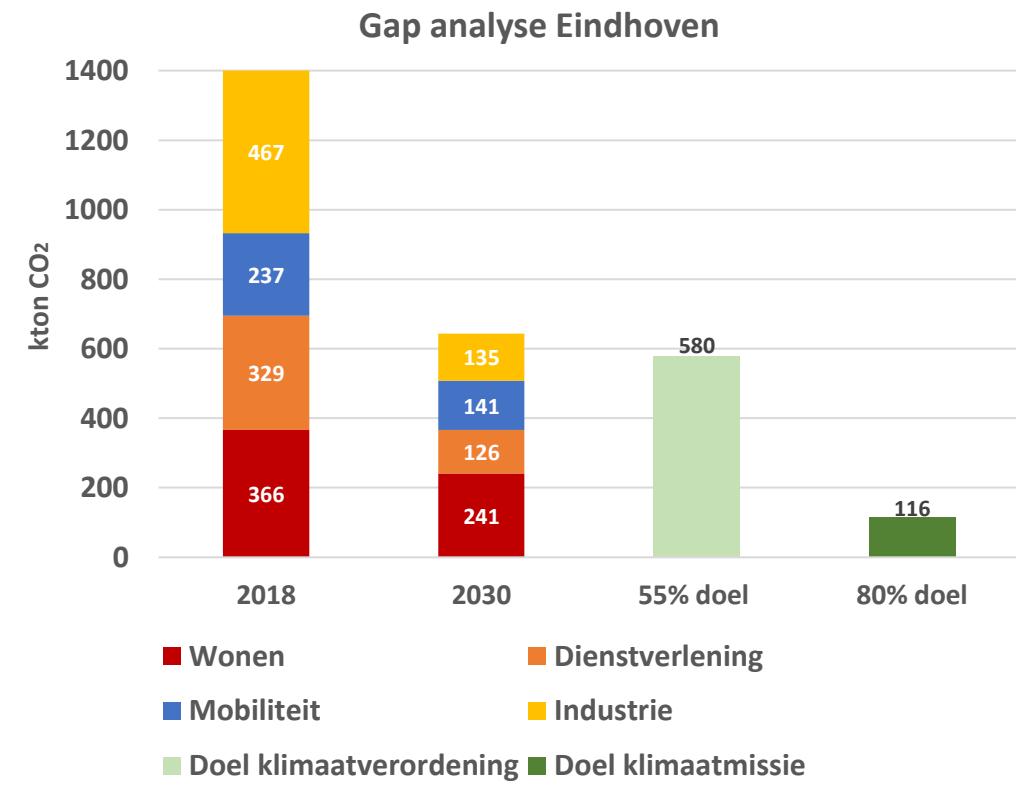
Conclusie Helmond:

- We verwachten een totale reductie van 262 kton tussen 2018 t/m 2030 met het huidige beleid.
- Opgave klimaatmissie: 56 kton



Conclusie Eindhoven:

- We verwachten een totale reductie van 756 kton tussen 2018 t/m 2030 met het huidige beleid.
- Opgave klimaatmissie: 116 kton



Gezamenlijk doel

Gezamenlijk doel Helmond & Eindhoven

- In 2030 wordt een reductie van 1019 kton verwacht t.o.v. 2018. De klimaatverordening stelt als doel 832 kton in 2030. De klimaatmissie betreft 100% reductie waarvan 20% gecompenseerd mag worden. Hierdoor wordt het doel voor de klimaatmissie 172 kton.
- Gap in 2030 tot:
 - Klimaatverordening: 89 kton
 - Klimaatmissie: 749 kton

