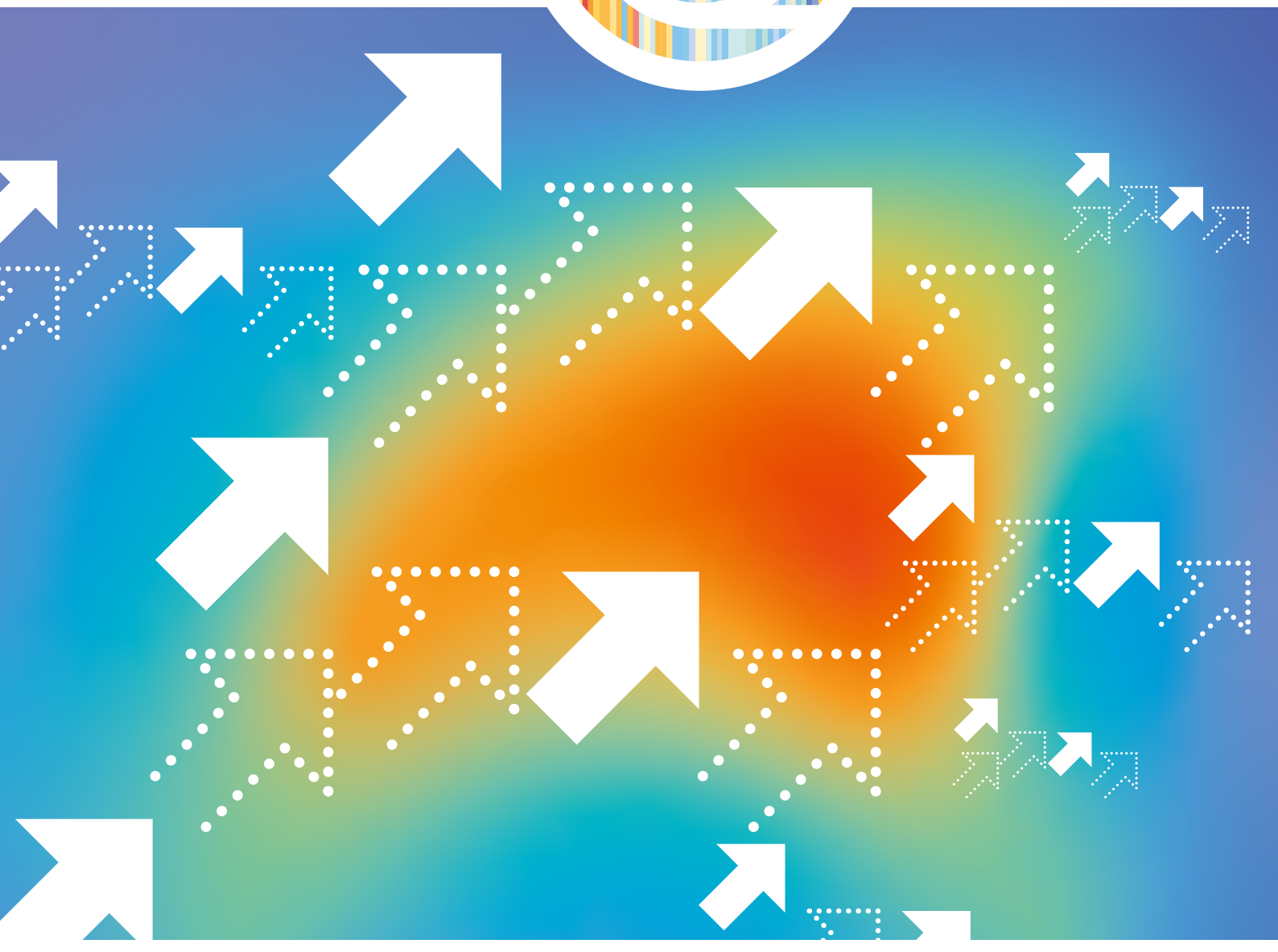
Dunkerque Grand Littoral
COMMUNAUTE URBAINE

Climate City Contract

Climate Neutrality Action Plan

Climate Neutrality Action plan Greater Dunkirk

MISSION ZERO



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Summary

An abstract summarizes the content of the 2030 Climate Neutrality Action Plan (CCC Action Plan) that is developed jointly by local authorities, local businesses, and other stakeholders.

Textual element

As mentioned, Greater Dunkirk is a region particularly affected by climate change for numerous reasons, including high industrial CO_2 emissions, air quality issues, and vulnerability to marine submersion.

This is why Greater Dunkirk has committed early and strongly to decarbonizing its living area and industrial zone.

In France, the Law on Energy Transition for Green Growth (LTECV) has strengthened the role of local authorities in the fight against climate change through the Territorial Climate Air Energy Plans (PCAET), which serve as both a territorial project and a tool for driving that project forward.

The PCAET is participatory, co-constructed by decision-makers, local government services, and territorial stakeholders (local authorities, socio-economic actors, associations, companies, universities, residents...). It aims for consistency between territorial actions by filtering all decisions and policies through a "climate-energy" lens, transitioning from scattered initiatives to a coherent, collaborative, and ambitious climate-energy policy.

The region has embraced this planning and action tool, establishing a PCAET recognized as one of the most ambitious for a locality of this size.

Thus, its actions cover all sectors and functions of the territory; it involves all major local stakeholders in a collective effort and is designed as a lever for ecological and energy transition.

It sets clear ambitions:

- Mitigate climate change (reduce GHG emissions)
- Develop renewable and recovered energy
- Prepare for adaptation to climate change
- Preserve air quality

And it sets actions addressing all territorial challenges:

- The exemplary conduct of the local authority in climate and energy transition
- Mobilization of public forces on the climate, air, and energy policy
- Air quality
- Building insulation
- Mobility
- Energy
- Waste
- Water...

Armed with this collectively developed document, within the framework of its Climate City Contract (CCC), Greater Dunkirk sought to go further in climate protection and especially to accelerate the transition to carbon neutrality.

Indeed, while Greater Dunkirk's CCC builds on the PCAET's axes and actions, it has enabled the territory to consider new approaches that had not been previously envisaged or explored.

For example, while the PCAET planned actions that were assumed to be beneficial and thus reduce greenhouse gas emissions, it had not been considered to measure the reduction by action.

Similarly, residual emissions had not been fully considered.

Thus, the document was revised in light of these new perspectives.

It was also enhanced because the overall situation of the region has changed. In two years, major industrial projects and the establishment of gigafactories have altered the region's landscape, with, for example, 20,000 new jobs expected to be created within a few years. This means that new activities must not undo previous efforts. Once again, there is a need to adapt and accelerate, with innovations such as factories without parking lots or the establishment of a structure bridging the decarbonization of the living area and the industrial zone.

Lastly, and perhaps most importantly, the implementation of the CCC has motivated Greater Dunkirk to increase the involvement of stakeholders in the overall decarbonization effort, relying on its major awareness-raising and popular education facilities, but also by creating new governance tools such as the social conference and the Co-Mission Zero.

With the CCC's action plan, Greater Dunkirk has thus chosen to accelerate and further mobilize territorial actors to achieve its goals of reducing energy consumption and greenhouse gas emissions.

List of figures

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

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 of name) used in the CCC Action Plan.

Abbreviations and acronyms	Definition
ADEME	Agence de l'environnement et de la maîtrise de l'énergie
ANCT	Agency for Territorial Coherence
AQPP	Air Quality Protection Plan
BAU	business as usual
BEGES	bilan emission gaz à effet de serre - Greenhouse Gas Emissions Inventory
CCC	Climate City COntract
EPCI	intercommunal authorities EPCI
GHG	Greenhouse Gas
LOM	Mobility Orientation Act
LTECV	Energy Transition for Green Growth Act
NPNRU	New National Urban Renewal Program (Nouveau Programme National de Renouvellement Urbain)
OREC	Regional Energy and Climate Observatories
PADD	sustainable development and planning project
PAVE	Plan de mise en accessibilité de la voirie et des aménagements des espaces publics, Accessibility Plan for Roads and Public Spaces
PCAET	(Plan Climat Air Énergie Territorial): Territorial Climate Air Energy Plan
PLU	(Plan Local d'Urbanisme): local urban development plan
PLUi	(Plan Local d'Urbanisme Intercommunal): Intercommunal local urban development plan
POA	action and orientation program
PPA	(Plan de Protection de l'Atmosphère): Air Protection Plan
RARE	regional energy and environment agencies
SCoT	(Schéma de Cohérence Territoriale): Territorial Coherence Scheme
SDRIVE	masters plans for electric vehicle charging infrastructure (schémas directeurs des infrastructures de recharge pour véhicules électriques)
SNBC	(Stratégie Nationale Bas Carbone): National Low Carbon Strategy
SRADDET	Regional Planning, Sustainable Development, and Territorial Equality Scheme
TETE-CAE	Territory committed to ecological transition label - Climate, Air Energy (Territoire engagé transition écologique)
ZFE-M	low-emission mobility zone

1. Introduction

The City of Dunkirk, situated along the picturesque northern coast of France, stands at a pivotal moment in its quest for climate neutrality by 2030. As we embark on crafting the 2030 Climate Neutrality Action Plan, it's imperative to delve into our local geographic and policy context, as well as the significant gap we endeavor to bridge.

Dunkirk's landscape, both geographically and industrially, shapes the contours of our climate aspirations. Historically entrenched as a significant energy consumer and emitter of CO_2, particularly within our industrial basin, our territory bears the weighty responsibility of transforming its consumption and decarbonizing across all dimensions. Currently, the industrial sector within our territory alone contributes to 21% of France's industrial CO_2 emissions and a staggering 85% of our region's greenhouse gas emissions. Furthermore, industry accounts for nearly 80% of our energy consumption.

Recognizing these challenges, Dunkirk has embarked on a robust territorial climate and energy strategy, underlined by the recent adoption of the 2022-2028 Territorial Climate Air Energy Plan (PCAET). This strategic roadmap sets forth ambitious targets, aiming to slash energy consumption by 46% and greenhouse gas emissions by 79% by 2050.

Aligned with our commitment outlined in the Cities Mission Expression of Interest, Dunkirk's 2030 climate neutrality target remains steadfast. Our ambition is to achieve net-zero greenhouse gas emissions by 2030, signaling our resolve to combat climate change at the local level. This target reflects our recognition of the urgent need for action and our responsibility to future generations.

Achieving our 2030 climate neutrality target requires the active involvement of various stakeholders across sectors. This includes but is not limited to local government entities, industrial stakeholders, community organizations, academic institutions, and residents. Collaborative partnerships and engagement are essential to fostering a shared commitment to sustainability and driving meaningful change.

Dunkirk has established formal planning frameworks, such as the Territorial Climate Air Energy Plan (PCAET), to guide climate action initiatives. The CCC Action Plan must align seamlessly with these frameworks, ensuring coherence and synergy in our approach to climate mitigation and adaptation. The CCC Action Plan serves as a pivotal component of Greater Dunkirk's existing climate action planning efforts. It builds upon previous strategies and commitments, such as the Sustainable Energy and Climate Action Plan (SECAP), while also providing a cohesive framework to integrate and streamline future initiatives. By consolidating and aligning our efforts under the CCC, we can maximize impact and effectively address the emissions gap towards climate neutrality by 2030.

Climate change is already affecting the entire world. Extreme weather conditions such as drought, heatwaves, heavy rains, floods, and landslides are becoming more frequent, including in Europe. Sea level rise, ocean acidification, and biodiversity loss are other consequences of rapid climate changes. There is an urgent need for action. At this pivotal moment, Europe has decided to mobilize. Thus, the European Union has committed to an ambitious climate policy. Under the European Green Deal, it aims to become the first continent to eliminate as many CO_2 emissions as it produces by 2050.

Under the European Climate Law, and in line with the Paris Agreement objectives, the European Union is committed to reducing its emissions by at least 55% by 2030 and achieving climate neutrality by the mid-century. In this context, the role of cities is crucial. Although they occupy only 4% of the EU's land area, they are home to 75% of European citizens. More broadly, cities consume more than 65% of the world's energy and are responsible for over 70% of global CO_2 emissions. Working with cities can and must enable both faster decarbonization and a fair and equitable transition to build a livable society.

To support its Green Deal, the European Union has launched a program called NetZeroCities under "Horizon Europe" for the 2021-2027 period, aiming to assist "100 climate-neutral and smart cities by 2030". This EU Mission has a triple objective: to support the transformation of cities to meet the Paris Agreement target, to boost the implementation of the European Green Deal, and to demonstrate that achieving climate neutrality by 2050 is a credible goal.

Each of the 100 selected cities is tasked with developing a climate contract tailored to its strengths, weaknesses, realities, and urgencies through a mobilizing process that enables collaboration and co-creation with all local stakeholders. This contract will detail the strategy, transformations, and solutions implemented to achieve climate neutrality. Thus, it serves as both a roadmap and a clear commitment from the territory—morally, technically, and financially—to all stakeholders.

This contract was designed by Greater Dunkirk with the participation of numerous public and private actors to meet the demands of the European Cities Mission and achieve climate neutrality. It is based on a simple analysis: if the territory of Greater Dunkirk continues the trends of past years, energy consumption will increase by 49% in 2030 and triple by 2050, while GHG emissions will increase by 15% in 2030 and nearly 58% in 2050. The conclusion is clear: change is needed. The ambition is clear: to maximally reduce emissions.

In collaboration with all partners, community elected officials have defined a strategy and action program to achieve GHG reduction objectives. This action program covers many areas: residential, tertiary, mobility, waste, climate change adaptation, etc., emphasizing the community's exemplary role. It fully relies on all local actors, each contributing ideas, needs, urgencies, contributions, and actions as citizens, associations, institutions, unions, universities, businesses, and media.

The Dunkirk area has three notable characteristics:

- Proximity, in all respects, between the city and the industrial-port platform.
- A strong tradition of partnership.
- High public support for initial climate decisions, particularly the implementation of free public transport.

The contract was developed using these key elements to facilitate its adaptation to the specific needs of the territory and its appropriation by all actors, especially residents. The plan was also designed with a triple objective: to build on our strengths to go further, to identify areas for improvement by addressing what has not yet been done or what has not worked sufficiently, and to be adaptable, evolving according to its progress.

It outlines key actions, methods, and objectives in each intervention area (housing, transport, waste, etc.). It aims to:

- Develop renewable and recovered energy, serving as a true lever for ecological and energy transition.
- Prepare for climate change adaptation, integrating actions across all sectors and functions of the territory.
- Preserve air quality by reducing energy consumption, changing our transportation and consumption modes, and reducing CO_2 emissions, thereby also reducing pollutants in the atmosphere and improving residents' health.
- Co-construct the future, involving all local actors in a collective effort and engaging the population in an educational and participatory approach to evolve consumption and usage behaviors.
- Enable the replicability of its actions in other cities.

Table I-1.1 : Climate Neutrality Target by 2030

Sectors	Scope 1	Scope 2	Scope 3
Stationary energy	Included	Included	Information
			Information
Transport	Included	Included	Information
			Information

Waste/wastewater	Included	Not applicable	Included
		Not applicable	
IPPU	excluded	Not applicable	Information
	All	Not applicable	Information
AFOLU	Included/excluded/to be defined	Not applicable	Information
		Not applicable	Information
Other			
Geographical boundary	**Same as city administrative boundary**	**Smaller than city administrative boundary**	**Larger than city administrative boundary**
		X	
Specify excluded/ additional areas		Industrial port area is excluded (shown in red in the map below)	

Figure 1 : Climate Neutrality Target by 2030

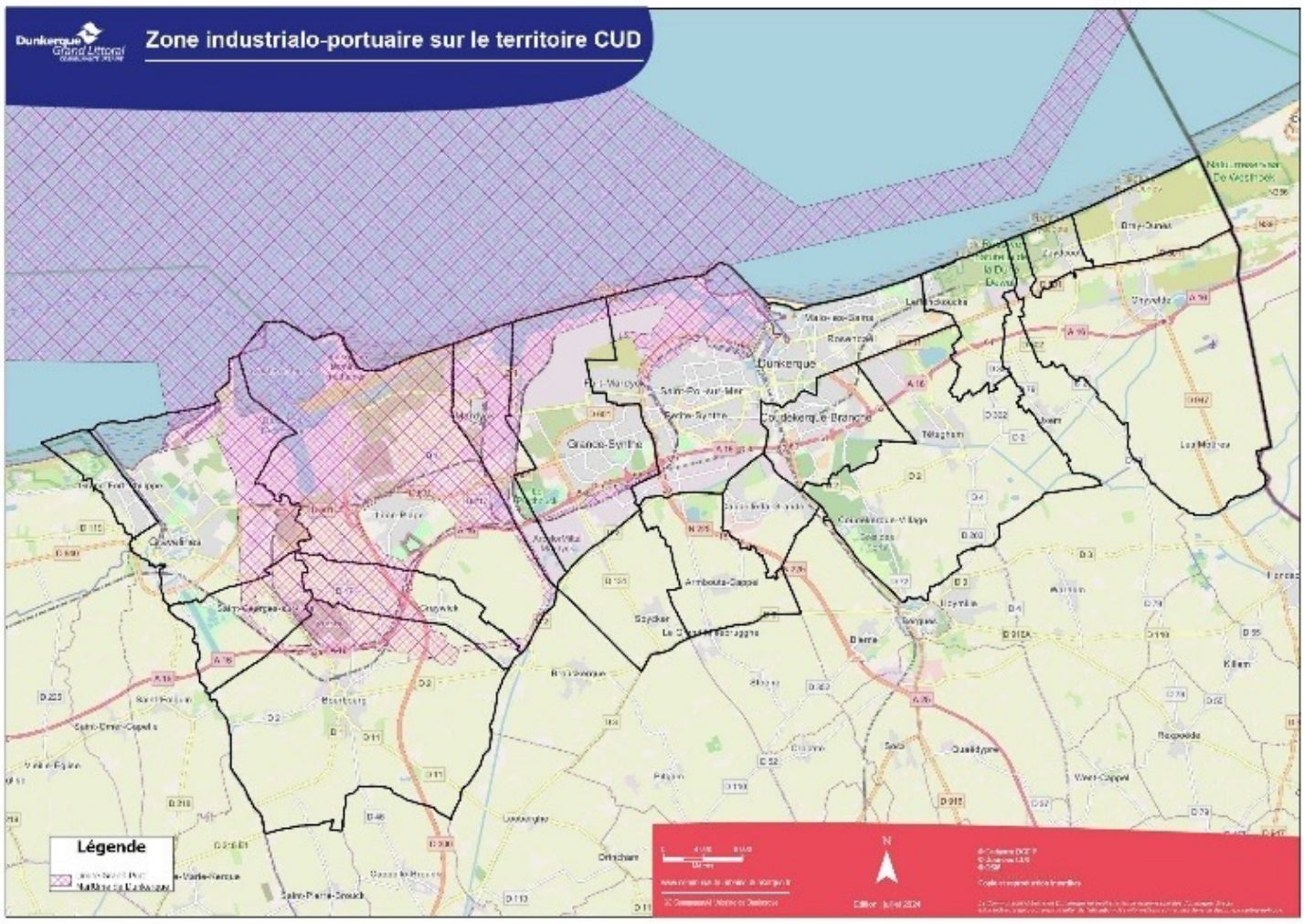


Figure 2 : Industial-port zone on Greater Dunkirk

1.1 Work Process

To develop the CCC, Greater Dunkirk has decided to follow the transition roadmap. The action plan therefore includes the 3 main stages of construction:

- Building a strong mandate
- Understanding the system
- Co-designing a portfolio of actions

Greater Dunkirk understands that concerted effort from all sectors is vital to achieving climate neutrality. By joining the 112 Climate-Neutral and Smart Cities Mission, the municipality signals its strong commitment to this goal. The Climate City Contract will serve as a roadmap to align local initiatives and investments with this ambitious vision.

Build a strong mandate	**Within city government**	**Set up / strengthen the internal team**
		Mobilise ressources and capacity
	Within the local ecosystem	**Develop a multi-aco Transition team**
		Build new collaborative governance structures and networks
	With the other government levels	**Strengthen buy-in**
		Clarify mutual commitments

Greater Dunkirk is fully committed to the ecological transition. Thanks to a structured organization centered around a department dedicated to sustainable cities and a specialized service for climate, air, and energy transition, it has already raised awareness among a large portion of its employees about the challenges of climate change. The Territorial Climate Air Energy Plan (PCAET) has strengthened this dynamic by integrating all the services of Greater Dunkirk.

While the industrial and port area, already targeted by numerous initiatives, has been temporarily excluded from the direct scope of the CCC, this in no way signifies a disinterest in these issues. On the contrary, Greater Dunkirk is aware of the interconnections between the different sectors of the territory and aims to ensure a just and inclusive transition for all inhabitants.

The 'Climate, Air, and Energy Transition' service plays a central role in supporting operational services and promoting a systemic approach. The territory, recognized as a decarbonization hub, has a dense partnership network, facilitating the implementation of innovative projects. The initial actions of the CCC have focused on urban challenges, but Greater Dunkirk plans to strengthen collaboration with actors in industrial decarbonization to ensure overall coherence of the transition.

In short, Greater Dunkirk has established a solid framework to support the ecological transition of its territory. By prioritizing a balanced approach between urban and industrial challenges, it aims to contribute to improving the quality of life for all its inhabitants.

French government at other levels provide significant and multifaceted support to local authorities, including Greater Dunkirk. In the context of the CCC, the region Hauts-de-France and the France Ville Durable association are acting as key partners of Greater Dunkirk. The 'transition team' is designed as a dynamic structure, intended to adapt to the evolving needs of the project. Given the tight deadlines imposed by the drafting of the CCC, Greater Dunkirk has had to set priorities. With a workforce of nearly 3,000 employees, the establishment has a vast pool of internal expertise.

The CCC gave new thinking perspectives, and the idea is now to create new partnerships that will last longer than the political cycles.

Figure 3 : List of Greater Dunkirk's networks, linked to climate transition

The main forces of Greater Dunkirk are:

1. Political commitment and regulatory framework for ecological transition

- **A regulatory framework and labels:** Since 2009, Greater Dunkirk has implemented an ambitious regulatory framework through the PCAET, strengthened by labels such as "Territoire Engagé Transition Écologique" (Committed Territory for Ecological Transition), focus on climate air and energy, or circular economy, and "Innovative Sustainable City", highlighting the intention to promote ecological transition.
- **Forward-looking presidential mandate:** The president of Greater Dunkirk places ecological transition at the heart of his mandate, with concrete actions in areas such as renewable energy, economic and industrial development, circular economy, and sustainable mobility.
- **Ambitious public policies:** Greater Dunkirk implements public policies aimed at accelerating the ecological transition, including financial support, awareness campaigns, and concrete actions like free public transport. These initiatives are part of the Eco-Winning program, complementing the territory's walking and cycling plans.

2. Structures and strategies for resilience and climate adaptation

- **Creation of dedicated structures**: Specific departments within Greater Dunkirk, focused on resilience and climate change adaptation, work on long-term strategies to strengthen the territory's resilience to climate-related challenges.
- **Climate resilience and adaptation to rising sea levels:** Greater Dunkirk, with its vulnerable territory built from the sea centuries ago (polder), capitalizes on climate threats by promoting renaturation, ecosystem restoration, and biodiversity protection. For instance, natural protections created through channel dredging and flood control zones can become areas for ecology and biodiversity.

3. Economic and industrial strengths for the ecological transition

- **Dynamic and innovative industrial ecosystem:** Greater Dunkirk has a strong industrial base with solid expertise that can play a key role in innovation and the transition to a circular economy. This industrial ecosystem is supported by *ÉcosystèmeD.*

- **Industrial zone:** Initiatives such as ECOPAL (industrial ecology) and the urban heat network illustrate the territory's commitment to reducing the environmental footprint of its industries.
- **Collaboration and innovation:** The local industry, supported by partnerships between public and private actors, is encouraged to develop innovative projects, particularly in future-oriented industries.

4. Geographical and logistical strengths

- **Strategic geographical position:** Dunkirk is ideally located in the heart of Northern Europe, facilitating commercial exchanges and cross-border cooperation, particularly in energy projects. The region also benefits from four modes of goods transport—maritime, river, rail, and road—which turns traffic management into a strength. An example of this is the North Sea-Mediterranean trans-European transport network.
- **Port of Dunkirk:** The port, in its major economic role plays a central role in the development of renewable energies (wind, green hydrogen, electric batteries) and in promoting more sustainable modes of transportation.

5. Education, awareness, and innovation

- **Awareness and education on sustainable development:** Greater Dunkirk conducts awareness campaigns and integrates sustainable development education into school curricula to engage the population in ecological projects. Structures within the territory, such as *Halle aux Sucres, Biotopia, and the Palais de l'Univers et des Sciences,* serve as platforms for awareness and communication with citizens.
- **Innovation potential:** Higher education institutions such as the *University of Littoral Côte d'Opale*, and the *School of Engineers for Future Careers*, along with *ÉcosystèmeD* and academic partnerships, play a key role in developing new ecological solutions and practices.

Greater Dunkirk stands out for its political commitment, its industrial and geographical strengths, and its collaborative approach toward ecological transition. With a strong focus on resilience to climate change and an economic development strategy aligned with ecological principles, it has the potential to become a model of a sustainable and resilient territory.

Understand the system through

Understand the system through	Data	GHG emissions inventory
		Analyse actions and gaps needs
	Connections, relationships	Map the system and resources flows
		Identify key obstacles
	Future scenarios	Identify levers of change
		Model options, capital formation, funding strategies

GHG emissions inventory

The scope looked into for the GHG inventory is shown in the table below :

		Mayors convention	Climate Air Energy territorial plan	Cit'ergie	Carbon footprint
Environmental approach		Convention des Maires – Pour une énergie locale durable	PLAN CLIMAT AIR ENERGIE DU DUNKERQUOIS	Cit'ergie European Energy Award	BC BILAN CARBONE®
Greenhouse gas GH Protocol	Carbon dioxide (CO_2)	✓	✓	✓	✓
	Methane (CH_4)	✓	✓	✓	✓
	Nitrous oxyde (N_2O)	✓	✓	✓	✓
	Hydro fluorocarbons (HFC)	✓	✓	✓	✓
	Per fluorocarbons (PFC)	✓	✓	✓	✓
	Sulfur hexafluoride (SF_6)	✓	✓	✓	✓
	Nitrogen trifluoride (NF_3)	✓	✓		
Business sectors	Transport	Scope 1 to 2	Scope 1 to 3	Scope 1 to 3	Scope 1 to 3
	Construction	Scope 1 to 2	Scope 1 to 3	Scope 1 to 3	Scope 1 to 3
	Industry	Scope 1	Scope 1 to 3		Scope 1 to 3
	Agriculture	Scope 1	Scope 1 to 3		Scope 1 to 3
	Waste	Scope 1 to 3	Scope 1 to 3	Scope 1 to 3	Scope 1 to 3

Figure 4 : Greenhouse gas considered according to environmental approaches

The National Allocation Plan (NAP) and the European Union Emissions Trading System (EU ETS)

The National Allocation Plan (NAP) is a key instrument of French climate policy, designed to reduce greenhouse gas (GHG) emissions. It is part of the broader European Union Emissions Trading System (EU ETS), a market-based mechanism aimed at limiting CO_2 emissions by allocating tradable emission allowances to companies.

What is the NAP?

The NAP defines the maximum amount of CO_2 that a French industrial or energy site can emit each year. This allocation is determined based on several criteria:

- **Emission reduction potential:** Sectors with significant room for reducing emissions are allocated fewer allowances.
- **Growth forecasts:** Growing sectors are allocated more allowances to accommodate their development.
- **Reduction technologies:** Companies investing in clean technologies can benefit from a more favorable allocation.

How does the EU ETS work?

The EU ETS is a market where companies can buy and sell emission allowances. The price of allowances is determined by supply and demand. If a company exceeds its annual quota, it must purchase additional allowances on the market. Conversely, if it reduces its emissions beyond its quota, it can sell its surplus.

This mechanism incentivizes companies to invest in cleaner technologies to reduce their costs. Indeed, it is often more profitable to invest in less polluting equipment than to buy additional allowances.

The NAP is closely linked to the EU ETS. The allowances allocated under the NAP are tradable on the European emissions market. Thus, the NAP contributes to implementing the EU ETS at the national level.

The regulatory framework

The EU ETS is governed by a European directive and national laws. Directive 2003/87 establishes the fundamental principles of the system. In France, these provisions are transposed into the environmental code. The NAP is also subject to a specific regulatory framework that defines the modalities for allocating allowances and the obligations of companies.

In Dunkirk, biggest emitters are:

ETS for Dunkirk industries

Name of the industry	City	APE Designation	Emissions ($teqCO_2$) in 2019	ETS for 2021
Aluminium Dunkerque	Loon-Plage	Aluminium metallurgy	484 000	45 5214
ArcelorMittal MARDYCK	Mardyck	Steel	67 000	49 869
ArcelorMittal DUNKERQUE	Dunkirk	Steel	7 400 000	9 607 426
Befesa Valera	Gravelines	Steel	46700	33 712
COMILOG DUNKERQUE	Gravelines	Steel	99 600	91 796
DAUDRUY VAN CAUWENBERGHE et Fils	Dunkirk	Refined oil and fat manufacturing	15 300	10 161
DILLINGER France	Grande-Synthe	Steel	68 000	54 363
ENGIE thermique France - Centrale DK6	Dunkirk	Power generation	4 608 000	Under the arcelor mittal Dunkerque emissions
Ferroglobe manganèse France	Grande-Synthe	Steel	202 000	185 114
HSWT	Gravelines	Manufacturing of basic pharmaceutical products	17 100	Not Found
IMERYS ALUMINATES	Loon-Plage	Cement manufacturing	165 000	116 492
LESIEUR	Coudekerque-Branche	Refined oil and fat manufacturing	13 900	Not found
RYSSEN ALCOOLS S.A.S	Loon-Plage	Production of distilled alcoholic beverages	25 100	Not found
VERSALIS France SAS	Loon-Plage	Manufacture of other basic organic chemicals	611 000	417 766

The numbers under "ETS for 2021" column are from a government website
https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000044537559

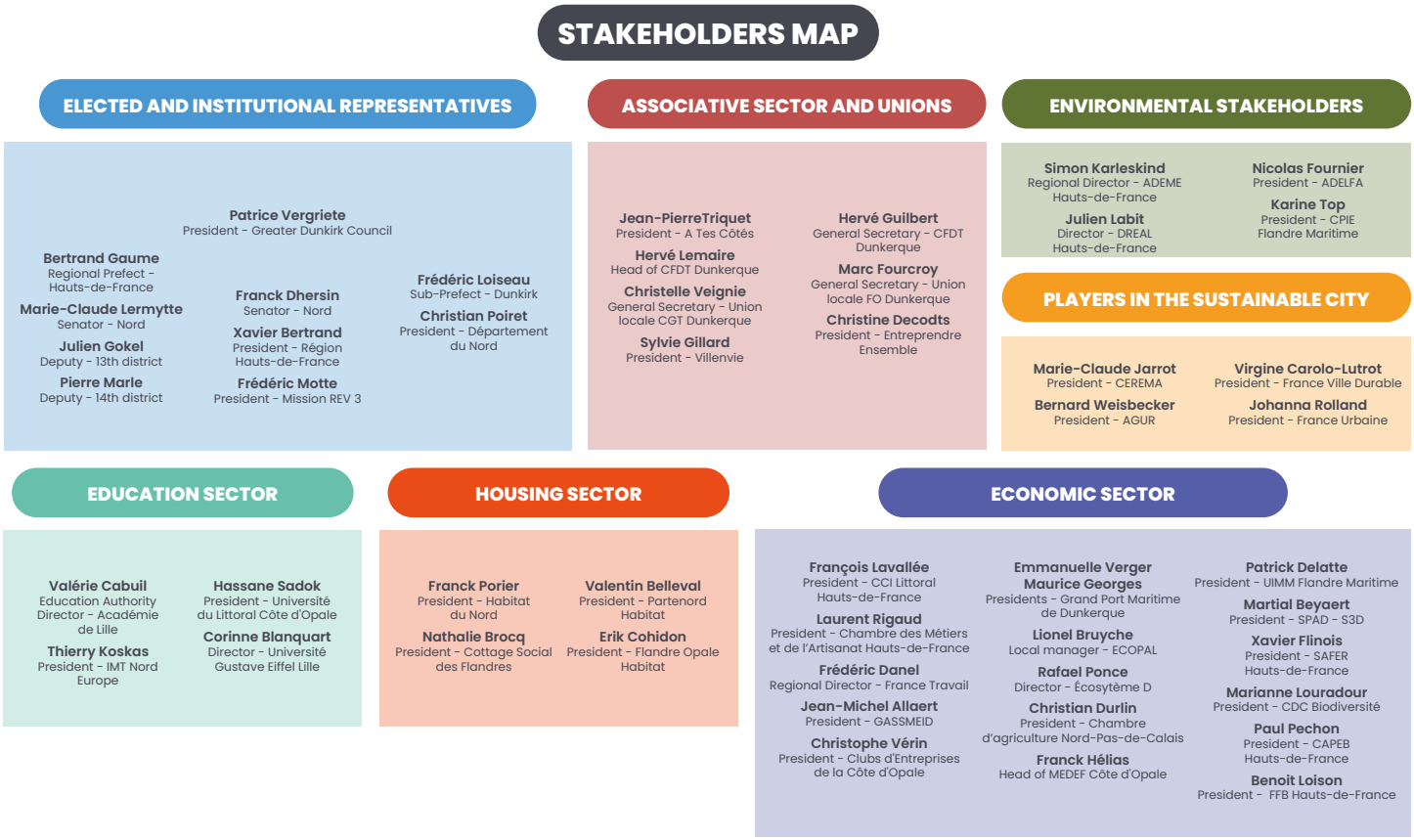


Figure 6 : Map of Greater Dunkirk territory's stakeholders

Identification of barriers:

The ecological transition of local authorities is a complex challenge, faced with multiple obstacles. Budgetary constraints are often significant, with the most virtuous solutions requiring substantial initial investments. Administrative procedures, which are often lengthy and complex, significantly slow down the implementation of projects. Furthermore, the prioritization of projects, a deep understanding of territories and their specific challenges, as well as considering land and regulatory issues are all challenges to be overcome.

However, these difficulties should not overshadow the opportunities offered by this transition. A better understanding of territories and their challenges allows for solutions to be tailored to local realities. Moreover, communication about these issues is essential to foster the support of citizens and local stakeholders. Finally, while conflicts of interest may arise, it is possible to find solutions that reconcile economic and environmental interests.

Levers of change :

While the levers for ecological transition within local authorities have been identified for some time, financial support mechanisms, whether European, national, regional or departmental, now offer concrete opportunities to implement ambitious projects. Faced with the complexity of the challenges, it is essential to promote a cross-cutting approach, allowing for the pooling of expertise and resources between different themes. This collaborative dynamic makes it possible to identify innovative solutions and strengthen the effectiveness of the actions undertaken. Furthermore, the growing consideration of environmental impacts in the evaluation of projects marks a significant turning point, by integrating a broader economic and social dimension.

Co-create a portfolio

Co-create a portfolio	Explore actionable pathways	Clarify possible actions and financing / funding options
		Estimate co-benefits and impact
		Select impact indicators
	Connect interventions across...	Actions with quantified impact
		Policy
		Finance

Greater Dunkirk has proactively implemented climate actions since 2009. The comprehensive climate plan, encompassing 80 actions across 12 key areas, serves as a robust foundation for achieving net zero by 2050. This plan fosters collaboration between Greater Dunkirk and its partners. The inclusion of 326 performance indicators within the climate plan underscores Greater Dunkirk's commitment to rigorous monitoring and evaluation. The Net Zero Cities theory of change facilitated the development of innovative approaches and a shared vision for the future, to reach the goal on 2030.

Financial resources represent the most significant hurdle in the path towards climate action. Without adequate funding, even the most ambitious plans remain theoretical constructs. Therefore, securing financial support is paramount to transforming climate strategies into tangible realities.

2. Part A – Current State of Climate Action

2.1 Module A-1 Greenhouse Gas Emissions Baseline Inventory

To provide a comprehensive understanding of Greater Dunkirk's environmental dynamics, we've presented a detailed analysis of the territory, including industries. While the CCC specifically targets the living area, the 2018 GHG inventory covers the entire territory. Given the interconnectedness of industries and residential areas, we've included industrial emissions to offer a holistic view of Greater Dunkirk's carbon footprint. Additionally, we'll present a breakdown of emissions generated solely by citizens.

To limit the rise in temperatures to 1.5°C, the implementation of mitigation measures aimed at reducing GHGs to achieve carbon neutrality by 2050 will be necessary to stabilize the concentration of GHGs in the atmosphere and therefore the climate.

These actions must be accompanied by adaptation measures to reduce the effects induced by global warming: impacts on biodiversity, rising sea levels and coastal erosion, changes in rainfall patterns and extreme weather events, and urban heat island phenomena. Above all, it will be about adapting our lifestyles and development to the foreseeable effects of global warming.

ADEME (Agency for Ecological Transition) scope 1 and 2 emissions (regulatory framework) were considered in the reports. This includes, on the one hand, emissions physically emitted within the territory (excluding the energy industry), and on the other hand, emissions associated with the production of electricity and heat consumed in the territory.

Scope 3 emissions (emissions during the manufacturing of goods and services consumed in the territory) were also considered. These are emissions released at the end of a transformation or production process. For example, the production and transportation of fossil fuels to their place of consumption generate greenhouse gas emissions. Another example is the consumption of food products (fresh vegetables, industrial cakes, canned goods, etc.), which indirectly generates greenhouse gas emissions, particularly from agricultural production processes and the energy used to transform and transport these products.

The greenhouse gases (GHGs) considered in this study are defined by the Kyoto Protocol. These are the following gases:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs);
- Sulfur hexafluoride (SF_6);
- Nitrogen trifluoride (NF_3).

These gases have different origins (transport, agriculture, heating, air conditioning, etc.) and do not all have the same effects on climate change. Indeed, some have greater warming potential than others and/or a longer lifespan. The contribution of each gas to the greenhouse effect is measured by its global warming potential (GWP). The GWP of a gas is defined as the radiative forcing (i.e., the radiative power that the greenhouse gas returns to the ground), accumulated over a period of 100 years. This value is measured relative to CO_2, the reference gas.

The diagnostic results are expressed in tons of CO_2 equivalent (tCO_2eq), the reference unit for accounting for greenhouse gas emissions under the Kyoto Protocol. Taking the GWP into account provides a unit of comparison for greenhouse gases and indicates the cumulative impact of each gas on the climate. Expressing the emissions of different sectors and territories in a common unit makes it possible to estimate the relative contribution of each sector and each type of housing to the overall volume of emissions.

Greenhouse gases types	Global warming potential (GWP) at 100 years (in $kgCO_2/kg$)	Origin of emissions
Carbon Dioxide (CO_2)	**1**	Fossil energy combustion, industrial process
Methane (CH_4)	**28**	Agriculture (enteric fermentation and animal manure, management of waste, gas industry activities
Nitrous Oxide (N_2O)	**265**	Agriculture (spreading), chemical industry (adipic acid, glyoxylic acid and nitric acid) and combustion
Hydrofluorocarbons (HFCs)	Varies depending on molecules considered	Specific industrial emissions (aluminum, magnesium, semi-conductor), air conditioning, aerosol
Perfluorocarbons (PF)		
Sulfur hexafluoride (SF_6)	**23 500**	
Nitrogen trifluoride (NF_3)	**16 100**	Manufacturing of semi-conductors

Figure 7 : Origins of emissions of greenhouse gases

2.1.1 The "Bilan Carbone Territorial®" Measurement Tool

The methodology is detailed ***here***. The Bilan Carbone® tool is a French software (Excel spreadsheet) developed by ADEME to calculate greenhouse gas emissions from an activity, product, service, raw material, etc. The method is based on emission factors, which convert observable and measurable data into GHG emissions using average values published annually by ADEME.

One of the distinctive principles of this method is to account for both direct and indirect emissions (i.e., emissions associated with the extraction, manufacturing, transformation, transport, destruction, etc., of the product or raw material). The main emission categories considered include:

- The use of fossil fuels (gas, oil, coal, etc.)
- The consumption of electricity or steam (district heating networks)
- Physico-chemical reactions excluding combustion (leaks, refrigerants, etc.)
- Transport of people and goods
- Basic materials used for community activities (steel, aluminum, plastic, paper, etc.)
- End-of-life treatment of waste, including wastewater
- The use of fixed assets (buildings, machines, tools, etc.)
- Purchased services (insurance, cleaning services, etc.)

The tool is available in a territorial version, updated in October 2019. This version estimates the emissions of a territory across the following sectors:

- Energy industry
- Industrial processes
- Tertiary sector
- Residential
- Agriculture and fishing
- Goods transport (freight)
- Passenger transport (travel)
- Construction and roads
- Waste
- Inputs

The unit of measurement for Bilan Carbone® is the ton of CO_2 equivalent.

2.1.2 GREATER DUNKIRK internal context

Following the signing of the Covenant of Mayors in April 2008, Greater Dunkirk (Dunkirk Urban Community) embarked on developing a voluntary Territorial Climate and Energy Plan (PCET). Subsequently, it initiated the creation of a Climate-Air-Energy Plan (PCAET) in line with the energy transition law for green growth.

Greater Dunkirk's various initiatives support efforts to combat and adapt to climate change. The table below outlines the main initiatives that structure the Community's "energy/climate" policy.

	Mayors convention	Climate Air Energy territorial plan	Cit'ergie	Carbon footprint
	Convention des Maires – Pour une énergie locale durable	PLAN CLIMAT AIR ENERGIE DU DUNKERQUOIS – Je m'engage aujourd'hui pour mieux vivre demain	Cit'ergie – European Energy Award	BC BILAN CARBONE®
Nature	**Political commitment**	**Strategic orientation and action program for the territory**	**Label of excellence and action program**	**Accounting carbon tool**
Perimeter	**7 sectors**	**10 work areas**	**6 domains**	**All Greater Dunkirk and territory activities**
Regulatory obligations	✗	✓	✗	✓
Monitoring indicators	› Fossil energy › CO_2 impact of energy › renewable energy production	› CO_2 impact (fixed, direct and indirect sources) › production of renewable energy › adaptation measures › awareness-raising	58 indicators (imposed by the label)	Those imposed by the Bilan carbone® method
Approval date / completion	**Signed in april 2008**	PCET : **oct. 2009** PCAET : **nov. 2015**	Cit'ergie : **jan. 2010** Cit'ergie gold : **dec. 2013, renewal in 2018**	**2009, 2012, 2015, 2018**
Minimum frequency of revaluation	**2 years**	**6 years**	**4 years**	**3 years**

2.1.3 Updating Greater Dunkirk GHG emissions report

Greater Dunkirk has developed its Territorial Greenhouse Gas Emissions Inventories (BEGES) for the years 2008, 2011, and 2015. The results presented in this report provide an update of these assessments to analyze observed changes.

These changes should be interpreted with caution, as methodologies and databases may have varied between the reference years. Where possible, these modifications are detailed by activity category. The recent update of the Bilan Carbone® tool and the ongoing updates of emission factors also help explain the changes in certain categories.

This inventory was conducted for the year 2018 (or 2017 when data were not available), using version V8 of the Bilan Carbone® tool wherever possible.

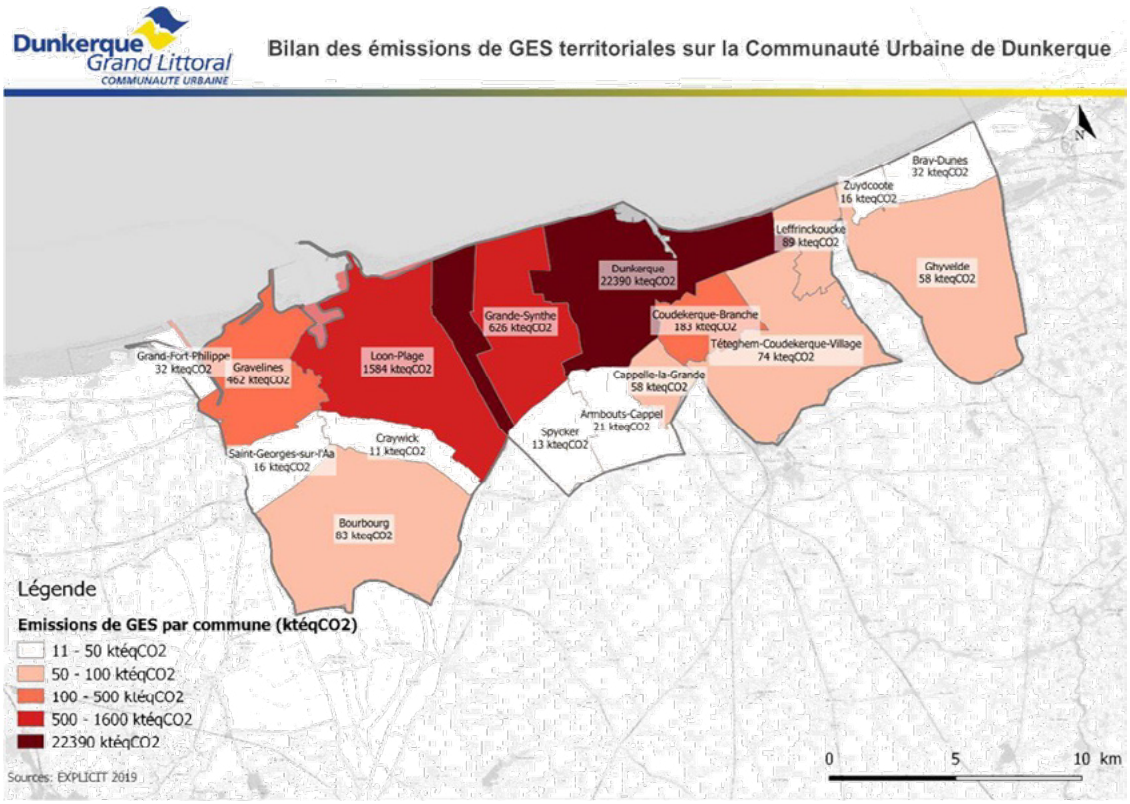


Figure 9 : Greenhouse gas emissions on Greater Dunkirk

Looking at the details of emissions by sector, we observe without surprise that the municipalities with the highest emissions are those linked to the industrial activity of the territory.

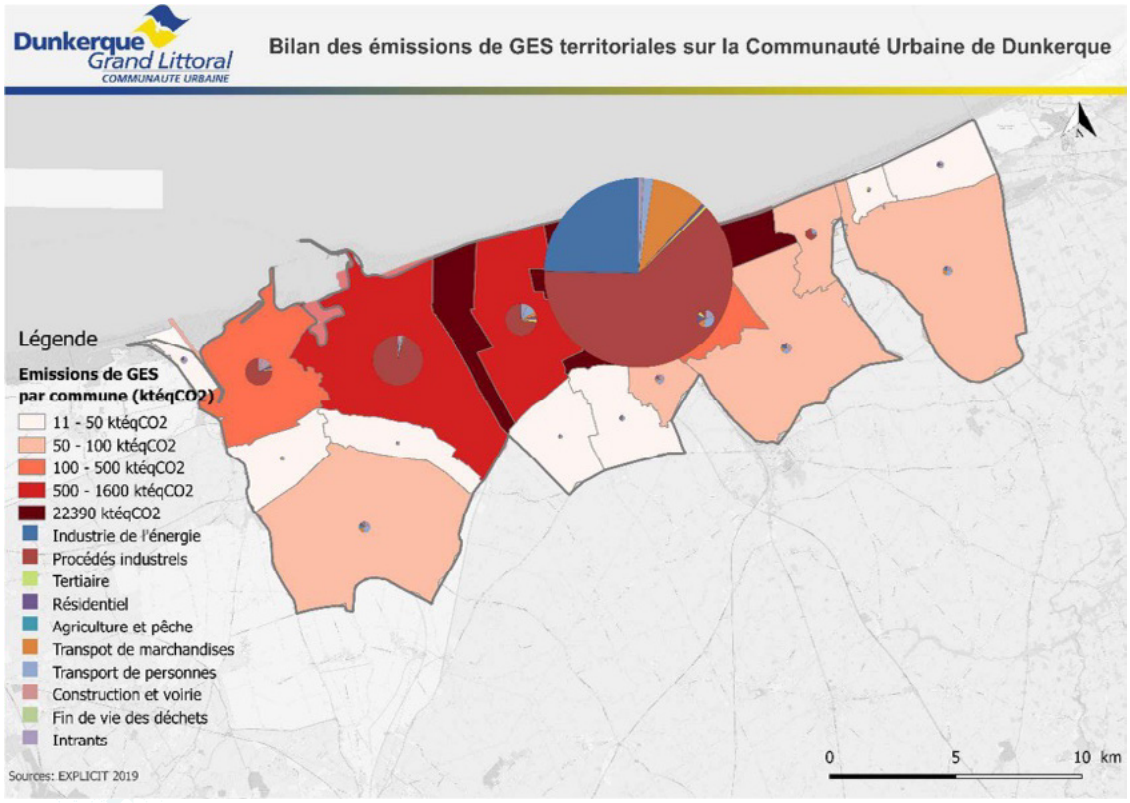


Figure 10 : Greenhouse gas emissions on Greater Dunkirk

The GHG emissions balance excluding companies/industries subject to the National Allocation Plan for Quotas (PNAQ) amounted to 3.9 million teqCO_2.

2.1.6 Detailed results by position

2.1.6.1 Industrial processes

It is important to note that the Dunkirk industrial-port zone is excluded from the CCC. To provide context, the GHG emissions from the industrial sector in this area are substantial. However, for the purpose of this report, the focus will be on presenting a brief overview of these emissions to illustrate the territory's profile. This approach helps to justify the decision to exclude the industrial-port zone from the CCC, as its emissions profile is distinct and requires separate consideration in our strategic planning.

Industrial processes: 16.4 million teqCO_2±2%

- 64% of the GHG emissions balance
- 13 industries subject to the PNAQ in the territory
- The steel industry represents 90% of the volume of emissions

Emissions linked to industrial processes are estimated at 16.4 million tons CO_2 equivalent. Emissions linked to the direct accounting of CO_2 (table 1) represent almost 98% of the volume of emissions. The remainder is due to electricity consumption and other industries in the region. industries. ArcelorMittal's factories alone account for 85% of industrial emissions, and and 54% of the region's emissions (but also 3% of French emissions).

Emissions are concentrated in Dunkirk and the other towns in the industrial and port zone: Loon-Plage, Grande-Synthe, Gravelines.

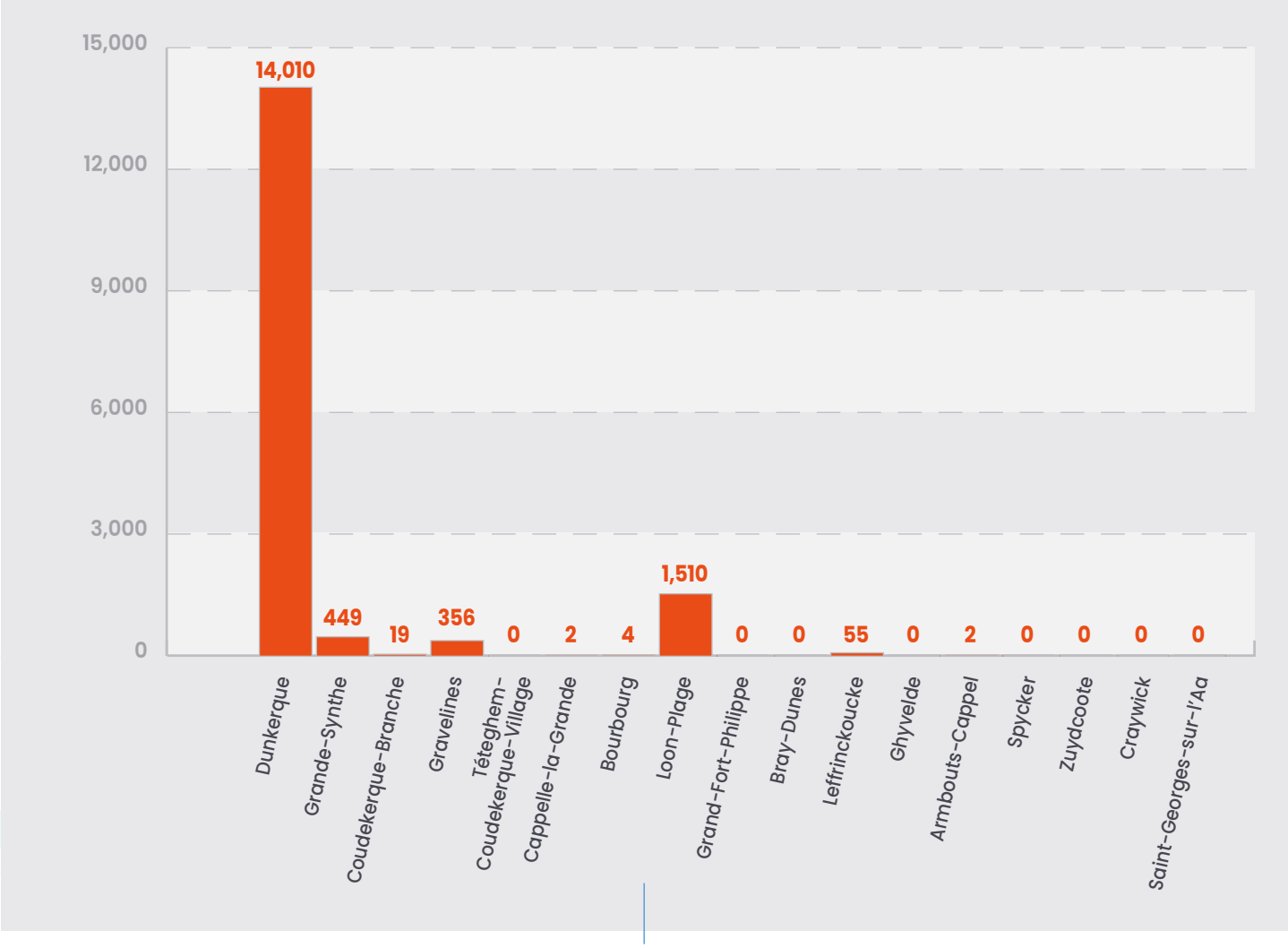


Figure 12 : Greenhouse gas emissions of industrial processes by city (tCO_2e)

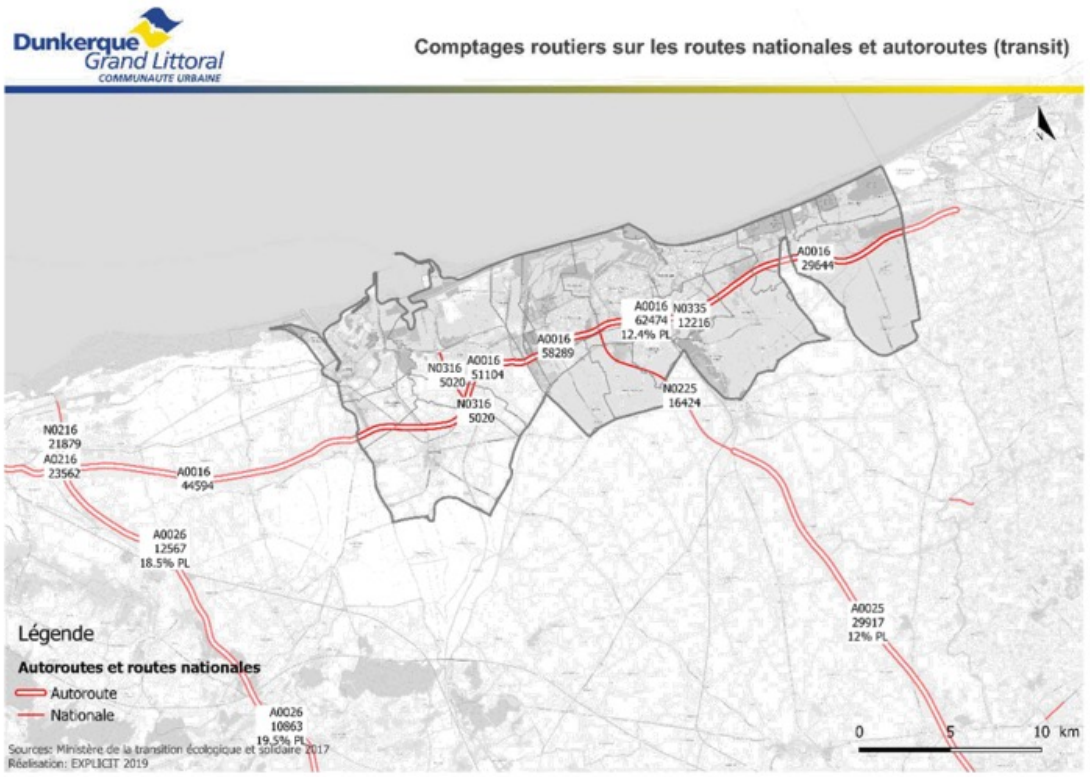


Figure 14 : Traffic data on highways and other main roads. Annual daily average and percentage of heavyweight trucks

Freight totals 2.23 million tons of CO_2 equivalent of which 91% is attributable to maritime and river traffic. Although these modes of transport are more efficient by relating emissions per ton transported, the very large volumes passing through the port explain this distribution. Road freight is responsible for 9% of emissions, of which 31% is due to road transit and 69% for transit entering and leaving the territory. Rail freight represents only 0.11% of GE freight emissions in 2017.

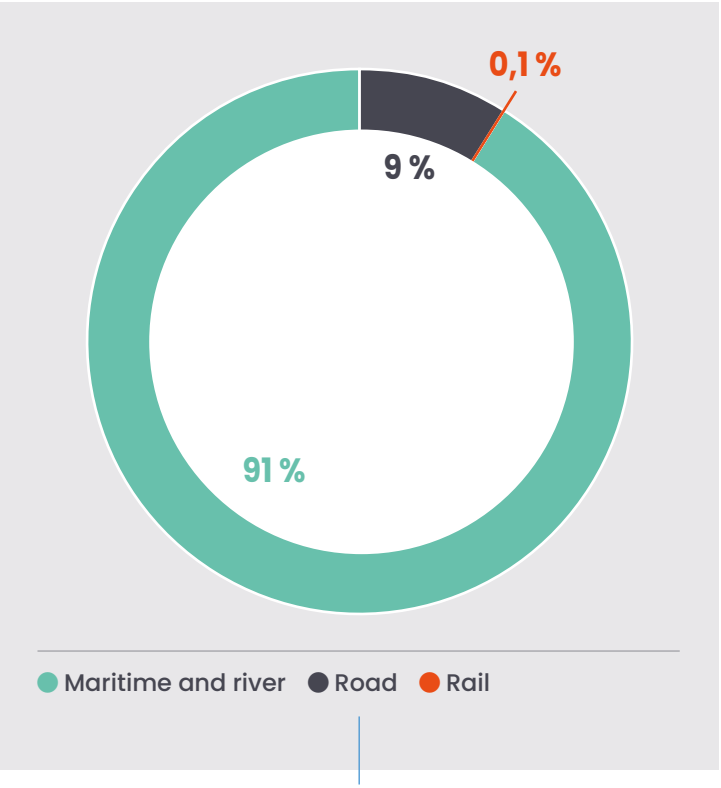


Figure 15 : Types of freight transport

Emissions from passenger travel amount to 691 kteqCO_2, or 3% of the territory's emissions. 64% of these emissions concern road traffic, a quarter concern ferry travel, 10% come from air traffic and 1% from rail traffic.

Emissions are again largely driven by the municipality of Dunkirk, which is home to the port, and by the most populated municipalities, or located on a major route.

The emissions generated by movement of people increase by 53% compared to 2014, with the new consideration of ferry movements, and the slight increase in resident road traffic (+3.4%) and the very significant increase in transit road traffic, probably due to the modification of the methods and databases used.

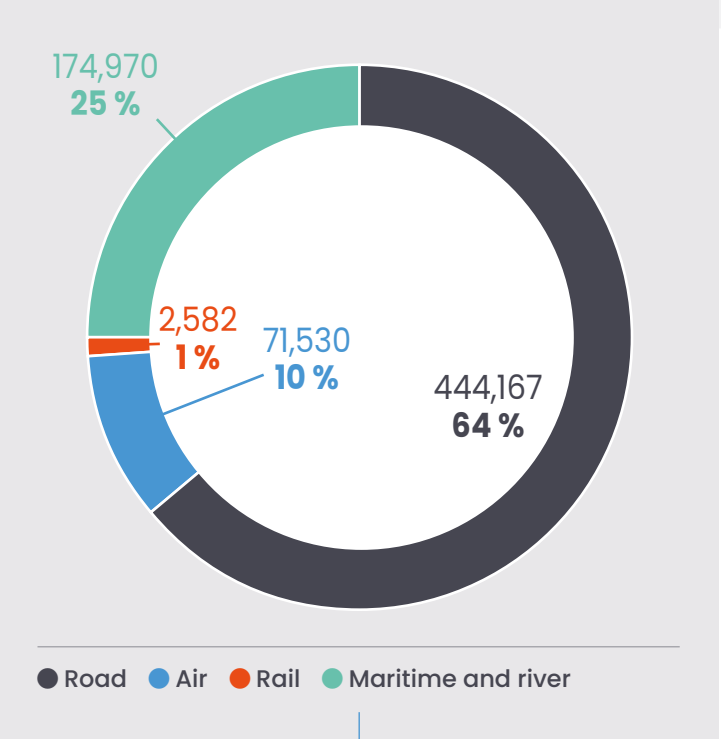


Figure 17 : Repartition of greenhouse gas emission of individual and passenger transport

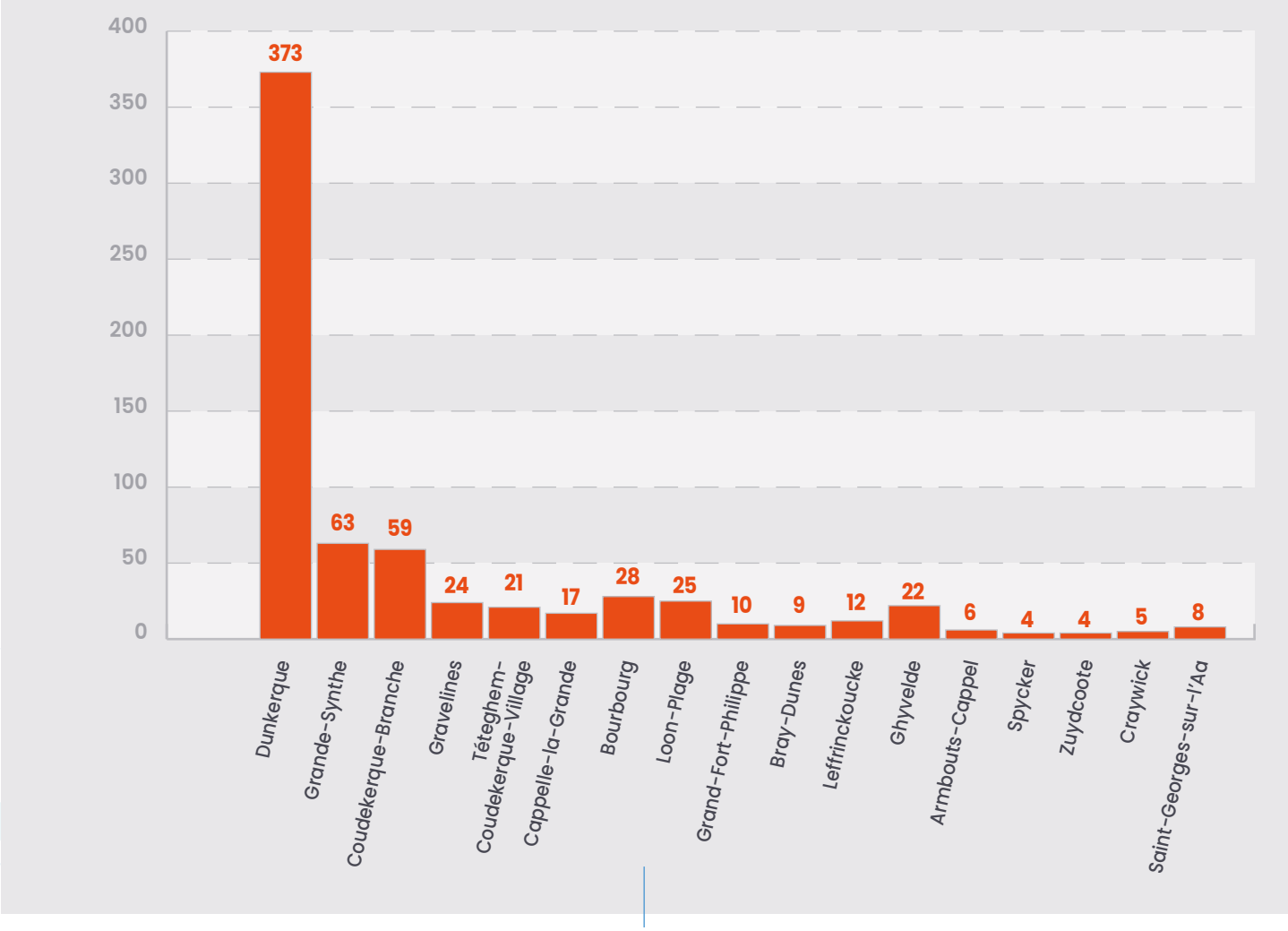


Figure 18 : Greenhouse gas emissions of individual and passenger transport by city (ktCO_2e)

2.1.6.5 Inputs

Inputs: 332 kteqCO_2±49%

- 1.3% of the GHG emissions balance
- 98% of these emissions are associated with food products consumed on the territory

Inputs are at the origin of the emission of 332 kteqCO_2, including 98% for food, 1% for paper and cardboard, 0.9% for plastic and 0.4% for metals. The territorial distribution follows the distribution of inhabitants.

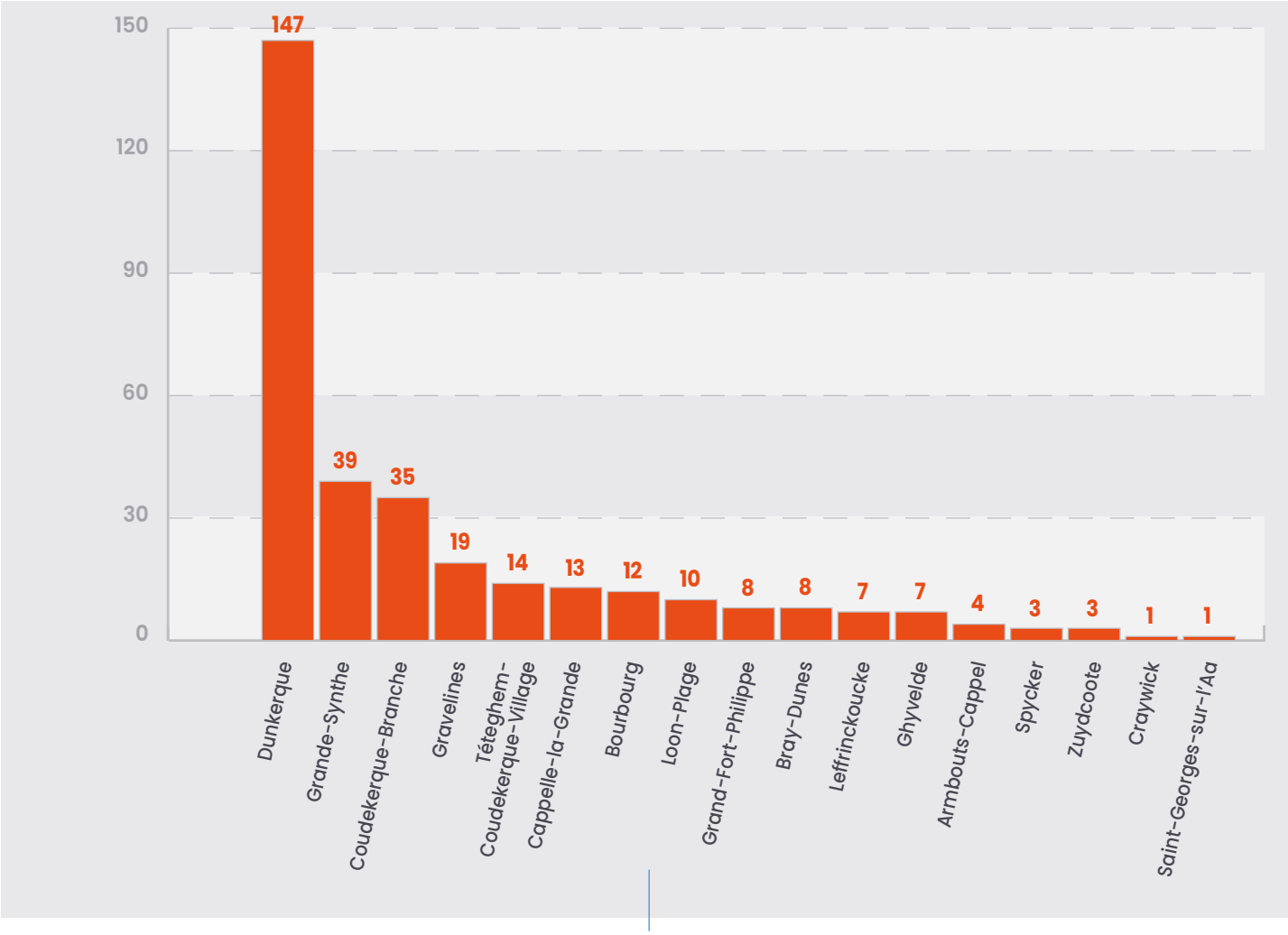


Figure 19 : Greenhouse gas emissions of inputs by city (ktCO_2e)

2.1.6.6 Residential

Residential: 262 kteqCO_2±3%

- 1% of the GHG emissions balance
- 71% of emissions come from gas consumption

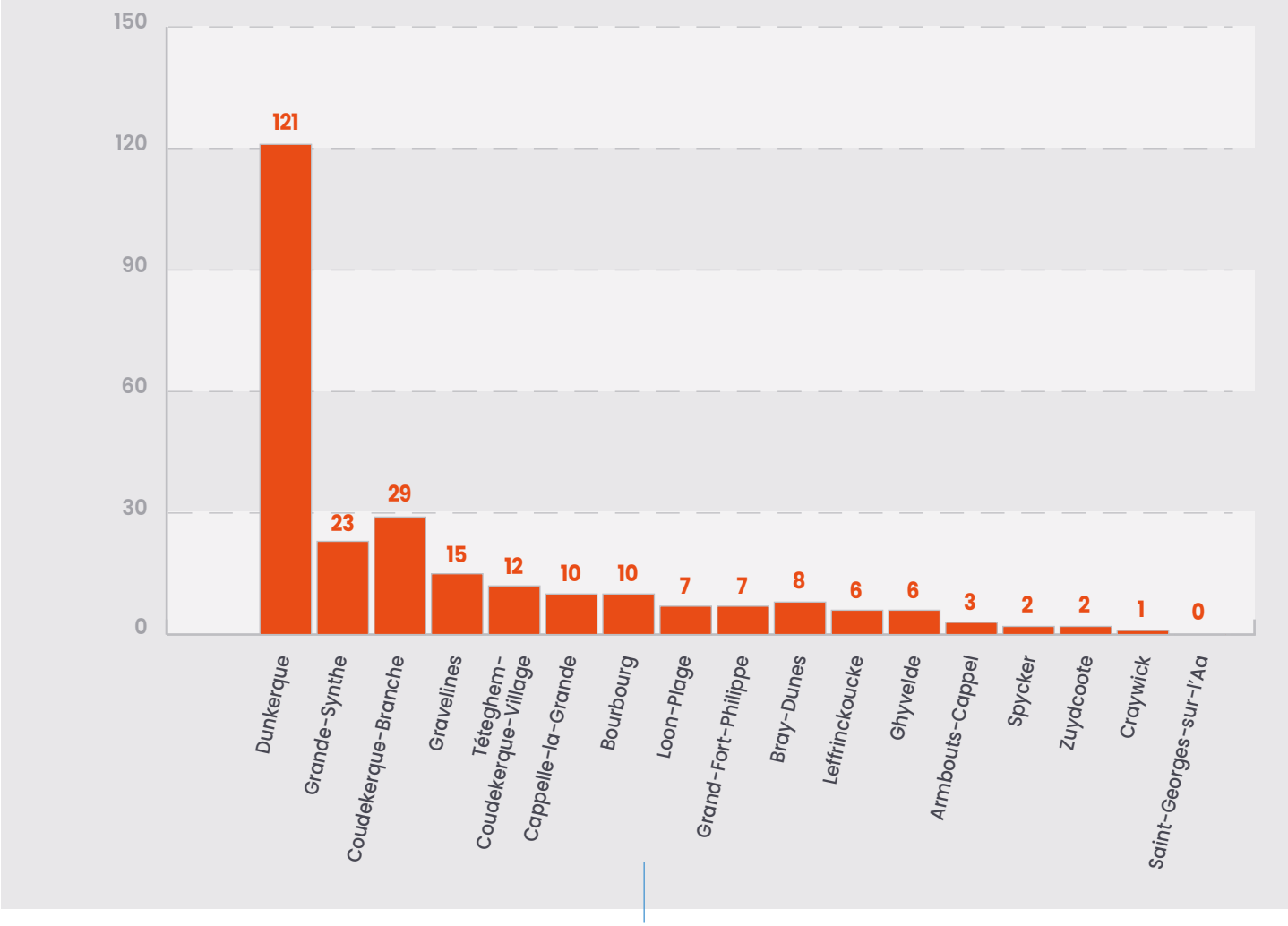


Figure 20 : Greenhouse gas emissions of housing by city ($ktCO_2e$)

These emissions are up slightly by 2.7% compared to 2014, but down by 6% if we consider the climate correction. This can be explained by the construction of new, more efficient housing, and by the renovation of old housing.

2.1.6.7 Tertiary

Tertiary: 146 $kteqCO_2$±9%

- 0.6% of the GHG emissions balance
- 44% of emissions due to gas, and 44% to fuel oil

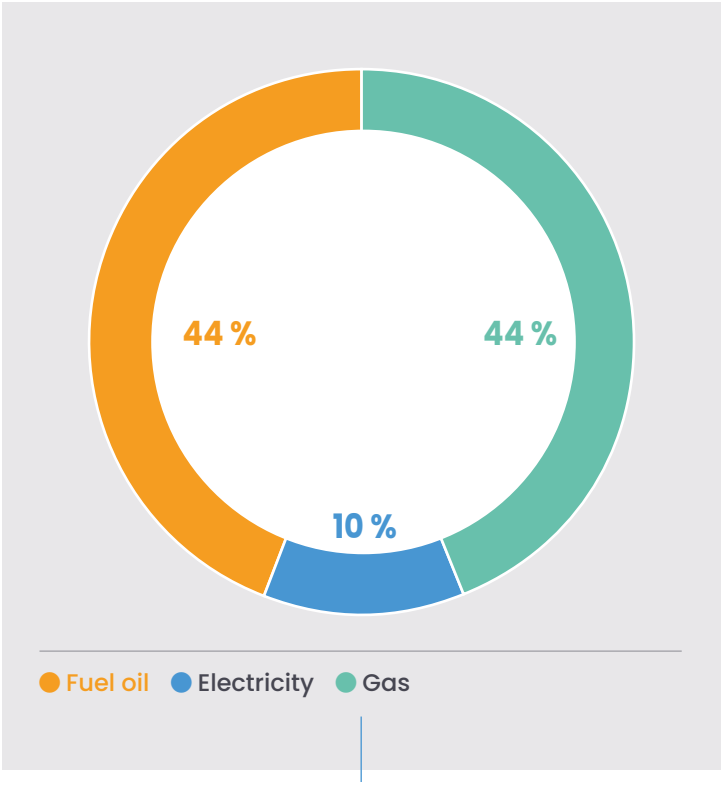


Figure 21 : Greenhouse gas emissions repartition by energy of tertiary sector

The distribution follows the tertiary activity in the territory, with more than half of emissions in the city of Dunkirk.

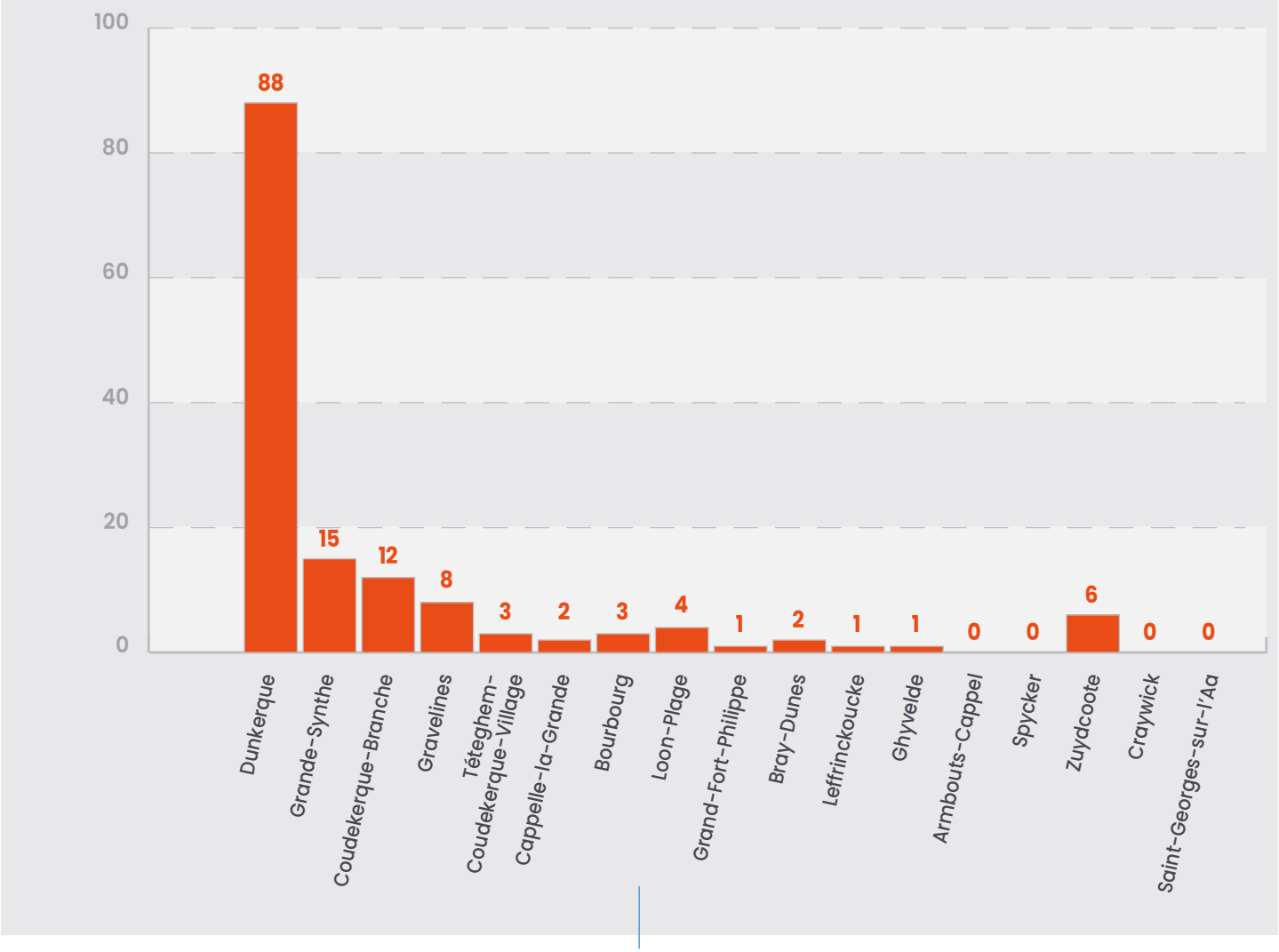


Figure 22 : Greenhouse gas emissions of tertiary sector by city ($ktCO_2e$)

Emissions are down 16% compared to 2014, thanks to the very sharp drop in electricity emissions, this being essentially due to better accounting of consumption (direct knowledge via operators instead of an estimate by jobs).

2.1.6.10 End of life of waste

End of life of waste: 36 kteqCO_2±41%

- 0.1% of the GHG emissions balance
- 78% of emissions due to the treatment of household waste

The data from 2019 shows that activities within our living area contribute significantly to the territory's greenhouse gas emissions, accounting for 71.3% of the total. Excluding industrial emissions, the tertiary, residential, transportation, and waste management sectors are the primary contributors. Personal travel and household waste play a major role. These findings highlight the urgent need for local action to reduce our carbon footprint.

GHG Emissions Baseline inventory

Our city has reported a GHG emission inventory for 2019 on MyCovenant. It also appears in the annex of our CCC. While the inventory aligns with the Cities Mission's Info Kit requirements, there's a mismatch between the inventory's 2019 timeframe and our climate plan's 2050 target. We plan to update the inventory every 3 years but are considering more frequent updates to align with our CCC actions.

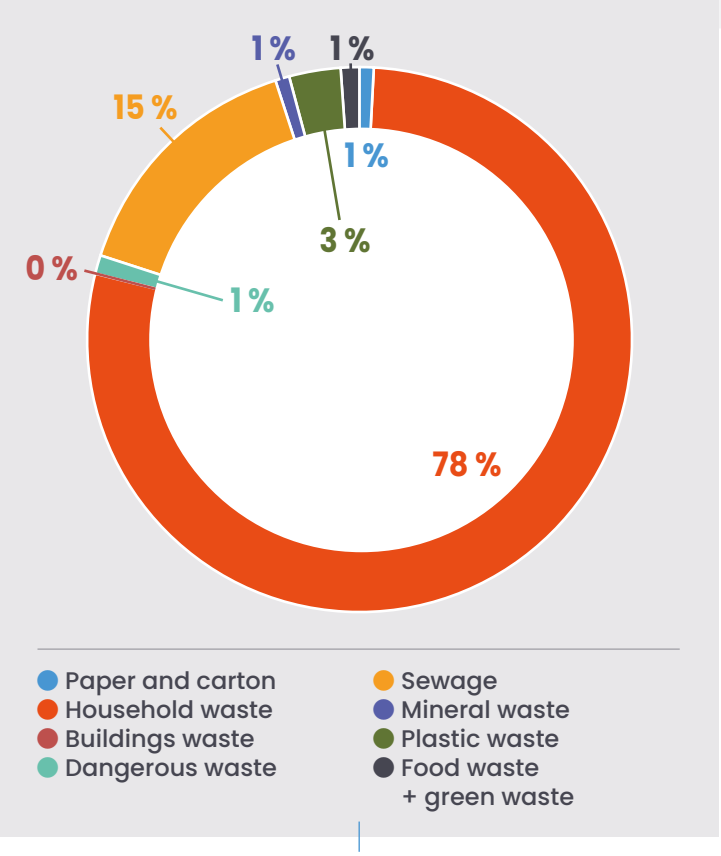


Figure 27 : Greenhouse gas emissions repartition in waste sector

The inventory highlights transport, waste, energy, and buildings as major pollution sources, informing our focus areas and ecologic vision. Its data also supports the key strategic priorities outlined in our 2030 Climate Neutrality Commitments, thanks to the Madrid economic model.

https://netzerocities.app/group-capabilitybuildingprogrammebuildingastrongeconomiccase

A-1.1: Final energy use by source sectors – By MyCovenant			
Base year	**2018**		
Unit	**MWh**		
	Scope 1	**Scope 2**	**Scope 3**
Buildings	**368,473**	**326,469**	
(Fuel type/ energy used)	District heating and cooling, natural gas, liquid gas, heating oil	electricity	
Transport	**1,322,026**	**0**	
(Fuel type/ energy used)	Biofuel, gasoline, diesel, natural gas,		
Waste			
(Fuel type/ energy used)			
Industrial Process and ProductUse (IPPU)	**218 685**	**290 281**	
(Fuel type/ energy used)	Natural gas	electricity	
Agricultural, Forestry and Land Use (AFOLU)	**16 546**	**23 255**	
(Fuel type/ energy used)	Natural gas	electricity	

A-1.2: Emission factors applied						
MWh of primary energy						
Bilan Carbone V.8 Matrix						
Primary energy/ energy source	**Carbon Dioxide (CO_2)**	**Methane (CH_4)**	**Nitrous Oxide (N_2O)**	**F-gases** (hydrofluorocarbons and perfluorocarbons)	**Sulphur hexafluoride (SF_6)**	**Nitrogen trifluoride (NF_3)**
Electricity	0.0599					
Gas	0.2107	0.003424	0.000742	0.0123		
Butane	0.258	0.01233	0.00239			
Propane	0.258	0.01233	0.00239			
Heat	0.11					
Gasoline (B10)	0.3029	0.00078	0.00689			
Fuel (E10)	0.2948	0.00702	0.00451			
Biodiesel	-0.00585	0.00319	0.0498	0.252 not decomposed in carbone matrix		
Bioethanol	0.0798	0.00525	0.0362	-0.258 not decomposed in carbone matrix		
Fioul	0.322	0.00022	0.00143	0	0	0
Biomasse	0.00822	0.02126	0	0	0	0

A-1.3a: GHG Emissions by Source Sector - Baseline Year					
Base year	2019				
Unit	tCO_2 equivalent/year				
	Scope 1	**Scope 2**	**Scope 3**	**Total**	**% of Total**
Transport	208,799			**208,799**	**32%**
Buildings & Heating	278,238			**278,238**	**43%**
Electricity		60,312		**60,312**	**9%**
Waste*			38,923	**38,923**	**6%**
Other (incl. IPPU & AFOLU)	59,798			**59,798**	**9%**
Total	**546,835**	**60,312**	**38,923**	**646,070**	**100%**

** Includes Scope 1 Waste emissions (produced and processed in the city) and Scope 3 (produced by the city but processed outside the city border) - solid waste only; wastewater falls under "Other" sector*

A-1.3b: GHG Emissions by Source Sector - Business as Usual (BAU) 2030					
Base year	2019				
Unit	tCO_2 equivalent/year				
	Scope 1	Scope 2	Scope 3	Total	% of Total
Transport	208,799			208,799	32%
Buildings & Heating	278,238			278,238	43%
Electricity		60,312		60,312	9%
Waste*			38,923	38,923	6%
Other (incl. IPPU & AFOLU)	59,798			5,9798	9%
Total	546,835	60,312	38,923	646,070	100%

**Includes Scope 1 Waste emissions (produced and processed in the city) and Scope 3 (produced by the city but processed outside the city border) - solid waste only; wastewater falls under "Other" sector*

A-1.4: Activity by Source Sector (from economic model data inputs)			
Base year	2019		
	Scope 1	Scope 2	Scope 3
Transport			
Transport need - passenger cars + motorcycles (M km/year)	813		
Transport need - buses (M km/year)	8		
Transport need - trains/metro (M km/year)	1		
Transport need - light duty trucks (<3.5 t) (M km/year)	64		
Transport need - heavy duty trucks (>3.5 t) (M km/year)	1,023		
Buildings & Heating			
Heating demand (space heating + domestic hot water)(GWh/year)	1,515		
Electricity			
Electricity demand within city boundaries (GWh/year)		1,012	
Waste			
Collected waste within city boundaries (tons)			136,502
Other (incl. IPPU & AFOLU)			

» As the industries are out of scope, if the focus is only done on citizens activities, their share of emissions in the living area is **851,012 tCO_2eq, or 71.3% of the emissions without industries' emissions**

2.2 Module A-2 Current Policies and Strategies Assessment

Those policies are focused on most GHG emissions sectors (buildings, transportation, waste and energy). While they all focus on the climate objectives of 45% reduction for 2030, they have an impact on the 3 scopes.

For your information, the PCAET must fit into a hierarchy of "framework" documents and must respect the following links:

» **Consideration of national laws and strategies:**
- Energy Transition for Green Growth Act of August 18, 2015;

- Energy and Climate Act of November 8, 2019;
- National Low Carbon Strategy (SNBC2) of April 23, 2020;
- Multi-year Energy Programming approved in November 2019;

» **Compatibility with regional and local strategies:**

- Regional Planning and Sustainable Development Scheme of the Hauts-de-France region adopted by the Regional Council on June 30, 2020;
- Air Protection Plan (PPA) of the departments of Nord and Pas-de-Calais by the prefect of the region on March 27, 2014. This document is currently being revised.

As a reminder, the local urban development plan (PLU) and Intercommunal Local Urban Plan (PLUi) must be compatible with the Territorial Climate Air Energy Plan, while the latter must consider a possible territorial coherence scheme (SCoT).

It should also be noted that, because of the "Elan law", Ordinance No. 2021-744 relating to the modernization of territorial coherence schemes was published on June 17. In summary, the ordinance significantly revises the scope, content, and structure of the territorial coherence scheme (SCoT), which is evolving to reaffirm the coherence between the themes addressed and to make the strategic project more readable. The ordinance provides for the capacity for this new SCoT to be worth a Territorial Climate Air Energy Plan (PCAET), thus allowing for greater coherence between these two strategic documents. However, it will remain possible to update the PCAET (and related documents) without it being necessary to revise or modify the entire territorial coherence scheme.

Explanation of Terms (for context):

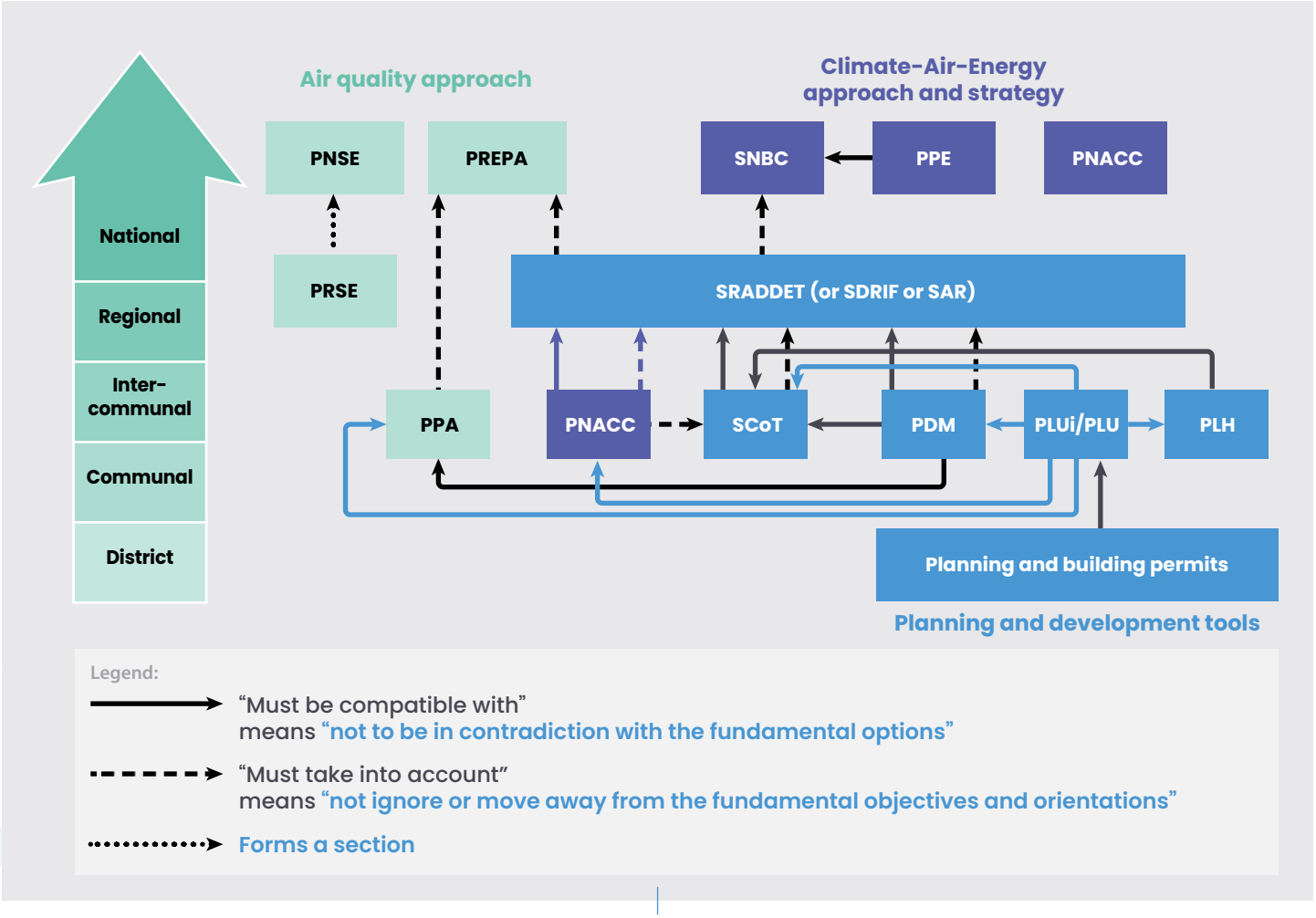


Figure 28 : Ecosystem of plans and diagrams surrounding the PCAET (ADEME)

2.2.2.2 The Energy and Climate Law

Enacted in November 2019, the Energy and Climate Law strengthens certain ambitions of national climate policy. The objective is to enshrine the ecological and climate emergency in law, with a particular focus on achieving carbon neutrality by 2050. It focuses on four main areas:

- **The gradual phase-out of fossil fuels and the development of renewable energies:**
  - A 40% reduction in fossil fuel consumption by 2030 compared to 2012;
  - The cessation of coal-fired electricity generation by 2022;
  - The mandatory installation of solar panels on new warehouses, supermarkets, and parking lots;
  - Reaching 33% of renewable energy in the energy mix by 2030;
  - Support for the hydrogen sector.

- **The fight against energy-inefficient buildings:**
  - Renovating 100% of energy-inefficient buildings (classes F&G) within 10 years;
  - From 2021, restrictions imposed on owners of unrenovated energy-inefficient buildings on rent increases;
  - From 2022, an energy audit will complement energy performance diagnoses for the sale or rental of a property;
  - From 2023, extremely energy-consuming housing will be classified as unfit for habitation, forcing owners to renovate or no longer rent them;
  - By 2028, renovation work in energy-inefficient buildings will become mandatory.

- **The establishment of new tools for steering, governance, and evaluation of climate policy:**
  - Establishment of a High Council for the Climate responsible for evaluating France's climate strategy and the effectiveness of measures implemented to achieve its ambitions;
  - Confirmation of the National Low Carbon Strategy as a tool for steering climate change mitigation actions;
  - From 2023, major energy objectives set by a five-year programming law (Multi-Year Energy Programming);
  - Implementation of a "green budget" (analysis of the environmental impacts of the draft finance bill).

- **Regulation of the electricity and gas production sectors:**
  - Gradual end of regulated gas sales tariffs by 2023;
  - Reduction of dependence on nuclear power;
  - Strengthening controls to combat fraud in energy savings certificates (CEE).

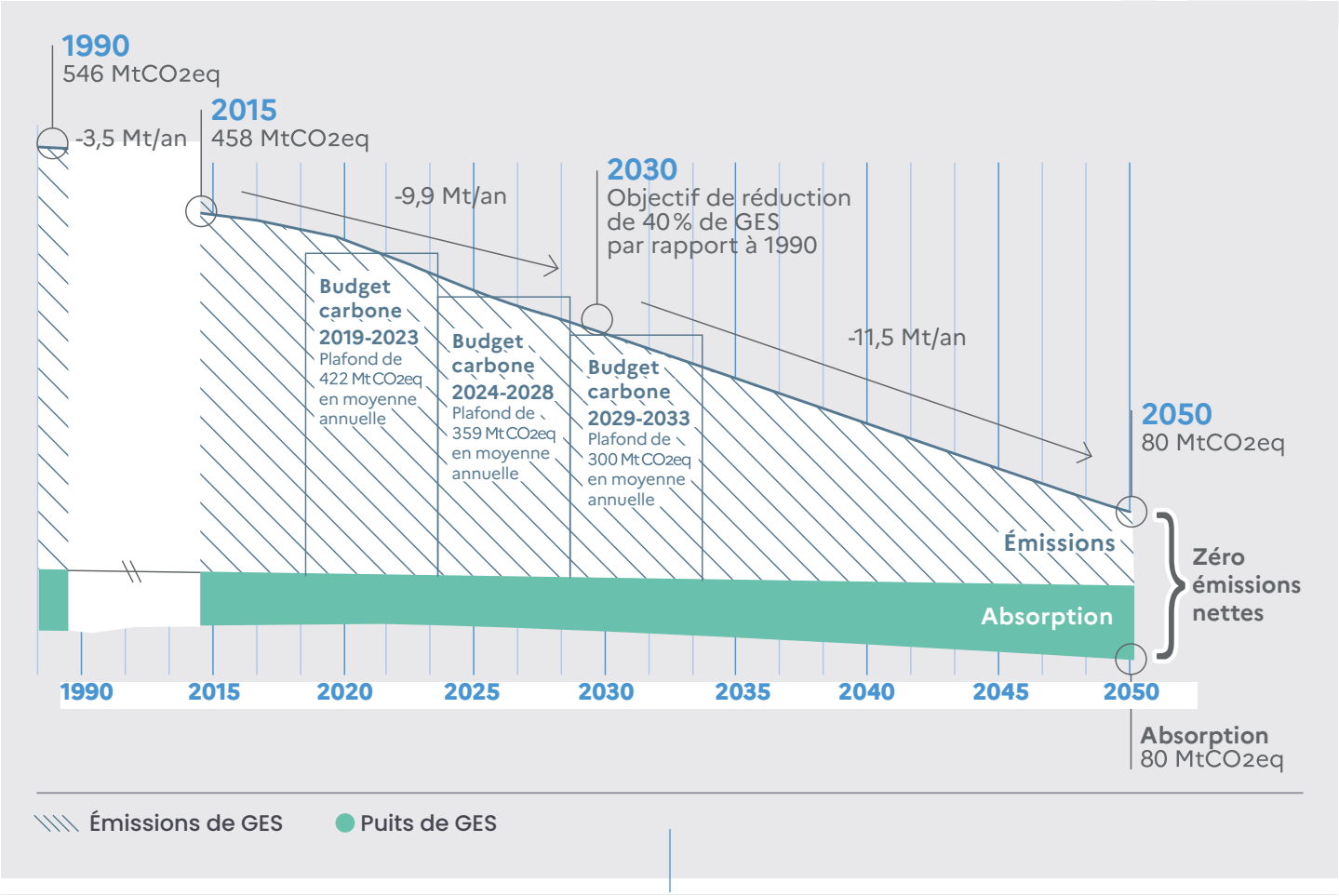


Figure 32 : Evolution of greenhouse gas emissions and greenhouse gas sinks in France between 1990 and 2050 ($MtCO_2e$)
Inventaire CITEPA 2018 et scénario SNBC révisée (neutralité carbone)

2.2.2.4 Multi-Year Energy Programming

The Multi-Year Energy Programming (PPE) 2019-2023 was approved in 2019.

The PPE sets out the priorities for public authorities in the energy sector to achieve the energy policy objectives defined by law. The plan thus sets targets for final energy consumption, primary consumption of fossil fuels, greenhouse gas emissions from energy combustion, renewable heat consumption, renewable gas production, installed renewable electricity generation capacity, and nuclear electricity generation capacity.

2.2.2.6 The National Plan for Reducing Air Pollution Emissions (PREPA)

The PREPA sets out the State's strategy for reducing air pollutant emissions at the national level and complying with European requirements. It is one of the tools for implementing climate-air-energy policy. It combines the various public policy tools: sectoral regulations, fiscal measures, incentives, awareness-raising and mobilization actions for stakeholders, and actions to improve knowledge.

The regulatory texts establishing the PREPA, provided for by the LTECV presented above, were published in the Official Journal of 11 May 2017:

- Decree No. 2017-949 of 10 May 2017 setting the reduction targets for 2020, 2025 and 2030 for the five pollutants targeted (SO2, NOx, NH3, NMVOCs, PM2.5);
- The order of 10 May 2017 establishing the PREPA. This text sets out the reduction actions in all sectors for the period 2017-2021.
- A new order of 8 December 2022, detailing the 2022-2025 plan and defining new measures to be implemented for the period 2022-2025

Pollutants	2025-2029	À partir de 2030
Sulfur dioxide SO_2	-66 %	-77 %
Nitrogen oxide NOX	-60 %	-69 %
NMVOC	-47 %	-52 %
NH_3	-8 %	-13 %
PM 2.5	-42 %	-57 %

Figure 34 : Reduction targets set for France (From 2030)

Tools to support local authorities

Contractualisation between State and territories: Contract for a successful ecological transition (CRTE)

One of the tools for ecological planning is the contract for a successful ecological transition, which aims to implement the national plan in each territory. Contracts for a successful ecological transition are a joint roadmap of actions to be carried out at inter-municipal or multi-municipal level to provide a crosscutting response to the challenges of territorial cohesion and ecological transition. This document is signed between the State (prefect) and a metropolitan area, and not with a city.

The aim is to facilitate understanding of existing strategies and plans by bringing them together into a single roadmap.

Each metropolitan area is free in the elaboration of the CRTE. There is no mandatory item. However, there are recommendations to help them drafting CRTE with the following elements:

- Bringing knowledge about the territory with a territory project for instance
- Defining strategic orientations
- Building a multi-year action plan and describing the commitment of partners involved in the contract
- Adding annual financial protocol

Projects from CRTE can be financed by the French recovery plan (called France relance), or French Green Fund, European funds, etc.

Financing tools for ecological transition

Green fund

One of the tools of ecological planning is the Green Fund which was created in 2023 to support local authorities in their fight against climate change and the protection of biodiversity. The budget in 2023 was 2 billion euros and it is the same in 2024. The fund is guaranteed until 2027. The priority of the Green Fund is to finance ambitious projects concerning ecological transition. The green fund can finance projects from the contract for a successful ecological transition (see above 5.1). A third of the projects financed by the Green Fund were part of these contracts but only a quarter of the Green Fund budget is dedicated to contracts for a successful ecological transition. The fund is the main tool of the French Ministry of Ecological Transition to help territories and cities in their transition.

Other tools

They are other tools and financial aid for ecological transition of territories in France. The National Agency for Territorial Coherence (ANCT) gathers on a website all the financial aid available for cities and local authorities.

The French Agency for Ecological Transition (ADEME) offers financial aid to local authorities such as a heat fund, circular economy fund or France 2030 (recovery fund). The aim of this financial aid is to support the planning of the ecological transition of territories, supporting change, studies, implementation, investments, innovation and the sharing of solutions between territories.

The Bank for territories (Banque des territoires) has a lot of offers concerning ecological transition. The specificity of this bank is to be exclusively working with territories. They offer loans or engineering assistance and the EIB is financing partially the bank for territories.

All these tools are not enough to finance ecological transition of French cities.

Support in defining strategies and action plans

Data and evaluation

The Regional Energy and Climate Observatories (OREC) are the local authorities' point of contact for local energy and climate data. Their role is to support local authorities in implementing their energy and climate strategies, by producing status indicators and dashboards at regional and inter-municipal levels. All regional observatories are part of the network of regional energy and environment agencies (RARE). The network has initiated a project with its members and partners to work on the convergence of OREC calculation methodologies, to have local energy and climate indicators that can be compared and added together at a national level. The project is financed by the Ministry of Ecological Transition, the Agency for Ecological Transition (ADEME) and Régions de France (an association gathering all French regions).

Certification: Territory committed to ecological transition (TETE)

The French Agency for Ecological Transition (ADEME) created a certification 'territory committed to ecological transition' (TETE). It is not a mandatory program but cities or metropolitan areas that are involved in the process must build a four-year action plan. After the implementation of the action plan, the agency undertakes an evaluation and delivers the certification. Cities or metropolitan areas receive a score out of 5 (5 is the highest) based on the level of ecological transition. The certification aims to highlight the evolution and the commitment towards ecological transition. The program can finance ecological transition experts and it helps in implementing the action plan.

Scores of French Mission Cities: Dunkerque (5), Bordeaux (5), Nantes (5), Angers (4), Grenoble (4), Lyon (4), Dijon (3), Marseille (1).

2.2.3.1 The Regional Planning, Sustainable Development, and Territorial Equality Scheme (SRADDET) of the Hauts-de-France region

Approved in 2020, the SRADDET of Hauts-de-France aims to define regional objectives that will contribute to national ambitions to reduce energy consumption and greenhouse gas emissions (LTECV).

In application of the regulatory framework, the SRADDET sets quantitative targets for energy efficiency, climate change mitigation, and air pollution control by the mid-year of the most distant carbon budgets, i.e., in the years: 2021, 2026, 2031, 2050.

Based on the initial scenarios of the SRCAEs, the updated and harmonized scenario work at the scale of Hauts-de-France has made it possible to define a trajectory for reducing energy consumption and GHG emissions around four hierarchical benchmarks:

- Energy sobriety;
- Energy efficiency to control energy consumption;
- The development of renewable energies in the regional energy mix;
- The reduction of greenhouse gas emissions through capture, in particular through the preservation and improvement of carbon sinks.

General rules 7 and 8 set the quantitative targets to be achieved by 2031 by the PCAETs:

- **Rule 7:** "PCAETs must have a quantified strategy, overall and by sector of activity (industry, residential, tertiary, transport, agriculture) in order to contribute to the regional objective of reducing energy consumption by at least 30% by 2031 compared to 2012, and by at least 40% for GHG emissions."
- **Rule 8:** "SCoTs and PCAETs contribute to the regional objective of prioritizing the development of renewable energies and recovery other than onshore wind. The territorial strategy, quantified within the framework of PCAETs, must make it possible to achieve a production of renewable energy and recovered energy of at least 28% of the final energy consumption of their territory in 2031. It takes into account their local potential and the capacities for exchanges with neighboring territories and respecting ecosystems and their functions as well as the ecological quality of soils."

Article 85 of the Mobility Orientation Act (LOM) requires certain intercommunal authorities (EPCI) to include in their Climate, Air, and Energy Territorial Plans (PCAET) an "air pollution reduction action plan" setting biennial emission reduction targets from 2022 onwards, at least as demanding as those of the national plan for reducing air pollution emissions (PREPA). This plan must include a study on the creation of a low-emission mobility zone (ZFE-M). The obligation applies to EPCIs with more than 100,000 inhabitants and EPCIs with more than 20,000 inhabitants that are wholly or partly covered by an air quality protection plan (PPA). Greater Dunkirk must therefore implement this enhanced air plan.

Sectors / Gwh / year	2012	2021		2026		2031		2050	
		Gain		Gain		Gain		Gain	
Housing	48,351	7,615	-16 %	11,926	-25 %	15,430	-32 %	25,936	-54 %
Tertiary	21,884	3,093	-14 %	4,225	-19 %	5,527	-25 %	9,658	-44 %
Industry	86,438	10,658	-12 %	15,299	-18 %	20,080	-23 %	35,495	-41 %
Transport	43,656	10,701	-25 %	14,001	-32 %	17,826	-41 %	28,373	-65 %
Agriculture	3,442	421	-12 %	1,244	-36 %	1,570	-46 %	2,424	-70 %
Reduction of greenhouse gas emissions since 2012	203,772	32,488	-16 %	46,695	-23 %	60,433	-30 %	101,886	-50 %

Figure 35 : Target for reducing regional energy consumption (SRADDET Hauts-de-France 2020)

Sectors / Gwh / year	2012	2021		2026		2031		2050	
		Gain		Gain		Gain		Gain	
Housing	7,300	1,984	-27 %	2,331	-32 %	2,968	-41 %	4,730	-65 %
Tertiary	5,900	590	-10 %	931	-16 %	1,226	-21 %	2,198	-37 %
Industry	24,800	5,518	-22 %	8,022	-32 %	10,208	-41 %	16,214	-65 %
Transport	11,500	2,987	-26 %	3,921	-34 %	4,970	-43 %	7,792	-68 %
Agriculture	12,400	564	-5 %	1,170	-9 %	1,561	-13 %	2,925	-23 %
Total	**61,900**	**11,643**	**-19 %**	**16,375**	**-26 %**	**20,933**	**-34 %**	**33,859**	**-55 %**
CO_2 reduction due to RE&R		1,031	-2 %	2,154	-3 %	3,895	-6 %		
Reduction of greenhouse gas emissions since 2012		12,674	-20 %	18,529	-30 %	24,829	-40 %	To F4 (-75 %)	To F4

Figure 36 : Target for reducing regional greenhouse gas emissions by sector (SRADDET Hauts-de-France 2020)

	SRADDET scenario (regional)				Energy climate Law scenario (State)		Low-carbon national strategy	
	Target for 2031 (compared to 2012)		Target for 2050 (compared to 2012)		Target for 2050 (compared to 2005)		Target for 2050	
	Energy consumption	Greenhouse gas emissions	Energy consumption	Greenhouse gas emissions	Energy consumption	Greenhouse gas emissions	Energy consumption	Greenhouse gas emissions
Housing	-32 %	-41 %	-54 %	-65 %	-50 %	-83 %	-50 %	-83 %
Tertiary	-25 %	-21 %	-44 %	-37 %				
Transport	-41 %	-43 %	-65 %	-68 %				
Agriculture and forestry	-46 %	-13 %	-70 %	-23 %				
Industry	-23 %	-41 %	-41 %	-65 %				
Total	**-30 %**	**-40 %**	**-50 %**	**-55 %**				

Figure 37 : Summary of legislative (State) and regional objectives by sector

In Greater Dunkirk, the local plans, or the local declinaison of regional plans are :

2.2.3.2 SCoT : Territorial Cohesion Plan

The territorial coherence plan is a strategic urban planning document, which defines the spatial organisation and main development guidelines of the territory. The SCoT serves as a framework for sectoral policies, such as those focusing on spatial organisation and urban planning, housing, mobility, commercial development, environment, including biodiversity, energy and climate. The SCoT plan must follow objectives from the SRADDET but it also influences other local plans such as PCAET, which has to consider the SCoT.

In Greater Dunkirk, the SCoT is linked to another collectivity, a different territory, but the synergies are the same. It was approved on march 2020, and entered into force in July 2022.

2.2.3.3 PLUiHD : Intercommunal Local Town Planning Plan Housing and Transport

The intercommunal local urban development plan is a local document for urban planning that sets out the rules for land use and development. The conditions for land use must respect the principles of sustainable development. The SCoT remains the major document concerning local urban planning, and the PLUI must consider it.

In Greater Dunkirk, the PLUiHD was approved at the end of 2022, implemented since 2023. No studies have been made to assess the impact of this plan on Greater Dunkirk GHG emissions.

The aim of the Program of Guidelines and Actions (POA) of the PLUIHD, is to translate the general guidelines for transport and travel into more operational terms. After a trend over the last 20 years towards increased car use (between 1991 and 2015) to the detriment of other modes of transport, the aim is to encourage greater use of walking, cycling and public transport, while advocating a shared and more rational use of the car.

THE 8 AXES ARE THEREFORE ORGANIZED AS FOLLOWS:

1. **Develop and manage public space** considering all uses and promoting safety in general, especially for the most vulnerable.
2. **Strengthen walking** through comfortable, direct, and legible routes and improve accessibility for all.
3. **Promote cycling as a mode of transportation** by improving the continuity, legibility, and quality of facilities, calming traffic, and developing the public parking supply.
4. **Maintain the attractiveness of public transport.**
5. **Encourage the shared use of cars and act on parking.**
6. **Better understand and organize the transport of goods and urban logistics**, promoting modal shift.
7. **Better communicate and animate the territory.**
8. **Implement a travel plan for the industrial and port area.**

For the housing part of the PLUIHD, the 2014 ALUR law enabled intercommunalities to merge housing and transportation planning into a single document. By adopting this approach, Greater Dunkirk has created a more comprehensive and coherent urban development strategy. Housing projects are now evaluated considering factors such as mobility, land use, amenities, and their impact on the overall social and geographic balance of the area.

The PLUiHD has a development axis on health with air quality and decarbonization of activities, and with the integration of nature in the city.

As a part of the PLUiHD, Greater Dunkirk deploys a walking plan.

More trips by bike and on foot, both for commuting and leisure, contribute to reducing CO_2 emissions and greenhouse gases. Overall, the mobility component of the PLUiHD includes 6 work axes:

- **Axis 1.** Planning and managing public space
- **Axis 2.** Promoting walking and improving accessibility for all
- **Axis 3.** Encouraging cycling
- **Axis 4.** Maintaining the attractiveness of public transport
- **Axis 5.** Encouraging car-sharing
- **Axis 6.** Organizing freight transport and urban logistics

Planning and managing public space

As part of Greater Dunkirk's commitment to sustainable development, we have launched a large-scale program to improve our environmental practices in terms of road infrastructure and public space development. A dedicated team has been set up to conduct an in-depth diagnosis of our activities and identify the most relevant levers for action. This approach will enable us to implement innovative solutions and strengthen our position as a reference in sustainable development.

With each road refurbishment, the question of the right place for different modes of transport is raised, with the aim of prioritizing pedestrians, cyclists and public transport users.

Promoting Cycling

Concerned about the quality of life of the inhabitants of Greater Dunkirk and committed to improving their health, Greater Dunkirk has made mobility a priority. This is how, in continuity with the cycling debate carried out in 2020 (with more than 1500 responses to the survey), the "Vélo+" Plan was adopted in April 2021 with the ambition of accelerating the development of everyday cycling so that this active and virtuous mode reaches 6% of the share of trips in 2025.

To meet the expectations of the inhabitants, the "Vélo+" Plan prioritizes the creation of new dedicated lanes to better connect the municipalities as well as the development of a parking offer adapted to each use while promoting the emergence of a true cycling culture. Inscribed in the "eco-winning" approach, it offers various services and aids allowing inhabitants to change their practices while making savings.

The monitoring of the implementation of the action program now allows 3 years after the adoption of the plan, to draw up a positive assessment:

- Increase in the use of cycling facilities by 17% compared to 2019
- 410 km of facilities, i.e. 25 km of additional links in 3 years
- More than 10,000 grants for the purchase of a bicycle and €1 million in grants paid to residents

The document in the annex (Vélo + plan / end of 2023 report) details the main progress by axis and by action and indicates the remaining path to make the territory even more cycle friendly.

The cycling committee set up in 2020 ensures the follow-up of the implementation of this plan. It brings together elected representatives responsible for cycling from each municipality as well as associations and professionals (sellers, renters, repairers) working around cycling. Meetings are held 2 to 3 times a year with an annual cycling trip.

Strengthening walking and improving accessibility for all Our territory gives a large place to its inhabitants, by focusing on guaranteeing a good quality of life for all, regardless of age, difference or disability.

Since the early 2000s, even before the 2005 law, Greater Dunkirk has been committed to accessibility for all, with, over the years, an increasingly important consideration within the various public policies (roads, transport, waste, culture, tourism, commerce, etc.) and increasingly upstream of projects.

Greater Dunkirk has developed its Accessibility Plan for Roads and Public Spaces (PAVE) in a collegial manner with the various owners and managers of roads but also with the help of associations. This PAVE constitutes the roadmap for the territory with a view to better accessibility of roads for all.

Adopted in December 2019, this PAVE makes it possible to highlight what has already been implemented by Greater Dunkirk and the municipalities for more than 10 years (notably in terms of design) but above all, to give a framework and an action plan to continue to improve the accessibility of public space by working more on its daily use by involving more inhabitants, businesses, technicians. The aim is to guarantee accessibility over time. The work axes are as follows:

- The design and construction of new developments
- The accessibility of existing roads
- The use of the road / waste management
- The use of the road / street furniture and green spaces
- The use of the road / parking
- The use of the road / terraces and advertising furniture
- The use of the road / construction sites and events

This plan is monitored annually within the Intercommunal Commission for Accessibility. The Walking Plan, adopted in June 2024, further strengthens the PAVE and additionally integrates the notions of comfort and quality (see annex).

The main objective was to develop a walking plan that meets the needs and expectations of residents. To this end, in addition to identifying existing actions in favor of walking in the territory and benchmarking, Greater Dunkirk launched a large survey (1,400 usable responses) supplemented by focus groups and working groups.

Elected officials "referents for cycling and walking" from the municipalities, associations, representatives of the national education system, the police, the Nord Department, and technicians from the relevant departments of Greater Dunkirk were associated in order to share the results of the survey, the synthesis of the focus groups and to allow them to express themselves on the subject: their vision, their feelings.

Three main expectations emerged:

- More comfort and attractiveness
- Better cohabitation between modes of transportation
- Better information

Before its adoption, the draft Walking Plan was also presented to the Mobility Partners Committee, the Intercommunal Commission for Accessibility and the Conference of Mayors (a monthly meeting with all mayors of the territory).

Based on all the contributions, five priorities were selected to make the city walkable (see Annex). The aim is now to implement the Walking Plan adopted on 14 June 2024.

This plan is consistent with other plans and initiatives underway. It includes joint actions with the Vélo+ Plan (development of greenways, bike racks, etc.). It also integrates the accessibility of the road network without reproducing all the measures detailed in the PAVE (Accessibility Plan for Roads and Public Spaces) adopted in 2019. The PAVE can thus be considered as an annex to the Walking Plan on the accessibility component.

2.2.3.4 PPA : atmosphere protection plan

An area must implement an Air Quality Protection Plan (AQPP) if it falls into one of the following three categories:

- It experiences exceedances of air quality limit values and/or target values.
- It is at risk of experiencing exceedances.
- It includes one or more agglomerations with more than 250,000 inhabitants.

In Hauts-de-France, two AQPPs are deployed: the interdepartmental AQPP for Nord-Pas-de-Calais and the AQPP for the Creil region. The Urban Community of Dunkirk is covered by the Nord-Pas-de-Calais AQPP.

This AQPP was approved in 2014 but is currently being revised. It is built around 14 regulatory measures, broken down into 46 concrete actions, and aims to bring the territories of the former Nord-Pas-de-Calais region below European thresholds by 2025. They cover 9 major areas of action to restore satisfactory outdoor air quality:

- Wood heating, boilers, collective heating plants, and industrial installations: prohibition of installing non-performing wood heating equipment, emission limits, information for boiler inspection professionals, and awareness-raising among individuals (wood heating)
- Burning of green waste and construction waste in the open air: reminder of the prohibition
- Mobility and transport: travel plans made mandatory for the largest establishments (companies, administration, schools), carpooling, speed reduction, vehicle fleets, less polluting modes of transport, urban travel plans, "CO_2, transporters commit" charter
- Land use planning: taking air quality into account in planning documents (SCoT, PLU, PDU, PLUi) and impact studies related to development projects
- Use of phytosanitary products: ecophyto scheme, awareness-raising and training
- Adjustment of soil working equipment (agricultural machinery, forestry machinery, machinery used for green spaces and roads): passage on engine test bench
- Industrial emissions: emission limits, improvement of knowledge and monitoring
- Pollution episodes: implementation of the inter-prefectural procedure for informing and alerting the population
- Long-term public awareness

2.2.3.5 RLPi : inter-municipal advertising regulations

Another plan, not focused on direct emissions, but on citizens' consumption is the inter-municipal advertising regulations. The RLP(i) provides a local framework for advertising, signs, and pre-signs. The local advertising regulation (RLP) makes it possible to adapt certain points of the national regulations applicable to advertising, signs, and pre-signs at a local level.

The Restricted Local Production Initiative (RLP(i)) seeks to combat overconsumption by limiting the exposure of citizens to excessive and often unnecessary advertising. By restricting advertising for products from abroad or those not locally produced, the RLP(i) encourages citizens to prioritize local consumption and reduce reliance on imports, while simultaneously discouraging unnecessary consumption by limiting advertising for non-essential items. This approach aims to promote sustainable consumption patterns and encourage a more mindful approach to consumerism. However, it's crucial to consider potential limitations, such as potential impacts on consumer choice and the overall economic landscape.

This strategy recognizes that excessive advertising, particularly online, plays a significant role in driving consumerism and fueling demand for non-essential goods. By reducing the influence of such advertising, this plan seeks to create a more sustainable consumption model that prioritizes local production, reduces environmental impact, and fosters a more mindful approach to consumer choices.

Sector of activity	2025-2029	NOX	PM10	PM2,5
Agriculture, forestry	-85 %	-29 %	-6,1 %	-16 %
Other transports	+15 %	-11 %	+8 %	+8 %
Industry, waster, construction	-17 %	-10 %	-65 %	-63 %
Housing	-17 %	-10 %	-65 %	-63 %
Tertiary	-17 %	-10 %	-65 %	-63 %
Energy transformation	-69 %	-45 %	-41 %	-32 %
Road transport	-97 %	-36 %	-55 %	-100 %
Total	**-46 %**	**-31 %**	**-35 %**	**-54 %**

Figure 38 : Prospective assessment of emissions in Nord-Pas-de-Calais area between 2008 and 2015 (ATMO Nord-Pas-de-Calais)

When presenting the 2018 GHG inventory results and aiming for 2030 climate neutrality, it's important to focus on the status of this plan: it is undergoing revision in September 2024, and Greater Dunkirk is no longer included in the territory designated for this plan. As a result, we are no longer required to adhere to it.

To assess the carbon footprint and optimize budget allocation for our projects, we employed an economic model originally designed by the University of Madrid. This model has been successfully implemented by Net Zero Cities, providing a robust framework for quantifying carbon emissions and identifying cost-effective mitigation strategies. By leveraging this established tool, we were able to gain valuable insights into the environmental impact of our initiatives and make data-driven decisions to achieve our sustainability goals.

https://netzerocities.app/group-capabilitybuildingprogrammebuildingastrongeconomiccase

The documents mentionned above, the climate plan, and the CCC all share the same goal: reducing, adapting to, and mitigating GHG emissions. The key actions outlined in these documents can be found within the climate plan and the CCC's action portfolio.

The Greater Dunkirk BAU scenario was constructed by considering existing policies and plans, such as the PCAET and the PLUiHD. The model calculates the incremental effect of the Climate Neutrality Action Plan. This means that any decarbonization effects, costs, and benefits are evaluated in comparison to a business-as-usual scenario where the plan was not implemented. By focusing on the additional impacts resulting from the plan, we can accurately assess its effectiveness in reducing emissions and achieving climate neutrality goals. We assumed a continuation of current trends in energy consumption and economic development, while incorporating the measures already planned in these plans. However, it is important to note that the BAU scenario does not account for the potential effects of new, more ambitious policies that may be adopted in the future. We have taken care to avoid double counting by assigning different weights to the various measures and by transparently documenting our methodology. The results of the BAU scenario clearly show that it is necessary to strengthen actions in favor of the energy transition to achieve emissions reduction targets.

The goal of climate neutrality by 2030 poses a major challenge for Greater Dunkirk due to its significant industrial sector. Our analyses, based on the latest Greenhouse Gas Emissions Inventory (BEGES), reveal that 64% of GHG emissions originate from industrial activities. That's the main reason why the Greater Dunkirk's CCC strategy is to exclude industries, to focus of the living area. According to the economic model, which excludes the industrial zone, the gap between our reduction trajectories (-62%) and our targets (-80%) is mainly due to the transportation and building sectors.

The overall remaining gap to achieve climate neutrality in Greater Dunkirk by 2030, excluding the industrial port area, is 28%. This Action Plan prioritises emissions reduction in residential, waste, energy, transportation, and public building sectors, aiming to significantly bridge this gap. Grounded in the existing Climate Plan and enhanced by the CCC's innovative strategies, this plan reflects a steadfast commitment to our climate neutrality mission. While acknowledging current challenges and trajectories, we actively seek opportunities to accelerate progress through participation in this initiative.

Indeed, 45% of the investments required to achieve climate neutrality rely on citizens. To bridge this gap, the idea is to support them through various means (support, subsidies, awareness-raising, etc.) to encourage them to adapt their homes and change their travel and consumption habits. As these changes can be considerable and not always feasible, our action plan will be structured around several strategic axes:

- **Developing sustainable mobility:** By promoting public transport, cycling, walking and encouraging the electrification of vehicle fleets.
- **Energy renovation of buildings:** By supporting owners to improve the energy performance of their homes and promoting the construction of low-energy buildings.
- **Developing renewable energies:** By deploying renewable energy projects in the territory, particularly offshore wind and solar power.
- **Strengthening territorial cooperation:** By working closely with local, regional and national actors to implement large-scale projects.

Greater Dunkirk is fully committed to the energy transition, despite the challenges of dynamic economic and demographic development. Our current emissions and the targets set, many actions are underway to gradually reduce it.

Controlled and sustainable development

Greater Dunkirk supports economic and industrial development while ensuring that its environmental impact is limited. The creation of many homes on wasteland, in compliance with the most demanding standards, testifies to this desire. However, we are aware that the technological advances needed to drastically reduce emissions come at a cost and require significant investment.

Climate change adaptation and environmental preservation

Faced with climate challenges, Greater Dunkirk is implementing several strategies:

- **Prevention of natural risks:** Development of risk prevention plans (PPRI, PICS, GEMAPI), reinforcement of infrastructure to better withstand extreme events.

- **Sustainable land use planning:** Development of green spaces and wetlands, preservation of sensitive natural environments. Greater Dunkirk is also a candidate for the TEN (Territory Committed to Nature) label. It aims to support and recognise local authorities' progress in favour of biodiversity. The 3 axes of this label are:
  - **Axis 1.** Improvement of knowledge and integration of biodiversity in management
  - **Axis 2.** Maintenance and restoration of natural areas and local biodiversity
  - **Axis 3.** Raising awareness and mobilizing stakeholders

- **Food transition:** This resilient region, despite previous failed attempts at local online marketplaces, has adapted by focusing on promoting the tools that consumers already use to support local food businesses. The development of an ambitious Territorial Food Plan (PAT) to promote short circuits, organic farming, and reduce food waste is also a key component of this strategy. As part of the growing "eat local" and "food transition" movement, a new food hall is set to open in 2025. Located in the city center, adjacent to the weekly market to maximize its impact, the hall will host approximately 20 local vendors and food artisans, prioritizing fresh, high-quality products from local supply chains and organic agriculture. This project aligns with a commitment to environmental sustainability and consumer health.
- **Support for collective catering:** Implementation of innovative tools (AI, waste weighing) to optimize food waste management and raise awareness among stakeholders.

Strengthened collaboration with local stakeholders

To accelerate the energy transition, Greater Dunkirk wishes to strengthen its collaboration with the main players in the territory (energy companies, industrialists, etc.). The objective is to develop concerted actions to reduce residual emissions.

An evolving context

In a context of economic and demographic development, it is important to keep in mind that reducing the 18% of residual emissions will be a gradual process. However, Greater Dunkirk is committed to implementing all necessary means to limit the impact of its activities on the environment and preserve the quality of life of its inhabitants.

Conclusion

The energy transition is a major challenge for Greater Dunkirk. Thanks to a comprehensive and ambitious strategy, in collaboration with all the stakeholders in the territory, we are convinced that we can meet this challenge and build a more sustainable future for our community.

At the same time, the implementation of the RE2020 environmental regulation in the building sector will contribute to significantly reducing building-related emissions in our territory. Greater Dunkirk, by aligning itself with these new requirements, promotes the construction of energy-efficient housing and public buildings, thus reducing our collective carbon footprint.

While industry is a driver of the local economy, it also accounts for a significant share of emissions. Greater Dunkirk works closely with industrial players to support them in their energy transition and encourage them to adopt more environmentally friendly practices. We are aware of the specificities of certain sectors, particularly those that employ vulnerable populations (single-parent families, employees outside the territory). This is why we are developing appropriate support systems to facilitate this transition, while preserving employment and the local economic dynamic.

Recognizing that Greater Dunkirk cannot achieve climate neutrality by 2030 on its own, the collectivity is dedicated to fostering strong relationships with stakeholders, including businesses, industries, associations, organisations, academia, and citizens. It is crucial to involve these groups, as they are responsible for a significant share of emissions within the territory and will be key players in implementing actions to combat climate change.

These actions will also be implemented thanks to European, national, regional funds, and drawing on the skills of Greater Dunkirk's companies, associations, institutions, etc. We are aware of the scale of the task, but we are determined to achieve our carbon neutrality objectives. We have put in place regular monitoring of our actions to ensure that they are effective and to adapt to changing circumstances.

Our initial assessment indicates a potential residual GHG emissions level of 20% by 2030 based on the NZC objective. However, a more detailed economic model suggests a figure closer to 38%. This discrepancy primarily stems from the challenges associated with decarbonising certain sectors, such as buildings and transportation, within the given timeframe. While significant progress can be made, it is anticipated that some level of residual emissions will persist due to technological limitations and the complexity of system-wide transformations. Nevertheless, we are actively exploring innovative solutions and investing in research and development to minimize these emissions and accelerate the transition to a low-carbon economy.

As outlined in Table 8 of the investment plan, a substantial 45% of investments required to curb GHG emissions rely on citizen participation. While the Greater Dunkirk's territory can support certain sectors through subsidies, grants, and public awareness campaigns, achieving our emissions reduction targets remains highly dependent on citizen engagement, presenting the most significant uncertainties for the future.

In the future, the Transition Team will convene workshops and roundtable discussions with key stakeholders, including local government officials, industry leaders, community groups, and academic experts. These gatherings will serve as platforms to review and assess the progress of our climate neutrality plans.

By engaging a diverse range of stakeholders, Greater Dunkirk aims to:

- **Identify areas of success:** Pinpoint strategies or initiatives that are yielding positive results.
- **Address challenges:** Discuss and find solutions for obstacles or weaknesses in the implementation efforts.
- **Foster collaboration:** Strengthen partnerships and build consensus among stakeholders.
- **Continuously improve:** Gain valuable insights to refine and enhance our climate action plans.

These collaborative discussions about regulatory framework will be instrumental in ensuring that our efforts are aligned with the needs and aspirations of the community and contribute to a more sustainable future.

A-2.1: Emissions Gap (kt CO_2e)

	Baseline Emissions (BAU 2030)	Emissions Reduction Resulting from CNAP		Remaining Emissions		Residual Emissions Offsetting[1]		Emissions Gap (amount necessary to achieve net-zero)	
	(Absolute value)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)
Transport	209	129	62%	80	38%	42	20%	38	18%
Buildings & Heating	278	192	69%	86	31%	56	20%	31	11%
Electricity	60	30	50%	30	50%	12	20%	18	30%
Waste	39	1	4%	38	96%	8	20%	30	76%
Other (incl. IPPU & AFOLU)[2]	60	46	77%	14	23%	12	20%	2	3%
Total	**646**	**399**	**62%**	**248**	**38%**	**129**	**20%**	**118**	**18%**

[1] *Residual emissions consist of those emissions which can't be reduced through climate action and are being offset. Residual emissions may amount to a maximum of 20% as stated by the Mission Info Kit.*

[2] *Emissions reduction target percentage for "Other" sector is assumed to be the same as for the other 4 main sectors unless updated by city. Activities and commitments to reduce these emissions are documented in the Climate Neutrality Action Plan.*

The emissions of the industry sector are not currently considered within the CCC framework. This is because the industrial sector's decarbonization ambition is set for 2050. This inset outlines the project, along with an explanation of the major initiative being undertaken by a consortium of stakeholders to achieve the 2050 carbon neutrality goal.

PRESENTATION OF THE DKARBONATION PROJECT

DKarbonation

A. The territory: the Dunkirk industrial port zone (ZIP)

The Dunkirk territory in the Hauts-de-France region is structured around the 7,000-hectare industrial port platform. The port industrial zone is located within the perimeter of Greater Dunkirk).

The zone is structured around:

- The territory of the Grand Port Maritime de Dunkerque (GPMD), which is the main area of concentration of industrialists in the territory;
- Other industrial zones of Greater Dunkirk, the majority of which are directly interdependent with the port and which are confronted with the same problems.

The territory is intended to bring in its wake the entire Region, which is in fact the hinterland of the port.

This territory has many assets:

- A maritime façade giving access to the most frequented strait in the world by commercial ships;
- Areas available for the establishment of major new activities, some of which are currently being developed (Large Industries Zones; Industries of the Future Zone; Dunkirk International Logistics)
- Major infrastructure projects, including the doubling of the port's container capacity (CAP2020 project), and the construction of the Seine Nord Europe Canal, which should facilitate the link between the port of Dunkirk, the Paris region and the inland ports of the Hauts-de-France region.
- The presence of industry giants, world champions, such as ArcelorMittal, Aluminium Dunkerque, AstraZeneca, BASF, etc.
- Access to first-class energy resources.

These different elements contribute to making the Port of Dunkirk the 3rd largest port in France. It is renowned as a port for large bulk goods destined for its many industrial sites. It is also making a name for itself in other segments such as cross-Channel ro-ro to Great Britain, containers, fruit, etc.

Ranked 7th in the Northern European Range which stretches from Le Havre to Hamburg, it is also the 1st French port for importing minerals and coal; 1st French port for the import of fruit in containers; 1st French rail freight hub; 2nd French port for trade with Great Britain and Ireland; 1st river port in the Nord/Pas de Calais.

Through these various projects, the GPMD aims to strengthen its position on a national and international scale, and this ambition is reflected in the arrival of new first-rate industrial sites (Clarebout, H2V, Verkor, SNF - Flocryl, Prologium, XTC New Energy / Orano, etc.).

The territory is also a major energy platform, through its infrastructure and by the companies in the territory.

For example:

- The most powerful nuclear power plant in Western Europe - 5.4 GW;
- Its LNG terminal – the 2nd largest in Europe;
- A combined cycle electricity production plant for gas from the recycling of steel gas (DK6) - 790 MW;
- A pipeline to import gas from Norway - 19.6 billion m^3 per year of capacity;
- The future offshore wind farm, with a capacity of 600MW;
- The largest consumer of electricity in Europe (Aluminium Dunkerque);
- The largest consumer of coke in France (ArcelorMittal);
- Biofuel producers (Ryssen, Daudruy).

This context has a direct impact on the Dunkirk economy and ecosystem. The Greater Dunkirk territory has more than 460 industrial companies.

Industrial employment accounts for more than 23% of jobs in Greater Dunkirk (compared to 12.8% nationally). With a very high density of Seveso factories, the Dunkirk population has a real industrial culture and expertise, which makes it an attractive area for new industries; Skilled workforce, easier acceptability.

The turnover of industrial production in the region is more than €4,000 million (excluding energy). Energy consumption amounts to 33.4 TWh, or about 10% of the final energy consumption of industry.

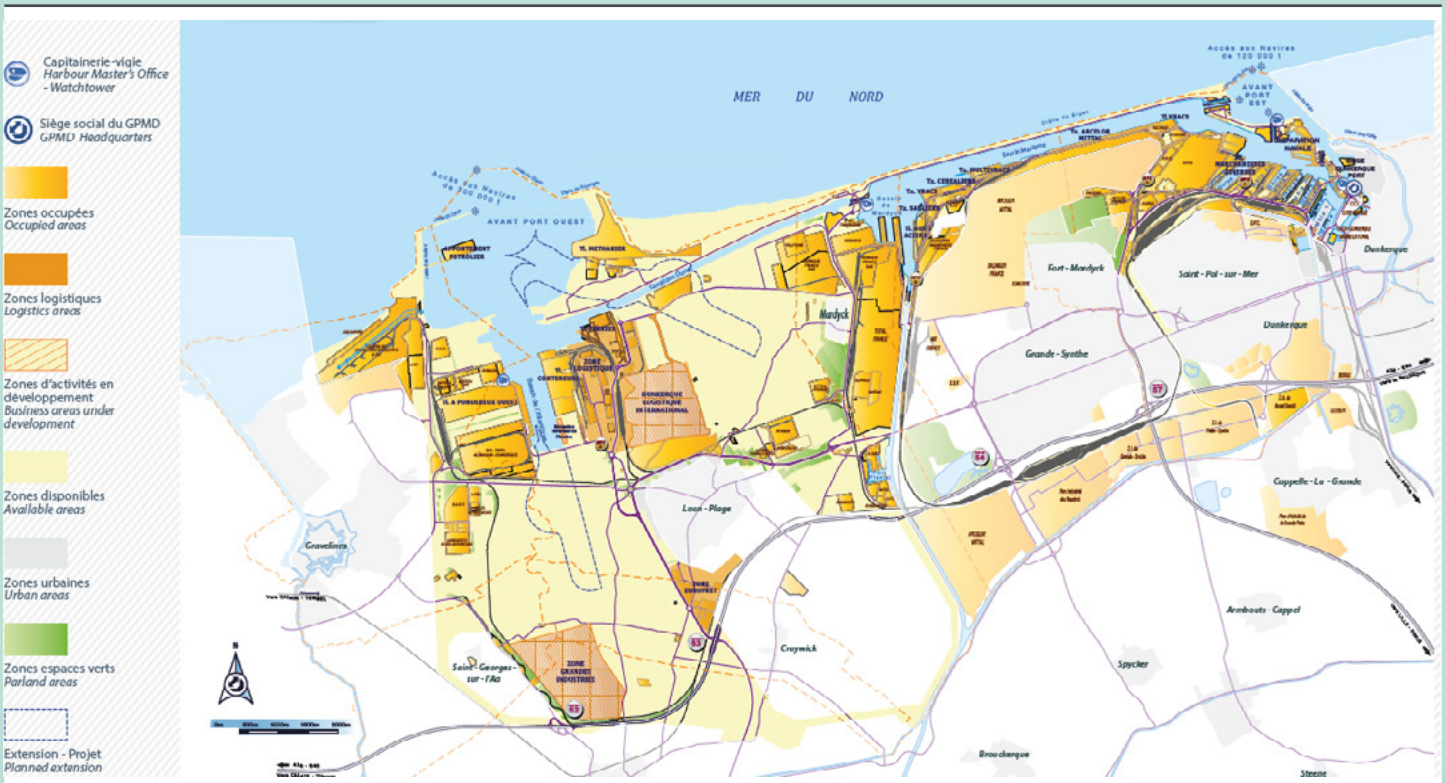
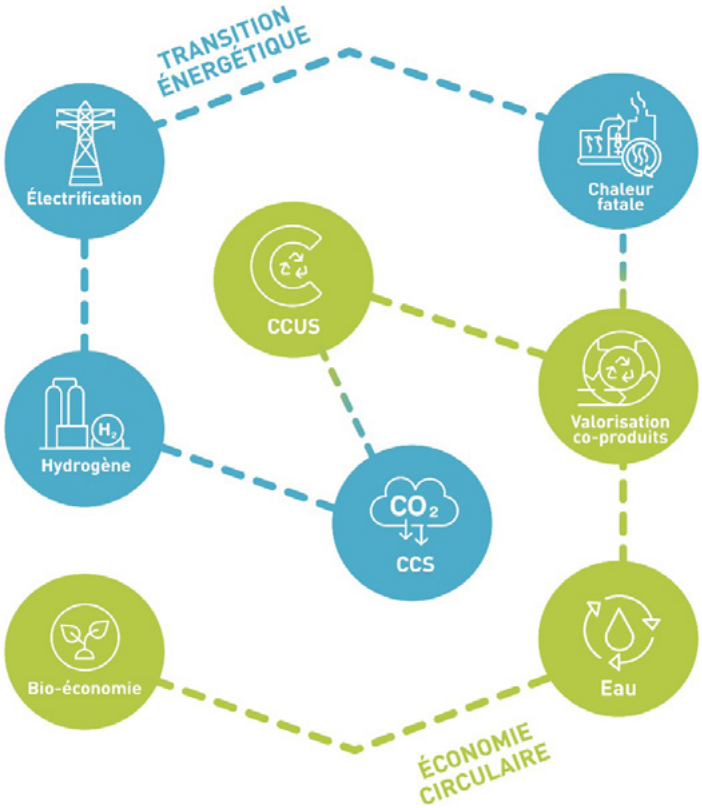


Figure 39 : Mapping of the industrial territory to be covered

Historically, the territory has always capitalised on its difficulties to bounce back and move forward, and even today has the desire to turn a problem into an opportunity for development. The local authority, through Territoire d'Innovation, has generated the momentum and federated private partners towards the transformation objectives, in particular of the industrial-port platform. This transformation will create the necessary conditions for the reception of new low-carbon activities and the transformation of those already in place towards a sustainable economy.

The entire project has one purpose: to improve the quality of life in the territory(ies) by combining environmental preservation, economic development and social cohesion. The aim is to move from a territory with major challenges to overcome to a leading territory in industrial decarbonization, cited as an example throughout Europe.

DKarbonation



b. The levers of decarbonization

All levers are being used to achieve the objectives of the European Green Deal:

- Efficiency and energy sobriety
- Circularity
- Electrification and transformation of production processes
- The use of low-carbon hydrogen or green gases to replace fossil fuels
- CO_2 capture, transport and storage
- The use and recovery of CO_2

c. The strategy

To carry out the decarbonization of the ZIP, ÉcosystèmeD with the industrialists, the Regional Chamber of Commerce and Industry (CCI) and the Grand Port Maritime de Dunkerque wish to implement a dual strategy:

- A "bottom-up" strategy: the idea is to start from individual industrial projects to identify their problems and build an initial vision of reducing CO_2 emissions.
- This strategy will be complemented by a "top-down" strategy to envisage and implement common infrastructures allowing manufacturers to decarbonize their processes.

This strategy is already at work in the first projects in the territory:

- Industrialists have identified their resources and needs for heat and asked the territory to take up the subject. At the instigation of the latter, a "heat highway" study was conducted by Pôlénergie.
- An CEI has been launched to build the common infrastructure needed to carry out the project. Consultation between the actors will be permanent thanks to the governance tools put in place.

d. Actions

The actions deployed within the framework of the "DKarbonation" project are of several types:

- Actions to coordinate the strategy by Greater Dunkirk, the CCI, the GPMD and the ÉcosystèmeD sponsor;
- Actions to define the strategy and associated management tools;
- Study actions:
  - For collective infrastructures (CO_2, H_2, water, electricity, heat networks);
  - For industrial and territorial ecology projects;
  - For energy efficiency studies in industrial settings;
  - For carbon capture studies;
  - For decarbonization studies of the port's services and activities;

The set of actions has been designed to cover the widest possible field, for the sake of completeness and coherence of the project. Just over 70 actions have been identified, both at the collective and individual level. This large number includes many industrial actors, but also Greater Dunkirk, the Port of Dunkirk, the Chamber of Commerce and Industry, Pôlénergie, energy companies, water services, etc.

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

To streamline the discussions, the transition team has chosen to focus on five core systems that can be replicated across all areas of action. By focusing on these systems—technical, institutional, financial, social and behavioural, and political—we can effectively develop strategies for improvement, whether we're examining a specific field or the overall system itself.

Sector	System	Description	Stakeholders	Level of influence on emissions	Level of interest in emissions	Who else should be involved?	Collaboration?
Transport/Mobility	Technical	Develop public transport, develop and implement a walking plan, encourage soft mobility (carpool parking, etc.)	Greater Dunkirk	High	High	Regional express transport	Collaboration - Greater Dunkirk's thoughts on the needs of employees who visit businesses in the area
			Companies	Medium	Medium		
			Citizens	Medium	Medium		
			Mobility organizing authorities	Medium	Medium		
			State	High	High		
			Chamber of Commerce and Industry	Medium	Medium		
			Urbanism agency	High	High		
		Encouraging people to share the road (active design, pavements, active modes)	Greater Dunkirk	Medium	Medium		
			Region	Medium	Medium		
			Department	Medium	Medium		
		Controlling parking supply	Greater Dunkirk	High	High		
			Port of Dunkirk	High	High		
			State	Medium	High		
		Adapting new modes of transport to existing facilities	Greater Dunkirk	High	High		With the project urbanloop
		Bus priority on the road (via a tool called gertrude)	Greater Dunkirk	High	High		
	Institutional	Introduce regulations to limit the use of private cars and encourage the electrification of vehicle fleets	Greater Dunkirk	High	High		
			State	Medium	Medium		
			Region and department	Medium	Medium		
			Environment Agency to assess the impact of mobility policies	Medium	Medium		
	Financial	Subsidise the purchase of bicycles, introduce free public transport for everyone	Greater Dunkirk	High	High	Region, department and state	Free bus paid for in part by company contributions to Greater Dunkirk
			Companies	Medium	Medium		
	Social and behavioural	Raising public awareness of the challenges of climate change and promoting new ways of getting around	Greater Dunkirk	High	High	Region, department and state	
			Companies	Medium	Medium		
			Association	High	High		
	Political	The desire to build the city within the city, also to optimise travel	Greater Dunkirk	High	High		
			Construction companies	High	Medium		
Waste - sorting	Technical	Selective collection, sorting centres, sorting technologies, energy recovery	Greater Dunkirk	High	High		Eco-organisms (CITEO, ALCOM,...)
			TRISELEC	Medium	Medium		
			PAPREC Energie 59	High	High		
	Institutional	Regulations on waste sorting, local programme for the prevention of household and similar waste, partnerships with the social and solidarity economy (e.g. PPE kits)	Greater Dunkirk	High	High		
			Social economy structure (Coud'pouce, Papillons Blancs, AFEJI, CETIDE...)	Medium	Medium		
	Financial	Household waste tax, economies of scale, ecopal	Greater Dunkirk	High	High		
			Citizens	High	Medium		
			Ecopal	High	High		
			Eco-organisms (CITEO, ALCOM,...)	High	High		
	Social and behavioural	Awareness-raising, education, communication	Greater Dunkirk	High	High		
			Citizens	High	Medium		
			Companies	Medium	Medium		
			Association	High	High		
	Political	Support for local initiatives, recycling targets, prevention	Greater Dunkirk	High	High		
			Association	Medium	Medium		
			Companies	High	High		
			ADEME	High	High		
			Eco-organisms (CITEO, ALCOM,...)	High	High		
Waste - Collection	Technical	Collection vehicles, collection routes	Greater Dunkirk	High	High		ADEME
	Institutional	Appropriate frequency of collection	Greater Dunkirk	High	High		
	Financial	Charges for waste collection	Greater Dunkirk	High	High		
	Social and behavioural	Information/awareness/communication, satisfaction survey	Greater Dunkirk	High	High		
			Higher education structures (University, Territories, Cities, Environment & Society Lab, ELCIMAI)	High	High		
	Political	Support for local initiatives, recycling targets, prevention.	Greater Dunkirk	High	High		ADEME
			Eco-organismes (CITEO, ALCOM,...)	High	High		
Habitat	Technical	Renovation, energy efficiency (insulation, heating, ventilation), renewable energies	Greater Dunkirk	High	High		
			Social landlords	Medium	Medium		
			Landlords who rent	Medium	Medium		
			Landlords living in	High	Low		
			Construction companies	Medium	Medium		
	Institutional	Regulations, financial aid, renovation plan	Greater Dunkirk	High	High		A structure for labelling, monitoring
			Construction companies	Medium	Medium		
	Financial	Financial aid, eco-winning with a focus on the savings made through renovation work	Greater Dunkirk	High	High	Community centre	Popular education, challenges/experiments
			Citizens	High	Low		
	Social and behavioural	Awareness-raising and support for private individuals	Greater Dunkirk	Medium	High	Community centre	Education populaire, défis/expérimentations
			France Rénov	Medium	High		
			ANAH	Medium	High		
	Political	Partnerships, renovation objectives	Greater Dunkirk	Medium	Medium		Coordination of systems
			France Rénov	Medium	High		
			ANAH	Medium	High		

Housing	Technical	Sustainable construction, innovation and bioclimatic thinking	Architectes	High	High	More construction companies	Projects/Proof of concept
			Construction companies	Medium	Medium		
			Researchers	High	High		
	Institutional	PLU and PLUiHD, financial aid, building regulations	Greater Dunkirk	High	High		
			State	High	High		
	Financial	Financial aid, eco-winning with a focus on the savings made through renovation work	Greater Dunkirk	Medium	High	Community centre	
	Système social et comportemental	Awareness-raising and support for private individuals	Greater Dunkirk	Medium	High	Community centre	
			France Rénov	Medium	High		
			ANAH	Medium	High		
	Political	Construction objectives, building the city on the city, rehabilitating brownfield sites, social diversity, partnerships with social landlords, etc.	Greater Dunkirk	High	High		
			Social landlords	Medium	Medium		
Energy	Technical	Energy production (solar, biomass, wind), distribution networks, energy storage, district heating, green hydrogen	Greater Dunkirk	High	High	Waste Recovery Department	Constructive collaboration to move the region towards decarbonization in the form of a heat supply agreement between Greater Dunkirk, the RCU managers and industrial companies.
			Industries	Medium	Medium		
			Electricity system (Enedis and EDF)	Medium	Medium		
			Gas system (GRDF)	Medium	Medium		
			Heating power (Dalkia and Engie)	Medium	Medium		
			SEM energy Hauts-de-France	Medium	Medium		
			Developers	Medium	Medium		
			Residents as producers of renewable energy	High	High		
	Institutional	PCAET, collaboration between local players and individuals, label	Greater Dunkirk	High	High		
			Industries	Medium	Medium		
			Electricity system (Enedis and EDF)	Medium	Medium		
			Gas system (GRDF)	Medium	Medium		
			Heating power (Dalkia and Engie)	Medium	Medium		
			SEM energy Hauts-de-France	Medium	Medium		
			Developers	Medium	Medium		
	Financial	Financial aid (feed-in tariff), subsidies, energy performance contracts	Greater Dunkirk	High	High		
			Region and Department	Medium	Medium		
	Social and behavioural	Awareness-raising and support for private individuals	Greater Dunkirk	High	High	For the district heating: representatives (technical or elected) of the Towns	Interaction in the form of a public meeting or participation by the City in the committee monitoring the operation of the district heating
			Industries	Medium	Medium		
			Electricity system (Enedis and EDF)	High	High		
			Gas system (GRDF)	High	High		
			Heating power (Dalkia and Engie)	High	High		
			Developers	High	High		
	Political	Eco-transition objectives, support for innovative projects	Greater Dunkirk	High	High		
Biodiversity	Technical	Identification of natural environments, ecological corridors, habitat restoration	Greater Dunkirk	High	High		Collaboration by agreement
			Biodiversity expert group (GON, CBNBl, CPIE, fishing federation , CRRG...)	Medium	Medium		
	Institutional	Management plans, regulations, carbon credits, labels	Greater Dunkirk	High	High		Collaboration by agreement except with design offices (service)
			Biodiversity expert group (GON, CBNBl, CPIE, fishing federation , CRRG...)	Medium	Medium		
	Financial	Agriculture, eco-tourism, Banque des territoires	Greater Dunkirk	High	High		Collaboration by agreement
			CDC B	High	High		
	Social and behavioural	Education, awareness-raising, communication, eco-tourism	Greater Dunkirk	Medium	High		Collaboration by agreement
			Association (Permanent centre for environmental initiatives)	High	High		
	Political	Biodiversity objectives, taking biodiv into account in projects of all sizes, monitoring and evaluation	Greater Dunkirk	High	High		
Water management	Technical	Water quality monitoring, WWTP management (river management and flood prevention)	Greater Dunkirk	High	High		
			Wateringues Intercommunal Institution	High	High		
	Institutional	Master plan for water development and management (SDAGE) management of aquatic environments and flood prevention (Gémapi), PLUiHD, EU water framework decree	Greater Dunkirk	High	High		
			Wateringues Intercommunal Institution	High	High		
	Financial	Investment in WWTP, network upgrading/ maintenance/renewal	Greater Dunkirk	High	High		
			Dunkirk water Union	High	High		
	Social and behavioural	Liaison with industry to limit their use of water, education about risks and rational water management	Greater Dunkirk	High	High	Dunkirk water Union	
	Political	Monitoring and assessment, investment, sanitation pricing, GEMAPI tax	Greater Dunkirk	High	High		

The six barriers identified —finance, communication, time, land use, regulatory, and social—are common challenges faced in various fields, from business and technology to community development and environmental protection.

Finance	Adopting virtuous practices, whether it involves ethical products, renewable energy, or sustainable production methods, often entails a significant additional cost. For example, investing in green technologies, such as solar panels or electric vehicles, requires a higher initial capital compared to traditional solutions. Moreover, for businesses, adopting more virtuous practices can reduce profit margins, making it difficult to remain competitive in the market. In summary, while virtuous choices are beneficial in the long term for the environment and society, their higher initial cost constitutes a financial barrier that limits their widespread adoption.	This lack of consideration for ecological impacts in the prioritization of political agendas results in delays in adopting essential measures to combat climate change. Projects with direct environmental impact, such as ecosystem protection or energy transition, are often relegated to a secondary priority. This creates a situation where inaction or delayed action exacerbates ecological crises that, in fact, require immediate responses.	The insufficient technological maturity of solutions for achieving climate neutrality, combined with high costs and regulatory uncertainties, makes investments in these technologies less profitable in the short term. To overcome these challenges, it is crucial to support innovation through favorable public policies, subsidies, and financial incentives that encourage the development and adoption of essential climate technologies.
Communication	Climate neutrality communication campaigns, while essential for raising public awareness about environmental issues, have a major limitation: they primarily reach an already aware audience. This tendency to target individuals and groups who are already conscious of climate issues significantly limits the potential impact of these initiatives. By remaining confined to a narrow audience, campaigns risk not reflecting the diversity of perspectives and needs within the broader population. This can lead to less effective strategies that are not well-suited to the varied realities of different social groups. In conclusion, climate neutrality communication campaigns need to go beyond the circle of already aware individuals to maximise their impact. It is crucial to adopt communication strategies that address broader and more diverse audiences, using tailored messages and varied channels to effectively engage all segments of society. Achieving climate neutrality requires collective mobilization, starting with communication that successfully reaches and convinces a wider and more diverse audience.	Communication about climate neutrality faces a major challenge: the variation in perceptions of territorial issues among different stakeholders. Citizens from diverse social backgrounds, as well as public and private entities, have distinct views on climate impacts and priorities. For example, environmental concerns may differ between an urban community dealing with air pollution and a rural area affected by extreme weather events. Public and private institutions may also have divergent priorities, influenced by their specific missions and interests. This diversity of perceptions complicates the formulation of coherent and effective communication messages. To overcome this obstacle, it is essential to tailor messages and communication strategies to reflect the specific realities and concerns of each stakeholder group, to build consensus and encourage collective mobilization towards climate neutrality.	Achieving climate neutrality is hindered by a lack of coordination among the various stakeholders involved, such as elected officials, technical services, businesses, and citizens. These groups may have divergent interests and priorities, making it difficult to align actions necessary to meet climate goals. For example, elected officials might focus on short-term projects to address immediate voter concerns, while businesses may prioritise economically viable solutions without always considering long-term climate objectives. Technical services might be constrained by budget limitations or existing protocols, and citizens may have varied expectations depending on their understanding and local needs. This lack of coordination creates inefficiencies and conflicts, preventing the coherent implementation of integrated climate strategies. To overcome this challenge, it is crucial to establish effective collaboration mechanisms, clarify common goals, and encourage proactive cooperation among all involved stakeholders. A coordinated approach is essential to mobilize resources and efforts effectively and to achieve climate neutrality goals in a successful manner.
Time	The implementation of climate neutrality is hindered by complex and time-consuming administrative procedures, which significantly slow down the process. These processes involve numerous levels of approval, increasing costs and deterring investments. Additionally, fragmentation among different agencies and slow decision-making compromise the effectiveness of climate actions. To overcome these obstacles, it is essential to simplify and expedite administrative processes to facilitate a quick and coordinated response to climate challenges.	The process of thinking about climate neutrality requires a significant investment of time and is hampered by a lack of qualified personnel. To overcome these challenges, it is crucial to allocate sufficient resources to the training and recruitment of environmental specialists, while establishing support mechanisms that facilitate effective planning and implementation of climate initiatives.	

Land Use	A major obstacle to achieving climate neutrality is the conflict between private and public interests. Projects aimed at improving the environment, such as creating green spaces or optimising land use, may conflict with the individual needs or desires of citizens. People may support ecological initiatives in theory, but oppose those that directly impact their personal comfort or property. This mismatch between collective objectives and individual concerns complicates the implementation of effective environmental policies. To overcome this challenge, it is essential to find a balance that reconciles private interests with collective benefits, by engaging in constructive dialogue and proposing solutions that minimise the negative impact on individuals while achieving environmental objectives.	Developing large-scale projects is particularly complex because of the limited amount of land available. Urban density and geographical constraints limit the options for expanding infrastructure and creating new spaces. This scarcity of land makes it difficult to allocate the space needed for initiatives such as urban renewal projects, green spaces or sustainability facilities. Local authorities therefore must navigate a tight space while balancing the needs of economic growth, sustainable development and quality of life for residents.	Ageing buildings represent a significant barrier to urban development, especially in city centers where many buildings are old and not energy-efficient. Renovating these structures poses major challenges due to their complexity and high cost. Older buildings may require substantial upgrading to meet modern energy efficiency standards, which involves heavy and costly work. In addition, heritage preservation constraints and strict renovation regulations further complicate these projects. This double burden of cost and complexity limits the ability of cities to modernise their building stock while meeting their sustainability and energy efficiency objectives.
Regulatory	Energy transition policies, while necessary to achieve climate objectives, can sometimes penalise certain players, particularly those who have already invested in ecological approaches. These actors, who have anticipated regulatory changes by adopting sustainable practices, may find themselves disadvantaged by changes in policy or regulation that favour other forms of transition. For example, new regulations may introduce stricter standards or eligibility criteria for subsidies that do not take previous efforts into account, forcing these actors to make costly additional adjustments to comply with the new requirements. This can discourage early investment in green solutions and create a sense of injustice among those who have taken proactive initiatives to protect the environment.	Another major difficulty in the energy transition is the link between the different levels of governance, in particular national, regional and local. To be effective, the energy transition requires coherence and coordination between the policies developed at these different levels. Objectives and strategies can vary considerably from one level to another, leading to inconsistencies and conflicts that complicate the implementation of initiatives. For example, ambitious national policies may not be aligned with local capacities or priorities, while local plans may lack the support or resources to comply with regional directives. This disconnection between levels of governance can slow progress, create duplication of effort or gaps in policy implementation, and reduce the overall effectiveness of energy transition actions. It is therefore crucial to develop robust coordination mechanisms and integrated frameworks to ensure that policies at each level are mutually supportive and contribute harmoniously to overall objectives.	

Social	Social barriers to the energy transition are often linked to social inequalities, as the most modest households are generally the most vulnerable to these changes. These households have limited financial resources, which makes them less able to finance the renovation work needed to improve the energy efficiency of their homes or to acquire energy-saving equipment. As a result, they may find themselves disadvantaged by policies that require high initial investment, despite the potential benefits in terms of energy savings and long-term cost reductions. This situation accentuates social disparities, as less well-off households are often forced to live in less comfortable and less energy-efficient conditions, while being less able to reap the benefits of energy transition policies. To overcome these barriers, it is crucial to put in place financial support schemes and targeted subsidy programs to help the most vulnerable households access the necessary improvements and benefit fully from the energy transition.	Resistance to change is a major barrier to the energy transition. Residents may be reluctant to change their energy consumption habits or to accept the constraints imposed by new environmental policies. This resistance can stem from a number of factors, including comfort with established habits, fear of the costs associated with change, or a negative perception of new technologies and practices. For example, individuals may be reluctant to invest in more energy-efficient equipment if they perceive such investments as costly or complicated to implement. What's more, the changes may require adjustments to everyday life, such as changes to temperature management or reductions in energy consumption, which may be perceived as an additional discomfort or constraint. To overcome this resistance, it is essential to put in place effective communication strategies that clearly explain the benefits of the changes, offer financial incentives to facilitate the transition, and propose appropriate solutions that minimise disruption to residents.	

Our city's ambition for climate neutrality can be accelerated by leveraging existing and emerging assets, resources, and processes. One key opportunity lies in harnessing the decarbonization efforts already underway in local industries. By scaling and replicating these successful initiatives across residential and commercial sectors, we can reduce emissions more effectively. Additionally, we can optimise the use of renewable energy infrastructure, invest in energy-efficient technologies, and promote green building practices. Collaborating with local stakeholders, including businesses, government agencies, and the community, will ensure a comprehensive and inclusive approach to achieving a sustainable and resilient urban environment.

To gain a collective understanding that embraces diverse systemic perspectives, it is essential to adopt approaches that foster inclusivity, collaboration, and reflection on power dynamics.

Facilitated Dialogue and Discussion

Imagine a room filled with individuals from all walks of life—community leaders, educators, scientists, and activists—gathered to address a complex societal challenge. The goal is to allow every voice to be heard, and a facilitator, trained in neutral moderation, guides the conversation. This inclusive forum provides space for people to openly share their experiences and views. Active listening is emphasized, encouraging participants to genuinely hear and consider perspectives that differ from their own. The facilitator's role is key in keeping the discussion balanced and constructive, ensuring that no single voice dominates the conversation and that the dialogue remains productive.

Interdisciplinary Collaboration

To deepen understanding, the dialogue expands beyond a single field of expertise. Experts from social sciences, humanities, and natural sciences collaborate, bringing their unique lenses to the table. By sharing knowledge across disciplines, the group begins to uncover insights that would have remained hidden in isolated silos. Together, they work to identify common ground—a shared goal of improving community health, for example—that can unite their efforts. This interdisciplinary approach enhances creativity and encourages participants to view problems from new, broader perspectives.

Systemic Thinking and Mapping

To further illuminate the complexities of the issue, the group turns to systemic thinking and mapping tools. Visual diagrams and models are created, illustrating the interconnectedness of various factors—social, economic, environmental. As they map out feedback loops and explore how elements within the system influence one another, they gain a clearer understanding of the ripple effects of proposed interventions. Scenario planning allows them to consider multiple potential futures, weighing different assumptions and variables to anticipate both intended and unintended consequences.

Cultural Sensitivity and Adaptation

The discussions and solutions that emerge are not one-size-fits-all. The group recognizes the need for cultural sensitivity. Messaging is tailored to resonate with different audiences, with careful attention paid to local customs, values, and contexts. Whether addressing rural communities or urban populations, the group ensures that the language they use is inclusive and avoids reinforcing harmful stereotypes. By grounding their solutions in specific local realities, they make their work more relevant and meaningful for those affected.

Power Dynamics and Equity

Throughout the process, the group remains mindful of power dynamics. They acknowledge that some participants come from positions of privilege, while others may feel marginalized or less empowered. To address these imbalances, they prioritise equity-focused approaches. Marginalized communities are not just invited to share their perspectives—they are given a central role in shaping decisions. By consciously empowering these groups and making space for their leadership, the group moves toward solutions that reflect a more just and equitable vision for the future. A description of some activities can be found on *page 177*.

Through these approaches—facilitated dialogue, interdisciplinary collaboration, systemic thinking, cultural sensitivity, and a commitment to equity—the group moves closer to a collective understanding that accounts for diverse systemic perspectives. The solutions they propose are richer, more inclusive, and better equipped to address the complexities of the world.

To effectively monitor these systems, Greater Dunkirk needs to establish a unified framework for data collection and analysis. Currently, we are harmonizing the indicators across all directorates of Greater Dunkirk to ensure consistency in monitoring and evaluating progress. The city should collect data on key metrics such as energy consumption, emissions levels, renewable energy usage, and the effectiveness of sustainability initiatives. This data can be analysed using advanced tools such as predictive analytics and real-time monitoring systems to track trends, assess performance, and adjust strategies as needed. Regular reporting and transparent sharing of results will further support informed decision-making and community engagement in our climate efforts.

3. Part B – Pathways towards Climate Neutrality by 2030

3.1 Module B-1 Climate Neutrality Scenarios and Impact Pathways

B-1.1 Impact pathways

Recognizing that late outcomes will significantly impact various actors and citizens, their successful implementation requires their active involvement. Due to the project timeframe, achieving a comprehensive analysis of both early changes and late outcomes within the initial phase proved challenging. As late outcomes will be rigorously examined during the first or second iteration of the CCC, we strategically prioritized the development and monitoring of early changes to ensure their timely implementation. A dedicated workshop on late outcomes is scheduled for the summer, facilitating the alignment of late outcome indicators and metrics with those of the early changes for optimal project impact.

Tableau B-1.1a - Impact pathways of early changes

Sector	Subsector	Systemic Levers	Early Changes (1-2 Years)	Indicators	Metrics	Direct Impacts (Year 2030 Emission Reductions - kt CO_2e)
Transport	Reduced motorized passenger transportation need	Urban Planning and Land Use, Active transportation, Economic Development, Pricing and incentives, technology , Public Transportation, education and awareness	Quick wins : development of pedestrian zones.	T1 - Length of Sidewalk	Km	20
			Improve public transport: Increase frequency and reliability of bus services, especially during peak hours. development of "chrono" bus lines.	T2-Frequency of buses (especially chrono buses)	Bus per minute	
				T3- Public transport ridership	Travel by resident	
				T4 - Evolution of the number of public transport journey	Number per year	
				T5 - Public transport mode share	%	
				T6 - Ridership evolution since the implementaion of free public transport	%	
				T7 - Frequency of buses (especially chrono buses)	Bus per minute	
				T8 - Meshing of the territory by the public transport network	nb bus stop/resident, km de network/resident	
			Develop mobility plans: Create comprehensive mobility plans for the CUD area, encouraging bike use for small distances.	T9 - Bike mode share	%	
				T10 - Share of bike-friendly roads	% of total road km	
	Shift to public & non-motorized transport	Urban Planning and Land Use, Public Transportation, Active transportation, Economic Development, Pricing and incentives, education and awareness, technology	Expand public transport: Increase frequency and routes of bus services, especially in underserved areas. First services for new industries "without car parks", targeted actions under the cycling plan (footbridges, etc.).	T11 - Frequency of bus in underserved areas	Bus per minute	10
				T12 - Share of the population covered by a mobility plan (Number of industries promoting active mobility for employees)	%	
			Improve pedestrian infrastructure: Build sidewalks, crosswalks, and pedestrian-friendly zones. Free transport, help with buying a bike, provision of electric and muscle bikes, sustainable mobility package.Drawing up a walking plan.	T13 - Length of Sidewalk	Km	
				T14- Area of active mobility and pedestrian-friendly zone	Km²	
			Create bike-sharing systems: Implement bike-sharing programs with sufficient stations and bikes. Eco Vélo and Recyclo programs.	T15 - Number of bikes collected and recyled under the RECYCLO programme	Number	
				T16 - Number of bike parking, excluding bike rakes	Number per resident	
				T17 - Numbre of free bike spots	Number	
				T18 - Evolution of the number of bike parking, boxes and shelters	Number	
			Bus lane : Create lane only for bus, with adapted trafic lights to make bus travels faster and easier.	T19 - Km of lane only for bus	Km	
	Increased car pooling	Technology, infrastructure, Pricing and incentives, education and awareness, Workplace policies	Launch carpooling platform: Develop a user-friendly platform to connect potential carpoolers.	T20 - Number of citizens registered on the plateforme Pass Pass covoiturage	Number	11
			Offer incentives: Provide financial incentives or rewards for carpooling.	T21 - Number of industries that implement financial incentives for carpooling	Number	
				T22 - Number of people who shift for solo car to carpooling	Number	
			Promote carpooling culture: Launch awareness campaigns highlighting the benefits of carpooling.	T23 - Carpool share	%	
	Electrification of cars + motorcycles	Infrastructure, financial, economic development, public awareness, grid integration, technology	Economic cases and capital needs for long term investment planning, mixed funding model to align risks, returns and financial performance.	T24 - Share of class A or B buildings according to the DPE for energy (or equivalent)	Number	1
				T25 - Return on Investment (ROI): Measures the profitability of an EV electrification project	€/tCO_2 avoided	
			Electrify Greater Dunkirk fleet: Replace a portion of the Greater Dunkirk fleet with electric vehicles.	T26 - Number of fossil fueled car changed for electric ones	Number	
				T27 - Annual vehicle energy consumption of the collectivity	kWh/an.employee	
			Install charging stations: Deploy a network of public charging stations in key locations.	T28 - Share of electric cars in the territory	%	
				T29 - Kilometers driven by electric cars	Km	
				T30 - Number of parking providing charging stations	Number	
	Electrification of buses	Infrastructure, financial, economic development, public awareness, grid integration, technology	Install charging infrastructure: Build charging stations at bus depots and along key routes.	T31 - Number of electric buses	Number	0
				T32 - Number of charging station deployed for buses (wharehouse and bus stations)		
			Secure funding: Obtain financial support for electric bus procurement and infrastructure.	T33 - € of grants/subsidies to allow investment in the electrification of bus fleet	€	
				T34 - Number of projects financed thanks to subsidies/grants	Number	
			Train personnel: Provide training for bus drivers and maintenance staff on electric bus technology.	T35 - Number of people trained	Number	
			Data-driven optimization: Analyze logistics data to identify inefficiencies and optimize routes.	T36 - km of travels optimized	Km	
			Improve last-mile delivery: Optimize delivery processes through technology and alternative delivery methods. Like the NZUIG project, but adapted to transport of goods.	T37 - Number of structures with alternative delivery methods	Number	
			Collaborate with stakeholders: Establish partnerships to share data and improve efficiency.	T38 - Number of partnership created/improved	Number	
			Initiate sustainability measures: Implement eco-friendly practices in transportation and packaging.	T39 - Number of companies using transportation and packaging innovation	Number	

Buildings & Heating	Building renovations (envelope)	Technology, finances, regulations, public awareness	Incentive programs: Launch financial incentive programs for building envelope renovations (MaPrimeRenov).	BH1 - Applications filed at the Anah	Number	42
				BH2 - Number of accompanied households in the rehabilitation of their accomodations	Number	
				BH3 - Number of accomodations energetically renovated	% of renovated housing	
				BH4 - Financial aids attributed	€	
				BH5 - Amount attributed to energical renovation under the écohabitat programme	€ per year	
				BH6 - Amount of aid attributed by the CUD to each city for energetic renovation	€ per municipality	
				BH7 - Energetic expenses of the CUD - buildings	€	
			Regulatory framework: Develop and implement updated building energy efficiency standard (RE2020).	BH8 - Share of buildings energy-tested	%	
				BH9 - Energetic consumption of public buildings	MWh/m²	
				BH10 - Share of class A or B public buildings accoridng to the DPE (energy)	%	
			Awareness campaigns: Initiate public education campaigns on the importance of building envelopes.	BH11 - Number of owners made aware of the benefits of housing improvement	Number	
			Gradual renovation of social housing for low-energy housing.	BH12 - Number of accomodation energetically renovated	Number	
				BH13 - Tonnes CO_2e saved per year through housing rehabilitation	teq CO_2	
				BH14 - Valuation of energy vouchers	kWhcumac valued per year	
			Pilot projects: Conduct pilot renovation projects to demonstrate the benefits and challenges.	BH15 - Number of pilot renovation projects studied	Number	
	New energy efficient buildings	Technology, infrastructure, finances, regulation	Updated building codes: Implement stricter energy efficiency standards for new buildings.	BH16 - Share of class A or B buildings according to the DPE (or equivalent)	%	2
			Incentive programs: Launch financial incentive programs for energy-efficient construction. Offering subsidies, tax breaks, or low-interest loans for energy-efficient construction.	BH17 - Share of eligible projects that participate in the incentive programs	%	
				BH18 - Funds invested thanks to the incentive	€	
				BH19 - Total energy savings achieved by projects that have received incentives.	MWh	
			Training initiatives: Develop and deliver training programs for the construction industry. Providing training for architects, engineers, and builders on energy-efficient design and construction.	BH20 -Share of eligible professionals who participate in the training programs	%	
			Pilot projects: Showcase energy-efficient building projects to demonstrate feasibility.	BH21 - Number of pilot projects	% before and after	
	Efficient lighting & appliances	Technology, infrastructure, finances, regulation	Enforce efficiency standards: Strictly enforce energy efficiency standards for lighting and appliances.	BH22 - Share of products on the market that meet or exceed energy efficiency standards.	%	3
			Public Awareness Campaigns: Initiate campaigns to inform consumers about energy savings.	BH23 - Residents' awareness of energy efficiency standards and the benefits of energy-efficient products.	Number	
			Labeling improvements / Communication: Enhance energy efficiency labels for clarity and comprehensibility.	BH24 - Surveys to assess consumers' understanding of energy efficiency labels.	Number of consumers	
	Decarbonizing heating generation	Infrastructure, financial, economic development, public awareness, grid integration, technology	Policy framework: Develop and implement clear policy and regulatory frameworks for low-carbon heating.	BH25 - Renewable energy production rates for heating and cooling in the territory		145
				BH26 - Coverage rate of the territory's heat needs (residential and tertiary) by ENR&R heat networks	%	
			Pilot projects: Conduct pilot projects to demonstrate the feasibility and benefits of low-carbon heating.	BH27 - Share of of successful implementation of low-carbon heating technologies in pilot projects.	%	
				BH28 - Cost-effectiveness of low-carbon heating solutions compared to traditional heating methods.	€ per kgCO_2 emission avoided	
				BH29 - Number of successful replication of elements of pilot projects in other regions or contexts.	Number	
			Consumer Education Campaigns: Initiate public awareness campaigns about the importance of decarbonizing heating.	BH30 - Share of people switching to low-carbon heating technologies		
			Increase the proportion of renewable energy / industrial waste heat in district heating networks / ambitious development policy.	BH31 - Coverage of the territory's heat needs by ENR&R heat networks	%	
				BH 32 - Share of renewable energy production for heating and cooling in the territory	%	
				BH33 - Share of renewable energy production	%	
				BH34 - Connected capacity and number of subscribers	Number	
				BH35 - Valuation of energy vouchers	kWhcumac valued / year	

Energy system	Decarbonizing electricity generation	Technology, policy, economic development, infrastructure, innovation	Policy framework: Establish clear and ambitious decarbonization targets and policies.	E1 - Share of renewable energy production	%	30
				E2 - Annual greenhouse gas emissions from the territory	teq CO_2/resident	
			Renewable energy incentives: Introduce or expand financial incentives for solar, wind, and other renewable energy projects.	E3 - Climate-air-energy policy budget	€ per resident per year	
				E1 - Share of renewable energy production	%	
			Grid upgrades: Identify and initiate grid modernization projects to accommodate increased renewable energy.	E4 - Cost-effectiveness of grid modernization projects	€ per kgCO_2 emission avoided	
				E5 - Budget allocated studies/expertise/MDE/ renewable energies/air quality/climate change adaptation	€	
			Technology demonstration: Support pilot projects for emerging low-carbon technologies.	E6 - Adoption rate of the technology by businesses or consumers	%	
Waste	Increased waste recycling	Financement Investissement Coordination, infrastructure	Infrastructure Upgrades: Improve recycling collection and sorting facilities. Out-of-home waste sorting introduced at 100% public space as home.	W1 - Waste recycling	%	1
				W2 - Recyclable waste	Tonnes per year per resident	
				W3 - Waste recovery rate	%	
				W4 - Sorting error rate	%	
				W5 - Recycling quality: Evaluate the quality of recycled materials (e.g., cleanliness, purity).		
			Public Awareness Campaigns: Launch educational campaigns on waste reduction and recycling. Strategy for bio-waste reduction (compost promotion, education plan...).	W6 - Numbers of classes and students made aware to sorting	Number	
				W7 - Number of households made aware of sorting by counselors	Number	
				W8 - Share of households practicing composting	%	
				W9 - Share of households willing to throw their waste in a recycling center so that it can be repaired and reused	%	
				W10 - Share of public satisfaction with the recycling facilities and services	%	
			Community plan for fighting against abandoned waste.	W11 - Abandoned waste (green ressources, bulky waste, tires, residual waste)	Tonnes per year	
				W12 - Waste by waste recovery method (green ressources, bulky waste, tires, residual waste)	Tonnes per waste type	
					Tonnes by recovery method	
			Circular Economy Development: Promotion of a circular economy model.	W13 - Number of items repaired during Repair café sessions	Number	
				W14 - Tonnes of CO_2e saved thanks to the repair of items	teq CO_2	
	Decarbonizing collect activity	Financement Investissement, technology, infrastructure	New contrat for bicycle waste collect.	W15 - Number of bikes rented under the RECYCLO programme	Number	
			Vehicle Assessment: Identify high-emission vehicles in the fleet and prioritize electrification. Experiment motor retrofit (Hydrogen) and first charging point (Electric).	W16 - Composition of collection fleet	Number	
			Route Optimization Pilot: Test route optimization software in select areas.	W17 - Number of collections provided by the new services	Number	
				W18 - Fuel consumption of collection vehicules	Liter	
			Public Awareness Campaigns: Promote waste reduction and recycling to decrease collection volume.	W19 - Household and assimilate waste production (excluding debris)	kg/resident	
				W20 - Residual household waste production	kg/resident	
				W21 - Occasionnal waste production	kg/resident	
				W22 - Production of selectively collected waste	kg/resident	
				W23 - Waste collected	Tonnes	
			Charging Infrastructure: Install charging stations at waste collection depots.	W24 - Number of charging station for the collection fleet	Number	

Table B-1.1b - Impact pathways of late outcomes and indirect impacts (to be completed for the next iteration)

Sector	Subsector	Systemic Levers	Late Outcomes (3-4 years)	Indicators	Metrics	Direct Impacts (Year 2030 Emission Reductions - kt CO_2e)	Indirect impacts (co-benefits)	Details of indicators	metrics
Transport	Reduced motorized passenger transportation need	Urban Planning and Land Use, Active transportation, Economic Development, Pricing and incentives, technology , Public Transportation, education and awareness	Reduced car ownership: Measurable decrease in car ownership rates.	TLO1 - Household vehicule equipment	%	20	Economic growth	Share of new jobs related to transport sector (Stimulate local economies by creating jobs in public transport sector).	%
			Increased public transport usage: Significant growth in public transport ridership.	T3- Public transport ridership	Travel by resident			Share of new jobs related to cycling sector (Stimulate local economies by creating jobs in cycling sectors).	%
				T4 - Evolution of the number of public transport journey	Number per year		Social equity	Employement rate (Improve access to jobs for people without cars).	Number
								Share of people having access to healthcare (Improve access to healthcare for people without cars).	%
				T5 - Public transport mode share	%			Share of student using only public transport or active mobilty to go the school/university (Improve access to education for people without cars).	%
								Less unemployement.	%
							Climate change mitigation	Reduce greenhouse gas emissions and contribute to climate change goals.	tCO_2eq avoided by active mobility incentives and public transport
			Healthier population: Increased physical activity levels and reduced traffic-related injuries. More livable cities: Improved quality of life and increased social interaction.	TLO2 - Number of car accidents	Number		Public health	Improve public health by reducing air pollution.	$\mu g/m^3$ of PM2.5, PM10, O_3, NO_2 and Nox
				T9 - Bike mode share	%			Improve public health by reducing noise pollution, and physical inactivity.	dB(A)
								Improve public health by reducing physical inactivity.	
							Land use efficiency	Share of land use for parking space use only (Optimize land use by reducing the need for extensive parking spaces).	%
	Shift to public & non-motorized transport	Urban Planning and Land Use, Public Transportation, Active transportation, Economic Development, Pricing and incentives, education and awareness, technology	Reduced car dependency: Measurable decrease in car ownership and usage.	TLO3 - Car ownership	%	10	Economic growth	Share of new jobs related to transport sector (Stimulate local economies by creating jobs in public transport sector).	%
			Increased public transport ridership: Significant growth in public transport users.	T3- Public transport ridership	Travel by resident			Share of new jobs related to cycling sector (Stimulate local economies by creating jobs in cycling sectors).	%
			Reduced traffic congestion: Less crowded roads and improved travel times.	TLO4 - road congestion and travel time	time per km			Share of new jobs related to urban development sector (Stimulate local economies by creating jobs in urban development sectors).	Number
			Increased cycling and walking rates: Higher percentage of people choosing active modes for short trips.	T9 - Bike mode share for short trips	%		Social equity	Employement rate (Improve access to jobs for people without cars).	%
				TLO5 - walking mode share for short trips	%			Share of people having access to healthcare (Improve access to healthcare for people without cars).	%
			Improved air quality: Reduced levels of air pollution and greenhouse gas emissions.	TLO6 - air quality	$\mu g/m^3$ of PM2.5, PM10, O_3, NO_2 and Nox			Share of student using only public transport or active mobilty to go the school/university (Improve access to education for people without cars).	%
				TLO7 - GHG emission of transportation	tCO_2eq emission of transportation			Less unemployement.	%
	Increased car pooling	Technology, infrastructure, Pricing and incentives, education and awareness, Workplace policies	Increased carpool usage: Significant increase in the number of people carpooling.	T15 - Number of people subscribed and using the PassPass plateform		11	Climate change mitigation	Reduce greenhouse gas emissions and contribute to climate change goals.	tCO_2eq avoided by active mobility incentives and public transport
			Cost savings: Financial benefits for carpoolers through shared expenses.	TLO8 - savings for residents thanks to carpooling			Public health	Improve public health by reducing air pollution.	$\mu g/m^3$ of PM2.5, PM10, O_3, NO_2 and NOx
			Lowered emissions: Reduced greenhouse gas emissions and improved air quality.	TLO6 - air quality	$\mu g/m^3$ of PM2.5, PM10, O_3, NO_2 and Nox			Improve public health by reducing noise pollution, and physical inactivity.	dB(A)
				TLO7 - GHG emission of transportation	tCO_2eq emission of transportation				
			Reduced traffic congestion: Decreased traffic volume and improved travel times.	TLO9 - Average annual daily traffic by municipality (%)				Improve public health by reducing physical inactivity.	
			Stronger social connections: Increased opportunities for social interaction among carpoolers.	TLO10 - Number of people in carpooling cars			Land use efficiency:	Share of land use for parking space use only (Optimize land use by reducing the need for extensive parking spaces).	%
	Electrification of cars + motorcycles	Infrastructure, financial, economic development, public awareness, grid integration, technology	Technological advancements: Advancements in battery technology and charging infrastructure.	TLO 11 - Number of electric vehicule technology related industries on the territory (Promote innovation in electric vehicle technology)		1	Economic growth	Stimulate the EV industry and related sectors.	
							Energy independence	Share of electric cars (Reduce reliance on foreign oil).	%
			Job creation: Growth in the EV charging and maintenance sector.	TLO 12 - Share of new jobs related to EV charging and maintenance sector (Stimulate local economies by creating jobs in public transport sector)	%		Public health	Improve public health by reducing air pollution.	$\mu g/m^3$ of PM2.5, PM10, O_3, NO_2 and NOx
			Reduced dependence on fossil fuels: Decreased reliance on imported oil.	TLO 13 - Share of electric cars in the territory (Reduce reliance on foreign oil)			Climate change mitigation	Reduce greenhouse gas emissions and contribute to climate change goals.	tCO_2eq avoided by switching to electric cars
			Reduced emissions: Lower greenhouse gas emissions and improved air quality.	TLO 14 - Annual Vehicle Energy Consumption					
			Increased EV adoption: Significant growth in the number of electric vehicles on the road.	TLO15 - Share of electric cars in the territory in the territory			Technological leadership	Share of pilot project replicated outside Greater Dunkirk territory (Position the region as a leader in electric vehicle technology).	%

Transport	Electrification of buses	Infrastructure, financial, economic development, public awareness, grid integration, technology	Significant EV bus fleet: A substantial portion of the bus fleet is electrified.	TLO16 - Number of electric buses		0	Economic growth	Share of new jobs related to transport sector (Stimulate local economies by creating jobs in public transport sector).	%
			Improved air quality: Reduced emissions and improved air quality in urban areas.	TLO6 - air quality	µg/m³ of PM2.5, PM10, O_3, NO_2 and Nox			Share of new jobs related to cycling sector (Stimulate local economies by creating jobs in cycling sectors).	%
				TLO7 - GHG emission of transportation	tCO_2eq emission of transportation			Share of new jobs related to urban development sector (Stimulate local economies by creating jobs in urban development sectors).	Number
			Reduced noise pollution: Quieter buses contribute to a better living environment.	TLO18 - Noise pollution	dB(A)		Climate change mitigation	Reduce greenhouse gas emissions and contribute to climate change goals.	tCO_2eq of public transport
			Energy cost savings: Potential reduction in operating costs due to lower electricity prices compared to diesel.	T21 :Return on Investment (ROI): Measures the profitability of an EV electrification project.	€ of EV buses functionment / € fossil fueled buses functionment		Public health	Improve public health by reducing air pollution.	µg/m³ of PM2.5, PM10, O_3, NO_2 and Nox
			Positive public perception: Increased public support for public transportation due to cleaner and quieter buses.	T4 - Evolution of the number of public transport journey	Number per year			Improve public health by reducing noise pollution, and physical inactivity.	dB(A)
							Technological advancement	TLO 11 - Number of electric vehicule technology related industries on the territory (Promote innovation in electric vehicle technology).	Number
	Optimized logistics	Technology, finances, infrastructure	Reduced transportation costs: Significant reduction in logistics expenses through optimization.	T29 : km of travels optimized		58	Economic growth	Evolution of transportation costs (Increased efficiency and competitiveness for businesses).	€
			Improved delivery times: Faster and more reliable delivery services.				Job creation	Innovative solution developed on Greater Dunkirk's territory (New opportunities in logistics technology and sustainable transportation).	Number
			Lowered environmental impact: Reduced carbon emissions and waste generation.				Urban development	Improved urban logistics and reduced traffic congestion.	
			Enhanced supply chain visibility: Real-time tracking and improved supply chain management.				Resource conservation	Optimized resource utilization and reduced waste.	
			Increased customer satisfaction: Improved delivery experience and customer service.				Social equity	Improved access to goods and services for underserved communities.	
Buildings & Heating	Building renovations (envelope)	Technology, finances, regulations, public awareness	Improved energy efficiency: Significant reduction in energy consumption for heating and cooling.	Share of renewable energy production for heat and cooling in the territory			Economic Growth:	Stimulate the construction and renovation industry.	
							Climate Change Mitigation:	Contribute to climate change goals by reducing energy consumption.	
			Reduced carbon emissions: Lower greenhouse gas emissions from buildings.	Energy consumption of public buildings			Public health	Improve public health by reducing exposure to indoor air pollutants.	
			Increased property values: Enhanced property values due to improved energy efficiency.				Energy Security	Reduce dependence on fossil fuels.	
			Improved indoor air quality: Better indoor living conditions through improved insulation and ventilation.				Social Equity	Enhance the comfort and well-being of building occupants.	
			Progressive eradication of thermal flaws in social and private housing in the Dunkirk area.					Attractiveness of the town centre.	
								Lower energy bills for individuals.	
	New energy efficient buildings	Technology, infrastructure, finances, regulation	Reduced energy consumption: Significantly lower energy consumption in new buildings.	Share of class A or B buildings according to the DPE for energy (or equivalent)		2	Economic Growth:	Stimulate the construction and renovation industry.	
			Lowered carbon emissions: Reduced greenhouse gas emissions from the building sector.				Climate Change Mitigation:	Contribute to climate change goals by reducing energy consumption.	
							Public health	Improve public health by reducing exposure to indoor air pollutants.	
							Energy Security	Reduce dependence on fossil fuels.	
			Improved indoor air quality: Enhanced indoor living and working conditions.				Social Equity	Enhance the comfort and well-being of building occupants.	
			Increased market for energy-efficient technologies: Growth in the market for energy-efficient building materials and systems.					Attractiveness of the town centre.	
			Enhanced building performance: Improved durability, resilience, and comfort of new buildings.					Lower energy bills for individuals.	
	Efficient lighting & appliances	Technology, infrastructure, finances, regulation	Reduced energy consumption: Significant decrease in energy consumption for lighting and appliances.			3	Economic Growth	Stimulate the construction and renovation industry.	
			Lowered electricity bills: Reduced energy costs for consumers.	Greenhouse gas emissions			Climate Change Mitigation	Contribute to climate change goals by reducing energy consumption.	
			Improved air quality: Decreased greenhouse gas emissions.				Public Health	Improve public health by reducing exposure to indoor air pollutants.	
							Energy Security	Reduce dependence on fossil fuels.	
			Consumer Behavior Change: Increased adoption of energy-saving habits.				Social Equity	Enhance the comfort and well-being of building occupants.	
								Attractiveness of the town centre.	
								Lower energy bills for individuals.	

Buildings & Heating	Decarbonizing heating generation	Infrastructure, financial, economic development, public awareness, grid integration, technology	Reduced GHG emissions: Significant reduction in carbon emissions from heating.	Greenhouse Gas Emissions - Residential			Economic Growth	Stimulate the construction and renovation industry.	
			Increased Adoption of Low-Carbon Heating: Widespread adoption of heat pumps, biomass boilers, and other low-carbon heating systems.	Share of coverage of the territory's heat needs (residential and tertiary) by renewable energy heating networks			Climate Change Mitigation	Contribute to climate change goals by reducing energy consumption.	
			Improved air quality: Reduced air pollution from fossil fuel combustion.				Public Health	Improve public health by reducing exposure to indoor air pollutants.	
							Energy Security:	Reduce dependence on fossil fuels.	
							Social Equity	Enhance the comfort and well-being of building occupants.	
								Attractiveness of the town centre.	
			Achieve 100% renewable energy in the grid by 2030.	Share of Renewable Energy Production				Lower energy bills for individuals.	
Energy system	Decarbonizing electricity generation	Technology, policy, economic development, infrastructure, innovation	Reduced GHG emissions: Significant reduction in carbon emissions from electricity generation.	Share of Renewable Electricity Generation		30	Public health	Improve public health by reducing exposure to indoor air pollutants.	
				Greenhouse gas emissions - energy sector					
				Annual greenhouse gas emissions of the territory per capita					
			Increased Renewable Energy Share: Substantial growth in renewable energy capacity and generation.	Share of renewable electricity production in the territory					
			Improved air quality: Reduced air pollution from fossil fuel power plants.						
Waste	Increased waste recycling	Financement Investissement Coordination, infrastructure	New trash bags separation plant and waste sorting center.			1	Creation of quality green jobs		
			Increased Recycling Rates: Significantly higher recycling rates across different waste streams.	Sorting refusal rate			Improved health ecosystem		
				Recovery rate			Environmental Protection: Reduce pollution and protect ecosystems.		
				Share of households composting			Climate Change Mitigation: Reduce greenhouse gas emissions from waste disposal.		
				Waste recycling			Public Health: Improve public health by reducing waste-related diseases, Improved air quality, Improved water quality	Improve public health by reducing waste-related diseases.	
			Reduced Landfill Waste: Decreased amount of waste sent to landfills.	Tonnage abandoned waste (green resources, bulky items, tyres, residual waste)				Improved air quality.	
			Resource Conservation: Preservation of natural resources through material recovery.	Tonnes of CO_2 equivalent saved by repairing objects				Improved water quality.	
			New equipment for bio-waste treatment.				Economic Growth	Stimulate the recycling and waste management sector.	
							Resource Efficiency	Optimize resource utilization and reduce waste.	
	Decarbonizing collect activity	Financement Investissement, technology, infrastructure	Deployement of the RECYCLO programme.				Creation of quality green jobs		
							Improved air quality		
			Reduced Emissions: Significant decrease in greenhouse gas emissions from waste collection.	Greenhouse gas emissions - collection of household waste			Economic Growth	Stimulate the electric vehicle and clean technology industries.	
			Increased Efficiency: Optimized collection routes leading to reduced fuel consumption.				Public Health	Improve public health by reducing air pollution.	
			Improved Air Quality: Lower air pollution levels in urban areas.				Climate Change Mitigation	Contribute to climate change goals by reducing emissions.	
			Cost Savings: Reduced fuel and maintenance costs.	Waste Management Budget			Resource Efficiency	Optimize vehicle utilization and reduce fuel consumption.	
			Positive Public Image: Enhanced reputation as an environmentally responsible organization.				Innovation	Foster development of new technologies for waste management.	

This table will be enhanced soon through a major initiative: Optimization of public policy evaluation indicators at the territorial level.

Greater Dunkirk has chosen to work on a research and development action led by the Institut Efficacity, funded by the French National Research Agency, to support the operational and strategic management of the territorial project. This action stems from the observation that the territorial project is an "integrative" document that federates and enhances all the community's roadmaps. However, the current siloed operation complicates reporting and access to data. The needs identified by the services are strong, both in terms of needs, expectations, and requests. Indicator reports can be random or confined to the service with a regulatory duty, while sharing or making data available remains marginal. The implementation of a support tool for "reconnecting indicators" should help to contribute to the technical and political management of the territorial project in synergy with the other roadmaps of the community. This approach aims for more efficient data management to meet a process of sharing and mutualization, but also to target relevant macro-indicators for Greater Dunkirk.

Several steps are necessary in terms of methodology:

- **Analysis of needs to contribute to technical and political management**
- **Rationalization of existing reference frameworks and processes**
- **Definition of a tooling strategy adapted to the needs of the community Imperatives will be declined in the mission:**
  - Map and analyze the main data flows (sources and contributors) that feed the territorial project,
  - Work to strengthen the animation and transverse strategic governance between the departments
  - Meet the expectations of elected officials and residents by helping to identify key indicators ("macro-indicators") and "markers" of the territory in connection with the territorial quality of life barometer that must be set up.

Several hypotheses will be proposed and will be the subject of collective feedback. This experimental action is expected by other local authorities.

Recognizing that late outcomes will significantly impact various actors and citizens, their successful implementation requires their active involvement. Due to the project timeframe, achieving a comprehensive analysis of both early changes and late outcomes within the initial phase proved challenging. As late outcomes will be rigorously examined during the first or second iteration of the CCC, we strategically prioritized the development and monitoring of early changes to ensure their timely implementation. A dedicated workshop on late outcomes is scheduled for the summer, facilitating the alignment of late outcome indicators and metrics with those of the early changes for optimal project impact.

Many of these indicators are already being tracked as part of existing initiatives, such as environmental certifications or local plans. For those indicators that are not currently being monitored, dedicated awareness-raising sessions will be conducted by the project manager. These sessions will inform relevant colleagues about the importance of these indicators and provide them with the necessary guidance and support to ensure accurate and timely data collection.

B-1.2: Description of impact pathways

The unique strength of these pathways lies in their ability to reconcile short-term demands with long-term sustainability goals. Some initiatives offer immediate benefits, like improving energy efficiency or public transportation. Others focus on building a foundation for a low-carbon future through sustainable infrastructure and technological advancements. This balanced approach ensures that Greater Dunkirk's climate actions are both proactive and responsive, preparing the city for future challenges while delivering tangible results today.

In embracing these impact pathways, Greater Dunkirk is more than just responding to the urgent call of climate action; it is charting a course towards a resilient, sustainable future. This journey towards climate neutrality is a testament to the Greater Dunkirk's vision, determination, and commitment to creating a thriving, green community that will endure for generations to come.

Impact pathways offer a structured approach to achieving ecological transition and reducing GHG emissions. They provide clear, measurable goals and strategies, allowing for efficient resource allocation and progress tracking. By focusing on specific areas, these pathways enable Greater Dunkirk to maximise its impact on climate change while also fostering collaboration and managing potential risks.

To be effective, impact pathways must align closely with the current state of climate action. They should identify gaps in existing strategies, build upon existing strengths and opportunities, and propose solutions to overcome identified barriers. By analyzing Greater Dunkirk's climate action plan, decision-makers can prioritise pathways that address the most critical challenges.

The effectiveness of the presented impacts hinges on prioritizing actions that will yield the greatest results, while also considering the existing policies within Greater Dunkirk's territory. The CCC has undoubtedly invigorated the region's ecological transition, building upon the president's pre-existing commitment to sustainability. The "Net Zero Cities" framework has provided a clear roadmap for Greater Dunkirk to enhance its projects and align them with climate goals.

Furthermore, impact pathways are deeply integrated with Greater Dunkirk's long-term climate neutrality commitments. This ensures consistency, prioritization, and adaptability. By aligning with broader strategic goals, pathways can demonstrate their contribution to the overall vision for a sustainable future.

Finally, it's essential to consider both short-term and long-term perspectives when selecting impact pathways. While quick wins can generate early momentum, it's equally important to focus on actions that contribute to the territory's long-term sustainability goals. A balanced approach that combines immediate and long-term actions will create a robust and resilient climate strategy. Additionally, certain strategies require minimal financial investment, making them readily implementable and capable of delivering swift results.

By following these principles, Greater Dunkirk develops effective impact pathways that drive ecological transition, reduce GHG emissions, and build a sustainable future for its communities.

While we've presented only initial outcomes in this iteration, our future plans include a more comprehensive exploration of these findings. We aim to delve deeper into the early results, refining our understanding and developing them further. Additionally, we're committed to identifying and addressing potential limitations, and exploring the long-term implications of our work. By continuing to iterate and expand upon our research, we hope to achieve a more complete and nuanced picture of the subject

3.2 Module B-2 Climate Neutrality Portfolio Design

B-2.1: Description of action portfolios			
Fields of action		Portfolio description	*"CUD" stands for Greater Dunkirk
	Subsector	List of actions	Descriptions
Energy	Decarbonising electricity generation	Communication and mobilisation measures for renewable energies	Greater Dunkirk has developed a "solar cadaster", a website listing the size and orientation of roofs to determine the relevance, cost and amortisation of installing solar panels, for use by citizens who own their property.
		Methanisation of WWTP sludges	Inclusion of methanisation of WWTP sludge in the public service concession for the operation of CUD wastewater treatment plants
		Creation, expansion, and operation of a district heating network based on renewable and recoverable energy.	The CUD's district heating networks are supplied by Renewable and Recoverable Energy from industrial sites and the Energy Recovery Centre.
			By 2022 :
			› 56% Renewable and Recoverable Energy for the Dunkirk district heating,
			› 91% Renewable and Recoverable Energy for the Grande-Synthe district heating. .
			The objective is to have 100% of the district heating network fueled by Renewable and Recoverable Energy
			In 2024, the Greater Dunkirk plans to carry out technical and economic feasibility studies for the creation of a heating network powered by renewable energy sources in the area.
			Technical and economic feasibility study will be in place in 2024 for the creation of a heating network in Cappelle-La-Grande and Bourboug
		Classification of heating networks (compulsory connection when replacing a heating system)	The heating networks in Dunkirk and Grande-Synthe are scheduled for 2024. The CUD's ambition is to increase the density of the networks in line with the region's property development and urban renewal projects.
		Encouraging energy savings	A contribution fund to help member municipalities to encourage local authorities to undertake energy-efficiency renovation
		The joint signing of the ecowatt charter	This charter commits signatories to implement energy-saving measures energy-saving measures such as limiting the temperature 19°C, investing in LED street lighting, avoiding recharging electric LED street lighting, avoiding recharging electric vehicles and lighting facades during peak periods.
		Support for municipalities in the definition of zones	To accelerate the deployment of renewable energies and strengthen the acceptability of projects, the acceleration law
		Acceleration of energies renewable	of the production of renewable energies carries out territorial planning a major provision by handing over the common to the heart of the system. The municipalities will be able to define, after consultation residents, "acceleration zones" favorable to welcoming energy projects renewable. Procedural deadlines will be more regulated, and projects will be able to benefit from advantages in the procedures call for tenders. In a logic of putting in coherence, simplification and harmonization, the CUD proposed to mayors to the agglomeration to provide support in the definition of these zones. The RED 3 directive sets February 21, 2026 as the deadline to be respected by Member States to demarcate all of their acceleration zones
		SEM Energie Hauts-de-France	The CUD is continuing the development of the Energies Hauts-de-France mixed economy company (SEM) alongside shareholder communities including the Hauts-de France Region as well as private players such as the Caisse des Dépôts. Objective: develop renewable energies (biomass, methanization, solar, photovoltaic). SEM energies Hauts-de-France supports and supports communities and citizens to qualify renewable energy projects through technical, financial and legal expertise. It also intends to become a shareholder of project companies through a contribution of equity. In 2023, the investment of more than €370,000 was decided by the CUD alongside the SEM in three renewable energy projects: SAS Énergies du Beau Pays, for the development and construction of two photovoltaic solar power plants on roofs in the North, the first on a hangar located in Borre and the second on a hangar located in Moustier-en-Fagne. SAS Énergies du Beauvaisis to solarize public equipment in the Beauvaisis Urban Community. The Wormhout Énergies distri project company makes it possible to develop a BioNGV station in Wormhout with the company SEVEN.
		Solar land register	An internet site has been designed and put online to inform the population of the possibilities of producing solar energy on their roofs. Advice is given to residents and professionals during meetings allowing them to discuss the different aspects of an individual project: technique, costs, administration.
		Collective Self Consumption Téteghem	Collective self-consumption is an innovative energy model that involves creating a local network where multiple owners make their building available to develop solar energy. the production is shared with nearby consumers. Instead of selling the excess production back to the electrical grid, it is directly consumed by the group members. The project is part of the urban renewal of the municipality of Téteghem-Coudekerque-Village. It will produce the equivalent of the residential consumption of approximately 500 homes. It brings together 5 major partners: the city of Dunkirk, the CUD, the city of Tetghem, Partenord, les papillons Blancs.
		Developing innovative low-carbon hydrogen production projects through the SHYMED project	Hydrogen can be used to produce energy on the grid, or in transport, and it is a solution for storing energy, particularly electricity, which will be the challenge of the energy systems of the 21st century. Hydrogen as an energy carrier therefore represents a scientific, environmental, and economic challenge. Thanks to advances in electrolysis technology, it can be produced in a low-carbon, cost-effective way, contributing to the objectives that France has set itself in terms of developing renewable energies, reducing greenhouse gas emissions and pollutants, and cutting fossil fuel consumption. The SHYMED station, supported by Greater Dunkirk, Banque des Territoires and Hynamics, stands out for its remarkable technical features. With a capacity of 1.25 MW, it will be able to produce up to 540 kg of hydrogen per day, significantly reducing CO_2 emissions. Powered 100% by electricity from renewable sources, the station will guarantee a supply of green hydrogen for the region's heavy-duty vehicles.
		Implement the measures in the master plan for energy and heating networks	Dunkirk's current network has been subject to numerous leaks, causing a great deal of inconvenience for the people of Dunkirk. Its condition requires major investment, which will be a major challenge at the end of the current public service contract.
			The second major issue will be the supply of renewable energy to meet the needs of the networks in the years to come. There are many potential sources, but they are also highly uncertain, including current means of production. However, the CUD has control over the decisions that will be taken on the projects associated with the CVE, which is a major asset for the coming years, before the emergence of other projects such as REUZE.
			These 2 main issues will probably act as a brake on the CUD's ambition to develop its networks, particularly with a view to keeping heat prices under control. However, the recent rise in energy prices and the objectives in terms of sustainable development could lead the CUD to remain open to developing its networks so that as many people as possible can benefit from them.
		Increasing the use of renewable and recovered energy sources for heating and cooling	Heat recovery: The potential for heat recovery from large industrial plants and power stations, including from and for cold production, is being exploited. The potential for cogeneration or even tri-generation (using renewable energies as a priority, followed by natural gas), for example in the heating or cooling sector, is known and exploited. The technologies and energy sources used will be selected based on a multi-criteria climate-air-energy approach. The potential for heat recovery will be harnessed in line with the development of heating networks.
		Encouraging reduced consumption and the purchase of green electricity with energy suppliers and unions	The local authority works in partnership with local energy suppliers to encourage users to reduce their consumption and increase the proportion of renewable electricity purchased. Customers and members are made aware of this and services in this area are offered.
		Pursuing research projects to promote the development of energy storage	Energy storage consists of preserving a quantity of energy produced for later use. The idea is to ensure a balance between energy production and consumption, reduce losses and thus optimise costs. It is on this theme that an compagny has submitted a contribution under the PCAET with a project for a movable prototype for storing and recovering waste heat for various applications: drying, electricity, steam, cooling.
			The project is to develop a "pilot" storage unit that is entirely containerised, movable and modular, making it possible to demonstrate the feasibility of recovering waste heat from various equipment on different industrial sites and for innovative applications. As part of this project, the Arcelor Mittal Dunkirk industrial site will be the first user of the prototype to validate the feasibility of drying agglomeration sludge. It will subsequently be used for other industrial applications and for the development of energy combinations (multi-energy), among other things.
Mobility & transport	Reduced motorized passenger transportation need	Public transport acculturation and communication measures	Free public transport has been available since September 2018 and the launch of the Bus Rapid Transit system.
		Reduce the dependance to private car	Accessibility of outlying workplaces is a major challenge, factories without car parks, on-demand transport called "DK'Bus@la demande"
		Setting up bike hire and loan services	Introduction of 2 new services at the end of 2022:
			- Recyclo: for students and other target groups, a one-year loan of reconditioned bicycles recovered from waste collection centers
			- Eco-vélo: 1-month loan of electric bicycles to residents to enable them to test them out before purchasing them.
		Acculturation and communication measures around cycling	Organisation of "May by bike" since 2023
		Reducing and greening staff commuting to and from work: sustainable mobility packages, encouraging teleworking, limiting air and car travel	Free transport, help with buying a bike, provision of electric and muscle bikes, sustainable mobility package.
		Promoting the comfort and safety of pedestrian walkways	Drawing up a walking plan
		Support for the development of cyclo logistics	The CUD's waste reduction and recycling department has developed a cardboard collection service for shopkeepers in a district of Dunkirk, in conjunction with a local bicycle logistics company.
		Organising mobility across the region	The local authority has a travel plan for its area (mobility plan, simplified mobility plan, etc.) with concrete indications and strategic guidelines for ...:
			Promote active modes of transport (walking, cycling), intermodality and shared mobility - promote sustainable urban logistics - promote alternative fuels (battery electric, bioGNV, renewable hydrogen) and horse-drawn vehicles, develop the supply of recharging infrastructure - make mobility accessible to all, throughout the area - promote/extend public transport - combat noise pollution and urban sprawl - organise the conditions for supplying the conurbation - regulate the location of traffic-generating facilities and developments (shopping centers, schools, etc.) according to their accessibility by public transport.regulate the location of traffic-generating facilities and developments (shopping centers, schools, etc.) in relation to their public transport and active transport services... - limit emissions of atmospheric pollutants linked to travel This planning is spatialised and has a monitoring and control system with objectives, monitoring and evaluation of the local authority's mobility policy (including its impact on greenhouse gases and atmospheric pollutants), involving all the players concerned. The mobility plan will have to be drawn up considering the strategic and operational coordination between the local AOM and the region.
		Reducing the need to travel: regulating traffic, reducing speed and enhancing public space	The local authority is taking action to limit and reduce traffic on the main roads, reduce speeds in certain areas and improve the quality of public spaces. In particular, through the acquisition of traffic management tools and signage, and the restructuring and redevelopment of roads and public spaces, it aims to give priority to the most vulnerable road users, such as pedestrians and cyclists, and to revitalise local shops.
	Shift to public & non-motorized transport	Creation of cycle routes and cycle parking facilities as part of the cycling master plan	6 links to more peripheral municipalities planned in addition to the roads and economic development program
			Facilitating traffic flow in the city: 30 km/h zones, cycle lanes, cycle rights-of-way, cycle priority, etc.
			Deployment of a comprehensive parking offer: 15 secure cycle parks (1st in 2019), 19 cycle boxes (1st in 2022) and more than 3,000 self-access parking spaces (+ 1,000 additional spaces by the end of 2026). Adding to this, Greater Dunkirk is developing a centralized two-way road with dedicated cycle lanes", specific to French roads, it aims to promote cohabitation between different modes of transport, in particular motorised vehicles and bicycles.
		URBAN LOOP	Servicing new industrial estates/limiting the use of buses/industry without car parks/developing public transport
		Development and operation of on-street recharging infrastructure	Partnership with ENEDIS and AGUR for the implementation of the SDIRVE.
	Electrification of cars + motorcycles	Development of train station areas to encourage intermodality and new passenger services (connected mobility, passenger information, etc.)	A major project for a hall and silo car park near Dunkirk train station
		Electrification of CUD's fleets	A study into the greening of the vehicle fleet is underway to define a strategy for transforming the fleet, with a choice of energies adapted to each family of vehicles.
	Electrification of buses	Electrification of cars and buses fleets	The bus fleet includes 3 "battery electric" buses (i.e. 1.9% of the fleet). 6 others are on order, as well as 10 "full-H2" fuel cell electric buses (bringing the fleet's decarbonization rate to 11%). Proposed strategy, pending approval by elected representatives, towards the purchase of "battery electric" buses in view of the new European regulations (EP 23.11.2023).
		Development or support for alternative fuel recharging and refuelling infrastructure (hydrogen, NGV, etc.)	The CUD is a shareholder in an SPV that is building an H2 distribution station (SHYMED). It guarantees the purchase of part of the H2 produced by acquiring 10 H2 buses and waste collection vehicles. In addition, CUD has set up a CNG distribution station at its bus depot for most of its bus fleet.
	Develop and implement a proactive parking policy		The local authority wants to share public space more effectively between the different modes of transport, particularly in the central areas, by adopting a rational parking policy for motor vehicles. The local authority is therefore implementing an effective strategy. It manages all parking in public spaces, including outside the city center (pay parking).
	Continuing to optimise the attractive, high-quality public transport offer		The local authority wishes to develop and improve the performance of the public transport service with a view to increasing its use and reducing car use. The development and improvement of the public transport service involves an increase in frequency, the quality of connections, a densification of the network, attractive pricing, a good night bus service, the quality of stops and transport vehicles. Access to the bus is free in the CUD, which has enabled ridership to double in recent years. In a technical way,. Greater Dunkirk has a traffic light system designed to give public buses priority. As a bus nears an intersection, the traffic light turns green for the bus and red for cars.
	Promoting and monitoring multimodal practices in the region		The local authority regularly promotes and provides information on efficient and active mobility throughout its territory. The local authority evaluates and notes positive developments and communicates changes in the modal share of all active modes of transport and alternatives to the private car (cycling, walking, public transport, car-pooling, etc.).
	Developing multimodal services and intermodality		The local authority and its partners offer a wide range of complementary services to encourage multimodality and intermodality (car-sharing, car-pooling, park-and-ride facilities, bike hire, etc.). Pricing and the way in which services are used must be attractive and simple to limit the use of private cars.
	Optimised logistics	Mobilising logistics land close to consumer centres to reduce delivery distances	Agreement with CEREMA for April 2024. Diagnosis + work with departments, to identify employable land for logistics.
		Inclusion of incentive clauses for sustainable logistics in public procurement contracts	Objective of developing more sustainable supply chains mentioned in the plan to promote responsible purchasing for the Urban Community and the City of Dunkirk (approved in December 2023).
			Conclusion of a contract to provide last-mile delivery services (an environmentally-friendly urban logistics solution).
			An environmental clause is frequently included in contracts to encourage contractors to use soft or less polluting forms of transport to travel around Dunkirk. Criteria for judging tenders included in appropriate consultations.
		Optimising logistics and the management of goods flows in the region	To reduce its energy consumption and cut greenhouse gas emissions, the local authority defines rules and organises the supply and distribution of goods within its area, giving priority to and developing all alternatives to motorised road transport. It also encourages local distribution channels.
		Subsidies for the purchase of alternatively powered business vehicles	The CUD is converting part of its waste collection vehicle fleet to electric power (batteries and H2) and has launched a master plan for the greening of its fleet of professional vehicles.

Buildings & Heating	Building renovations (envelope)	Renovating the stock of public buildings to a level of ambition consistent with the tertiary sector decree	30 buildings covered by the tertiary sector decree
		Energy-saving measures in public buildings (heating temperatures, etc.)	The temperatures to be maintained in the buildings comply with current regulations, and consumption is systematically monitored.
			In 2024, water-saving diagnostics will be carried out in community buildings.
		Support for renovation of private housing to complement national support / MaPrimeRenov scheme	Local aid has been implemented (Eco-housing), but the Anah's new capping rules call into question our wish to make a larger contribution to the remaining costs of private individuals in 2024, and therefore to encourage major renovations more strongly. Desire for an internal CUD agency to carry out certain audits and support in addition to other partners, but numerous obstacles to finding and recruiting the right profiles. Competition between partners and problem of attractiveness. Additional posts to be validated.
		Draw up an asset strategy including a renovation programme for the duration of the implementation of the climate plan	The local authority formulates an asset strategy that enables it to plan and phase its development over the next 5 or 10 years (extension, renovation, demolition, reallocation, sale, etc.), in line with its objectives for reducing greenhouse gas emissions and the energy consumption of its buildings. More specifically, this strategy is set out in a renovation programme that takes into account :
			- Ambitious climate-air-energy performance criteria - optimisation of the use of the assets (pooling/consolidation) - monitoring procedures to ensure that performance is maintained over time - expected costs and savings - completion date - those responsible for completion - contracting methods such as energy performance contracts (global energy performance contract or public energy partnership contract) - expected gains in terms of climate change mitigation, adapting to climate change, improving indoor and outdoor air quality The local authority makes a detailed study of the needs of its buildings to avoid oversizing heating, hot water, ventilation and, where appropriate, cooking and refrigeration equipment when replacing or renovating buildings.
			- Greater Dunkirk has confirmed the political will to implement an asset strategy or renovation plan (political decision; budgetary decision (works budget or engineering budget for external services to develop the strategy); allocation of internal human resources). It has also implemented a strategy to rationalise its assets (technical inventory, strategy, control of the surface area of the authority's assets or even reduction in the number of buildings).
		Pooling of work on a neighbourhood scale (e.g. identification of neighbourhoods, events, "outreach" schemes, networking, etc.).	CUD/SPEE/EDF framework agreement signed at the end of 2023, COPIL meeting held on 11/01/2024 to launch grouped renovations (determination of a test municipality) in certain areas with houses of the same type. The project isvalidated, to be spread over time, given the resources allocated. Requires extensive logistics and monitoring. Awaiting recruitment of a partnership and development project manager. However, the financing of the remaining costs remains a stumbling block, as does the possible additional cost of identical preservation of facades in certain cases.
		Support and guidance for the energy renovation sector (e.g. annaureis, promotion of local players, networking/ partnerships, help for players, etc.)	Occasional actions aimed at renovation companies, depending on the urgency of the situation (information meetings). Monitoring of the list of RGE companies in the area, Company Charter The advisory spaces France Rénov must remain neutral. Work to be carried out with other target groups: estate agents, notaries, banks, etc.
		Plan the renovation of residential buildings and sustainable construction in the region	Residential buildings Residential buildings are responsible for 2/3 of greenhouse gas emissions from the building sector. By incorporating climate-air-energy issues and objectives into the PLUiHD/PLH, it will be possible to mobilise housing stakeholders and be consistent with the objectives for renovation and sustainable construction set out in the territorial Climate Air Energy Plan. The local authority has one or more measures in place to structure its policy on the construction and renovation of buildings (residential and tertiary) in its area, with the aim of promoting climate-air-energy performance. This policy prioritises actions and sets quantified operational and territorial targets (number, type of buildings and level of performance, optimisation of surface areas to reduce the need for new buildings and improve the use of existing buildings, etc.), in line with national targets (the energy renovation plan for housing).
			The local strategy is formalised: in a local housing programme (PLH), in a tertiary sector renovation strategy or in the framework documents for a FAIRE advice center, for example. It is built across the board and integrated with transport planning, land-use planning, urban planning and the territorial climate, air and energy plan.
		Supporting commercial sector players in the renovation and sustainable construction of their premises	The ELAN law (Evolution du Logement, de l'Aménagement et du Numérique - Evolution of Housing, Development and the Digital Economy) has included an obligation in the Construction and Housing Code to reduce the energy consumption of publicly-ordered buildings. Decree no. 2019-771 of 23 July 2019 on obligations to take action to reduce end-use energy consumption in tertiary buildings sets out the procedures for implementing the obligation to take action to reduce energy consumption in tertiary buildings. This applies to buildings with a surface area of more than 1,000 m2. They will have to reduce their energy consumption by at least 40% by 2030, 50% by 2040 and 60% by 2050, compared with 2010 levels.
		Supporting and monitoring construction and renovation work	The local authority has a role to play in stimulating a local dynamic that will indirectly reduce energy loss from tertiary buildings. The private tertiary sector is encouraged and supported to improve the energy and climate performance of their premises.
		Working with professionals in the building and property sectors	The local authority informs and encourages building professionals (social landlords, developers, investors, craftsmen, design offices, property managers, solicitors, estate agents, etc.) to incorporate climate-air-energy issues into their activities. These actions are carried out via FAIRE advice centers or voluntary agreements, containing high construction and renovation standards, energy efficiency targets and awareness-raising among occupants.
		Measures to communicate and raise awareness of support schemes and the challenges of renovation	ECFR, which operates with a minimum of 3 advisers, only 2 of whom have technical skills. Insufficient, a retirement in the summer of 2025 that must be anticipated if we want to continue to provide this service to the public, which I believe is essential and appreciated for its proximity. A position for a partnership project manager has been approved. The advert is due to be published. This is essential if we are to reach out and make our missions and services better known. We also need to plan for 3 more advisers to run our own business (=becoming MAR), which means looking ahead to recruiting, training, obtaining accreditation, etc.
		Reuse of brownfield sites	This project aims to revitalize underutilized and contaminated brownfield sites into sustainable, mixed-use developments
		Improve the performance of housing	Coverage of any remaining costs of the Home Energy Passport,
			Cover the cost of an energy audit of the home,
			Financing of the fee charged by the SPEE for its support,
			A subsidy for the work carried out from 1 September 2021.
		Integration of energy renovation issues into programmed housing improvement schemes (OPAH)	The OPAH program for run-down condominiums is underway, but there are many obstacles to going further with the targeted condominiums in the town center, particularly for architectural and preservation reasons, and for financial reasons. 2 co-ownerships in progress out of 5 targeted
	New energy-efficient buildings	Construction of new commercial buildings in line with eco-design and land-saving objectives	Pooling and elimination of parking spaces, preferential location near interchanges and free bus routes.
		Set up an energy and GHG emissions accounting system for public buildings	The local authority has an energy and technical audit of all significant public buildings and facilities, which includes information on energy consumption, greenhouse gases, renewable energy and indoor air quality. This report includes information on energy consumption, greenhouse gases, renewable energies and indoor air quality. The local authority has set up a system for regular monitoring of energy consumption in its municipal buildings and facilities (including an energy accounting tool for each use to track consumption over time, with communicating meters in particular), enabling it to optimise its operation. CUD has already organised itself to carry out regular monitoring of the energy consumption of its buildings and has already carried out a complete assessment of its assets. The main aim will be to maintain a good knowledge of energy consumption with a view to optimising/reducing it.
	Efficient lighting & appliances	Energy-saving measures in public buildings (heating temperatures, etc.)	The temperatures to be maintained in the buildings comply with current regulations, and consumption is systematically monitored.
			In 2024, water-saving diagnostics will be carried out in community buildings.
		Renewable energy: a key factor in achieving energetic sobriety of public lighting	Signature of bipartite "My Public Lighting" agreements between the delegate responsible for electricity distribution and the municipalities of the CUD. The agreement offers an alert service to detect street lighting anomalies using consumption data from smart meters.
		Optimising public lighting	The local authority systematises the energy efficiency of its public lighting and evaluates it based on indicators. It implements energy-saving technologies and practices and contributes to the prevention, reduction and limitation of light pollution (elimination of unnecessary and redundant streetlights, switch-on and switch-off times in suitable areas, presence-detecting lighting, energy-saving streetlights, proportion of light, limitation of colour temperatures, etc.).The action extends to all lighting in public spaces: illuminated street furniture, monuments and facades, signs, festivities, Christmas lighting, etc. .
		Encouraging energy savings	A contribution fund to help member municipalities to encourage local authorities to undertake energy-efficiency renovation
	Decarbonising heating generation	Study of the technical feasibility of geothermal drilling to support or replace biomass in the energy mix of heating networks and public buildings.	Systematic research into the possibilities of installing a geothermal or heat pump system as part of the construction or renovation of public buildings.
		Increase the proportion of renewable energy consumption in public buildings	The local authority increases and measures the proportion of heat and cooling from renewable and recovered sources in the consumption of its buildings and facilities, paying particular attention to outdoor air quality. Priority should be given to local, low-emission sources and to distribution via efficient heating/cooling networks wherever possible. The local authority should increase and measure the proportion of renewable electricity in the consumption of its buildings and facilities, giving priority to the commissioning of installations producing wind, photovoltaic and hydraulic energy, etc., but also to the purchase of renewable electricity.
		Limiting greenhouse gas emissions from public buildings	The local authority is reducing the greenhouse gas emissions generated by the operation of its buildings, and is also taking into account their entire life cycle. The local authority is assessing its progress in relation to its targets for reducing CO_2 and greenhouse gas emissions for the different categories of buildings.
		Increasing energy efficiency for heating, cooling and electricity in public buildings	Increasing energy efficiency for heating, cooling and electricity in public buildings
		Renewal of public service contracts for heating networks	Mixed contract with the local authority assuming responsibility for certain investments
		Updating the master plan for heating networks	Subsidised by Ademe
Waste & circular economy	Increased waste recycling	Communication and awareness-raising measures to reduce waste (fight against printed advertising, food waste, etc.)	
		Including waste prevention criteria in public procurement contracts	This initiative is part of the SPAR (scheme to promote responsible purchasing by the CUD and the VDK), with objectives and actions aimed at reducing waste production.
		Improving collection and sorting: sorting at source and selective collection, distribution of composters and worm composters, adaptation of sorting centers, etc.	Extension of sorting instructions to the entire country by 2022
			Implementation of separate collection of bio-waste via a multi-stream collection system
			Construction of a new generation sorting center by 2026
		Increase in the energy recovery of waste collected that cannot be recycled	All our non-recyclable waste is sent for energy recovery, leaving around 4,000 tons in landfill. We are developing the sorting of bulky waste in order to reduce this quantity. 96% of the CUD's waste is recovered (material, energy, biomass).
		Collection of organic waste for methanisation or fertilisation	The bio-waste we collect is currently composted, with the aim of developing methanisation. The CUD has developed a green resources plan to reduce and make better use of this waste.
		Support and guidance for the waste industry	The waste sector is supported via our network of SSE structures. In addition, the CUD has an SPL Triselec with the MEL. Finally, the Ecopal association works on industrial ecology issues in conjunction with other players.
		Developing synergies with a view to the Circular Economy	According to ADEME, the circular economy can be defined as an economic system of exchange and production which, at all stages in the life cycle of products (goods and services), aims to increase the efficiency of resource use and reduce the impact on the environment while developing the well-being of individuals. It is a transition to a model based on zero waste and increased intensity of resource use, while reducing environmental impacts. This is the aim of the circular economy, which takes three areas into account: the production and supply of goods and services; consumption through demand and consumer behaviour (economic or civic); and waste management, with priority given to recycling to close the loop. By subscribing to the label Territoire Engagé pour la Transition Ecologique - Economie Circulaire (TETE-EC), the CUD wishes to commit itself to developing its circular economy policy and driving forward a dynamic in the area that goes well beyond the traditional "waste" remit, by directing its actions towards the TETE-EC guidelines:
			- Definition of an overall circular economy strategy and inclusion in the territory - Development of waste reduction, collection and recovery services - Deployment of the other pillars of the circular economy in the territories - Financial tools for changing behaviour - Cooperation and commitment.
		Implementing the waste prevention and management strategy through the Local Program for the Prevention of Household and Similar Waste	The local waste prevention and management policy is defined, implemented, monitored and evaluated. It includes the implementation of a local program for the prevention of household and similar waste (reuse and re-use, local management of bio-waste, the fight against food waste, reduction at source, etc.), the collection and treatment of household and similar waste (separate collection and recycling of packaging and paper, separate collection and organic recovery of bio-waste, other collection and recycling methods, particularly via waste collection centers, etc.), as part of the public service. Incentive pricing of the service to users (through a tax or fee) should encourage waste reduction and recycling channels and is a tool for optimising the waste service. The objective of the 2023-2029 community PLPDMA is to reduce waste production by 15% (compared with 2010), i.e. 509 kg/inhabitant by 2030.
		Facilitating the reduction and recovery of waste	32 grants towards the purchase of a mulching mower
			26 appointments of 1h30 for home shredding for mulching for mulching purposes
			1,460 composters delivered
			67,544 bio-bins and 468,206 rolls of compost bags distributed
			148 appointments for hedge trimming
			260 free collections of large cardboard boxes from homes by appointment
			1,105 home collections of bulky items
			(free once a year)
		Development of technical assistance tools (linking producers and distributors, etc.)	The local authority does not currently have its own tool. We have developed a My Waste Info widget so that individuals and businesses can find out about all the waste services and associated partners.
		Implementation of the local waste prevention programme	Regulatory document that allows reduction targets to be set, an action plan to be build and lead an action plan at local level.
		Implementation of the anti-waste law for a circular economy (AGEC) on the recovery and recycling of organic waste	Collection of biowaste from private individuals using a 7-litre green bag collected at the same time as the other flows. These bags are then sorted in a bag sorting center using AI-powered robots. The system will be deployed throughout 2022, bringing forward the regulations by one year.
			For professionals, a separate bio-waste collection service is available.
	Decarbonising collect activity	Mapping of economic waste flows	Creation of the waste web by the town planning agency in 2022
		Optimising waste collection and treatment services to reduce their impact	The entire waste treatment chain has an impact on the environment: door-to-door collection and transport to sorting centers, incinerators and technical landfill sites consume energy and emit greenhouse gases and atmospheric pollutants. Storing waste takes up space, either temporarily (in sorting centers) or permanently (in landfill sites). Landfilling degrades the landscape (land use, visual and olfactory pollution, etc.). The decomposition of waste releases methane - a powerful greenhouse gas - and toxic elements, such as heavy metals, which contaminate the soil and groundwater. Incinerating waste releases toxic substances (for example, persistent organic pollutants such as dioxins) that are dispersed in the air and then end up in the soil and water.
			Although incinerators are equipped with high-tech devices that remove dust from the flue gases, wash them and neutralise hydrochloric acid (released by the combustion of PVC plastics), toxic emissions cannot be completely avoided.
		Décarbonation des activités de collecte des déchets	Diminution des émissions de CO_2 liées à la circulation des Bennes à Ordures Ménagères
Green infrastructure & nature-based solutions		Identification of areas with potential for restoration (e.g. biodiversity inventory, urban development, potential ecological gain from the land, etc.)	Creation of a Natural Site for Compensation, Restoration and Renaturation (SNCRR) in partnership with CDC Biodiversity. Application to be submitted end 2024
		Securing land (e.g. land ownership, environmental rural leases, land development and rural establishment companies, real environmental obligations, etc.).	Creation of a Natural Site for Compensation, Restoration and Renaturation (SNCRR)
		Monitoring of the actual ecological gain expected from natural compensation sites in the region	Creation of a Natural Site for Compensation, Restoration and Renaturation (SNCRR)
		Identification and ranking of ecological continuity and black spots	Work on the green and blue framework
		Incorporating the challenges of the green and blue grid into urban planning documents SCoT, PLU, PLUi	
		Incorporating climate-air-energy issues and the preservation of natural resources into development projects	Encouraging energy conservation and efficiency, adapting to and combating climate change, using renewable energies and preserving air quality are all important criteria in local authority development projects. Specific requirements on this subject are included in invitations to tender for urban planning/architecture projects, as well as for the sale of land belonging to the local authority or for any other contractual arrangements involving the local authority. Development projects are carried out in the light of circular economy issues/ principles.
		Reforesting and supporting the sustainable use of forests and woodlands to increase carbon sequestration	The local authority takes account of forests and wooded areas in its town planning documents, with the aim of identifying, preserving, making rational use of or developing them. It encourages sustainable silvicultural practices and the development of reasoned management practices for forests and wooded areas, both internally and with private individuals and professionals. It helps to structure and develop the wood-energy and wood-construction sectors.
		Support for the implementation of development projects by local public authorities (e.g. fish passes, ecopoints, etc.)	The Local Biodiversity Office (BLB) assists public and private project developers with environmental regulatory procedures
		Restoring the natural functions of watercourses identified as priorities (migratory fish management plan, eel management plan, classification of watercourses, etc.)	Working in partnership with the fishing federation 59 to identify black spots, create pike spawning grounds and fish ladders, and monitor pike and eel populations on all the region's watercourses, etc.

Built environment		Managing greening operations in the city: school grounds, combating urban heat islands, any action that promotes "nature in the city", etc.	Introduction of the Biotope coefficient per area (PLUIHD), GIS identification of core areas + PLUIHD sheet, greening of school grounds
		Improving indoor air quality and cleaning the air in educational facilities and public buildings	Indoor air quality is an issue that is little known to residents, but it is a major health issue. The CUD area is also affected by concentrations of certain atmospheric pollutants that are exceeded. In addition to the measures taken to improve air quality (the Dunkerque l'énergie créative air quality working group, action by industrialists, the Low Emission Zone for mobility, etc.), the dissemination of air quality indices and good practices during pollution peaks should help to reduce the population's exposure to poor air quality. As part of the call for contributions launched under the PCAET on the "changing life together" platform, a company is proposing to implement a demonstrator for an innovative air quality monitoring solution with high spatial and temporal resolution. This decision-making tool will provide a better understanding of air pollution in relation to economic activities and will then be used to support stakeholders in their efforts to improve air quality.
		Improving knowledge of the links between air quality and health and involving the public	As part of the call for contributions launched under the PCAET on the "changing life together" platform, the Local Health Observatory (OLS) has submitted a contribution that will help to improve knowledge of the links between air quality and health and involve the public. As part of the implementation of the OLS, various actions are being carried out to gain a better understanding of the state of health of the population, but also to develop new data on the links between air quality and health. To this end, the OLS is working with the various local players, including structures recognised for their expertise in health: ARS, CPAM, hospitals, OR2S, as well as universities (ULCO and the Lille University of Pharmacy) to implement research projects aimed at improving knowledge of air quality at the level of the CUD and CCHF, as well as its impact on health. At the same time, the OLS's work is focusing on local residents, to gain a better understanding of how they perceive air quality, and to identify the most appropriate means of communicating with them to help them take control of their health and encourage them to take the right steps to limit their exposure to and impact on both indoor and outdoor air quality.
		Use urban planning documents, schemes, etc. to ensure the implementation of climate-air-energy objectives and combat land artificialisation	Urban planning documents are consistent with the local authority's climate-air-energy strategy, enabling it to be translated into space, with a view to the circular economy and rural/urban solidarity. Incentives and enforceable provisions are provided to encourage bioclimatic design, compact urban forms, reduced commuting distances, sustainable mobility, energy sobriety, energy efficiency and renewable energies, heating/cooling networks, limiting emissions and the impact of atmospheric pollutants on the population, and adaptation to climate change. By the end of 2022, the CUD will have finalised its PLUIHD, which takes account of Climate-Air-Energy issues. In the short term, a land observatory will help to promote urban renewal projects, thereby exceeding the 2/3 target for urban renewal and protecting agricultural land from artificial development.
		Sustainable management of roads and public spaces	The local authority manages its roads sustainably; it is careful to limit the energy impact and greenhouse gas emissions of its road creation and maintenance policy, from upstream to downstream (choice of materials, laying techniques, preventive action, prioritisation of roads to be renovated, etc.). It anticipates the risks associated with climate change and helps the region to adapt to them.
		Regulating the construction of built-up areas via local town planning schemes: optimising the use of land, promoting density, limiting the construction of new buildings, encouraging renovation/conversion, promoting collective housing, etc.	Inclusion in the HD PLUI of minimum densities based on the characteristics of the urban fabric. Willingness to give priority to housing projects close to Chrono bus lines to facilitate travel.
		Implementing urban recycling projects: recycling brownfield sites, regenerating run-down districts, revitalising small and medium-sized town centers, etc.	Inclusion in the HD PLUI of a proportion of 2/3 of urban renewal projects. Several brownfield sites are being recycled, either directly or through EPF agreements.
		200 000 trees plan to restore ecological continuity	These areas of woodland help to restore ecological continuity ("green belt"), act as islands of coolness during heatwaves and contribute to the well-being of residents.
Cultural / Citizen		Designing exemplary facilities for a dynamic cultural project for the benefit of all	The use of geothermal energy is recommended to gain in calories. Rainwater will be recovered to supply the toilets and to maintain the exterior. Floor and wall coverings will be chosen with a view to durability, ease of replacement if necessary, and impact on air quality (low VOC emissions and formaldehyde-free). Parking areas should be designed to consider the permeability of the ground.
		Plateform "changing life together	Consultation support for numerous departments of the Urban Community: Intercommunal Local Advertising Regulations, Climate Plan (PCAET), NPNRU, modification of PLUIHD, Walking Plan, etc.
		Encouraging citizens and opinion formers to consume responsibly, limiting the influence of advertising	The local authority encourages citizens to adopt eco-responsible behaviour and consumption. It also raises awareness among opinion leaders (political parties, associations, NGOs) so that they become exemplary role models and exert an influence on residents to act in accordance with the local authority's climate-air-energy policy. In particular, action is being taken to limit the impact of advertising. - Change our everyday behavior - Grow/consume responsibly and locally - Reduce the volume of our waste and recycle it more effectively - Using the promotional tools available from UFC Que Choisir national, private information, share solutions and provoke thought, Visiting a sorting center, providing information about recycling logos and collection points for batteries and household appliances - Organising workshops to present alternative solutions to our consumption patterns (eg: creating packaging coated with beeswax ("bee-wraps"), to reduce the use of plastics and therefore the production of waste)
		Develop a communication plan for each target audience in the region	Each year, the local authority draws up a specific climate-air-energy communication plan and updates it regularly. It sets objectives, allocates tasks and responsibilities, and plans the various communication actions that will be carried out on an ongoing basis (by target group, with all media). The local authority's climate-air-energy identity is set out in this communication plan and all the actions carried out are exemplary in terms of eco-responsibility and digital sobriety. The CUD participates in many projects, labels and program related to climate-air-energy issues. It is necessary to harmonise communication on these subjects and to inform local users of the local authority's commitment.
		Mobilising civil society by developing consultation and awareness-raising activities	These actors, such as UFC Que Choisir, Le Bateau Feu, and Les 4 Écluses, have mobilized to propose concrete actions aimed at reducing the environmental impact of their activities and raising public awareness of more responsible consumption. Key proposals: UFC Que Choisir: The association offers numerous awareness-raising activities, such as workshops, exhibitions, and the dissemination of information on responsible consumption, waste reduction, and the use of renewable energies. Le Bateau Feu: The theater is committed to reducing its ecological footprint by implementing actions such as waste sorting, the use of local and sustainable products, reducing water and energy consumption, and promoting alternative modes of transportation. Les 4 Écluses: This cultural organization aims to be part of a sustainable development approach by questioning its practices and promoting the dissemination of eco-responsible messages. The common thread of these initiatives is a strong desire to mobilize citizens and involve them in the ecological transition. Local actors seek to show that everyone can act at their own level to protect the environment. These proposals will feed into the reflection on the PCAET and contribute to the implementation of a more comprehensive action plan for the Dunkirk territory.
		Continue education and awareness-raising initiatives in schools and early childhood centres	The local authority is developing initiatives to educate and raise awareness of climate-air-energy issues in schools, crèches and nurseries. These initiatives vary in form and content, and involve pupils, teachers and staff. Wherever possible, they form part of an overall educational project and are planned over the year or even the entire cycle. Some actions are aimed directly at reducing energy and water consumption and pollutant emissions linked to the use of premises and school travel. An association, whose aim is to help reduce everyone's carbon footprint, is primarily aimed at schools. OuiClimate has developed an inclusive program from primary school to CM2 based on the national education programs (ESD 2030) with themes around food, waste, consumption, etc. It supports teachers (training materials, projects, workshops), pupils (taking action through challenges) and parents (conferences, participation in challenges and projects) in a joyful and sustainable ecological transition. There is also the possibility of involving the catering industry in developing healthy, diversified meals based on local produce. This program, which has already been implemented in Lille schools for the start of the 2021 academic year, following a pilot school test in 2020, is producing some very exciting results. Having joined the association as the Dunkirk referent, I want to develop this approach in schools in the Dunkirk area to contribute to, and even accelerate, the ecological transition to which the CUD is already strongly committed."
		Preventing and combating fuel poverty	The local authority is committed to a policy of preventing and combating fuel poverty (linked to housing and mobility) and has included it in its strategic documents. The local authority has initially drawn up an inventory of those involved in fuel poverty and existing initiatives, on which it can base its measures. The local authority makes the best possible use of the human resources available to identify situations of fuel poverty and to refer families directly to existing measures or indirectly to specialised associations. The CUD has already carried out an inventory of fuel poverty linked to housing and mobility in the area and adopted a strategy to combat fuel poverty linked to housing and mobility.
		Making popular education a new frame of reference for action : a reinvented palace of the universe and sciences	"The PLUS, a center for scientific, technical, and industrial culture, is accelerating its transformation and strengthening its position in the discovery of science linked to climate, energy, and territorial decarbonization challenges. This new dynamic is notably concretized by: - An open forum for the city and the territory that will host workshops, mini-conferences, temporary exhibitions, and convivial spaces. - A Science club and Labs to explore physics, chemistry, or mathematics in a fun way all year round. - A careers space with the "Job Labo Industrie" developed by Entreprendre ensemble, a career box and a gallery that will allow you to measure your skills and make the link with the 16,000 jobs. - An exhibition "Mission Zero, Dunkirk on the road to carbon neutrality" that highlights the mobilization of the territory, residents, and industries to meet the climate challenge and planetary boundaries. - A new immersive artistic film on the resilience and transformation of the territory in a renovated planetarium. A total of 1,500 m² were largely renovated internally with the support of the teams of the major equipment. This first phase of the PLUS transformation has associated numerous partners and contributors: EDF, ENEDIS, RTE, Aluminium Dunkerque, Entreprendre Ensemble, ECOCEM, ArcelorMittal, Ulco, Ecopal, GIP Eura6nergie, Fondation good Planet, ADEME, AGUR, Atmo, Espace Santé du Littoral."
		La Halle aux Sucres, a living place for a sustainable city	La Halle aux Sucres, a living place for a sustainable city, explores collective solutions to build a resilient world, a place for all those who are thinking about transforming our daily lives. The season "OBJECTIVE - 150 kg" (the target reduction to be achieved per inhabitant per year by 2030) was designed with the Waste Reduction and Recovery Department to raise awareness and engage residents in the challenge of a zero-waste planet. An exhibition was created, with 100% recycled and zero-waste scenography, using recovered Norman cupboards in which a set of solutions was presented to limit our daily waste in our ways of living, communicating, moving, equipping ourselves or eating. The year was punctuated by events and temporary exhibitions designed to encourage changes in everyone's daily lives and collectively achieve the reduction target: Urban arts Sunday, school activities, meet-up aperitifs, exhibitions like "7th continent" or "Once upon a second time". More than 40,000 people climbed the slope of the Halle aux Sucres to participate in the season! And within the concept of a public space dedicated to sustainable city, the animation programs are produced using recycled fibers (100% of old papers recovered after use). Ecological de-inking based on black soap. Ecological bleaching without optical brighteners or chlorine agents. The typeface (Century) used for the texts is a sans-serif font, which allows it to save more ink by remaining simple. Its letters are thin for maximum readability and minimal ink usage (it consumes 30% less ink than Arial!). The spacing between letters and lines has been reduced to use less paper. The chosen colours are less ink hungry. By not exceeding an ink coverage rate of 100%, we reduce the amount of ink used to print this program. Black, for example, is simply at a 100% ink coverage instead of the usual mixture of 100% black, 30% cyan, 30% magenta, and 30% yellow. Halftones and positive/negative shapes allow us to reduce ink usage while highlighting the information.
		Bio-Topia	A wildlife park and nature school, is a space for conserving and discovering biodiversity. It allows people to reconnect with their environment, understand fauna and flora, and better protect them.
		Info-mobile	Mobile information and consultation center that can be set up in the field to carry out consultation activities as close as possible to local residents. This tool has been designed to raise questions about the redevelopments underway as part of the NPNRU. The other departments of the Urban Community easily adopted the tool. The vehicle can now be customised, with eco-designed and reusable panels. It moves from town to town, providing an attractive venue for exhibitions and information sessions.
		Dismoco - dis-moi quoi:	This three-wheeled, electrically-assisted bicycle, equipped with expression panels and its 'Citizen Expression' kit, travels around neighborhoods. It creates a mobile meeting place, perfect for informal discussions and gathering ideas.
		The Mobile Parliament:	This hemicycle made of wooden pallets, mounted on wheels, invites the public to debate and formulate proposals to improve our organisations: climate, well-being, biodiversity, ecology, gender diversity, the school playground, energy, etc. The Mobile Parliament gives concrete form to the democratic space by offering activities based on citizen participation and individual expression, with a wealth of games and pleas.
		The young influencers of climate	Young climate influencers contribute to actions in favor of transitions, generate ideas and projects and take part in events such as the Green Village or the Village of the Future.
		A platform to support voluntary involvement	Would you like to get involved in voluntary work for residents, even on a temporary basis, or share equipment or premises between associations? The 'J'agis pour ma ville' platform offers a wide range of tools to put residents and associations in touch with each other and support citizen initiatives.
		Promoting access for all to high-quality, healthy, sustainable and dignified food	Construction of a food hall with a wide range of possibilities: alternative catering, popular workshops, food distribution based on the principles of food democracy, shared logistics platform, etc.
		Supporting and monitoring compensation measures	The mission of the Local Biodiversity Office (BLB) is to support companies and other project developers in implementing the ecological avoidance, reduction and compensation measures prescribed by the regulations.
		Climate Plan 2023-2028	By 2050, the PCAET plans to reduce the region's energy consumption by 46 energy consumption, reduce greenhouse gas emissions greenhouse gas emissions by 79%, increase the production of renewable and recovered energy by a factor of 38, reduce emissions of atmospheric pollutants and thus exposure of the population.
		Green village	The Green Village offers a natural respite from the hustle and bustle of everyday life. This enchanting, eco-friendly community exemplifies a harmonious coexistence between humanity and nature. By prioritizing environmental sustainability, the Green Village aligns with the growing public awareness of climate change and the urgent need to minimize our carbon footprint. This village offers opportunities for residents to repair their appliances and clothing, promoting a more sustainable lifestyle and fostering environmental awareness through educational initiatives.
		A trail of wonders	The "A Trail of Wonders" event, a highlight of Dunkirk the Fairyland, offers a unique opportunity to experience a festive season that prioritises sustainability and responsible enjoyment. This initiative aligns with the growing global movement towards eco-conscious celebrations, providing visitors with a memorable experience that is both enchanting and environmentally friendly. By fostering a 100% sober and sustainable atmosphere, Dunkirk The fairyland demonstrates its commitment to preserving the natural beauty of the region while promoting a healthier and more responsible way of celebrating.
		Implementing an eco-winning label	Identify and promote local structures able to provide advice and assistance to residents with the spirit of the approach, i.e. to contribute to behavioral change while at the same time benefiting purchasing power and for the environment.
Climate-led initiative in Greater Dunkirk's administration	Initiatives common to all sectors	Setting an example in eco-responsible public procurement	The local authority systematically incorporates criteria for energy efficiency, reduced environmental impact (including air quality) and life cycle costing into its public procurement contracts for material goods or services, where these exist, for example for: - the purchase of office equipment (computers, printers, paper, etc.) - maintenance equipment and supplies (including cleaning detergents, lubricants)Other contracts/purchases with an impact on the climate (e.g. construction, development, energy, food, etc.) The sub-actions presented below are taken from the CUD's Scheme for the Promotion of Responsible Purchasing (SPAR).
		Reducing the need for office space	New teleworking practices are rethinking the use and organisation of offices: is it still necessary to have individual offices, or as many office spaces as employees? The smaller the surface area, the lower the energy consumption.
		Helping local authorities to set an example	The local authority is a leader in climate-air-energy issues in its area. It has set up joint initiatives with its local authorities and supports them in their climate-air-energy projects. A working group dedicated to setting an example for local authorities is already planning to draw up a sobriety plan for local authorities, and this type of action should be continued in order to share the ambitions of the EPCI's climate-air-energy policy with local authorities through actions such as : - exchanging/relaying/disseminating data, documents and best practices between EPCIs and member municipalities, concerning their climate, air and energy policy - initiating or participating in one-off bilateral meetings between municipalities and inter-municipalities in relation to climate, air and energy: conferences, thematic working groups, meetings when planning and urban development documents are being drawn up, etc.- Set up a comprehensive tool to support member local authorities on climate-air-energy issues (teaching kit, internet platform, technical support unit, etc.). - Consider new legal and financial tools to make it easier for local authorities to take action (feasibility of a local fund from resources generated by the development of renewable energies at EPCI level, feasibility of a local public company dedicated to renovation to support local authorities in their projects, etc.) - Institutionalise thematic meetings with member local authorities (composition and frequency of meetings determined in advance, concept of a "climate-air-energy club" or equivalent bringing together volunteer local authorities in the area on a regular basis). Meetings are frequently held in different locations in the area to facilitate the participation of as many members local authorities as possible.
		Promoting sustainable economic activities	The local authority initiates, supports or participates in cooperation projects with local or regional economic players on climate, air and energy issues, to encourage the transformation of economic activities towards a model with low greenhouse gas emissions. It participates in the development of industrial ecology projects and, more generally, the circular economy in the region. It contributes to improving the environmental quality of business parks.
		Developing sustainable tourism	The local authority draws up a sustainable tourism strategy that takes integrated account of the impact of tourism on natural resources and ecosystems (pressure on local water resources, etc.), on greenhouse gas emissions (particularly from transport) and on access to tourist activities for all. It takes measures to reduce these impacts. The local authority involves specialist tourism providers (business tourism, sport, leisure, events) and includes this objective in its sustainable tourism strategy. It is encouraging accommodation and catering providers to commit to an eco-responsible approach.
		Developing a strategic team about sustainable development of construction activities	As part of our ongoing efforts to integrate sustainable development at the heart of our business A new cross-functional mission has been set up to manage and optimise environmental practices within our division. This initiative is a This initiative is a crucial step towards achieving our strategic objectives in terms of: - Development, particularly in our road construction activities, - Development and engineering of public spaces, management of engineering structures and management of power - Delectrical networks.
		Encouraging local employment	With a view to the massive development of industrial employment in the region, solutions must be put in place so that the people of Dunkirk can benefit from the jobs generated by the region's industrial development.
Implementation of the climate plan		Regularly update the region's Climate-Air-Energy diagnosis	This measure relates to the monitoring and evaluation of the climate, air and energy action program. The local authority will adopt a clear and precise methodology for updating and evaluating the effectiveness and progress of its action plan, based on verifiable documents and its previous activities: - annual implementation - based on existing evaluation tools - analysis of planning from previous years (actions planned and carried out) - reinforcement/adjustment of planned measures - documentation of results - internal and external communication and information on results based on indicators.
		Steering and supporting the climate-air-energy policy	Each year, the local authority identifies and allocates a budget directly linked to its climate-air-energy policy. This is the budget earmarked for actions (technical or financial) to support energy demand management, energy efficiency, renewable energies, the reduction of greenhouse gas emissions and atmospheric pollutants, and adaptation to climate change, in both operating and capital terms. These budgets are not independent budgets, but a part of each of the budgets of the various departments, relating to the implementation of the actions. In line with this approach, the local authority identifies and develops the various energy-related resources and seeks additional and innovative funding for its climate-air-energy policy. At the same time, each year the local authority assesses the impact on climate issues (favorable, neutral or unfavorable) of all the expenditure lines in its budget, for presentation to elected representatives. Better management of energy expenditure and a reduction in expenditure that is unfavorable from a climate point of view also enable the local authority to improve its budgetary capacity.
		Training and mobilising elected representatives and departments on climate, air and energy issues	The local authority offers awareness-raising and training courses on adapting to climate change, air pollution, greenhouse gas emissions, renewable energies and controlling energy consumption to its elected representatives and all its staff (technicians, managers, etc.). With the support of their elected representatives, staff play an active role in defining and achieving the climate-air-energy objectives set by the local authority, particularly those directly related to their departments and posts. The local authority implements initiatives to keep its employees motivated, such as inter-departmental competitions, a system for recognising personal initiatives, an idea box, visits to facilities (sorting center, wastewater treatment plant, HAS, PLUS exhibition, ...), organisation of the fresque du climat® (climate fresco), fresque de la ville® (city fresco), etc.
		Monitoring progress and regularly assessing the climate-air-energy policy	The local authority regularly (every 3 to 6 years) carries out a quantitative and qualitative analysis of the climate-air-energy situation in its area, covering all sectors: residential, tertiary, road transport, other transport, agriculture, waste, industry excluding the energy sector, the energy sector, etc. The figures in the report include: - energy consumption and production, particularly renewable energy; - greenhouse gas emissions; - emissions and concentrations (in sensitive areas) of atmospheric pollutants; - carbon dioxide sequestration.
		Financing the Climate Air Energy policy and carrying out a climate assessment of the budget	The local authority provides the necessary staff resources for climate, air and energy issues. Responsibilities, roles, tasks and decision-making powers are defined and formalised. The working time available to each member of staff for tasks relating to energy issues, the fight against climate change and services ensures that staff have the means to act.
		Organising human resources to implement the climate-air-energy policy	The local authority provides the necessary staff resources for climate, air and energy issues. Responsibilities, roles, tasks and decision-making powers are defined and formalised. The working time available to each member of staff for tasks relating to energy, the fight against climate change and services ensures that staff have the means to act.
		Developing a multi-level partnership strategy	The local authority defines a multi-level cooperation strategy (local, regional, national, European and international) aimed at all players working on climate, air and energy issues. It recommends and defends its climate-air-energy policy, for example by taking positions on the drafting of laws and regulations. It also develops decentralised cooperation initiatives.
		Strengthening cooperation within the intermunicipal community	The local authority implements enhanced cooperation actions with the other local authorities in its area (within the administrative perimeter of the intermunicipal authority), as part of a supportive and effective approach to climate-air-energy policy between the intermunicipal authority and its member municipalities. It acts as a facilitator or driving force in the area. It supports the municipalities or serves as an example in the implementation of their climate, air and energy policy and encourages the implementation of shared actions. The climate, air and energy strategy has already been shared at the intermunicipal level. Each department is aware of its role in terms of climate, air and energy.
		Contributing to innovation and excellence in climate-air-energy issues	The local authority contributes to innovation and excellence in the climate-air-energy field. It can collaborate with training centers and the research community or support an exemplary and ambitious private-sector flagship project in these same areas, providing its expertise and/or advice to take the project a step further in terms of excellence. It can also encourage the emergence of projects by bringing players together (organising meetings between local authorities, businesses, associations and researchers) or by facilitating the submission of projects (project research, methodological support). In particular, the local authority is consistent in its stance on major projects that have an impact on greenhouse gas emissions, air quality, energy consumption or the use of agricultural land under its influence.
		Planning and developing the transition to climate change for local and regional authorities thanks to the PACT2e call for research projects	This Call for Research Projects is part of ADEME's Sustainable Urban Development Strategy 2018-2022, as well as its Research and Innovation Strategy, with a special program dedicated to sustainable cities and territories. It is also a way of meeting the targets of Zero Net Artificialization of Soil by 2050 set out in the "Climate and Resilience" law, and of halving the rate of artificialization of land by 2031. EFFICACITY and its consortium of project partners, together with the Dunkirk Urban Community, have come up with a response called MAP2050, which stands for Modelling and Prospective Analysis for Low-Carbon Territorial Trajectories in 2050". Over the 3 years of the project, EFFICACITY plans to: 1. Co-construct an operational method / reference toolbox for developing and assessing low-carbon strategies for the 2030-2050 timeframe. 2. test the method and innovative tools developed with pilot local authorities, including the Urban Community of Dunkirk; 3. coordinate existing sectoral tools in order to better assess and prioritise the main levers for decarbonising local areas in relation to territorial planning (in particular energy, buildings, mobility and land use); 4. Create tools for the dynamic simulation of energy and building decarbonization scenarios on a regional scale; 5. Create tools for the simulation of medium- and long-term changes in land use, demographics and population location using probabilistic models (known as "land use").

The actions of the Territorial Climate-Air-Energy Plan (PCAET) presented in the CCC are outlined in a general manner, without mentioning the names of the project leads or the elected officials in charge of the actions. These personal details are intentionally omitted to ensure neutrality and avoid confusion, as the major deadlines do not align: the CCC extends until 2030, the PCAET is set for 2028, and the municipal elections will take place in 2026. Additionally, the CUD (Communauté Urbaine de Dunkerque) is the French version of "Greater Dunkirk."

Axis 1	An exemplary community in terms of climate and energy transition		
Action 1	Setting up energy and GHG emissions accounting for public buildings		
Objectives	GHG reduction / Energy sobriety / Awareness raising		
Context of the action	The local authority has an energy and technical assessment of all significant buildings and public facilities. This report includes information on energy consumption, greenhouse gases, renewable energies and indoor air quality. The local authority has set up a system for regularly monitoring the energy consumption of its municipal buildings and equipment (including an energy accounting tool by use to monitor consumption over time, in particular with smart meters), allowing the optimisation of its operation. The CUD has already organised itself to regularly monitor the energy consumption of the built heritage and has already carried out a complete assessment of its heritage. Above all, it will be a question of maintaining a good knowledge of energy consumption to optimize/reduce it.		
Sub- actions	• Continue to set up an initial knowledge base on one's assets • Monitor regular and multi-flow consumption • Expand the perimeter of the buildings considered • Optimize the monitoring, maintenance and operation of technical installations • Communicate to agents the consumption of buildings and eco-gestures • Identify the potential for savings (energy and cost) and development of renewable energies		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Buildings and Maintenance Dept		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of public buildings that have been the subject of an energy diagnosis (TETE-CAE Label) • Share of buildings with energy label display (DISPLAY, DPE or others, etc.) • Share of buildings with a maintenance and operation contract with a performance guarantee and/or profit-sharing variants • Energy expenditure - buildings (euros) (TETE-CAE label)		
Impact indicator and refresh rate	• Evolution of energy consumption (kWh) over a given period in % • Evolution of energy expenditure (Euros) over a given period in % • Evolution of GHG emissions (teeqCO2) over a given period in %		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 2	Develop a heritage strategy including a renovation programme over the duration of the implementation of the PCAET		
Objectives	GHG reduction / Energy sobriety		
Context of the action	The local authority formulates a heritage strategy that makes it possible to plan and phase its development over 5 or 10 years (extension, rehabilitation, demolition, reassignment, sale, etc.), in line with the objectives of reducing GHG emissions and energy consumption of its buildings. This strategy is more specifically broken down into a renovation programme taking into account: - ambitious climate-air-energy performance criteria - Optimising the use of assets (pooling/grouping) - monitoring methods to maintain performance over time - Anticipated costs and savings - the date of completion - the person responsible for the implementation - Contracting methods such as the energy performance contract (global energy performance contract or public energy partnership contract) - the expected gains in terms of climate change mitigation, adaptation to climate change, improvement of indoor and outdoor air quality The local authority carefully studies the needs of the buildings to avoid any oversizing of heating, hot water, ventilation and, where appropriate, cooking and refrigeration equipment during equipment replacements and building renovations. The CUD has recorded the political will to set up a heritage strategy or a renovation plan (political deliberation; budgetary decision (works budget or engineering envelope for external service to develop the strategy); allocation of human resources internally). It has also implemented a strategy to rationalise its assets (technical inventory, strategy, control of the surface areas of the local authority's assets or even reduction)		
Sub- actions	• Be ambitious and operational in the renovation strategy (long-term (2050) and short-medium-term (2030) objectives, target trajectory, action programme with emergency measures, long-term; PPI; renovation at least BBC renovation) • Develop the strategy in a cross-cutting climate-air-energy approach • Study innovative means of financing for the implementation of the multi-year work plan • Monitor and adapt the multi-year work plan		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept / Sustainable City Dept (heritage Dept)		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Annual budget for renovation work/m2 of the heritage • Energy savings and GHG reductions generated by the work carried out (precise monitoring, on the buildings on which work has been carried out) • Financial savings achieved in the year following the change, and/or average savings over 3 years (to account for possible variations due to external factors) • Number of renovated buildings BBC out of the total number of renovated buildings		
Impact indicator and refresh rate	• Evolution of energy consumption for renovated buildings • Evolution of the surface area of the community's-built heritage		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 1	An exemplary community in terms of climate and energy transition		
Action 3	To be exemplary on new and renovated public buildings by defining a common ambition		
Objectives	GHG reduction / Enegy sobriety / Development of renewable and recovered energies / reduction of air pollutants and population exposure / adaptation of the territory to climate change / awareness-raising		
Context of the action	The local authority defines performance levels for the construction and renovation of public buildings concerning: - the efficient use of electricity; - the minimum level in terms of thermal performance and renewable energies; - the health and environmental quality of buildings (in particular indoor air quality); - Sustainability in construction and studies, operation and maintenance; - adaptation to climate change, and in particular summer comfort; - Green construction in procurement. The impacts, particularly economic, of climate change must be taken into account in establishing these levels of construction performance. These performance levels are applied in practice to exemplary renovation or construction projects with a high level of climate-air-energy performance.		
Sub- actions	• Deliberate and record performance levels in a framework document • Define rules for the use of public buildings • Define ambitious performance levels • Construct or renovate one or more exemplary buildings • Integrate these performance levels into calls for tenders • To generalize exemplary operations and disseminate good practices		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept Public procurement Sustainable City Dept (indoor air quality) Quality of Life Environment Dept (indoor air quality)		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of new buildings labelled E+C- out of the total number of buildings built		
Impact indicator and refresh rate	Medium-term evolution of the energy performance of the CUD portfolio		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 1	An exemplary community in terms of climate and energy transition		
Action 4	Increasing energy efficiency for heat, cooling and electricity in public buildings		
Objectives	GHG reduction / Enegy sobriety		
Context of the action	The local authority implements an energy sobriety approach, systematizes energy efficiency for heating, hot water and cooling of its buildings and evaluates it by means of energy indicators for different categories of buildings. The local authority shall develop energy efficiency for the use of electricity in its buildings and evaluate it by means of energy indicators for different categories of buildings.		
Sub- actions	- Implement sobriety actions to limit heating, air conditioning and electricity needs - Monitor indicators in kWh/m2/year of primary energy by building categories for heating/cooling uses, for electrical uses and compare them with local reference values - Implement and monitor energy efficiency actions for specific assets - Continue to renovate the most energy-intensive buildings - To note the decrease in the overall average consumption of public buildings		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept Sustainable City Directorate ("greening" of the RCU)		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	- Share of public buildings of class F or G according to the DPE for energy (or equivalent) (TETE-CAE label) - Share of public buildings of class A or B according to the DPE for energy (or equivalent) (TETE-CAE label)		
Impact indicator and refresh rate	- Final energy consumption of public buildings (MWh) (TETE-CAE label) - Final energy consumption of public buildings (in relation to the number of inhabitants, in kWh/inhabitant) (TETE-CAE label) - Final energy consumption of public buildings (in relation to the surface area of the property, in kWh/m^2) (TETE-CAE Label)		
Funding terms			
Planned budget			
Financial partners	ADEME Fond chaleur		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 5	Increasing the share of renewable energy consumption in public buildings		
Objectives	Development of renewable and recovered energies		
Context of the action	The local authority increases and measures the share of heat and cooling from renewable sources and recovery in the consumption of its buildings and equipment, with attention to the quality of the outdoor air. It is a question of prioritizing local, low-emission sources and distribution via virtuous heating/cooling networks when possible. The local authority is increasing and measuring the share of renewable electricity in the consumption of its buildings and equipment, primarily through the commissioning of wind, photovoltaic and hydraulic energy production facilities, etc. but also through the purchase of renewable electricity. As part of the call for contributions launched under the PCAET by Greater Dunkirk on the Internet platform Changer la vie ensemble, the municipality of Bray-Dunes is proposing the installation of a photovoltaic roof on the Deswarte school complex. As part of the overall rehabilitation and energy renovation of the Deswarte school group, a project to install 58 photovoltaic panels for self-consumption should make it possible to cover about 1/4 of the electricity consumption of the school group		
Sub- actions	• Continue to use renewable and local recovered energies as a priority (depending on the deposit) • If the local authority has wood-fired boilers for its buildings and equipment, favour certified wood • Take air quality into account in your choices • Monitor and achieve a significant Share of renewable and recovered energy for the heating and cooling of public buildings • Deliberating and developing skills on the subject • Continue the installation of renewable electricity production equipment • Achieve a high share of renewable electricity generated by community facilities • Purchase renewable electricity • Support and accompany the municipalities' projects in terms of the installation of renewable electricity production devices		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept Sustainable City Dept (Energy Transition, Climate and Air Dept)		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of public buildings of class F or G according to the DPE for energy (or equivalent) (TETE-CAE label) • Share of public buildings of class A or B according to the DPE for energy (or equivalent) (TETE-CAE label)		
Impact indicator and refresh rate	• Final energy consumption of public buildings (MWh) (TETE-CAE label) • Final energy consumption of public buildings (in relation to the number of inhabitants, in kWh/inhabitant) (TETE-CAE label) • Final energy consumption of public buildings (in relation to the surface area of the property, in kWh/m^2) (TETE-CAE Label)		
Funding terms			
Planned budget			
Financial partners	ADEME Fond chaleur		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 6	Limiting greenhouse gas emissions from public buildings		
Objectives	GHG reduction		
Context of the action	The local authority reduces the greenhouse gas emissions generated by the operation of its buildings, and includes a reflection on their entire life cycle. The local authority assesses its progress in relation to its objectives for reducing CO2 and greenhouse gas emissions on the various categories of buildings.		
Sub- actions	- Regularly update GHG assessments that are more complete than required by regulation - Reduce GHG emissions over the entire life cycle of public buildings - Continue to reduce the share of F or G buildings (DPE classification for greenhouse gases) by renovating the most energy-intensive buildings - Increase the share of buildings A or B (DPE classification for greenhouse gases)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of class F or G buildings according to the DPE for GHGs (or equivalent) (TETE-CAE label) • Share of class A or B buildings according to the DPE for GHGs (or equivalent) (TETE-CAE Label)		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	CEE		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 7	Saving water in the community		
Objectives	GHG reduction / Energy sobriety		
Context of the action	To reduce its water bill and preserve water resources, the local authority is increasing the control of water consumption in its public buildings. It evaluates it using per capita indicators and the annual water consumption of different categories of buildings. The local authority implements a rational water management policy (needs and use) promoting an economical use of water.		
Sub- actions	- Finalize and update the precise diagnosis of water consumption and water pipes of all public buildings and large consumers - Formalize the community's commitment to reduce its consumption - Raise awareness and inform users of public buildings - Continue to implement actions and monitor consumption		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Building and Maintenance Dept		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of class F or G buildings according to the DPE for GHGs (or equivalent) (TETE-CAE label) • Share of class A or B buildings according to the DPE for GHGs (or equivalent) (TETE-CAE Label)		
Impact indicator and refresh rate	- Average water consumption in local authority buildings (l/m^2.year) (TETE-CAE label) - Average water consumption in "education/nursery" buildings (l/m^2.year) (TETE-CAE label) - Average water consumption in "administration" buildings (l/m^2.year) (TETE-CAE label) - Average water consumption in "culture/sport" buildings (l/m^2.year) (TETE-CAE label) - Swimming pool water consumption (l/user.year)		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 8	Optimising public lighting		
Objectives	Energy sobriety		
Context of the action	The local authority systematizes the sobriety and energy efficiency of its public lighting and evaluates it based on indicators. It implements energy-efficient technologies and practices and contributes to the prevention, reduction and limitation of light pollution (elimination of unnecessary and redundant street lamps, switching on and off schedules in suitable areas, presence-sensing lighting, energy-saving street lamps, proportion of light, limitation of colour temperatures, etc.). The action extends to all lighting in public spaces: illuminated street furniture, monuments and facades, signs, festivities, Christmas lighting, etc. . As part of the call for contributions launched under the PCAET on the "changing life together" platform, the company MONILUM has submitted a contribution to fuel this action: Monilum offers physical (embedded management board developed and implemented by us) and digital solutions for intelligent lighting management (web or closed network). The photometric study as well as the supply of the luminaire adapted to its location is an integral part of our services.		
Sub- actions	- Carry out a diagnosis of public lighting - Implement sobriety actions on public lighting as a priority - Deliberate and implement a plan to optimize public lighting - Monitor and achieve the objectives set for public lighting		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Public Spaces and Mobility Dept - Public Lighting Unit - Network Erasure		
Related policies	Label TETE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Diagnosis of public lighting carried out • Electricity budget for public lighting (kWh/inhabitant) • Number of light points/inhabitant or per km • Number of hours of illumination		
Impact indicator and refresh rate	• Consumption of public lighting (kWh/inhabitant.year) (TETE-CAE label) • % of municipalities practising switch-off (for competent EPCIs) • Average power of light points (kW/light points) • TeqCO2 and kWh saved through the public lighting optimisation plan		
Funding terms			
Planned budget			
Financial partners	The CEE, municipalities		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 9	Promoting sustainable mobility internally within the community		
Objectives	GHG reduction, energy sobriety and reduction of air pollutants and population exposure		
Context of the action	The community ensures the management, efficient use and low fuel consumption of its fleet of vehicles. This action involves measures relating to maintenance, upkeep, driving and the development of the vehicle fleet. It is also a question of optimising, rationalising and pooling all the trips of local authority agents: - the local authority encourages its staff to behave intelligently and sustainably in terms of mobility, in particular by setting up an employer mobility plan - the community ensures the efficient use and low fuel consumption of its fleet of vehicles - the local authority chooses vehicles with low air pollutant emissions when renewing its fleet - For business trips,		
Sub- actions	- Finalize and update the diagnosis of its needs and fleet of vehicles - Pursue the sustainable mobility policy within the community (commit to PLM, encourage staff, take directives, justify business trips by plane or car, energy and fuel efficiency criteria in purchasing guidelines) - Raise awareness of eco-driving and renew the vehicle fleet - Optimize and streamline travel within the community - Implement incentives - To make physical resources available in most workplaces - Provide financial incentives to agents to use active modes / TC - Adjust schedules to facilitate the use of active modes or TC. - Achieve objectives and communicate on the actions taken		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept of charge	Public Spaces – Mobility Directorate (PDA)		
Related policies	Label TETE - Climate Air Energy		
Action tracking			
Numerical monitoring indicator and refresh frequency	- Modal shares of business trips (in number of trips and km travelled) - Number of kilometres covered by service bicycles - Total number of kilometres travelled by local authority vehicles - Number of CO2eq avoided thanks to the local authority's mobility plan - Cost of repairs related to mechanical problems (wear and tear) - Duration of use of vehicles - Number of motor vehicles in relation to the number of agents - % of agents trained in eco-driving - Energy expenditure - vehicles (euros)		
Impact indicator and refresh rate	- Annual energy consumption of commercial vehicles - Annual GHG emissions of the vehicle fleet (per km driven, per agent)		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 1	An exemplary community in terms of climate and energy transition		
Action 10	Be exemplary in terms of eco-responsibility in public procurement		
Objectives	GHG reduction, energy sobriety		
Context of the action	The local authority systematically integrates into its public contracts for the purchase of material goods or services, criteria of energy efficiency, reduction of environmental impact (including air quality) and life cycle cost if they exist, for example for: - the acquisition of office equipment (computer, printer, paper, etc.) - Maintenance equipment and supplies (including cleaning detergents, lubricants) - other procurement/procurement with an impact on the climate (e.g. construction, planning, energy, food, etc.) The sub-actions presented below come from the CUD's Responsible Purchasing Promotion Scheme (SPAR). As part of the call for contributions launched by the CUD under the PCAET on the platform Changing life together, the University of the Littoral Côte d'Opale (ULCO) (contact: Séverine FRÈRE - Teacher-researcher - severine.frere@univ-littoral.fr) proposed a contribution that could be related to this action. Indeed, ULCO has been committed since 2021 to the development of a sustainable development and social responsibility (DDetRS) reference framework whose objectives are to include the establishment in an ecological transition approach. Thus, all the university's missions are concerned: research, training as well as social and environmental policy. As part of its DDetRS commitment, ULCO is committed to developing sustainable and responsible purchasing.		
Sub- actions	1) Reduce the ecological footprint of purchases - Improve the environmental performance of procurement and construction - Generalize LCA and overall cost in procurement - Insert environmental requirements and criteria 2) Contribute to the development of the circular economy at the local level - create favourable conditions for the development of the circular economy via markets - include functional economy logics in the assessment of needs and the drafting of specifications - control the waste from the activity 3) Promote sobriety in our purchases and consumption - Control consumption - Tend towards "no buying" whenever possible - Supporting ULCO, municipalities and all other public actors towards more sustainable and responsible public procurement practices		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Procurement Dept		
Related policies	Responsible Purchasing Promotion Scheme (SPAR), TETE-CAE Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	- % of contracts (in number) including environmental (and social) clauses in technical specifications or award criteria increasing - % of contracts (in €) including environmental (and social) clauses in technical specifications or award criteria increasing		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 11	Reduce office space requirements		
Objectives	GHG reduction, energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	New teleworking practices are questioning the use and organization of offices: is it still necessary to have individual offices or as many office spaces as employees? The smaller the surface area, the lower the consumption.		
Sub- actions	Perpetuating teleworking: setting up a teleworking guide - Pooling workspaces: moving towards more open space and avoiding individual offices as much as possible		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	General Resources Directorate		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	Average office space per employee		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 1	An exemplary community in terms of climate and energy transition		
Action 12	Supporting municipalities towards exemplarity		
Objectives	GHG reduction, energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The community is a leader on the climate-air-energy issue on its territory. It has set up shared actions with its municipalities, and supports them in their climate-air-energy projects. A working group dedicated to the exemplarity of municipalities is already planning the development of a sobriety plan for municipalities, this type of action is to be pursued in order to share the ambitions of the climate-air-energy policy of the EPCI towards the municipalities through actions such as: - exchange/relay/disseminate data, documents and good practices between EPCIs and member municipalities, concerning their climate, air and energy policy - Be at the initiative or participate in ad hoc bilateral joint/inter-municipal meetings related to climate, air and energy: conferences, thematic working groups, meetings on the occasion of the development of planning and urban planning documents - Setting up a global tool to support member municipalities on climate-air-energy issues (educational kit, internet platform, technical support unit, etc.) - Reflect on new legal and financial tools to facilitate the municipalities' transition to action (Feasibility of a local fund from the resources generated by the development of renewable energies at the EPCI level, feasibility of a local public company dedicated to renovation to support municipalities in their projects, etc.) - Institutionalize thematic meetings with member municipalities (composition and frequency of meetings determined in advance, notion of "Climate-Air-Energy Club" or equivalent regularly bringing together volunteer communities in the territory). The meetings are frequently relocated to the territory to facilitate the participation of as many member municipalities as possible		
Sub- actions	- Share knowledge and skills - Support for the energy renovation of their assets - Support in controlling their energy consumption - Carry out an emblematic and exemplary building project that would be a demonstrator for the municipalities		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Steering and Territorial Governance + ecological transition of territory		
Related policies	Label TETE - CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	- Number of inter-municipal projects on energy and climate - Number of meetings between municipalities and inter-municipalities on the climate-air-energy subject per year - Emblematic building project completed Number of projects for the renovation of municipal public buildings supported		
Impact indicator and refresh rate	Consumption of municipal public buildings GHG emissions from municipal public buildings		
Funding terms			
Planned budget			
Financial partners	Municipalities, CEEs		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 13	Setting up energy and GHG emissions accounting for public buildings		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies, Reduction of air pollutants and population exposure, Carbon sequestration on the territory		
Context of the action	The local authority regularly carries out (every 3 to 6 years) an analysis of its climate-air-energy situation for its territory, in a quantitative and qualitative manner, all sectors combined: residential, tertiary, road transport, other transport, agriculture, waste, industry excluding the energy branch, the energy branch, In figures, the report presents in particular: - the consumption and production of energy, particularly renewable energy - greenhouse gas emissions - emissions and concentrations (in sensitive areas) of air pollutants - carbon dioxide sequestration		
Sub- actions	Update the Climate, Air and Energy diagnosis in 2026 (mid-term evaluation)		
Conditions of implementation			
Provisional schedule	2023, 2026, 2029		
Dept in charge	Sustainable City Management		
Related policies	TETE-CAE label, 200,000 trees plan		
Action tracking			
Numerical monitoring indicator and refresh frequency	Climate-Air-Energy Diagnosis updated - every 3 years		
Impact indicator and refresh rate	- Evolution of the territory's energy consumption - Evolution of renewable energy production - Evolution of greenhouse gas emissions - Evolution of concentrations (in sensitive areas) of atmospheric pollutants - Evolution of carbon dioxide sequestration		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 14	Ensuring the steering and support of the climate-air-energy policy		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies, Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	The Steering Committee's task is to deal with climate, air and energy issues at the highest level. It makes choices and strategic decisions for the community's climate-air-energy policy. This can be common to several approaches (Territorial Project, TETE-CAE-EC Label, General State of the Environment, PCAET, Ecological Transition Contract, Ecological Transition Recovery Contract, various AàP relating to the ecological transition, etc.) insofar as energy and climate issues are addressed in a transversal manner. The political support of the climate, air and energy strategy is assured. One or more elected officials are appointed as referents on climate, air and energy issues and participate in the steering committee. The CUD participates in many projects, labels and programmes related to Climate-Air-Energy topics. It is necessary to set up a body to monitor the various climate issues, encompassing all the transition approaches carried out by the community.		
Sub- actions	- Define a transversal and legitimate steering committee - Develop and validate the objectives of the climate, air and energy policy in the steering committee - Ensure the effective implementation of the decisions taken - Hold at least one annual follow-up meeting		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept		
Related policies	TETE-CAE label, EGE, Eco-winner, ...		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of Steering Committee meetings / year - 1 time per year • Participation rate of steering committee members - 1 time per year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 15	Train and mobilise elected officials and services on Climate, Air and Energy issues		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority offers awareness-raising and training actions on adaptation to climate change, air pollution, GHG (greenhouse gas) emissions, renewable energies and the control of energy consumption to its elected representatives and all its agents (technicians, directors, etc.). Supported by elected officials, the agents actively participate in the definition and achievement of the climate-air-energy objectives set by the community, particularly those directly related to their services and positions. The local authority sets up actions to keep its agents motivated, such as inter-service competitions, a system for recognising personal initiatives, an idea box, a visit to equipment (sorting centre, STEU, HAS exhibition, PLUS,....), organisation of climate® frescoes, city frescoes, etc®.		
Sub- actions	- Supporting elected officials and agents in the practice of daily eco-gestures - Formalize the training/awareness plan for agents and elected officials - Supporting elected officials and agents on specific themes - Implement the climate-air-energy training/awareness plan - Engage and motivate elected officials and agents - Evaluate and promote the effectiveness of training and mobilization actions		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Directorate for Jobs, Skills and Management		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	Annual number of training and awareness-raising sessions carried out on the theme of Climate, Air and Energy		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 16	Setting up energy and GHG emissions accounting for public buildings		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	This measure concerns the monitoring and evaluation of the climate, air and energy action programme. The community adopts a clear and precise methodology to update and evaluate the effectiveness and progress of its action plan based on verifiable documents and its past activities: - Annual production - based on existing assessment tools - Analysis of the planning of previous years (planned and carried out actions) - Reinforcement/adjustment of planned measures - Documentation of results - Internal and external communication and indicator-based reporting of results		
Sub- actions	- Equip yourself with tools and means to monitor and evaluate your action plan - Regularly monitor and evaluate the achievement of objectives - Communicate and inform the territory's stakeholders of the progress of the action programme - Developing your action programme through the monitoring and evaluation system		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Management		
Related policies	The TETE-EAC label, 100 smart and climate-neutral cities, the European Covenant of Mayors for the Climate, etc.		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Completed mid-term review of the PCAET • Final report of the PCAET carried out • Number of partnership charters signed under the PCAET 2022-2028 • Effective monitoring of the actions included in the partnership charter		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 17	Financing the Climate, Air and Energy policy and carrying out a climate assessment of the budget		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	Each year, the local authority identifies and adopts a budget directly linked to its climate-air-energy policy. This is the budget intended for support actions (technical or financial) for the management of energy demand, energy efficiency, renewable energies, the reduction of GHG emissions, air pollutants and adaptation to climate change, in operation and investment. These budgets are not independent budgets, but a part of each of the budgets of the different Depts, relating to the implementation of actions. In connection with this approach, the local authority is mapping and valuing the various energy-related resources and is looking for additional and innovative financing for its climate-air-energy policy. At the same time, each year the local authority assesses the impact on "climate" issues (favourable, neutral or unfavourable) of all the expenditure lines in its budget, for presentation to elected officials before budget discussions, and improves the climate impact of its budget choices year after year. Better management of energy expenditure and reduction of unfavourable expenditure from a climate point of view also allows the local authority to improve its budgetary capacity.		
Sub- actions	- Raise awareness among elected officials and train teams to take climate-air-energy policy into account in the budget development process - Allocate a budget for the climate, air and energy policy - Carry out an annual climate assessment of the budget - Analyze the local authority's budgetary room for manoeuvre on the basis of the climate assessment of the budget - Diversify financing methods to achieve climate, air and energy objectives and innovate - Monitor annually the budget dedicated to the implementation of the climate/air/energy policy - Be consistent in its financial support policy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Directorate of Finance		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	Budget associated with the climate-air-energy policy (euros/inhabitant.year) - every year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 18	Organising human resources to carry out the climate-air-energy policy		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	The local authority provides the necessary staff resources for climate, air and energy issues. Responsibilities, roles and tasks as well as decision-making powers are set and formalized. The working time available to each employee for tasks related to energy issues, the fight against climate change and services gives staff the means to act.		
Sub- actions	- Continue to provide the climate, air and energy policy with human resources - Finely define responsibilities and referents - Working cross-functionally - Measure the effectiveness of the internal organization and adjust it if necessary		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Directorate for Jobs, Skills and Management		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of the local authority's FTE dedicated to the implementation of the climate, air and energy policy (%) - every year • Number of people whose position includes missions related to climate-air-energy policy (complementary indicator to the number of FTEs) - every year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 19	Develop a multi-level partnership strategy		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority defines a multi-level cooperation strategy (local, regional, national, European and international) for all actors working on climate, air and energy issues. It recommends and defends its climate-air-energy policy, for example by taking positions on the development of laws and regulations. In addition, it develops decentralised cooperation actions.		
Sub- actions	- Identify the key players to be involved - Exchange and get involved in projects on an extra-local scale - Formalize the partnership strategy - Be involved in the evolution of the regulatory and legislative framework for climate, air and energy - Implement actions at the international level		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Territorial Development and Partnerships Dept Youth and International Relations Dept		
Related policies	TETE-CAE label, various calls in connection with CAE issues, EoI 100 cities, CRTE, REV3...		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of budget spent on climate, air or energy decentralised cooperation projects (%) - annually • Share of budget dedicated to significant and multi-stakeholder cooperation projects per year on climate, air and energy (%) - annually		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 20	Strengthening cooperation within the inter-municipal community		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority implements enhanced cooperation actions with the other local authorities in its territory (within the administrative perimeter of the intermunicipality), in a united and effective approach to climate-air-energy policy between the inter-municipal authority and the member municipalities. It is involved as a facilitator or driving force for the territory. It supports municipalities or serves as an example in the implementation of their climate, air and energy policy and encourages the implementation of shared actions. A sharing of the climate-air-energy strategy at the inter-municipal level has already been put in place. Each Dept knows its role in terms of climate, air and energy.		
Sub- actions	- Initiate and/or participate in shared actions in the territory - Systematize intermunicipal cooperation and set an example in the territory		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Steering and Territorial Governance		
Related policies	TETE-CAE label, inter-municipal solidarity plan,		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of inter-municipal energy and climate projects - every year • Number of meetings between municipalities and inter-municipalities about climate-air-energy per year - every year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 21	Contributing to innovation and excellence on the theme of climate-air-energy		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	The community contributes to innovation and excellence on the climate-air-energy theme. It can collaborate with training centres and the research community or support an exemplary and ambitious private flagship project in these same fields, providing expertise and/or advice to push the project further in excellence. It can also encourage the emergence of projects by bringing together the players (organisation of meetings between local authorities, companies, associations and researchers) or by facilitating the submission of projects (research of projects, methodological support). In particular, the community is consistent in its position with regard to major projects impacting greenhouse gas emissions, air quality, energy consumption or the use of agricultural land under the influence of its territory. As part of the call for contributions launched under the PCAET on the "changing life together" platform, several contributions have been submitted and will feed this action: - Aluminium Dunkirk: decarbonisation of the production process and capture of fugitive dust emissions at the doors of foundry furnaces - ArcelorMittal Mardyck site: electric steel production project - Dunkerque LNG: Development of a liquefied CO2 terminal and rainwater recovery - EDF: SHYMED project: production of low-carbon hydrogen - Dunkirk Water Syndicate: Hydro-turbine when drinking water production rhymes with electricity production - ArcelorMittal France: Roundness of steel; Innovative DRI and Smart carbon - Grand Port Maritime de Dunkerque: Decarbonisation roadmap for the port territory - GRDF: university thesis on methanation in partnership with ULCO and the region - Eco-Tech Ceram: ProDepVal R&D project financed by Eco-Tech Ceram and subsidized at 70% by the Hauts-de-France Region and ADEME Hauts-de-France. It consists of deploying a demonstrator to validate the drying of agglomeration sludge (industrial by-products of Arcelor-Mittal Dunkirk) by recovering the site's waste heat.		
Sub- actions	- Proactively monitor key players and projects - Formalize the commitment of the community in supporting the projects of private actors - Participate in studies and research to advance knowledge and techniques - Invest and mobilize concretely on ambitious achievements - To be a territory of innovation and excellence on climate, air and energy themes - Support the implementation of actions proposed by local stakeholders		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	All Depts that can contribute to innovation and excellence		
Related policies	Dunkirk the creative® energy; Dkcarbonation, TETE-CAE Label, Sustainable and Innovative City Label, EU Mission: Climate-Neutral and Smart Cities		
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of companies and/or training organisations involved by the community - Annually		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	Caisse des dépôts et consignation, ADEME, HdF Region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 2	A public force mobilised around the climate, air and energy policy		
Action 22	Planning and developing the transition of territories in the face of climate change thanks to the PACT2e call for research projects		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies , Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	This Call for Research Projects is part of ADEME's Sustainable Urban Planning Strategy 2018-2022, as well as its Research and Innovation Strategy with a special programme dedicated to sustainable cities and territories. It is also a way to meet the objectives of Zero Net Land Artificialisation by 2050, the "Climate and Resilience" law and a halving of the rate of land artificialisation by 2031. With their response, named MAP2050 for "Prospective Modelling and Analysis for the Low-Carbon Trajectories of Territories by 2050", EFFICACTY and the consortium of project partners as well as the Urban Community of Dunkirk plan over the 3 years of the project: 1. Co-construct an operational method / reference toolbox for the development and evaluation of low-carbon strategies by 2030-2050 2. Experiment with the innovative method and tools developed with pilot local authorities, including the Dunkirk CU 3. Articulate existing sectoral tools in order to better assess and prioritise the main levers for decarbonising territories in connection with territorial planning (in particular energy, buildings, mobility, land use); 4. Create tools for the dynamic simulation of energy and building decarbonization scenarios on a territorial scale; 5. To create tools for simulating medium- and long-term changes in land use, demography and population location using probabilistic models (known as "land use").		
Sub- actions	• Dynamic planning of territories and trajectories within planning documents (PLUiHD, PCAET, etc.) • Facilitate the development of cross-cutting decarbonisation strategies at the level of inter-municipal cities and territories • Improving the construction, ex-ante evaluation and comparison of trajectories and action plans 2030 2040 2050 • Identify innovative solutions with the highest mitigation potential • Better estimate the costs and co-benefits of low-carbon strategies in the medium to long term • Improve monitoring/evaluation and regular adjustment of plans		
Conditions of implementation			
Provisional schedule	2023 to 2025		
Dept in charge	The directions related to the MAP2050 project		
Related policies			
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of meetings/interviews conducted in the framework of MAP 2050		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME, partners of the MAP 2050 project consortium		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 3	Actors all involved in the C.A.E policy		
Action 23	Develop a communication plan for each target in the territory		
Objectives	Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority draws up a specific climate-air-energy communication plan each year and updates it regularly. He sets the objectives, distributes the tasks and responsibilities and plans the various communication actions that will be carried out continuously (by target groups, with all media). The community's climate, air and energy identity is set out in this communication plan and all the actions carried out are exemplary in terms of eco-responsibility and digital sobriety. The CUD participates in a large number of projects, labels and programmes related to Climate-Air-Energy topics. It is necessary to harmonise communication on these subjects and to inform the users of the territory of the community's commitment.		
Sub- actions	- Know the needs, identify priority targets and budget the communication plan - Identify existing systems and actors to rely on - Continue and update the community's climate, air and energy identity in the various communication media - Give weight and credibility to the community's actions in its communication - Implement the communication plan for each target in the territory - Continue the events giving visibility to the community's climate, air and energy policies (European Conference on Ecological Transition, Village of the Future, European CO2 meetings, science festival, temporary thematic and permanent exhibition at the HAS, repair'café, etc.) - Monitor and evaluate the effectiveness of the communication plan		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Communication and Digital Dept		
Related policies	TETE-CAE label, Halle aux sucres programme, Village of the future, off programme of european conference on energy transition, ...		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of events/actions per year on climate, air and energy - Every year • Number of visitors to these events/actions – Every year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 3	Actors all involved in the C.A.E policy
Action 24	Mobilising civil society by developing consultation and awareness-raising
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	• The local authority mobilises citizens in the decision-making process and organises, in collaboration with the public service concerned, various working groups and participatory mechanisms relating to climate-air-energy projects. Consultation can be carried out both during the diagnostic phase and during the construction of the action programme or its implementation. • Several contributions under the PACET have been submitted by UFC Que Choisir, the 4 locks and the fireboat and will contribute to this action. The association AL UFC Que Choisir Dunkerque has submitted a contribution under the PCAET by proposing various actions to raise awareness of responsible consumption: changing our daily behaviour; Cultivate/consume responsibly and locally; Reducing the volume of our waste and better recovering it; Using the animation tools available from UFC Que Choisir national, give information, share solutions, provoke reflection, on the theme of more responsible consumption; Photo exhibition on waste; Communication of a map on the short circuit in our territory; Visit a sorting centre, provide information on recycling logos, battery and household appliance collection points; Organise workshops to present alternative solutions to our consumption patterns (e.g. creation of bee-wraps, which reduces the use of plastics and therefore the production of waste); Workshops "How to limit your electricity consumption? What financial aid is available in the area? • Le Bateau Feu, Scène nationale Dunkerque has proposed a series of measures to reduce the environmental impact of the Le Bateau Feu theatre: sorting waste; eliminating cups and stirrers at the bar and in the catering areas (encouraging employees, artists and spectators to use crockery); sale of local and/or organic drinks in glass bottles consigned at the bar; purchase of seasonal, fresh, local and minimally packaged products for the preparation of first class meals and the bar's snacks; replacement of individual tea bags with tea purchased in bulk; replacement of individual packaged soaps with liquid soap, made in Calais, in wall-mounted dispensers; replacement of cleaning products with natural products (baking soda, white vinegar and black soap) and use of eco-label certified products by our cleaning service provider; switching to recycled paper; vigilance of the communication Dept to adapt the printing of media (brochures, posters, flyers, etc.) to the needs of public relations and partners in order to limit waste; In technology, most disposable batteries have been replaced by batteries; installation of ashtrays in front of the theatre and at the back of the theatre to limit cigarette butts thrown on the ground; installation of water fountains to limit small plastic water bottles; reflection on the issue of the mobility of the Bateau Feu team, artists and spectators (purchase of a bicycle for employees, etc.); reflection on fixed assets (project to organise a 'garage sale' with technical equipment that is no longer used) • The 4Ecluses have proposed contributions related to this action. "Our structure has always been committed to local citizenship which, through the support and development of current music in the territory, takes up the issues of sustainable development. We question our operations and our way of implementing our activities for more resilience and sobriety while fervently defending the idea that access to culture is a means of emancipation and individual and collective fulfillment. Our activity allows us to benefit from a media window that makes it possible to disseminate messages, experiment and promote changes in behavior.
Sub- actions	- To support the UFC Que Choisir association, the fire boat and the 4 locks in the implementation of the proposed actions - Maintain the culture of collaboration in the territory - Know the different levels of citizen involvement: information, consultation, consultation, co-production, co-decision, self-management - Formalise the "rules of the game" of consultation: the objectives and power of influence of the bodies are clearly defined, the rights and duties of each person (community/citizens) are announced, for example in a charter

	- The local authority defines one or more working groups on various themes: climate, air, energy, waste, water, sanitation, mobility, etc. - Institutionalise cooperation between residents and the community on energy and climate issues by defining a participatory and/or consultation body or on the basis of existing working groups (qualifying neighbourhood councils, development councils, etc.) - Conduct regular and long-term consultation - Use the contributions of the consultation bodies		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Communication and Digital Dept		
Related policies	TETE-CAE label, Halle aux sucres programme, Village of the future, off programme of european conference on energy transition		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of meetings proposed by the community / year - Every year • Annual budget dedicated to consultation - Every year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 3	Actors all involved in the C.A.E policy		
Action 25	Continue education and awareness-raising activities in schools and early childhood centres		
Objectives	Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	• The local authority is developing education and awareness-raising actions on the climate-air-energy issue in schools, nurseries and daycare centres. These actions are varied (form and content), and involve students, teachers and staff. As far as possible, they are integrated into an overall educational project and are planned over the year or even the entire cycle. Some actions are directly aimed at reducing energy and water consumption and pollutant emissions linked to the use of premises and school travel. • The OUICHANGE association has submitted a contribution under the PCAET by proposing various actions to raise awareness of our carbon footprint. - "Convinced that the ecological transition can only be achieved with the mobilization of citizens and in particular the enthusiasm of young people, the OuiChange association, whose objective is to contribute to reducing everyone's carbon footprint, is mainly aimed at the school environment. OuiChange has developed an inclusive program from PS to CM2 based on the national education programs (ESD 2030) with themes around food, waste, consumption... It supports teachers (training materials, projects, workshops), students (putting them into action via challenges) but also parents (conferences, participation in challenges and projects) in a joyful and sustainable ecological transition. In addition, collective catering can be involved in developing healthy, diversified meals that use local production. This program, which was already implemented in Lille schools at the start of the 2021 school year, after a pilot school test in 2020, is giving very exciting results. Having joined the association as a referent in Dunkirk, I wish to develop this approach in Dunkirk schools to contribute, or even accelerate, the ecological transition in which the CUD is already strongly committed."		
Sub- actions	Meet local education and early childhood stakeholders and organize themselves to carry out joint actions - To support the OUICHANGE association in the implementation of the proposed actions - Raising children's awareness of climate-air-energy issues and eco-citizenship - Set up pedestrian or bicycle bus lines as part of a School Travel Plan (PDES) - Sustaining and massively raising awareness - Monitor results and achieve set objectives - HAS 2022 exhibition + educational space at the Cdkerque WWTP (inauguration April 2022) to raise awareness among the general public		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Management of the Halle aux sucres Quality of Life and Environment Dept Children's Dept (City of Dunkirk)		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of schools covered by a PDES or a pedestrian bus/bicycle bus - Every year • % of establishments participating in the eco-school approach (labelled or not) - Every year • % of students involved in an awareness-raising approach • Number of events organized and participation		
Impact indicator and refresh rate	•Energy consumption of community-managed schools/early childhood facilities - Every year • Water consumption of community-managed schools/early childhood facilities - Every year		
Funding terms			
Planned budget			
Financial partners	Dept, Region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 3	Actors all involved in the C.A.E policy		
Action 26	Encourage citizens and opinion leaders to consume responsibly, limit the influence of advertising		
Objectives	Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The community encourages citizens to behave and consume eco-responsibly. It also raises awareness among opinion leaders (political parties, associations, NGOs) so that they become models of exemplarity and exert an influence on the inhabitants so that they act in accordance with the community's climate-air-energy policy. Actions are being taken to limit the influence of advertising. • The association AL UFC Que Choisir Dunkerque has submitted a contribution under the PCAET by proposing various actions to raise awareness of responsible consumption: - Changing our daily behaviour - Grow/consume responsibly and locally - Reducing the volume of our waste and better recovering it - Using the animation tools available from UFC Que Choisir national, give information, share solutions, provoke reflection, on the theme of more responsible consumption - Photo exhibition on waste - Communication of a map on the short circuit in our territory - Visit a sorting centre, inform about recycling logos, battery and household appliance collection points - Organize workshops to present alternative solutions to our consumption patterns (e.g. creation of bee-wraps, which reduces the use of plastics and therefore the production of waste) - How to limit your electricity consumption? What financial aid is available in the area?		
Sub- actions	• Organize internally and locally to raise awareness among residents • Inform and mobilise opinion leaders (political parties, associations, NGOs) • Raise awareness among residents about more sober and ecological consumption and eco-gestures • Lead by example at events • Limit the influence of advertising • Support local eco-consumption, via a local exchange system or a local currency • To support the UFC Que Choisir association in the implementation of the proposed actions		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept Local Democracy and Popular Education Dept		
Related policies	TETE-CAE Label, TETE-EC Label, Ecowinner, RLPi, PLPDMA		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of families involved in positive energy family, 0 waste family, - Every year • Number of families and population of the territory covered seeking to actively reduce their energy consumption - Annually • Number of people sensitized during actions planned by the community and its partners		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 4	Buildings that respect the environment and health		
Action 27	Plan the renovation of residential buildings and sustainable construction on the territory		
Objectives	GHG reduction, Energy sobriety		
Context of the action	Residential buildings The residential stock is responsible for 2/3 of GHG emissions from the building sector. The integration of climate-air-energy issues and objectives within the PLUiHD/PLH makes it possible to mobilise housing stakeholders and to be consistent with the renovation and sustainable construction objectives set out in the Territorial Climate Air Energy Plan. It is necessary to encourage all the players in the territory to stimulate the launch of energy-efficient rehabilitation and construction projects for the private sector. The local authority has one or more mechanisms structuring the construction and renovation policy of buildings (residential and tertiary) on its territory, aimed at promoting climate-air-energy performance. This policy prioritizes actions and sets operational and territorial quantified objectives (number, type of buildings and level of performance, optimization of surface areas to reduce the need for new buildings and improve the use of existing buildings, etc.), in accordance with national objectives (the implementation of the energy renovation plan for housing). The local strategy is formalised: in a local housing programme (PLH), in a tertiary sector renovation strategy or in the framework documents of a FAIRE advice centre, for example. It is built in a transversal and integrated way with travel planning, land use planning, urban planning and the territorial climate, air and energy plan.		
Sub- actions	• Considering climate, air and energy issues in the "housing" strategy • Build the building policy in a transversal and integrated way with other themes and actors • Setting high performance levels to be achieved for building construction and renovations • Involve in the planning of operational and financial arrangements • Observe and evaluate the progress of construction and efficient renovation in the territory • Enforce NPNRU policy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Housing and Housing Dept Urban Renewal Project Management		
Related policies	NPNRU, PLUiHD/PLH, Eco-habitat Program, TETE/CAE Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of homes renovated (number of homes renovated/100 existing homes) - Every year		
Impact indicator and refresh rate	Reducing energy consumption in the residential sector		
Funding terms			
Planned budget			
Financial partners	Aids from ANAH, Ma Prime Rénov, Hauts-de-France Pass Renovation, CEE, SPEE		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 4	Buildings that respect the environment and health		
Action 28	Supporting and controlling construction and renovation work		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The planning authorisation and works control procedures aim to promote the emergence of better-quality construction and renovation in the territory, in terms of climate-air-energy performance. Petitioners are made aware of and supported in this regard, as it is essential to guide individuals and builders, even before the building permit is filed, towards sustainable construction to avoid "coup partis". The petitioners' contacts with the local authority during their administrative procedures make it possible to raise their awareness of energy efficiency and the development of renewable energies outside the usual events for the public and in a more targeted manner. The detailed monitoring of urban planning authorisations makes it possible to collect data and check whether all the awareness-raising actions and aid (financial or technical) are bearing fruit in a diffuse manner in the territory. REGULATION - Decree No. 2013-979 of 30 October 2013: for PCs submitted after 1 January 2014, feasibility studies for energy supplies are mandatory for all new buildings over 50m^2 (except buildings for which thermal regulations require the use of a renewable energy source). - Grenelle 2: a certificate from a service provider independent of the project manager concerning compliance with the RT2012 is required upon completion of the work (decree of 18 May 2011). The ZPPAUP are replaced by the Architecture and Heritage Enhancement Areas (AVAP), to facilitate energy renovation, in a more concerted process.		
Sub- actions	- Organize the entire chain of actors in charge of the examination and granting of building permits for increased attention to the climate-air-energy theme - Disseminate information on requests for authorization - Verify, as far as possible, compliance with the requirements (monitoring compliance with thermal regulations (for the elements visible on the plans and via the certificates of conformity) and taking into account the vulnerabilities of the territory to climate change; monitoring compliance with mobility requirements in private law contracts; monitoring of supporting documents for compliance with environmental performance criteria in the case of the improvement of building rights; the instructors carry out at least two inspections per year in the field; attention paid to on-board renovation (verification of justifications); referral to the competent structures to monitor the following; energy consumption before and after work) - Track compliance attestations		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept – Common Service for Urban Planning Authorizations		
Related policies	PLUiHD		
Action tracking			
Numerical monitoring indicator and refresh frequency	- Average stock on CPs deposited during the year - Average BBio on PCs deposited during the year - Number of PCs with Cep<RT2012 - Number of transactions exceeding the RT in force / total number of transactions carried out in the year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 4	Buildings that respect the environment and health		
Action 29	Cooperating with professional actors in the building and real estate industry		
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority informs and encourages professional building stakeholders (social landlords, developers, investors, craftsmen, design offices, property managers, notaries, real estate agents, etc.) to integrate climate-air-energy issues into their activities. These actions are carried out via FAIRE advice spaces or voluntary agreements, containing high construction and renovation standards, energy efficiency objectives, and raising awareness among occupants. As part of the call for contributions launched under the PCAET on the "changing life together" platform, several contributions have been submitted and will feed this action: • SA D'HLM LE COTTAGE SOCIAL DES FLANDRES - Groupe HABITAT proposes to rehabilitate its heritage and raise awareness among tenants about their energy consumption and good practices in housing. Fight against fuel poverty and affirm a renovated, low-carbon, healthy and economical residential stock • Flandre Opale Habitat proposes to invest in the housing of tomorrow, in particular to meet the new challenges of housing, to build and rehabilitate in an eco-responsible way • PARTENORD HABITAT proposes to fight against fuel poverty and affirm a renovated, low-carbon, healthy and economical residential stock.		
Sub- actions	• Have a detailed knowledge of the building and private real estate players and raise their awareness of climate-air-energy issues • Animate and encourage stakeholders to qualify their practices (via the BEEP resource centres and energy renovation actors, the local authority promotes the animation of stakeholders, the networking of building professionals and their visibility, tax exemptions and subsidies for building rights to encourage private actors to build and renovate sustainably) • Social landlords are committed to particularly ambitious actions alongside the community • Have a formalized strategy for mobilizing building and real estate professionals • Sub-actions specific to social landlords: • Continue the rehabilitation and renovation of the social housing stock by promoting interventions to reduce the energy footprint and green the social housing stock • Promote connection to UCRs where technically feasible • Promote awareness-raising actions among residents		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Housing and Housing Dept Urban Renewal Project Management		
Related policies	NPNRU, aid for stone		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Average share of construction companies qualified in RGE (%) • Number of partnerships with building stakeholders • Number of artisan groups • Energy and GHG savings generated by boards		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 4	Buildings that respect the environment and health		
Action 30	Preventing and combating energy poverty		
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority is committed to a policy of prevention and fight against fuel poverty (related to housing and mobility) and includes it in its strategic documents. The local authority initially carried out an inventory of the actors involved in fuel poverty and the existing actions, on which it can build its system. The local authority makes the best use of the human resources available to identify situations of fuel poverty and direct families directly to existing schemes or indirectly to specialised associations. In a partnership approach, actions aimed at reducing fuel poverty are carried out. The CUD has already carried out an inventory of energy poverty linked to housing and mobility in the territory and adopted a strategy to combat energy poverty linked to housing and mobility. As part of the call for contributions launched under the PCAET on the "changing life together" platform, GrDF has submitted a contribution that will feed this action: GRDF proposes to support the eco-winning approach by allocating aid, in consultation with the CUD's housing services, to accelerate the conversion of oil heating to gas (natural gas / green gas).		
Sub- actions	- Update every 2 years the state of energy poverty related to housing and mobility in the territory - Implement the strategy to combat energy poverty related to housing and mobility - Federate stakeholders around the issue of fuel poverty to initiate prevention against energy poverty - Formalize a range of tools for households in precarious situations		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Housing and Housing Dept		
Related policies	Eco-winner: eco-habitat bonus and eco-habitat + premium, TETE/CAE label (measure 6.2.2)		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of households applying for and benefiting from the FSL for assistance with the payment of energy bills in the territory • Number of "Living Better" applications submitted to Anah in the territory • % of households in a situation of energy poverty in the territory (cf. ONPE indicators based on the energy effort rate -TEE), the indicator "low incomes high expenses" -BRDE- and the perceived cold) • Amount of financial aid for energy from CCAS/CIAS		
Impact indicator and refresh rate	kWhcumac saved via the "energy poverty" CEEs		
Funding terms			
Planned budget	ANAH, Ma Prime Rénov, Hauts-de-France Pass Renovation, CEE, SPEE		
Financial partners			
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 4	Buildings that respect the environment and health		
Action 31	Supporting individuals in the renovation and sustainable construction of their homes (individual and collective housing)		
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority manages or supports one or more (local or regional) climate, air and energy advisory centres for individuals. It also provides financial support for high-energy renovation work in the residential sector. These missions are ideally carried out by a one-stop shop such as the FAIRE advice centre. The CUD has also set up two programs: the Eco-Habitat Premium and the Eco-Habitat+ Premium The Eco-Habitat Bonus is aimed at all private owners, occupants and landlords residing in the territory when the work project leads to a minimum energy gain of 35%. It offers personalized advice and comprehensive and qualitative support. the Eco-habitat + bonus is intended for residents of the Dunkirk Urban Community or not, who purchase an existing home on the territory of the Dunkirk Urban Community as of 1 September 2021, who have not been owners in the two years preceding this acquisition, who are committed to a programme of energy renovation work, as part of the Eco-habitat scheme. As part of the call for contributions launched under the PCAET on the "changing life together" platform, GrDF has submitted a contribution that will feed this action: GRDF proposes to support the eco-winning approach by allocating aid, in consultation with the CUD's housing services, to accelerate the conversion of oil heating to gas (natural gas / green gas).		
Sub- actions	- Have climate-air-energy information services that are visible and accessible to the individual - To provide advice on BBC renovation and construction to various targets - Accompany the individual until the energy renovation work (FAIRE advice area in particular) - To provide financial support to individuals, through the Eco-habitat and Eco-habitat + premiums - Measuring the results of the support - Setting up a monitoring system for subsidized projects to analyze the effectiveness of the resources invested		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Housing and Housing Directorate		
Related policies	Eco-winner: eco-habitat bonus and eco-habitat + bonus, TETE-CAE label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of hours of consultations and advice on the climate, air and energy theme per 100 inhabitants / year • Number of energy-efficient dwellings renovated (number of renovated dwellings/100 existing dwellings)		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ANAH, Ma Prime Rénov, Hauts-de-France Pass Renovation, CEE, SPEE		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 4	Buildings that respect the environment and health		
Action 32	Supporting tertiary sector players in the renovation and sustainable construction of their premises		
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The ELAN law (Evolution of Housing, Development and Digital Technology) has included in the Construction and Housing Code an obligation to reduce the energy consumption of buildings under public procurement s. Decree No. 2019-771 of 23 July 2019 on the obligations to reduce final energy consumption in tertiary buildings specifies the terms and conditions for the implementation of the obligation to reduce energy consumption in tertiary buildings. This applies to buildings with a surface area of more than 1,000 m2. They will have to reduce their consumption by at least 40% in 2030, 50% in 2040 and 60% in 2050 compared to 2010. The local authority has a role to play as a territorial facilitator to give impetus to the territory to act indirectly on energy losses from tertiary buildings. Players in the private tertiary sector are encouraged and supported to improve the energy and climate performance of their premises. As part of the call for contributions launched by the CUD under the PCAET on the platform Changing life together, the University of the Littoral Côte d'Opale (ULCO) proposed a contribution that could be related to this action. Indeed, ULCO has been committed since 2021 to the development of a sustainable development and social responsibility (DDetRS) reference framework whose objectives are to include the establishment in an ecological transition approach. Thus, all the university's missions are concerned: research, training as well as social and environmental policy. As part of its DDetRS commitment, ULCO is committed to moving towards a rational use of energy in its buildings. - Have visible and accessible climate-air-energy information services for tertiary actors - Go beyond one-off advice for the sustainable renovation of the private tertiary sector (In partnership with specialised players (consular chambers, etc.), provide concrete support to companies in the tertiary sector (VSEs/SMEs and traders in particular) and craftsmen to improve the climate-air-energy performance of their premises, if possible through renovation work with high energy and environmental performance; Specific support for tertiary companies > 1000 m^2 subject to the obligations of the "Tertiary Decree") - Rationalize and pool the construction of new tertiary premises - Encourage the limitation of specific electricity consumption specific to the tertiary sector: help to set up an energy management system and encourage the certification of companies (ISO 50 001, ISO 26 000) then raise awareness and disseminate good practices - Cooperate with other public tertiary sector players in the territory (education, hospitals, administrative services, etc.) - Measure the results of the coaching activity		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Entrepreneurship, Trade and Innovation Dept Tourism, yachting and boating Dept		
Related policies			
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of tertiary premises renovated or new exemplary, which have been supported by the local authority		
Impact indicator and refresh rate	Reduction of energy consumption in the tertiary sector		
Funding terms			
Planned budget			
Financial partners	EEC		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 5	Preserved air quality		
Action 33	Setting up energy and GHG emissions accounting for public buildings		
Objectives	Reduction of air pollutants and population exposure, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	Indoor air quality is an issue that is little known to residents but a major one for health. The CUD territory is also affected by exceedances in the concentration of certain atmospheric pollutants. In addition to the measures taken to improve air quality (Dunkirk air quality working group, creative energy, industrial actions, Low Emission Zone for mobility, etc.), the dissemination of air quality indices and the right actions to take during pollution peaks should make it possible to reduce the population's exposure to degraded air. As part of the call for contributions launched under the PCAET on the "changing life together" platform, SUEZ has submitted a contribution that will help fuel this action: SUEZ proposes to implement a demonstrator for an innovative air quality monitoring solution with high spatial and temporal resolution. This decision-making tool will provide a better understanding of air pollution in connection with economic activities and then support stakeholders in their actions to improve air quality.		
Sub- actions	- Implement the "SUEZ demonstrator" - Study the results of this monitoring and deduce the priority actions to be carried out - Supporting territorial stakeholders in their actions to improve air quality - Improve communication with residents on air quality (indoor and outdoor) and the actions to be taken in the event of peaks - Implementation of the LEG'AIR project (monitoring of indoor air quality in a district undergoing renewal) - Improving knowledge of endocrine disruptors - Raise awareness among administrations and educational facilities of the challenges of indoor air quality and good practices to improve it		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life Environment Dept Sustainable City Dept		
Related policies	LEG'AIR project		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Demonstrator set up • Number of educational facilities that have implemented actions in favour of indoor air quality • Number of government buildings that have implemented actions to promote indoor air quality		
Impact indicator and refresh rate	Pollutant concentrations in indoor air		
Funding terms			
Planned budget			
Financial partners	SUEZ, ATMO, ADEME, DREAL,		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 5	Preserved air quality		
Action 34	Improving knowledge of the links between air quality and health and involving the population		
Objectives	Reduction of air pollutants and population exposure, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	On average, each human being breathes about 14,000 liters of air per day. Many scientific studies agree on the impact of air pollution on human health. Thus, a study by Santé Public France estimates that the impact of air pollution represents 48,000 premature deaths per year (i.e. 9% of mortality in France) and a loss of life expectancy at age 30 that can exceed 2 years (source: https://www.ecologie.gouv.fr/). As part of the call for contributions launched under the PCAET on the "changing life together" platform, the Local Health Observatory (OLS) has submitted a contribution that will improve knowledge on the links between air quality and health and involve the population. As part of the implementation of the OLS, various actions are carried out in order to better understand the state of health of the population, but also to develop new data on the links between air quality and health. To do this, the OLS works with the various local actors, whether they are the structures recognized for their expertise in health: ARS, CPAM, hospitals, OR2S, but also with universities (ULCO and University of Pharmacy of Lille) for the implementation of research work to improve knowledge of air quality at the scale of the CUD and the CCHF, but also on the impact on health. At the same time, the work of the OLS is geared towards residents in order to better understand how they perceive air quality, in order to see which are the most relevant modes of communication to make them actors in their health and to encourage them to adopt the right actions in order to limit their exposure and their impact on air quality, both indoor and outdoor.		
Sub- actions	Support the OLS in the implementation of the actions proposed by their contribution - Pursue the following research programs: - Operation "Impact of Air Pollutants on Human Health (UCEIV) - operation "Bio-indication of air quality by lichens (University of Lille)" - operation "Bio-indication of air quality by bees (GPMD)" - operation "Air quality and health: perception, information and behaviour of the actors of the Dunkirk territory (TVES)" - Guarantee the proper functioning of pollen sensors and work to communicate and raise awareness of pollen information to the population and health professionals via the live pollen® application		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Local Health Observatory - Coastal Health Area Sustainable City Management		
Related policies	Territorial health policy		
Action tracking			
Numerical monitoring indicator and refresh frequency	- Operation "Impact of air pollutants on human health (UCEIV) carried out - Operation "Bio-indication of air quality by lichens (University of Lille)" carried out - Operation "Bio-indication of air quality by bees (GPMD)" carried out - Operation "Air quality and health: perception, information and behaviour of the actors of the Dunkirk territory (TVES)" carried out - Number of pollen collectors in the territory		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 5	Preserved air quality		
Action 35	Reducing industrial air emissions		
Objectives	Reduction of air pollutants and population exposure		
Context of the action	The areas concerned by the most exceedances of the air pollutant thresholds are located around industrial areas. Industry is therefore the leading source of air pollutant emissions.		
Sub- actions	- Animation and follow-up of the working group dedicated to Dunkirk's air quality, creative® energy - Identify technical solutions to reduce emissions - Draw up a roadmap for the implementation of these technical solutions - Applying the roadmap		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	EcosystemeD		
Related policies			
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of meetings of the Dunkirk air quality working group creative energy® • Implementation of the Air Quality Working Group Roadmap		
Impact indicator and refresh rate	Trends in emissions of pollutants of industrial origin Number of days of pollution peaks (aim for 0 days by 2027)		
Funding terms			
Planned budget			
Financial partners	Caisse des dépôts et consignation		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	1

Axis 6	A resilient territory in the face of climate change		
Action 36	Use urban planning documents, diagrams, etc. to ensure the implementation of climate-air-energy objectives and to combat land artificialisation		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies, Reduction of air pollutants and population exposure, Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	Urban planning documents are consistent with the community's climate-air-energy strategy, they allow for spatial translation, in a logic of circular economy and rural/urban solidarity. Incentives and enforceable provisions are provided in particular to promote bioclimatic design, narrow urban forms, the reduction of daily travel distances, sustainable mobility, energy sobriety, energy efficiency and renewable energies, heating/cooling networks, the limitation of emissions and the impact of atmospheric pollutants on the population, and adaptation to climate change. The fight against land artificialisation and the maintenance of natural, agricultural and forest areas are an integral part of the strategy put in place. By the end of 2022, the CUD will have finalised its PLUiHD, which considers Climate-Air-Energy issues. A land observatory will make it possible in the short term to promote the implementation of urban renewal projects; thus making it possible to exceed the objectives of 2/3 in urban renewal and thus protect agricultural land from artificialisation.		
Sub- actions	Integrate climate, air and energy issues into all reflections Align urban planning policy and development objectives with climate-air-energy policy Transcribe climate-air-energy commitments into the various documents and planning schemes, particularly in the enforceable sections where relevant To know and protect natural, agricultural and forest areas from land artificialisation via urban planning documents and the associated land policy Monitor indicators relating to sustainable urban planning and achieve the objectives set Topics to be addressed (non-exhaustive list): - risk management (flooding, erosion, etc.), in connection with Risk Prevention Plans for example - adaptation of construction standards (summer comfort) and fight against heat islands - safety of the population and tourists -drought - Limiting the use of air conditioning in buildings - impact on water supply and more generally on water networks - impact on agricultural, industrial and tourism activities - Impact on conventional and renewable means of energy production		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Management		
Related policies	PLUiHD, TETE-CAE Label, Sustainable and Innovative City Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of new collective and individual dwellings grouped together / total number of dwellings authorised during the year (available in the SITADEL database). • Share of fallow land • Share of agricultural and natural land (%) • Annual artificialised area (ha/year)		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	1

Axis 6	A resilient territory in the face of climate change		
Action 37	Fighting against the risk of flooding		
Objectives	Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	Since January 1, 2016, the CUD has obtained the mandatory competence in the field of "Management of Aquatic Environments and Flood Prevention" (GEMAPI) The CUD is a member of the Association for the Operational Development and Promotion of Alternative Rainwater Techniques (ADOPTA). This association ensures a technological watch on the sustainable management of rainwater.		
Sub- actions	Developing and strengthening integrated territorial water management 1° the development of knowledge of existing water flows (quantity and quality) for a better anticipation of the needs or impacts of climate change, 2° the development of a vision of the economy and the circular ecology of water and its by-products in close interface with potentially impacted public policies (maritime, agricultural, industrial, etc.), 3° the formalisation and coordination of water governance in the territory, 4° the restructuring, development and strengthening of an integrated vision of water at a supra-territorial level on drinking water, flood risk and environmental quality. Developing and strengthening wealth management The overall heritage in the field of water is substantial. These are the assets related to the drinking water, sanitation and external fire defence (DECI) competence, but also the assets that protect the territory, property and people against flood risks (mainly continental due to the polder territory). The challenges of water resource scarcity are leading us to renew and readapt existing assets: - to avoid losses related to leaks (water and sanitation networks), - to fight against continental floods (IIW heritage) which will be increasingly strong and regular in view of the current climate change.		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life and Environment Dept (Géma) Sustainable City Dept		
Related policies	TETE-CAE label, GéMAPI, PAPI, framework deliberation on water		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate	Evolution of the number of natural disasters related to floods		
Funding terms			
Planned budget	GéMAPI tax		
Financial partners	ADEME, Water and Climate Programme of the Water Agency, CDC Biodiversity		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 6	A resilient territory in the face of climate change		
Action 38	Transcribing climate-air-energy and natural resource preservation issues into development operations		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies, Reduction of air pollutants and population exposure, Carbon sequestration on the territor, Adaptation of the territory to climate change		
Context of the action	The encouragement of energy sobriety, energy efficiency, the adaptation and fight against climate change and the use of renewable energies, the preservation of air quality, are important criteria in the development operations of the community. Specific requirements are integrated into urban planning/architecture calls for tenders on this subject, as well as when selling land belonging to the local authority or for any other contractual arrangement involving the local authority. Development projects are carried out in the light of the challenges/principles of the circular economy.		
Sub- actions	• Organize yourself to properly manage development operations and train project managers in CAE issues in development operations (Urban-Print® tool, GES urba®, etc.) • Adopt a multi-thematic approach in the diagnosis and design of urban projects • Develop a "framework" document to systematize the environmental quality of operations controlled by the community • Ensuring the public or semi-public project management of key development operations to better take into account climate-air-energy issues and the preservation of natural resources • Integrate climate-air-energy requirements into urban planning calls for tenders and land transfer specifications • Organize waste management from development sites in partnership with developers • Monitor efficiency and compliance with requirements		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Management		
Related policies	TETE-CAE label, Sustainable and Resilient City label, TETE/EC label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Average stock on CPs deposited during the year • Average BBio on PCs deposited during the year • Number of PCs with Cep<RT2012 • Number of operations exceeding the RT in force / total number of operations carried out during the year		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	1

Axis 6	A resilient territory in the face of climate change		
Action 39	Managing your roads and public spaces sustainably		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The local authority manages its roads in a sustainable manner: it is careful to limit the energy impact and greenhouse gas emissions of its road creation and maintenance policy, from upstream to downstream (choice of materials, implementation technique, preventive action, prioritisation of roads to be renovated, etc.). It identifies abandoned and unused parts of roads that can be declassified to be de-artificialised. It anticipates the risks associated with climate change and contributes to the adaptation of the territory.		
Sub- actions	- Know your heritage (roads) - Train/raise awareness among the agents in charge of roads (training to limit the environmental impact of road projects; exchanges with the mobility/transport Dept for a coherent policy with cycling development, TC, etc.) - Adopt a preventive policy limiting major interventions (integrate the removal of unused roads, abandoned roads in the programming of the works, prioritise preventive rather than curative, considering the impacts of the CC in the criteria of durability of the roads and techniques, coordination of the works between the different services and partners to limit interventions) - Limit the environmental impact of road materials - Anticipate and encourage changes in behaviour and modal shift via the road policy - Bear witness to the reduction in the environmental impact of its road policy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life and Environment Dept		
Related policies	TETE-CAE Label, Sustainable and Resilient City Label, TETE/EC Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• % of recycled materials incorporated (in tonnes) • % of construction sites using warm or cold asphalt, • % of surfaces using light materials on new public space projects, • % of construction sites using permeable materials (permeable concrete, slab to be grassed, etc.)		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 6	A resilient territory in the face of climate change		
Action 40	Setting up energy and GHG emissions accounting for public buildings		
Objectives	Adaptation of the territory to climate change		
Context of the action	Observations confirm that France has already been impacted by climate change for several decades, by a warming of the average annual temperature. Climate models indicate that these trends will continue. There is not a field or sector of activity that will not feel the effects. To prepare for it as well as possible, each actor (public, private, economic, social, etc.) will have to analyse the impact of climate change on its activity. This analysis should make it possible to put in place an action plan to reduce vulnerability to expected changes and to increase the climatic robustness of socio-economic and natural systems. Adaptation to local scales is therefore essential. Beyond their legal obligations, municipalities and local authorities have a definite role to play in improving knowledge of impacts and vulnerabilities at the local level as well as in the implementation of adaptation actions.		
Sub- actions	• Call ANEL/CEREMA on integrated coastal management • Develop a heritage management of the protection structures in a logic of overall cost and maintenance of the protective structures in good condition • Formalize the interest of the community in its desire to reduce the vulnerability of the territory to climate change • Know the vulnerability of the territory to climate change • Adopt an adaptation action programme and integrate the effects of climate change into community competences and policies • Setting up an operational monitoring and evaluation management of the territorial climate change adaptation policy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life and Environment Dept (Géma) Sustainable City Dept		
Related policies	GeMAPI, GRANDPA, Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	1

Axis 6	A resilient territory in the face of climate change		
Action 41	Reforest and support the sustainable use of forests and woodlands to increase carbon sequestration		
Objectives	Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	The local authority takes the forest and wooded areas into account in its urban planning documents, with the aim of identification, preservation, rational use or development. It encourages sustainable silvicultural practices and the development of sustainable management practices for forests and wooded areas, internally and among individuals and professionals. It contributes to the structuring and development of the wood-energy and wood-construction sectors.		
Sub- actions	• Raise awareness among elected officials, services and stakeholders in the territory of the issues related to forests and wooded areas • Fighting against imported deforestation • Carry out diagnoses, know the issues related to the forest and wooded areas on your territory • Formalize its strategy in planning documents dedicated to the forest and in urban planning documents • Implement the actions defined in the forest preservation and enhancement plan • Monitor and achieve your forest and woodland objectives • Increase the amount of wooded areas in the territory to increase carbon sequestration		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life and Environment Dept		
Related policies	200 000 Trees Plan, Landscape Plan, Differentiated Green Space Management Policy, TETE-CAE Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of certified forest area (%) • Number of trees planted under the 200,000 Trees Plan		
Impact indicator and refresh rate	Forest sequestration (tCO2eq)		
Funding terms			
Planned budget			
Financial partners	CDC Biodiversité, Ministry of the Environment (AO recycling of urban wastelands), HdF ("1 million trees"), Water Agency		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2
	2		

Axis 6	A resilient territory in the face of climate change		
Action 42	Preserving the biodiversity of the territory and developing natural areas to increase carbon sequestration and fight against UHIs and flood risk		
Objectives	Carbon sequestration on the territory, Adaptation of the territory to climate change		
Context of the action	Through its technical services and partners, the local authority contributes to improving knowledge of the biodiversity of its territory and to raising awareness among all stakeholders on this subject. The local authority implements concrete actions to preserve and/or strengthen biodiversity on its territory and develop green spaces, through a policy of greening, the fight against light pollution, the mobilisation of urban planning documents or specific contracting tools. The approach is cross-cutting and co-benefits with the climate-air-energy guidelines, particularly in terms of adaptation to climate change, are particularly sought.		
Sub- actions	• Regularly update knowledge of the state of biodiversity and know the issues related to green spaces on its territory (regulatory obligations) • Raise awareness of the importance and fragility of biodiversity and the issues related to green spaces • Reduce the impacts of lighting on nocturnal biodiversity • Pursue the differentiated management of green spaces and alternative practices to phytosanitary products in the territory • Taking biodiversity into account in a cross-cutting approach • Implement actions to preserve biodiversity that contribute to adapting to climate change and improving the living environment (e.g. restoration of wetlands, greening of buildings, demineralisation of unbuilt urban spaces, ecological enhancement of public spaces) • Continue to use operational contracting tools for the implementation of the green and blue network • Continue to monitor the evolution of biodiversity and the management of green spaces		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Quality of Life and Environment Dept		
Related policies	TETE-CAE label, 200,000 trees plan, landscape plan,		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Annual amount of fertilizer/m2 of green space Annual amount of water/m2 of green space Additional areas of natural or green spaces recreated		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	CDC Biodiversité, Ministry of the Environment (AO recycling of urban wastelands), HdF ("1 million trees"), Water Agency		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 43	Organising mobility in the territory		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority has a travel plan on its territory (mobility plan, simplified mobility plan, etc.) with concrete indications and strategic orientations for: - reduce individual motorised traffic – solo driving - Promote active modes (walking, cycling), intermodality and shared mobility - Promote sustainable urban logistics - Promote alternative fuels (battery electric, bioNGV, renewable hydrogen) and horse-drawn mobility, develop the offer of charging infrastructure - make mobility accessible to all and throughout the territory - Promote/expand public transport - Fight against noise pollution and urban sprawl - Organising the supply conditions of the agglomeration - regulate the location of traffic-generating facilities and facilities (shopping centres, schools, etc.) according to their public transport service, active modes, etc. - Limit air pollutant emissions from travel This planning is spatialised and is equipped with a monitoring and control system with objectives, monitoring and evaluation of the mobility policy of local authorities (including impact on greenhouse gases and atmospheric pollutants), involving all the stakeholders concerned. The mobility plan will have to be drawn up taking into account the strategic and operational coordination between the local AOM and the region. The PDM must be compatible with the PCAET or take into account the PCAET if there are more than one within the scope of the PDM.		
Sub- actions	- Update the mobility study - Plan actions to limit the use of private cars - Prioritise the development of alternative modes of transport to the car in planning - Draw up and approve the cycling and public transport plan - Monitor the actions implemented and achieve significant results		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	DK+ for mobility, Bike+ Plan, ZIBAC		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Household motorization rate • Vehicles*kilometres by car • Kilometres travelled by mode of transport and broken down by reason • Number of trips per mode used		
Impact indicator and refresh rate	• Greenhouse gas emissions from road transport (tCO2eq) • Greenhouse gas emissions from the "other transport" sectors (CO2 eq) • Energy consumption of road transport (GWh) • Modal share of the car (in number of trips)		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	1

Axis 7	Sober and low-impact travel		
Action 44	Develop and enforce a proactive parking policy		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure , Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The local authority wishes to better share public space between the different modes of transport, in the central areas, by relying on a reasoned parking policy for motor vehicles. In this way, the community implements an effective strategy. It manages all parking in public spaces, including outside the centre (for a fee).		
Sub- actions	- Carry out a diagnosis of the parking offer and practices - Implement a strategy on the areas analyzed - Promote more environmentally friendly vehicles and parking spaces (pricing and differentiated signage, charging stations or services, guidance system to limit the search for space (if necessary) - shade spaces) - Rethink the parking strategy to promote intermodality and the use of active modes of transport (objective in urban planning documents, not to favour the car at all costs, to encourage parking in underground car parks, to reserve spaces for people with reduced mobility, to convert car parking spaces before pedestrian crossings into bicycle parking. - Allocate revenue for paid parking for sustainable mobility) - Broadening the reflection on parking - Evaluate and communicate on the parking policy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of public parking spaces for cars per capita (nb/inhabitant) • Number of parking spaces used for purposes other than parking • Number of parking spaces used according to the number of employees, housing, surface area of the places of activity, etc. • Number of places per employee and/or number of places per inhabitant • Number of places depending on the surface area of the company or accommodation • Average fill rate and maximum fill rate • Parking Capital and Maintenance Cost • Parking revenue • % of valid parking per 100 vehicles / % of annoying or dangerous parking		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 45	Reducing the need for travel: Regulating traffic, reducing speed and enhancing public space		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority is implementing actions to limit and reduce traffic on the main roads, reduce speeds in certain areas and improve the quality of public spaces. These include, in particular, through the acquisition of traffic management tools on the one hand, signage, the restructuring and redevelopment of roads and public spaces on the other hand, to give priority to the most vulnerable users such as pedestrians and cyclists as well as to revitalize local shops.		
Sub- actions	• Identify the areas that generate travel and are crossed by significant flows • Continue to use traffic management tools • Continue the redevelopment and restructuring of roads and public spaces in order to create areas of calmed traffic • Evaluate actions in favor of traffic regulation and the enhancement of public space • Raise awareness of eco-driving among the inhabitants of the territory • In the development and urban planning policy, promote local urban planning to reduce the need for travel (notion of the quarter-hour city to be integrated into the reflections)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	Built-in Axis Counts in the Traffic Management Tool		
	Kms of calmer roads		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 46	Reducing the impact of professional mobility		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	In terms of mobility, limiting mobility needs is a lever that helps reduce travel. There are two types of mobility: - Forced mobility: all travel required by a professional and/or supply activity that takes place during defined and limited time slots. - unconstrained mobility: all travel related to free time. Among the range of solutions that reduce the need for travel, there are also telecommuting or coworking solutions, allowing workers to work from places other than their workplace (home, third places, coworking spaces, etc.). To do this, there is still the challenge of raising awareness of teleworking among workers and employers to make it sustainable, but also to guarantee access to digital technology in order to offer all inhabitants the optimal conditions for its practice. For example, EDF CNPE in Gravelines has put in place numerous measures to reduce the impact of mobility on its employees (200 electric charging stations for the site's employees travelling in electric light vehicles, reduction in the size of public transport vehicles for employees, implementation of a booking application, adaptation of routes to the right need, etc.). the deployment of teleworking in all teams which makes it possible to limit travel to the Centrale, the extension of a cycle path to connect Gravelines by bike, the conversion of some of the service vehicles to electric vehicles, etc.		
Sub- actions	• Inform companies about their levers of action to reduce the carbon-intensive mobility of their employees ("sustainable mobility" package? Bicycle mileage allowances, etc.) and available assistance • Support the implementation of company/inter-company travel plans • Encourage teleworking • Set up electric terminals, secure bicycle parking spaces in company parking areas • Convert service vehicle fleets • Implementation of a low-emission mobility zone (ZFE-m)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Ecogagnant Vélo, Eco-gagner: free buses, ZFE-m		
Action tracking			
Numerical monitoring indicator and refresh frequency	Number of companies that have implemented a mobility plan		
Impact indicator and refresh rate	Implementation of the ZFE-m on 1 January 2025		
Funding terms			
Planned budget	Number of companies that have implemented a mobility plan		
Financial partners	Implementation of the ZFE-m on 1 January 2025		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 47	Further optimising the attractive, high-quality public transport offer		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority wishes to develop and improve the performance of the public transport service with a view to increasing its use and reducing the use of the car. The development and improvement of the public service requires an increase in the level of frequency, the quality of connections, a densification of the network, attractive pricing, a good night bus service, the quality of stopping points and transport vehicles. Access to the bus is free at the CUD, which has doubled its attendance in recent years.		
Sub- actions	- Continuously assess and analyze public transit needs - Directing the purchase of public transport vehicles and fleet renewal towards alternative fuels (bioNGV, electric and renewable hydrogen) - Improve the efficiency of the public transport network in collaboration with the AOMs and the main travel generators: setting objectives for better frequency and better ridership will be considered in the next public bus service delegation (2024) - Diversify the public transit offer, for more flexibility - Evaluate and communicate results		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	DK+ Mobility, Eco-Winner		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Attendance at TC (travel/inhabitant) • Territorial coverage by the TC network • Rush hour frequency • % of road lines dedicated to public transport/TCSP • CO2 display in g CO2/travel.km		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 48	Developing a safe and attractive pedestrian network		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority is developing the pedestrian network, the associated signage and developing the roads to encourage the development of this mode of transport and promote the modal shift.		
Sub- actions	- Equip yourself with tools to adopt a pedestrian network development strategy based on traffic calming - Continue to improve the situation in high-stakes areas as a priority - Continue to densify and improve the overall quality of the pedestrian network on the territory - To become an exemplary territory in terms of pedestrian mobility		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Km and % of roads dedicated to pedestrians/pedestrian paths • % of hard points treated		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	State (Active Mobility Fund), ADEME (Air Quality Roadmap), Hauts-de-France region		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 49	Developing the cycling network and infrastructure		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	To reduce energy consumption and greenhouse gas emissions, the local authority is developing the bicycle network, the associated signage and parking and is developing the roads to encourage the development of this mode of travel.		
Sub- actions	• Know and analyze cycling trips and parking in the territory • Consult and Inform residents • Adopt a cycling master plan • Implement its cycling master plan • to offer quality bicycle parking offers • Develop one or more express bicycle networks (REV) to facilitate travel between major cities and their suburbs • Monitor and Evaluate results		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	plan vélo+, Eco-winner program		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of roads developed for cycles (% Or failing that, km/1000 inhabitants) • Number of bicycle parking spaces, excluding wheel clamps (nb / 100 inhabitants) • Cycling policy budget (euros) • Cycling policy budget (euros/inhabitant year) • % of road lines in peaceful areas corresponds to the share of cycle lanes "in dedicated lanes" (roads not shared with cars or buses) • Occupancy rate of bicycle parking spaces Budget of the community's cycling policy in euros.year.inhabitant		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME (Air Quality Roadmap, By Bike), State (Active Mobility, Cycling Continuity Fund)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 50	Promote and monitor multimodal practices in the territory		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority carries out regular promotional and information actions for efficient and active mobility throughout its territory. To do this, it is joining forces with all the players involved in the field of mobility. The local authority evaluates, notes positive developments and thus communicates the evolution of the modal shares associated with all active and alternative modes to the private car (cycling, walking, public transport, carpooling, etc.).		
Sub- actions	- Update the mobility survey to find out the modal shares in your territory - Organize to carry out an information and awareness-raising policy on sustainable mobility - Continue to promote intermodality and alternative modes of transport to the private car in various forms and targets (information media, internet, events, information booklets, maps, mobility advice, financial support, temporary urban development, etc.) - Create a place/service dedicated to information on eco-mobility - Working with mobility stakeholders at the scale of the living area - Checking the progression of the modal shares of alternative modes of transport to the car, reaching exemplary values and communicating them		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Updated mobility survey • Place/service dedicated to information on eco-mobility created		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	State (Active Mobility Fund), ADEME (Air Quality Roadmap), Hauts-de-France region		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 51	Developing the multimodal offer and intermodality		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The local authority and its partners offer multiple and complementary offers that promote multimodality and intermodality (car-sharing, carpooling, park-and-ride facilities, bicycle rental, etc.). The pricing and terms of use of the services must be attractive and simple to limit the use of the private car.		
Sub- actions	- Analyze the needs and the existing multimodal offer - Facilitate the change of mode of transport - Develop the use of shared cars - Equipping the inhabitants with bicycles - Supporting cyclists with services associated with cycling - Monitor and achieve the objectives set		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of the labour force covered by a PDE/PDA (%) • Number of contacts (phone calls, physical appointments, etc.) at the mobility hub • Number of participants in events		
Impact indicator and refresh rate	Civil society		
Funding terms			
Planned budget			
Financial partners	State (Active Mobility Fund), ADEME (Air Quality Roadmap), Hauts-de-France region		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 7	Sober and low-impact travel		
Action 52	Optimising logistics and the management of the flow of goods in the territory		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	To reduce its energy consumption and reduce greenhouse gas emissions, the local authority defines rules and organises the supply and distribution of goods in its territory, favouring and developing all alternatives to motorised road transport. It also promotes local circuit activity.		
Sub- actions	- Engage in consultation with local stakeholders to identify the flow of goods and needs (consultation, flow mapping, inventory of goods deliveries, awareness of "last mile" issues, energy optimisation studies, port equipment, etc.) - Work with the "Low Carbon Industrial Zone" project on the freight transport component - Integrate guidelines for the optimisation of goods transport at the territorial level into planning documents - Acquire the "merchandise management" skill - Regulate, supervise, support and enforce the optimization of the management of the flow of goods on the territory - Rethinking the parking strategy for freight vehicles - Encourage and support local stakeholders within a formalised framework (local "urban logistics" charter, Commit with ADEME to a "voluntary commitment by local authorities" approach, which targets sustainable urban logistics, environmental walk such as a "Objectif CO2 - Les transporteurs s'engage" charter and label, Encourage shippers and freight forwarders to commit to a voluntary FRET 21 or EVCOM approach)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Public Spaces and Mobility Dept		
Related policies	TETE-CAE label, ZIBACproject		
Action tracking			
Numerical monitoring indicator and refresh frequency	• GHG emissions from freight transportation • Air pollutant emissions from freight transport		
Impact indicator and refresh rate	• Reduction of greenhouse gases linked to the optimization of the flow of goods on the territory • Reduction of air pollutant emissions from freight transport		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region, InterLUD program, CEE Colisactiv'		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 8	A low-carbon economy and industry		
Action 53	Promoting sustainable economic activities		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The local authority initiates, supports or participates in cooperation projects with local or regional economic actors on climate, air and energy, in order to encourage the transformation of economic activities towards a model that emits low greenhouse gases. In particular, it participates in the development of industrial ecology projects and more generally the circular economy in the region. It contributes to the improvement of the environmental quality of business parks.		
Sub- actions	• Continue to share strategy, knowledge and issues related to companies within the community (the economic development Dept/project manager (or equivalent) works cross-functionally with other Depts, on common projects (for example with the waste Dept on the subject of industrial and territorial ecology); the scope of the "economic development" competence is precisely defined (role, means, scope, priorities, etc.) and the strategy adopted is consistent with the community's climate-air-energy policy (evolution of activities towards sectors contributing to the energy transition and climate resilience, reduction of energy consumption and GHG/air pollutant emissions, saving of raw materials, etc.); The local authority has a clear argument to encourage companies to implement actions in favour of the energy and climate transition. • Continue to capitalise and work in partnership with specialised players (identify specialised players in contact with companies; know their actions and present the community's climate-air-energy policy; For the industrial component, in partnership with specialised players: identify the best practices of companies in the region, with "locomotive" companies that can serve as relays and examples on the following themes: • Training of business developers on climate-air-energy issues and best practices in companies • Improving the quality and diversity of economic activity zones • Continuing to involve companies in structured and collective industrial ecology projects • Maintain an economic dynamic, in line with the needs of a society with low GHG emissions		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Entrepreneurship, Trade and Innovation Dept Tourism, yachting and boating Dept		
Related policies	Label Territory committed to ecological transition - circular economy, TETE-CAE label		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Budget in euros.year for actions aimed at companies to improve their energy performance • Number of signatories of commitment charters/certified sites ISO50001		
Impact indicator and refresh rate	• Greenhouse gas emissions from the tertiary sector (tCO2eq) • Greenhouse gas emissions from industry (tCO2e) • Tertiary energy consumption (GWh) • Industrial Energy Consumption (GWh) • Reduction of air pollutants demonstrated on certain actions		
Funding terms			
Planned budget			
Financial partners	ADEME, Dept, region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 8	A low-carbon economy and industry		
Action 54	Developing sustainable tourism		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The local authority develops a sustainable tourism strategy that takes into account in an integrated manner the impacts of tourism on natural resources and ecosystems (pressure on local water resources, etc.), in terms of GHG emissions (particularly related to transport) and access to tourism activities for all. It is taking measures to reduce these impacts. The local authority involves specialised tourism providers (business, sport, leisure, event tourism) and includes this objective in its sustainable tourism strategy. In particular, it encourages those involved in the accommodation and catering industry to commit to an eco-responsible approach.		
Sub- actions	Based on the diagnosis of the challenges and good practices in terms of sustainable tourism in the territory: - Mobilising tourism stakeholders - Develop a tourist offer of high environmental quality (excluding mobility) - Pursue the global offer of sustainable mobility in connection with tourism - Integrate and formalize the issue of sustainable tourism in an ambitious way in the territory's climate, air and energy vision		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Tourism, Yachting and Boating Dept		
Related policies	TETE-CAE label, "grand-site operation		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Rate of accommodation with the European Ecolabel label (or equivalent) • Annual Community Budget to Support Sustainable Tourism • Number of km of hiking/cycling/horseback riding routes created or rehabilitated • % of visitors using TC / Evolution over time / Attendance rate • Number of training courses carried out - number of participants / number of awareness-raising actions carried out - number of people sensitised		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME, Dept, region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 8	A low-carbon economy and industry
Action 55	Supporting the decarbonisation of industry through Dunkirk, creative® energy and the decarbonisation roadmap for the port area
Objectives	GHG reduction, Energy sobriety
Context of the action	As part of the call for contributions launched by the CUD under the PCAET, Euraénergie proposed an action to contribute to this action Dunkirk Creative Energy is a collective and territorial dynamic whose aim is to transform the Dunkirk ecosystem in order to succeed in the transition to a decarbonised and energy-sustainable world, in order to meet the major climate, economic and social challenges of our time. The ZIBAC call for projects is part of the strategy to accelerate the decarbonization of industry, one of the objectives of which is to promote the development of Low Carbon Industrial Zones (ZIBaC). Through this program, the State aims to support industrial territories in their ecological and energy transformation to gain competitiveness and attractiveness to support the resumption of economic activity. This program will also make it possible to promote French technologies, innovations and industrial know-how on an international scale. Projects must aim to accelerate the decarbonisation of their industrial zone, by implementing a set of investments, experiments, synergies and innovations. They must be ambitious regional projects in terms of decarbonisation, climate resilience and ecological transition and which experiment with and support organisational or technological solutions and innovative processes that contribute to responding to the problems they face. These industrial zones must therefore integrate a training strategy with a view to their enlargement or their diffusion to other territories. This programme also aims to create a national network of industrial zones that emit particularly greenhouse gases (GHGs) and that wish to accelerate their decarbonisation. This network will make it possible to provide each member industrial zone with a macroscopic and interregional approach to decarbonisation actions by, for example, sharing joint operations. EDF Gravelines nuclear power plant has also submitted a contribution under the PCAET which makes it possible to contribute to CO2 reduction actions and energy projects in the region, in particular through the massive production of carbon-free electricity

Sub- actions	Implement the Ecosysteme D roadmap, which is broken down into several combined actions: - Decarbonization of electricity (offshore wind, ground-mounted photovoltaic farms) - Energy sobriety (buildings, lighting) - Strengthening the circular economy (heat highway) - Reduction of industrial water consumption - Creation of a hydrogen hub and a CO2 hub - Valuing CO2 as a resource - Host new activities that are already decarbonized or working towards decarbonization - More virtuous company travel policy - rely on the call for projects "Promoting the development of Low Carbon Industrial Zones (ZIBaC)" Examples of actions carried out by Arcelor Mittal: - Steel roundness project: Double the volume of post-consumer steel (2 Mt/y in the long term) recycled in our steelmaking processes, thanks to investment in resized logistics, innovation in terms of steel processes and the development of recycling channels - Innovative DRI: reduce the site's CO2 emissions by 44% by changing the steel production process and replacing blast furnace 3 with a direct reduction unit associated with electric furnaces and hydrogen. - Electrical steel production project: To support the needs of its automotive manufacturer customers in the development of their electric vehicles, the ArcelorMittal group plans to increase its production of electrical steels by creating an electric steel production unit in Mardyck (5 new lines). This unit, with an annual capacity of 200,000 tonnes, would complement the existing unit in Saint-Chély-d'Apcher, in Lozère, which produces 100,000 tonnes per year, production insufficient to meet future demand from the automotive sector. These electric steels are used to form different parts of the vehicle's electric motor (stator and motor rotor). The construction of the production capacity at Mardyck must be done in a short period of time (mid-2024) to be ready to meet European demand. This project represents an investment of more than 300 million euros and the creation of more than 100 direct jobs.		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Directorate-General for Economy and Attractiveness Ecosysteme D		
Related policies	DKcarbonation, Label TETE-CAE, ZIBAC		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate	• Greenhouse gas emissions from industry (tCO2e) • Industrial Energy Consumption (GWh) • Emissions of air pollutants from industrial sources		
Funding terms			
Planned budget			
Financial partners	ADEME, France Relance (Acting for the ecological transition), CDC, European funds		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	1

Axis 8	A low-carbon economy and industry		
Action 56	Implement CO2 capture projects for residual emissions		
Objectives	GHG reduction		
Context of the action	The Smart Carbon project aims to eventually achieve carbon neutrality by capturing residual CO2 emissions to sequester it (CCS) or give it a second life (CCU) by recombining it with hydrogen for a new use (e-fuels, application in chemistry) A project to develop a liquefied CO2 terminal is underway by Dunkerque LNG, which wishes to study the development of a liquefied CO2 export terminal on its site to take advantage of the synergies brought by the fatal cold resulting from its process.		
Sub- actions	Implement the actions dedicated to CO2 capture in the EcosystemeD roadmap: - All CO2 capture projects: PCI Hub CO2 d'Artagnan – Air liquide - REUZE – Engie project - 3D / DMX project - ORC Project - Ferroglobe - SHYMED project - DRI project - Arcelor and Air Liquide - Smart Carbon - Liquefied CO2 terminal		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Directorate-General for Economy and Attractiveness, Ecosysteme D		
Related policies	Dkcarbonation, HEAD/CAE, ZIBAC		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate	• Evolution of GHG emissions from the region's industrialists • Quantities of GHGs sequestered by industrial capture techniques (teCO2eq)		
Funding terms			
Planned budget			
Financial partners	ADEME, France Relance (Acting for the ecological transition)		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	1

Axis 8	A low-carbon economy and industry		
Action 57	Supporting the transition of the Grand Port Maritime de Dunkerque		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The transport of goods, particularly by sea, represents the second largest GHG emissions item in Dunkirk after industrial emissions. Freight transport emits nearly 2.2 million tonnes of CO2 equivalent each year, 91% of which are emitted by sea and river traffic around the Grand Port Maritime de Dunkerque. With the prospects for industrial and port development, it will be essential to contain emissions linked to the transport of goods in order to succeed in the region's ecological transition. More broadly, as the GPMD territory is the support for industrial establishments, it will be necessary to support the indsutrials present on its territory to enable the GPMD to make the transition to more sustainable protuary activities, which consume less energy and emit less GHGs or atmospheric pollutants. The Grand Port Maritime de Dunkerque (GPMD) has submitted a contribution under the PCAET by proposing various actions to decarbonise the port territory. Thus, the GPMD is committed to contributing to: - Decarbonize electricity (offshore wind, ground-mounted photovoltaic farms) - Improve energy efficiency (buildings, lighting) - Strengthening the circular economy (heat highway) - Reduce industrial water consumption - Create a hydrogen hub and a CO2 hub - Develop actions in favour of the ecological transition (quayside electrification for ships, LNG bunkering, alternative fuels) - Valuing CO2 as a resource - Host new activities that are already decarbonized or working towards decarbonization - Mass rail and river transport - Contribute to improving the company's travel policies		
Sub- actions	Support the GPMD in the implementation of the actions proposed above		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dptt in charge	Directorate-General for Economy and Attractiveness		
Related policies	Cti'ergie, ZIBAC		
Action tracking			
Numerical monitoring indicator and refresh frequency	Share of ships that have benefited from dockside electrification		
	Number of alternative fuel stations set up		
	Solar and wind power generation		
	Evolution of modal shares in freight transport		
Impact indicator and refresh rate	Indiustrial port zone Power Consumption		
	GHG emissions from port activities (teqCo2)		
Funding terms			
Planned budget			
Financial partners	ADEME, France Relance (Acting for the ecological transition), European fund (H2020, ERDF, etc.)		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	1

Axis 8	A low-carbon economy and industry		
Action 58	Promoting local employment		
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The roadmap of the General Assembly on Local Employment is the result of 9 months of work and consultation in 2014 and 2015. This is a unique approach in France at the inter-municipal level. The EGEL today is nearly 60 actions coordinated by Greater Dunkirk. These actions are implemented by the CUD, Entreprendre Ensemble, Dunkerque Promotion, the municipalities, the GPMD, Maison de l'Europe, etc. and federate an even wider network of partners: ULCO, Regional Council, Chamber of Commerce, Chamber of Trades, Chamber of Agriculture, Pôle Emploi, BGE Flandre Création, Initiative Flandre, companies, business clubs, craftsmen, associations... With a view to the massive development of industrial employment in the territory, it will be necessary to put in place solutions so that the people of Dunkirk can benefit from the jobs generated by the industrial development of the territory. As part of the call for contributions launched by the CUD under the PCAET on the platform Changing life together, the University of the Littoral Côte d'Opale (ULCO) proposed a contribution that could be related to this action. Indeed, ULCO has been committed since 2021 to the development of a sustainable development and social responsibility (DDetRS) reference framework whose objectives are to include the establishment in an ecological transition approach. Thus, all the university's missions are concerned: research, training as well as social and environmental policy. As part of its DDetRS commitment, ULCO is committed to training in sustainable development and ecological and energy transition professions.		
Sub- actions	- Supporting SMEs: the house of entrepreneurship to advise and support, Making the service offer dedicated to entrepreneurship accessible and legible, Developing and leading the entrepreneurial community, Offering the necessary financial support, Providing methodological assistance, Providing technical and technological resources - Affirm a vision of the future, particularly around activities that make it possible to decarbonize the territory and its infrastructure - Developing the residential economy: From 2016, the territory is focusing on the attractiveness and development of jobs that cannot be relocated to compensate for the loss of jobs that this figure represents - Putting people at the heart of the economy		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Attractiveness and Employment Dept		
Related policies	Cti'ergie, General Assembly of Local Employment		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Evolution of the unemployment rate • Number of jobs created annually • Share of jobs filled by local residents		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME, Dept, region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 59	Applying the measures of the master plan for heating networks		
Objectives	Development of renewable and recovered energies		
Context of the action	The current Dunkirk network has been the subject of numerous leaks, causing a lot of nuisance for the people of Dunkirk. Its condition requires significant investment, which will be a major challenge at the end of the current PSD. The second major challenge will be the supply of renewable energies to the needs of the networks for the years to come. The different potential sources are multiple but also very uncertain, including the current means of production. However, the CUD has control over the decisions that will be taken on the projects associated with the CVE, which is a major asset for the next few years, before the emergence of other projects such as REUZE. These 2 main issues will probably be a brake on the ambition to develop the CUD's networks, particularly with the aim of keeping heat prices under control. However, the recent rise in energy prices and the objectives in terms of sustainable development could push the CUD to remain open to developing its networks to benefit as many people as possible.		
Sub- actions	Implement the recommendations of the 2022 master plan for heating networks of Greater Dunkirk		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Management		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Evolution of network power • Evolution of the number of connected customers • Renewable energy and recovery rate (RE&R) of heating networks in the territory (in %) • Rate of coverage of the territory's heat needs (residential and tertiary) by renewable energy heating networks (in %)		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME via the heat fund		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 60	Optimising the public service of energy distribution to support the energy transition of the territory		
Objectives	GHG reduction, Development of renewable and recovered energies		
Context of the action	The local authority, in conjunction with the electricity, gas and heat network managers/concessionaires, ensures the quality of the service provided and the contribution of this mission to its strategy of energy sobriety and efficiency, the development of renewable energies and the fight against climate change. Reflections and actions for network optimization, through the flexibility of demand, production and/or storage (SmartGrid) are carried out. As part of the call for contributions to the PCAET launched by the CUD, GrDF proposed an action aimed at converting oil heating to gas energy. Thus, GrDF supports the eco-win-habitat approach by allocating aid, in consultation with the CUD's housing services, to accelerate the conversion of oil heating to gas (natural gas / green gas).		
Sub- actions	- Regularly update knowledge of the challenges of energy distribution in the territory - Continuing the involvement of energy distribution players in a transversal manner - Continue to integrate energy efficiency criteria and the development of renewable energies into the public energy distribution service - Implement the network optimization strategy to dialogue more effectively with specialized players - Implement a localized energy management program with network managers/concessionaires - support GrDF in the implementation of the proposed action		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Communication Dept, Housing and Housing Dept, Urban renewal project management		
Related policies	TETE-CAE label, 7 feasibility studies for self-consumption + collective self-consumption projects are underway, as part of the ANRU Programme – DEGROOTE project in connection with smart grids		
Action tracking			
Numerical monitoring indicator and refresh frequency	Number (or power) of renewable energy connections to energy distribution networks		
Impact indicator and refresh rate	Energy use in the residential sector		
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies
Action 61	Supporting the development of anaerobic digestion
Objectives	GHG reduction, Development of renewable and recovered energies
Context of the action	Faced with the scarcity of non-renewable resources and the need to reduce greenhouse gas (GHG) emissions, the energy transition, thanks in particular to a circular economy, is an obvious choice. In addition to strengthening recycling, the circular economy consists of thinking about the optimal use of local resources in the territories, optimising the management of flows between players and developing renewable energies. Anaerobic digestion is fully in line with this logic: it makes it possible to treat and reduce the volume of organic waste, to produce local and renewable energy and to create a territorial economic dynamic. The biomethane energy system is organised into short, local loops, specific to a circular economy. The production of green gas thus makes it possible to recreate value in the economic system from organic matter streams. Anaerobic digestion plants are fully integrated into the territories: inputs are local, and so is consumption. The biomethane energy system is therefore organised into short, local loops, specific to a circular economy. As such, GrDF has submitted two contributions on the changing life together platform to support the development of anaerobic digestion projects in the territory: - Injection of biomethane into the GRDF network on the anaerobic digestion unit of the Daudruy industrial site - Co-financing of a post-doc for the development of a university thesis on methanation in partnership with ULCO and the region SAS FLANDRE BIOGAZ has submitted a contribution under the CUD's PACET by proposing the construction of a methanisation unit in the municipality of Bourbourg.
Sub- actions	- Support scientific research on catalyst optimization (without noble metal) for the methanation reaction and pilot validation. (2022-2024) - Support the implementation of anaerobic digestion projects: - Commissioning by the industrial company Daudruy of a methanisation unit that will make it possible to inject biomethane, a renewable green gas, into the natural gas network. It will be an injection of 750 Nm3/h - the largest green gas production unit north of Paris (a medium-sized agricultural unit injects 150 Nm3/h of green gas into the gas network). GRDF is supporting the manufacturer in the injection of biomethane into the gas network. (starting in 2023) - SAS Flandre Biogaz will build a biogas plant with commissioning of the site scheduled for September 2023. The site will be used to reprocess agricultural waste and waste from the agri-food industries in the sector in order to produce biomethane that will be injected into the GRDF network. The unit plans to produce 15,000 MWh of biogas annually. - Commissioning of a methanisation unit for wastewater treatment plant sludge in the agglomeration on the Grande-Synthe WWTP
Conditions of implementation	
Provisional schedule	2023 to 2029
Dept in charge	Sustainable City Direction
Related policies	TETE-CAE label, TETE/EC label, framework deliberation on water, Dunkerque EnergieCréative
Action tracking	
Numerical monitoring indicator and refresh frequency	• Number of anaerobic digestion plants in the territory % of WWTP sludge recovered by anaerobic digestion
Impact indicator and refresh rate	• Annual production of bio-methane by the region's anaerobic digestion plants • Share of natural gas needs for residential households covered by bio-gas produced on the territory

Funding terms			
Planned budget			
Financial partners	Dunkerque Energie Créative, GRDF, Region, industrialists concerned		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies
Action 62	Increasing the production of electricity from renewable energies in the territory
Objectives	GHG reduction, Development of renewable and recovered energies
Context of the action	The production and consumption of renewable and recovered energy (RE&R) is one of the main pillars of the region's energy transition strategy. In addition to continuing efforts to reduce energy consumption and energy performance, the territory must necessarily decarbonize its energy consumption by diversifying its energy mix. To achieve this, the balance towards renewable and recovered energies must be accelerated by increasing the production of these energies. As such, EDF Renewables / Dunkirk Offshore Wind Turbines has submitted a contribution on the Changing Life Together platform, which will significantly increase the production of electricity from renewable sources with a project to build an offshore wind farm off the coast of Dunkirk. EDF Renewables France has also submitted a contribution to increase the production of electricity from renewable sources with the construction of a photovoltaic power plant in Loon-Plage. The Dunkirk Water Syndicate proposed an action to produce electricity from renewable sources with an action called "Hydro-turbines: when the production of drinking water rhymes with electricity production". The DkWatt association has proposed a contribution under the PCAET to develop renewable energy citizen projects, particularly photovoltaics. The GPMD also has plans to build two photovoltaic power plants on its territory (see action sheet N°57)
Sub- actions	- Gradually increase renewable electricity production and diversify renewable electricity production sources: - Implement the various renewable electricity production projects in the territory: - Photovoltaic energy production project in Loon-Plage (EDF Renewables France has been working for about two years on the development of a photovoltaic energy production project in Loon-Plage. The project site is located in the north of the municipality, on land belonging to the Grand Port Maritime de Dunkerque. It is a former storage site operated until October 2010 for the burial of steel waste. As such, it is qualified as a 'degraded' site with regard to the specifications of the calls for tenders of the Energy Regulatory Commission (CRE) and therefore benefits from points of environmental relevance. Nearly 16 MWp of solar panels will be installed and injected into the grid, equivalent to the annual electricity consumption of 7,860 people. - Offshore wind farm project off the coast of Dunkirk: Development, construction and operation of an offshore wind farm with a maximum capacity of 600 MW, with an estimated annual production of 2.3 TWh/year, equivalent to the annual electricity consumption of nearly one million inhabitants. - Support the GPMD's PV power plant projects (in connection with action 57) - Hydro-turbines: when the production of drinking water rhymes with the production of electricity (the difference in altimetry existing at a point in the network is conducive to the installation of a hydroelectric turbine that can make it possible to recover the energy dissipated from the loss of pressure into electrical energy. The SED therefore aims to install a microturbine at the Grande-Synthe drinking water distribution site to recover this fatal energy and produce electrical energy. A study was carried out to determine the electricity production potential, which amounts to the equivalent of the electricity consumption of 50 households (200MWh/year). The energy produced will therefore cover 100% of the energy needs of the Grande-Synthe site (90MWh/year) and the surplus will be sold back to the electricity grid. - Supporting the Dk'watt association in the development of citizen photovoltaic electricity projects - Communicate on the CUD's solar cadastre to encourage solar installations among the inhabitants.
Conditions of implementation	
Provisional schedule	2023 to 2029
Dept in charge	Sustainable City Management
Related policies	TETE-CAE label, Dunkerque EnergieCréative

Action tracking			
Numerical monitoring indicator and refresh frequency	• Project in Loon-Plage completed • Offshore wind project completed • SED project for micro-turbines completed • Number of citizen projects carried out by DkWatt		
Impact indicator and refresh rate	• Renewable electricity generation (MWh) • Rate of renewable electricity generation in the territory (%) • Photovoltaic power installed in the territory (Wp/inhabitant) • Energy mix proposed by the utilities and SEM electricity supplier (%)		
Funding terms			
Planned budget			
Financial partners	Hauts-De-France region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	1

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 63	Developing innovative low-carbon hydrogen production projects thanks to the SHYMED project		
Objectives	GHG reduction, Development of renewable and recovered energies		
Context of the action	Hydrogen is currently used due to its chemical properties in the oil and gas industry and in the chemical industry. However, this molecule has a major energy interest that is not/little exploited today. It can be used for energy production on the grid, or in transport, and it is a solution for energy storage, especially electricity, which will be the challenge of 21st century energy systems. Hydrogen as an energy vector thus represents a scientific, environmental and economic challenge. Thanks to advances in electrolysis technology, it can be produced in a carbon-free and economical way and contribute to the objectives that France has set itself in terms of developing renewable energies, reducing greenhouse gas emissions and pollutants and reducing fossil fuel consumption. In this context, the EDF Group, has submitted a contribution under the PCAET with its SHYMED project for the production of low-carbon hydrogen. The SHYMED project is part of a complete ecosystem for the community territory. The hydrogen produced on site will be used to power buses, amplirolls and household waste collection vehicles (BOMs) from April 2024. The key figures of the project are as follows: • 1.25 MW of electrolysis, 500 kg of H2/day distributed • 2 distribution terminals: 350 bar and 700 bar • Uses: 10 Buses, 4 BOMs and 3 Ampliroll • 1140 tonnes of CO2 avoided per year		
Sub- actions	Setting up the SHYMED project to produce low-carbon hydrogen		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept Waste Reduction and Recovery Dept		
Related policies	TETE-CAE label, Dunkerque EnergieCréative		
Action tracking			
Numerical monitoring indicator and refresh frequency	SHYMED project set up		
Impact indicator and refresh rate	• Annual production of hydrogen produced • Tonnes of CO2 equivalent avoided by the use of hydrogen		
Funding terms			
Planned budget			
Financial partners	ADEME		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 64	Increasing the use of renewable and recovered energy for heat and cooling		
Objectives	GHG reduction, Development of renewable and recovered energies		
Context of the action	The potential for using renewable energies for heating buildings, domestic hot water and cooling has been exhausted, with a focus on air quality. Where possible, renewable heat networks are set up. The achievement of the objectives is measured with the percentage of energy of renewable origin in the consumption of heating or cooling in the territory. Recovery: The heat recovery possibilities of large industrial companies and power plants, including from and for the production of cooling, are exploited. The potential for cogeneration or even tri-generation (primarily from renewable energies, then natural gas), for example for the heating or cooling sector, is known and exploited. The technologies and energy sources used are chosen in a multi-criteria climate-air-energy approach. The mobilisation of heat recovery potential is designed in line with the development of heating networks (in connection with action N°59).		
Sub- actions	• Implement the monitoring of the renewable energy rate • Using heating networks to achieve renewable heat targets • Achieve the objectives set in terms of covering the territory's heating and cooling needs with renewable energies (>38%) • Regularly update the potential for heat recovery and cogeneration • Setting binding provisions and development objectives in the community's energy programming • Monitor the development of heat recovery and cogeneration and achieve the objectives set • Valorisation of the methanogenic deposit of the WWTP (sludge) and biomethane production		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept		
Related policies	TETE-CAE label, RCU development plan		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate	• Annual energy consumption of the territory for heating and cooling (GWh) • Rate of renewable energy production for heating and cooling in the territory (in %) • Rate of coverage of the territory's heat needs (residential and tertiary) by renewable energy heating networks (in %) • Renewable Heating/Cooling (MWh) • Renewable energy and recovery rate (RE&R) of heating networks in the territory (in %)		
Funding terms			
Planned budget			
Financial partners	ADEME, Hauts-de-France Region		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 65	Encouraging the reduction of consumption and the purchase of green electricity with energy suppliers and syndicates		
Objectives	GHG reduction, Development of renewable and recovered energies		
Context of the action	The local authority is working, in partnership with the energy suppliers active in the area, to encourage users to reduce their consumption and increase the share of renewable electricity purchased. Customers and members are made aware of this and services in this area are offered. - Encourage the purchase of renewable electricity - Use energy billing to encourage thrifty behaviour (according to margin of action) - Develop the energy management and renewable energy services offered by energy players - Monitor the effectiveness of the actions carried out		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Dept		
Related policies	Eco-Winning Program, TETE-CAE Label		
Action tracking			
Numerical monitoring indicator and refresh frequency	Share of green electricity contracts in the territory		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	ADEME, Hauts-de-France Region		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 9	A territory that is self-sufficient in energy and produces low-carbon energies		
Action 66	Pursue research projects to promote the development of energy storage		
Objectives	GHG reduction, Development of renewable and recovered energies		
Context of the action	Energy storage is the process of preserving an amount of energy produced for later use. The idea is to ensure a balance between energy production and consumption, to reduce losses and thus optimize costs. It is on this theme that Eco-Tech Ceram, submitted a contribution under the PCAET with its ProDepVal project for a movable prototype for the storage and recovery of waste heat for various applications: drying, electricity, steam, refrigeration. This research and development project is financed by Eco-Tech Ceram and 70% subsidized by the Hauts-de-France Region and ADEME Hauts-de-France. The ProDepVAL project aims to develop a fully containerized, movable and modular "pilot" storage unit, making it possible to demonstrate the feasibility of recovering waste heat from various equipment on different industrial sites and for innovative applications. As part of this project, the Arcelor Mittal Dunkirk industrial site will be the first user of the prototype to validate the feasibility of sintering sludge drying. Subsequently, it will be used in other industrial applications and in the development of energy couplings (multi-energy) among others. Technically, the ProDepVAL project consists of: - develop a "pilot" storage unit that is fully containerized, movable, modular – of sufficient size to limit the influence of boundary conditions; - test the feasibility of drying sinter sludge on the Arcelor Mittal Dunkirk industrial site; - more generally, integrate a thermal storage system into various industrial processes (conventional or innovative) in order to demonstrate the feasibility and effectiveness of coupling to storage.		
Sub- actions	- Set up the pilot unit - Observe how it works to study its replicability		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Sustainable City Management, Ecosysteme D		
Related policies	TETE-CAE label, Dkcarbonation, Dunkirk creative energy®		
Action tracking			
Numerical monitoring indicator and refresh frequency	Pilot unit set up		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	Hauts-De-France Region and ADEME		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 10	A territory that produces little waste and optimizes its recovery
Action 67	Implement the waste prevention and management strategy through the Local Programme for the Prevention of Household and Similar Waste and support companies and administrations for better waste management
Objectives	GHG reduction, Reduction of air pollutants and population exposure, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	The local waste prevention and management policy is defined, implemented, monitored and evaluated. It includes the implementation of a local programme for the prevention of household and similar waste (reuse and reuse, local management of bio-waste, the fight against food waste, reduction at source, etc.), the collection and treatment of household and similar waste (separate collection and recycling of packaging and paper, etc.). separate collection and organic recovery of bio-waste, other collection and recycling channels, in particular via waste collection centres, etc.), as part of the public service. Incentive pricing for user service (through tax or fee) should promote waste reduction and recycling channels, and is a tool for optimising waste services. The objective of the 2023-2029 community PLPDMA is to reduce waste production by 15% (compared to 2010), i.e. 509 kg/inhabitant in 2030. As part of the call for contributions launched by the CUD under the PCAET, the ECOPAL association proposed two actions to contribute to the reduction and better recovery of waste in the territory: - Provision of Recycle Solution, a tool for better waste management in companies Recycle Solution is a free digital waste management and traceability tool (link to the government tool Trackdéchets) for companies. It allows users to better monitor the evolution of their waste (volumes, costs, percentage of recovery, etc.) in order to improve their management. The tool, via the "Waste Exchange" section, also allows users to put their waste online that can be used as free raw material for other companies (example of wooden pallets that are donated by an industrial company and recycled into furniture by a technical integration centre). - Provision of a shared collection service, "the Ecopal reflex to adopt!" Pooled collections are part of the services that Ecopal offers to its members. They are concretely part of the application of the approaches of Industrial and Territorial Ecology. The association organises with its partners shared waste collections in the region's structures so that this waste can be recycled and recovered, but also to contribute to the development of local employment, to limit transport and finally to protect our environment. Ecopal organises the collection of the following waste: waste electronic and electrical equipment (WEEE), paper and cardboard, ink cartridges, hazardous waste (chemicals, oils, soiled objects, etc.), batteries, conventional and confidential archives.
Sub- actions	• Implement an ambitious local waste prevention and management policy focused on the circular economy: - Be exemplary in waste management - Raise awareness and promote the visibility of their efforts in favour of waste prevention - Using economic instruments to promote waste prevention - Fight against food waste - Avoid the production of plants and encourage the local management of bio-waste - Increase product shelf life - Implement or strengthen emblematic actions promoting responsible consumption - Reduce business waste - Reduce construction waste - Reduce marine litter • Support ECOPAL in the implementation of the proposed actions

Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Waste Reduction and Recovery Dept		
Related policies	Local programme for the prevention of household and similar waste, Ecowinner, Repair café, Territory Committed to the ecological transition "Circular Economy" label, NPNRU, TETE/CAE label		
Action tracking			
Numerical monitoring indicator and refresh frequency	Annual Waste Report		
	ECOPAL Annual Activity Report		
Impact indicator and refresh rate	- Greenhouse gas emissions from waste (tCO2eq) - Energy consumption of waste (GWh) - Production of household and similar waste (with excavated material and rubble) per capita (kg/inhabitant per year) - Residual household waste production (kg/inhabitant) - Production of waste collected selectively, either door-to-door or by voluntary contribution (kg/inhabitant) - Occasional waste production (kg/inhabitant) - Material and organic recycling of household and similar waste (%) - Production of household and similar waste (with excavated material and rubble) by economic activities - Residual household waste production by economic activities - Production of waste collected selectively, either door-to-door or as a voluntary contribution by economic activities - Occasional waste generation through economic activities		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region (FRATRI cadre 6), ADEME (circular economy fund, feasibility study of professional waste collection centres)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 10	A territory that produces little waste and optimizes its recovery		
Action 68	Recovering residual waste and bio-waste		
Objectives	Development of renewable and recovered energies, Reduction of air pollutants and population exposure		
Context of the action	The local authority recovers residual waste (including residual household waste, sorting centre refusals, run-of-the-mill waste, incinerable non-recyclable waste) and bio-waste from the territory: - The energy potential generated by the incineration of waste produced on the territory of the community or by the combustion of waste prepared in the form of SRF (Solid Recovered Fuels) in dedicated units is used, with regard to the waste and resource prevention and management strategy - The energy potential from landfill gases is used. - The potential for recovering bio-waste (straw, slurry, wood waste, crop residues, organic waste from households and economic activities) is used through composting, the production of bio-diesel/bio-methane for heating (fuel) or for transport (agro-fuel) as well as specific bio-waste combustion plants.		
Sub- actions	• Update the current state of the potential for optimising waste-to-energy • Recover energy from waste management • Monitor objectives and achieve a high level of waste recovery		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Waste Reduction and Recovery Dept		
Related policies	PLPDMA, Committed Territory for the Ecological Transition "Circular Economy" label, Eco-winner		
Action tracking			
Numerical monitoring indicator and refresh frequency	Updated inventory of the potential for optimising waste-to-energy		
Impact indicator and refresh rate	• Energy efficiency in % (energy recovery, electricity and heat) • Energy produced by the recovery of bio-waste in kWh/year (failing this, kg/inhabitant of bio-waste collected separately -methanisation and/or composting-) • Waste-to-energy rate for biogas from waste storage centres (%)		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region (FRATRI cadre 6), ADEME (circular economy fund, feasibility study of professional waste collection centres)		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 10	A territory that produces little waste and optimizes its recovery		
Action 69	Raising awareness among residents about responsible consumption		
Objectives	GHG reduction, Reduction of air pollutants and population exposure, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	Reducing waste at the source is crucial to the preservation of natural resources. In addition, a lot of waste comes from plastic materials, which are extremely harmful to ecosystems and health. The challenge of the PCAET is therefore to continue actions to raise awareness of the reduction of waste at source (limiting packaging, buying in bulk, sorting, etc.), and to optimise the recovery and treatment of waste in order to reduce the environmental footprint and the impact on the health of the treatment chain. As part of the call for contributions launched by the CUD under the PCAET, the ECOPAL association and the JOUVE grocery store proposed actions to contribute to this action: - Since 2021, the Dunkirk Water Syndicate (SED) has launched an operation to distribute stainless steel water bottles to all 2,767 students in the second year of the Middle School (CM2) in the area. - La MAISON JOUVE Local organic bulk grocery store offers to facilitate access to organic, local and bulk products through deliveries to the workplace via an online ordering and payment tool).		
Sub- actions	- In connection with action N°67 - Implement communication actions for residents to raise awareness of responsible consumption - Facilitate access to organic, local and bulk products: more responsible consumption and 0 waste - Raise awareness among residents about reuse and repair through resource centres and repair-cafés - Setting up awareness-raising actions in schools		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Waste Reduction and Recovery Dept		
Related policies	Eco-winner, PLPDMA, Territory Committed to the ecological transition label "Circular Economy", RLPi		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of interventions in schools per year • Share of students who have benefited from an intervention on waste reduction and responsible consumption		
Impact indicator and refresh rate	• Production of household and similar waste (with excavated material and rubble) per capita (kg/inhabitant per year) • Residual household waste production (kg/inhabitant) • Production of waste collected selectively, either door-to-door or by voluntary contribution (kg/inhabitant) • Occasional waste production (kg/inhabitant)		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region (FRATRI cadre 6), ADEME (circular economy fund)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 10	A territory that produces little waste and optimizes its recovery
Action 70	Developing synergies with a Circular Economy objective
Objectives	GHG reduction, Reduction of air pollutants and population exposure, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	• According to ADEME, the circular economy can be defined as an economic system of exchange and production which, at all stages of the life cycle of products (goods and services), aims to increase the efficiency of the use of resources and reduce the impact on the environment while developing the well-being of individuals. It is a transition to a model based on zero waste and an increase in the intensity of resource use while decreasing environmental impacts. This is what the circular economy aims to achieve, which takes into account three fields: the production and supply of goods and services; consumption through demand and consumer behaviour (economic or citizen); waste management with the priority use of recycling which makes it possible to close the loop. • By adhering to the Territory Committed to the Ecological Transition – Circular Economy (TETE-EC) label, the CUD wishes to commit to developing its circular economy policy and animating a dynamic in the territory that goes well beyond the classic "waste" competence and by orienting its actions towards the axes of the TETE-EC standard: - Definition of a global circular economy strategy and inclusion in the territory - Development of waste reduction, collection and recovery services - Deployment of the other pillars of the circular economy in the territories - Financial tools for behaviour change - Cooperation and commitment • The ECOPAL association has submitted a contribution on Changing life together for its participation in the PCAET. This action aims to develop synergies with a view to achieving a Circular Economy in the region. Ecopal develops synergies between territorial actors. From deposits to outlets and processing, Ecopal's mission is to identify all the players in a sector and to get them to work together to develop circular economy loops. To succeed in this mission, Ecopal must communicate, federate, coordinate and remove regulatory, technical and financial blockages. Among the projects already identified, there is in particular the recovery of end-of-life joinery, personal protective equipment and shellfish waste (scallops, mussels, etc.).
Sub- actions	• Aim for a 5-star label with the TETE-EC label by the end of the PCAET 2022-2028 • Identify the different sectors for which it is possible to bring out circular economy projects • Identify the players in these sectors and get them to work together • Identify the various regulatory, technical and financial obstacles • Implement the various circular economy sector projects according to the maturity of the players • Communicate on these sectors • Support ECOPAL in its circular economy actions
Conditions of implementation	
Provisional schedule	2023 to 2029
Dept in charge	Waste Reduction and Recovery Dept
Related policies	PLPDMA, Committed Territory for the Ecological Transition "Circular Economy" label
Action tracking	
Numerical monitoring indicator and refresh frequency	Number of circular economy projects implemented
Impact indicator and refresh rate	• Production of household and similar waste (with excavated material and rubble) by economic activities • Residual household waste production by economic activities • Production of waste collected selectively, either door-to-door or as a voluntary contribution by economic activities • Occasional waste generation through economic activities

Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region (FRATRI cadre 6), ADEME (circular economy fund)		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	3

Axis 10	A territory that produces little waste and optimizes its recovery		
Action 71	Optimising waste collection and treatment services to reduce its impact		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure		
Context of the action	The entire waste treatment chain has consequences for the environment: Door-to-door collection and transport to the sorting centre, the incinerator and the landfill sites consume energy and emit greenhouse gases and air pollutants. Waste storage consumes space temporarily (in sorting centres) or permanently (in landfills). Landfilling leads to the degradation of landscapes (land use, visual and olfactory pollution, etc.). The decomposition of waste releases methane – a powerful greenhouse gas – and toxic elements, such as heavy metals that contaminate soil and groundwater. Waste incineration releases toxic substances (e.g. persistent organic pollutants such as dioxin) that are dispersed into the air and then found their way into soil and water. Although incinerators are equipped with high-tech devices that remove dust from the fumes, wash them and neutralize hydrochloric acid (released in particular by the combustion of PVC plastics), toxic emissions cannot be completely avoided.		
Sub- actions	- Make a diagnosis of the collection, the vehicles and the routes traveled - Identify the optimizations to be made on the collection and implement them - Identify technical solutions to improve the operation of management centres (storage and incineration for example), both in terms of energy consumption and GHG or air pollutant emissions, and implement them - Consider the study on the transport of waste by river or by bicycle - Pursue and intensify waste recovery actions, particularly on fermentable / bio-waste		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Waste Reduction and Recovery Dept		
Related policies	PLPDMA, Territory Committed to the Ecological Transition label "Circular Economy", internal carbon® footprint of the administration		
Action tracking			
Numerical monitoring indicator and refresh frequency	Diagnosis of collection, vehicles and routes travelled carried out		
Impact indicator and refresh rate	• Consumption of household waste bins • Emissions from household waste bins • Air emissions from waste storage and incineration facilities • GHG emissions from waste storage facilities and incineration • Energy consumption of waste storage facilities and incineration		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region (FRATRI cadre 6), ADEME (feasibility study of professional waste collection centres)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 11	More sustainable agriculture and food practices		
Action 72	Adopting a global vision through the formalization of the Territorial Food Project (PAT)		
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure, Carbon sequestration on the territory		
Context of the action	Through its competences, the local authority supports, promotes and encourages sustainable agricultural and food practices on its territory and in its supply territories: - by carrying out actions aimed at reducing greenhouse gas and particle emissions and, more generally, the environmental impacts of the agricultural sector (training in agro-ecological practices, environmental certification of farms, etc.) - by preserving agricultural land through urban planning documents and by supporting the establishment of urban or peri-urban agricultural or gardening areas - by mobilising local stakeholders, for example through a PAT – territorial food project – across the entire food chain (from producer to consumer, including processing, distribution and catering) - by directing its actions and support (technical and financial) to support exemplary projects in terms of sustainable food and local and sustainable agricultural sectors - by acting on its collective catering and food purchases (event services), through public procurement (sustainable and local supplies, raising awareness among guests) by raising awareness among residents of the issues and actions to be put in place (more plant-based and diversified, product quality, respect for seasonality, sustainable soil management, fight against food waste, etc.)		
Sub- actions	- Finalize the PAT - Animate the PAT - Implement the PAT roadmap		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Social Cohesion, Solidarity and Health Directorate		
Related policies	STALEMATE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• PAT indicators • PAT adopted • Number of PAT actions finalised		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners			
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 11	More sustainable agriculture and food practices
Action 73	Improving the environmental performance of agricultural production
Objectives	GHG reduction, Energy sobriety, Reduction of air pollutants and population exposure Carbon sequestration on the territory, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	The agricultural and food system accounts for a third of French territorial emissions (source: I4CE), nearly half of which come from livestock farming (according to the High Council for the Climate - 2020 Report). This figure includes greenhouse gas emissions related to: - agricultural production on French territory. Agriculture emits methane – CH4 (livestock (enteric fermentation) and soil (rice cultivation)), nitrous oxide – N2O (nitrogen fertilisation and management of animal manure) and carbon dioxide – CO2 (energy consumption). - the French food system (food processing, food trade, packaging manufacturing and waste management, transport and refrigeration). Through its competences, the local authority can support, promote and encourage sustainable agricultural and food practices on its territory and in its supply territories: - by carrying out actions aimed at reducing greenhouse gas and particle emissions, and more generally the environmental impacts of the agricultural sector (training in agro-ecological practices, environmental certification of farms, etc.) - by preserving agricultural land through urban planning documents and by supporting the establishment of urban or peri-urban agricultural or gardening areas - by mobilising local stakeholders, for example through a PAT – territorial food project – across the entire food chain (from producer to consumer, including processing, distribution and catering) - by directing its actions and support (technical and financial) to support exemplary projects in terms of sustainable food and local and sustainable agricultural sectors - by acting on its collective catering and food purchases (event services), through public procurement (sustainable and local procurement, raising awareness among guests) by raising awareness among residents of the issues and actions to be put in place (more plant-based and diversified food, product quality, respect for seasonality, sustainable soil management, fight against food waste...)
Sub- actions	• Carry out an agricultural and food diagnosis of your territory • Animating your territory about agriculture and sustainable food • Improving the environmental performance of agricultural production • Reterritorializing the community's food supply and contributing to its food resilience • Changing eating habits, particularly in collective catering, by respecting the obligations of the EGalim law and by committing further • Participate concretely in the installation and maintenance of sustainable agricultural practices • Adopt a global vision through the formalization of a Territorial Food Project (PAT) • Measuring and achieving ambitious sustainable agriculture and food targets Fighting against food waste
Conditions of implementation	
Provisional schedule	2023 to 2029
Dept in charge	Social Cohesion, Solidarity and Health Directorate (PAT)
Related policies	PAT, organic agreement in Haut de France with "Terres de lien" and "A petit pas"

Action tracking			
Numerical monitoring indicator and refresh frequency	• Share of organic (and in conversion) in the UAA • Share of producers engaged in an agro-ecological approach (hve level 3) • Proportion of producers committed to a quality approach (official sign of identification of quality and origin –siqo-: AOP, AOC, IGP, STD, label rouge, AB) • % of farmers who have received training to improve the sustainability of agricultural practices (in relation to the total number of farmers): management of inputs, water, renewable energy, soil quality, crop rotation, biodiversity, etc. Farms in the area • % of agricultural land leased under environmental leases in the territory • Number of AECM contracts (agri-environmental and climate measures) • Number of installations-conversions to organic farming per year • Number of farms in the territory • Number of new farmers set up as a result of community involvement • Agroforestry area • Percentage of agricultural land certified organic or in conversion and high environmental value (%)		
Impact indicator and refresh rate	• Agricultural greenhouse gas emissions (tCO2eq) • Agricultural energy consumption (GWh) • Direct emissions of air pollutants from the agriculture sector per ha (tonne/ha)		
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region, Seine Normandy Water Agency, Low Carbon Label for Field Crops		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 11	More sustainable agriculture and food practices
Action 74	Reterritorialize the community's food supply and contribute to its food resilience, particularly in collective catering
Objectives	GHG reduction, Energy sobriety, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	Sustainable food is defined as all dietary practices aimed at feeding human beings in a qualitative way and in sufficient quantities while respecting the environment. Sustainable food guarantees accessibility for all as well as the economic sustainability of the entire food chain (producers, distributors, etc.). With a quarter of the carbon footprint of the French, food is the main source responsible for greenhouse gas (GHG) emissions, of the same order of magnitude as transport or housing. The impacts are also significant on the issues of water, soil, air and biodiversity. Most of the impacts are at the agricultural production stage, and therefore depend largely on production methods, but also on the composition of the diet. In terms of health, diet is a key factor in a healthy population, which today contributes strongly to the development of diseases. The challenge is to ensure quality food production that respects the environment as locally as possible. In an urban area such as that of the CUD, this translates into support for the development of urban agriculture initiatives to structure and develop short supply chains. The challenge is also to promote a change in dietary practices to bring together health and environmental issues, in particular through a rebalancing between foods of animal and plant origin or through the consumption of seasonal and local products. Finally, efforts must be continued to combat waste at every stage of the food chain. As part of the call for contributions launched by the CUD under the PCAET, the JOUVE grocery store proposed an action to contribute to this action: - Local organic bulk grocery store offers to facilitate access to organic, local and bulk products through deliveries to the workplace via an online ordering and payment tool).
Sub- actions	• Supporting the diversification of local agricultural production, • Integrate (sustainable) food supply issues into urban planning reflections; Promote access to land, • Promote local products; • In urban areas, support the installation of sustainable urban farms; promote and support initiatives for access to healthy and sustainable food for all) • Developing a Food Hall • Raising awareness among residents of the challenges of sustainable food: food less rich in animal products and more local • Carry out a diagnosis of the diet in the canteens of the territory • Identify the levers to reduce the environmental impact of the meals served • Implement a policy to reduce this impact that is more ambitious than the Egalim Law: change eating habits, particularly in collective catering, while respecting the obligations of the Egalim Law and committing further • Strengthening the place of diversified urban and food agriculture in the territory • Identify and promote urban and peri-urban agriculture projects with an educational and pedagogical vocation • Supporting agricultural projects to strengthen the region's food management • Encourage and support the emergence of new projects (grants, communications, human resources, tools, methods, etc.) • Investigate the possibility of a waste products hall for unused food streams • Raising awareness among residents, schoolchildren and collective catering of the challenges and best practices for limiting food waste

Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Social Cohesion, Solidarity and Health Directorate		
Related policies	PAT, PLPDMA		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of agricultural production relocation projects supported • Share of organic products in public catering (%) • Average quantity of meat per meal in public catering (g/meal) • % of local products in collective catering • % of products with quality signs (SIQO) in collective catering • % of vegetarian meals in collective catering (or rate of intake of the vegetarian alternative) • Number of people trained in sustainable restoration issues among community staff • Quantities of food waste in collective catering per meal served (volume of bio-waste) • Number of urban agriculture projects • Amount of bio-waste • Quantities of packaging waste • Number of schoolchildren made aware of the issues of food waste • Share of residents affected by food waste awareness campaigns		
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	Hauts-de-France Region, Seine Normandy Water Agency		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	3

Axis 12	A preserved water resource		
Action 75	Helping companies better manage their water use and reduce their water needs		
Objectives	GHG reduction, Energy sobriety, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	Water is one of the most precious resources in the world for the development of life, so it is necessary to preserve it and reduce the pressure on its use, especially for water-intensive activities (agriculture, industry, etc.). In addition, in a context of climate change and increasing water needs, it is necessary to improve water availability, in particular by reducing needs and developing rainwater harvesting and use systems. The ECOPAL association has submitted a contribution on the platform "changing life together" as part of its participation in the PCAET. As part of raising awareness among companies about good water management, Ecopal carries out free water diagnostics in SMEs, SMIs, craftsmen and shopkeepers in Dunkirk with a view to helping them find more ecological solutions to chemical products, to save water, to obtain a financial gain or simply to see if improvements are possible (rainwater recovery, treatment equipment, ecological products, etc.) Two types of diagnostics are offered: • Operation of the facilities • Control of consumption and emissions In 2022, these diagnoses are completely free of charge for the structures, thanks in particular to funding from the Artois-Picardy Water Agency. In the following years, these diagnoses will be reserved for members. This action has a much broader objective, which is to reduce the pressure on the water resources of our territory.		
Sub- actions	• Supporting ECOPAL in the implementation of the proposed actions • Identify the companies or sectors that consume the most water • Communicate to them the existence of the diagnoses carried out by Ecopal and the membership system • Carry out diagnoses and programmes to reduce the water consumption of the territory's economic actors: water-saving actions, rainwater recovery, etc. • Work on the circular economy for industrial water consumption (reuse of water from company outlets/WWTPs) as a substitute/supplement to surface water. • Study the possibilities of using seawater for industrial processes as a substitute/complement to the industrial water network, in particular for the industrial attractiveness of the territory		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Entrepreneurship, Trade and Innovation Dept Tourism, Yachting and Boating Dept		
Related policies	Water Development and Management Plan for the Aa Delta, framework deliberation on water		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of diagnoses and action programmes set up by ECOPAL or the CUD • Number of companies adhering to the scheme proposed by ECOPAL or the CUD		
Impact indicator and refresh rate	Water savings made by companies and by the implementation of alternative solutions		
	Annual volume of water distributed to businesses		
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects)		
Prioritization by CUD's jurisdiction	3	Prioritization according to the level of impact	2

Axis 12	A preserved water resource
Action 76	Optimizing rainwater management and promoting its reuse
Objectives	Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)
Context of the action	The local authority practices integrated rainwater management, making it possible to control rainwater runoff in the developed areas (at the source), as well as downstream (slowdown, temporary storage, infiltration), decontamination and to adapt to the site. The measure also includes taking into account the impacts of climate change, for example by managing flood risks (limiting the sealing of streets, squares, pedestrian paths, public spaces), by implementing alternative techniques allowing the disconnection of rainwater from the networks and its return to the natural environment as close as possible to the plot by infiltration preferably. This is a resolutely ambitious policy that is reflected in a programme of investment in specific structures (infiltration basins, drainage roads, vegetated valleys, etc.) and the inclusion of rainwater management in urban planning documents As part of the implementation of new services for better water management, the Dunkirk Urban Community is supporting local users in changing their behaviour with the Récup'Eau scheme, which allows: - aid for the acquisition of a new rainwater collector - assistance in carrying out an opportunity and feasibility study for rainwater recovery - assistance with work related to rainwater infiltration and recovery Dunkerque LNG has also submitted a contribution as part of its participation in the Community PCAET with a view to recovering rainwater on its site, The action consists of replacing part of the drinking water consumption used for fire testing with rainwater collected on the site's right-of-way and then treated and introduced into our fire protection network.
Sub- actions	• Regularly update knowledge of local stormwater and flood management issues on its territory • Inform the population of the issues and solutions to limit runoff • Reduce pollutant emissions and runoff at source, beyond the competence of the Dept in charge of rainwater management • Use sanitation regulations to manage rainwater as close as possible to its point of arrival • Pursue a firm policy of flood prevention and protection of the receiving environment • To become exemplary throughout the country • Call for CEREMA partners on the management of the GéMAPI competence and the management of PEs • To support DK-LNG in the implementation of the proposed action and to encourage this type of action among other companies/users
Conditions of implementation	
Provisional schedule	2023 to 2029
Dept in charge	Sustainable City Dept (Planning Dept) Public Spaces and Mobility Dept Quality of Life and Environment Dept
Related policies	Eco-winner and Récup'Eau, framework deliberation on water

Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of communication campaigns on stormwater management carried out • Proportion of the territory with specific stormwater management • Number of households supported by the Eco-Gagner-Récup'eau scheme		
Impact indicator and refresh rate	State of watercourses: number of exceedances of pollutants from runoff water		
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 12	A preserved water resource		
Action 77	Raising awareness among residents about the protection of water resources		
Objectives	GHG reduction, Energy sobriety, Adaptation of the territory to climate change, Awareness-raising (energy/climate/air culture of elected officials, services and residents)		
Context of the action	The Water component of the Eco-winner programme also offers several measures to reduce the population's consumption of drinking water in order to cope with the scarcity of the resource: water softening (to extend the life of domestic installations, to improve consumption and to reduce the purchase of plastic bottles), remote meter reading (to monitor daily consumption) or rainwater collection (for watering) plants and anything that doesn't require drinking water: flushing, etc.).		
Sub- actions	- Continuing the actions carried out by the Water component of the Eco-winner program - develop communication media to raise awareness among the population (travelling "water" exhibition, educational space of the STEU of Coudekerque-Branche)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Water Cycle Directorate		
Related policies	Eco-winner, Framework deliberation on water		
Action tracking			
Numerical monitoring indicator and refresh frequency	• Number of communication campaigns on the protection of water resources carried out • Number of households supported by the Eco-Gagnant scheme		
Impact indicator and refresh rate	• Average annual consumption per capita • Water savings made by the household • Annual attendance at the educational space of the Coudekerque-Branche WWTP		
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects)		
Prioritization by CUD's jurisdiction	1	Prioritization according to the level of impact	2

Axis 12	A preserved water resource		
Action 78	Protecting wetlands and aquatic environments		
Objectives	Adaptation of the territory to climate change		
Context of the action	The Water Development and Management Scheme for the Aa Delta was approved in 2010. It includes a Plan for the Sustainable Development and Management of Water Resources and Aquatic Environments (P.A.G.D.), a Regulation and a Cartographic Atlas		
Sub- actions	• Reclaiming natural habitats (protection, management, maintenance): • Manage, maintain and enhance watergangs, rivers and canals • Establish common specifications for the maintenance of watercourses • Preserve, reclaim and manage wetlands and their associated environments • Restoring the free movement of fish • Limit the proliferation of invasive and invasive species • Promote the reconquest of the space of freedom of waterways • Preserve the coastal environments that are essential to the balance of ecosystems • Surface water recharge project for the Moëres sector (quantitative and qualitative management)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Water Cycle Directorate		
Related policies	GEMAPI, landscape plan, differentiated management of green spaces		
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate			
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects), COCA-COLA Foundation		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 12	A preserved water resource		
Action 79	Optimize the efficiency of drinking water facilities (energy and resources)		
Objectives	GHG reduction, Energy sobriety		
Context of the action	The local authority wishes to reduce its energy consumption and is therefore extending its action to improve and optimise the energy efficiency of its drinking water installations. Measures are being taken to promote water-efficient use and consumer awareness, such as: - the community acts in favour of the efficiency of the production and distribution of drinking water and the preservation of water resources - Individual water consumption is clearly indicated/detailed in the water bills - the previous year's water consumption and average data (benchmarks) are provided for comparison - tariffs incorporating the "polluter pays" principle and encouraging water savings - Distinction between drinking water and wastewater loads		
Sub- actions	• Continue to seek energy efficiency as an objective in PSD contracts or include it in the company's strategy • Advise and train the sector's players on a frequent basis • Implement concrete measures to improve and optimize the energy efficiency of drinking water facilities • Continue to provide incentives to save water for users • Anticipating the renewal of installations • Monitor energy and water consumption following the implementation of measures		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Water Cycle Directorate		
Related policies			
Action tracking			
Numerical monitoring indicator and refresh frequency			
Impact indicator and refresh rate	• Energy consumption of the drinking water supply system (collection/treatment/distribution) in kWh/inhabitant • Drinking water supply system performance (catchment/treatment/distribution) in gross m3/m3 sold		
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

Axis 12	A preserved water resource		
Action 80	Optimising the energy potential of sewerage systems		
Objectives	GHG reduction, Energy sobriety, Development of renewable and recovered energies		
Context of the action	Sanitation systems can be optimized to reduce their energy consumption and renewable energy generation and recovery systems can be installed. Regarding the management of sewage sludge, spreading (material recovery) and methanisation (energy recovery) are not opposed and can complement each other. The recovery of sludge in agriculture is of agronomic interest for the soil because it contains a high content of organic matter and fertilizing elements. However, they can also contain undesirable substances such as Trace Metal Elements (TMEs), Trace Organic Compounds (CTO), pathogenic microorganisms and pharmaceutical compounds. This is why the recovery of sludge by spreading is clearly regulated and other solutions can be studied depending on the context (currently, 60% of sludge is spread according to the "Spreading" technical sheet, ADEME, August 2016). In all cases, the choice of recovery or disposal channels for the sludge produced must take into account the existence and sustainability of potential outlets (including for digestate from anaerobic digestion) and try to pool existing waste treatment equipment in the territory (composting platform, nearby energy recovery unit, etc.). ...) The local authority optimises the energy potential of the sanitation systems: - The energy efficiency of the community's wastewater collection and treatment facilities is high and is measured by indicators. - The potential for heat recovery from wastewater collectors and/or wastewater treatment plants is exhausted. - The potential for the recovery of sewage sludge has been exhausted.		
Sub- actions	• Regularly update the state of play of the efficiency of sanitation systems and formalize efficiency objectives • Analyze the potential for heat recovery from wastewater • Analyze the potential for reuse of wastewater treated by the WWTP for urban uses • Analyze the potential for sewage sludge recovery • Carry out work to improve the energy efficiency of the sanitation system (AI use) • Carry out energy recovery work on sanitation systems • Regularly monitor actions and evaluate their effects • Install 4000 m2 of solar panels on the 5 WWTS (estimated production 1GWh / year)		
Conditions of implementation			
Provisional schedule	2023 to 2029		
Dept in charge	Water Cycle Directorate		
Related policies	Label TETE-CAE		
Action tracking			
Numerical monitoring indicator and refresh frequency	• % of sludge recovered by anaerobic digestion • Solar production on wastewater treatment plants (WWTS)		
Impact indicator and refresh rate	Energy consumption of wastewater treatment plants kWh/kgBODO5 eliminated		
Funding terms			
Planned budget			
Financial partners	Artois Picardy Water Agency (funding in response to a call for projects)		
Prioritization by CUD's jurisdiction	2	Prioritization according to the level of impact	2

B-2.3: Summary strategy for residual emissions

The building, transport, waste, and energy sectors are significant contributors to GHG emissions. While various strategies can reduce these emissions, some residual emissions are likely to persist—stemming from construction and building operations, reliance on fossil fuels, and the collection, transportation, treatment, and disposal of waste. To address these hard-to-reduce emissions, several approaches can be explored.

To combat the risk of reversals associated with non-durable residual emissions, Greater Dunkirk will implement a multi-faceted strategy focused on mitigation, monitoring, and contingency planning. First, stringent long-term monitoring systems will be established to regularly assess the stability and effectiveness of natural carbon sinks, such as reforested areas and restored wetlands. These systems will enable early detection of potential reversals, such as carbon release due to land-use changes or environmental events like wildfires.

Additionally, Greater Dunkirk will create buffer reserves within carbon sequestration projects, ensuring that a portion of carbon offsets or captured carbon remains untapped as a safeguard against unexpected reversals. This will involve maintaining a buffer pool of credits in carbon offset programs, which can be drawn upon if any carbon storage projects underperform or face disruptions. Furthermore, Greater Dunkirk will invest in insurance mechanisms and carbon risk management funds to address financial losses and ensure continued compliance with emission reduction goals if reversals occur.

Greater Dunkirk will also prioritise enhancing the durability of carbon sequestration efforts by integrating carbon capture technologies into infrastructure projects where carbon can be stored permanently, such as in construction materials or through biochar application. By combining these approaches, Greater Dunkirk aims to mitigate the risks associated with non-durable emissions and strengthen its overall strategy for achieving long-term carbon neutrality.

Here are the top 8 ideas Greater Dunkirk is considering eliminating residual GHG emissions. Some are already implemented or looked for, but can be improved, and others are ideas to be discuss and potentially developed until 2030:

1. Urban Carbon Farming

- **Vertical and Rooftop Farms:** Develop urban vertical farms and rooftop gardens designed not only for food production but also optimised for carbon sequestration through high-density planting, soil enhancement techniques, and biochar application. As part of the PLUiHD, a biodiversity coefficient is being implemented to encourage the construction of green roofs.

2. Carbon-Negative Materials and Construction Techniques

- **CO_2-Sequestering Concrete:** Invest in or mandate the use of innovative construction materials like carbon-absorbing concrete or aggregates that incorporate captured CO_2 into their structure, locking it away permanently. 2 companies are working on it : Ecocem, making concrete from recycled materials, and ECOPAL, an intermediary and facilitator of inter-company synergies, to promote industrial and regional ecology.

- **Buildings with Carbon-Storing Materials:** Explore biobased technologies that use carbon-storing materials like hempcrete, recycled plastic, or other biomaterials, creating structures that sequester more carbon over their lifespan. The company "Batilin" is curently developping bio-based material, with high insulating power.

3. Localized Renewable Energy Microgrids with Blockchain Integration

- **Decentralized Energy Networks:** Develop neighbourhood-scale renewable energy microgrids that integrate solar, wind, and energy storage systems. These microgrids can operate independently of the main grid and use blockchain technology for transparent energy trading and consumption tracking. Under development in Téteghem, a city of Greater Dunkirk area, setting up a multi-partner collective self-consumption loop. Installing solar panels on certain public buildings and apartment blocks, which will produce electricity that will be consumed by the buildings themselves.

- **Peer-to-Peer Energy Sharing:** Enable residents and businesses to trade surplus renewable energy with their neighbors through blockchain-based platforms, ensuring more efficient energy use and reducing reliance on fossil fuels.

- **Develop the concepts of "power to heat" and "power to gas"** to convert surplus photovoltaic electricity into useful heat for buildings, via heat pumps, and store the rest when these buildings do not need it to product hydrogen from wind power and injecting it into a natural gas network to supply municipal bus fleets and local building gas plants.

4. Bioenergy with Carbon Capture and Storage (BECCS)

- **Small-Scale BECCS Plants:** Deploy small-scale bioenergy facilities that convert organic waste into energy while capturing and storing the CO_2 produced. This could be integrated with local waste management systems, turning waste into a resource while achieving net-negative emissions. The waste-to-energy plant of Greater Dunkirk produces steam, heat and electricity from the incineration of waste. This production is set to double with the planned second line of the Energy Recovery Centre, which will be able to handle twice as much waste *(under study).*

- **Biochar Production:** Expand the use of biochar in urban agriculture and landscaping. Biochar, a carbon-rich product derived from organic material, sequesters carbon in the soil and enhances its fertility, creating a sustainable carbon sink.

5. Advanced Circular Economy Initiatives

- **Carbon-Neutral Product Lifecycle Programs:** Partner with local manufacturers to create products designed with end-of-life carbon neutrality in mind, ensuring that materials are recycled or upcycled without additional emissions. This could include take-back programs where products are reclaimed and remanufactured into new items. Working with the Public Procurement Department: How can we make our purchases more responsible and take life cycle analysis in consideration. Greater Dunkirk is engaged in a scheme to promote socially and environmentally responsible public procurement.

- **Urban Mining and Material Recovery:** Establish advanced material recovery facilities that focus on "urban mining" – extracting valuable materials from electronic waste and other complex products. These facilities would minimize the need for new resource extraction, thus reducing associated emissions. In France, there is a tax known as eco-contribution or eco-participation. This is an "amount" added to the sale price of EEE, electronic and electrical equipment, sold in France. The purpose of this amount is to offset the costs of collecting, managing and recycling this equipment when it reaches the end of its life.

6. Climate-Responsive Urban Design

- **Carbon-Positive Urban Zones:** Develop districts or zones that are designed to be carbon-positive, meaning they generate more energy than they consume and sequester more carbon than they emit. These zones could feature extensive green roofs, carbon-sequestering building materials, and community renewable energy systems. In Greater Dunkirk, a new urban area under construction, 'Grand Large' a mixed development zone, developers are looking for demanding certification.

- **Smart Building Integration with AI:** Use artificial intelligence to optimise energy use in real-time across entire districts, learning from patterns to reduce consumption and emissions dynamically. Buildings could be equipped with sensors that track energy, water use, and indoor air quality, adjusting systems for maximum efficiency. In France, households are equipped with Linky smart meters for electricity, Gazpar for gas and for water. Consumption can therefore be tracked for all households equipped (at least 95% of households). Greater Dunkirk is planning to work on this as part of the "RODEO" Interreg project with Belgium, the Netherlands and Ireland. The demonstration district would be the Glacis district in Dunkirk.

7. Citizen-Led Climate Innovation Hubs

- **Local Climate Innovation Incubators:** Establish climate innovation hubs that support startups and community initiatives focused on novel ways to reduce carbon emissions or enhance carbon sequestration. These incubators could provide funding, mentorship, and facilities for testing and scaling new ideas. The perfect example for this idea is "ÉcosystèmeD", a tool for coordinating the industrial port ecosystem in the fields of energy transition, decarbonization of industry and the circular economy.

8. Rewilding and Urban Ecosystem Restoration

- **Rewilding Urban Areas:** Convert underutilized or abandoned urban spaces into rewilded ecosystems that support biodiversity and serve as carbon sinks. This could include restoring wetlands, forests, or grasslands within the city limits. The local authority's commitment to biodiversity was acknowledged in 2011 when it won the 'French Capital of Biodiversity' award for its work on "Regional planning and development". This recognition highlighted the city's efforts to create a green and blue network aligned with pedestrian and cycling needs. The concept of residual emissions is a logical extension of these biodiversity-focused policies. Greater Dunkirk's development initiatives always involve collaboration with the local biodiversity office.

- **Biodiversity Corridors:** Develop green corridors that connect urban parks and natural areas, enhancing their capacity to sequester carbon while also providing resilience against urban heat islands and supporting local wildlife.

Assessing the environmental impact of projects requires the implementation of specific and relevant Key Performance Indicators (KPIs). These KPIs enable the measurement of progress and adjustment of strategies accordingly. Here's a proposal for KPIs focused on major environmental challenges, that will be developed and improved in the next iteration of the CCC.

Greenhouse Gas (GHG) Emissions	**Total annual emissions:** Overall measurement of the carbon footprint.
	Carbon intensity per product/service: Emissions associated with each unit produced or service rendered.
	Emission reduction compared to a reference year: Progress towards decarbonization goals.
Energy Consumption	**Total annual energy consumption:** Quantity of energy consumed by the organisation.
	Energy intensity per product/service: Energy consumption associated with each unit produced or service rendered.
	Share of renewable energies in total consumption: Progress towards cleaner energy.
Renewable Energy Production	**Installed production capacity:** Total power of renewable energy production installations.
	Quantity of renewable energy produced per year: Volume of energy produced from renewable sources.
	Share of self-consumed renewable energy: Use of on-site produced energy.
Sustainable Mobility	**Share of active travels (bike, walking):** Encouragement of low-emission modes of transport.
	Share of electric vehicles in the vehicle fleet: Transition to less polluting vehicles.
	Average distance traveled by employees: Reduction of the carbon footprint associated with professional travel.
Waste Management	**Recycling rate:** Proportion of recycled waste compared to total waste produced.
	Quantity of waste buried: Reduction in the volume of waste sent to landfills.
	Quantity of waste recovered: Transformation of waste into resources.
Air Quality	**Concentration of atmospheric pollutants (PM10, NOx, SO_2):** Measurement of air pollution near sites.
	Number of days exceeding air quality standards: Assessment of the frequency of pollution episodes.
Biodiversity	**Number of species present on the sites:** Measurement of biological richness.
	Area of preserved natural areas: Protection of natural habitats.
	Biodiversity index (e.g., Shannon index): Assessment of species diversity and their relative abundance.

To implement an effective sustainable development strategy, it is essential to have reliable and regular data on the environmental footprint. While we have established a solid foundation for our sustainable practices, including the implementation of comprehensive environmental monitoring and data collection, we recognize the ongoing need for improvement. Our goal is to further refine and enhance these strategies, leveraging data-driven insights to make more informed and effective decisions. By continuously evaluating our performance and identifying areas for optimisation, we aim to strengthen our commitment to environmental sustainability and achieve even more meaningful results. Here are some ways we are collecting and working on them :

Greenhouse Gas Emissions Inventory	**Clear and uniform methodology:** Adopt a recognized methodology (such as the GHG Protocol) to calculate our emissions accurately and reproducibly.
	Detailed inventory: Inventory all sources of emissions, both direct (linked to your activities) and indirect (linked to the energy you consume).
	Regular monitoring: Conduct annual inventories to track the evolution of your emissions and measure the effectiveness of your reduction actions.
Indicator Summary	**Simplification and unification:** Harmonize the different indicators used to measure your environmental performance. Be inspired by Frédérique's approach to simplify monitoring and facilitate comparison.
	Customized dashboard: Create a clear and concise dashboard that groups together the main indicators (energy consumption, waste production, etc.) and allows for a quick visualization of changes over time.
Smart Meters	**Gradual deployment:** Equip the facilities with smart meters to collect real-time data on the energy consumption. In Greater Dunkirk, we equipped all users with smart meters for water consumption on the territory
	Detailed analysis: Use this data to identify the most significant consumption items and implement targeted reduction actions.
Household Surveys	**Employee involvement:** Conduct regular surveys of your employees to gather information on their daily practices (modes of transport, energy consumption at home, etc.).
	Awareness and commitment: Use the results of these surveys to implement awareness-raising actions and encourage more responsible behaviors.
GIS (Geographic Information System) Visualization	**Data mapping:** Spatially represent your environmental data (emissions, energy consumption, etc.) to better understand their distribution and identify areas for improvement.
	Monitoring changes: Compare maps created at different times to visualize the evolution of your situation and highlight the impacts of the actions.
	Communication: Use these visualizations to communicate clearly and effectively about your environmental approach to your stakeholders.

By effectively tracking emissions through these KPIs, Greater Dunkirk will gain valuable insights to guide strategic decision-making. These indicators will pinpoint specific areas for targeted action and investment, enabling the prioritization of projects with the greatest potential for environmental impact. This data-driven approach will ensure that all decisions made by Greater Dunkirk are informed by concrete evidence and aligned with the overarching goal of achieving climate neutrality.

From Observation to Action: A Continuous Improvement Approach

Our organization will implement a robust system for collecting and analysing environmental data. This data will enable us to identify trends in our environmental performance, compare our results with the goals we will set, and adjust our strategies accordingly.

Thanks to descriptive statistics, we will gain an overview of our situation and be able to highlight key issues. The analysis of time series will allow us to track the evolution of our indicators over time and identify interesting correlations between different factors.

By understanding and explaining the observed trends, we will be able to adjust our trajectories and implement corrective actions if necessary. In this way, we will develop a true culture of continuous improvement, based on data-driven decision-making.

To facilitate the monitoring of our performance and the communication of our results, we will develop a customized dashboard. This tool will allow us to synthesize the key indicators and quickly identify the strengths and weaknesses of our approach.

In summary, our approach will be based on a virtuous cycle:

- Collect reliable and regular data.
- Analyze this data to identify trends and correlations.
- Compare the results with the set goals.
- Understand the reasons for any discrepancies.
- Adapt strategies and actions accordingly.
- Track results and iterate.

This approach will not only allow us to improve our environmental performance but also strengthen our credibility with our stakeholders. The 2026 revision of the PCAET will provide valuable input for the iteration of the Climate City Contract (CCC).

The objectives by the end of 2025 are to simplify the core elements of the CCC to ensure accessibility for all stakeholders, including the public. This increased accessibility will empower stakeholders, enabling the Transition Team to effectively conduct follow-ups, facilitate communication on related topics, and foster a sense of ownership within this dynamic process.

With all actions in the portfolio currently under consideration, development, or implementation, the coming years, beginning in 2025, will see the smooth initiation of necessary steps, such as political decisions, feasibility studies, and even fund-raising, to advance these projects. Notably, some actions were already initiated in 2022, soon after Greater Dunkirk's selection for the CCC, thanks to the successful outcome of the Expression of Interest (EoI).

This collaborative approach of the CCC will involve active engagement with various territorial committees. This multi-stakeholder dialogue will foster a shared understanding of the climate transition trajectories, enabling the identification and proactive mitigation of potential challenges faced by different sectors. By sharing insights and perspectives, we can ensure that the collective understanding of the challenges and opportunities is robust and that the strategies remain aligned with the evolving needs and capacities of the entire territory.

Furthermore, the implementation of the green budget framework in France, coupled with the annual requirement for a multi-year investment plan, will necessitate rigorous monitoring and evaluation of all projects within the action portfolio. This rigorous oversight will ensure that investments remain relevant and aligned with the trajectories and dynamics of a just climate transition.

The Climate City Contract will operate as a dynamic and adaptive roadmap for climate neutrality through an iterative process. This process will prioritize continuous learning and improvement.

- **A robust learning and evaluation framework will be established to systematically collect, analyze, and utilize data. This data, essential for various strategic frameworks within Greater Dunkirk (including the PCAET and TETE label), will inform decision-making throughout the contract's lifecycle.**
  - Workgroups will be established to address specific topics. By including individuals with diverse backgrounds and levels of expertise, we aim to foster a more inclusive and stimulating conversation, where fresh perspectives and questions can challenge assumptions and drive innovation.

- **Regular stakeholder feedback sessions will be conducted to gather input on implementation and identify areas for improvement.**
  - Leveraging the established committees with Greater Dunkirk and stakeholders, like the Co-Mission Zero, the industrial or scientific committees, we will work together to closely monitor progress and address any emerging challenges proactively.

- **Learnings from both data analysis and stakeholder feedback will be translated into concrete actions. These may include revising targets, adjusting strategies, reallocating resources, or developing new initiatives to enhance the contract's effectiveness.**
  - To ensure continued stakeholder engagement in the pursuit of climate neutrality, the Transition Team must proactively identify and implement concrete actions that demonstrate tangible progress and address stakeholder concerns.

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

The first indicators can be found in the table B-1.1: Impact Pathways, they are directly associated with the impact of the actions.

For the next iteration, a substantial effort will be dedicated to refining the indicators. Greater Dunkirk is currently working to compile indicators from various programs, making them accessible and easy to track without repeated inquiries.

A novel approach will be implemented for the CCC: a concrete evaluation of the GHG impact of our planned actions. This method, which we currently neglect, will offer a more precise understanding of our environmental footprint.

4. Part C – Enabling Climate Neutrality by 2030

4.1 Module C-1 Governance Innovation Interventions

Governance Approach for Climate Action in Dunkirk

Greater Dunkirk has adopted a comprehensive approach to address climate change, integrating climate action into its governance structures and decision-making processes. Greater Dunkirk's climate agenda is guided by a strong commitment to achieving climate neutrality and is supported by a robust governance framework that involves various stakeholders at different levels. Greater Dunkirk has :

- **Governance Structures and Frameworks**
  - **Political governance**

    - **Mayors' conferences:** Established in 2014 in Greater Dunkirk, it has been mandatory in public interest groups since the Commitment and Proximity Law of December 27, 2019. This body brings together all mayors and deputy mayors of Greater Dunkirk's municipalities, as well as vice-presidents. It is a forum for discussion and collective debate on the future and important issues of the territory and strengthens the role of all mayors in this reflection. Greater Dunkirk and the municipalities are committed to the collegiality of this body where all members contribute equally to the debates and projects of the municipality. It meets as often as necessary depending on the reflections or projects underway. It may be held exceptionally depending on current events or emergencies. The agenda is both fed by its members but can also be proposed by the administration or a conference of deputy mayors. Climate neutrality is a frequent subject of discussion among many others.

    - **Deputy Mayors' Conference** Conferences of deputy mayors have historically existed in a formalized manner. However, this mandate is an opportunity to generalize these meetings, whether on subjects specific to our competences or on subjects that go beyond the institutional prerogatives of Greater Dunkirk as a facilitator of networking in our territory. As of the date of this pact, the existing conferences are: Commerce, Culture, Finance, Housing, Health, and Social. The topics discussed at the deputy mayors' conference can feed into the mayors' conference and vice versa. It is a place for discussion and exchange on intermunicipal projects as well as municipal projects that could be worked on together, for example to address a shared problem. These conferences also make it possible to work on the interfaces between municipal and intermunicipal interventions to ensure a good handling of missions. For example, the presentation of the analysis of social needs at the level of the municipalities of the agglomeration at the conference of deputy mayors for social action will be an opportunity to discuss topics that could be the subject of coordinated initiatives at the level of the agglomeration or of several municipalities that compose it.

    - **Association of Municipal Elected Officials** The elected officials' seminar aims to bring together all the majority elected officials of the municipalities, both community and municipal. Brought together for the first time on August 30, 2020, this experience will be renewed once a year to share a common vision of community public action. During the mandate, it may be supplemented by tools such as a newsletter summarizing the decisions presented at the community council, etc.
      To associate municipal elected officials with community debates over the long term, community elected officials and technicians can also, depending on needs, intervene during municipal councils.

- **Administrative governance**

  - **Meeting of the General Managers:** The DGS of the Greater Dunkirk's municipalities are organized into a network. This collective of 19 executives draws its strength from its diversity and heterogeneity.
    A common objective is to successfully implement municipal and community policies, but above all to ensure the coordinated operation of municipal and community public services in the territory.
    The general Managers meet in a conference every 2-3 months, alternating between a building or facility of a municipality or Greater Dunkirk.
    At each mayors' conference, a flash briefing is organized to provide a technical summary of the discussions and projects to be undertaken.
    Focus meetings allow for discussions or presentations on a topic, whether community or municipal, with services or external partners.
    A newsletter is sent out weekly to inform and exchange information on current topics and to request contributions from municipalities (identification of referents, preparation of deliberations, feedback on diagnostic elements, etc.).
    To facilitate continuous exchanges between DGS within a professional community, various permanent collaborative communication tools have also been implemented (instant messaging groups, agglomeration office suite).

  - **Forum of Directors of Technical Services:** This forum is a breakdown at the level of coordination of agglomeration technical services of the DGS network.
    It allows for the sharing and harmonization of practices in the design and management of public space, and to carry out reflections on projects for pooling skills around cleanliness, green spaces, buildings or public lighting.
    This forum is also open, depending on the organizations specific to each municipality, to deputy mayors in charge of public works.

  - **Greater Dunkirk Administration:** The administration plays a central role in driving climate action. A dedicated department or unit within the administration is responsible for overseeing climate initiatives and coordinating with other relevant departments.

  - **Climate plan and labels steering committee:** Bringing together a diverse range of experts from fields as varied as environment, energy, urban planning, and economics, our climate plan's steering committee provides essential multidisciplinary expertise to address the challenges of climate change in our region.
    It complements the momentum generated by the transition team. Faced with the impacts of climate change (rising sea levels, heat islands, air pollution, energy dependency), this committee enables us to develop innovative and tailored solutions. By cross-fertilizing ideas and mobilising everyone's skills, we can achieve our ambitious goals: reducing our GHG emissions, developing renewable energies, and strengthening the resilience of our infrastructure. Thanks to the active participation of elected officials, technical services, businesses, associations, and citizens, this committee will ensure co-construction of the climate plan and better consideration of everyone's expectations.

  - **Municipalities technicians' network:** These professionals possess a wide range of technical skills (urban planning, environment, public works, etc.) and are responsible for implementing local policies.
    This network serves as a platform for technicians to share their experiences, best practices, and stay informed of legislative and regulatory changes. It also promotes collaboration between municipalities.
    As experts, technicians provide support to local elected officials in decision-making. The network allows for the pooling of knowledge and the strengthening of collective expertise.

- **Greater Dunkirk's municipalities:** Professional networks are a powerful lever for sharing expertise and harmonizing practices, by taking the best of the practices developed in the municipalities or within Greater Dunkirk; and by ensuring the coordinated implementation of the orientations taken by community and municipal elected officials.

The following are included in this framework:

- The deployment of a legal watch tool
- The networking of financial directors
- The green spaces and natural areas network
- The librarians' network
- Internal training

› **Shared Administration Project**

To extend this collaborative work between the Greater Dunkirk and the municipalities as closely as possible to the agents, Greater Dunkirk is committed to initiating a process with the municipalities aimed at spreading a shared professional culture throughout all community and municipal services.

A first step will consist of considering, for example, devices such as:

- A systematic mechanism for sharing job offers at the level of the municipalities
- Professional immersions
- An internal municipalities journal
- Etc.

› **Transition team:** The Transition Team is a dynamic group of stakeholders, primarily from the Greater Dunkirk administration, dedicated to achieving climate neutrality. This team is focused on developing strategies and projects to improve our way of life and public policies. We recognize that implementing complex, large-scale climate actions can present challenges in terms of administration and coordination, especially when coordinating across multiple sectors.

To meet the deadlines of the European Commission for the submission of the Climate City Contract (CCC), Greater Dunkirk has set up a dedicated transition team. Given the close correlation between the CCC's actions and those of the Territorial Climate Air Energy Plan (PCAET), validated in 2023, it was considered more strategic to mobilise internal skills as a priority.

This multidisciplinary team brings together directors and technicians who are experts in the key areas of climate change. The departments involved in the CCC within Greater Dunkirk are:

1. Public spaces mobility
2. Quality of life environment
3. Waste reduction and recovery
4. Territorial development and partnerships
5. Local democracy and popular education
6. Attractiveness and employment
7. Entrepreneurship, trade and innovation
8. Water cycle
9. Housing
10. Sustainable city

To guarantee broad consultation and co-construction of the project, the referent colleagues of the existing specific committees (industrial committee and scientific committee for example), involving external actors such as scientists, industrialists and the directors of the various departments of Greater Dunkirk, are part of the transition team.. These committees ensure a balanced representation of the various issues and promote the emergence of a shared vision.

By placing Greater Dunkirk at the heart of the CCC's management, we want not only to control deadlines and objectives, but also to secure the process. The creation of this Transition Team makes it possible to anticipate any changes in scope and to guarantee the continuity of the actions undertaken. We are convinced that opening to new partners, while strengthening our capacities, will allow us to accelerate the ecological transition of our territory and achieve even more ambitious objectives.

Local Democracy and Popular Education Department

In Greater Dunkirk, a dedicated department focuses on citizen engagement. Here are some practical examples of their initiatives.

- **Climat Libé Tour: 2 Editions 2023 and 2024**

A free festival focused on ecology. For the past two years, the newspaper Libération has organized a nationwide tour of France offering meetings, workshops, and experiences.

- **Goal:** Transportation, industrial renovation, urban greening... exploring the challenges of ecological transition through a series of unique events.
- **Objective:** Inform and find solutions tailored to real-world situations.
  Thus, we offer, in collaboration with Libé:
  - Roundtables and Discussions – open forums with national experts (economists, athletes, business leaders, etc.)
  - Generation Transitions Parliament – a day dedicated to understanding citizen engagement, debating, and presenting ideas to the elected representatives of the Dunkirk Urban Community in a forum of dialogue and exchange
  - Festive and Friendly Events like this year's Climat Comedy Club
  - Workshops for Middle and Primary Schools – sessions on understanding the issues and finding solutions (e.g., "fresco forum" in 2023, Climate and Journalism Workshop in 2024)
  - These events also highlight the Dunkirk region at the national level (through Libération's thematic publications). More info
  - Deliverables: After-movie, photos, social media coverage, and audio recordings in partnership with a video association and students from IMT, who act as one-day reporters. In 2023, we hosted a live exhibition with a graphic facilitator.

More on graphic facilitation

Workshops and Activities

- **Workshops with Classes**

Around ten workshops are organized annually to help students understand a topic while acting.

- **Examples:**
  - "Slow Fashion" Workshop with a second-year Erasmus class. A group discussion on fashion pollution followed by a session with a seamstress to learn simple clothing repairs and customizations. A small clothing swap was set up beforehand to collect items to work on during the workshop. Techniques taught : Basics of sewing machines (e.g., making a makeup remover pad), knitting, and embroidery.
  - Atelier 21 Paleotechnic Workshop with IMT engineering students. Goal: Rediscover forgotten innovations for the "Mission Zero" exhibit at the Palais de l'Univers et des Sciences.

More on the global paleotechnic project:

- **Focus on Popular Education:** Skills development, empowerment, and understanding topics through active learning and collective intelligence techniques.

- **Erasmus Package**

In response to teacher demand:

1. Understanding Local Issues: Preparing students to present a report on local challenges to their exchange partners, based on aerial views and discussions.
2. Interactive Game in English: A fun, active session on local issues led by the Popular Education team (duration: 1 hour).

- **Educational Seminars**

This department assists educational partners in organizing events at the Halle aux Sucres and elsewhere.

- **Example:** The Science and Society academic forum. We coordinated speakers and site visits with the National Academy.
  We also host **Model United Nations (MUN)** events, where students practice public speaking and develop proposals during mock UN assemblies.

- **Another Example:** Supporting future primary school teachers in creating educational games on local issues (2023: Climate, 2024: Water).

- **Engaging with Audiences**

Several ways to reach this department:

- **Annual Brochure** – detailing the educational offerings of the Local Democracy and Popular Education Department.
  View the brochure

- **Call for Projects** – Teachers can submit co-construction projects needing funding. **Example:** Supporting a high school cinema class in creating a short film on sustainable food.

- **Project Co-Construction:** Teachers contact us via the brochure, events, or word of mouth to develop educational projects together.

- **Recruitment Emails:** We invite classes to participate in specific workshops. **Example:** Recruiting classes for the Climate and Journalism Workshop at the Climat Libé Tour or for the OCEAN immersive exhibition (with 5,000 students).

These projects empower teachers, engage students, and encourage the adoption of local topics through collaborative, fun, and educational methods.

- **CLEA – Lifelong Learning Residency**

The **Local Artistic Education Contract (CLEA)** is a free program aimed at promoting artistic and cultural democratization. Supported by the Regional Directorate of Cultural Affairs (DRAC) and the Ministry of National Education, Greater Dunkirk welcomes multidisciplinary artists and one journalist each year. For four consecutive months, their mission is to carry out artistic and cultural education initiatives and raise awareness about media, information, and freedom of expression among all audiences.

The artists and the journalist collaborate with local professionals to design meetings and experimental activities for residents of all ages within the Greater Dunkirk territory.

- **The objectives are to:**

  - Introduce professional teams to new ways of raising awareness about transition issues and provide them with practical tools.

  - Raise awareness of the territory's unique characteristics and the challenges of ecological and social transformation in the context of the climate emergency.

  - Co-create with residents a future that respects the environment and the territory, promoting citizen empowerment and agency.

  - Create spaces for reflection that encourage a sensitive exploration of the environment, inspiring action for a more responsible and poetic relationship with living beings.

  - Offer opportunities for dialogue and sharing during the final presentations.

- **Scientific Committee**

Composed of researchers, academics, and practitioners with recognized and complementary expertise, the Scientific Committee of France *Villes et Territoires Durables (FVD)* and the Local Democracy and Popular Education Department of Greater Dunkirk contribute to the association's knowledge on the challenges and causes of the Anthropocene, as well as solutions to accelerate the ecological and social transformation of territories.

This scientific collective, covering numerous environmental, social, and urban disciplines, supports *France Villes et Territoires Durables* in the following ways:

- **Regularly updating** the shared vision of the fundamentals of sustainable and resilient territories considering the latest publications and experiences in France and internationally.
- **Recommending priority actions** to accelerate ecological and social transformations.
- **Strengthening dialogue** between public and private territorial decision-makers and researchers to inform territorial transition strategies.
- **Empowering citizens** to fully participate in the challenges of these transitions.

This is an opportunity to explore themes, identify trends, and invite experts to enrich the season's programming. The committee meets twice a year and contributes to events like Sustainable Cities in Action.

More info on the event

- **Facilitator Team**

Three facilitators in the Popular Education Department engage with the public at events and specific educational actions.

- **Example:** Collaborating on the 200,000 Residents, 200,000 Winners project, hosting collaborative games at CLUB2024 (Olympic village), and explaining festival projects on energy and local themes.

To address these challenges, we aim to leverage existing committees, such as those focused on industry, science, and biodiversity. While the CCC doesn't currently outline the specific structure and operations of the Transition Team and its associated governance structures, the upcoming meeting will focus on defining these aspects and outlining how we will collaborate with external stakeholders daily to implement the Co-Mission Zero initiative.

Given the short timeframe since the CCC project manager assumed its role in late April 2024, the development of these details is a priority.

- **Climate change awareness:** Dunkirk has recently implemented a half-day climate change awareness program for its 3,000 employees. This initiative aims to educate staff on the urgent need for climate action and to equip them with the knowledge and tools to contribute to a more sustainable future. By fostering a climate-conscious workforce, Greater Dunkirk hopes to integrate sustainability into all aspects of its operations. The program covers a wide range of topics, including the causes and impacts of climate change, sustainable practices, and the Greater Dunkirk's specific climate goals

- **ÉcosystèmeD:** is a Public Interest Group (GIP) that supports the transformation of the Dunkirk industrial port area as part of the "Dunkirk, creative energy" project, winner of the "Territories of Innovation" call for projects.

  It brings together public, private, associative, academic and civil society actors around common objectives to:

  - promote the establishment of innovative companies;
  - attract and support project leaders;
  - Encourage research and innovation to promote the transitions of the Dunkirk industrial port territory.

  ÉcosystèmeD is organised around 4 administrators: Greater Dunkirk, the Community of Municipalities of the Hauts de Flandre, the Grand Port Maritime de Dunkerque and the Chamber of Commerce and Industry Littoral Hauts-de-France.

  Greater Dunkirk, the CCI and the GPMD have designated ÉcosystèmeD as the leader of the DKarbonation project, winner of the Low Carbon Industrial Zones (ZIBaC) call for projects.

- **GREC (Regional Climate Studies Group):** The GREC, provides valuable expertise and support to the cities climate efforts. The GREC conducts research, analyses data, and develops strategies to address climate change at the regional level.

- **Multi-level Governance:** Dunkirk collaborates with other levels of government, including the national and regional authorities, to implement climate policies and initiatives. This multi-level approach ensures a coordinated and effective response to climate change.

  - **Rev3:** The Hauts-de-France Region and the Hauts-de-France Chamber of Commerce and Industry (CCIR) have been working together for almost ten years to promote a more sustainable and inclusive region.

    - Energy: how can we switch to carbon-free energies?
    - Technology: how can we improve our production processes to ada pt to technological change (development of artificial intelligence, connection modes, etc.)?
    - Society: how can we provide better housing, travel, food and consumption?

      - **Territorial Anchoring:** One of the pillars of REV3 is to strengthen the local economy by creating jobs directly within the territories. To achieve this, the Region works closely with local authorities, as demonstrated by the "demonstrator territories" initiative. Planning tools such as the SRADDET, PCAET, and NPNRU are also used to effectively guide projects.

- **Innovation and Training:** Innovation is at the heart of the REV3 dynamic, with a particular focus on transferring research results to businesses. This not only creates new jobs but also fosters the emergence of new economic activities. Training programs are also adapted to meet market needs and the challenges of the energy transition.

- **Citizen Involvement:** The inhabitants of Hauts-de-France are encouraged to play an active role in this transformation. They are invited to get directly involved in projects and to launch their own initiatives. Crowdfunding tools are also in place to support citizen-led projects, thereby enhancing their engagement.

- **Integration into Regional Policies:** REV3 has become a strong identity marker for the Hauts-de-France region. Its objectives are now integrated into all regional policies, and regional staff are trained on the issues of the energy transition.

› **Non-Government Actors: Civil society organisations, businesses, and other non-government actors play a vital role in Greater Dunkirk's climate agenda. These stakeholders contribute to climate action through various initiatives, such as advocacy, research, and community engagement.**

- Non-Government Actors (NGOs) are essential partners in the city's climate agenda. These organisations, businesses, and other stakeholders contribute significantly to climate action through a variety of initiatives.

- Civil Society Organizations (CSOs) play a particularly active role. They often serve as advocates for climate-related issues, raising awareness and lobbying for policy changes. Additionally, CSOs can conduct research and analysis to inform decision-making and develop evidence-based solutions. Some may also implement community-based projects, such as tree-planting initiatives, energy-efficiency programs, or sustainable transportation initiatives.

- Businesses also have a crucial role to play in climate action. Many companies are increasingly recognizing the importance of sustainability and are taking steps to reduce their environmental footprint. This can involve adopting green practices, investing in renewable energy, and developing sustainable products and services. Businesses can also contribute to climate action by supporting local initiatives and advocating for policies that promote sustainability.

- University and research institutions, serve as hubs of research, innovation, and education, contributing significantly to the development of sustainable solutions. Universities conduct cutting-edge research to understand the complexities of climate change, develop new technologies for reducing GHG emissions, and explore adaptation strategies

› **Industries: By successfully integrating sustainability into its economic renewal, Dunkirk can position itself as a leading example of green industrial transformation on the national and European stage. This can attract investment, skilled labour, and tourism, while also providing a blueprint for other industrial regions looking to transition to a low-carbon economy.**

› **University of Opal Coast (ULCO): A hub of 4 universities in the Hauts-de-France region, with a campus in Dunkirk.**

ULCO distinguishes itself through its commitment to cutting-edge research. 14 research units, spread across 3 research centers and institutes on our various campuses, cover a wide range of disciplines: the Institute of Marine and Coastal Sciences; the Technological and Environmental Transformations Center; and the Humanities and Integrated Territories Center.

The research teams collaborate closely with national and international partners to address the most pressing scientific and technological challenges of our time. Locally, the university is also fully engaged with its socio-economic and institutional partners to address major territorial challenges, particularly on environmental issues and the creation of a decarbonized industry.

Many public interest topics are being worked on between ULCO and Greater Dunkirk. A prime example, linking industries, decarbonization, and learning, is the "C-DeCIDé" project, led by ULCO. It aims to support the reindustrialization of a zero-carbon territory by developing a comprehensive and diversified training offer ranging from pre-baccalaureate to doctoral level, adapted to different audiences, from initial to continuing education. To achieve this, the university will set up seven technological training platforms, known as ***"learning construction sites,"*** interconnected within a territorial symbiosis. These platforms will offer a complete and diversified training offer, ranging from micro-certifications to national diplomas and professional qualifications, including skills blocks and MOOC-gradeo programs. The C-DeCIDé project emphasizes the development of transversal skills (soft skills) in parallel with technical skills (hard skills). It also plans to create an awareness module on decarbonization issues, which will then be deployed nationally through the FUN (France Université Numérique) platform. Led by ULCO, C-DeCIDé is the result of a collaboration between various academic, territorial, and industrial stakeholders in the region. An assessment of training needs related to industrial decarbonization at the territorial level was carried out through interviews with regional industries, with the help of actors such as the Greater Dunkirk, the Hauts-de-France CCI, and ÉcosystèmeD. Industrial partners such as ArcelorMittal, Total Energies Learning Solutions, AFPA, and Verkor, all training operators, will work with ULCO on the design of the training modules. This 5-year project aims to provide 2,300 hours of initial training with the goal of training 12,500 students. In terms of continuing education, 1,360 hours will be dedicated to training 10,500 learners.

The governance structure for climate action in Greater Dunkirk is comprised of two tiers. At the strategic level, the President, Vice-President, and Mayors establish the overarching policy framework. The operational level is managed by the General Manager and the General Manager for Ecological Transition, who oversee the implementation and coordination of climate mitigation initiatives.

- Engage stakeholders by first identifying key groups based on their potential impact on emissions, such as energy producers, transportation companies, industries, government agencies, and communities.
- Tailor engagement strategies to each group through methods like workshops, surveys, and focus groups.
- Collaboratively involve these stakeholders in setting GHG reduction targets and developing action plans, fostering a sense of ownership and commitment to shared goals.
- To encourage participation, Greater Dunkirk works on offering incentives such as financial benefits, tax breaks, or regulatory advantages, and create market-based mechanisms like emissions trading to drive innovation and efficiency.
- Facilitate knowledge sharing among stakeholders through conferences, webinars, and online platforms, promoting the exchange of best practices and lessons learned.
- Establish mechanisms to connect systems linked to emissions sources by developing standardized data collection protocols and reporting standards, ensuring data accuracy, reliability, and comparability across different systems.
- Implement integrated emissions monitoring through real-time tracking and remote sensing technologies, like satellites, for large-scale observation.
- Use advanced data analytics and modeling to identify emission hotspots, trends, and predict the impact of various mitigation strategies.
- Secure platforms should be created to share emissions data among stakeholders, enabling collaboration and informed decision-making.
- Combine stakeholders' involvement with system connectivity by co-developing monitoring systems that engage stakeholders in their design and implementation, ensuring these systems are relevant and widely accepted.

- Collaborate with stakeholders on research and development projects to foster innovation and create new technologies and solutions.

- Use performance-based contracts to link stakeholder incentives to emissions reduction achievements, encouraging continuous improvement and accountability.

With the unwavering support of our political leaders in the Greater Dunkirk administration, we'll be able to discuss about funding key priorities to tackle this complex issue. Over time, our understanding of the problem has deepened significantly, and it will allow us to develop more targeted and effective strategies. As the initial challenges are daunting, our persistence and adaptability will pave the way for a smoother path forward.

In future iterations of our climate neutrality plan, we aim to foster greater collaboration with additional stakeholders focused on living areas. By leveraging these synergies, we can accelerate our progress towards our goals. The transition team will actively engage with existing committees representing the economic, industrial, residential and scientific sectors of Greater Dunkirk for example.

As mentioned before, three primary strategies are being implemented to involve citizens and rally their support for achieving carbon neutrality.

› **The first** is the Eco-winning program. The concept is straightforward: rather than imposing restrictions or making people feel guilty, we aim to incentivize individuals to adopt more environmentally friendly habits and reduce their carbon footprint. In Greater Dunkirk, local leaders have decided to prioritise increasing purchasing power as the primary motivator for encouraging sustainable behaviors. This additionally offers the benefit of improving quality of life and increasing social equity.

Initiated with the introduction of free public transportation, the Eco-winning program is expanding and is increasingly touching various aspects of daily life: housing, water, active mobility, waste, etc. It ranges from financial assistance for home insulation to the free provision of water recovery systems and the regular organization of 'repair cafes' to extend the lifespan of household appliances.

The Eco-winning program is actively promoted through comprehensive campaigns to raise awareness and encourage participation. These campaigns emphasize the program's dual benefits: increased purchasing power and a positive environmental impact.

› **The second** policy implemented for the climate involves public awareness and information. Greater Dunkirk has three major popular education facilities: La *Halle Aux Sucres* dedicated to sustainable cities, le *PLUS (Palace of the Universe and Science)* dedicated to science and technology related to industry and decarbonization, and *Biotopia* dedicated to biodiversity. Today, these three facilities have adopted decarbonization as their primary educational focus and are coordinating to create truly coherent visitor experiences.

Efforts are also underway to increase the number of "off-site" actions to reach out to residents. This "externalization" is also supported by the many educational and fun events organized by the territory: the fabulous factory to explain the jobs of the future, the Village of the Future to show that one can live well and even better in a decarbonized world with new energies, etc. All these events rely on the participation of numerous partners.

› **The third** policy implemented is part of the DNA of the Dunkirk territory: citizen consultation. For many years, citizens have been invited to give their opinion on the future of the territory, on their needs, their desires, their opinions. This culture of participation has been further strengthened in recent years with the implementation of votes on issues at the municipality level, local initiative factories (FIL) for issues at the neighbourhood level, major exchanges during the implementation of free buses and the urban developments that this implied, or the drafting of the Local Urban Plan or the Air Climate Energy Plan.

A permanent consultation platform and field actions have been set up: "changing life together" and has made it possible to listen to the opinions of the population on the end of the COVID lockdown, on how to jointly manage the arrival of 20,000 jobs and, recently, on how to achieve carbon neutrality within the framework of the climate contract. This culture of consultation is strengthening and constantly evolving towards co-decision-making mechanisms and broader participation of stakeholders: Co-Mission Zero and social conference.

This process can be divided into three main stages, each of which requires active participation from citizens. These steps are as follows:

Phase 1: Gathering the voices of inhabitants/users/citizens.

Following the first lockdown, the Greater Dunkirk launched a citizen dialogue initiative on "the world after", to adapt, with the help of the population, the services and the use of public space in a context of deconfinement under constraints. Building on this experience, and with the desire to animate a permanent and continuous citizen approach, the Greater Dunkirk sets up the citizen consultation process "Changing life together". The aim of this process was to gather the opinions of its inhabitants, users, and citizens of the territory to find out what they wanted and needed for the coming years. More than 3,000 contributions were recorded. The entire territory was involved in the deployment of this approach, with particular attention paid to young people and seniors. This survey was supplemented by three workshops. They made it possible to co-create, with the inhabitants, concrete solutions to "Change life together". The role of the citizen was rethought as a driving force in the ecological transformation of the territory. As a starting point for the territorial project, "Changing life together" made it possible to develop roadmaps for our public policies for the first part of the current mandate.

Phase 2: Co-construction of public policies and processing of citizen contributions

Following the process, and to better understand the expectations and needs of the inhabitants, but also the obstacles that prevent families from adopting more positive habits for the environment, the elected representatives of the Greater Dunkirk decided to support an approach implemented by the University of the Littoral Côte d'Opale (ULCO). Indeed, volunteer families took part in an experiment aimed at building solutions that meet the challenges of climate change and the needs of inhabitants, considering the realities of everyday life (interviews aimed at discussing on the reasons for their choices, on what encourages or discourages them to respect certain rules). To achieve a lasting change in the behavior of inhabitants, the choice was made for an incentive-based approach that highlighted gains in purchasing power and the simplification of procedures, rather than a punitive approach. This is the whole meaning of the eco-winning program which targets 4 areas that cover a large part of household fixed expenses (water, waste, mobility, housing), examples: rainwater recovery, deployment of resource centers, use of the free free public transport, energy renovation of housing. Since then, multiple devices have been initiated:

- Going door-to-door to meet the 80,000 households in the agglomeration to explain the challenges of the waste collection system reform and waste sorting.
- For young people, commitment to transitions is carried out through a participatory design device "Young Influencers for the Climate".
- Mobile initiative devices have been deployed: itinerant bike houses, itinerant project houses, the itinerant Village of the Future during the summer season, etc.
- In order not to slow down this dynamic of change, the Greater Dunkirk wished to continue the process to co-construct the solutions and projects of tomorrow. It has therefore imagined several meetings to meet the inhabitants and offer them the opportunity to become even more involved.

The Citizens' Assembly!

The debate is open to all and focuses on four major challenges:

- **1.** Climate change
- **2.** Air, water, and soil quality
- **3.** Biodiversity
- **4.** Availability of essential resources The goal is to collectively reach an action plan for the future.

The Youth Assembly!

As part of "Changing life together", the inhabitants of the agglomeration have massively placed young people as a priority public. It is a great ambition, for a territory, to be able to offer each young person support towards their autonomy and their entry into adult life. Since October 2021, nearly 800 young people have been mobilized by the partners of the Assembly to make their ideas, concerns, and proposals heard in order to collectively build a territory in their image. During about sixty workshops, the youth of the Dunkirk agglomeration were able to propose and imagine concrete solutions to "Change life together".

PHASE 3: Consultation NetZeroCities: Embarking citizens on the transition(s)

- **1.** J.I.C "Young Influencers for the Climate" A call for applications was launched among young people in the territory; the Young Influencers for the Climate continue to meet outside school hours (Wednesday and Saturday afternoons or during the holidays). Concretely, they were able to:
  - Be sensitized to global climate issues through the "Climate Fresco" animation
  - Collectively generate ideas, reflect on the projects they could carry out
  - Meet stakeholders of the territory in terms of ecological transition
  - Act to promote their collective and recruit other members, by preparing workshops and animations. They also worked on an identity (a name, a logo), a communication campaign (form via the "changing life together" site, creation of a flyer, interview of one of the members in the latest community magazine). In addition, they also created their own "Instagram" page and a "WhatsApp" group to facilitate exchanges.

- **2.** Pop'Democracy: Raising awareness "Outside the Walls" through an educational and playful approach. In addition to these approaches, multiple sequences are deployed in a logic of "going towards", in favor of transitions centered around popular education:
  - The "Green Village" during the "Gigapuces" in Dunkirk. Dedicated to eco-gestures, the *Halle aux sucres* (popular education facility of the Greater Dunkirk) sets up meetings with inhabitants/users/citizens for "do it yourself" workshops, repair cafes, "upcycling", awareness of re-use, ... a whole eco-responsible and eco-winning universe,
  - The "Village of the Future" invites all the generations to question the world of energy and discover solutions for a sustainable future in a festive and enthusiastic spirit through exhibitions, workshops, and participatory energy experiences: parental energy carousel, juice bike mixer, climate crisis tumbledown, energy quiz, mini-debates.

Focus "Mobile Parliament": HQ of the sustainable city! PCAET, Decarbonization, Smart City, ... Behind this jargon, there are words that have a precise meaning. Knowing them better is giving oneself the power to act to participate in the collective commitment and transform the territory. This citizen consultation deployed during the "Village of the future" made it possible to collect nearly 600 contributions.

- **3.** Supporting elected officials and territorial agents in the methodology of citizen consultation, the "Network of territorial actors of local democracy and popular education" was launched, integrating elected officials of the agglomeration, representatives of neighborhood houses, technicians of the municipalities and Greater Dunkirk.

In continuity, a focus group "Neighborhood houses in transition(s)" allowed the meeting of 80 agents of the neighborhood houses of *A tes côtés* and *Atouts-Ville*. This highlight was an opportunity to generate exchanges around the neighborhood house of the future.

Finally, a third focus sequence "Technicians in Transition(s)" developed with the Urban agency of Dunkirk (AGUR), aimed at municipal and community agents, was organized.

From now on, these networks of actors linked to the climate to "embark" their members in the transition.

Ambition: Co-construction; Deployment of an Augmented Participatory Territorial Contract

- **1. Consolidating the offer of service in Pop'Democracy:** A phase of updated assessment of the needs/expectations in citizen involvement engineering was carried out by the popular education and local democracy department with the Greater Dunkirk's departments. As a result, 11 departments were met. Following the interviews, a form "Methodology & Support - Citizen Involvement" was sent to each of them to refine their requests for strategic and methodological support.
- **2. Prototyping new collaborative models at the service of the territory's projects:** Following this census and the deployment of the three awareness-raising phases, a "training-action" cycle was co-constructed with the *national center for territorial public service* (CNFPT). It was an opportunity for the agents of the city of Dunkirk and Greater Dunkirk to be initiated to the conduct of participatory projects in a concrete and operational way (animation methodology, tools for citizen consultation, simulation).

Building on a tradition of consultation and co-decision-making, on the CCC, Greater Dunkirk and its partners wish to structure and anchor this permanent citizen dialogue to enrich the Co-mission Zero contract and involve as many people as possible in the approach.

C.1.2: Relations between governance innovations, systems, and impact pathways					
Intervention name	**Description**	**Systemic barriers / opportunities addressed**	**Leadership and stakeholders involved**	**Enabling impact**	**Co-benefits**
Eco-winning program	Accompany citizens with purchasing power	Social and financial	Greater Dunkirk, Citizens, energy company (Enedis, GRDF), water company	The aim of this project is to highlight the savings made by citizens when they make a few adjustments to their everyday consumption (waste management, transport/travel, energy and water consumption).	It's an initiative aimed at the public, with the aim of raising awareness, reducing consumption and raising awareness, thanks to the support of Grand Dunkerque. The idea is to reduce waste, cut down on energy consumption, and encourage people to adopt more active modes of transport.
Evolution of the Transition Team	Develop the Transition Team and improve their impact on the climate neutrality	Communication, Time, Social	All the stakeholders engaged in the climate plan	With collective intelligence, and financial/technical/ political possibilities, we aim to lever strategies to make climate neutrality in 2030 feasible	The transition team is aimed to work on every action of the portfolio, so on the indicators linked to
Data-driven decisionmaking	Standardising indicators across all plans to streamline data collection and analysis, enabling us to better understand systems and develop targeted solutions.	Financial, Time, Regulatory,	Greater Dunkirk, transition team members, and major actors on the climate neutrality	Data-driven decision-making is indispensable for attaining climate neutrality. By furnishing the requisite information and insights, it facilitates the formulation and execution of effective climate action plans. Moreover, it permits the tracking of progress, the adaptation of strategies as circumstances warrant, and the measurement of the impact of climate mitigation efforts.	Reduction in the time devoted to data collection enables a greater allocation of resources to data analysis and solution development, thereby facilitating more expeditious decision-making and more efficient problem-solving.

4.2 Module C-2 Social Innovation Interventions

These innovative approaches empower stakeholders to actively participate in shaping Greater Dunkirk's environmental policies, while ensuring compliance with regulatory and financial guidelines. By expanding and refining existing initiatives, we can enhance access to information, foster meaningful engagement, and create a more inclusive decision-making process. These efforts can also stimulate the creation of green jobs, improve overall well-being and environmental quality, and cultivate a sense of ownership among stakeholders in the development and implementation of public policies. How do these innovations lower barriers for marginalized groups to participate?

To ensure the success and long-term impact of any innovation, a structured approach that encompasses robust planning, strategic partnerships, adaptability, scalability, effective communication, and sustainability is essential. Below is an outline of key principles that will guide our innovation process:

Robust Planning and Evaluation

- **Clear Goals:** Establishing clear and measurable objectives is the foundation of a successful innovation. These goals should be specific, achievable, and aligned with the broader mission of Greater Dunkirk and the stakeholders. By setting defined targets, teams can focus their efforts and resources effectively.

- **Rigorous Evaluation:** Implementing a comprehensive evaluation framework is crucial for tracking progress and identifying areas that need improvement. Regular assessments allow for real-time insights, helping to ensure that the innovation remains on course and achieves its intended outcomes.

- **Data-Driven Decision Making:** Using data to inform decision-making is a critical component of a successful innovation strategy. By relying on empirical evidence, rather than assumptions, organisations can make informed adjustments to their strategies, ensuring that they remain relevant and effective in a changing environment.

Strong Partnerships and Collaboration

- **Diverse Stakeholders:** Collaborating with a wide range of stakeholders, including government agencies, industry partners, and academic institutions, enriches the innovation process. Each partner brings unique perspectives, expertise, and resources, which are vital for overcoming challenges and accelerating progress.

- **Shared Vision:** Ensuring that all partners are aligned with the overall goals and objectives of the innovation is essential for cohesive and effective collaboration. A shared vision fosters unity and a collective commitment to achieving the desired outcomes.

- **Resource Sharing:** Leveraging the resources and expertise of partners is a key strategy for accelerating innovation. By pooling resources, organizations can overcome limitations and create synergies that drive faster and more impactful results.

Adaptability and Flexibility

- **Continuous Learning:** Staying informed about industry trends, technological advancements, and changing market conditions is crucial for maintaining the relevance of our innovation. Continuous learning enables teams to anticipate changes and adapt proactively.

- **Iterative Development:** Being prepared to adapt the innovation based on feedback and emerging opportunities is essential for success. Iterative development allows for the refinement of ideas, ensuring that the final product or service meets the needs of its users and remains competitive in the market.

- **Risk Management:** Developing strategies to mitigate risks and uncertainties is a fundamental aspect of innovation. A proactive approach to risk management ensures that potential challenges are identified early and addressed effectively, minimizing disruptions.

Scalability from the Start

- **Modular Design:** Designing innovation to be scalable and adaptable to different contexts from the outset is key to its long-term success. A modular approach allows for flexibility in implementation and ensures that the innovation can grow and evolve as needed.

- **Pilot Projects:** Conducting pilot projects is an effective way to test the feasibility and effectiveness of the innovation on a smaller scale. These pilots provide valuable insights that can inform larger-scale implementations and help refine the innovation before a full rollout.

- **Infrastructure and Resources:** Ensuring that the necessary infrastructure and resources are in place to support scale-up is crucial. This includes securing financial resources, building capacity, and establishing the operational frameworks needed to sustain growth.

Effective Communication and Engagement

- **Stakeholder Engagement:** Keeping stakeholders informed about the progress of the innovation and actively seeking their input fosters trust and collaboration. Regular updates and transparent communication ensure that all parties remain engaged and supportive.

- **Public Relations:** Developing a public relations strategy to raise awareness and build support for the innovation is essential for gaining public and stakeholders buy-in. Effective public relation efforts can help to highlight the innovation's benefits and attract the necessary attention and resources.

- **Storytelling:** Communicating the benefits and impact of the innovation in a compelling and engaging way is crucial for gaining support and driving adoption. Storytelling helps to humanize the innovation, making it more relatable and easier to understand for diverse audiences.

Sustainability and Impact Measurement

- **Long-Term Sustainability:** Developing a plan to ensure the long-term sustainability of the innovation is vital for its continued success. This includes securing ongoing funding, building capacity, and embedding the innovation into existing systems.

- **Impact Assessment:** Continuously measuring and assessing the impact of the innovation on its intended beneficiaries is essential for understanding its effectiveness and value. Regular impact assessments allow for adjustments to be made, ensuring that the innovation remains aligned with its goals.

- **Social and Environmental Responsibility:** Considering the social and environmental implications of the innovation is not only ethically important but also enhances its acceptability and success. Innovations that positively contribute to society and the environment are more likely to gain widespread support and endure over time.

To illustrate our goals, we're considering these specific actions for Greater Dunkirk

- **Anchoring Eco-winning in Time and Territory:** As previously mentioned, Greater Dunkirk has opted to incentivize local actors to adopt more environmentally friendly behaviors and reduce their carbon emissions through purchasing power incentives. This initiative is known as Eco-winning. It is increasingly impacting various aspects of household life: mobility, housing, water, energy, waste, etc.
  While each new action has been widely communicated, to further strengthen its impact and benefit the greatest number of people, it has been decided to continue diversifying the program (housing, green private gardens), reinforce communication, and create a true Eco-winning portfolio for families. This means providing comprehensive communications summarizing all the assistance or services to which residents are entitled through various communication tools (web, app, newspapers, etc.). This communication will be relayed by Greater Dunkirk but also by the municipalities within the territory. An app will also be created on the subject and will include monitoring energy and water consumption.

- **Leveraging Existing Partnerships:** Many Eco-winning initiatives have been created thanks to strong partnerships with public service delegates, such as the public transport delegate. The same is true for water, with the implementation of a pilot eco-solidarity pricing scheme. For these partners, Greater Dunkirk has become a place to pursue their own evolution and test new solutions. This generates new innovations and strengthens existing ones; for example, with the mobility partner, to consider new services to implement parking-free factories. With the water service delegate, the aim is to go further in fair billing linked to actual consumption, especially by better considering household size.

- **Working with New Partners:** To continue innovating, it is also necessary to bring new partners to the table. Housing is a major issue for many people. Various Eco-winning initiatives to fund home insulation have been implemented. However, the ambition is to go further and, to this end, to involve social landlords, as well as property developers and landlords. Similarly, for the maximum number of families to be able to participate in Eco-winning initiatives, they must be visible in their daily lives. Greater Dunkirk provides families, free of charge, with rainwater collectors or composters. To ensure that everyone is aware of this and can benefit from it, it is planned to work with DIY stores which, in their departments, will promote the initiative and bill the product to the community.

- **Working with New Audiences:** In France, we often talk about a category of inhabitants called "Bobos" for bourgeois bohemians; and simplistically, one might think that this category is the most sensitive to climate change and is interested in the initiatives put in place. The idea is to involve all audiences; this is why discussions have begun with neighborhood centers and social centers in the cities of Greater Dunkirk so that awareness-raising, discovery, information, and sharing actions can be carried out by the staff of these facilities towards residents.

- **Imagining Ever More Ambitious New Initiatives:** For a transition to be carried out and adopted by all, it must be fair; this is why it must also adapt and consider all audiences, including those in great difficulty. Greater Dunkirk is working on the implementation of Universal Public Service for Essential Needs. This could involve, for example, creating meals with fresh and local products. This action will associate all municipalities in a solidarity pact.

- **Communicate, Communicate, Communicate and Listen, Listen, Listen:** For these actions to reach the maximum number of inhabitants, and especially those who need them most, everyone must be aware of the initiatives implemented; these initiatives must also meet their needs. As mentioned in the commitment, Greater Dunkirk wishes to strengthen its communication on carbon neutrality, as well as on good practices and purchasing power; but also, to strengthen the mechanisms for exchange with stakeholders in the territory (Co-mission Zero and social conference) to better align with the reality on the ground and the expectations of residents.

C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways					
Description of innovation	Systemic Barriers addressed	Systemic barriers identified in A-3	Stakeholders involved	Enabling levers	Foreseen impact on Climate neutrality and Co-benefits
Community-led urban gardening: collaborative effort where residents take ownership of and actively participate in cultivating green spaces within their urban environment. It involves transforming often underutilized areas, such as vacant lots or rooftops, into productive and shared gardens.	Social isolation, food insecurity, lack of green spaces, conflict of use, some areas will be dedicated to carbon offsetting	Financial and Social	Community resident, local gouvernment, NGOs	Policy (zoning land use), financial (grants, subsidies), community engagement	Improved air quality, reduced food transportation, increased biodiversity, social cohesion
Time banks for skills exchange: community-based system where members exchange skills and services without using money. The currency is time. For every hour of service provided to another member, the giver earns one "time credit." These credits can then be used to receive services from other members	Social inequality, unemployment, lack of access to education and training, underutilisation of skills, will require a great deal of com on the concept to get people on board	Social, Time, Financial, Communication	Community members, local government, NGOs, businesses	Policy (legal recognition), social infrastructure (community centers), capacity building (skill-sharing workshops)	Increased social cohesion, improved mental health, reduced isolation, enhanced employability, potential for knowledge sharing and innovation.
Repair Cafés and Sharing Economy: Organize repair cafes to extend the life of products, reducing waste and resource consumption. Promote sharing platforms for tools, vehicles, and other goods to minimize individual ownership.	financial, environmental impact of our activites, social isolation, economic inequality, Consumerism and waste, obsolescence of certain equipment such as computers	Social, Financial, Communication, Time	Greater Dunkirk, neighbourhood centre	Government policies, community engagement, education and awareness, technological innovation	Reduced carbon emissions, resource conservation, social inclusion, economic resilience
Development of blue economy: Promote sustainable activities related to the sea, such as aquaculture, marine renewable energy, or maritime tourism (pesca tourism?)	communication and citizen engagement, coastal pollution, economic inequality, international cooperation	Communication, Social, Financial	Fishery local Action Group (FLAG), association, economic actors of halieutic area, Greater Dunkirk	Government policies, community engagement, education and awareness, technological innovation, international cooperation	Reduced carbon emissions, resource conservation, social inclusion, economic resilience
Coastal resilience: Develop community-led initiatives to address coastal erosion, flooding, and climate change impacts. This could involve nature-based solutions, early warning systems, or community-led adaptation plans.	financial, citizen engagement, communication	Communication, Social, Financial	FLAG, Association, Citizens, Greater Dunkirk	Government policies, community engagement, education and awareness, technological innovation	Carbon sequestration, renewable energy, biodiversity conservation food security, coastal resilience
Marine conservation: Support projects aimed at protecting marine biodiversity and ecosystem services. This could include citizen science initiatives, marine protected areas, or sustainable fishing practices.	financial, coastal pollution, citizen engagement, economic inequality	Communication, Social, Regulatory	Environmental association, FLAG, Neighbourhood centers, Greater Dunkirk	Government policies, community engagement, education and awareness, technological innovation, international cooperation	Carbon sequestration, renewable energy, biodiversity conservation food security, coastal resilience

Intergenerational projects: Create opportunities for interaction between different age groups. This could involve volunteering programs, intergenerational housing, or shared spaces for learning and leisure.	citizen engagement, social isolation,	Financial, Social, Time	Neighbourhood centers, Greater Dunkirk, Hospitals	Community engagement, goverment policies, education and awareness, technological innovation	Increased social cohesion, improved mental health, reduced isolation, enhanced employability, potential for knowledge sharing and innovation.
Citizen Science and coastal Monitoring: Empower residents to monitor erosion on the coast and identify pollution hotspots. This data can inform targeted interventions and foster a sense of community ownership.	financial and citizen engament, social isolation, communication	Financial, Social, Time	PMCO, Greater Dunkirk	Community engagement, goverment policies, education and awareness, collaboration	increased data availability, citizen engagement, community empowerment, biodiversity conservation
Climate Education and Awareness: Create youth-led initiatives to educate the community about climate change and its impacts.	citizen engagement, accessibility of the concept of climate change	Social, Time, Communication	Environmental association, Neighbourhood centers, Greater Dunkirk	Community engagement, goverment policies, education and awareness, collaboration	Increased social cohesion, improved mental health, reduced social isolation, enhanced employability, potential for knowledge sharing and innovation.
Industrial Heritage and Green Economy: Explore opportunities to repurpose industrial sites for sustainable economic activities, such as renewable energy production or circular economy initiatives.	citizen engagement, communication, economic transition, sustainability	Social, Time, Communication	Tourist information center, Port of Dunkirk	Community engagement, goverment policies, education and awareness, collaboration	economic diversification, cultural preservation, climate mitigation, citizen engagement
Skill retraining and upskilling: Offer training programs to help former industrial workers acquire new skills for emerging industries, such as renewable energy, digital technologies, or blue economy sectors.	Economic Inequality and Social Justice, social isolation, communication, citizen engagement	Social, Financial, Communication, Time	Companies, Greater Dunkirk, France Travail	Community engagement, goverment policies, education and awareness, collaboration	social equity, reduced employement, enhanced employability, potential for knowledge sharing and innovation
Circular economy initiatives: Focus on reusing and recycling industrial waste materials to create new products or services. This could involve supporting local entrepreneurs in developing circular economy businesses or establishing a circular economy hub.	financial, environmental impact of our activites, economic inequality, linear economy	Social, Financial, Communication, Time, Regulatory	Waste management structures, Greater Dunkirk, Citizens	Community engagement, goverment policies, education and awareness, collaboration	Reduced carbon emissions, resource conservation, social inclusion, economic growth, improved air and water quality
Industrial heritage tourism: Develop innovative tourism products based on Dunkirk's industrial past. This could involve transforming old factories into cultural spaces, creating interactive historical experiences, or developing walking tours.	sustainable tourism, citizen engagement	Social, Time, Financial, Communication	Port of Dunkirk	Community engagement, goverment policies, education and awareness, collaboration, public-private partnership	Economic development, cultural preservation, citizen engagement, environmental conservation, climate mitigation

Single use plastics: By collecting and repurposing single-use plastics, we can convert waste into new products, reducing pollution and creating a circular economy. Citizens can be part of cleaning mission on the beach, forest, around rivers etc	financial, economic, citizen engagement, affordability	Social, Time, Communication	Greater Dunkirk, Neighbourhood centerss, associations	Community engagement, goverment policies, education and awareness, collaboration, business responsibility, product innovation	GHG emissions, waste reduction, economic benefits
Encourage citizens to green their private spaces: by greening their private areas and planting trees, residents speed up the area's adaptation to climate change, they fix carbon, etc.	financial, economic, citizen engagement, affordability, awareness and education	Social, Financial, Communication, Time, Regulatory	CUD, SUEZ, Hauts-de-France Région	Community engagement, goverment policies, education and awareness, collaboration, business responsibility	GHG emissions, quality of live, air quality, economic benefits
Creation of a support fund for asbestos removal: Very often, producers of solar energy on buildings are limited in their development wishes given the significant additional costs of asbestos removal before installing the solar panels. Given the regulatory mechanisms that do not allow renewable energies to be subsidized in addition to state aid schemes, it is proposed to create a support fund for companies and individuals for roof asbestos removal with a view to install solar energy.	financial, economic, waste, citizen engagement, affordability, awareness and education	Social, Financial, Communication, Time, Regulatory	Citizens, Greater Dunkirk, waste sectors	Community engagement, goverment policies, education and awareness, collaboration, business responsibility, product innovation	GHG emissions, quality of live, air quality, economic benefits, waste management
Implementing an educational initiative to foster ecological awareness within training programs: Develop a comprehensive communication toolkit: Tailored to diverse age groups and audiences, this toolkit will effectively convey the environmental impact of various professions. Enhance environmental literacy: Equip inhabitants with the knowledge to understand how their professional choices contribute to climate change. Promote informed decision-making: Focus on specific sectors, such as construction, to illustrate how professional choices, such as material selection, can significantly impact the environment.	Financial, economic, citizen engagement, awareness and education	Social, Time, Communication	Citizens, Greater Dunkirk, universities, schools	Community engagement, goverment policies, education and awareness, collaboration, business responsibility	Economic development, cultural preservation, citizen engagement, environmental conservation, climate mitigation

Even though some actions are still under review, the following examples provide tangible illustrations of these social innovation ideas.

Time banks for skills exchange

› The Turbine

Marked by a strong culture of salaried employment inherited from the historical presence of large industrial groups in the territory, Dunkirk has been engaged since 2014 in a process aimed at nurturing the endogenous creation of companies, making it possible to further diversify its economic network.

In this context, La Turbine opened its doors in November 2020 and is home to all the local players in entrepreneurship: Chamber of Commerce and Industry, Chamber of Trades and Crafts, BGE Flanders creation, Initiative Flandre, Groop and Adie. Our partners such as Nord actif, the Toerana cooperative, Tilt, CARSAT, 60,000 Rebounds, etc. also hold regular sessions. The idea is to be able to provide an answer to all questions related to entrepreneurship in a single place.

These structures are housed free of charge at *La Turbine*, a community building, and are for the most part subsidized by Greater Dunkirk to provide project leaders with a quality and free service.

A project to extend the existing site (led by the Idéel group with S3D (Dunkirk Development Company) in co-promotion of the project) is currently being considered. It seems necessary to develop a tertiary real estate offer in the immediate vicinity of *La Turbine* by offering accommodation to young companies and business service activities in a residential logic.

Regarding the awareness of young people in schools, a territorial animation around the OPTE platform (a digital plateform to encourage young people to set up their own business) has been launched to further accentuate the dynamic around *La Turbine* and strengthen the links between the world of education and companies. The objective is also to meet the needs of teachers on entrepreneurship but also more broadly to questions related to the professions of the future and the promising sectors of activity in the Dunkirk area, in connection with the Dunkirk Creative Energy actions already carried out and the Educational Pact.

Another structure found in *La Turbine* is the CCI (Chamber of Commerce and Industries) which carries out general actions in favour of all companies and territories to facilitate their commitments and ensure their success in a context of profound change. It is in this context that the CCI HdF offers (thanks to the Hauts-de-France Region and Europe) a support called "Ecological Transition Booster", which aims to:

1. Take stock of a company's environmental performance: its practices, its management tools and its management method.
2. Identify and analyse its different flows: energy, waste, discharges, materials, procurement, responsible purchasing, etc.
3. Formalize priority actions to control energy consumption, reduce the carbon footprint, optimize the company's costs and promote environmental actions to your customers.

› Social and Solidarity Economy (SSE)/ Social Entrepreneurship

Since its creation in 2017, the SSE club has brought together 26 leading structures of the Social and Solidarity Economy with common values and principles: social utility, cooperation, local anchoring and adaptation to the needs of the territory and its inhabitants. They embody a wide range of fields of activity (communication, construction, reuse, sport/health, logistics, active mobility, etc.).

This SSE club was initiated, piloted and animated by Greater Dunkirk instituting a group dynamic focused on the economy. Cooperation between these actors has been strongly dynamic in recent months, with the emergence of significant collective projects:

- Structuring of a new PMCB (extended producer responsibility of building construction products and materials) EPR sector called "BTP Progr'ESS" from cleaning to reuse
- A local collective support system "integration project workshop" towards Integration Company
- The creation of a "better food for all" consortium
- The new "TIMS" eco-mobility project
- The project to create a concierge service in the city center of Dunkirk or the project to create a second-hand shopping center in the area.

To give a boost in terms of social innovation in its territory, Greater Dunkirk launched a new call for Social and Solidarity Economy projects in 2024 to encourage this mode of entrepreneurship which combines economic activity and the search for a social and environmental impact.
Three projects have been selected for a total amount of subsidies of 25,000€ in the operating section and 30,000€ in investment. These are for example Cargo Elan and DK Clean up . They will also be able to benefit from technical support via La Turbine.

- Cargo Elan : Cycling logistics operator in Dunkirk
- Dk Clean Up : Founded in 2019, DK Clean Up is committed to cleaning up the beaches and natural environments of the Dunkirk area by fighting plastic pollution. Their mission is based on three fundamental pillars: raising awareness to reduce plastic at source, collection actions that enable us to take concrete action on the ground, and recycling waste.

Repair Cafés and Sharing Economy

Nine "repair cafés" have been set up in the Greater Dunkirk area, with the aim of reducing waste, reusing materials, helping households with financial difficulties and strengthening social links. The initiative is part of the eco-winning program set up by Greater Dunkirk.

The service is overseen by the Greater Dunkirk administration, with an associated organization responsible for managing repairs.

Development of blue economy and marine conservation

In 2023, the Côte d'Opale Metropolitan Area (PMCO) established a Fisheries Local Action Group (FLAG), supported by the European Maritime, Fisheries and Aquaculture Fund (EMFAF). The aim of the FLAG is to fund projects related to marine conservation, fisheries, maritime employment, and coastal culture within its territory, including the coastal communities of Greater Dunkirk. A dedicated full-time resource assists local stakeholders in developing and submitting project proposals to access these funds.

Four projects have already been approved:

- A climate and environmental awareness initiative by CPIE.
- A study by the local university assessing microplastic concentrations in Dunkirk's waters.
- A program to professionalize young people in maritime careers.
- A culinary project focused on local fish and shellfish species.

Intergenerational project, Alliance project

As part of the urban renewal project in the Banc Vert district of Dunkirk, the city has decided to build a new, innovative multi-purpose building. This unique space will bring together two primary schools, a community center, a central kitchen, and a school cafeteria, creating a shared living and learning space for all residents of the district, young and old.

The originality of this project lies in the design of a common space where the various educational and social actors can collaborate closely. The aim is to promote academic success, to promote lifelong learning, and to actively involve the local community in the life of the district.

This ambitious project addresses several major challenges:

- **Create a place of life and fulfillment** where everyone can emancipate themselves and become an active citizen.
- **Implement the principles of the educational city** by strengthening the role of the school, ensuring educational continuity outside of school hours, and involving a wide network of educational partners.
- **Build a building adapted to the needs** of a dynamic and evolving educational community.
- **Create a facility that is complementary** to the existing offer in the district, while meeting local specificities.

This project is part of an ambitious environmental approach, aiming to limit its impact on the environment and promote sustainable development:

- **E3C1 certification:** The building is E3C1 certified, guaranteeing high energy and environmental performance.
- **Zero endocrine disruptors:** The materials used were selected to avoid any endocrine disruptors, substances harmful to health.
- **Compactness:** Thanks to an optimization of the program, the surface of the equipment has been significantly reduced, going from 5,000 m² to 3,500 m², thus limiting its ecological footprint.
- **Reduction of carbon footprint:** Measures will be implemented to minimize GHG emissions throughout the building's life cycle.
- **Flexibility:** The project is designed to be adaptable and evolvable, to meet future needs and changes in use.
- **Life cycle analysis:** An in-depth study of the building's environmental impact will be carried out, from its construction to its demolition.
- **Ecological materials:** Biosourced and recycled materials were favored in construction, thus reducing the use of natural resources.
- **Reuse:** The reuse of existing materials was be considered wherever possible.

Another benefit of this social innovation lies in its consultative approach. Such significant changes naturally raise many questions. To address this, we implemented several strategies:

- **Seminars:** Fostering understanding and collaboration among employees from different structures within the alliance.
- **Design Thinking:** Ensuring diverse perspectives are considered and valued.
- **Benchmarking:** Leveraging external knowledge to inform decision-making.

However, a major challenge was the high turnover within the co-construction committee during the project's five-year development phase.

A key improvement in this project with a cafeteria is the use on artificial intelligence to monitor food waste. Dunkirk received the *Innovative Cities* award at the recent *International Summit on Innovation in Medium-Sized Cities* in Quebec, thanks to its pioneering connected school cafeteria project. The project aims to cut down on food waste and provide healthier meals for children. New software helps staff manage schedules, tasks, and issues more efficiently, optimizes inventory management, tracks food products, and mitigates health risks. It also minimizes waste and food scraps.

Citizen Science and coastal Monitoring

The Coast Snap system is a technique for monitoring the coastline using participatory science and photographic monitoring. It involves the installation of poles topped by a base from which a mobile phone can be placed and a photograph taken of a specific location. The post and base are positioned and oriented to capture a particular location, such as a beach or a coastline protection structure. Citizens are then invited to take photos using this base and send them to one of the many possible computer platforms so that they can be sorted and processed. Two stations have been deployed in the Dunkirk area: at Digue des Alliés (12/2022) and at Zuydcoote (01/2023). The system is funded by the PMCO, as part of its coastal monitoring contract with GEODUNES, and by Greater Dunkirk. Between January 2023 and October 2024, almost 1,000 photos have already been taken, making it possible to trace the evolution of the two sites over the months.

Climate education and awareness

Greater Dunkirk launched a call for projects to support eco-friendly educational initiatives on the territory. The goal is to promote sustainable living and involve residents in environmental projects. Projects could focus on areas like climate change, biodiversity, and waste reduction.

Project Summaries

Eco-explorer	
Concept	Create an interactive digital book where children can learn about environmental issues and create their own content using AI.
Goals	Raise environmental awareness, engage children in learning, and develop digital skills.
Recycled Tales	
Concept	A storytelling performance using recycled materials to create a story about the environmental impact of waste.
Goals	Raise awareness about waste and its impact, encourage creativity, and promote sustainability.
Alleyways Project	
Concept	Form small groups of citizens to plant trees and fruit-bearing hedges in various neighborhoods.
Goals	Engage citizens in community gardening, promote biodiversity, and beautify neighborhoods.
Plastic Plunge	
Concept	Conduct workshops on plastic recycling and coastal biodiversity.
Goals	Raise awareness about plastic pollution, promote recycling, and foster a connection with nature.

Overall, the projects aim to:

- Educate the public about environmental issues.
- Promote sustainable practices.
- Encourage community involvement.
- Foster creativity and innovation.

Training

Faced with a profound energy and industrial transition, our region is innovating to support its inhabitants towards sustainable jobs.

By creating local information networks and offering appropriate training (spaces for 20,000 jobs : places for discussion with citizens on current future professions, retraining or return to the job market), we aim to facilitate access to promising jobs, while raising awareness of the impact of each profession on the climate.

The objective here is for the inhabitants to be able to project themselves on the territory, with a presentation of the positions, training, and quality of life (mobility in the territory, childcare, etc.)

Thanks to tools such as the “sustainable employment fresco” and detailed job descriptions (with a score that presents the impact of the job on the climate), Greater Dunkirk helps job seekers to make informed choices and to project themselves into retraining paths.

The dynamic within this department is also to raise awareness among the youngest through interactive interventions in the schools, allowing them to react and creating a dialogue.

Indeed, the ecological and energy transition is impacting the skills sought. The skills and knowledge expected are different from what the territory has been offering for decades. It is therefore necessary to refine the data to support the academic world and training in the adaptation of skills.

In partnership with education and research stakeholders, we are developing new training courses (ULCO C-DéCIDé project) and creating an ecosystem conducive to the emergence of key skills for the jobs of tomorrow.

By participating in national events such as the *Produrable fair*, where Greater Dunkirk was awarded the "Talents for the planet" award, we highlight local initiatives and inspire new vocations. Our goal? That everyone can find their place in a changing world, contributing to a more sustainable future.

To reach the audience targeted, young people, Greater Dunkirk has developed "La Fabuleuse Factory". It is a free, interactive, and family-friendly event organized by ÉcosystèmeD over four days. Its aim is to explore the decarbonized industry, its impact on air quality, and the jobs of the future.

Resembling a mini-City of Science and Industry, the event offers an immersive experience for all audiences, regardless of age or educational level. It is neither an exhibition, a trade show, nor a forum, but a fun and educational discovery of the industry of tomorrow and its influence on our daily lives.

Through four domes and a tent, visitors are able to:

- Understand the challenges of global warming (Dunkirk accounts for 21% of France's industrial CO_2 emissions).
- Discover new industrial jobs, short supply chains, and improvements in air quality.
- Interact with professionals, observe cutting-edge tools of Industry 4.0 (including a mobile robotic production line).
- Participate in interactive activities: quizzes, tests, hands-on experiments, fun experiences, and mini conferences to learn, test, play, and exchange ideas.
- Immerse themselves in the jobs of the future through virtual reality headsets and films.
- Discover digital jobs and the importance of women and learning in industry.

In summary, "La Fabuleuse Factory" offers a unique opportunity to understand the industry of the 21st century, its challenges, and its opportunities, in an interactive and accessible way for all.

Thoses dynamics present an opportunity to explore the development of an awareness project on ecological transition in Dunkirk training programs. Here is a list of ideas aligned with the same objectives.

1. Integrating Active Mobility on Training Institution Websites

- **Interactive Maps:** Create detailed maps on each institution's website, indicating cycling routes, self-service bike stations, bus stops, and secure bike parking.
- **Practical Advice:** Offer personalized advice based on transports modes (routes, travel time, etc.) and encourage the use of carbon footprint calculators to raise awareness of the impact of each mode of transport.
- **Partnerships with Local Authorities:** Collaborate with Greater Dunkirk to promote local active mobility initiatives and facilitate access to information.

2. Creating Personalized Communication Materials

- **Co-construction Workshops:** Organize workshops bringing together teachers, employment stakeholders, and Greater Dunkirk representatives to co-construct communication materials tailored to each training program.
- **Diverse Materials:** Offer a variety of materials (posters, videos, infographics, interactive quizzes) to reach all audiences and encourage engagement.
- **Addressed Themes:**
  - Link between training and ecological transition: Show how the skills acquired during training can contribute to the energy transition.
  - Citizenship: Emphasize the importance of civic engagement for a sustainable future.
  - Concrete actions: Suggest examples of actions to implement daily (sorting, eco-gestures, etc.).
- **Adapting to the audience:** Personalize messages according to the specificities of each audience (young people, adults in retraining, etc.).

3. Integrating Energy Renovation into Training Programs

- **Partnerships with Vocational Training Centers:** Collaborate with the new vocational training center to develop training modules dedicated to energy renovation, highlighting biosourced materials such as flax.
- **Site visits:** Organize visits to renovation sites to allow apprentices to discover the techniques and materials used.
- **Skills valorization:** Highlight the skills acquired by apprentices in energy renovation to facilitate their professional integration.

4. Mobilizing Funding

- **Skills investment plan:** Seek funding to develop continuing education actions in the field of energy renovation.
- **European funds:** Explore funding opportunities at the European level (European Social Fund, European Regional Development Fund).
- **Partnerships with companies:** Mobilize companies in the construction sector to co-finance training actions.

5. Monitoring and Evaluation

- **Performance indicators:** Define indicators to measure the impact of the implemented actions (number of people sensitized, reduction of the carbon footprint, etc.).
- **Satisfaction surveys:** Conduct surveys among learners and trainers to gather their feedback and improve actions.

Skill retraining and upskilling

The Dunkirk Pact for Education:

Dunkirk is facing several challenges: a declining population, a high rate of young people without qualifications, and a mismatch between education and the needs of the job market.

Signed in September 2022, this pact brings together many actors (government, local authorities, universities, companies) around a common objective: to improve the educational and professional success of young people in the region.

Main objectives:

1. **Coordination of actions:** Implement effective governance to better manage projects and measure results.
2. **Develop an adapted training offer:** Anticipate the needs of the job market, promote apprenticeships and offer innovative training, particularly in the field of energy transition.
3. **Improving guidance:** Better informing young people and their families about the different educational pathways, developing innovative guidance tools and strengthening links between schools, businesses and local authorities.
4. **Supporting families:** Offering parental support and strengthening cooperation between families and schools.
5. **Promote mobility and openness to the world:** Allow young people to discover new horizons and develop their skills.

› Leverage Points:

1. **Innovation in guidance:** Creating a real local career guidance ecosystem.
2. **Develop a diversified training offer:** Better meet the needs of companies and promote apprenticeships.
3. **Strengthening the level of education from an early age:** Supporting families and students, particularly through the Cordées de la Réussite programme.

This pact is a model for other territories. It demonstrates that close collaboration between all stakeholders can significantly improve the educational and professional success of young people.

Circular economy initiatives

Industrial and Territorial Ecology (EIT): A lever for a circular economy in Dunkirk

Industrial and Territorial Ecology is an innovative approach that aims to optimize the use of resources within a territory. By promoting synergies between economic actors (companies, local authorities, associations), the EIT reduces waste, consumes less energy and makes the most of local resources.

› How does it work?

1. **Win-win synergies:** The EIT facilitates exchanges between the actors of a territory. For example, a company can recycle its waste by supplying it to another company as a raw material.
2. **Shared services:** By sharing infrastructure, equipment or services, players reduce their costs and environmental impact.
3. **A territorial approach:** The EIT is part of a global approach, considering the specificities of each territory.

› ECOPAL, the EIT partner in Dunkirk

ECOPAL is an association that supports companies and communities in the Dunkirk region in their transition to a circular economy. ECOPAL brings together a network of 110 diverse member organisations (local authorities, SSE players, companies of all sizes, etc.).

1. Missions:

    1. Raising awareness and informing: Organising events, workshops and trainings to raise awareness of the EIT's challenges.
    2. Accompanying: Carrying out waste diagnostics, personalised advice and tools to implement EIT projects.
    3. Network: Federate local actors and facilitate exchanges between them.

2. Concrete actions:

    1. Shared collections: Organisation of joint waste collections to reduce costs and environmental impacts.
    2. Synergy workshops: Facilitation of workshops to identify opportunities for waste recovery and pooling of resources.
    3. Project support: Helping companies develop circular economy projects and find financing.

Industrial heritage tourism

› Reviving the industry-citizen link: an immersion in the heart of industry

In a context where proximity to companies is increasingly sought, opening the doors of factories to residents has become a major challenge. This initiative not only strengthens **the link between companies and the region**, but also **promotes local know-how** and encourages new vocations.

› A new look at the industry

By allowing the public to go behind the scenes of production, companies offer a **more transparent and human image.**

Guided tours are an opportunity to:

- **Highlight environmental and social approaches:** Many companies are committed to reducing their impact on the environment and contributing to the sustainable development of the territory.
- **Promoting industrial professions:** By revealing the skills required and technological developments, the visits arouse interest in professions that are often unknown.
- **Create social links:** Exchanges between visitors and employees promote better mutual understanding and strengthen the feeling of belonging to a territory.

A flagship event, *the Fabulous Visits*: Organized since November 2024, this event has already been a great success, with more than 630 visitors discovering the backstage of 31 companies. This is a great opportunity for businesses to gain exposure and for locals to better understand local economic activity.

Tailor-made support: To facilitate the organization of these visits, the tourist office offers personalised support to companies. The teams listen to the needs of each structure to help them define their visit route and set up effective communication.

› Examples of participating companies

The industrial companies, known as emitters, in the territory are implementing technical and financial means to limit their ecological impact. Through these steps, they set an example while showing citizens during these company visits that this is happening at all levels. Many industries in the territory have launched work and procedures in this direction.

The initiatives presented are proof of the commitment of local actors to a successful ecological transition. Whether it's the municipal swimming pool, which prides itself on its reinforced insulation, the public transport network opting for clean vehicles, or the postal service favouring low-carbon delivery methods, all these structures are committed to innovating and reducing their environmental impact. Opening their doors is another way to discuss with the users of the structures/services, strengthening their proximity to the citizens.

› Solidarity Foundation of Dunkirk

To enable residents, associations, and businesses to work together, concretely and innovatively, for the social and human development of the Dunkirk region, individuals from the associative world and the Dunkirk business community, along with Greater Dunkirk, joined forces in November 2016 to create the *Fondation du Dunkerquois Solidaire* (Solidarity Foundation of Dunkirk).

By taking advantage of tax relief mechanisms benefiting the territory, the *Fondation du Dunkerquois Solidaire* aims to break down barriers between public and private actors, large companies, SMEs, social entrepreneurs, associations, local authorities, and residents. Its mission is to combat exclusion, discrimination, and poverty. It works to promote territorial solidarity, social innovation, popular culture and education, sustainable development, and youth. It implements innovative programs for access to employment, the fight against unemployment and poverty, by fostering cooperation between public and private actors: *"Dunkerquois Solidaire pour l'Emploi"* (Dunkirk Solidarity for Employment) and *"Dunkerquois Solidaire pour la Jeunesse"* (Dunkirk Solidarity for Youth).

The *"Dunkerquois Solidaire pour l'Emploi"* program mobilizes territorial solidarity to create and finance, for three years, social utility jobs in associations in Greater Dunkirk area. Associations must be the bearers of social utility projects that create social ties, are accessible to the most disadvantaged, and meet an unmet collective need. These jobs are intended for people who have been unemployed for at least two years. Through this program, the *Fondation du Dunkerquois Solidaire* also aims to experiment with the implementation of innovative integration pathways with the support of a network of citizen and solidarity-based companies. Since the foundation's creation, 15 projects have been supported, and 20 people have benefited from jobs funded by the foundation.

The *"Dunkerquois Solidaire pour la Jeunesse"* program was launched with the Break Poverty Foundation. Its objective is to support innovative solutions to youth poverty by acting on three axes:

- support for early childhood,
- the fight against school dropout,
- and access to first employment.

After conducting a needs assessment, the *Fondation du Dunkerquois Solidaire* has selected associative projects that address the identified issues. These projects will support more than 3,000 young people in Greater Dunkirk over three years by mobilizing territorial solidarity once again.

5. Outlook and next steps

The windswept shores of Dunkirk, once a battleground for survival, now face a different kind of fight: the fight against climate change. But unlike the desperate struggle of the past, this battle is being waged with a spirit of collaboration and innovation.

The city, steeped in a history of industry and resilience, is embracing its role as a pioneer in decarbonization. A palpable sense of urgency and a growing awareness of the climate crisis have permeated the community. This shared understanding, coupled with a long-standing tradition of cooperation among local stakeholders – the port, industrial giants like ArcelorMittal, and the vibrant community itself – has fostered a fertile ground for climate action.

› Key Strengths & Local Context:

- **High Climate Awareness:** A strong local understanding of climate issues and the urgency of reducing GHG emissions fosters a receptive environment for climate action.
- **Collaborative Spirit:** A long-standing tradition of collaboration, particularly within the port and regional stakeholders, facilitates efficient information sharing, idea exchange, and accelerated decision-making.
- **Innovative Climate Action:** Successful past initiatives, such as free public transport services and eco-solidarity water pricing, implemented through public service delegations, demonstrate a proven track record of innovative climate action.
- **Engaged Stakeholders**: Active engagement from local municipalities, with numerous employees acting as internal ambassadors for decarbonization, strengthens the initiative.
- **Industrial Leadership:** Major industrial companies, recognizing the imperative of carbon neutrality, are key stakeholders. Fostering collaboration between residential and industrial sectors is crucial, with initiatives like "factories without parking lots" serving as prime examples.

At the heart of this ambitious endeavor lies the Climate City Contract (CCC), a roadmap guiding Greater Dunkirk towards a sustainable future. More than just a document, the CCC is a living testament to the city's commitment to a greener tomorrow.

The CCC is not merely a theoretical framework; it's a practical guide to action, a blueprint for a city-wide transformation. It emphasizes the importance of:

- **Forging Strong Partnerships:** Actively engaging a diverse range of stakeholders, including municipalities, the Chamber of Commerce and Industry (CCI), the Port Authority, businesses of all sizes, NGOs, and citizens. This requires fostering open dialogue, building trust, and ensuring that all voices are heard.
- **Leveraging External Support:** Utilizing the resources and expertise of the NetZeroCities initiative to accelerate the implementation of existing actions and foster the development of innovative projects. This includes accessing funding opportunities, sharing best practices with other cities, and benefiting from expert guidance.
- **Developing Collaborative Solutions:** Establishing thematic working groups comprising representatives from diverse stakeholder groups to develop tailored solutions for specific challenges. These groups, focusing on areas such as renewable energy, sustainable transportation, and circular economy, will foster co-creation and ensure that the solutions are locally relevant and effective.
- **Enhancing Communication & Awareness:** Developing and implementing targeted communication campaigns to raise awareness about climate change, the CCC, and the importance of citizen engagement. This includes utilizing public education channels, such as schools, community centers, and libraries, to disseminate information and promote climate action initiatives.

- **Prioritizing Actions & Monitoring Progress:** Utilizing robust data collection and monitoring systems to track progress, identify areas for improvement, and inform decision-making. This involves establishing clear and measurable Key Performance Indicators (KPIs) to track the effectiveness of CCC actions and measure progress towards carbon neutrality targets.

- **Quantifying and Communicating Benefits:** Conducting comprehensive assessments to quantify the economic and social benefits of decarbonization measures, including job creation, improved air quality, and enhanced quality of life. Effectively communicating these benefits to stakeholders, including businesses, investors, and the public, is crucial for building support and maintaining momentum.

The focus extends beyond the city limits, seeking to harmonize industrial and residential decarbonization efforts. Initiatives like "factories without parking lots" exemplify this commitment to a holistic approach, demonstrating how innovation can bridge the gap between urban and industrial needs, creating a win-win scenario for both the environment and the economy.

> **Dunkirk in the spotlight at the Osaka World Expo as a model of decarbonization.** Dunkirk has been chosen for its status as a decarbonization laboratory and Europe's leading energy platform, as the theme of the expo this year is "Designing the society of the future, imagining our life tomorrow." World Expos, held every five years, are an opportunity for countries around the world to showcase their know-how, innovations, and traditions. For two days, from May 16 to 18, 2025, events focused on Dunkirk will be organized at the French pavilion, grouped under the brand "Spirit of Dunkirk," a reference to the Second World War. "Cutting-edge and high-tech aspects are the main themes of the exhibition, and Greater Dunkirk is moving towards this technological, ecological innovation, it fits together very well," explains Makita Shimokawa, the Japanese ambassador to France.

The journey, however, is not without its challenges. The rapid economic growth spurred by new industrial developments, including the establishment of Verkor's gigafactory, presents both opportunities and obstacles. The CCC must constantly adapt, ensuring that economic progress does not come at the expense of environmental sustainability.

But Dunkirk, a city forged in the fires of adversity, is no stranger to overcoming challenges. With the support of the NetZeroCities initiative, the unwavering commitment of its citizens, and the collaborative spirit that defines its community, the Greater Dunkirk is poised to navigate these complexities and emerge as a beacon of hope in the fight against climate change.

The CCC action plan will prioritize several key areas.

First and foremost, the city will accelerate the transition to renewable energy sources. Imagine a Dunkirk powered by the sun and the wind. This vision will be realized through a concerted effort to increase the deployment of solar panels, harnessing the power of the sun, and expanding wind energy generation, tapping into the region's natural resources.

Beyond generating clean energy, the city will focus on improving energy efficiency across all sectors. This will involve initiatives such as retrofitting buildings to enhance insulation and reduce energy consumption, promoting the use of energy-efficient appliances, and optimizing industrial processes to minimize energy waste.

Furthermore, the city will invest in smart grid technologies, creating a more intelligent and responsive energy system. These smart grids will optimize energy distribution, seamlessly integrate renewable energy sources, and ensure a reliable and resilient energy supply for all residents and businesses.

Secondly, the city will prioritize sustainable transportation. Imagine a Dunkirk where cycling and walking are safe and enjoyable, where public transport is efficient and accessible, and where electric vehicles seamlessly integrate into the urban landscape. This vision will be achieved by encouraging active transportation through improved infrastructure, such as dedicated bike lanes and pedestrian-friendly streets. The city will also actively promote the adoption of electric vehicles by expanding charging infrastructure and implementing attractive incentives.

Moreover, the city will work to optimize logistics and freight transport, exploring options such as electric trucks, optimized delivery routes, and the consolidation of freight shipments to reduce emissions and improve efficiency.

Thirdly, the city will embrace the principles of the circular economy. Imagine a Dunkirk where waste is minimized, resources are maximized, and sustainable consumption is the norm. This vision will be realized through the implementation of comprehensive waste management strategies, including improved recycling programs and initiatives to reduce waste at the source.

The city will actively encourage sustainable consumption patterns through awareness campaigns, consumer education programs, and incentives for sustainable choices.

Furthermore, maximizing the reuse and repurposing of materials will be a key focus, minimizing waste and conserving valuable resources.

Finally, the city will prioritize climate change adaptation. Imagine a Dunkirk that is resilient to the impacts of climate change, prepared for the challenges of rising sea levels, extreme weather events, and rising temperatures.

The city will implement measures to increase resilience, such as coastal protection measures, flood mitigation strategies, and the development of early warning systems.

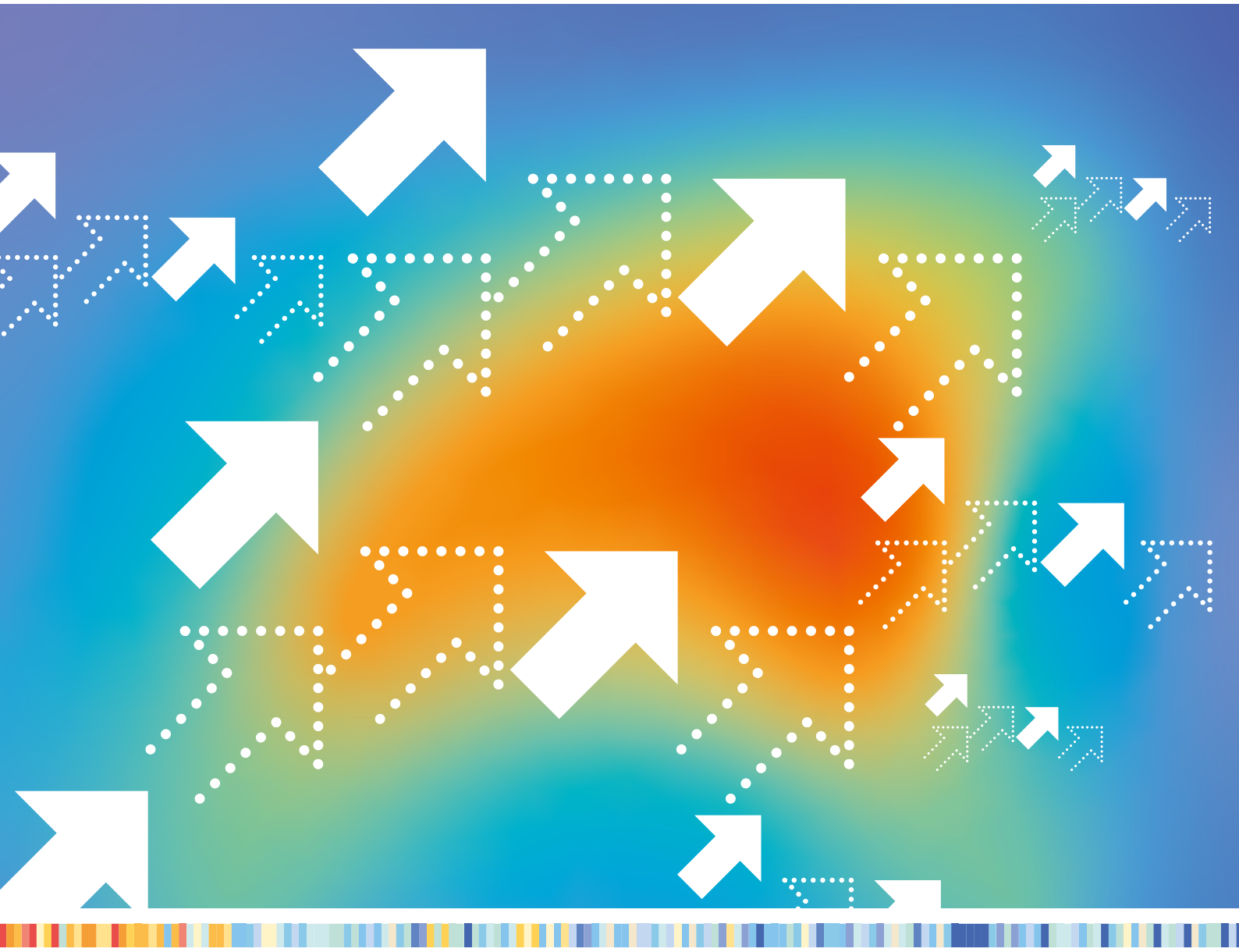
Protecting and restoring natural ecosystems, such as coastal wetlands and forests, will be crucial. These ecosystems play a vital role in carbon sequestration, flood protection, and biodiversity conservation, enhancing the city's overall resilience.

This multi-faceted approach will guide Greater Dunkirk journey towards a sustainable and climate-resilient future, creating a city that is not only environmentally conscious but also economically prosperous and socially equitable.

The CCC is more than just a plan; it's a story still unfolding. It's a story of collaboration, innovation, and resilience, a story of a city determined to shape a brighter future for generations to come. It's a story of Greater Dunkirk rising to the challenge, not just surviving, but thriving in the face of climate change.

6. Annexes

The annexes contain any textual or visual material to the 2030 Climate Neutrality Action Plan as necessary.



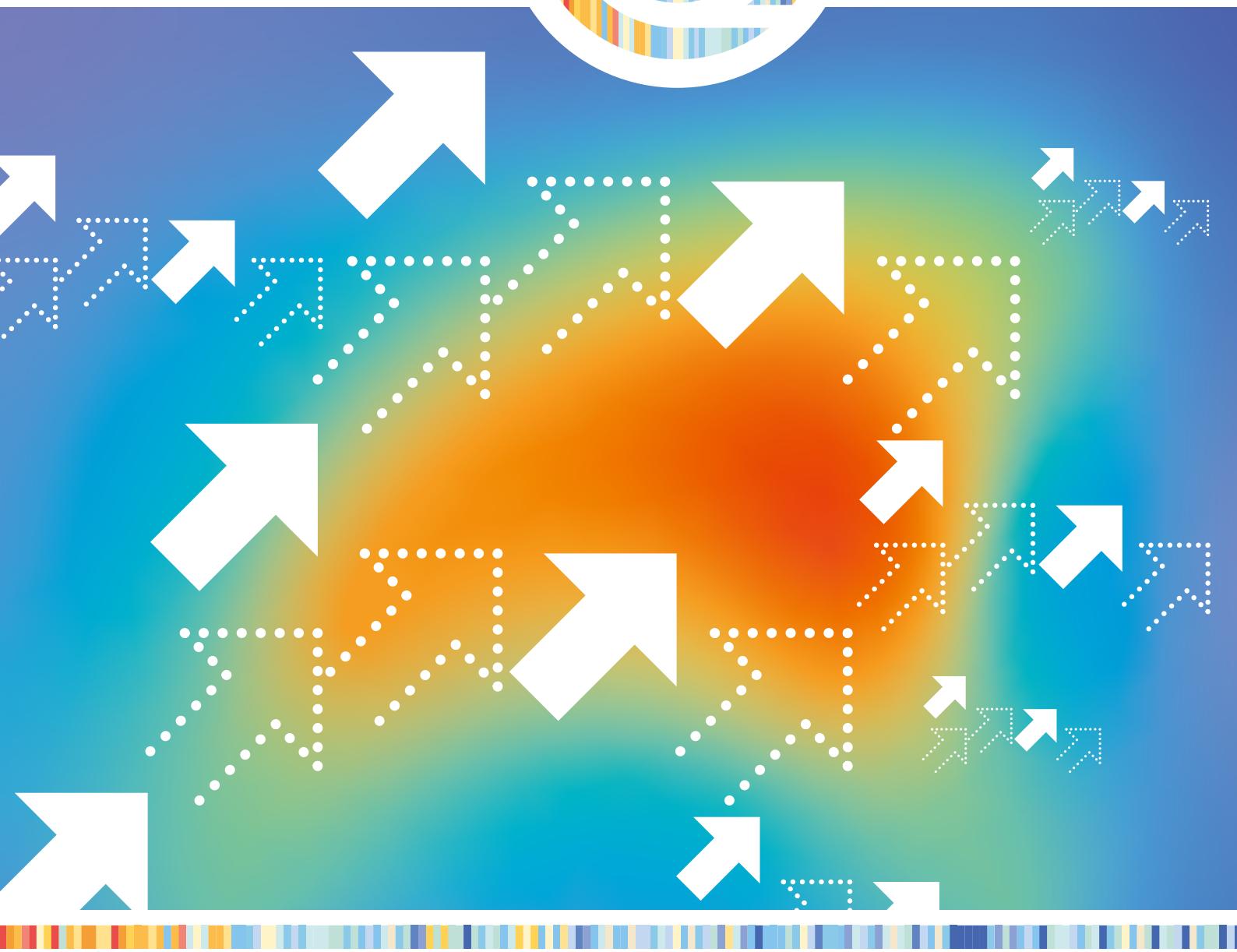
Dunkerque Grand Littoral
COMMUNAUTE URBAINE

Climate City Contract

2030 Climate Neutrality Commitments

Climate Neutrality Commitments of Greater Dunkirk

MISSION ZERO



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The Greater Dunkirk area is now clearly recognised at both national and international levels as a model territory for ecological and energy transition, as well as for carbon-free reindustrialization.
This is the result of the convictions and values shared by the stakeholders of our coastal region and the benefits of a strategy that we have collectively implemented over the past 10 years.

A few months ago, the World Economic Forum selected us among 20 sites worldwide to illustrate *"the territories that are saving the planet."*
Dunkirk, a polder territory long exposed to climate risks, must take the lead in the fight against global warming. It is essential. This is the challenge of the 21st century that we must meet.

This recognition honors and obliges us.
Climate change is accelerating. We, too, must accelerate!

We had the immense honor of being selected by the European Union for its NetZeroCities program, which aims to support *"100 climate-neutral and smart cities by 2030."*

In this context, we are working on the implementation of a climate contract.
Our objective is simple: to take advantage of this opportunity to do better, faster, by involving even more stakeholders in our actions.

The Dunkirk area is unique in that it thrives in symbiosis with major industrial sites, a large port, and one of the leading energy platforms in Europe.

Therefore, we must innovate, change, transform, and imagine new paths—whether through the exploration of new industrial sectors, new energy solutions, or by bringing our 200,000 residents into this daily revolution and ensuring that they are the primary beneficiaries.

In this sense, decarbonization is the ideal triptych that reconciles economic development, the management of the climate crisis, and the environmental challenges of the region.
It is about building both the economy and the city of the 21st century.

Here in Dunkirk, we certainly think about the positive effects that this drastic reduction in greenhouse gas emissions will have on the quality of life for our population.

This ongoing decarbonization, a driving force behind a new development model, permeates all of our public policies, from resource management to housing and education.
Our collective efforts have enabled us to secure new engineering programs and the recognition of our university as the national leader in training for the new industrial decarbonization sectors.

Dunkirk, the European capital of free public transport, is also innovating in terms of decarbonized mobility and is betting on new factories without parking lots!

These commitments are at the heart of our *"Climate City Contract"* that the CUD (Greater Dunkirk area council) is advancing with the European Union, in collaboration with the Grand Port Maritime (seaport), the Chamber of Commerce and Industry, all economic and institutional stakeholders, as well as our associations and residents—everyone who forms our Dunkirk ecosystem. This *"EcosytèmeD"* has given its name to our working collective and to a facility dedicated to our new decarbonized development model, which we are inaugurating in this 2024 fall season.

Here, we are ready—ready to work together, ready to commit to the future of our territory, its residents, and its children, ready to put all our efforts into the fight to contribute, at our scale, to preserving our planet and our climate. We are ready to aim for carbon neutrality by 2030 for our agglomeration and by 2050 for our industrial platform.

In my view, this ambition only makes sense if it is shared by the 200,000 inhabitants of our territory. This civic and democratic dimension is at the heart of my commitment.

Patrice VERGRIETE
President of the Greater Dunkirk area urban council (CUD)

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1. Introduction

Our decision to join the EU Mission and develop a Climate City Contract is rooted in a steadfast commitment to combating the climate crisis and enhancing our citizens' quality of life. We acknowledge the urgent need for action and believe cities are instrumental in achieving climate neutrality.

By participating in the Mission, we aim to:

- **Accelerate our transition to climate neutrality:** Leveraging the EU Mission's framework, resources, and expertise to expedite our ambitious climate goals.
- **Enhance our city's resilience:** Fortifying our city's capacity to adapt to the significant challenges posed by climate change through a Climate City Contract.
- **Drive innovation and economic growth:** Stimulating business, job creation, and sustainable development through investments in climate action.
- **Engage citizens and stakeholders:** Fostering collaboration and co-creation through the Climate City Contract to involve our community in shaping the city's future.
- **Learn from other cities:** Sharing knowledge and best practices with fellow cities confronting similar challenges through Mission participation.

We are confident that joining the EU Mission and developing a Climate City Contract is a strategic decision that will position our city as a leader in sustainable urban development.

Building upon its previous achievements and strategic focus on industrial decarbonization, the region has amplified its ambitions. As a laureate of the first «low-carbon industrial zones» project call, Greater Dunkirk has implemented numerous concrete actions: improving air quality, expanding public and active transportation, optimizing waste management, and deploying new energy sources. These initiatives, undertaken in close collaboration with local stakeholders, contribute to enhancing the region's attractiveness, improving residents' quality of life, and safeguarding the environment for future generations.

Greater Dunkirk, while driving economic growth, is deeply committed to enhancing residents' quality of life. The CCC label aligns perfectly with this approach, reinforcing a decade-long commitment to making climate change a central focus of our public policies and fully involving citizens in this transition.

Greater Dunkirk has established ambitious targets for reducing greenhouse gas emissions and improving air quality. Our dedication to sustainable development is evident in various initiatives such as renewable energy development, public transportation investments, and waste management strategies.

The economic development of Greater Dunkirk has evolved since the EoI application was submitted, leading to a divergence from the initial vision.

The EU Mission presents a unique opportunity to accelerate our efforts and amplify our impact.

By joining the Mission, we can:

- **Leverage additional resources:** Scale up existing projects and explore new decarbonization avenues through access to EU funding and expertise.
- **Strengthen our partnerships:** Foster knowledge exchange and innovation by collaborating with other cities and stakeholders.
- **Enhance our city's reputation:** Position Greater Dunkirk as a leader in sustainable urban development, attracting investment and talent.
- **Involve citizens more actively:** Deepen citizen engagement and build a shared vision for a sustainable future through the Mission's emphasis on co-creation.

Ultimately, the EU Mission provides a platform to solidify our position as a resilient and climate-neutral city while enhancing our citizens' quality of life

2. Goal: Climate neutrality by 2030

Greater Dunkirk: Naturally Committed to Carbon Neutrality

To fully understand the broad and deep commitment of Greater Dunkirk and its inhabitants to decarbonization, several contextual elements must be considered.

Historical Context Dunkirk has a particularly turbulent history, from a territory reclaimed from the sea (Dunkirk means «church in the dune») to a besieged corsair city and a city 90% destroyed during the Second World War. For this reason, it is often associated with the word resilience, reminiscent of the «spirit of Dunkirk» from Operation Dynamo. Today, its new challenge is decarbonization.

Social Context Today, Greater Dunkirk is often talked about in terms of the ecological transition or industrial renewal; but Greater Dunkirk also returns each year to the media for its famous carnival, which dates to the departure of sailors for fishing in Iceland. At the carnival, people stand shoulder to shoulder, and in the lines of the «band of fishermen,» the docker rubs shoulders with the boss, the worker, the doctor... This is probably why, in Greater Dunkirk, social relations are both more complex and easier; people talk to each other, they exchange ideas, and the groups formed are not necessarily those one would imagine... Similarly, there is a sense of sharing. In Greater Dunkirk, for example, sports or cultural activities are offered at affordable prices; a way of redistributing the wealth of the industrial settlements of the second half of the 20th century. To understand Greater Dunkirk, one must integrate this very strong proximity and solidarity between its inhabitants.

Economic Context It is fluctuating; with golden ages like «steelmaking» on the water and periods of recession when refineries close and the territory loses a massive number of inhabitants; but for more than 100 years, it has been intimately linked to industry (today, 22% of direct jobs but also 21% of French industrial GHG emissions and more than 15 sites classified Seveso).... This explains, on the part of the population, an acceptance of risk but also an awareness of the issues: safety, carbon, air quality...

Geographical Context Greater Dunkirk is a coastal area built on a polder and a large part of its territory is located below sea level. This generates different types of vulnerabilities:

- The vulnerability of the coastline to the risk of flooding;
- The vulnerability of the polder area to inland flooding (existing vulnerability but accentuated by the probable rise in sea level);
- The vulnerability of natural environments and various infrastructures to changes in temperature and water conditions... However, by 2100, Greater Dunkirk should experience, if nothing is done for the climate (compared to a reference period of 1976-2005):
- an increase in average annual temperatures of 0.9°C to 3.4°C;
- a decrease of 6 to 19 frost days per year
- an increase of 3 to 43 heatwave days
- an increase of 1 to 22 tropical nights per year
- a variation of +10 mm to -55 mm of summer rainfall.

Greater Dunkirk's Zero Carbon Ambition

In summary, the stakeholders of the territory have collectively observed that:

- Greater Dunkirk is particularly vulnerable to climate risk;
- Its highly emitting industry was declining, leading to job losses and, consequently, a loss of inhabitants.

At the initiative of the Greater Dunkirk, the territory came together and mobilized to «imagine» the future, starting, for example, with a very broad consultation «changing life together» for the inhabitants, or the creation of a «CO_2 group» in connection with companies, the Chamber of Commerce and Industry, and the Port.

It was quickly realized that the main challenge of the coming years is the climate. This implies that we cannot continue to live, consume, and produce in the same way as today; it is necessary to reduce greenhouse gas emissions and, more globally, our impacts on the environment.

Thus, two axes have been developed in parallel:

- Decarbonizing our existing industry and imagining and developing the industry of the future.
- Decarbonizing our living environment through innovation but also by mobilizing a wide range of stakeholders in the territory, particularly the inhabitants. These strategic choices made over the past ten years are nevertheless part of a continuity since Greater Dunkirk, a large energy platform, was among the first territories to mobilize in favor of the climate, transitions, and, in particular, the energy transition. The Greater Dunkirk thus created, in 1999, the «Energy Summits» which became «European Summits of the Energy Transition».

Living environment and industrial zone, two complementary challenges

As mentioned, the Greater Dunkirk is the leading industrial CO_2 emitter in France (21%); very significant efforts are being undertaken by industries, the territory, France, and Europe to decarbonize these sites; the objective is to achieve neutrality by 2050; this is why the «Mission Zero» contract for Greater Dunkirk could not integrate the industrial platform. This does not mean that there are no links between the decarbonization of the living environment and that of its industrial sites. On the contrary. A structure named EcosystèmeD was even created to promote partnerships, innovations, links... It brings together Greater Dunkirk, the Grand Port Maritime, the Chamber of Commerce and Industry of the Littoral, large industrial groups and various associations and networks. The idea is simple: the actions and ideas of some promote the ideas and actions of others. This is how the idea of «factories without parking» was born. Since Greater Dunkirk will be creating new and important industrial sites in the coming years, it is better if they are virtuous and that their activity does not generate new CO_2 emissions; this is true for processes; it is also true for the travel of employees of these factories.

NetZeroCities: Accelerating Greater Dunkirk's Transition

In Greater Dunkirk, preserving the climate has been a major and widely shared concern for a long time, both to protect and prepare for the future and to improve the quality of life for everyone. Indeed, improving air quality, for example, is a fundamental issue for the urban area and the health of its inhabitants.

As mentioned, for ten years, the territory has made decarbonization a major issue and the priority axis of its action.

It should also be noted the strength and commitment of the public authorities, and particularly the local authority.

Many of the actions carried out in the territory are thus created, from the outset, in a concerted manner and with broad support, even when it is provided by a private company. It should be noted that all public service delegates for water, public transport, and waste have implemented major innovations for their activity in Greater Dunkirk: free buses, eco-solidarity water rates, or even robot sorting of waste bags. But this is true in other areas and there are many calls for projects leading to financial and skills support for start-ups, for the social and solidarity economy, for groups of citizens in connection with social landlords (for energy savings, the creation of natural spaces...).

And it is quite naturally that the urban area has committed itself, around a broad political consensus with all the municipalities of the urban area, in the Mission of European Cities, in favor of a just ecological transition to combat climate change.

This candidacy of climate-neutral cities has acted, in Greater Dunkirk, as a real trigger to further strengthen and accelerate the transformation and, thus, to keep its «head start» to mitigate and adapt to the climate emergency.

The territory has clear ambitions:

- A «net zero» territory by 2030 (excluding the industrial zone);
- Better air quality;
- More equity, wealth sharing, and social justice;
- Increased attractiveness and quality of life;
- Better-preserved natural spaces.

This is how the urban area is building its roadmap to achieve carbon neutrality, the ecological and energy transition by committing to involving a wide range of actors (private sector, academic world, civil society, citizens, and media as well as the different levels of government) and by encouraging and strengthening collective actions, particularly with citizens.

Of course, the Greater Dunkirk urban area has also committed to sharing and transferring the learning and knowledge acquired with the rest of the cities of Europe.

In the actions carried out in Greater Dunkirk, we can distinguish three phases:

- Before the NetZeroCities candidacy
- During the time of drafting the contract
- The ambitions for the future displayed in the contract

Phase 1

Implementation of innovative actions mainly by Greater Dunkirk:

- Free buses
- Eco-solidarity water pricing
- Eco-bonus scheme
- Validation of a SEAP recognized by the State as particularly ambitious and co-constructed with numerous partners

Phase 2

- Launch of the 200,000 trees plan
- Deployment and strengthening of the eco-bonus scheme including bonuses for housing transformations
- Launch of the «factories without parking» reflection
- Creation of Ecosystème D to coordinate industrial and territorial decarbonization and launch, within this framework, of the «social conference», a time for formal and regular exchange with the stakeholders of the territory
- Launch of the «NetZeroCities» consultation
- Deployment of awareness and information actions for stakeholders (exchange session with institution staff, stands at major events in the territory such as the village of the future, fabulous factory, Gigapuces...)

Phase 3 (to come)

- Study for the integration of private partners in the 200,000 trees plan and to offer residents and actors support to plant trees on their land;

- Setting up a specific working group «factory without parking» and launching a line between Greater Dunkirk station and the new industrial sites;
- Desire to create a co-mission zero associating representatives of all actors involved in decarbonization;
- Implementation of the Mission Zero roadmap

In essence, this text outlines Greater Dunkirk's ambitious goal of achieving carbon neutrality by 2030. The city has undertaken a variety of initiatives, from promoting sustainable transportation to supporting green businesses. The «NetZeroCities» initiative has served as a catalyst for further action, and the city is committed to sharing its knowledge and experiences with other European cities.

Building a «Climate City Contract» is an iterative, evolving process full of lessons. Each study, discussion or action carried out demonstrates the imperative need to implement the roadmap and enrich it on a daily basis.

1. **Accelerate!** In a context of renewed economic and tourist attractiveness, the roadmap and the actions implemented in recent years are no longer sufficient to achieve neutrality by 2030. New inhabitants, the need to build housing, and the increase in travel imply new emissions. It is therefore necessary to go faster and further by implementing new or reinforced actions.

2. **Main obstacles to overcome** In the Greater Dunkirk conurbation, significant efforts have been made or are underway to decarbonize energy production. Similarly, reflections and investments are being launched to reduce the impacts of industrial processes. Finally, local authorities have already started working on their own emissions and those of public services such as water, public transport, or waste collection. In all these areas, it is of course a matter of continuing the dynamics initiated and intensifying them. However, three main areas constitute key success factors. The first is habit: «we've always done it this way» which must be combated even when the people concerned are aware of the climate. This involves raising awareness, sharing, and mobilizing. The second is the design of the urban agglomeration. Greater Dunkirk and the adjacent cities are the result of reconstruction after the Second World War and are therefore mineral and designed around the individual car. It is therefore necessary to rethink and especially green these spaces. Finally, as mentioned, the new attractiveness of the territory implies new jobs (20,000 planned) and therefore new travel to the industrial zone. It is essential to imagine solutions so that these new trips do not offset the gains of the other sectors.

3. **Engage even more actors: industrialize decarbonization** Ultimately, the challenge is to industrialize decarbonization: to move from small individual actions to massive actions or actions carried out on a large scale. To this end, one of the axes of the contract and one of its challenges for the coming years is to involve more and more actors and sectors of activity in the approach.

4. **Decarbonization, a factor of social justice** This is the initial bet of Greater Dunkirk and its elected officials: the ecological transition must not be punitive but incentive-based and a vector of social justice. This is indeed the very principle of the «eco-winning» approach. But in recent years, the renewed economic attractiveness has further increased this requirement. It is necessary to redistribute, share wealth, and ensure that everyone benefits from new jobs, new housing, etc. This is the state of mind of the territory and of this contract.

The expected benefits of Mission Zero In Greater Dunkirk, we asked ourselves very early on whether decarbonization led to an improvement in air quality; and studies have shown that it does. We can therefore speak of «co-benefits» to decarbonize. But in the Greater Dunkirk context, we rather consider all of these benefits as a whole, a global objective that includes:

- Better air quality
- Better health
- Better preservation of biodiversity
- More green spaces
- Better energy efficiency
- More sobriety and circularity
- Shorter circuits
- Quality housing

- Waste reduction and recycling
- A peaceful city and alternative mobility solutions to the individual car
- Adaptation of the territory to climate change
- Responsible and virtuous economic development
- More social justice And of course, Greater Dunkirk wishes to take its full place in the great regional, national, European, and even global dynamic aimed at leaving a better world for our children by limiting the impact of humanity on the climate.

3. Strategic priorities

Aiming for neutrality by 2030 for the living area implies fighting on all fronts and mobilizing as many actors as possible. However, as mentioned, some actions have been launched and are already bringing benefits; and Greater Dunkirk wants to «industrialize» its decarbonization; it is therefore necessary to integrate new actions into the roadmap but also to create the conditions for adapting it according to the context. Thus, for example, in two years, the Greater Dunkirk territory has attracted 4 «gigafactories» linked to electric mobility; obviously, this impacts the organization of the living area, the state of mind of the inhabitants and the priorities for decarbonization.

Four «key priorities» have been defined.

1. Involvement of all and social justice: Eco-winner

Greater Dunkirk has launched, in continuity with the implementation of free public transport for everyone seven days a week, the eco-winner device. This is based on the same idea: encouraging inhabitants to adopt behaviors that are more virtuous for the environment (and therefore less CO_2-emitting) through an incentive in terms of purchasing power. Taking the bus for free limits the use of individual cars and saves on gasoline, car wear and tear, etc. This can even avoid buying a second vehicle for the household. Since then, this concept has been duplicated in many areas: energy renovation of housing, rainwater recovery, reduction of household waste, development of cycling... Since the start of work on the CCC, new actions have been imagined to go further in the same spirit, particularly on an essential subject in Greater Dunkirk: improving the energy efficiency of the housing stock. «Eco-housing» bonuses, free diagnostics have thus been put in place. Today, as part of the signing of the CCC, the project leaders are considering a broad consultation with all the stakeholders concerned (waste, transport, water, housing, biodiversity, agriculture, commerce, and industry) in order to finalize a simplified global «eco-winning» offer, covering all aspects of the daily lives of inhabitants and allowing everyone to live better, to gain purchasing power while reducing their impact on the environment.

It should be noted that this strategy is also based on a study conducted, in conjunction with the University of the Littoral Côte d'Opale, with 40 families called «eco-citizens»; a study that made it possible to define and analyze behaviors, to define priorities, to discover the best ways to explain and get people to adhere to the approach, and then to measure the qualitative impacts of the actions implemented.

This strategy is also based on large-scale communication campaigns implemented by the community to inform residents and explain the devices; the territory wishes to broaden this communication by relying on all its partners.

This strategy is above all based on the deployment, reorganization, and orientation of the three major «popular education» facilities in the territory, which are real places for exchanges with inhabitants and for raising awareness about sustainable development and, more specifically, decarbonization.

The first, the Halle aux sucres, is dedicated to the Sustainable City The second, the PLUS, to science and technology and industrial decarbonization The third, Biotopia, to biodiversity. These three facilities have been reoriented in the last two years towards decarbonization and the preservation of the natural and urban environment. Today, the goal is to go beyond and work together to set up real courses, interdisciplinary and inter-equipment cultural programs to put decarbonization at the heart of the debate throughout the territory. It should be noted that work is also being initiated so that the three facilities offer more and more «off-site» exhibitions or events to meet the public on the subject of carbon neutrality.

ADDED VALUE: This is an essential element of the Greater Dunkirk territory's decarbonization strategy for three reasons:

- It is based on the most emblematic action: free public transport, adopted by all (+125% frequency) and which is the pride of many inhabitants and part of the territory's notoriety;
- It mobilizes the greatest number - the inhabitants - around a gradual, gentle, concerted, shared, and positive change in behaviors;
- It is a vector of social justice and redistribution.

2. Nature at the heart of life, at the heart of the city

As mentioned, the most urbanized part of the Greater Dunkirk, the result of reconstruction after the Second World War, is very mineral and leaves little room for nature in the city. During the consultations conducted for the development of the Local Urban Plan, the Air Climate Energy Plan, and more recently, for the implementation of the CCC, residents have expressed their demand for more nature in the city, and in particular for nearby green spaces. To meet this demand, the Urban Community has launched its «200,000 trees plan» which integrates different objectives:

- Effectively revegetate the territory;
- Create, as soon as possible, nearby green spaces
- Modify urban planning to take space from the car and return it to the inhabitants;
- Soothe the city
- Preserve biodiversity and promote local species. This plan was launched following the candidacy to become a «NetZeroCity»; it is bearing fruit and nature is beginning to be more present in the city; some arteries have undergone spectacular transformations. But we need to go further. This is why different actions are being studied, such as:
- Involving private partners in the approach;
- Allowing residents to plant trees on their land (as part of the eco-bonus scheme?);
- Associating associations for the preservation of natural spaces in the approach;
- Conducting a specific consultation to determine priority areas to be green, renaturalized or made pedestrian.

ADDED VALUE: Here again, this action meets major challenges of the territory thanks to three types of induced benefits:

- Meeting a demand from residents and providing a real benefit in terms of quality of life: health, living environment, quality of public spaces...;
- Transforming the city sustainably by making it more consistent with the requirements of a successful ecological transition (mobility, biodiversity, carbon sinks...);
- Integrating nature into the city and preserving biodiversity.

3.Creating Symbiosis Between Industrial Decarbonization and Decarbonization of the Living Environment

The Greater Dunkirk accounts for 21% of French industrial emissions; achieving carbon neutrality by 2050 for the industrial zone is an immense challenge that all partners are tackling head-on. It is therefore unthinkable to work on decarbonizing the living environment by 2030 without taking into account the actions carried out by industrial sites and the Grand Port maritime, without working in a coherent and concerted manner to help each other achieve the objectives set. It is in this spirit that EcosystèmeD was created, a Public Interest Group pursuing a dual objective: to animate the economic ecosystem of the territory by promoting circularity and to make industrial decarbonization and that of the living environment coherent.

It should be noted that in a territory like Greater Dunkirk, where industry has played a predominant role for more than 100 years, large companies have a driving role and a real influence on the entire territory; it should also be noted that decarbonization is an essential element, including economic, of almost all the large companies in the territory: the old ones that must reduce their emissions (steel, aluminum...) as well as the new ones (batteries for automobiles)

whose one of the commercial arguments is the reduction of emissions. The employees of these companies but also those of the subcontractors are therefore essential relays on «public opinion». Moreover, the economic renewal of the territory implies the creation of 20,000 jobs; obviously, it will be necessary to seek certain skills throughout France and even beyond. But the primary ambition, for reasons of social justice or acceptability, is to allow the inhabitants of Greater Dunkirk and neighboring territories to benefit from these jobs. This implies a very important work of characterization of positions, training, adaptation... Carried out jointly by EcosystèmeD, the Greater Dunkirk and all the actors of the territory (State, Pole Emploi, Region, Entreprendre Ensemble, training organizations, social workers, community centers, Chamber of Commerce and Industry and companies), this action is essential for the two pillars of Greater Dunkirk's decarbonization: that of the living environment with its inhabitants and that of the industrial port zone.

Among the first actions launched by the GIP since its creation, two directly concern the CCC and carbon neutrality in 2030. The first is to launch, over time, a social conference. It aims to bring together all the actors of the territory - including unions and associations - around the challenges of industrial decarbonization and the living environment. For this reason, a first edition is scheduled with three items on the agenda:

- Air quality and health
- Adaptation to employment
- «Factories without parking» (this last subject is in itself a key factor in the decarbonization of the territory).

This first edition of the social conference will lead to the writing of a specific roadmap and the setting up of specific working groups (those mentioned and those that will be requested by the participants); then, the conference in its plenary form will meet several times a year to measure the progress of the actions carried out and to evolve them if necessary. The GIP EcosystèmeD also carries out awareness-raising actions for inhabitants, and in particular young people, about decarbonization jobs with the organization of an event called «Fabuleuse Factory» allowing large companies and energy companies to explain and highlight the jobs of tomorrow. This event takes place at the same time as the European Decarbonization Industry and Territory Meetings (6 editions). In the context of the links between industrial decarbonization and the living environment, EcosystèmeD will soon inaugurate, in its building, a «showroom» explaining industrial decarbonization in the Greater Dunkirk context.

ADDED VALUE:

- Ensure coherence of action between universes that have long ignored each other and that are now pursuing a common objective: carbon neutrality;
- Benefit from a strong added value of communication and influence on a large part of the actors of the territory;
- Allow the inhabitants of the territory to benefit from the renewed economic attractiveness and the new jobs;
- Involve as many actors as possible in decarbonization and create two co-decision-making bodies on carbon neutrality (EcosystèmeD and the social conference).

4. A New Greater Dunkirk Innovation: Factories Without Parking

Just two years ago, who could have predicted that several major economic players would want to set up in Greater Dunkirk? Today, it's a reality. It's an opportunity but also a challenge that we must face. 20,000 new jobs are announced. If we refer to the old model, this means that 20,000 people will take their gasoline-powered vehicles to work every morning.

How can we imagine fighting to reduce the emissions of the living environment and those of the industrial zone while generating, suddenly, a huge flow of new emissions? How can we build the industries of tomorrow in an industrial zone that would resemble that of the end of the 20th century: a huge parking lot?

The stakes are enormous. Once again, even people who are most sensitive to the issue of climate change are attached to what they consider a freedom: their individual mobility.

So it is a question of demonstrating that free public transport or soft mobility to an industrial zone works; that it can save time and comfort; that the challenge is worth the effort; that additional services can be put in place...

Several actions are planned as part of the CCC:

- Setting up a specific technical group within the framework of EcosystèmeD, in conjunction with the CUD, mobility actors (including soft mobility and public transport) and industrialists;
- Setting up a consultation group within the framework of the social conference;
- Communication actions in conjunction with partners towards employees and inhabitants;
- Setting up a «demonstrator» line between the station and the new industrial sites;
- Adaptation work of the industrial zone with the State and the Port including the creation of specific roads, greenways or park-and-ride facilities with a high level of service.

ADDED VALUE:

- Counter the main negative impact of the territory's economic development;
- Carry out an effective, innovative and symbolic action to anchor decarbonization as the territory's first challenge.
- Around a project with high stakes and generating resistance, strengthen the territorial consensus around decarbonization.

Strategic Axis

Greater Dunkirk is the first voluntary Urban Community in France. In 1968, the elected officials decided to work together to manage the arrival of very large industrial sites on the coast and therefore new inhabitants. Since then, the Urban Community has played a central role in its territory and it is naturally at the initiative of the first transition and decarbonization actions carried out in Greater Dunkirk. It thus has a specific service dedicated to sustainable development and climate.

For 10 years, in accordance with the commitments made by the President of the Urban Community, Patrice Vergriete, with all the mayors of the territory, the ecological transition has become the main axis of community policies.

On the occasion of the work and consultations carried out by the institution on its Local Urban Plan, Housing and Transport (PLUIHD) and on the Climate Air Energy Plan (PCAET), the ecological transition has become a real territorial project, transversal and carried by all the services of the institution, the municipalities and their partners.

On the occasion of this work, solid partnerships have been established with many actors in the territory to define common objectives and an action plan for the PCAET. The pilots of the CCC were able to rely on these organizations to go even further in the decarbonization process.

Thus, an action plan has been defined, collegially. In addition to the key actions, it determines a series of priorities:

- Develop renewable and recovery energies, which are real levers for the ecological and energy transition.
- Prepare for adaptation to climate change, by integrating actions into all sectors and functions of the territory.
- Preserve air quality by reducing energy consumption, modifying our modes of transport and consumption, reducing CO_2 emissions, thus reducing pollutants in the atmosphere and improving the health of inhabitants.
- Co-construct the future, by involving all local actors in a collective effort and by engaging the population in an educational and participatory approach to change consumption and usage behaviors.
- Allow the replicability of its actions in other cities.

This action plan also includes the necessary evaluation of the policies implemented in order to establish a continuous

improvement process and to evolve the processes or generate new actions to ensure the success of the mission. In addition, the roadmap is based on and seeks to enrich and develop the fourteen commitments made within the framework of the PCAET to achieve carbon neutrality by 2030:

- **Axis 1:** An exemplary community in terms of climate and energy transition
- **Axis 2:** A mobilized public force, with its partners around decarbonization
- **Axis 3:** Preserved biodiversity
- **Axis 4:** Buildings and urban planning that respect the environment and health
- **Axis 5:** Preserved air quality
- **Axis 6:** A territory resilient to climate change
- **Axis 7:** Low-carbon and low-impact travel
- **Axis 8:** A low-carbon economy and industry
- **Axis 9:** A territory that is autonomous in energy and a producer of low-carbon energy
- **Axis 10:** A territory that produces little waste and optimizes its recovery
- **Axis 11:** More sustainable agriculture and food practices
- **Axis 12:** A preserved water resource

The action plan and its roadmap will be gradually expanded in terms of actors and actions throughout the various revisions and extensions of this CCC. And two additional axes will be added:

- **Axis 13:** Citizen involvement
- **Axis 14:** A just transition

Organization

- **Social and political consensus:** The CCC, just like the PCAET recently developed and voted on by the Urban Community, is the subject of a broad political and social consensus. As mentioned, decarbonization is «the big issue» in Greater Dunkirk and transcends partisan politics. Thus, the CCC is also supported by all the mayors of the territory as well as by the Chamber of Commerce and Industry.
- **A green social pact for a just transition**: Greater Dunkirk urban area is known for its resilience; in fact, that of its inhabitants. They are the wealth and life of the territory; public policies are intended for them to improve the life of each and every one. In this context of climate crisis, it is essential to leave no one behind. It is with and for the inhabitants that we will succeed in our transition, taking into account their desires and constraints. This is the very principle of the Greater Dunkirk CCC and, in particular, its eco-winning component. This is also why all the major policies implemented in the territory are preceded by a time of consultation and collective reflection (for example, DK+ mobility before the implementation of the free bus).
- **The need to play collectively:** It is a tradition in Greater Dunkirk, almost an obvious fact: collective success is always preferred to individual destinies. Today, faced with the climate crisis, faced with the need to accelerate, we must intensify our actions and involve as many actors as possible. Playing collectively also means thinking together, sharing to generate ideas and innovation. This is the whole spirit of the social conference and even the exchanges «living environment and industry» carried by EcosystèmeD. The first territory of this size for the free bus, the first territory to develop an eco-solidarity water billing, the first territory to imagine factories without parking... In Greater Dunkirk, we think, we build and we innovate together. This is the spirit of this CCC which must be evolutionary and iterative.
- **In Greater Dunkirk, co-construction in action:** In Greater Dunkirk, the consultation of inhabitants and the devices for co-elaboration of projects or public policies are permanent and concern most of the important subjects of the territory. This way of co-constructing the future is constantly evolving and the work of developing the CCC has been an opportunity to revisit already effective practices. On the issues of adapting the territory to climate change, as early as 2020, 2021, the Urban Community wished to strengthen citizen dialogue at the level of the community territory.

The Co-Mission Zero In addition to the existing bodies and partnerships, the current partners of the Greater Dunkirk CCC wish to set up a co-mission zero integrating representatives of the partners of the social conference, technicians in charge of climate in the partner communities and representatives of the inhabitants (a reflection is underway to

determine whether citizens are drawn by lot or if a call is made for volunteering); the principle of the co-mission zero is to reverse the usual roles. Indeed, in general, technicians or elected officials explain their choices and actions to the inhabitants; in this case, citizens will be able to inform themselves continuously but, during the meetings, it will be up to them to present their feelings, opinions and needs to the various actors.

A continuous learning process Changing our habits and behaviors, inventing a new way of life, imagining new solutions for housing, transportation, consumption... is undoubtedly one of the greatest challenges humanity has ever faced; This is why we must «learn by doing», that is to say experiment, encourage innovation and the sharing of ideas but also invent new organizations or forms of partnerships .... We must also quickly learn from our successes and failures. It is in this spirit that the Greater Dunkirk CCC is conceived and it will be the role of the elected representatives of the Urban Community but also of the members of the Co-mission Zero to maintain this positive dynamic.

4. Process and principles

Greater Dunkirk is committed to achieving climate neutrality by 2030 and has adopted a comprehensive systemic work process to achieve this goal. Here's a breakdown of our approach:

Systemic Work Process:

1. **Baseline Assessment:** We conducted a thorough assessment of our current carbon footprint, identifying key contributors and areas for improvement. Although the industrial port area falls outside the scope of our CCC, we recognize the significant contribution of its companies to the region's economic vitality. Every three years, we assess the carbon footprint of the area. Through the CCC, we aim to foster greater transparency and understanding among these companies regarding the impact of our climate action plan and initiatives.

2. **Goal Setting:** Based on the assessment, we set ambitious but achievable climate neutrality targets, aligned with international standards and local needs. By using the economic model design by the university of Madrid, we had complete information about the reduction of emissions needed to achieve climate neutrality. Our actual climate plan represents 62% of reduction, but with action developed by the CCC dynamic and the transition team, we aim to accelerate the trajectories and reach the 80% goal the European commission aimed us.

3. **Action Planning:** We developed a detailed action plan outlining specific strategies and initiatives to reduce emissions across various sectors, including energy, transportation, waste management, and building. We intend to prioritize citizen engagement and participation in future phases of our climate action plan. While we have been actively raising awareness among our residents, we now seek to empower them to become active participants in local governance, allowing them to express their concerns and contribute to the development of Greater Dunkirk. Additionally, we are currently establishing partnerships with associations, businesses, and other organizations that can influence climate neutrality.

4. **Resource Allocation:** We secured funding and resources to support the implementation of our action plan, leveraging both public and private investments. As outlined in our investment plan, our climate budget is increasing annually. We also have a dedicated team focused on securing funding from regional, national, and European sources. We aim to participate in pilot projects, such as the 'Net Zero Urban Industrial Growth' initiative, to secure continued funding for large-scale climate initiatives.

5. **Stakeholder Engagement:** In developing our climate plan, we engaged a diverse group of stakeholders, including citizens, businesses, NGOs, and government agencies, to foster broad support and collaboration. We intend to adopt a similar approach for the Climate City Contract (CCC), aiming for faster progress and more impactful results compared to our initial climate plan. We have observed a growing awareness among citizens regarding climate change. While our early events focused on explaining the basics, we now discuss mitigation and adaptation strategies. It is time to take action and prioritize the needs of our citizens. With respect to stakeholders, we aim to develop strong partnerships and learn from the experiences of companies and associations that can support our neutrality trajectory.

6. **Monitoring and Evaluation:** We implemented a rigorous monitoring and evaluation system to track our progress toward climate goals, identify areas for improvement, and make necessary adjustments. Building upon the existing indicators used for the climate plan and the "territory engaged in ecological transition" label, we developed additional indicators specifically for the Climate City Contract (CCC). Each department responsible for these indicators is tasked with meticulous tracking to enable timely adjustments and optimize our path to achieving 2030 climate targets. As an innovative territory, we anticipate the influx of new businesses and dynamic initiatives that will contribute to the development of projects tailored exclusively for Greater Dunkirk. By closely monitoring these projects, we aim to compile comprehensive reports that can be shared widely to facilitate replication in other cities.

Monitoring and Updating the CCC:

1. **Regular Reviews:** We will conduct periodic reviews of the CCC to assess its effectiveness and identify areas for improvement. At least yearly reviews for the main indicators easy to track.

2. **Data Collection:** We will continue to gather data on emissions reductions, energy consumption, and other relevant metrics to inform our review process. Although we are already collecting this data, we will refine our communication strategies both within the Greater Dunkirk administration and externally to ensure ongoing awareness and engagement among the public.

3. **Adaptation to New Developments:** We are committed to adapting the CCC to evolving circumstances, such as technological advancements or policy changes. As Greater Dunkirk is undergoing a period of economic transformation, flexibility will be essential. For instance, the recent surge in giga factory projects, which were not fully anticipated in our 2022 economic development strategy, underscores the rapid pace of change and the potential for positive outcomes if we maintain our current trajectory.

Principles Guiding CCC Implementation:

1. **Collaboration:** We will promote collaboration among all stakeholders to ensure a coordinated and effective approach. Implementation is not feasible without collaboration, and during the development of the CCC with the transition team and select stakeholders, the importance of enhanced information sharing and identifying potential synergies for improved outcomes was emphasized

2. **Innovation:** We will foster innovation and explore new technologies to reduce emissions and enhance sustainability. Many of our initiatives rely on research to optimize current processes. For instance, we've established a team within the roads sector to investigate ways to improve our operations and minimize environmental impact. We're also exploring social innovation, such as a new strategy for landlords involving coordinated renovation projects along specific streets to reduce labor and equipment costs. This approach will benefit landlords by offering cost-effective renovation options and simplifying the process.

3. **Equity:** We will work to ensure that the benefits of climate action are distributed fairly among all citizens. While subsidies may be income-based, counseling and support services will be accessible to everyone. The 'ecowinner program' offers incentives for purchasing water cisterns or composters, promoting sustainable practices and benefiting all residents. hrough the CCC, we are exploring potential funding mechanisms, such as patronage, to support residents in planting trees in their backyards, allowing everyone to contribute to our environmental goals.

4. **Transparency:** We will maintain transparency regarding our progress and challenges and actively engage with the public to foster trust and support. This collaborative approach is crucial for uniting the community around our shared goal of climate neutrality. By encouraging public participation and keeping everyone informed, we aim to create a sense of ownership and involvement in our climate initiatives.

5. **Accountability:** We will hold ourselves accountable for achieving our climate neutrality goals and take corrective measures as necessary. Greater Dunkirk has long implemented policies aimed at decarbonizing activities and improving quality of life. As we shift our focus to living areas, our goal is to ensure that by 2030, both industries and residential areas are recognized for their decarbonization efforts. This demonstrates our commitment to becoming an innovative territory where air quality and overall well-being are prioritized.

By following these principles and implementing our systemic work process, the City of Dunkirk is confident in its ability to achieve climate neutrality by 2030 and create a more sustainable future for our community.

5. Signatories

The signatures for the Climate City Contract (CCC) are currently in progress.

As a reminder, our CCC aligns closely with our Climate Action Plan (PCAET).

The signatories of the PCAET are the stakeholders who contributed actions to the plan. They are committed to achieving climate neutrality within the territory, encompassing both the living and industrial areas. This collective action demonstrates the interconnectedness of these areas and highlights Dunkirk's collaborative approach.

To formalize this support and ensure contractual compliance, we are currently working to obtain the necessary signatures for the CCC. Once finalized, we will be able to publicly acknowledge and use the support of these key stakeholders.

Patrice VERGRIETE

President of the Greater Dunkirk area urban council (CUD)