FRAMEWORK DOCUMENT

Courtesy translation

Background to Lyon's climate strategy

a) *Legal framework and voluntary initiatives at city level in France*

French regulations define "PCAET" (plans climat air-énergie-territorial) as mandatory planning tools, both strategic and operational, that enable public inter-municipal cooperation establishments with populations of over 20,000, i.e. which group together several towns, to address the whole range of air-energy-climate issues on their territory. In fact, it is these local authorities that bear many of the mandatory climate-related local policies (sustainable mobility, waste management, etc. - see Appendix 2).

In line with this legal framework, many French cities have launched voluntary initiatives to define climate strategies within their own boundaries, in order to go further and create stronger local dynamics in terms of climate and ecological transition: city-wide climate plan, adherence to international or national climate labels, creation of a network of local players on climate issues, Agenda 21, citizens' climate convention, etc.

To fully understand the City of Lyon's actions, one has to take into account the legal framework, and the City's ability and commitment to act beyond it.

b) *The City of Lyon's commitment to develop its own climate strategy in line with the metropolitan vision*

In Lyon, the Metropolis is responsible for drawing up and implementing the PCAET. The Metropolis of Lyon comprises 59 communes spread out over 538 km², with very different realities: a highly urbanized central city (Lyon) with over 500,000 inhabitants, medium-sized towns sometimes adjoining Lyon, and small villages with 3,000 inhabitants.

The Metropolis' PCAET was drawn up with the aim to achieve climate neutrality by 2050.

150 local stakeholders were involved in developing this document and agreed to commit to it (by signing it). However the PCAET does not adopt an explicit sub-territorial vision: on a specific objective or action, the plan does not give guidance as to how the 59 municipalities, according to their own context, can contribute or go beyond it. It is up to them to decide how they will implement these objectives and actions.

In 2013, the City of Lyon voluntarily drew up its first climate, air and energy plan, with a view to setting targets for reducing its greenhouse gas emissions and implementing the objectives of the PCAET. This plan has since been updated and strengthened on several occasions, particularly in the field of adaptation. These successive plans, in which the City's departments were involved together with elected representatives, were very much focused on the City's competencies and included a portfolio of actions detailing the commitment of the City's departments.

c) Historically, a municipal climate strategy with little involvement from local partners and citizens

Lyon's first Climate, Air and Energy Plans did not include a focus on local stakeholders and citizens nor did they specify what role they could play in the implementation of actions taken by the Municipality. The scope of Lyon's Climate, Air and Energy Action Plans covered only the city in terms of "local authority" (the city's buildings, public services) and not the "territory".

Although the City's departments already worked together with a certain number of local stakeholders in implementing climate-related public policies, there was no shared vision or common, cross-functional strategy. For example, the governance of the climate plans did not involve external partners, with the exception of the local Energy and Climate Agency.

As regards citizens' involvement, the updating of the 2019 climate, air and energy plan made it possible to strengthen their participation. The City collected 4,400 contributions made by citizens through a digital consultation and organized 4 workshops based on the issues raised in these contributions.

2. Lyon 2030: a territorial approach

To meet the climate challenge, in January 2022 the City set itself the goal of achieving climate neutrality for its territory by 2030.

Achieving climate neutrality requires the City to step up its commitments on its assets and municipal public policies, thus by strengthening its Climate, Air and Energy Plan. In addition and in conjunction with the Metropole, this also means greater mobilisation and involvement of all local stakeholders - the city's economic, educational, social, cultural and sporting stakeholders, civil society organisations and other representatives of inhabitants, and public agencies - as well as, on a larger scale, of citizens.

The "Lyon 2030: inspiring change" approach launched by the City in 2022 is a response to these challenges, i.e. setting the City and stakeholders in motion by experimenting with new modes of governance and commitments on climate and ecological transition (see part 2, C of the Lyon 2030 climate contract).

a) A new 2023-2030 Climate, Air and Energy Plan to meet the challenge of climate neutrality

With the election of a new executive in 2020 the City Council adopted stronger climate commitments. This made the revision of the municipal Climate, Air and Energy Plan necessary. Reviewing this strategic plan involved a large number of people within the City of Lyon, the Metropolis and beyond. A dialogue was initiated with local players involved in the Lyon 2030 initiative, and with the Metropolis' Scientific Council.

This new climate plan is not only an internal planning document. It was also designed as a lever for action to get Lyon's stakeholders on board and for the City and its partners to support them in the implementation of their climate commitments. This is already reflected in several actions carried out by the City: support to associations and eco-conditionality of subsidies granted to them, public purchasing that encourages best practices and structuring of innovative sectors, support to reduce the carbon impact of events and of the cultural sector.

The path towards climate neutrality by 2030 is structured around a set of thematic actions. The City's climate plan is flexible and adaptable, and will continue to be enriched and strengthened as the City

moves towards carbon neutrality. This iterative methodology will make it possible to take into account feedback from the field and the results of experiments, as well as improvements in the measurement of greenhouse gas emissions and therefore in the quantification of the impact of the actions undertaken.

b) A new framework for climate governance, cooperation and action in Lyon

Lyon's application for the European 100 climate-neutral and intelligent cities program was built around the slogan "Lyon 2030: inspiring change". At the heart of this application was the City's desire to work with and mobilize local players more broadly, and also to better support the citizens' dynamic around climate and ecological transition. A committee of 80 local stakeholders supported Lyon's application to this European program.

At the heart of the Lyon 2030 approach is the creation of an *Agora*, a community of Lyon stakeholders ready to co-construct a shared vision for achieving climate neutrality by 2030 (see part 3 of the Lyon 2030 climate contract). The first Agora, set up in 2023, comprises sixty members that all volunteered to join the process. This assembly is destined to grow, but the collective formed in 2023 already includes major players in the city's various sectors (see Agora composition table at the end of this document).

In terms of achieving climate neutrality, the City's competencies are limited in many areas directly related to the ecological transition (see appendix 2). The starting point for the Agora's work was therefore not the actions carried out by the City, but rather:

- the collective's vision of the challenges facing the Lyon region,
- how to respond to them collectively,
- and how the public authorities could contribute by suggesting proposals for action.

The Agora met five times in the first half of 2023. It worked on sobriety, an issue it considered a priority for meeting the climate challenge. As a result, the Agora agreed upon 16 commitments detailed in the "Lyon 2030 climate contract", along with 29 proposals for action targeted to public authorities. The Lyon 2030 climate contract is a living document, which will be enriched as the Agora's work progresses, with the ultimate aim of covering all climate neutrality issues.

In line with the collective vision set out in the Lyon 2030 climate contract, each Agora member is requested to draw up a cooperation and commitment agreement with the City. In these agreements members of the Agora are to write their commitments and the areas of cooperation with the municipality, adapted to their specific characteristics: their challenges, their capacity to act and their core business or action. Beyond sobriety, other priorities can be addressed.

c) Design and implementation the Lyon 2030 approach

End of 2021	Mobilization campaign around the "Lyon 2030: inspiring change" application, with the creation of a Support Committee of 80 Lyon-based stakeholders
28 April 2022	Announcement by the European Commission that Lyon will be part of the 100 Climate Friendly Cities program
From 2022 to May 2023	Update of the municipal climate plan based on the new climate objectives voted by the City Council

December 2022 to February 2023	Setting up the first Agora
9 March to 11 July 2023	Agora work sessions and drafting of the Lyon 2030 climate contract
20 April 2023	First meeting of the Metropolis Scientific Council with a presentation of the Lyon 2030 approach
11 July 2023	The Agora presents to the Mayor the Lyon 2030 climate contract 16 members of the Agora present to the Mayor their first commitment and cooperation agreement

3. Roadmap to climate neutrality

a) Scenarios towards climate neutrality

The City has worked on three scenarios aimed to reduce greenhouse gas emissions on a territorial level (see Appendix 1):

- A "baseline" scenario in which all municipal and metropolitan public policies, taking into account national policies and regulations, would be implemented, leading to a 40-45% reduction in emissions between 2019 and 2030;

- A more ambitious scenario (called within the City "climate priority scenario") which identifies the areas in which the City of Lyon, either through its competences or through the Agora, has the means of action to accentuate the reduction of greenhouse gas emissions. This scenario would lead to a 58% reduction between 2019 and 2030. This scenario focuses on actions mainly undertaken on the levers available to the City. That said, it is nonetheless dependent on the Metropolis, particularly in terms of the energy purchasing policy for district heating networks. It also depends on the commitment of every stakeholder within Lyon, as well as the financial support of the Government to boost buildings' renovation and sustainable mobility.

- A highly ambitious scenario (called within the City as "climate neutrality scenario") which identifies the additional actions needed to reach as much as possible 80% reduction in greenhouse gas emissions. This scenario would lead to a 73% reduction in emissions between 2019 and 2030. It requires the involvement not only of the City itself, but also of all the other players in the city and beyond:
    - Citizens and businesses, to renovate buildings and to change mobility and consumption patterns. More broadly, concerned sectors (construction…) need to be in a position to keep up with the pace of renovation and change in mobility.
    - The Metropolis, to accelerate the development of district heating networks as well as the number of building connections to these networks, and to promote sustainable mobility;

- The Government, to boost support to renovation of residential and tertiary buildings and the move towards more sustainable mobility. More broadly, to initiate a major change in laws and regulations at all levels in order to give full priority to climate issues;
- Europe to go further, not only in terms of financial support, but also in terms of a real shift towards stricter climate regulations in all sectors and a drastic limitation in the use of fossil fuels.

To achieve this, climate action must become the number one priority for everyone involved.

b) Action portfolio

- **The CCC action portfolio includes:**

1) Actions carried out by the City of Lyon within its perimeter, its competencies, according to its public policies and heritage, with the aim to strengthen partnerships with local players and citizen participation.

2) Actions carried out by Agora members as part of their cooperation and commitment agreements, which may include :
   a. Actions that apply solely to their scope of action;
   b. Collective actions with other members of the Agora or other stakeholders;
   c. Actions linked to the City's climate plan, for which the City could provide support, strengthen synergies, etc.

	Metropolitan PCAET (see PCAET summary, attached)	**Climate, Air and Energy Plan** (see attached document)	**Lyon 2030 Climate Contract** (see attached document)	**Lyon 2030 Cooperation and Commitment Agreements**
Overall GHG reduction target	43% reduction in greenhouse gas emissions by 2030 compared with 2000 (see appendix 2)	Overall objective: carbon neutrality by 2030 Several scenarios were set up, detailing possible actions (see appendix 1).		
Perimeter	59 municipalities	The municipality's assets and areas of direct competence and influence	Lyon area	Lyon area

Ambitions / objectives	Main line of action: ● all “ordinary heroes” ● an economy integrating the challenges of climate change ● sustainable and inclusive development ● a low-carbon mobility system ● the territory and its resources	3 cross-functional objectives: ● to **drastically reduce greenhouse gas emissions in** order to put the Municipality on a **trajectory towards climate neutrality by 2030**, but also to ensure improved air quality ● **to adapt the city to climate change** and, more broadly, to **prevent** long-term effects and risks of climate change ● to **raise awareness and increase the sense of responsibility** not only among municipal staff, but also among all local players. Indeed, if the fight against climate change is to be systemic, it will require the involvement of everyone at their own level. **4 structuring ambitions** : 1. An energy- and resource-efficient city *(including buildings and waste)* 2. A peaceful, breathable city *(including transport)* 3. A city that cares for everyone and adapts to global warming *(including buildings and AFOLU)* 4. A city that lets everyone get	**Roadmap including 3 topics:** 1: operation and activities of the Agora and ; how can /should each member contribute to its production 2: mobilizing and engaging citizens and local players beyond the Agora 3: top priority topics: sobriety (including mobility and energy) adaptation to climate change (vegetation, water) employment and consumption **<u>Only the issue of sobriety was</u> addressed by Agora in 2023. As a result 16 collective commitments were agreed upon by the Agora.**	Each member is committed to setting up a cooperation and commitment agreement based on the **priority and commitments** agreed upon by Agora. Thus these agreements include a detailed presentation of how the 16 sobriety commitments will be implemented.

		involved		
Actions / commitments to meet objectives		Some forty actions divided into 14 objectives (see booklet accompanying the **Climate, Air and Energy Plan**) Out of the 40 or so actions in the **Climate, Air and Energy Plan**, 26 are closely linked to the Agora's commitments. Actions not related to these commitments include those linked to adapting to climate change, a subject not covered in the first sessions of the Agora.	>16 collective commitments to sobriety Some of these commitments relate to new issues that are not yet covered by the City's **Climate, Air and Energy Plan** but may be dealt with by other public authorities. For example: employment issues, advertising, etc. >29 proposals for action targeted to public authorities, which will be passed on to the municipal departments for action, and which the City will convey to the Metropolis and the State.	For each member detailed presentation of sobriety commitments and, if relevant, other commitments in the 3 other areas identified. Agora working groups for collective action (see below).

- **Methodology and consistency between CCC documents**

A systemic vision

Both the new Climate, Air and Energy Plan and the Lyon 2030 Climate Contract emphasize that climate neutrality cannot be achieved without taking into account planetary limits, sustainable development objectives and a profound rethinking of our lifestyles.

At municipal level, there was a consensus on the fact that actions identified by City departments to target carbon neutrality needed to be carried taking into account the following key principles:

- Social inclusion and justice meaning that the climate transition need to be for all inhabitants of Lyon;
- Democracy and participatory approach;
- Environmental health and biodiversity: the scope of the City's action needs to take into account the "health" of our entire environment (not only that of people).

At the city level, a vision has been drawn up by members of the Agora, who, as part of the collective journey, have been able to highlight complementary issues and objectives for achieving carbon neutrality (part 3. C.3 - The Agora journey). For example, Agora members identified as "keys to success" putting people at the heart, as well as questioning the issue of growth in our society.

These visions and narratives will continue to be explored within the Agora, in partnership with the Fabrique des Transitions (a national association that give assistance to local authorities to explore new avenues to embark local stakeholders and citizens on climate issues using story-telling approaches). The idea is to move away from a purely technical approach and embark on a broader discussion of what the city of Lyon could become in 2030.

From the vision to the action plan

Sharing the challenges and the vision drawn up during the drawing up of the new Climate, Air and Energy Plan and the Lyon 2030 Climate Contract were the basis for setting up the action plan and the action portfolio.

Only the issue of sobriety was tackled by the Agora within the Lyon 2030 Climate Contract. However this document is expected to be enriched to respond to the other issues. Similarly, the cooperation and commitment agreements will highlight Agora members' vision for 2030, and their operational commitments to achieving it.

From the action plan to the investment plan

The investment plan was drawn up based on the actions and assumptions set out in the region's strategic documents, including the City's Climate, Air and Energy Plan and the Metropolitan Climate Plan. Assumptions for 2030 were then analysed to identify areas where the City or the Agora could accelerate GHG reduction, as well as complementary actions to move towards climate neutrality.

- **Development of the Agora and Climate Plan action portfolio**

The Agora set up in 2023 has chosen to prioritize the issue of sobriety, which focuses on the sectors that emit the most greenhouse gas within the city. This is also an issue on which all stakeholders can take action. Other issues will be addressed over time as the Agora expands (see point c) next steps), and will lead to new commitments.

Achieving carbon neutrality is not associated with a ready-made solution. What the City of Lyon is proposing for its Climate, Air and Energy Plan is an iterative process. This process will enable the city and its stakeholders to assess the impact of their actions year after year, to continue learning from experiments, to draw inspiration from initiatives in other areas and to mobilize the latest innovations.

This continuous improvement must also be nurtured by increasingly close interrelationships between the City and its territory.

- **Drawing up and implementing commitment and cooperation agreements and collective projects**

Conventions for 2030 are currently being drawn up by all Agora members.

- On July 11, 16 members presented to the Mayor their commitments that will be included in their agreements. Most of them are linked to the issue of sobriety but not only. Some of the commitments set out in the agreements are directly or indirectly linked to public policies, particularly municipal policies. (cf. Lyon 2030 cooperation and commitment agreements - template and examples).
- Beyond this "individual" vision, 7 working groups related to the commitments have emerged collectively to contribute to the dynamics around the Lyon 2030 Climate Contract:

    1. Sharing knowledge on sobriety in buildings
    2. The “sober travel toolbox”
    3. Disseminating and sharing sobriety best practices and helping implement them
    4. Disseminating and implementing responsible digital practices
    5. Creating a waste recovery directory
    6. Creating a hub of collective resources
    7. Imagining, rebuilding, disseminating and renewing Lyon's image after the ecological transition

The groups are all coordinated by one or more Agora members. The projects will be implemented by several members of the Agora and the aim is for them to be completed over a one or two-year period.

- **Articulation between the municipal Climate, Air and Energy Plan and the Lyon 2030 Climate Contract, implementation of the action portfolio**

<u>The link between the municipal Climate, Air and Energy Plan and the Lyon 2030 Climate Contract is effective at different levels:</u>

- Governance :
    - Climate plan governance: certain members of the Agora whose commitments are/will be included in the agreements and/or who are part of the working groups (see above) linked to the actions of the climate plan may be involved in the governance of the Climate, Air and Energy Plan;
    - The City's elected representatives and departments will be invited to take into account the challenges expressed by the Agora, their commitments and proposals for action targeted to public authorities (see part 4 of the Lyon 2030 Climate Contract);
    - The direct involvement of City departments and elected representatives in Agora meetings and work, as it was already the case in the first half of 2023, depending on the issues raised.
- Updating the Climate, Air and Energy Plan will strengthen the link with the Lyon 2030 Climate Contract. It will also highlight how the Agora participates in or contributes to the climate plan's actions. The Agora will also serve as a source of inspiration for continuous improvement of the City's climate action.

- The City will support members in implementing their agreements. For instance, the City may mobilise Agora members in responding to certain calls for proposals or local initiatives some of which are or will be launched by the City. For example, in 2023, the City introduced a new scheme called "*1 jeune pour ma structure pour le climat*" (*1 youth in my organisation to tackle climate issues)*, which supports the recruitment of trainees and/or civic service by not-for-profit structures. Many members of the Agora are eligible and can apply to this scheme, which will contribute to the implementation of their agreement.

- **Links with the Metropolis**

There are a number of ways in which the Lyon 2030 initiative is linked to the Metropolis:

- The Metropolis is part of the City's Lyon 2030 governance bodies
- The Metropolis is a member of the Agora
- The City is part of the Metropolis' PCAET governance bodies
- For the updating of the PCAET, the Metropole has agreed to take into account the proposals for action included in the Lyon 2030 Climate Contract, as well as to involve the Agora in the debates that will be organised during the consultation phase.

Also the Metropolis and the City are already developing joint climate actions in several areas:

- Co-sponsorship of a number of strategic projects essential to achieving carbon neutrality, in areas such as mobility, adaptation to climate change and urban planning. These cooperative ventures can be progressively strengthened;
- There are also plans to set up joint programs and/or participate in joint calls for projects to fight climate change.

c) Next steps

September 2023	Presentation of the Climate, Air and Energy Plan and the Lyon 2030 climate contract to the City Council
September to October 2023	Work sessions with Agora members to help them draw up and finalise their cooperation and commitment agreements.

- **Work programme of the Agora**

Launching of the 7 Agora working groups	Frequency of meetings to be determined by group leaders
Support of the City to help members of the Agora draw up and implement cooperation and commitment agreements Lyon 2030	All year long depending on members' requests
Official events to celebrate achievements such as the signing of the Lyon 2030 Climate Contract, the signing of the agreements, the integration of new members in the Agora, etc.	Once to twice a year
Task force to work on operation and activities of the Agora on the long run	Second half of 2023
Project on narratives with the assistance of the Fabrique des Transitions, involving the Agora on the one hand and City departments on the second hand	Launching in 2023
Update of the Lyon 2030 Climate Contract	Possibly once a year, minimum once every two years
Agora plenary meetings Objectives: --> to take stock of progress made in relation to the municipal climate plan -> to work on new issues and/or topics suggested by the City	Once or twice a year
Informal exchanges and networking between Agora members	3 times a year
Integration of new members in the Agora	Twice a year through a 3-month process with 30 to 40 stakeholder organisations

- **Involvement of other stakeholders and citizens in Lyon 2030**

City grants to projects carried out by civil society organisations, to citizens (youth climate grants), to local stakeholders (to recruit trainees/civic service)	Throughout the year
Lyon 2030 conference programme targeted to the general public and local stakeholders organised by the City and Agora members	At least 3 times a year

- **Work of the City of Lyon**

Update of the Climate Air Energy Plan with the contribution of the Agora and the Metropolis' Scientific Council	Once a year
Mobilisation of all elected officials and administrative staff (8,500 employees) in the Lyon 2030 approach	All year long by through different activities

- **Contribution to the work of the Metropolis**

Update of the PCAET (contributions from the City and the Agora)	2024-2023
Meeting with the Metropole's Scientific Council	Once a year

4. The role of citizens in Lyon 2030

The involvement of citizens in Lyon 2030 covers several dimensions:

- **Involvement through members of the Agora**
  - Citizens were represented via the presence of several **district councils** in the construction phase of the Lyon 2030 approach in 2022. A district council joined the first Agora in 2023. In addition, other Agora members who come from the civil society also took part in the Agora;
  - Many Agora members (sports and cultural associations, schools, etc.) are used to reaching out to citizens, particularly those who are not necessarily aware of ecological transitions. In the Agora roadmap, focus is set on **mobilising and engaging citizens and local stakeholders beyond the Agora**.
  - Citizens will also most likely be involved in the implementation of collective or individual projects arising from the Lyon 2030 Climate Contact or the commitment and cooperation agreements.

- **Involvement in the overall Lyon 2030 approach** :
  - **Initiatives targeting citizens** are gradually being implemented to strengthen their power to act. For example, the City will launch a climate grant this fall to support youth's initiatives to fight climate change.
  - The City is composed of 9 administrative districts (called "arrondissements") each with its own municipal team (elected representatives and City staff). The C**ity departments work hand in hand with these districts** who are in direct contact with citizens to help them draw up and implement a roadmap on climate change and ecological transition.

    In 2022, the City applied to the 30 Pilot Cities' Call for proposals. In the project submitted, actions carried out by the City and some Agora members were planned in every "arrondissements", especially "priority areas" where disadvantage groups live. In view of the need to raise public awareness and provide support, these actions will be reintegrated in the City's application to the 2024 Pilot Cities' Call for proposals.

- The City is working on the **development of third places and resource centres** on climate change and ecological transition in Lyon, led by local stakeholders and geared towards citizens in order to strengthen everyone's ability to act.

To take up the challenge of climate neutrality, the City decided first to focus on local stakeholders. However it plans on gradually giving citizens a greater say. For example, by 2026, the City aims to set up a "citizens' assembly for the future" to discuss cross-cutting issues (ecological, social and climate topics). A link could then be made with the Agora to involve more closely with citizens. Other initiatives could also be investigated, such as carbon cooperatives and citizen conventions.

5. Composition of the Agora and role of stakeholders with high carbon impact in the Lyon 2030 approach

The first Agora set up in 2023 represents the **diversity of local players** that are ready to co-construct a shared vision on how to achieve climate neutrality by 2030 on a city-wide scale. Some have a direct capacity to reduce greenhouse gas emissions (through their assets, their activities, on scopes 1-2 or 3), while others have a capacity to influence other organizations or citizens directly (sports and cultural actors for example) through their role as network leaders (consular chamber, etc.).

In particular, the City wanted to mobilise **youth-related structures** (higher education establishments, youth and cultural centres, student associations, etc.) and players with the capacity to act on scope 3. The City also wanted to involve stakeholders that **have direct access to marginalized groups**. Among the Agora members there is Soliha which fights fuel poverty, and the Metropolitan Integration Centre for Employment (MMIE). As part of the enlargement of the Agora, discussions are underway to include other local players involved in social issues as some actions of the Agora roadmap are specifically aimed at disadvantaged groups. In addition, beyond the Agora, as part of the overall Lyon 2030 approach, certain schemes could enable residents of vulnerable neighbourhoods to play a direct role. For example, this is a positive criterion in the awarding of the City's youth climate grants.

As regards **companies** and **stakeholders with a high carbon impact**:

- Very few installations subject to SEQE-EU 2022 quota are located within the city of Lyon's[1]. One corresponds to a boiler belonging to Lyon Hospitals, a member of the Agora. Most installations subject to quota tend to be located within the perimeter of the Metropolis who has launched various initiatives to better measure and support companies with high emissions, notably in the "chemical valley"[2].
- The Agora includes a few companies as well as representatives of the economic sector: Chambre des Métiers et de l'Artisanat (Chamber for Trade and Crafts), as well as the Centre des Jeunes Dirigeants (Centre for Young Leaders). Other stakeholders, such as the Lyon Chamber of Commerce and Industry have expressed their interest in joining the Agora.
- The City also has close relations with a number of national/international companies that operate in Lyon. For example, an agreement was signed this year with the SNCF group (passenger and freight transport), which also expressed interest in joining the Agora.

[1] Source: Map of greenhouse gas emissions in metropolitan France from installations subject to EU ETS quota 2022 - data.gouv.fr ; https://www.francetvinfo.fr/monde/environnement/cop/carte-climat-decouvrez-quels-sont-les-sites-industriels-emettant-le-plus-de-co2-en-france_5463478.html

[2] Source : https://lyonvalleedelachimie.fr/2021/04/06/la-metropole-de-lyon-accelere-la-transition-de-son-socle-industriel-lyon-vallee-de-la-chimie-recense-ses-emissions-de-co2-pour-co-construire-sa-trajectoire-carbone/

- The City also participates in initiatives led by the companies themselves, such as the Convention des entreprises pour le climat du bassin lyonnais[3] , which brings together 70 of the region's companies and institutions for an ecological redirection. Some members of the Agora are involved in both initiatives, and the CEC representative has already spoken in one of the Agora plenary sessions.
- Finally, the City continues to develop actions:
    - Support and promotion of **economic stakeholders** in their ecological initiatives. For instance the City grants the label "Engagés à Lyon"[4] (Committed to Lyon) to local organisations that prove that they have a responsible approach when selling their goods or their services
    - Support the integration of climate issues into its purchasing policy through the "scheme to promote socially and environmentally responsible public procurement".

  These pre-existing initiatives are intended to have direct links with the Lyon 2030 approach.

Finally, the Agora also represents **territorial diversity**, with structures involved in certain areas of the city: neighbourhood committees, associations linked to heritage issues.

6. Monitoring and reporting

- Indicators have been defined for the actions carried out directly by the City. They are listed in the Climate Air Energy Plan and will be reported on an annual basis. A simplified assessment of greenhouse gas emissions from municipal assets is already drawn up annually in the form of an energy-climate dashboard, and every 3 years, a complete assessment of greenhouse gas emissions is carried out for all the City's activities and assets.

  These tools will enable both quantitative and qualitative monitoring of the implementation of actions and the achievement of targets in terms of carbon emissions reduction.

- Regarding the actions associated to the 16 commitments listed in the Lyon 2030 Climate Contract, members have identified possible indicators, both quantitative and qualitative. More work needs to be done on these indicators. This will be the subject of a workshop at the Agora's next annual meeting in January 2024.

- Concerning the commitment and cooperation agreements, Agora members have been asked to identify indicators for each commitment. They will also be responsible for monitoring them annually or every two years. On this matter, an issue still needs to be tackled: currently the City of Lyon does not have the tools nor the human resources and expertise to analyse in detail the impact of the commitments set out in each cooperation agreement.

- The City will also be able to count on the Metropolis, which as part of the PCAET update will be working to better estimate the carbon footprint of the Greater Lyon area. This exercise could be of benefit to the City.

[3] Source : https://cec-impact.org/cec-territoriales/cec-bassin-lyonnais/

[4] Source : https://www.lyon.fr/economie/economie-sociale-et-solidaire/le-label-engage-lyon#:~:text=Obtain%20the%20label%20%C2%AB%20Engag%C3%A9%20%C3%A0,of%20sustainable%20commitments%20of%20labellis%C3%A9s.

Appendix 1: Composition and Typology of Agora Members in 2023

Typology	Sub-typology (to be separated into theme + trade)	ORGANIZATION	Description	Estimated direct GHG reduction capacity (SCOPE 1 and 2)	Estimated indirect GHG reduction capacity (Scope 1 and 2)	Estimated direct GHG reduction capacity (SCOPE 3)	Estimated indirect GHG reduction capacity (Scope 3)	Estimated capacity for direct action on adaptation	Comments
Public institution	Public establishment	ADEME	Ademe (Agence de la transition écologique) is a public establishment whose primary mission is to promote environmental protection and energy savings. Created in 1990 and placed under the authority of the ministers for research, ecology and energy, Ademe is today the agency for ecological transition.	low	strong	low	average	strong	via programs, funding, etc.

Association	Local agency	Local energy and climate agency - Metropole	- Helping to build and renovate energy-efficient buildings, - Encouraging low-energy and low-CO_2-emission behaviour, - Contributing to the development of renewable energies, - Combating fuel poverty, - Ensuring that energy-climate issues are better integrated into local public policies, - And promoting an economy based more extensively on local resources.	low	strong	low	strong	average (heat wave program, for example)	
Company	Environment	Algoé	Project, Organization, Development and Human Resources management consulting and support company The company is very active in the fields of Transitions-Energy-Climate-Territory	low	average	low	average	average	
Association	Climate - environment	Anciela	Supporting citizens' commitments and initiatives in favour of an ecological and inclusive society.	low	strong	low	strong	average	
Association	Waste	AREMACS	Waste management at events	low	low	low	strong	low	supports a wide range of players in Lyon's event and cultural industries
Association	Culture	Arty Farty	Arty Farty is a non-profit, European and independent association serving youth, emerging cultures, democratic renewal, inclusion, diversity and the general interest.	low	average	low	average	low	links with the cultural sector

Association	Climate - environment	Conscience and Ecological Impact Association	Conscience & Impact Écologique is an association for popular education in the ecological transition, working with all publics.	low	average	low	strong	low	
Association	Sport	Lyon La Duchère	Lyon La Duchère is a French soccer club founded in 1964 and based in the La Duchère district of Lyon.	low	low	low	average	low	a key player in Lyon's sports industry with a strong ability to influence its members
Public institution	Regional organization - air quality	ATMO AURA	Regional air quality observatory.	low	average	low	low	low	health and air issues
Public institution	Finance	Caisse des dépôts	Caisse des Dépôts and its subsidiaries form a major public finance group		strong	low	strong	strong	via financing
Association	Hotel business	Centre International de Séjour Lyon	hotel business, seminar room rental, catering	low	low	low			tourism and accommodation issues, which are of major importance to Lyon as a tourist city
Public institution	Public establishment	CEREMA	Cerema, a public establishment under the authority of the French Ministry of Ecological Transition and Territorial Cohesion, supports the State and local authorities in the development, deployment and assessment of public development and transport policies.						
Public institution	Public establishment	Chamber for Trade and Crafts	CMA Lyon-Rhône supports artisans in their transition, trains young people in their trades and promotes the transmission of know-how.	low	strong	low	strong	low	influence over Lyon's retailers and craftsmen

Association	Economy	CJD Lyon Métropole	executive network - executive training	low	strong	low	strong	low	ability to influence member companies
Association	Building	Collectif frugalité heureuse et créative AuRA	We're architects, engineers, landscape architects, scientists or we work in other professions, whether related to the construction industry or not. But above all, we are women and men, signatories of the Manifesto for happy & creative frugality, who share the same values of sobriety in the act of building, and who want to take action. Our vocation is twofold: on the one hand, to give substance to a network of professionals interested in the subjects of planning, construction and renovation, and on the other, to enable the realization of projects and actions to disseminate and apply the values of frugality.	low	strong	low	low	strong	ability to influence
Company - ESS	Power supply	Collectif Tress	Part of the GRAP cooperative, TRESS is a group of eco-responsible caterers who help event organizers implement sustainable food solutions.	low	average	low	average	low	food, a major theme in Lyon's culture
Association	Building	Collectif Végétalisation du Vieux-Lyon (VGVL)	The Collectif coordinates the Citizens' Initiative "Vieux-Lyon, a living, inhabited and sustainable site", which brings together institutions, associations and groups of residents.	low	low	low	low	strong	link with heritage and history issues in Lyon
Public representative	Neighbourhood council	Guillotière district council Lyon 7	Local participatory democracy	low	low	low	strong	average	Link to local democracy issues
Association	Energy	CoopaWatt	Stimulation and support for participative, citizen-based renewable energy production projects. A Nous l'Energie program in the Lyon metropolitan area.	strong	strong	low	low	low	Link with local citizen energy issues

Company	Mobility	Dott	Self-service scooter and bike rentals	low	average	low	low	low	
Research and education	Higher education	Central School	École centrale de Lyon, a public scientific, cultural and professional institution, is dedicated to the initial and continuing training of engineers. École centrale de Lyon also conducts fundamental and applied research in the scientific and technical fields. It contributes to the promotion of research results, the dissemination of scientific and technical information and international cooperation.	low	average	low	average	low	
Research and education	Higher education	EM Business School	Business school	low	average	low	average	low	
Company	Energy	Enedis		average	average	low	low	low	
Company	Energy	EQUANS	Electrical and HVAC installation and maintenance.						
Public institution	Social landlord	Grand Lyon Habitat	Social landlord and developer	strong	strong	low	average	strong	one of Lyon's leading social landlords, with its own assets and strong influence
Company	Energy	GRDF	Natural and green gas distribution	average	average	low	low	low	
Company	Civil engineering	SERL Group	SERL is a semi-public company (Société d'Economie Mixte or SEM) specializing in urban planning, the construction or renovation of public facilities, the development and management of business centres in urban areas,	strong	strong	low	low	strong	one of Lyon's leading developers

			and the management of photovoltaic panel installations.						
Public institution	Hospital	Hospices Civils de Lyon	The 2nd largest university hospital in France, the Hospices Civils de Lyon is the city's and metropolitan area's leading healthcare establishment, with 4 main missions: prevention, care, teaching, research and innovation.	strong	strong	strong	strong	strong	Lyon's largest employer, and historic owner of a large part of the city's real estate assets
Company	Real estate	ICADE	As an office property company and housing/tertiary/public facilities developer, Icade designs, builds, manages and invests in cities, neighbourhoods, ...	average	average	low	low	average	influence
Research and education	Search	French National Research Institute for Agriculture, Food and the Environment (INRAE)	INRAE is the French national research institute for agriculture, food and the environment.	average	strong	low	average	strong	action through research projects and capacity to influence
Research and education	Search	National Institute of Applied Sciences (INSA)	Research and Education	average	strong	low	average	strong	action through research projects and capacity to influence
Association	Environment	Perrache Hanging Gardens	Les Jardins Suspendus, a Lyon-based association of shared gardens created in 2011 with the aim of breathing new life into the green spaces on the roofs of Perrache.	low	low	low	average	average	ability to influence and experiment with citizens
Company	Mobility	Keolis	Keolis Lyon operates the Lyon public transport network.	strong	strong	low	strong	average	

Association	Finance	La Gonette	La Gonette is the Rhône's Citizen's Local Currency, a social project designed to bring together all local players to promote local, responsible and mutually-supportive economic activity.	low	low	average	strong	low	ability to influence and change business models, support local consumption
Company	mission-driven company	La Poste	Postal Services, Urban Logistics, Regional Planning, Banking and Digital Services	strong	strong	average	average	low	
Association	Digital	La Ruche Qui Code SAS	Ecodesign of digital solutions: software, ecommerce sites and customized web applications.	low	average	low	average	low	
Research and education	Digital	Intelligence des Mondes Urbains Laboratory of Excellence (Labex IMU)	Labex IMU is a multi-disciplinary research and experimentation organization focused on supporting urban transitions.	average	strong	low	average	average	influence
Company	Development - architecture - urban planning	L'atelier Architectes	Architecture Urbanism	low	average	low	low	average	influence
Association	Agriculture	Le Passe-Jardins	support for the creation of shared gardens and coordination of the shared garden network	low	low	low	average	strong	working to adapt the city and get citizens involved
Association	Nature prevention	Ligue de Protection des Oiseaux Rhône	Protecting biodiversity	low	low	low	average	strong	
Association	Environment	Environment House	Supporting and equipping citizens in the ecological transition and strengthening associative players by promoting pooling and synergies	average	strong	average	strong	average	influence

Association	company	Confluence Youth and Culture Centre	The Maison des Jeunes et de la Culture Confluence runs an original, modern popular education project for all, based on a dynamic, democratic community life. L						
Association	Mobility	Maison du vélo Lyon	support for everyday cycling as a means of travel and leisure	low	strong	low	strong	low	ability to influence and support citizens
Public institution	Local agency	Metropolitan Integration Centre for Employment (MMIE)	The Maison Métropolitaine d'Insertion pour l'Emploi is a public interest group with 27 members. MISSIONS: - Mobilize companies through the “Charte des 1000” (Charte of the 1000) - Develop social clauses - Coordinate employment and integration players	low	average	average	average	low	ability to influence companies
Public institution	Public establishment	Meteo France	safety of life and property: weather forecasting, research and communication on climate change						
Public institution	Metropolis of Lyon	Metropole		strong	strong	strong	strong	strong	public policies directly related to these themes
Association	Education	MJC Monplaisir	A Maison de la Jeunesse et de la Culture (MJC) is a popular education association working for the individual and collective emancipation of all. This association is part of an educational approach. The MJC Monplaisir offers a wide range of sporting, artistic and cultural activities. Alongside these regular activities, various one-off events can be organized, such as concerts, shows, solidarity actions, etc.	low	low	low	average	low	

Association	population relay	Bearing movement	Mouvement de palier offers anyone who wants to get involved in the waste reduction challenge an original way: become an ambassador! The idea is to train and equip yourself to act as an intermediary in your building, neighbourhood or workplace.	low	low	low	strong	low	
Association	Sport	Lyon Sports Office	This site is brought to you by the Office des Sports de Lyon, an association that has been serving sports in Lyon since 1946. The Office des Sports de Lyon brings together volunteers involved in sports associations, sports officials from the City of Lyon, enthusiasts and sportsmen and women.	average	low	average	strong	low	one of Lyon's major players in the sports sector, with a strong capacity for influence
Public institution	Culture	National Opera of Lyon		low	low	average	strong	low	a major cultural player with great influence
Association	Climate - environment	Lyon Métropole Transition Pact	Launched on the occasion of the 2020 municipal elections, the Pacte pour la Transition (Transition Pact) offers citizens and local elected representatives the opportunity to commit, through 3 key principles and 32 concrete measures, to working together for more ecological, supportive and democratic municipalities.	low	low	low	low	low	member with observatory status within the Agora
Company	Architectural and engineering activities	City Passengers	An urban agency that brings together a multi-disciplinary team of architects, urban planners and landscape architects, to work alongside its partners towards a shared ambition: to build the urban character of territories.	average	average	low	low	average	

Public institution	Culture	Network of MJCs in the Rhône, Ain and Lyon metropolitan areas	Network that brings together some forty education associations in the Rhône, Ain, Lyon and Mâconnais regions.	low	low	low	strong	average	capacity to influence, link with popular education issues
Youth	Ecological and solidarity issues	RESERVES	RESES (Réseau Étudiant pour une Société Écologique et Solidaire - Student Network for an Ecological and United Society) is a network of student associations working on projects related to ecological and united issues such as food, biodiversity, climate, waste, etc.	low	average	low	strong	low	ability to influence youth and higher education institutions
Research and education	Public establishment	Sciences Po Lyon	Sciences Po Lyon is a public institution of higher education training executives from the public and private sectors (1,800 students, including 300 international students).	low	average	low	average	low	
Association	Jobs	New solidarity in the face of unemployment	Solidarités nouvelles face au chômage (SNC) offers jobseekers personalized, human support, thanks to its network of volunteer counsellors throughout France, including around 50 in the Lyon area.						link with social and employment issues
Association	Housing / fuel poverty	SOLIHA	Help low-income households renovate their homes; support condominiums and rental property owners; combat substandard housing and fuel poverty; provide local engineering/expertise to local authorities on these issues;	average	strong	average	strong	average	Link to social issues
Association	Sport	Tennis Club de Lyon	Owned by the City of Lyon, the Tennis Club de Lyon association was founded in 1864. It is one of the oldest clubs in the world.	low	low	low	average	low	
Association	Lifestyle	The Greener Good	The Greener Good, an association promoting sustainable living and consumption, with respect for the environment.	low	low	low	strong	low	influence

Association	Digital	Tuba	TUBÀ is a third-party space dedicated to digital responsibility, data and urban transitions, run by the LYON URBAN DATA association. The association aims to mobilize digital technology and data for the sustainable development of territories and organizations through service design, behavioural sciences and data science. Methodologies include sprint design, surveys, datathons, roundtables, serious games and exhibitions.	low	low	low	average	low	
Research and education	Higher education	Lyon 3 University	Higher education, bachelors, master's and doctorate levels, plus continuing education. Scientific research and publications.	average	average	average	strong	average	significant assets, influence and research capabilities
Association	Development - architecture - urban planning	Ville et Aménagement Durables	Ville & Aménagement Durable is a network of building and sustainable development professionals in Auvergne-Rhône-Alpes. It groups together 420 member structures. All trades are represented, so that together we can inform, train, debate and co-construct new standards. VAD's strength lies in the fact that its members are the driving force behind the business, putting their experience at the service of the network. The structure involves and mobilizes over 2,000 professionals every year.	average	strong	average	strong	average	
Public administrative establishment	Mobility	Voies Navigables de France - Direction territoriale Rhône/Saône	VNF-DTRS manages some 1,200 km of navigable waterways in the Rhône-Saône basin. In addition to its navigation function, this network has a hydraulic function for riverside areas, enabling various water withdrawals, discharges and uses. In fact, VNF is a water resource manager.	strong	strong	low	low	average	

Company	Specialized, scientific and technical	WeCount	Helping companies to carry out their carbon footprint and define their climate strategy through collective and individual support. We offer a platform for measuring CO2e emissions, as well as training and support programs. We have supported over 50 companies in the Lyon area.	low	strong	low	strong	average	ability to influence and support

Climate, Air and Energy Plan

for the City of Lyon and the Communal Centre for Social Action

2023-2030

Grégory Doucet,

Mayor of Lyon

Climate change is one of the most glaring and worrying symptoms of the environmental crisis. It is having an increasingly significant impact on our societies. At the same time, it is causing us to radically rethink the way we live and the way we do things.

In Lyon, we have chosen to make the climate issue the focus of our term of office. In 2021, we declared a state of climate emergency in 2021. The following year, we adopted the target of becoming climate neutral by 2030. And this year, we're updating the municipal climate plan. Three years after we started, our conviction remains intact, because we know we only have a few more years to maintain the climate balance before it is too late to act.

A key feature of our new climate plan is that the United Nations' Sustainable Development Goals underpin the city's climate policy. This gives us an even greater incentive to acknowledge that the issue of planetary limits and the over-exploitation of natural reserves at the expense of the most vulnerable cannot be ignored. It has become vital to turn our backs on the vision of a primarily commercial relationship with our living environment, and instead to build a society that is fairer and more respectful of all living things.

To achieve this, municipal teams are working hard to bring together all the talented, dedicated people they can muster, supporting them and providing them with material and technical assistance. This is helping to create a large network of local stakeholders committed to the climate.

This is the goal of the Lyon 2030 initiative, which we launched in 2022. As a result of this initiative, the city is now part of a federation of French and European partners. At the same time, we are making the most of our region's successes to help us make limiting our greenhouse gas emissions a priority and, more generally, adapt to climate change.

This climate plan is also the roadmap for a fairer, more peaceful city that looks after everyone and commits its residents and partners to playing their part in the ecological transition. Our city's identity is firmly based on cooperation and active partnership, bringing together all Lyon's stakeholders to help build the world of tomorrow.

Sylvain Godinot

Second Deputy Mayor responsible for Ecological Transition and Heritage

For a city like Lyon, the challenge of ecological transition is twofold. We need to develop a public policy that reflects the urgency of the climate change situation, while at the same time placing inclusion and social justice at the heart of our concerns. This document is the fourth edition of the city's climate plan since we made our first commitments in 2007. Building on the experience gained from its earlier incarnations, Lyon is resolutely continuing and stepping up its action.

This new climate plan is intended to signal a clear increase in Lyon's green ambitions. Climate neutrality is the only way to halt the unfolding environmental disaster. For the first time, we are taking responsibility for looking at the climate crisis from a more integrated perspective, by considering the impact of greenhouse gases from our activities outside Lyon's borders.

Extreme weather events are becoming increasingly frequent around the world, and it is our responsibility to act to limit their impact. For this reason, this climate plan also looks at the city of the future from the perspective of adaptation and resilience.

Halfway through our term of office, we have already achieved a great deal. The Energy Moderation Plan adopted in October 2022 has delivered considerable energy savings for the community, through working together and setting an example. This is set to continue with the strategy for the ecological transition of our property assets, which the city is preparing to vote on in the coming months. Renewable energy is also at the heart of the city's energy moderation approach, and a significant proportion of its energy needs are now met by French biogas from 100% renewable sources.

What makes this document so innovative is its openness to local stakeholders and the invitation extended to them to be co-constructors. The city has placed all its trust in the collective intelligence of its local partners by asking them to draw up this climate plan and ensure that it is properly monitored and implemented, so that together we can imagine and build the city of tomorrow: Lyon 2030.

Building tomorrow's world means first and foremost living it in the present, so that we can set our sights on the most critical concerns. Together, we can take on the climate challenge!

Contents

This document was published by the City of Lyon in 2023.

Developed jointly by the Ecological Transition Task Force and Lyon's municipal services, it is the framework document for the city's climate action across its property assets, areas of responsibility and services.

It is complementary to the Lyon 2030 Pact, jointly developed with regional stakeholders from the Agora Lyon 2030 initiative. The Pact is a framework document for climate action in the region.

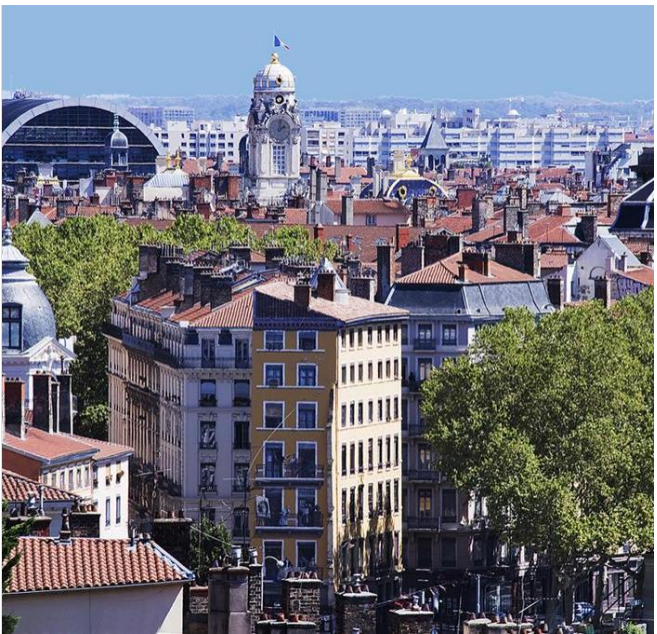
Climate action: what is the situation in Lyon?

Introduction

Human activities are responsible for the climate change experienced around the world in recent decades. Lyon is no exception. The climate in Lyon has already changed, impacting the everyday lives of Lyon's residents, particularly the most vulnerable. If nothing is done between now and 2070, climate scenarios for Lyon predict that temperatures will be similar to those in Algiers.

Taking action on climate change means adapting our lifestyles, questioning our relationship with the living world and the planet's limits, and challenging how we organise our society and how we shape our public policies. On a city scale, drastically reducing greenhouse gas emissions means inventing new ways of creating society and cities, and imagining and achieving a more frugal future. Cities must also adapt to extreme heat dry soil and the potential acceleration of extreme weather events.

To meet this climate challenge, in 2022 and as part of a European call for projects, the city set itself the ambitious target of achieving climate neutrality for its property assets, areas of responsibilities and urban area by 2030. This strong commitment was recognised by the European Commission when the city of Lyon was selected to take part in the programme to have 100 smart, climate-neutral cities by 2030.



While the European Union has set out to be climate neutral by 2050, this programme aims to turn 100 European cities into pioneering local authorities capable of achieving this target by 2030.

Why has the city set itself a target to be climate neutral by 2030?

In March 2023, the Intergovernmental Panel on Climate Change (IPCC) reiterated that the 2020s are a crucial decade for combating climate change:

"Climate change is a threat to the well-being of humanity and the health of the planet. There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all [...]. If we want to limit global warming to +1.5°C, we need to reduce our CO2 emissions by 48% by 2030 compared with 2019 levels. [...] The choices and actions we take in this decade will affect the planet and its people for thousands of years. [...] Without immediate, effective and equitable mitigation and adaptation measures, climate change will increasingly threaten ecosystems, biodiversity, livelihoods, and the health and well-being of current and future generations."

In this global crisis, the target set by the city may seem both derisory and disproportionate, since its capacity for action and influence are limited and conditioned by national, European and even international frameworks. That said, cities are now responsible for 70% of the world's greenhouse gas emissions. It is already within our grasp, at this city level, to ask the right questions, examine the financial, human, regulatory and organisational obstacles, identify the mechanisms for overcoming them and draw up scenarios for achieving this target. As a result, the ability that cities have to transform and take action can serve as a powerful example to all.

1. The greenhouse effect, climate change and climate neutrality: what do they all mean?

The greenhouse effect?

This natural phenomenon is what makes life on Earth possible, but it is **magnified by our activities**, leading to global warming.

Greenhouse gases in the atmosphere
Naturally occurring, they retain some of the heat from the sun's rays. The more greenhouse gases there are, the more heat is retained and the higher the average temperature is.

Greenhouse gases emitted by human activities

Carbon sequestration – CO_2

Anthropogenic sources of greenhouse gases

Biological carbon sinks

Ecosystems: soils, forests, oceans, etc.

Climate or carbon neutrality
= balance between the greenhouse gases emitted by human activities and their absorption by natural means or by human-made technologies

What are the major emitters?

The production of these greenhouse gases, some of which already occur naturally in the atmosphere, is linked to four main human activities: transport, industrial output, buildings and agriculture.

Carbon dioxide – CO_2 – 81% – Emitted by fuel combustion and deforestation
Methane – CH_4 – 11% – emitted by agriculture, waste and industry
Nitrous oxide – N_2O – 5% – emitted by agriculture and industry
Fluorinated gases and sulphur hexafluoride: synthetic chemical compounds

A single unit of measurement has been adopted to compare greenhouse gases: a tonne of CO_2 equivalent

The increase in greenhouse gases in the atmosphere caused by human activity is leading to **rapid global warming and climate change**

What are the visible effects of climate change…

… TODAY

A **net global warming** since 1850 **+1.1°C**
With local variations
In France: +1.5°C
In Lyon: +1.9°C

An **accelerated** rise in sea levels and the **acidification** of the oceans

An **increase** in the frequency, intensity and duration of **extreme weather events**

A **disruption of the ecological balance** due to a combination of climate change and human pressure on ecosystems

… AND TOMORROW?

Several warming scenarios between:
+1.5°C rapid achievement of global carbon neutrality
+4°C growth based on fossil fuels

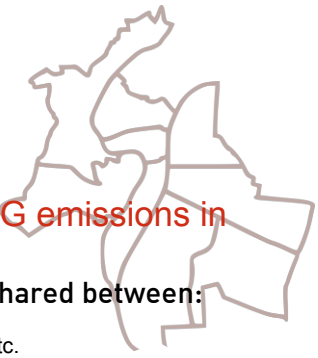
Continuation of phenomena we are seeing already

Displacement of communities due to flooding of coastal areas

Food and health crises become sources of conflict and migration

Major disturbances in ecosystems and mass extinctions of species

2. Key figures on greenhouse gases for the Lyon area as a whole



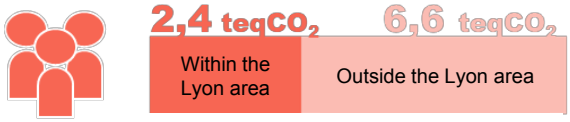
Lyon, an urban area

In 2019, all the activities carried out in the Lyon area emitted:

1,253 KtCO$_2$eq

How much is that per person living in Lyon?

522,969 Lyon residents, who each emit 9 tCO$_2$eq every year:

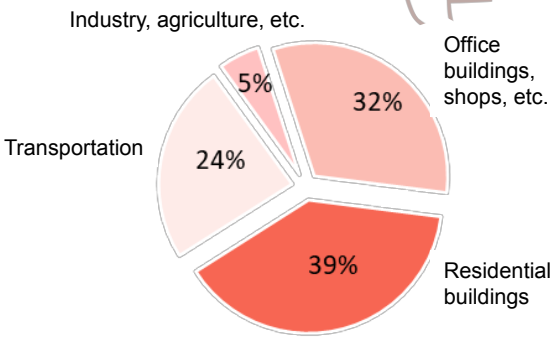


ORCAE, INSEE and SDES data 2019

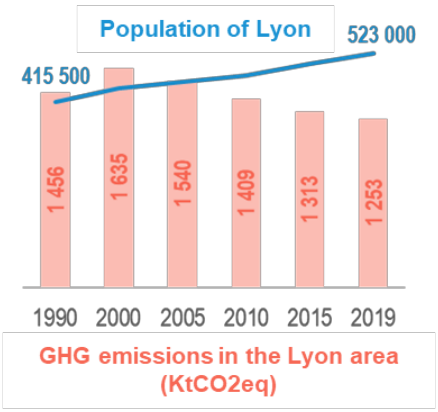
The lives and work of Lyon's residents depend on importing many goods and services, and therefore on industrial, agricultural and transport activities that emit greenhouse gases outside the area. **This explains the difference between local greenhouse gas emissions (2.4 tCO2eq) and the overall carbon footprint of each Lyon resident (9 tCO2eq).**

What produces GHG emissions in Lyon?

These emissions are shared between:



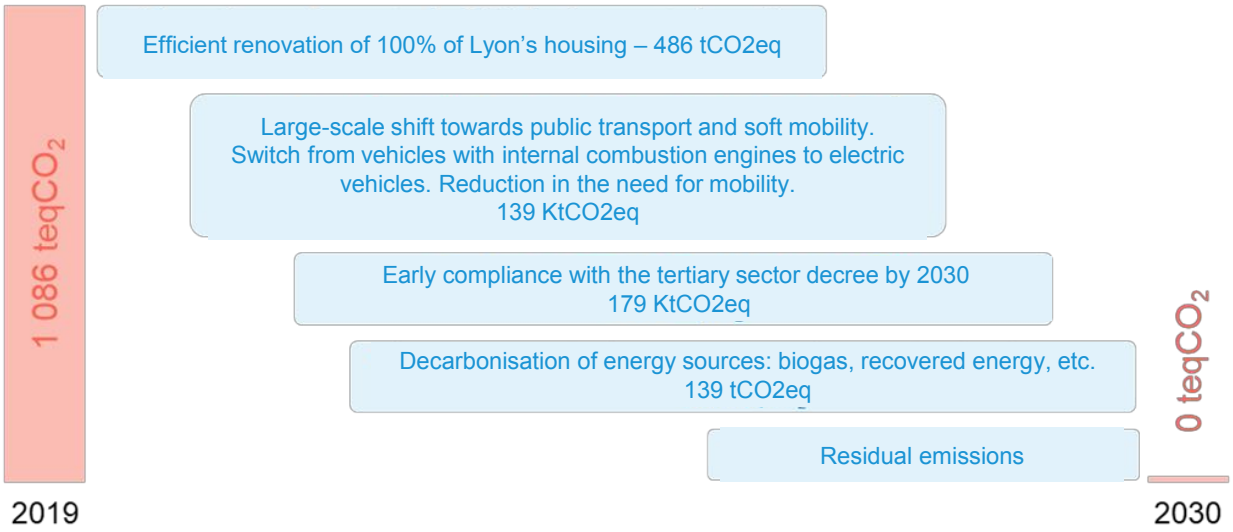
2019 ORCAE data



GHG emissions in the Lyon area (KtCO2eq)

Lyon, an urban area on the road to climate neutrality

While current trends show a decline in greenhouse gas emissions in Lyon, a real change of direction and acceleration is needed if we are to achieve climate neutrality by 2030, as the initial 2030 projection exercise carried out by the City in 2022 shows. This initial projection will be refined and updated in line with the latest knowledge and public policies implemented in the area by the City of Lyon and Greater Lyon metropolitan area.



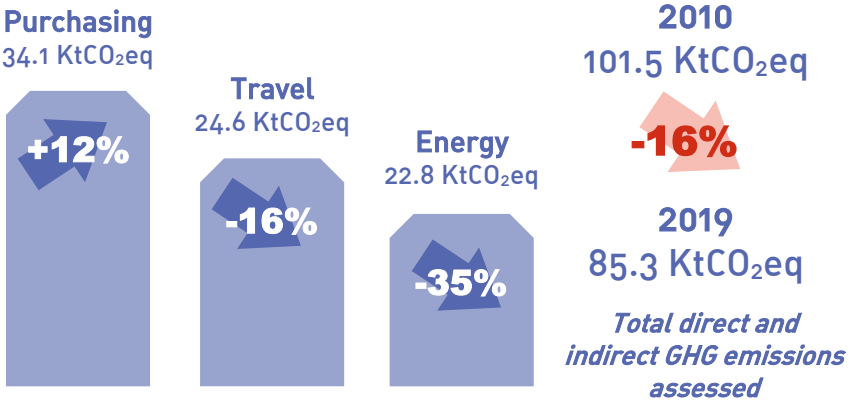
… At the city level

2010 and 2019 GHGEAs

Compilation of direct and indirect greenhouse gas emissions assessments (GHGEAs) for activities of the City of Lyon and the Communal Centre for Social Action (CCAS). The main emission sources are:

Key Figures

- **8,500** City employees and **500** CCAS employees
- Nearly **830** buildings or **2 million m²**: Schools, nurseries, sports, cultural and administrative facilities, etc.
- Nearly **79,000** street lights



Between 2010 and 2019, the City managed to reduce its GHG emissions despite a growing population and an increase in the infrastructure, staff and expenditure. The City's performance in terms of controlling municipal emissions is therefore constantly improving.
The climate plan includes actions to reduce GHG emissions, adjusted following the 2019 assessment. As energy, purchasing and travel are the largest sources of municipal GHG emissions, the plan gives greater priority to actions to reduce emissions from these sources.

What's the path to climate neutrality?

Efforts undertaken by the City of Lyon are already paying off…

A fleet of vehicles undergoing transformation and rationalisation

+390 bicycles and 80 electric or CNG vehicles between 2010 and 2022

-100 vehicles not replaced between 2010 and 2020

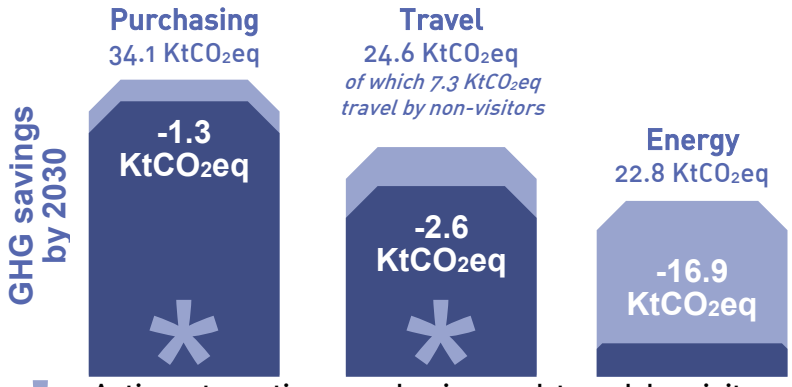
Increased **efficiency** of street lighting:

-39% reduction in consumption between 2010 and 2021

36% of energy consumed from renewable and recovered sources

… but more needs to be done to achieve climate neutrality by 2030

To measure how far the City has progressed on this path and the efforts that still to be made, the climate plan's actions have been quantified.



* Actions targeting purchasing and travel by visitors and users could not be quantified.

Only the savings in greenhouse gas emissions associated with the purchase of reconditioned IT equipment and the new food contracts could be assessed.

A number of actions aim to improve the way in which greenhouse gas emissions from purchasing and travel are quantified and tracked, so that targets for these areas can be set.

3. Lyon, a city committed to the climate since 2008

The City has been involved in the fight against climate change since 2008, through its commitment to the European Covenant of Mayors movement. In 2010, and every three years thereafter, greenhouse gas (GHG) emissions assessments are carried out on the City's property assets and areas of responsibility. These are used to identify the areas with the highest emissions and to then develop an action plan to reduce those greenhouse gas emissions. The first action plan was published in 2013, and was strengthened and expanded in 2015 to cover climate change adaptation in the city.

The 2015 action plan set out strategic targets for the City's property assets and areas of responsibility that were in line with Greater Lyon metropolitan area's targets for 2020:

- Reduce its direct GHG emissions by 20% compared with 2010
- Reduce its energy consumption by 20% compared with 2010
- Ensure that 20% of the municipal energy mix is made up of renewable energy.

Through its actions, the City delivered on its commitment to two of the three objectives it had set itself. While it achieved the commitments to reduce GHG emissions linked to energy consumption (35%) and to improve the energy mix to include more renewable energy (35%), the City only managed to reduce its energy consumption by 17.3% between 2010 and 2020.

A third action plan was unveiled in 2019. It laid out a new course to commit the City to a path to carbon neutrality by 2050. This initial target was stepped up in 2022 with a particularly ambitious commitment to achieving climate neutrality for all emissions from the city by 2030, to which this fourth climate plan contributes.

2008 – Signing of the European Covenant of Mayors and the EUROCITIES Declaration on Climate Change

2013 – First "mitigation" climate plan based on the 2010 GHGEA and commitment to the Ecological Transition Committed Territory accreditation programme

2015 – Second climate plan extended to include "climate change adaptation" and based on the 2013 GHGEA and first Ecological Transition Committed Territory climate accreditation – 4 stars

2019 – Third Climate, Air and Energy Plan 2020–2026 consolidating the plan and setting out the targets for Greater Lyon

2020 – Second Ecological Transition Committed Territory climate accreditation – 4 stars

2020 – Achievement of targets of -20% greenhouse gas emissions by 2010 and 20% renewable energy

2021 – Declaration of a state of climate emergency in Lyon in response to the UN Secretary General's declaration

Commitment to the Fossil Fuel Non-Proliferation Treaty

2022 – Commitment to carbon neutrality by 2030 and launch of the Lyon 2030 initiative

2023 – Fourth climate plan, launch of the 2022 GHGEA and renewal of the Ecological Transition Committed Territory accreditation
First Agora Lyon 2030 and Territorial Pact

4. Municipal climate plan: applying global approaches locally

A consensus from the international community: COP 21 and Paris Climate Agreement **in 2015**

- *Commitment: limit global warming to below 2°C by limiting GHG emissions*

A Green Pact for Europe **in 2020**

- *Commitment: A climate-neutral Europe by 2050*

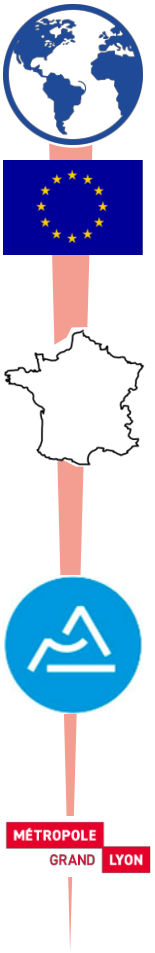
In France, strategic climate-related laws

- ***In 2015**: Law on the Energy Transition for Green Growth, the first national low-carbon strategy and the first multi-year energy programme to reinforce our climate commitments and provide us with a national roadmap*
- ***In 2019 and 2021**: The Energy and Climate Law and the Climate and Resilience Law, which confirm 2050 as the target year for achieving climate neutrality and strengthen the legislative apparatus*
- ***In 2023**, an Energy-Climate Programming Law will be passed to define our new strategy for 2030*

In Auvergne-Rhône-Alpes, a Regional Blueprint for Land Planning, Sustainable Development and Territorial Equality has been in place **since 2020**, setting cross-cutting and inclusive objectives for organising the region, particularly in relation to climate. It replaces several major cross-cutting plans for climate, energy, waste and biodiversity

The Greater Lyon metropolitan area, with a Territorial Climate, Air and Energy Plan approved in 2019, following several territorial climate plans **since 2007**

- *Commitment: to improve air quality, energy efficiency and climate moderation within its borders, and to achieve carbon neutrality by 2050*
- *Operational documents: an Energy Blueprint (2019), a Third Atmosphere Protection Plan (2022) supported by the French Government*



The climate plan is part of a series of initiatives and objectives set at European, national, regional and city levels.

The City's climate plan is a way of incorporating the actions undertaken by these major regional and international bodies into the city's assets and responsibilities. The City is the operational level for major projects, and has set itself the target of 2030 with the aim of paving the way for change through action and inspiring everyone involved, at every level.

Greater Lyon is an essential ally for the City when it comes to implementing far-reaching public climate policies, particularly in the areas of mobility, development and tourism. Close cooperation (technical, financial, innovation, etc.) is key to achieving climate neutrality.

Lyon, a city with international reach

For over 15 years, the City has been involved in international initiatives to cement its commitment to the climate. As a result, it now belongs to a network of major European and global cities that are committed to the ecological transition.

EUROCITIES

Since 2008

Networking to highlight the importance of a network of partners, under the banner of ecological transition.

GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY

Since 2008

A joint commitment by several of the world's major cities to drastically reduce greenhouse gas emissions.

TERRITOIRE ENGAGÉ TRANSITION ÉCOLOGIQUE
CLIMAT - AIR - ÉNERGIE

Since 2013

French version of the European Energy Award. A methodology designed to recognise and assess the quality of local and regional climate and energy policies.

L'Accord des Villes Vertes

Since 2019

Agreement signed by mayors to help them strengthen their ecological commitment. Help in implementing measures to make cities greener, cleaner and healthier.

EU MISSIONS 100 CLIMATE-NEUTRAL AND SMART CITIES

Since 2022

The City of Lyon's participation in the European Union's "100 Smart, Climate-Neutral Cities by 2030" programme. In Lyon, this commitment is reflected in the Lyon 2030 initiative *(see p. 38 for details)*

5. Municipal climate action to overcome systemic obstacles

If we are to achieve the ambitious goal of an ecological and climate transition that will lead the city of Lyon to climate neutrality, we need to tackle a number of systemic obstacles. Systemic obstacles are those major stumbling blocks to the transition that are inherent in the way our economic and social systems operate.

Assessing climate action

Existing tools and available data can be used to monitor the implementation of actions, but they cannot be used to track the impact that these actions have on the climate. Although concrete actions can be quantified, the majority of them involve incentives and awareness-raising, which makes it difficult to measure their direct impact.

As part of its efforts to improve its assessment of greenhouse gas emissions, the City is developing methods and testing tools to improve this monitoring.

Cost of action and cost of inaction

Consumption practices all too often put businesses in a situation where the cost of action does not reflect the cost of impact. Put another way, an economic solution is rarely an ecological solution. This kind of situation does not encourage widespread investment in good ecological practices, and generates inequalities and a feeling of injustice. More broadly, this calls into question the "polluter pays" principle and how it is applied.

When it comes to the investment needed to carry out ecological transition projects, the principle of a rapid return on investment tends to be incompatible with these projects, in which the economic benefits, where they exist, are spread over time. It is also often the case that the benefits of a project are intangible without direct economic knock-on effects: global climate, local cooling, health, etc.

This is why public authorities have an essential role to play in these investments. The City of Lyon has already made a major commitment to the ecological transition through its massive multi-year investment plan.

Nevertheless, public- and private-sector economic efforts are recognised by the government as insufficient to meet our climate commitments, and the City will be working to quantify them and mobilise additional resources.

Sharing a new vision of society

Cultural and social resistance to accepting man-made climate change can also hamper the implementation of ecological policies, as reflected in the proportion of climate sceptics in French society in 2022 (37%), according to the International Observatory on Climate and Public Opinion (Obs'COP).

The consumerist narrative that is now predominant has had a major impact on people's perceptions and has shaped practices and infrastructure. The model based on consumption as the driving force is at the heart of our problem. A rapid and widespread commitment to a vision of moderation and to habits that reflect this at all levels (consumption, mobility, property, etc.) runs counter to the ideals commonly held by French society.

To overcome this cultural resistance, the City is looking to involve as many people as possible in climate action.

All these systemic obstacles call for action both within the City itself and well beyond its areas of responsibility and sphere of influence. It intends to be as specific as possible in identifying these obstacles and their consequences, and to play its part as far as possible in removing them.

6. The new climate plan: bringing municipal powers down to local level

A response to the climate emergency

There are three main goals at the heart of the climate plan:

- to **drastically reduce greenhouse gas emissions** to put the City on **course for climate neutrality by 2030**, while also improving air quality
- to **adapt the area to climate change** and, more broadly, **prevent** the long-term effects and risks of these changes
- to **raise awareness and increase the sense of responsibility** not only among city staff but also among all local residents. The fight against climate change can only be systemic if everyone is involved at their own level.

A total of 38 actions have been identified to help achieve this.

A new openness towards local stakeholders

Until now, the City's action on climate change has focused mainly on its own services and property. But with this new climate plan, the City of Lyon intends to create momentum that goes beyond its internal operations by bringing on board a wider range of local people.

The plan primarily targets local stakeholders directly connected with the City: associations, businesses, institutions, public service users and residents. More broadly, it covers everyone in Lyon that is part of the "Lyon 2030: Inspiring Change" initiative launched by the City in 2022.

The City has set itself the goal of putting into motion, inspiring and facilitating the deployment of local initiatives. To achieve this, the various municipal services provide support to their partners in their ecological transition (guides, charters, drop-in centres, etc.), maintain these relationships and organise meetings and events.

A cross-functional, co-constructed climate plan that reflects renewed municipal action

The City, like other local authorities, is currently grappling with major cross-cutting issues that exceed the capabilities of traditional organisational structures.

To meet the challenge of the climate emergency, it has set up a new team, the Ecological Transition Task Force, to oversee

Beyond climate change, a more ambitious goal of local resilience

The major disruption to the climate caused by human activity is now compelling us to find ways of adapting to the increasing number of new crises.

The climate plan is therefore part of a wider strategy of resilience that is currently being considered. This strategy draws on the experience of recent crises, such as the Covid-19 and energy crises, which the city has already dealt with swiftly and responsively. It is also an opportunity to learn more about our community and its ability to adapt.

This systemic approach has led the city to adopt a climate plan that embraces transitions that are about more than just climate change. It is therefore built around a number of complementary and essential principles:

- **Inclusiveness and social justice**, for a climate transition that benefits everyone in Lyon;
- **Democracy and shared responsibility**, for a climate transition that harnesses all available energy and intelligence to build a joint project together;
- **Consideration for the living world through environmental health and biodiversity**, for a transition whose scope must go beyond humankind and take into account the health of our entire environment.

These three key principles form the basis of the City's climate action. By taking these issues into account, we can also make sure that the local area is more resilient to climate disruption.

the development and implementation of public policies for the ecological transition. This team, working with all the municipal services and in close collaboration with elected representatives, has jointly developed this climate plan.

This new approach will not stop with the approval of the climate plan. Rapid change at all levels requires agility to adapt to new challenges and incorporate innovations. This is why the climate plan is not a document set in stone, but a framework that will continue to evolve and be regularly updated.

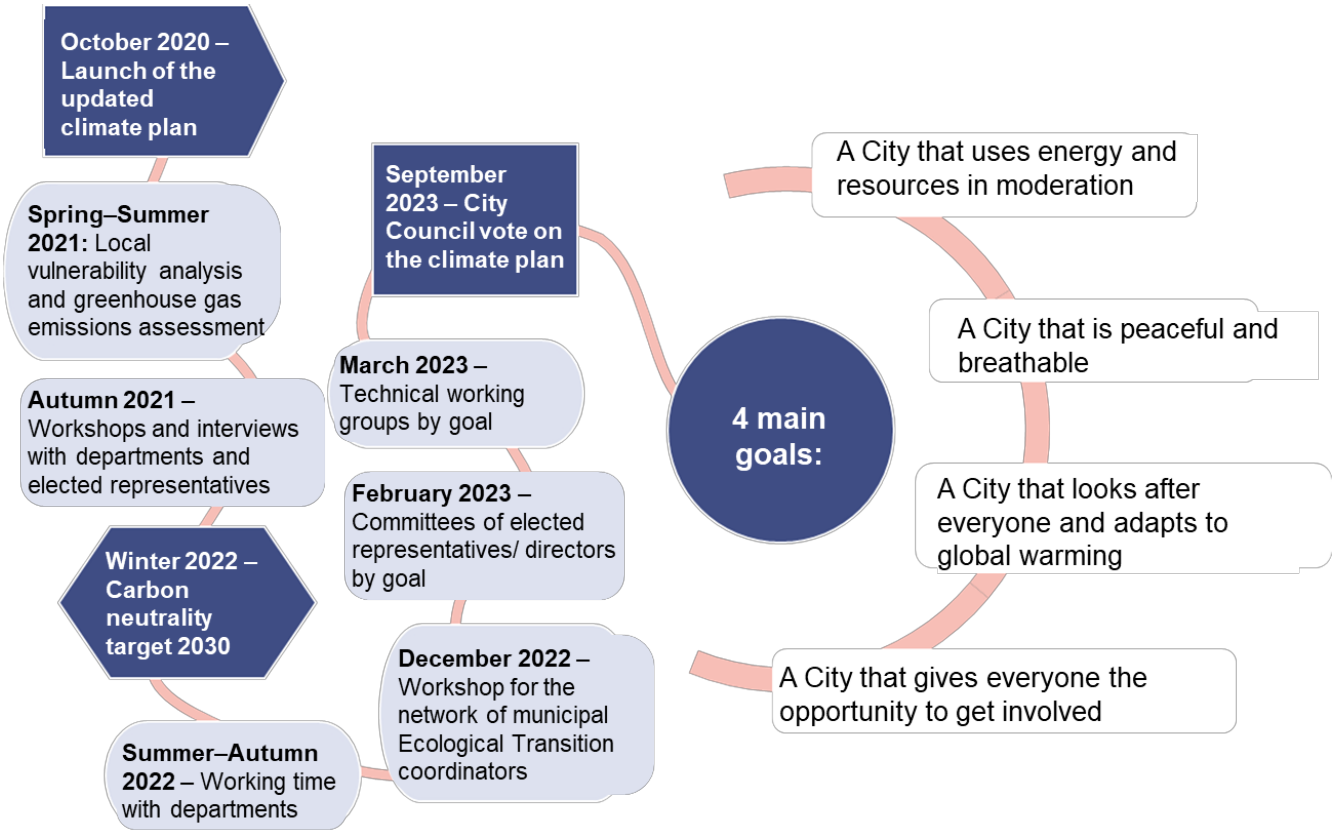
Finding our own path to climate neutrality

It is currently difficult for everyone to look beyond current trends, preventing us from making drastic changes to our habits and ways of doing things.

While the climate plan reflects the City's ambitious goals, it is only the first milestone on the road to climate neutrality, and we will continue to build on it as we move forward.

In addition to technical solutions and innovations, it is a shared narrative of a climate-neutral city that is being written with city staff, local stakeholders and residents, particularly children and artists, to ensure that the ecological transition is firmly rooted in Lyon's identity and in an attractive vision of the future.

At the city level, we propose looking ahead from today to 2030, following the path mapped out by the climate plan. The plan's four main goals provide a blueprint for the carbon-neutral city of 2030.



Climate neutrality: what is the vision and what are the actions?

Challenges, actions and resources broken down by main goal:

- *A City that uses energy and resources in moderation*
- *A City that is peaceful and breathable*
- *A City that looks after everyone and adapts to global warming*
- *A City that encourages everyone to get involved*

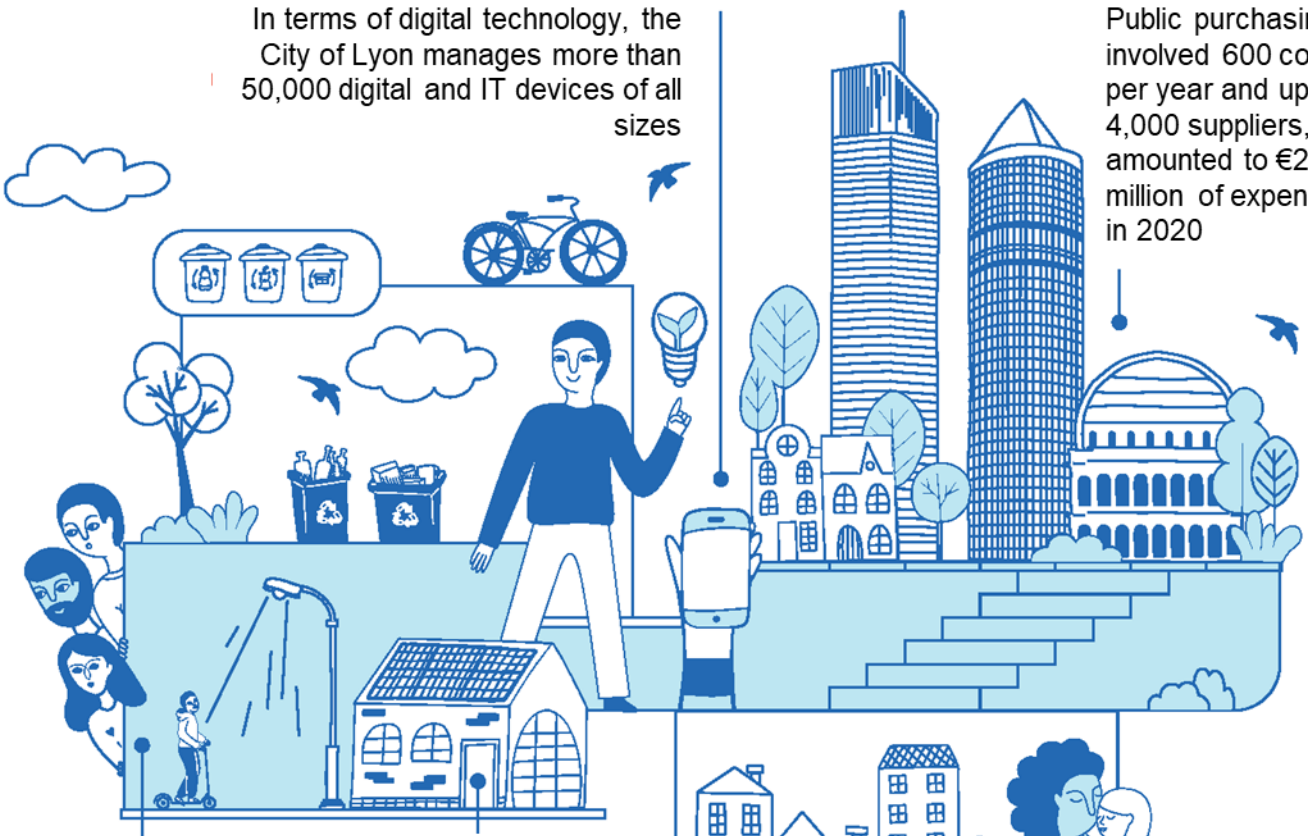
The action sheets in the booklet contain details of each action

A City that uses energy and resources in moderation

Why do we want a City that uses both energy and resources in moderation?

The City has a significant number of buildings and buys a considerable amount of energy each year. As lifestyles and consumption patterns change and we adopt practices that better respect the planet's limits, the City has a duty to set an example and lead the way in moderating consumption. Looking beyond the local community, municipal public procurement is an important lever for promoting and stimulating environmentally friendly and circular supply chains.

Energy consumption and purchasing are central to municipal action on climate change, as they are among the main sources of greenhouse gas emissions.



In terms of digital technology, the City of Lyon manages more than 50,000 digital and IT devices of all sizes

Public purchasing involved 600 contracts per year and up to 4,000 suppliers, and amounted to €205 million of expenditure in 2020

3,600 m² of solar panels on municipal roofs, producing an estimated 502 MWh/year.

Nearly 79,000 street lighting points, 35% of which are LED, representing electricity consumption of 21 GWh in 2021.

Around 36% renewable and recovered energy used in municipal buildings (biogas, geothermal energy, biomass, heat recovery from incineration plants, electricity purchased from renewable sources) in 2019.

1,200 municipal buildings covering approximately 2 Mm², with energy consumption (from public electricity, gas, heating and cooling networks and wood-fired boilers) of around 157 GWh/year.

[1] *2022 data from departments, 2019 GHGEA, 2019 TBEC, 2023 BP, Digital Carbon Assessment, SPASER*

What actions are needed for a City to use energy and resources in moderation?

1. Promote the moderate and efficient use of energy and the use of renewable and recovered energy in municipal buildings and facilities

1.1 Implement the municipal energy moderation plan

1.2 Improve the energy efficiency of city buildings

1.3 Adapt municipal buildings to heat waves and droughts

1.4 Secure funding for energy-efficiency renovations and the development of renewable and recovered energy sources

1.5 Innovate in eco-construction projects and sustainable works

1.6 Commit municipal property management to the ecological transition by optimising use

1.7 Continue to set an example in street lighting management

2. Make responsible purchasing one of the main drivers of the carbon neutrality strategy

2.1 Continue the operational deployment of SPASER and quantify the carbon impact of key contracts

2.2 Make the energy consumed in municipal buildings carbon-free

2.3 Translate the digital strategy into operational actions

3. Improve water and waste management and reduce wasteful consumption

3.1 Develop, implement and monitor the City's Zero Waste, Zero Wastage strategy

3.2 Formalise and strengthen an ambitious cross-functional water strategy

Les idées de l'AGORA

Include a "water footprint" approach to factor in indirect water consumption.

What are the strategic frameworks and tools?

Within the City

Ecological Transition Strategy for City Buildings (STEP) – 2023 This identifies and prioritises the actions required for municipal buildings, with a target of reducing energy consumption by 25% by 2030 compared with 2019. *It brings together the city's energy initiatives and action plans: energy renovation plan, solar energy plan, "Cap Sobriété" (Moderation Focus) initiative, etc.*	**Plan to Promote Socially and Environmentally Responsible Purchasing (SPASER) 2021–2026** This framework document commits the City to purchasing in a way that supports the ecological, social and economic transition. *Some of its goals: reduce carbon footprint, circularity and zero waste, ecological transition of the building and public works sector.*	**Digital Strategy – 2022** This identifies 5 areas for selected, sustainable digital technology, one of which is to moderate energy use by municipal computer equipment. *Some of the actions: increasing equipment lifespan, making it repairable, purchasing reconditioned equipment, etc.*
Property Blueprint – under development This is a shared, long-term strategic vision of all aspects and issues relating to our property assets, including climate change.	**Lighting Plan – 2023** This sets out the actions required in relation to street lighting. It makes moderation a key input by examining: - the impact of lighting on living things and the need for it - energy savings and the environmental cost of lighting installations over their lifetime.	**Zero Waste, Zero Wastage Strategy – under development** This strategy aims to set an example in terms of the City's waste and, in conjunction with Greater Lyon, supports initiatives proposed and implemented by local businesses. **Cross-Cutting Water Strategy – under development** This provides an overall vision of water use and a common strategy for municipal consumption.

But also…

The **Technical and Environmental Requirements Manual**, currently being revised, which sets out the municipal requirements for constructing and renovating buildings.

The **ISO 14001 environmental standard** for street lighting and the management of green spaces.

What support is needed to make them successful?

12 lead departments

+13 associated departments, CCAS and borough councils

184 full-time equivalent staff

More broadly, all departments are involved, particularly through energy moderation, public purchasing and waste management.

Buildings Technical Management Department

Construction Department

Central **Property** Department

Street **Lighting** Department

Public Procurement Department

Information Technology and Digital Transformation Department

Ecological Transition Task Force

Greater Lyon and neighbouring authorities, SIGERLy (Lyon Region Energy Management Association)

ADEME (French Environment and Energy Management Agency), ALEC Lyon (Greater Lyon Energy and Climate Agency), UrbaLyon (Greater Lyon Urban Planning Agency), Ville & Aménagement Durable ("Sustainable City & Planning" environmental organisation)

Users and occupants of city premises

Suppliers, businesses and sectors

Shops and shopkeepers' associations

Food banks and soup kitchens

What are the targets for reducing greenhouse gas emissions?

The climate plan must make it easier to quantify the GHG reductions resulting from the actions implemented and measure the shortfalls in achieving the carbon neutrality target. These shortfalls will be gradually reduced by stepping up and diversifying actions.

Estimated savings of **16.9 KtCO2eq** as a result of the climate plan's actions on building energy and street lighting between 2019 and 2030 out of **22.8 KtCO2eq** emitted in 2019

Reducing energy consumption and **increasing the use of renewable and recovered energy** is one of the main ways of reducing municipal greenhouse gas emissions.

Purchasing is also an important area for reduction. Although it is currently difficult to quantify the effects of our actions, we are **planning to gradually quantify our projects and purchasing contracts**.

The switch to reconditioned equipment and the increase in the lifespan of IT hardware will result in a saving of around 0.45 KtCO2eq.

And beyond the climate?

In addition to a positive impact on the climate, the actions presented here have other positive impacts known as **co-benefits**.

They are presented here as they relate to the United Nations' Sustainable Development Goals.

Promote inclusion through public procurement

Limit the social and societal impacts of resource extraction

Avoid food waste

Preserve outdoor and indoor air quality

Reduce the impact of extreme heat on everyone

Limit light pollution

Make the City accessible to all

Raise awareness of climate, energy, digital, consumption and circularity issues

Develop renewable and recovered energy sources

Limit the pressure on energy resources by reducing consumption (buildings, lighting, etc.)

Support the structuring and development of sustainable, innovative and circular supply chains (renovation, construction, digital, purchasing/waste, etc.)

Be an exemplary low-energy city

Maintain public property

Reduce the impact of waste on natural habitats

Limit the impact of night-time lighting on biodiversity

Reduce the need for construction and land artificialisation

A City that is peaceful and breathable

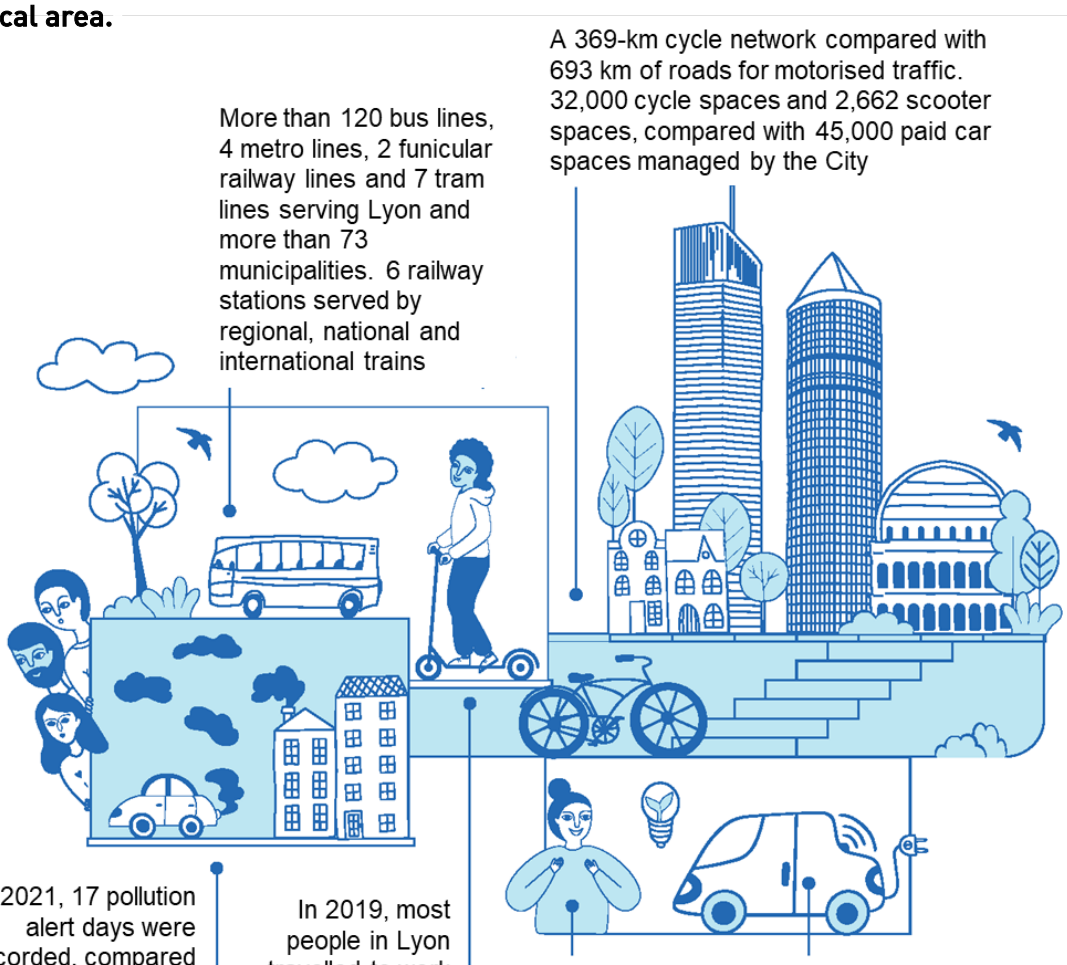
Why do we want a peaceful, breathable City?

Lyon's highly urban area has been largely shaped by private car use and predominantly road-based logistical transport. These forms of transport take up a huge proportion of public space for traffic and parking.

Road traffic and current heating systems are sources of air pollution, with recommended health limits being exceeded for fine particles and nitrogen dioxide in particular. Traffic also generates noise pollution.

Lyon city council owns a large fleet of vehicles that enable its employees to travel to and from work. It also influences the commuting patterns of its 8,500 employees and the journeys that users of its services make to visit its sites.

Transport is a major factor in reducing greenhouse gas emissions, both within the city and across the local area.



[2] Analysis from the Employer Mobility Plan (PDME), UrbaLyon, INSEE, BP 2023, ATMO, Lyon.fr

What actions are needed for a peaceful, breathable City?

4. Improve mobility for employees and users

4.1 Adopt, implement and assess the actions of the Employer Mobility Plan (PDME)

4.2 Continue the transformation of the municipal vehicle fleet

Offer car-sharing of electric and or CNG vans for occasional logistical needs. Experiment with carbon allowances for certain travel-related activities.

5. Make development projects a major driver of municipal climate policy

5.1 Incorporate climate/air/energy criteria into development and construction projects subject to planning permission and urban planning documents

5.2 Rethink the way mobility is organised and the layout of public spaces accordingly

6. Offer environmentally friendly transport that meets the needs of the people of Lyon as closely as possible

6.1 Raise awareness among residents and users of alternatives to the car

6.2 Implement a fairer parking system that encourages alternative forms of transport

6.3 Improve the carbon impact of urban logistics and long-distance haulage services

What are the strategic frameworks and tools?

Within the City

Employer Mobility Plan (PDME) – 2023

This strategic document encourages staff to use alternative modes of transport to private cars and carbon-based forms of transport. It covers work-related and commuter travel, as well as the use of municipal sites by service users and service providers (public services, event management, etc.).

30 in the City Plan – 2022

This plan, adopted in 2022, introduces a 30 km/h speed limit on most roads in Lyon. Limits of 50 km/h (or even 70 km/h) will become the exception.

Urban, Architectural, Landscape and Environmental Quality Charter – 2021

This sets a new course for sustainable and responsible urban development, which has been jointly developed and shared with the signatories.

Its goals include reducing the carbon impact of construction and developing urban nature and biodiversity.

But also…

"**Child-friendly City**", with calming measures around schools and nurseries,
"**15-minute City**", providing pedestrian access to essential public services,
The roll-out of the various levels of "Knowing How to Cycle" in schools.

Led by Greater Lyon

Greater Lyon Local Urban and Housing Plan – 2019

This central document for regional planning is key to addressing the challenges of the ecological transition in terms of not only urban planning and construction, but also mobility and parking.

It is led by the Greater Lyon metropolitan area, but is closely co-ordinated with the City, particularly in relation to changes to the plan.

Low-carbon mobility projects

Greater Lyon is involved in a number of projects to reduce traffic congestion and develop active forms of transport, such as the Presqu'île traffic calming scheme and the Lyonnaise lanes.

The City is also involved in more cross-functional projects run by Greater Lyon and SYTRAL (Greater Lyon transport authority), such as creating a mobility centre and promoting the "mobility package".

But also…

Urban Travel Plan 2017–2030
Led by SYTRAL – currently being transformed into a Mobility Plan
Logistics plan for goods and services led by Greater Lyon – under development

What support is needed to make them successful?

14 lead departments
+14 associated departments, CCAS and borough councils
47 full-time equivalent staff

More broadly, all departments are involved, particularly through the Employer Mobility Plan.

General Resources Department

Ecological Transition Task Force

Personnel Administration Department

Urban Mobility Department

Urban development Department

Child-friendly City Task Force

Sports Department

Economy, Trade and Crafts Department

Biodiversity and Nature in the City Department

Greater Lyon and neighbouring authorities, SYTRAL, SPLM (public company for mobility in Lyon)

SNCF, VNF (inland waterways authority), DECAUX, Lyon Saint-Exupéry Airport, etc.

Users and residents

Suppliers, businesses, planners and industries

Associations, cycle centres, cycle schools

Operators of alternative modes of transport (scooters, car-sharing, etc.)

What are the targets for reducing greenhouse gas emissions?

The climate plan must make it easier to quantify the GHG reductions resulting from the action implemented and measure the shortfalls in achieving the carbon neutrality target. These shortfalls will be gradually reduced by stepping up and diversifying actions.

One of the main ways of reducing greenhouse gas emissions is to reduce the emissions linked to work-related travel by staff and the use of municipal sites by users.

Raising awareness and supporting changes in practices and shifts to other modes of transport, although difficult to quantify, are key factors at local level.

Lastly, although its impact is also difficult to measure, sustainable planning is a key area for reducing GHGs, given its role in shaping future uses and mobility and the fact that the works themselves are carried out in a low-impact manner.

Estimated savings of **2.7 KtCO2eq** as a result of actions related to the vehicle fleet and staff commuting between 2019 and 2030 out of **7.3 KtCO2eq** emitted in 2019

And beyond the climate?

In addition to a positive impact on the climate, the actions presented here have other positive impacts known as **co-benefits**.

They are presented here as they relate to the United Nations' Sustainable Development Goals.

Make low-carbon mobility accessible to all

Limit the pollution and nuisance associated with combustion-powered mobility and preserving air quality

Increase physical activity through active modes of transport

Ensure that mobility is accessible and safe for all through appropriate facilities

Raise awareness and encourage learning about carbon-free mobility

Limit the need for fossil fuels

Encourage a way of working that is conducive to low-carbon mobility

Reorganise the city around a local economy and services

Set an example in terms of the mobility of the City's employees and the accessibility of its buildings

Plan the City around climate and ecological issues

Limit water pollution and damage to biodiversity from road traffic and hydrocarbons

A City that looks after everyone and adapts to global warming

Why do we want a City that looks after everyone and adapts to global warming?

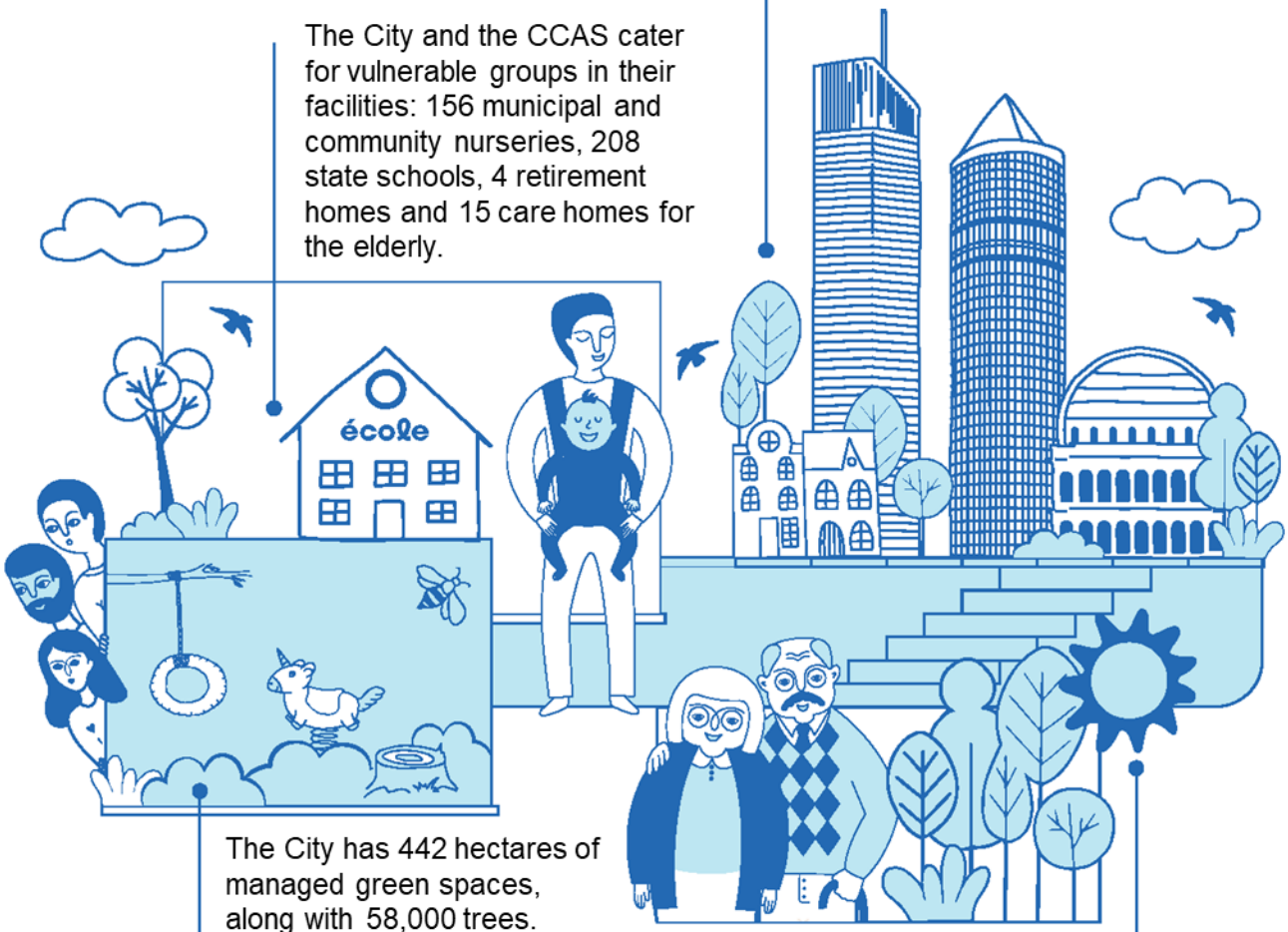
Global warming is making certain natural phenomena, such as heatwaves and droughts, more frequent, longer and more intense. Heavily paved urban areas are more likely to create heat islands, where temperatures rise more sharply.

The people of Lyon are not all equal when it comes to global warming. Whether related to health risks, pollution or fuel poverty, the most vulnerable groups are often the hardest hit.

Ensuring that everyone has access to renovated, sustainable housing, a healthy environment and a balanced, sustainable diet is a fundamental issue of social justice. Cooling the city by greening, conserving water and preventing climate risks are all part of protecting life in all its forms.

25,000 households in Lyon, or 9% of all households, have been identified as living in fuel poverty.

The City and the CCAS cater for vulnerable groups in their facilities: 156 municipal and community nurseries, 208 state schools, 4 retirement homes and 15 care homes for the elderly.



The City has 442 hectares of managed green spaces, along with 58,000 trees. With its 300 parks, squares and gardens, it is already the fifth greenest local authority in France, according to the Green Cities Observatory (2020).

Over the last 5 years, between 5.3% and 25.3% of deaths were recorded during heatwaves in the Rhône department.

What actions are needed for a City that looks after everyone and adapts to global warming?

7. Improve the living environment in the City – for residents and biodiversity – while considering climate change

7.1 Make Lyon a greener, fresher city

7.2 Strengthen the relationship between children and nature in city planning

7.3 Involve the people of Lyon in the ecological transition through greening initiatives

7.4 Promote the link between health and the environment as part of the One Health approach

8. Make healthy, local and sustainable food more accessible to everyone

8.1 Make it easier for everyone to access sustainable, healthy, high-quality food on municipal premises

8.2 Relocate residents' food supplies and make Lyon an edible city

9. Help the people of Lyon to cope with climate change in their homes

9.1 Reduce fuel poverty in winter and summer

9.2 Step up the energy renovation of housing

10. Adapt public policies to cope with climate change

10.1 Integrate climate change into risk prevention documents for the local area and the City of Lyon

What are the strategic frameworks and tools?

Within the City

Local Health Contract 2022–2027

Jointly developed with local stakeholders, it includes the *One Health* vision, in which human health is a system within the environment. One of its priorities, "Promoting living environments that support the health and well-being of all" includes actions focusing on indoor and outdoor air quality, endocrine disruptors, environmental nuisances and housing quality.

Heatwave and Heat Plans

The City has a heatwave plan and a map of cool places to keep people informed and protect them in the event of a heatwave. Within its own buildings, heat plans provide information to protect staff and users.

Municipal Greening Initiative

A **tree plan** to plant trees wherever possible and to reach a target of

100,000 trees in public spaces.

A **biodiversity atlas**, updated annually and available for each borough.

A **charter for shared gardens and other guides** to encourage everyone to plant more and protect biodiversity.

Municipal information file on major risks: an information document for the general public, it covers weather and health risks, which are becoming more acute as a result of global warming.

But also…

The Cours Nature (Nature Class) project to **make 70 school playgrounds more green** by 2026.
Food contracts and **ECOCERT certification** for Lyon's central kitchen.
Eco-heritage aid provided by the City and support for Ecoreno'v projects in Greater Lyon.
Projects in the city's political neighbourhoods, including the **fertile neighbourhoods** of Mermoz and La Duchère.

Led by Greater Lyon

SLIME+ programme to identify and support households in fuel poverty.
Canopy and nature plan, tree charter to replant and preserve green spaces.
Drinking Water Authority, permeable city, riverbank use plan, blueprint for wastewater treatment, Greater Lyon is overseeing a number of water-related strategies.
Metropolitan food strategy for a more sustainable, inclusive and resilient food system.

What support is needed to make them successful?

17 lead departments

+7 associated departments, CCAS and borough councils

396 full-time equivalent staff

More broadly, all the City's departments are involved, particularly through risk prevention in the workplace.

Communal Centre for Social Action

Labour Relations and **Life at Work** Department

Safety and Prevention Department

Urban Development Department

Biodiversity and Nature in the City Department

Cemeteries Department

Territorial Development Department

Health Department

Child-friendly City Task Force

Ecological Transition Task Force

Greater Lyon

CAF (Caisse des Allocations Familiales: French Family Allocations Fund), Pimms Mediation Services, ALEC Lyon, SOLIHA (social housing organisation)

Users and residents

ARS (Regional Health Agency), CLS (Local Health Contract) partners, scientific community

Associations, community settings, social centres

Agriculture and food centres, local producers and supply chains, Chamber of Agriculture

What are the goals for a less vulnerable local area?

The aim of the climate plan is to reduce the area's vulnerability to climate change through adaptation measures. A study on the local area's vulnerability to climate change carried out in 2021 highlights the following key issues:

Protecting the health and quality of life of the people of Lyon, including conserving water, combating air pollution and indoor air quality, and reducing heat islands at a time when heatwaves and droughts are on the increase.

Preserving biodiversity and natural habitats.

Ensuring the long-term viability of economic activities, particularly given their exposure to flood risk and the impact of rising energy prices. The tourist industry is also likely to be affected by periods of extreme heat.

The climate plan includes the actions suggested by the vulnerability study to address these issues: *step up the greening of public spaces, continue the biodiversity atlas, include the green and blue belt in the local urban and housing plan, support energy renovations and behavioural changes, etc.*

And beyond the climate?

In addition to a positive impact on the climate, the actions presented here have other positive impacts known as **co-benefits**. They are presented here as they relate to the United Nations' Sustainable Development Goals.

- Reduce fuel poverty and vulnerability to energy costs
- Protect everyone from major risks and safeguard everyone's health in the face of global warming
- Make it easier for everyone to have access to sustainable, healthy, high-quality food in the City's buildings
- Encourage gardening, particularly food gardening, in the area
- Guarantee access for all to water resources and clean, safe water in the face of global warming

- Provide access to cool, natural areas throughout the local area
- Promote living environments that support the health and well-being of all
- Encourage healthy, sustainable eating by raising awareness of health and environmental issues
- Make nature in the city a tool for raising awareness of the ecological transition

- Question priority uses of water against a backdrop of dwindling resources (energy, industry, urban development, etc.)
- Promote low-energy summer cooling solutions
- Support and encourage local and sustainable food production
- Protect the health of employees and users, particularly with regard to indoor and outdoor air quality and endocrine disruptors
- Provide staff with comfortable working conditions, even in very hot weather

- Consider the health of ecosystems through the One Health approach
- Protect water quality and aquatic ecosystems
- Encourage the use of green spaces for self-purification of rainwater
- Create functional, water-efficient green spaces
- Encourage sustainable agriculture that is friendly to ecosystems

A City that encourages everyone to get involved

Why do we want a City that encourages everyone to get involved?

Cities are where people, developments and activities are concentrated. As a result, they are also where emissions are concentrated. Lyon's residents and businesses, who are partly responsible for these emissions, are also key to limiting them. The millions of visitors to Lyon every year also contribute to the city's greenhouse gas emissions.

The City wants to give everyone the tools they need to tackle climate change and take action at the individual level. To achieve this, it has enlisted the help of its departments and key partners to work in direct contact with the people of Lyon.

What is Lyon's partnership network?

More than **1,500** subsidised associations
6 public institutions: *Tony Garnier Hall, the CCAS, etc.*
6 mixed and inter-communal associations
9 companies*: SPL, SA-HLM, etc.*
4 public or economic interest groups: *Job Centre, GIP Café Culture, etc.*
3 public service delegations

January 2023, City of Lyon Management Control

The first municipal participatory budget was launched in 2022: €12.5 million, 1,427 ideas posted, 110 winning projects

In 2022, 5 million overnight stays in Greater Lyon accommodation. 2 million visitors at the Festival of Lights. 40,000 visitors at the Festival Between Rhône and Saône

38 cultural organisations signed up to the cultural cooperation charter. 1.5 million visitors to Lyon's museums in 2022.

160 sports associations subsidised by the City, with a total of 54,700 members

Community education facilities and associations: 16 social centres, 13 youth club and arts centres, 8 children's centres, 5 similar facilities, 400 subsidised associations benefiting more than 8,000 people

518,000 local residents, 36 neighbourhood councils, 5 children's borough councils

21,300 retail, transport and service establishments across the City in 2020. 240 businesses with the Committed to Lyon label and 106 with the Made in Lyon label awarded by the City. More than 240 businesses have signed the City's energy moderation charter.

What actions are needed for a City that encourages everyone to get involved?

11. Involve all stakeholders and the City's key partners, in the ecological transition

11.1 Include the climate and the ecological transition in Lyon's educational system from early childhood onwards

11.2 Involve organisations subsidised by or under contract with the City in the ecological transition

11.3 Support cultural organisations in making the ecological transition

12. Involve the business community in the ecological initiatives proposed by the City

12.1 Support and promote responsible consumption and the circular economy

12.2 Support businesses and retailers in the ecological transition by transforming practices and models

13. Build the ecological transition together with citizens

13.1 Raise awareness among the general public and involve them in public climate policies

13.2 Finance and support participatory projects linked to the ecological transition

14. Develop our international climate partnerships

14.1 Strengthen our international commitments and European climate projects

14.2 Make municipal events environmentally friendly

14.3 Turn Lyon into an environmentally friendly tourist destination

What are the strategic frameworks and tools?

Within the City

Lyon Education Project

This project aims to support young people and children through education focused on the ecological transition, citizenship and emancipation, using a collaborative educational approach that is fairer, more supportive and more inclusive.

Educational Guidelines for the Care of Young Children in Lyon

A foundational document that highlights the core values involved in caring for young children. Designed as a guide to professional practice to support children's well-being and development.

Cultural Cooperation Charter

This charter, developed jointly with cultural operators, identifies the main ways of mobilising the region's cultural facilities. It makes the City's commitment to the ecological transition the overarching focus of its actions.

Certification and Charter for Businesses and Shops

The City offers certifications to recognise and promote:
- organisations committed to meeting the challenges of the ecological transition – Engagé à Lyon (Committed to Lyon)
- organisations that stand out for their local know-how – Fabriqué à Lyon (Made in Lyon)

There is also a charter to help businesses commit to moderate energy use – Energy Moderation Charter.

ISO 20121 standard: Sustainable Event Management

This initiative was launched in 2021 as part of a continuous improvement programme aimed at controlling the social, economic and environmental impact of events, starting with the Festival of Lights, before being extended to all events organised or supported by the City.

But also…

Tools available to local stakeholders to help them make a commitment to the ecological transition: **Eco-Responsibility Guide**, Eco-Responsibility and Inclusion in Sport Guidelines, **culture and climate** promotion to help them prepare their carbon assessment, **environmentally friendly events** commitment charter (ONLY Lyon), etc.
Projects to support changes in practices: **City of Repairers**, **Zero Waste Neighbourhood** at Valmy, **third places for the ecological transition** (park cabin, Neyret website), **youth grants** for the climate, etc.
Since 2021, the **Responsible Tourism Development Plan** has identified the main areas that the city needs to focus on to make Lyon a benchmark destination for eco-responsible tourism.

What support is needed to make them successful?

17 lead departments
+3 associated departments and borough councils
30 full-time equivalent staff

More broadly, all the City's departments are involved in encouraging their key partners to join in the ecological transition.

Childhood Department
Education Department
Territorial Development Department
Department of **Cultural Affairs, City of Lyon Cultural Centres** and **Municipal Libraries**
Sports Department
Events and Entertainment Department
Economy, Trade and Crafts Department
Open Democracy Task Force
Assessment and Forecasts Task Force
International Relations Department

City users and citizens, neighbourhood, borough and citizens' councils
City-subsidised associations and networks of associations, ALEC Lyon
Shops, markets, Chambers of Commerce and Industry (CCIs), Chambers of Trades and Crafts (CMAs)
Greater Lyon, tourist office and tourism operators, cultural operators

What are the targets for reducing greenhouse gas emissions?

One of the main ways in which the City can reduce municipal and local GHGs is linked to changes in the habits and lifestyles of **residents, local stakeholders and users of Lyon's infrastructure**.

It has not yet been possible to accurately quantify the impact of awareness-raising and incentive campaigns on greenhouse gas emissions. Several actions in the climate plan will involve **developing tools and methods** to improve data collection, measure this impact and take appropriate measures to meet the challenges:

- Helping cultural centres prepare their Carbon Assessments and then working together to draw up action plans
- Assessing the impact in terms of greenhouse gas emissions of visitors travelling to events in public spaces
- Involving associations subsidised by the City in climate actions by supporting, training and providing them with tools.

More broadly, the Lyon 2030 initiative will help us gain a better understanding of the practices adopted by the City's partners and track changes in them.

And beyond the climate?

In addition to a positive impact on the climate, the actions presented here have other positive impacts known as **co-benefits**. They are presented here as they relate to the United Nations' Sustainable Development Goals.

Make responsible and sustainable consumption accessible to all
Limit the negative impacts of tourism
Raise awareness of the challenges of the ecological transition from an early age
Raise awareness of the impact of tourism and events, particularly on travel
Strike a balance between culture and ecological transition
Empower local organisations to raise awareness of these issues
Encourage social inclusion
Give everyone the opportunity to put forward ecological transition projects

Involve businesses and retailers in energy-use moderation and the ecological transition
Support the structuring and development of sustainable, innovative and circular supply chains
Highlight the benefits of virtuous practices
Improve how tourism is distributed in the Lyon area and encourage local tourism
Encourage experimentation in subsidised organisations
Factor long-term considerations into public policy choices

Provide forums for debate and democracy around the ecological transition
Foster international relations and synergies between institutions in support of the ecological transition

The City is preparing to take action to make climate change a priority at all levels

1. Involving the entire city administration in the challenges of ecological transition

To make the necessary shift towards an ecological transition that addresses the challenges facing the City of Lyon, the City is undertaking a far-reaching transformation of how its departments operate. This process is being driven both by elected representatives who are in favour of a general commitment by the city administration to carbon neutrality, and by departments and staff who have already launched internal initiatives that need to be structured, strengthened and scaled up.

This transformation requires a radical change in practices, the systematisation of solutions provided to departments and the integration of the goal of climate neutrality into all public policy framework documents, regardless of whether they are directly linked to the ecological transition.

A general drive is therefore under way to change the way in which the city administration develops public policy, so that its environmental impact is routinely taken into consideration. The main objective of such a measure is twofold: firstly, to institutionalise the ecological transition in public services, and secondly, to create an ecological administration culture, so that it becomes an integral part of the process.

The systematic inclusion of the challenges of ecological transition in the way the City is organised requires commitment from the entire city administration, over and above strong political backing: every department and every member of staff has a role to play!

The city administration is involved at **several levels**:

The **General Services Department** is responsible for these public policies and plays a key role in communicating them to managers. The **departments** are involved at different levels in implementing the climate plan: some have been involved in environmental policies for a long time and were already coordinating actions under previous plans, while others have recently taken the lead or are involved in climate actions. Lastly, some resource departments are not directly involved in coordinating the actions of the climate plan, but they are essential in supporting the changes.

The **Ecological Transition Task Force** (MTE), a cross-departmental task force set up in 2021, is responsible for steering, facilitating and providing technical support for the City's overarching ecological transition projects. It works within the various departments and services to lead, raise awareness and support change. It organises and leads the network of ecological transition coordinators, and ensures that planning documents and schemes relating to ecological transition are properly drawn up.

Involving and equipping departments and employees to implement the climate plan and bringing them fully on board with the ecological transition

Bringing the climate plan to life also means getting all our staff on board and encouraging them to take part in implementing the actions at their own level.

To help achieve this, the City is making use of a number of resources: the network of 80 ecological transition coordinators in their departments, the Administration Project, training courses, events and associated communication tools.

All of this hinges on creating a common culture through which the City Council hopes to achieve two shared goals:

- firstly, to ensure that every member of staff takes these issues on board as part of their day-to-day work, helping to bring about a far-reaching, mutually supported transition in the way they do their jobs;

- secondly, to make the ecological transition a key factor in Lyon's appeal at all levels, thereby strengthening the City Council's identity as an environmentally-friendly, innovative and model administrative body.

In addition to these resources currently being put in place and ramped up, the Ecological Transition Task Force, with the support of the network of transition coordinators and departments, is continuing to jointly develop and distribute resources and tools, which are available to all staff via the municipal intranet and shared at meetings organised by the task force.

An **Administration Project jointly developed with staff** in 2021, giving prominence to the ecological transition and experimentation:

- ✓ 24 concrete actions to be rolled out to staff
- ✓ Including innovative actions such as the creation of a Citizens' Climate Convention for City Staff (3CA) involving some 60 staff members
- ✓ the implementation each year of concrete, cross-functional projects led by staff through the Municipal Responsibility Centres (CRMs).

A **network of more than 80 Ecological Transition Coordinators** with a new roadmap for 2022, which:

- ✓ Strengthens the link between the departments and the Ecological Transition Task Force and provides a direct link with the City's wide range of functional areas
- ✓ Contributes to an internal culture of ecological transition
- ✓ Contributes to the development and implementation of the City's ecological transition policy.

Internal communication and **events** to promote and share the City's ecological transition initiatives:

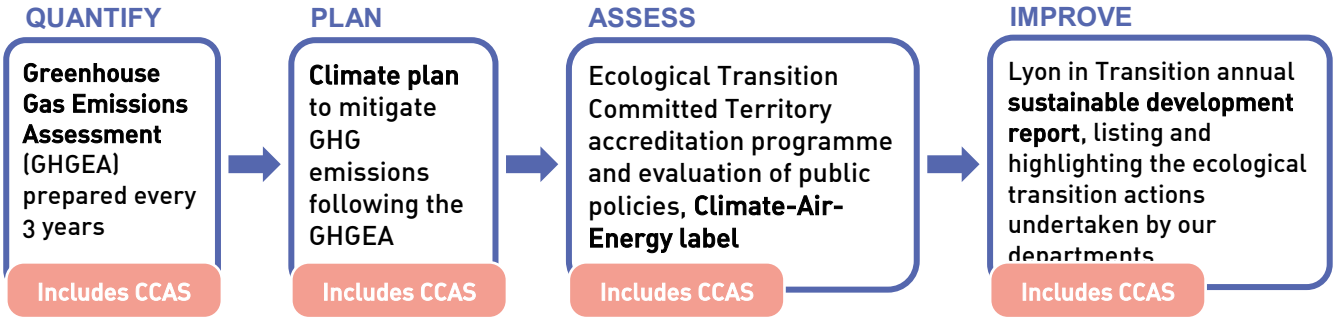
- ✓ High points throughout the year on key themes
  Energy, waste, mobility, purchasing, etc.
- ✓ A dedicated space in internal communication tools
  City Intranet, flyer attached to pay slips, newsletters, Traits d'Union magazine, etc.
- ✓ Regular information and experience-sharing meetings through the Time webinars.

Training and awareness-raising tools to help everyone take ownership of the issues at their own level:

- ✓ Target of raising awareness of ecological transition issues among 6,000 employees by 2026
- ✓ Catalogue of ecological transition training courses and a specific training plan for each department
- ✓ Creation of a welcome kit and event entitled "Taking Action for the Ecological Transition" for all new employees.

The Communal Centre for Social Action (CCAS), a long-standing part of the City of Lyon's climate strategies…

Since it carried out its first greenhouse gas emissions assessment in 2010 and produced its first climate plan in 2013, the City of Lyon has always included the CCAS in its scope for quantifying emissions and then taking action. More broadly, the CCAS is included in the entire climate initiative for the City of Lyon's areas of responsibility and property assets:



The CCAS is also involved in a number of theme-based initiatives led by the City:

Involvement in the **Ecological Transition Strategy for City Buildings (STEP)**, covering both renovation and photovoltaic systems as well as energy-use moderation, with some specific winter and summer requirements for buildings housing elderly people.

Involvement in the development of the **Employer Mobility Plan for the City and the CCAS**, but managing its own independent fleet of a dozen vehicles, which it is gradually replacing with a fleet compatible with the City's low emissions zone.

Involvement down the line in the future **Zero Waste, Zero Wastage** strategy, with the CCAS already included in the City of Lyon's biowaste contract and a stated desire to be included in other cross-cutting contracts to improve waste sorting and collecting at its sites.

The CCAS has an independent purchasing policy, but nevertheless questions its impact on the climate. The fact that it is grouped together with the City for certain contracts gives it easier access to greener solutions, for example when buying energy.

… with its own actions

The CCAS is overseeing several climate plan sub-actions, particularly as part of the goal to be "A City that looks after everyone and adapts to global warming":

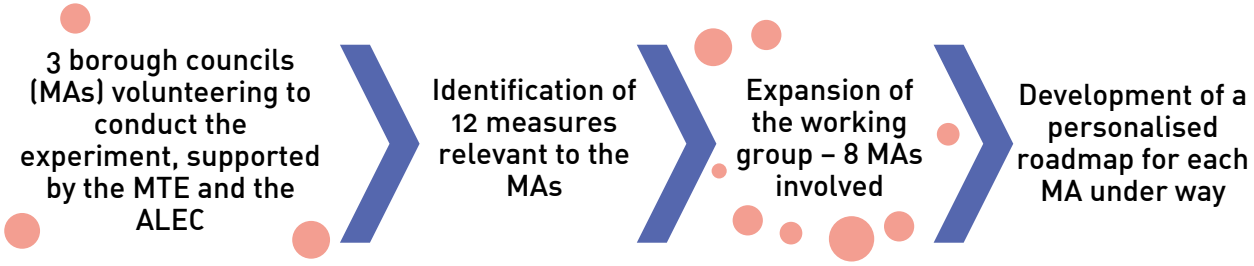
Make it easier for everyone to access sustainable, healthy, high-quality food on municipal premises	Through its catering services in retirement homes and care homes for the elderly, the CCAS is involved in renewing food contracts with a view to providing healthy, environmentally friendly food The CCAS is working to provide healthy eating for all through its food centre: social restaurant, food third place and community grocery shop
Reduce fuel poverty in winter and summer	The CCAS will be involved in developing a joint action plan with Greater Lyon to tackle fuel poverty and support the SLIME+ programme, particularly with regard to identifying households and helping them escape fuel poverty (agreement with SOLIHA (a social housing support organisation))
Integrate climate change into risk prevention documents for the local area and the City of Lyon	As part of the departmental heatwave plan, the CCAS manages and coordinates the heatwave alert register and provides Lyon residents with cool places to stay during periods of extreme heat The CCAS will be included in the future action to strengthen and share the provisions of the "heatwave plans"

Municipal climate action throughout the City through the commitment of its nine borough councils

Borough councils (mairies d'arrondissement, MAs) are the City's direct point of contact with the people of Lyon. They manage local educational, social, sports, cultural, community and other facilities. They are an essential link in the process of implementing initiatives that set an example in terms of ecological transition.

To encourage networking and accelerate the move towards the ecological transition, inter-borough groups have been set up to facilitate cross-disciplinary work on these issues. Two ecological transition coordinators have been identified as key contacts for all the borough councils.

Since 2021, a simplified tool for planning and implementing climate-air-energy policies deployed by ADEME has been used by borough councils to formalise and monitor their ecological transition actions. The Ecological Transition Task Force (MTE), supported by the ALEC (local energy and climate agency), is helping them with this process, and the tool (*Climat Pratic*) helps them implement measures that are appropriate and proportionate to their area.



The 12 measures identified as priorities for the borough councils in the Climat Pratic tool are included in each of the climate plan priorities as follows:

The City is preparing to take action

1. Financing and budgeting the climate-air-energy policy
2. Training and mobilising elected representatives and departments on climate-air-energy issues

1. A City that uses energy and resources in moderation

3. Setting an example with new and renovated public buildings
4. Setting an example in eco-responsible public procurement
5. Recovering residual waste and biowaste

2. A City that is peaceful and breathable

6. Promoting sustainable mobility within the local authority
7. Using urban planning documents to ensure the implementation of climate-air-energy targets and combat land artificialisation

3. A City that looks after everyone and adapts to global warming

8. Encouraging citizens to consume responsibly, limiting the influence of advertising and mobilising opinion leaders

4. A City that gives everyone the opportunity to get involved

9. Promoting sustainable economic activities
10. Developing education and awareness-raising initiatives in schools and early childhood centres
11. Cooperating with professionals in the building and property sectors
12. Involving civil society by developing consultation processes

2. Strengthening the steering and coordination of the climate plan

The updated climate plan was coordinated within the city administration by the Ecological Transition Task Force (MTE). It will continue to play a leading, steering and coordinating role in the implementation of the climate plan.

Consolidating monitoring and assessment tools

The MTE will rely on the monitoring, assessment and reporting tools already used for previous climate plans. A data officer will be responsible for maintaining these tools and developing them where necessary with a view to improving them and achieving the climate plan's targets. They will also be responsible for streamlining how data is collected from the municipality's departments and partners, and for analysing it.

With regard to accounting for greenhouse gas emissions, a number of actions are already in progress or are being planned to provide a more complete and accurate picture. This work should also help refine the steps on the path to carbon neutrality and, as a result, the goals of certain climate plan actions that have not yet been quantified. This exercise will also be carried out by the MTE in close collaboration with municipal departments.

While the priority today is to drastically reduce greenhouse gas emissions, some emissions cannot be completely eliminated. Quantifying these irreducible emissions will provide an opportunity in the medium term to start thinking about solutions.

Greenhouse Gas Emissions Assessment

Updated every three years, it monitors greenhouse gas emissions linked to the City's activities.

Quantify

City's Energy and Water Assessment

This provides annual monitoring of the energy and water consumption of municipal buildings and the associated greenhouse gas emissions.

Monitor

Climate Plan Dashboard

This is a list of all the actions and indicators for monitoring and assessment, and is used to track their implementation.

Oversee

Climate-Air-Energy Label

This is part of ADEME's Ecological Transition Committed Territory accreditation programme, to which the town regularly renews its commitment, and is a recognised tool for assessing and certifying public policies. It recognises the quality of local authorities' climate policies and is valid for four years. The City currently holds the 4-star label and is in the process of renewing its certification for 2024.

As part of the Climate-Air-Energy community, the City exchanges information with other neighbouring local authorities involved in the scheme.

Assess and Improve

"Lyon in Transition" **Sustainable Development Report**

This report goes beyond climate action to provide an annual assessment of the City's efforts in terms of ecological, inclusive and democratic transition.

Improve

Adding a financial approach to monitoring the climate plan

For the first time, the City is endeavouring to combine the monitoring of greenhouse gas emissions with a financial approach, which will provide it with the information it needs to develop an investment plan consistent with the goals set out in the climate plan.

Based on current funding allocated to climate plan actions, the City will estimate the funding and costs required to achieve climate neutrality.

At the same time, a budget monitoring and assessment framework will be developed to track progress in implementing the investment plan.

Testing new forms of management and coordination

As part of the overall update, the city administration and elected representatives were involved in testing new ways of working. Experimentation will continue to be an important part of managing and implementing this climate plan. In addition to monitoring technical and financial operations, additional objectives have been set:

1. **Keep up the momentum on climate issues within the city administration**, involving all levels so that everyone feels they are a part of the climate plan;
2. **Make annual adjustments to the action plan to boost its impact**: revise or strengthen certain measures, develop new actions, etc.;
3. **Consolidate and maintain the relationship between the Agora Lyon 2030 and municipal staff.**

The operational implementation of these objectives still needs to be built around the following areas of work:

- **Strong political leadership** and the setting up of **cross-functional steering bodies** supported by the Lyon 2030 Steering Committee and the Ecological Transition Council;
- **Specific support** provided by the Ecological Transition Task Force to:
    - departments whose activities are associated with high GHG emissions
    - departments that play a key role in helping the city adapt to climate change
    - departments that can help bring the City's partners together around these issues;
- Organising a **key climate plan workshop** each year, with the twofold objective of reviewing progress on the climate plan, useful for preparing the Lyon in Transition annual report, and working on updating the plan with changes to actions (content, objectives, resources, etc.) and new measures;
- **Integrating and promoting the Lyon 2030 initiative** in municipal projects, certification labels and public policies with a direct link to ecological transition, such as the purchasing policy;
- **Making full use of the City's internal networks**, first and foremost the network of ecological transition coordinators;
- **Giving staff a voice** through the future Citizens' Climate Convention for City Staff (3CA);
- Organising an annual **day for institutional and financial partners** to discuss the obstacles to deploying the climate plan actions.

3. Providing a funding package that meets the challenges ahead

A multi-year programme focused on the ecological transition

A goal as ambitious as carbon neutrality requires substantial funding. That is why, in its 2021-2026 Multi-year Investment Plan (PPI), the City is allocating a third of its budget to the ecological transition. Energy-efficient renovation of buildings, the phasing out of diesel in the municipal vehicle fleet, the modernisation of street lighting and the greening of the city are the investment priorities related to the ecological transition. In all, some €350 million will be invested over six years.

Use of green bonds

The City has chosen to use green bonds to limit the carbon impact of its bank borrowing. Several financial institutions have been selected, in line with professional requirements for tracing the origin of funds and ethical finance. Priority is being given to green bonds that support social and ecological transition projects, rather than an approach based solely on the most cost-effective option.

The strong support shown for Lyon's ecological transition must be maintained and strengthened if the City's climate commitments are to be met.

Leveraging external funding

The City has already secured external sources of funding (ADEME, the DSIL local investment support grant, Green Fund, European Regional Development Fund (ERDF), Horizon Europe programme, CEE, etc.) but needs to boost this to finance ecological transition projects.

A resource team of two members of staff from the Finance Department and the Ecological Transition Task Force has been set up for this purpose. Its work will focus on the following tasks:

- Identifying, through regular meetings with the operational departments, the strategic projects that need external financing;
- Keeping an active watch to identify sources of funding suitable for municipal projects;
- Organising theme-specific meetings with the operational departments to discuss an identified need or the opportunity for aid, and to match the aid with the project;
- Assisting with preparing grant applications or responding to calls for projects;
- Providing operational and financial monitoring of funded projects in line with funders' requirements.

Protecting the City against climatic risks

The sheer number of claims linked to climate change is jeopardising the insurance industry's current model, with its problems of risk calculation and modelling, financial balance and claims management. This situation highlights the importance of municipal action on climate change and, more broadly, on limiting the impacts of climate change and the City's resilience to it.

However, the City, like others, is being affected by increasingly cautious insurers. It will therefore continue to keep an ear to the ground and, if necessary, play its part in seeing that new insurance schemes are introduced.

4. Lyon 2030: Inspiring Change, a new local and experimental approach

To accelerate the move towards carbon neutrality, the City has set itself a new objective of speeding up climate-related initiatives in the region as part of the Lyon 2030: Inspiring Change initiative, launched in 2022.

The City is keen to encourage new approaches to commitment and cooperation and to develop various activities to support the efforts of municipal staff, local stakeholders and the general public in taking action:

This new framework for cooperation and climate action is consistent with the City's climate policy (local climate-air-energy plan), with Greater Lyon supporting and participating in the Lyon 2030 initiative.

Lyon, selected for the European "100 Smart, Climate-Neutral Cities by 2030" programme

Lyon's commitment to the climate and the launch of the Lyon 2030 initiative have been recognised by the European Commission, which in April 2022 selected the city to take part in its "100 Smart, Climate-Neutral Cities by 2030" programme. This programme, which involves nine French local authorities, aims to turn 100 European cities into pioneering local authorities ready to take on the challenge of achieving the climate neutrality target set for the European Union by 2050. Each city selected for the programme is expected to work with local stakeholders to produce a Climate City Contract that includes commitments for 2030, together with an action plan and an investment plan.

The new climate plan for the City of Lyon and the CCAS is the implementation at local level of the goal to be climate neutral by 2030 and is part of the Climate City Contract.

The Agora, at the heart of the Lyon 2030 initiative

The Agora Lyon 2030 is at the heart of this initiative. Set up at the beginning of 2023, this community of Lyon-based stakeholders is ready to work together to build a shared vision for achieving climate neutrality by 2030. It brings together 65 organisations that reflect the diversity of local stakeholders: businesses, citizen outreach groups, education and research specialists, youth workers, students, public and semi-public operators. It is hoped that the Agora will expand over time to welcome new local participants and accelerate climate action in Lyon.

The City has tasked this new type of assembly with working together to strengthen everyone's ability to take action, by jointly developing a local contract for the climate – the Lyon 2030 Climate Pact – and drawing up contracts for each Agora member – the Lyon 2030 Cooperation and Commitment Agreements.

The ecosystem created is committed to pooling skills so that we can work together to build a carbon-neutral city by 2030. It also aims to foster new partnerships outside the city and create synergies between those involved in the ecological transition.

Agora, 9–10 March 2023 © Muriel CHAULET

**inspiring change !*

Lyon 2030 meeting, 11 July 2022 © Muriel CHAULET

The City is reaching out beyond its boundaries and taking part in regional, national and international initiatives

Playing its part in nationwide efforts to improve public action on climate change

The City is involved in a number of regional, national and international networks. The aim is to encourage cooperation and share innovative ideas and best practice in areas such as mobility, energy transition, social inclusion, digital innovation and sustainable food.

The City also belongs to a number of local authority networks, including the France Urbaine network. This association promotes cooperation between urban areas and represents 2,000 local authorities. Its mission is to provide technical and political input into public decision-making. The City also relies on the technical and methodological expertise of key public bodies such as ADEME and CEREMA (Centre for Studies and Expertise on Risks, the Environment, Mobility and Land Use), as well as specialist associations such as the ALEC, AMORCE (information, experience sharing and support network for communities) and FNCCR (National Federation of Public Service Local Authorities). Lastly, the City is also involved in other networks such as IdealCO and Energy Cities, which foster exchanges between peers. It is also forging special peer-to-peer relationships with other local authorities as part of certain projects.

The challenge is to increase internal awareness of all the structures to which the City belongs or with which it has formed partnerships. The Ecological Transition Task Force is therefore planning to draw up a map showing how these players are linked to the City, along with the departments and coordinators responsible for them.

Creating international synergies on climate issues

At the European level, the City is actively involved in networks that bring together major cities committed to climate action. Since 2008, it has been a signatory to the Covenant of Mayors for Climate & Energy, and since 2019 a signatory to the Green Cities Accord. In addition to these commitments, it also takes part in international knowledge and experience sharing, especially within the Eurocities community and, more recently, within the European network of 100 smart, climate-neutral cities by 2030.

Taking the lead in removing obstacles to ecological transition

The city aims to play a part at both national and European levels in identifying the obstacles to the deployment of ecological transition initiatives and possible solutions. The topics covered are wide-ranging, including funding mechanisms, legislative and regulatory provisions, and technical and technological issues.

The City plans to frame these messages as part of a dedicated strategy. These messages will be passed on to the appropriate representatives: members of parliament, ministries and government departments, local authorities, the European Commission, and so on.

Forging partnerships with the City's "climate twins" so they can share with us their adaptation solutions and how they live in temperatures that Lyon may soon be experiencing.

5. Keeping a close eye on climate issues: active monitoring, working with public research and innovation, etc.

The climate plan is a collaborative and participatory project, with all departments able to have their say. In the same spirit of collaboration, the City would like national and regional institutions, associations, local professionals and partners, and researchers to be able to give their opinions, with a view to improving the climate plan.

Building a lasting partnership with the world of research to inform public decision-making

With this in mind, researchers' expertise will be sought in various ways:

- Calling on the Greater Lyon's Scientific Council or some of its members to provide expert advice;
- Setting up research partnerships to work in depth on certain technical subjects, as well as on change management issues;
- Inviting one or more members of the scientific community to take part in key events during the roll-out of the climate plan, to gather their opinions and recommendations.

Les idées de l'AGORA

Providing opportunities for City and academic staff to exchange views on issues in the field and on research.

Monitoring and forward-looking initiatives to prepare for tomorrow's challenges

More broadly, technical, scientific and regulatory monitoring of the climate must be carried out to keep the City abreast of the latest news, discoveries and innovations. Public policies must be designed in a way that plans ahead for future emergencies. Some of the consequences of climate change are still unknown. This is where partnerships with the world of research come into their own. The forward-looking approach must be strengthened to better anticipate risks.

Using collective intelligence to challenge the climate plan and spark innovation

Collective intelligence approaches are increasingly being used within the City to jointly develop strategies and actions relating to the climate and ecological transition.

One flagship project that takes this joint approach is the **Citizens' Climate Convention for City Staff (3CA)**, which is about to be implemented. This experimental approach involves around 60 members of staff, randomly selected by lot, to receive training in the challenges of ecological transition so that they can then make proposals and give their views on the ecological transition to the city administration and elected representatives.

In 2022, the City also launched its first participatory budget. This is a tool for involving citizens, enabling everyone to put forward ideas and take part in selecting the winning projects, which the City will then fund and implement. Of the projects selected, 17 are directly related to the ecological transition and nature in the city, and many others are connected to it.

Glossary

100 SCNCs – 100 Smart, Climate-Neutral Cities by 2030: European programme launched in 2022 aimed at turning 100 European cities into pioneering local authorities, centres for experimentation and innovation that will inspire and encourage other European local authorities in achieving climate neutrality by 2050.

3CA – Citizens' Climate Convention for City Staff: A body made up of staff and contract workers from the City of Lyon and the CCAS, selected by drawing lots. The 3CA enables these staff members to acquire knowledge about the ecological transition from experts inside and outside the City, so that they are sufficiently equipped to give advice and make proposals to the city administration and elected representatives.

Adaptation: Refers to actions aimed at preparing for and managing the consequences of global warming.

ADEME – the French Environment and Energy Management Agency: A public body jointly supervised by the Ministry for Ecological Transition and the Ministry for Higher Education, Research and Innovation. ADEME initiates, leads, coordinates, facilitates or carries out projects to protect the environmenthttps://fr.wikipedia.org/wiki/Protection_de_l%27environnement and manage energy.

ALEC – Local Energy and Climate Agencies: Local engineering bodies that carry out community-based activities to promote the implementation of the energy transition and the reduction of greenhouse gas emissions at local level.

Mitigation: Refers to actions to reduce greenhouse gas emissions and preserve carbon sinks with a view to mitigating the effects of human activities on global warming.

Carbon budget: Global budget for greenhouse gas emissions estimated by the IPCC. It is estimated at 500 Gt CO_2 to limit global warming to 1.5°C by 2100.

CEREMA – Centre for Studies and Expertise on Risks, the Environment, Mobility and Land Use: A public body supervised by the French Ministry for Ecological Transition and Territorial Cohesion; it supports the State and local authorities in drawing up, deploying and assessing public planning and transport policies.

Climat Pratic: A tool developed by ADEME to support climate-air-energy planning by small local authorities with a view to speeding up local ecological transition initiatives. In Lyon, the tool is used by borough councils.

Covenant of Mayors: The main European movement involving local and regional authorities in a voluntary commitment to improve energy efficiency and increase the use of renewable energy sources within their territories.

Heatwave episode: A meteorological episode of very hot weather lasting day and night for at least three consecutive days. In Lyon, the thresholds are 20°C for night-time temperature and 34°C during the day.

IPCC – Intergovernmental Panel on Climate Change: Its mission is to assess the state of knowledge about climate change, its causes and its impacts. It also identifies ways of limiting the extent of climate change. Its scientific output is central to international dialogue and agreements.

Urban heat island: An urban area, often in the city centre, where air and surface temperatures are higher than on the outskirts, particularly at night.

Climate twins: This approach, based on statistical analysis of a large number of climate variables, is used to link the current climate of one geographical area with the future (or past) climate of another.

Planetary limits: Nine planetary limits have been identified that must not be exceeded to maintain the equilibrium of the Earth system. Each limit is a critical threshold beyond which all living organisms run the risk of global collapse.

MTE – Mission Transition Écologique (Ecological Transition Task Force): Municipal body attached to the General Delegation for Urban Planning, Property and Works, responsible for planning, implementing and monitoring the City of Lyon's ecological transition policies.

Carbon neutrality (or climate neutrality): Despite there being no agreed definition, climate neutrality is broadly understood as a state of equilibrium between greenhouse gas emissions linked to human activities and their absorption through either natural or human-made processes.

Green bonds: A bond issued on the financial markets that differs from a conventional bond in that it exclusively finances projects that benefit the environment.

SDGs – Sustainable Development Goals: Defined in 2015 by the United Nations, the 17 Sustainable Development Goals are categories of subjects with global political urgency that should be integrated into the international community's public policies.

ORCAE – Regional Observatory for Climate, Air and Energy: It supports the development of public policies and assessments relating to climate-air-energy issues. It also acts as a resource and information centre, and as a platform for sharing information and developing networks between stakeholders around these issues.

Lyon 2030 Climate Pact: Jointly designed and developed with the collective intelligence of the local participants at the Agora Lyon 2030, this is a mutual commitment pact between the City and the signatories, aimed at accelerating ecological transition actions in Lyon to achieve carbon neutrality by 2030.

PPI – Multi-year Investment Programme: Programming and financial management tool enabling the City of Lyon to prioritise its actions and plan its investments over several years.

Resilience: The ability of a system to recover the structures and functions of its baseline state following a disturbance.

Scope: For greenhouse gas emissions assessments, this refers to the scope within which the emissions are quantified. There are three scopes – 1, 2 and 3 – depending on whether the emissions are direct (scope 1), indirect emissions linked to energy consumption (scope 2), or all other indirect emissions (scope 3).

SIGERLy – Lyon Region Energy Management Association: A public energy management body, it now includes the Greater Lyon Metropolitan Area and 66 towns and villages.

STEP – Ecological Transition Strategy for City Buildings (STEP): This identifies and prioritises the actions required for the City's buildings, with a target of reducing energy consumption by 25% by 2030 compared with 2019.

tCO_2eq – Tonne of carbon dioxide equivalent: A single unit of measurement has been adopted to compare greenhouse gases: the tonne of CO_2 equivalent It takes into account the greenhouse warming potential of different gases over a given period of time.

2023-2030 Action Plan

Handbook on Climate, Air and Energy for the City of Lyon and the CCAS

Updated July 2023

Abbreviations and Key

BM: City library

CCAS: Community Social Action Centre

Cemeteries: Department of Cemeteries

External Comm: External Communications

DAC: Department of Cultural Affairs

DAP: Administrative Staffing Department

DAU: Urban Planning Department

DBNV: Department of Urban Biodiversity and Nature

DC: Building Department

DCCI: Department of Communications and Internal Cooperation

DCI: Main Real Estate Office

DCP: Department of Public Procurement

DDT: Regional Development Department

DE: Department of Education

DEA: Department of Events and City Life

DEC: Department of Employment and Skills Development

DECA: Department of Economics, Trades and Crafts

DEU: Urban Lighting Department

DGTB: Department of Technical Building Management

DMG: Department of General Resources

DMU: Urban Mobility Department

DRSVT: Department of Labour Relations and Life in the Workplace

DSITN: Department of Information Systems and Digital Transition

DSP: Safety and Prevention Department

DSTS: Department of Security, Calm and Safety

Children's Affairs: Department of Children's Affairs

Finance: Finance Department

MA: Arrondissement City Hall

MDO: Open Democracy Task Force

MEP: Analysis and Foresight Task Force

MGC: Crisis Management Task Force

MVE: City of Children Task Force

MTE: Ecological Transition Task Force

HR: Human Resources and Labour Relations

Health: Health Department

Sport: Department of Sport

SRI: International Relations Office (joint department with Greater Lyon)

★ : Action expanded since the 2020-2026 Climate, Air, and Energy Plan

★★ : Action added since the 2020-2026 Climate, Air, and Energy Plan

🛠 : Action to be developed

Action Targets: Reduce greenhouse gas emissions/Adapt to climate change/Energy efficiency/Renewable energies

Ratings of 0 to 3 (◆ - ◆◆ - ◆◆◆) indicate an action's projected impact level in a given area

A city that conserves energy and resources

1. Foster an approach of energy conservation and efficiency, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.1

Implement the Green City Plan

Type of action: Reduce, Raise Awareness

Issues

The issues are to:
- Limit the city's energy use at all levels as a general conservation effort, and to cut energy by 10% while maintaining public services
- Reduce surcharges due to energy rate hikes for occupants of city buildings

Reduce greenhouse gas emissions ◆◆◆
Adapt to climate change

Energy efficiency ◆
Renewable energies

Action stakeholders

Suppliers
Tenant/contracted associations
Outside businesses
Users
ALEC (Environmental Protection Organization of Lyon)

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Instil a conservation culture in the community by consolidating, deploying and sustaining the city's conservation plan	The City of Lyon enacted its energy conservation plan on 11 October 2022. It contains 18 measures pertaining to heating its buildings, best practices and behavioural changes, construction projects and structural measures to reduce energy consumption, and lighting projects. In order to sustain this conservation plan, the issue of international inflation in the Winter of 2022-2023 must be resolved.	2022-To be continued indefinitely	DGUIT	
Help city departments determine their energy and water requirements, and how to control their consumption levels	- Formalise the customised support that the city departments and institutions received from the energy and water consultants into some sort of "heading for sobriety !" that lays out a set of standard work methods and an action plan. - Routinely generate dashboards that track consumption at the buildings in question, and share them with contacts for the energy and water consultants and conservation officers so they can see the impact of the actions undertaken and adjust them as needed - Track the conservation plan using monthly consumption data at all levels: cities, top users, activities, etc. By rolling out the energy and water data management app (ENERGIO), access to data on all the buildings and city activities will be easier and more widespread.	2021-2031	DGTB	DCCI Operational departments (DDT, DE, Sport, Children's Affairs, CCAS, DAC) Health
★ Involve all users external to city buildings in the energy conservation policies: • Organise awareness campaigns adapted for the targeted population • Determine which locations are using the most energy • Inform city building occupants of their energy use to instil accountability	Raise everyone's awareness (occupants, users, general public) about energy conservation in city buildings Give occupants the option to track and managed their own energy use and thermostat. When applicable, make external users of the sites in question implement the annual consumption report as part of the Tertiary Sector Decree, or at least for facilities with technical services. Find out which locations are consuming the most to prioritise energy retrofit projects, namely by using the Property Asset Environmental Transition Strategy	2023-2050	DGTB	Operational departments

Action-related plans and strategies

Strategy for the ecological transition of buildings [DGTB]
Green Energy Plan [DGTB]
Future City Water Strategy
"heading for sobriety !" [DGTB]
Framework agreement between the City of Lyon and learning facilities for the public [DDT]

Key objectives:
Use conservation measures to cut energy consumption by 10% compared to 2022
Formalise the 12 "heading for sobriety !"

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.2

Improve energy performance in city buildings

Type of action: Reduce

Issues

Restrain from spreading efforts too thin to make it easier to do general retrofits and improve the performance of energy retrofits so we can achieve the 25% energy use reduction objective for all structures between 2019 and 2030. It will also be easier to reach the objective by optimising technical operations and scheduling routine projects.

Reduce greenhouse gas emissions ◆◆◆ **Energy efficiency** ◆◆◆
Adapt to climate change ◆ **Renewable energies** ◆

Action stakeholders

ABF (architects of the buildings of France)
RCU (urban heating network)
SPL Oser (Publicly-Owned Local Limited Company Regional Energy Services Operator)
External funders

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Routinely include full energy retrofits prioritised in the strategy for the ecological transition of buildings in the PPIs (multi-year investment plans)	When building and revising PPIs, include the highest-priority energy retrofits that need to be done over successive terms of office, in line with the scenario selected for the ecological transition of city assets.	2021-2050	DGTB: lead DC: execution DCI: preliminary studies	Operational departments
★ Help achieve building performance levels after comprehensive retrofit in line with the city's objectives (25% cut by 2030/50% by 2050) with tracking of preliminary studies project to delivery.	Carry out around nine comprehensive energy and heating retrofits annually targeting average heating use of 43 kWh/m²/year Advance project reviews and operations reports to turn them into relevant project assessment tools Make preliminary studies a key phase of conservation at all levels (energy, land, etc.)	2021-2050	DGTB: lead DC: execution DCI: preliminary studies	Operational departments
Continue optimising technical building operations and levels of performance engagement for outsourced maintenance, as applicable	Continue these operations: - Sludge removal, balancing - Management of electrical equipment intermittence - Optimised control of heating - Optimised control of ventilation equipment	2021-2032	DGTB DC	Operational departments
★ Increase annual scheduling for routine energy efficiency projects	Schedule these types of projects: Lighting retrofits, attic insulation, outside insulation for domestic hot water tanks, installation of high-performance control systems, installation of double-flow systems, pipe network lagging, etc.	N/A-2032	DGTB DC	Operational departments
★ Include performance objectives in works and maintenance bids using energy performance contracts Experiment with and deploy commissioning contracts for property asset construction and renovation	Performance objectives and commissioning contracts will engage the vendor in the actual performance of the construction or renovation. This action anticipates establishing contract clauses starting in 2024 and phasing them in gradually.	2021-2027	DC DGTB	DCP
🛠 - ★★ Initiating an approach of continuous improvement and process clarification, and looking into possibly obtaining ISO 50001 certification	1. Training in ISO 50001 2. Weighing the pros and cons of implementing the program at DGTB 3. As applicable, determining the project's key phases	2023-2030	DGTB	

Action-related plans and strategies

strategy for the ecological transition of buildings [DGTB]
Indoor Air Quality (IAQ) Action Plan [Health]
Endocrine Disruptor Action Plan [Health]
New IAQ regulation enacts stricter objectives, especially during lockdowns

Key objectives:
Cut energy use by 25% in 2030 compared to 2019, and 50% in 2050

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.3

Adapt city property assets for heat waves and droughts

Type of action: Adapt

Issues

Health issues for users and staff, and maintaining public services (facilities not closed due to discomfort or risk)

Reduce greenhouse gas emissions	**Energy efficiency ◆◆**
Adapt to climate change ◆◆◆	**Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Do a status report on city buildings that overheat in the summer and schedule remedial works prioritising ones with the highest energy bills and with vulnerable populations (schools, childcare centres, EHPADs [residential facilities for dependent seniors] and independent living facilities)	1. Do a status report on buildings that cause the most discomfort using objective criteria in line with the operational departments and the property master plan 2. Assess the effectiveness of the initial solutions implemented (air curtains/adiabatic cooling units/sunshades, etc.) 3. Draw up a plan to standardise the most effective actions	2021-2032	DGTB DC	DE Children's Affairs DDT CCAS DRSVT
Invest in vegetation and increase the biodiversity at properties, especially for buildings accommodating vulnerable populations	1. Existing buildings: determine which roofs can be turned into green roofs 2. Develop a green roof strategy for these buildings with an emphasis on the concept of vulnerability among these populations 3. Account for and fund greening-related projects proposed by the non-profits located in the buildings	2023-ongoing	DGTB DC DBNV	DE Children's Affairs DDT CCAS

Action-related plans and strategies

Strategy for the ecological transition of buildings [DGTB]
Indoor Air Quality (IAQ) Action Plan [Health]
Endocrine Disruptor Action Plan [Health]
Property Master Plan [DCI]
Technical and environmental requirement list (new construction and renovations) [DGTB/DC]

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.4

Raise funding for energy retrofit projects for the property assets, and projects to expand renewable and recovered energy

Type of action: Reduce, Raise Awareness

Issues

Engage and raise awareness through tangible actions
Make energy production resources more local

Reduce greenhouse gas emissions ◆◆◆
Adapt to climate change
Energy efficiency ◆◆
Renewable energies ◆◆◆

Action stakeholders

(DGTB/SMEE):
Club Solaire
Greater Lyon
COOPAWATT

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Find and activate appropriate funding instruments to cover the energy retrofits for the property assets (CEE, AAP, EU grants, DSIL stimulus plan, etc.)	Look for donations and subsidies: this action entails mapping existing funding sources by providing an overview of the city's projects and assisting with the application processes. DF handles applications for special funds like the DSIL or Greater Lyon community grants. This action also includes tracking full receipt of notified funding packages CEEs (Energy Savings Certificates): issued CEEs are valued on the CEE exchange market. The sale date is based on the market price, which primarily varies by CEE period and government rulings on obligated parties. The sustainable obligations funding method was established in 2022. Bonds are given a green or social label based on the actions funded, which must meet predefined criteria.	2020-2050	Finances DGTB DC	MTE
★★ Develop renewable energy projects for the public and third-party investors, including self-sufficient communities	1. Get more buy-in from the general public 2. Design projects in co-development mode	2022-2026-2030	DGTB	MTE

Action-related plans and strategies

Strategy for the ecological transition of buildings [DGTB]

Key objectives:
From 2022 to 2026, increase the number of domestic and third-party investor roofs equipped with renewable energy from 2 to 20.

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.5

Find innovations for green construction and sustainable building

Type of action: Reduce

Issues

Align the technical requirements for new construction projects and restorations with concerns being addressed by the Sustainable City, the circular economy, and low carbon footprint approaches.
Increase inclusion of issues with exposure to indoor and outdoor pollution (endocrine disruptors, indoor and outdoor air quality), greening issues, and the urban water cycle using a health-centred urban planning approach.

Action stakeholders

Ville & Aménagement Durable

Reduce greenhouse gas emissions ◆◆ **Energy efficiency ◆◆**
Adapt to climate change ◆◆ **Renewable energies ◆◆**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Update the technical and environmental requirements (renovations, new construction) by factoring in reduction and adaptation to climate change, health and accessibility	Draw up clear, accurate and ambitious technical specifications by theme and ensure they are routinely updated. Always include the best technical selection in our restructuring and construction operations. Arrange for feedback.	2021-ongoing	DGTB DC	Health MTE

Action-related plans and strategies

Technical and environmental requirement list (new construction and renovations) [DGTB/DC]
Action plans on IAQ and endocrine disruptors (Health Dept.)

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.6

Optimise use by making city property management part of the ecological transition

Type of action: Reduce, adapt

Issues

Optimise and improve management of property assets
Mobilise groups and get the departments involved
Conduct an assessment and help with decision-making
Provide support for building the next term's PPIs

Reduce greenhouse gas emissions ◆ **Energy efficiency ◆**
Adapt to climate change ◆ **Renewable energies ◆**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Create a Property Master Plan that includes ecological transition concerns	Circulate an assessment and status report on the city's property assets based on shared information and databases Use a multi-criteria approach to analyse property assets (technical, financial, social, energy). Note: The data about the energy issues will be sourced from research done for the ecological transition strategy for the property assets Optimise the management and consumption rules for property assets Create a "lingua franca" for coordinating the city's property strategy Determine and steer strategic directions for property asset policies Help prioritise investments and PPIs	2022-ongoing	DCI	DGTB Operational departments (DDT, DE, Sport, Children's Affairs, CCAS, DAC)
Factor in the adaptability concept when building and retrofitting buildings to minimise construction works if the use has to be changed	Establish rules on adaptability, deadlines, margins for technical facilities.		DC DCI	Operational departments (DDT, DE, Sport, Children's Affairs, CCAS, DAC)

Action-related plans and strategies

Property Master Plan [DCI]
Strategy for the ecological transition of buildings [DGTB]

A city that conserves energy and resources

1. Foster an energy conservation and efficiency approach, as well as use renewable energies and recovery techniques at public buildings and property assets.

Action 1.7

Continue demonstrating exemplary urban lighting management

Type of action: Reduce

Issues

Issues within the property assets scope: Nearly 79,000 public lighting units, of which 35% are LED.
Two technical concerns: retrofits and fine-tuned lighting control
Climate-related issues to resolve: accessibility, heritage status and safety

Action stakeholders

Greater Lyon
Sigerly
Traders associations, and major private light manufacturers in the Lyon region
Large exterior lighting suppliers

Reduce greenhouse gas emissions ◆
Adapt to climate change
Energy efficiency ◆◆◆
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Implement a new lighting plan, specifically the "conservation" strategy by including the environmental and public health issues (biodiversity, seasonality, etc.)	Make conservation an input data point for producing lighting services, including: - How light affects the living world and using only what you need (public health, biodiversity preservation, comfort) - Saving energy and the environmental cost of the lifespan of installations.	2023-ongoing	DEU	DBNV Health
Continue retrofitting urban lighting to prepare for smart lighting	Replace sodium-vapour lamps with LEDs to save energy and minimize waste by keeping the light fixture bodies and covers, which can last another 20 years.	2023-2026	DEU	
Meet the energy-cutting objective by transitioning the property assets to switch over to LED	Add to the requirements list that the DALI (Digital Addressable Lighting Interface) protocol needs to be turned on for the LED drivers and to retrofit down to the power supply unit 4x on all projects.	2023-2026	DEU	
Continue expanding the use of motion-detection lighting and dimming, and increase overnight turnoffs.	Continue rolling out motion-detection lighting that does not shut off immediately	2023-2026	DEU	
★★ Research possible solutions for maintaining and repairing street lights to reduce equipment grey energy (i.e., retrofits)	Add the ZAGHA standard (industry consortium for standardising specifications for interfacing LED lights and light engines) to all the retrofitting kits and new lights	2023-ongoing	DEU	

Action-related plans and strategies

Lighting Plan (DEU)
ISO 14 001 Standard (DEU)

Key objectives:
Cut consumption down from
21,200,000 kWh in 2021
to 17,150,000 kWh in 2030
by switching 13% more lighting units to LED and making 2,600 more units dimmable

A city that conserves energy and resources

2. Make responsible procurement a key driver of the carbon-neutral strategy

Action 2.1

Continue the operational rollout of SPASER (scheme to promote socially and environmentally responsible public procurement) and quantify the carbon footprint of related contracts

Type of action: Reduce, Raise Awareness

Issues

€205 million in government procurement spending in 2020
Establishing targeted cost-cutting actions by getting everyone to improve the impact of government procurement and quantify the greenhouse gas-related impacts of purchasing
Availability and cost of sustainable alternatives and structuring sustainable local supply chains

Action stakeholders

The City of Lyon's key suppliers
Businesses and supply chains

SPASER has its own objectives, indicators and tracking tools

Reduce greenhouse gas emissions ◆◆◆
Adapt to climate change
Energy efficiency
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Deploy SPASER, specifically the ecological transition components	Deploy SPASER, specifically the ecological transition components: - Inform and train the suppliers and buyers at the DCP and SPASER departments - Talk more with networks about responsible government procurement and ordering (public procurement café) - Try using a general cost approach in the specifications - Add environmental and health clauses to contracts, supplies-related waste management, repairability, social and solidarity economies	2021-2026	DCP	Health MTE
★★ Work on a process for quantifying the greenhouse gas-related impact of the city's biggest contracts, find improvement strategies and ways to track how this impact changes over time	- Determine which contracts pollute the most based on the GHG emissions report	2023-2026	DCP MTE	

Action-related plans and strategies

The Scheme to Promote Socially and Environmentally Responsible Public Procurement (SPASER) (DCP)

A city that conserves energy and resources

2. Make responsible procurement a key driver of the carbon-neutral strategy

Action 2.2

Decarbonise the energy used in city buildings

Type of action: Reduce

Issues

Reduce the use of fossil fuel-based energies by devising a strategy with measurable objectives that also ensures the power supply and public service continue with regard for controlling and optimising rates in the long term.
Two issues in terms of solar: Existing equipment to be fully functional by 2026 and tenfold the power by 2030 (or 10% of electrical requirements met in 2030).

Action stakeholders

Greater Lyon and suppliers
Club Solaire
Other communities/SIGERLY
Partnerships for the solar plan TBD

Reduce greenhouse gas emissions ◆◆ **Energy efficiency**
Adapt to climate change **Renewable energies** ◆◆◆

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Carry out an action plan to replace heating sources with priority on renewable energy and energy recovery.	The action plan will be determined based on the directions approved in the scope memo (approval May 2023). It will include: 1. Discontinuation of oil-fired boilers 2. An analysis to determine feasibility of connecting and planning urban heating and cooling networks 3. Development of heat pumps and geothermal systems	2020-2050	DGTB	DC
★ Devise and implement a solar power plan	Solar power is installed either in-house on building projects (DC) or on existing roofs that are solar-compatible (DGTB) Key phases of the solar power plan: 1. CONSOLIDATE internal resources and tools, and existing equipment. 2. DEPLOY: - Short-term (2024-2025): in-house on DC projects or other opportunities for retrofit/renovation projects (DGTB/CCAS) - Medium-term (2025-2026): third-party investors, individuals living off the grid. - Long-term (2024-2030): Co-development and/or self-sufficient communities	2022-2030	DGTB DC	Operational departments
★ Implement the energy procurement strategy targeting 100% renewables in 2030	Implement and adapt the procurement strategy 2023: - Electricity 2024 and 2025: reissue a premium electricity follow-up contract - Electricity post-2025: combination of three electricity procurement methods: all-renewables direct purchasing contracts, all-renewables source framework agreement, and city purchases solar power generation - Natural gas 2025-2027: framework agreement with 25%-100% biomethane - Natural gas post-2027: combination of two procurement methods: direct biomethane purchasing contracts and "standard" all-biomethane framework agreement	2021-2045	DGTB	DEU CCAS Finance DCP External Management Control DAJ

Action-related plans and strategies

Strategy for the ecological transition of buildings [DGTB]
Energy Decarbonisation Plan – *forthcoming* [DGTB]
Solarisation plan – *forthcoming* [DGTB]
Conservation Plan [DGTB]
Map the urban heating network [Greater Lyon]
Map construction in the City of Lyon

Key objectives:

2030 goals: 100% renewable-sourced electricity and 100% biomethane
Increase quantity of natural gas and electricity purchased through direct contract

January 2023: 100% renewable-sourced electricity and 25% biomethane
No natural gas or electricity purchased through direct contract

A city that conserves energy and resources

2. Make responsible procurement a key driver of the carbon-neutral strategy

Action 2.3

Break down the digital strategy into operational actions

Type of action: Reduce, Raise Awareness

Issues

The City of Lyon has about 50,000 items in stock: Desktop computers, monitors, copiers, printers, smartphones, tablets, servers, active components (switches, routers, etc.)

Action stakeholders

Greater Lyon (refurbished purchasing office)
Digital services companies

Reduce greenhouse gas emissions ◆◆ **Energy efficiency ◆**
Adapt to climate change **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Implement the digital strategy's greening plan and monitor the GHG emissions report to measure the impact of the actions carried out	Raise awareness: Remove the immaterial aspect of digital technology and deconstruct perceptions (refurbished) Encourage using digital technology more responsibly Implement measuring tools Instil a culture that cares about responsible digital technology and acclimate DSITN agents Purchase hardware that is refurbished (awarded contracts) and/or more repairable (repairability rate) Contract with Emmaüs Connect and Envie to give hardware a second life	2022-ongoing	DSITN	DEC MTE DCCI
★★ Gradually introduce eco-design to the city's websites and digital departments so they can be more green and cut down on hardware obsolescence	No contracts are up for renewal in the near future, so there is not much room to manoeuvre, but this action has been committed to on lyon.fr	2023-ongoing	DSITN	External Comm
🛠 - ★★ Set the City of Lyon on a course to strike a balance between low-tech and the smart city	Flagship projects - Use available data to support the ecological transition: Improve use of connected water/energy meters - Start a continuous improvement approach by installing management software - Save energy by continuing to automate motion-detection street lights - Price parking by the vehicle's weight/energy		DSITN	MTE DEU DMU DGTB
🛠 - ★★ Turn spaces that welcome the public (BM, CS, MJC, etc.) into areas for raising awareness on greener digital technology	Actions on digital technology have already been carried out in these spaces, such as tech advisers and cyberbase. The idea is to add information on issues related to responsible technology and greening		DSITN	BM DE

Action-related plans and strategies

2022-2026 Digital Technology Strategy [DSITN]

Key objectives:
2030 goals: All purchases of office desktops, monitors and smartphones will be refurbished

A city that conserves energy and resources

3. Improve the management of water and landfill for the city's activities and advocate for less waste

Action 3.1

Devise, implement and monitor the Zero Landfill Zero Waste Strategy

Type of action: Reduce, Raise Awareness

Issues

Formalise a comprehensive strategy for the 5Rs and an end-to-end analysis of waste related to the city's operations
Save resources and reduce landfill
Comply with the regulations

Reduce greenhouse gas emissions ◆◆
Adapt to climate change
Energy efficiency
Renewable energies

The Zero Landfill Zero Waste Strategy will have its own objectives, indicators and tracking tools

Action stakeholders

Greater Lyon
Non-profits, traders and businesses, upstream and downstream building industry, logistics
Ville & Aménagement Durable
ADEME
Biowaste collection companies
Banque Alimentaire (food bank) and the Restaurants du Coeur soup kitchens

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Devise, implement and monitor the Zero Landfill Zero Waste Strategy (ZDZG in French)	Better inform city workers and elected officials on waste by offering them training and raising awareness (educational field trips, training in sorting and reducing waste, etc.), conduct an analysis of operations-related waste, make ZDZG part of the ecological transition for city workers. Make the city compliant with regulations in terms of sorting waste at administrative offices and expand the paper recycling contract, establish a biowaste collection contract at places like schools. Track actions being carried out at pilot facilities in terms of sorting and reducing waste, and provide support to management for these actions.	2024-2025-ongoing	MTE	All departments whose operations generate waste DCP DMG DECA
🛠 - Write a roadmap for work site waste and an operational action plan to be adapted for renovations and construction projects	Provide the city a roadmap and operational action plan to ensure it is compliant with the applicable regulations, as well as cutting down waste and practising circular waste management at the city's renovation and construction sites	2021-2026	DGTB DC	DEC DBNV DEU
★★ Support better waste management and reduction based on context at facilities for small children (compost, chickens, cloth/biodegradable nappies, etc.)	Approach facilities for small children based on their context and constraints in terms of issues reducing and managing waste. Several trials are being conducted: installing chicken coops or compost bins for organic waste, using washable, compostable nappies to cut down waste generated by disposable nappies, etc. These trials can be expanded and pooled between both city and non-profit day care facilities. How they are deployed will depend on the outcomes of these trials.	2021-ongoing based on outcomes of the trials	Children's Affairs	MA
★★ Reduce single-use plastics at dining facilities	Conduct studies on using stainless steel containers to reduce single-use plastics at school dining halls: - Conduct a study on what containers are currently being used from the main kitchen to the dining halls. - Conduct a study on all viable solutions across the City of Lyon. - Choose a solution to implement across the City of Lyon. The scope for these studies will be from the main kitchen to the student dining halls Eliminate plastic food containers at facilities for small children and gradually replace with a materials like stainless steel, glass, ceramic or Arcoroc glassware: establish a new procurement contract as current tableware is being replaced	2023-2025	DE Children's Affairs	

Subaction	Description	Timeline	Lead departments	Support departments
★★ Initiate and promote purchasing of second-hand toys and small childcare items, and continue installing donation boxes.	Begin with facilities for small children: - Initiate purchasing of second-hand games and toys: test out a new supply contract that aims to prioritise procurement of refurbished games and toys across all city nurseries - Continue providing places for donating and swapping to encourage reuse. In many nurseries, a vendor is already in place that sets it up and designated parents collect the donations. Beyond the ecological transition aspect, the donation boxes create a social bond and get people involved in the day-to-day life of nurseries. Once they are installed at facilities for small children, the challenge will be expanding them to the City of Lyon's other facilities and urging our partners like MJC and CS to do the same.	2022-ongoing	Children's Affairs	MA
See that the biowaste collection contract is phased in at the city's dining facilities	Through the city's biowaste collection contract, sorting programmes are set up at the source, and food waste is picked up from city facilities. It has already been implemented at educational and CCAS buildings, but still needs to be expanded to other facilities at issue. It aims to achieve several objectives: - Reduce final waste - Recover organic waste - Control food waste - Raise user awareness about sustainably managing food waste	2022-ongoing	MTE	DE Children's Affairs CCAS
Cut down food waste and increase community food programmes by continuing food donations at school dining facilities while also working to control over-buying.	Continue donating foodstuffs that are still edible to charities the city partners with to reduce food waste and help fight against poverty	Ongoing	DE	Health

Action-related plans and strategies

The City of Lyon's Zero Landfill Zero Waste Strategy (MTE)
Technical and environmental requirement list (new construction and renovations) [DGTB/DC]

Local Household Waste Prevention Programme and similar 2019-2024 - PLPDMA [Greater Lyon]
Greater Lyon's 2030 Waste Master Plan [Greater Lyon]
The eight low-pollution worksite guides, which include construction waste [Greater Lyon]
Food Project of the Lyon Region (PATLy) [Greater Lyon]

A city that conserves energy and resources

3. Improve the management of water and landfill for the city's activities and advocate for less waste

Action 3.2

Formalise and implement a stronger ambitious cross-functional strategy for water

Type of action: Adapt

Issues

Control and reduce water use for all the city's operations
Bring the city's water removal facilities into compliance and apply drought ordinances
Detect and repair leaks
Use a One Health approach for aquatic environments (quantity, quality, climate change-related uses that help address water hazards: cyanobacteria, legionella, microbiological pollution)
Support more recreational water activities, such as kayaking and swimming
Carefully analyse how water is used for cooling off in Summer and adapt the municipality to climate change

Action stakeholders

Greater Lyon
ISARA
DREAL
LEHNA
VNF/CNR
ARS
Water utility
BRGM
CEREMA

Reduce greenhouse gas emissions — **Energy efficiency**
Adapt to climate change ◆◆◆ — **Renewable energies**

Operational subactions

Subaction	Timeline	Lead departments	Support departments
Formalise and implement a stronger ambitious cross-functional strategy for water to combat climate change: Increase water accountability at all levels (use, quality, quantity, hazards, governance, event management, etc.) in line with the strategy to be implemented	Actions already in progress for many years - 2023-ongoing	MTE	Health DBNV Sport

Action-related plans and strategies

National Action Plan for Resilient Joint Water Management (March 2023)
Rhône-Mediterranean SDAGE and East Lyon SAGE
Local Urban Planning and Habitat Scheme (PLU-H) [Greater Lyon]
Endocrine Disruptor Action Plan [Health]
Municipal Safeguard Plan, the Municipal Document on Major Risks (DICRIM), and the ORSEC Plan
Drought Framework Ordinance [Prefecture]
Lyon Water Table Heating Observatory (DREAL, Greater Lyon)
River Waterway Use Scheme [Greater Lyon]
Permeable City [Greater Lyon]

The water strategy will have its own objectives, indicators and tracking tools

A quiet and breathable city

4. Advance mobility for city workers and users

Actions 4.1 and 4.2

Adopt, implement and analyse the actions in the Employer Mobility Plan, and continue transitioning the city fleet

Type of action: Reduce, Raise Awareness

Issues

Reduce the number of combustion engine cars on the road by successfully completing the city worker modal report
A routine review should be done of the PDME to include more targets than just city workers, specifically in terms of users
Bring the fleet into compliance using Greater Lyon's Mobility Direction Act and the Low-Emissions Zone (ZFE) requirements.

Action stakeholders

Suppliers of vehicles, bicycles and management software
Carpooling and carsharing platforms
Sytral
Mobility department

Reduce greenhouse gas emissions ◆◆ **Energy efficiency ◆◆**
Adapt to climate change **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ PDME: being developed around these issues: - Communicating with city workers and guiding their commutes - Infrastructure and developments - Work organisation - Adapting, optimising and improving work-related travel for city workers, elected official and service providers - Changing and replacing the city fleet - Reducing the carbon footprint for travel	The priority for the City of Lyon's first PDME (city worker travel plan) is both commutes and business trips for city workers. It is under development and will group actions into four sustainable mobility categories: - Guiding all city workers toward using more sustainable mobility - Creating a stronger sustainable mobility culture - Changing how the community operates to encourage more sustainable mobility - Proactively removing roadblocks to expanding sustainable mobility The city will achieve this in the following ways: - Equip its key municipal facilities with the infrastructure they need to develop active modes of mobility, i.e., add more parking for active modes of mobility and providing showers and changing rooms at municipal facilities - Continue raising awareness and increasing rollouts for city workers of informational and motivational initiatives on sustainable mobility by competing in annual mobility challenges and training city workers in new mode of mobility - Incorporate mobility issues into the work organisation, i.e., study options for creating new work organisation plans - Formalise the business trip policy, i.e., explain the rules on business trips and give city workers new travel options	2023-2026	MTE DAP	DMG DSITN Finance MANAGEMENT CONTROL HR DCP
Continue transitioning the city fleet	Make the fleet greener by: - Purchasing lighter vehicles that generate fewer emissions - Purchasing and providing access to new types of vehicles, such as e-bicycles and cargo bikes - Reducing the vehicle fleet	2014-2026	DMG	

Action-related plans and strategies

Employer Mobility Plan [DAP/MTE]
Property Master Plan [DCI]
2017-2030 Urban Travel Plan of Greater Lyon - Currently being revised as the Mobility Plan [Sytral]

Key objectives:

Obtain a city fleet that fully complies with the ZFE while reducing the number of vehicles travelling less than 1,000 km/year by 40, and the total distance travelled annually by 400,000 km by 2030.

The Employer Mobility Plan will have its own objectives, indicators and tracking tools

A quiet and breathable city

5. Make development projects a key driver of city climate policy

Action 5.1

Make the climate-air-energy criteria part of the development and building operations in applications for urban planning permits and in urban planning documents

Type of action: Reduce, adapt

Issues

Use the Local Urban Planning and Habitat Scheme (PLU-H) to incorporate climate and environmental concerns upstream of development projects at the operational level and for the surrounding region

Action stakeholders

Greater Lyon
Signatories of the Charter, developers and builders

Reduce greenhouse gas emissions ◆◆	**Energy efficiency ◆◆**
Adapt to climate change ◆◆	**Renewable energies ◆**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Continue the City of Lyon's active participation in modifying Greater Lyon's PLU-H so the latter can be proactive and recommend actions that better incorporate ecological transition criteria through one of the following options: • Broad theme-based development and programming guidelines (OAP) like climate-air-energy-health • One or more OAPs on specific topics: bioclimatism, air quality, blue-green infrastructure, dark infrastructure and lighting, mobility • Put the ecological transition criteria right in the regulations or regional OAPs	Champion the legitimacy of this request for the City of Lyon to the Metropolitan Council of Lyon, which oversees the PLU-H. Do one of the following: broadly themed development and programming guidelines (OAP) similar to climate-air-energy-health; several OAPs on bioclimatism, air quality, blue-green infrastructure (and mobility); write the criteria into territorial OAPs.	2023-unknown	DAU	DBNV DEU Health
★ Apply the City of Lyon's Charter on Urban, Architectural, Landscaping and Environmental Quality as a tool for fighting climate change and adapt the city to its effects	In addition to the commitments made in the Charter on Urban, Architectural, Landscaping and Environmental Quality that put the signatory institutions under moral obligation, it is being implemented through building methods and architectural styles that ensure the quality of all large-scale projects, which include all public housing buildings. The city's departments carefully inspect these projects, specifically with the assistance of an environmental consultant who provides expertise on each one.	2021-ongoing	DAU DBNV	
★★ Continue raising awareness and routinely training city workers who review applications for urban development permits about issues facing the ecological and climate transition, thereby making their review a key performance phase of energy renovation projects	Daily training coupled with joint meeting and opinions on preliminary statements and building permits. A model refurbishment form is being drawn up	Ongoing	DAU	DEC

Action-related plans and strategies

Local Urban Planning and Habitat Scheme (PLU-H) [Greater Lyon]
SCOT – *Being redesigned* [SEPAL]
Charter on Urban, Architectural, Landscaping and Environmental Quality [DAU]
UNESCO Management Plan for the Historical Site of Lyon, safeguarding and enhancement plan for Vieux Lyon, and the Slopes of the Croix-Rousse AVAP (architecture and heritage enhancement area)

Action 5.2

A quiet and breathable city

5. Make development projects a key driver of city climate policy

Redesign mobility planning and develop the public space accordingly

Type of action: Reduce, Raise Awareness

Issues

The issues are to:
- Move toward integrated, centralised mobility housed under a single brand and tool
- Merge all of the partners
- Provide access and connect priority neighbourhoods to the public transport networks
- Monitor how the actions affect the region's modes of mobility and GHG emissions, despite trouble collecting data
- Make it easier to add car-sharing and kick scooters in the city mobility mix
- Increase knowledge of new modes of mobility and how they work

Action stakeholders

Residents/users of the region
Greater Lyon
SYTRAL, SPLM
LPA
Lyon St Exupéry Airport
Kick scooter companies
Carsharing companies
Developers
VNF
Urban observatory

Reduce greenhouse gas emissions ◆◆ **Energy efficiency ◆**
Adapt to climate change ◆ **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Monitor and join Greater Lyon and Sytral actions on alternative modes of mobility: i.e., create a Mobility Centre and promote the "mobility mix"	Bring in the Local Public Company for Mobility (SPLM) Provide better reception and consulting for parking, and add parking information to the Mobility Centre. Join projects to create local public companies and various workshops being held Help turn the Urban Travel Plan into a mobility plan	2021-2030	DMU	
★★ Gain better knowledge about how resident travel and move around, and measure the "carbon footprint of the people of Lyon" in their journeys	Analyse how greenhouse gas emissions have changed for Lyon residents in terms of their daily trips and more occasional journeys within city limits, in the urban area, and on a wider scale. There are two objectives: Determine if they are generating less and by how much based on policies implemented by the city, Greater Lyon and SYTRAL. Verify whether the drop in emissions is in line with the National Low-Carbon Strategy (SNBC) and COP21.	2024-2026	DMU	
Continue and expand guidance and supervision for new types of mobility: Call for tenders to develop car-sharing, call for proposals for self-service electric scooters, etc.	Help revise the car-sharing label. Create calls for expressions of interest and calls for projects to expand shared modes of mobility. Quantify/analyse how this shared mobility impacts the mobility plan, modal report, the environmental, and accident rates	2021-2030	DMU	
Continue the traffic calming measures implemented by the city in partnership with Greater Lyon (i.e., pedestrianisation, quieter neighbourhoods and school zones, 30 kmh zones, super islands, low-emissions zones, urban motorway transitions) to reduce road traffic as well as reclaim public spaces and connect people.	Transform public spaces to make more room for vegetation and active modes of transport for a greener city to cool down the city and adapt it for higher temperatures. The transformation is being done by giving less space to cars and more space to active modes to plan the 15-minute city. Space for cars will be reduced by providing fewer options and restricting access to roads and parking. This action is accelerating, but remains a major challenge.	2021-2030	DMU DAU	Health
★★ Continue the 15-minute city project providing pedestrian access to everyday public services through a special network of city installations	Create a map of municipal installations on the community level to build a special network for future projects and support the 15-minute city where every area has access for active modes of transport to local facilities.	2022-ongoing (SDI)	DAU	DCI
★★ Support planning for the *Voies Lyonnaises* (Lyon Bike Paths, a Greater Lyon initiative) with new vegetation and adjustments	Provide city expertise, specifically vegetation, to support the *Voies Lyonnaises* project	2022-2030	DMU DBNV DEU	DAU
★★ See that the projects originators and property developers are properly applying Modification 3 of the PLU-H See that future modifications are fine-tuned in terms of parking areas for current and future modes of transport	Modification 3 of the Local Urban Planning and Habitat Scheme introduced major changes for parking: revised parking limits for cars and bicycles at new buildings and zoning for vehicle parking to align with public transport stations. The objective for upcoming modifications is to make further adjustments to these areas and their regulations for current and future modes of transport.	2023-unknown	DAU	

Action-related plans and strategies
30 in the City Plan [DMU]
Meeting Spaces Master Plan [DMU]
Air Conservation Plan [Prefecture]
2017-2030 Urban Travel Plan of Greater Lyon - Currently being revised as the Mobility Plan [Sytral]
Public Spaces Charter [Greater Lyon]
Local Urban Planning and Habitat Scheme (PLU-H) [Greater Lyon]
Traffic Plan, Parking Plan
Lyon Bike Path Plan [Greater Lyon]
SCOT – *Being redesigned* [SEPAL]

A quiet and breathable city

6. Provide equitable, green modes of transport that best suit the needs of Lyon's residents

Action 6.1

Educate residents and users about alternatives to cars

Type of action: Raise Awareness, Reduce

Issues

Use a multi-channel approach to reach as wide an audience as possible: mobile app, events, physical locations for using the modes of transport, street furniture, supervised programmes, informational sessions at mobility, sport and public health expos, or through non-profits

A key strategy for **reducing GHG emissions** is visitor transport for events and cultural activities

Reduce greenhouse gas emissions ◆◆
Adapt to climate change

Energy efficiency
Renewable energies

Action stakeholders

Greater Lyon/Sytral/SPLM
Non-profit organisations
Carsharing companies
National education system
Maison du Vélo
The cycling schools at community centres and MJCs (youth and culture centres)
Auvergne-Rhône-Alpes Region sporting league
JC Decaux (Velo'v), SNCF
Operators of alternative modes of transport

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Continue providing financial backing for green mobility in the region: i.e., Maison du Vélo, Vélo Sans Âge Lyon, cycling schools at educational institutions	Make funding contingent on relevance of the proposed actions at the local level for decarbonised modes of transport Help develop this mode through targeted actions by non-profits that specialise in the area. This action is underway	2022-2030	DMU	DDT
★★ Make Section 2 of "Learn to Ride a Bicycle" cycling training standard at all schools - Know how to get around (in a safe environment). Test then implement by gradually introducing it at Section 3 schools - Learn to Ride a Bicycle (in real life)	Introduce cycling training sessions during class time (176 classes in Years 5 and 6 in 2022-2023, or 4,500-5,000 pupils) that teach Modules 1 and 2 of the Learn to Ride a Bicycle Programme. A pilot programme for Module 3 will be given to four classes on 30 June and 4 July in partnership with the USEP and the national education system	2022-unknown	Sport DE	
Run a pilot to carry out learning institutions travel plans in each district (arrondissement)	To expand the Rue des Enfants action (Streets for Kids), continue working on devising a school mobility plan. The aim is to draw up a status report on how children, parents and school staff get around. Once this report is done, the goal is to propose actions on transitioning to more active, low-carbon modes of mobility. The end goal is to evaluate these projects.	2024-2030	City of Children Task Force	DE DMU
★★ Implement actions create a link between sport and health when promoting active modes of transport	Implement sport & health programmes for a variety of populations with an aim to making people less sedentary, promoting regular physical activity, and encouraging the use of active modes of transport	2017-ongoing	Sport	External Comm Health DDT
Encourage and facilitate active modes of transport and public transport at city events	Encourage and facilitate active modes of transport and public transport at city events (i.e., bicycle parking, timetables, special schedules and fares), specifically when researching partners and solutions for adapting to safety restrictions.	2023-ongoing	DMU DEA Sport	
★ Encourage the use of active modes of transport and public transport at city cultural institutions: access to venues, partnerships, motivational communications	Help users who visit cultural institutions use decarbonised and active modes of transport Issue communications, adapt the environs, and offer options for alternatives in the vicinity	2024-2026	DAC DMU	External Comm

Action-related plans and strategies

2017-2030 Urban Travel Plan of Greater Lyon
- Currently being revised as the Mobility Plan [Sytral]

A quiet and breathable city

6. Provide equitable, green modes of transport that best suit the needs of Lyon's residents

Action 6.2

Install a parking system that is more equitable and makes it easier to use alternative modes of transport

Type of action: Reduce, Raise Awareness

Issues

At issue is adopting a policy that provides strong incentives to join the ecological transition and complements that low-emissions zone.
Only project of its kind in France, major legal implications.
Involves some 51,000 + 8,800 parking spaces by 2025
Actions that may eventually encounter obstacles in certain areas depending on parking requirements and how the modal report evolves

Action stakeholders

Greater Lyon

Reduce greenhouse gas emissions ◆◆ | **Energy efficiency ◆**
Adapt to climate change | **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Expand paid parking and work on fair pricing that furthers the ecological transition	Continue increasing paid parking and set up a new policy on community-minded, inclusive and eco-conscious parking. This action is also intended to be part of the Vision Zero Project. It needs to be well managed to achieve conclusive results.	2021-2024	DMU	DRU DSTS DAJ DSITN Arrondissements External Comm LED DPO
★★ Expand automated parking enforcement and track the fines issued	Set up a parking enforcement system using vehicles equipped with automatic number plate scanners.	2022-ongoing	DSTS	
★★ Transform car parking spaces to make room for more vegetation and play areas for children, install facilities for soft modes of transport and waste management	Turn parking areas into a range of new spaces that cool down the city and make it more sustainable and inviting	2020-2030	DMU DBNV	

Action-related plans and strategies

2017-2030 Urban Travel Plan of Greater Lyon
- Currently being revised as the Mobility Plan [Sytral]

A quiet and breathable city

6. Provide equitable, green modes of transport that best suit the needs of Lyon's residents

Action 6.3

Lower the carbon footprint of city logistics and long-distance freight

Type of action: Reduce, Raise Awareness

Issues

Advocate for decarbonising last-mile deliveries, encourage the use of cycle-based logistics systems to supply and deliver in dense city centres.

As part of the partnership with the CMA (Chamber of Trades and Crafts):
- Educate and support artisanal businesses working in the area through the "Presqu'île Calming" project so they can change their mobility habits
- Expand existing programmes and consider offering special parking for companies, especially the ones that adopt greener ways of getting around

Action stakeholders

Greater Lyon
Shops/logistics-related firms
VNF/CNR

Reduce greenhouse gas emissions ◆◆ | **Energy efficiency ◆**
Adapt to climate change | **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Help develop the Goods and Services Logistics Plan being piloted by Greater Lyon and implement it in the Lyon region, with particular emphasis on last-mile delivery	Assist with the work underway to develop an urban logistics plan led by Greater Lyon.	2021-unknown	DECA	Health
★ Use city actions to prioritise clean or low-carbon logistics systems - Upgrade public spaces and change uses (create areas for the clean delivery mode) - Educate and partner with logistics companies, shops, and markets	Many development projects are underway to make it easier to implement low-carbon logistics solutions and increase best practices: 1. Urban Logistics Agreement through 2025: being launched with La Poste (postal service) and Greater Lyon in a range of areas (cycle-based logistics, government ordering, first-attempt delivery, urban planning, charging infrastructure, support for artisans/traders during the transition, etc.) 2. SNCF Urban Logistics Project at the building complex behind Vaise Station. 3. Help with the La Ruche Éphémère pilot project, a cycle-based logistics micro-hub initiated by the non-profit Le Centsept 4. Agreement with the Chamber of Trades and Crafts to educate traders about greener modes of transport, optimise delivery routes, restrict and streamline travel, optimise the use of public spaces	2022-2025	DECA	
★★ Massively expanding river and rail logistics for long-distance freight : - Join the Port Edouard Herriot logistics hotel project, - Help develop Port Edouard Herriot and urban logistics ports, including making use of relay docks along the Rhône and Saône rivers - Expand public contracts for freight with the SNCF	1. The Port Edouard Herriot Urban Logistics Hotel: The SERL (Rhône and Lyon Development Company) is currently marketing two south and north parcels as spaces for service companies and logistics firms. Future tenants will have to meet a requirement on delivery vehicle decarbonisation. Upstream distribution flows must be at least 50% decarbonised. 2. Several pilot programmes with VNF (French navigable waterways) at joint open-access docks: i.e., river waste collection, decarbonised river transport for Beaujolais food products with a view to creating a regular line in the first half of 2023, new dock and trial programme with a beverage distributor in March 2023, ULS (Urban Logistic Solutions) and a river delivery system supplying traders using a boat-to-cargo bike link, and new reverse logistics programme with Paprec.	2020-2023	DECA	

Action-related plans and strategies

Goods and Services Logistics Plan [Greater Lyon]

Action 7.1

A city that cares and adapts

7. Account for climate change to make more room for the city's living beings (residents and biodiversity)

Make Lyon a greener and cooler city

Type of action: Adapt, Sequester

Issues

Adapt the city for high temperatures and account for all concerns pertaining to water, biodiversity, climate change, soil and water pollution (including perfluorinated compounds [PFCs]), foreign invasive species that are toxic or allergenic
Use a one-health approach that considers the benefits and risks of changing the urban ecosystem

Action stakeholders

Residents/users
Nature and heritage conservation non-profit organisations
Tourist Office

Reduce greenhouse gas emissions — **Energy efficiency**
Adapt to climate change ◆◆◆ — **Renewable energies**

Key objectives:
Plant 10,000 trees from 2020 to 2026

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Greatly increase the amount of vegetation, particularly in areas that lack green spaces	This action includes street greening within the UNESCO scope, and independent of it through the multi-year annual programme to green the streets and remove impermeable surfacing. Greening programmes and projects should include several criteria: conserve, restore, densify, and build functional greened spaces that foster biodiversity, account for future water requirements, increase ecological corridors, green networks and cooling areas/pathways, remove impermeable hardscaping, and restore soil health	2020-ongoing	DBNV	Cemeteries DAU Sport
★★ Provide more education, conservation and value-creation in the region when it comes to biodiversity: Use the community biodiversity atlas and enlist non-profits	Apply the national ABC method that prioritises species groups to inventory Lyon's biodiversity with an emphasis on areas with the most ecological concerns so that changes in populations can be tracked over time Issue an annual call for projects that support regional non-profits advocating for biodiversity Longer term: gain a comprehensive view of the region by cross-referencing the data (excluding land owned by the City of Lyon).	2020-ongoing	DBNV	DGTB Health DO
★ Continue implementing eco-conscious green space management, while containing the spread of foreign invasive species and vectors of disease	Green spaces are managed in line with the determined uses (classes in nature, life sciences, flowers) An increasing amount of space is being given over to natural spaces and managed on a broader level (mowing spaced out over time). These management methods also have to account for concerns about foreign invasive species and vectors of disease that are prone to spread as the climate heats up, and they require targeted actions.	2020-ongoing	DBNV Health	Cemeteries Sport

Action-related plans and strategies

Tree plan [DBNV]
Lyon Biodiversity Atlas [DBNV]
Community Garden Charter and numerous manuals
ISO 14001 standard, Ecojardin (green management label) [DBNV]
Tree Canopy Plan and Nature Plan [Greater Lyon]
Tree Charter [Greater Lyon - City of Lyon signatory]
La Tête d'Or Park Charter [DBNV]
Local Health Contract [Health]
Map of cooling sites and pathways [MTE]
PLU-H of Greater Lyon

A city that cares and adapts

7. Account for climate change to make more room for the city's living beings (residents and biodiversity)

Action 7.2

Develop the city to create stronger connections between children and nature

Type of action: Raise awareness, Adapt, Sequester

Issues

Develop a city at a child's level that is designed for and with kids, with an emphasis on nature There is much at stake with 156 public and non-profit nurseries and 208 state schools in the City of Lyon.
Make advances in this area at the city and national levels by lifting regulatory limitations on outdoor education

Action stakeholders

Residents/users
Non-profit nurseries
Teachers/national education system
PMI, CAF
Water utility
After-school programmes

Reduce greenhouse gas emissions **Energy efficiency**
Adapt to climate change ◆◆ **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Plant more vegetation in playgrounds, nurseries and nearby establishments: prioritise heat islands and give the public access to these places in the Summer in areas that lack public green spaces	A playground greening plan is currently being drawn up for the 2020-2026 term. It has four objectives: - Plant more vegetation in playgrounds - Partially remove impermeable ground surfaces - Install water games and/or misters - Upgrade the materials The same type of greening should also be considered at nearby installations (community centres, MJCs, MEs, sport facilities)	2020-TBD	City of Children Task Force	DE Children's Affairs DBNV DDT Sport DC DGTB
Continue developing and greening areas around schools (Streets for Kids project) and extend beyond 2026	Programme to calm and reclaim public spaces around schools and nurseries piloted by the City of Lyon in collaboration with Greater Lyon in view of creating a "city at a child's level," and overcome long-term environmental, public health, and climate-related challenges. Provide spaces where everyone can play and walk around Reclaim public spaces	2020-2030	DMU	DE, City of Children Task Force, DEU, DBNV, DSP, DGTB, DPE, DC, COM
Carry out awareness and educational initiatives on topics like the climate and resilience alongside transitioning playgrounds at nurseries and schools	In an effort to create a stronger bond between nature and the living world, guidance must be provided to the stakeholders (i.e., teachers, city workers specialised in regional elementary schools, and activity leaders – inevitably in collaboration with parents) to help them adapt their working and teaching methods accordingly. The key is to use a pragmatic and calm approach to address matters of organisation, risk management and stakeholder coordination (joint initiatives, peer-to-peer training, etc.).	2020-TBD	City of Children Task Force	Children's Affairs DE
Foster connections between children and nature	"Education outside" project for all children's activities: trainings, outdoor facilities, guides, after-school activities, Lyon Nature, outdoor classes, etc. Outdoor classes are a key strategy of Children's Affairs' teaching programme to: - Train all city workers at nurseries and early childhood facilities (programme benefits, remove roadblocks to holding class outside, etc.) - Equip nurseries to accommodate outings in any weather: all-weather jumpsuits, rain boots, outdoor naps - Educate the families and survey satisfaction levels: explain at the beginning of the school year and hold a workshop during the year - Measure impacts of the change (upcoming contract) and provide teams educational support when the planted playgrounds are installed - Plans for five outdoor nurseries (at childcare centres), with two scheduled to open in 2025	Ongoing	Children's Affairs DE DBNV	

Subaction	Description	Timeline	Lead departments	Support departments
★★ Resurface playing fields and play areas to reduce pollution: replace with materials that are more sustainable, and add vegetation and shade to mitigate periods of extreme heat.	1) Replace synthetic surfaces containing SBR fillers (recycled tyres will be banned in 2026) with plastic-based surfaces filled with natural materials, such as cork, olive stones, and maize cob ash. 2) Add vegetation to outdoor playing fields and around sport installations. - Collaborating with DBNV to determine which where trees can be planted, first plantings 2023-2024 season. (i.e., orchard at Anatole France and Morin Stadium, Plaine des Jeux, etc.) - Select heat islands to receive horizontal and/or vertical greenery. - Actions proposed by residents as part of the BUPA (participatory budget).	2023-2026	Sport DBNV Health	DCP

Action-related plans and strategies

Playground greening plan/Natural playgrounds projects [City of Children Task Force]
Standard landscaping programme for natural playgrounds [DBNV]
Lyon educational project [DE]
Lyon Nature [DBNV]
Ideal Garden Manual [Children's Affairs]
Endocrine Disruptor Action Plan [Health]
2017-2030 Urban Travel Plan of Greater Lyon
- Currently being revised as the Mobility Plan [Sytral]

A city that cares and adapts

7. Account for climate change to make more room for the city's living beings (residents and biodiversity)

Action 7.3

Use greening actions to get Lyon residents more involved in the ecological transition

Type of action: Raise awareness, Adapt, Sequester

Issues

Create a sense of ownership among the residents of Lyon by raising awareness on biodiversity protection issues and how they are closely aligned with climate concerns

The more we know, the better we can conserve

Action stakeholders

Residents/users
Non-profit organisations
Greater Lyon
University of Lyon
CNRS

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆◆
Energy efficiency ◆
Renewable energies ◆

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Teach residents and users how important vegetation is in the city, and inform/show the value of the city's greening actions: community biodiversity atlas, map of cooling sites and pathways, wildlife mediation	Educate residents about the participatory sciences protocols (My Street's Wildlife protocol, raise awareness through Lyon Nature tours and workshops) Organise public events about nature in the city. Community volunteering projects	2020-2026	DBNV Health MTE	External Comm DAC BM CCAS
Involve the arrondissement mayors and residents before the city's greening projects begin (neighbourhood and youth councils, etc.)	Always coordinate with the arrondissement mayors on all greening projects	2020-2026	MDO MA DBNV	
To create a sense of ownership, get residents involved in public space greening projects through volunteer/community gardening (street gardens, volunteer planting events, etc.)	Create three categories of community management actions relating to urban biodiversity and nature: - Community volunteering programmes - Actions jointly managed by residents and DBNV professionals - Greening sites fully managed by residents The aim is to propose new community management methods to find alternative volunteering formats and move beyond the current techniques (street gardens)	2020-2026	DBNV MDO DDT	
Continue providing funding to non-profits for new community gardens so they can create secluded spaces where individuals and groups can garden	Adapt operating grants for community gardens Support community garden projects designed to educate the public in collaboration with schools and residents	2024	DDT DBNV	MA

Action-related plans and strategies

Lyon Community Garden Charter [DBNV]

A city that cares and adapts

7. Account for climate change to make more room for the city's living beings (residents and biodiversity)

Action 7.4

Publicise the health-environment connection in the One Health approach

Type of action: Adapt, Raise Awareness

Issues

Expand the indoor air quality action plan that has to date been focused on public-access establishments working with vulnerable populations
Comply with indoor air quality regulations
Establish non-GDP indicators for measuring progress in the areas of human advancement, public health, social relations, ecology and democracy
Account for soil pollution (including PFCs) and ensure uses are compatible

Reduce greenhouse gas emissions
Adapt to climate change ◆◆
Energy efficiency
Renewable energies

Action stakeholders

Users/residents
Partners of the local health contract (CLS)
The scientific community (INRAE, VetAgro Sup, Sciences Po, ISARA)
Regional health authority (ARS), regional health observatory (ORS)
Health advocacy groups

Operational subactions

Subaction	Description	Timeline	Lead departments
★ Roll out Part 1 of the Local Health Contract: Encourage living environments for all that are healthy and promote wellness/One Health	1.1 Help lower environmental exposure with an indoor air quality action plan and an endocrine disruptor protection plan 1.2 Establish an urban planning strategy that favours health and promote healthy buildings 1.3 Support biodiversity designed for an urban context 1.4 Increase access to information on health and the environment 1.5 Help create stronger social bonds among residents	2022-2026	Health
★★ Incorporate key indicators chosen by residents in a new well-being survey, and then administer it and base city budgetary decisions on the results	The well-being survey aims to become a guide for government initiatives as a tool for determining top-priority community concerns to include in the political agenda, and to open a public discussion about the region's development model. It requires determining the key issues that really matter for residents, aspects that help them "live well" and provide "quality of life." Lastly, the survey should be designed by and with the residents themselves. It is one of three tools in the Mandate Plan for steering city initiatives (the others are the ecological transition scorecard and continuous tracking of the Multi-Year Investment Plan).	2022-2026	MEP

Action-related plans and strategies

Local Health Contract [Health]
IAQ and Endocrine Disruptor Action Plan [Health]
Endocrine Disruptor Charter (2021) [Health]
Lyon educational project [DE]
Air Conservation Plan [Rhône Prefecture]

The Local Health Contract has its own objectives, indicators and tracking tools

The Well-Being Survey will help co-build it and then track the resident well-being indicators

A city that cares and adapts

8. Expand access for all to sustainable, healthy and high-quality food

Action 8.1

Expand access for all to sustainable, healthy and high-quality food at city institutions

Type of action: Reduce, Raise Awareness

Issues

Access to high-quality food at all city facilities at a low cost during a period of high inflation

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆◆
Energy efficiency
Renewable energies

Action stakeholders

Paul Bocuse Institute
Residents/users
Banque Alimentaire (food bank) and the Restaurants du Coeur soup kitchens
ECOCERT

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
See that all the city's food service contracts are renewed with a criterion on healthy sustainably sourced food: school dining facilities, recreation centres, EAJEs (early childhood care facilities), EHPADs (residential facilities for dependent seniors) and independent living facilities, catering contracts	As each of the food service contracts are renewed for the City of Lyon and the CCAS, they will move toward providing more sustainable food at the city's establishments: greater supply of organic produce with quality labels, fewer animal-derived proteins, more locally sourced food (within a 200 km radius)	2021-ongoing	City of Children Task Force DCP CCAS Protocol	DE Children's Affairs
★★ Expand affordable healthy food for all through the CCAS food service division: canteens, third-party dining venues, community-based food pantries	Support food regimens selected and varied for the most disadvantaged Lyon residents (assist more populations through the food service division/guide them to additional solutions)	2022-2026	CCAS	
★★ Certify the main kitchen and school dining halls with the Ecocert En Cuisine (in the kitchen) label for sourcing local and seasonal ingredients	The Ecocert En Cuisine label adds value to institutional food service establishments that introduce local, organic and healthy products. The goal is to showcase the quality of the food served in schools by ensuring diners receive meals made from local organic ingredients, and healthy balanced menus that are part of a general health and environment programme The main kitchen and 130 satellite dining facilities are currently applying for Level 2 of the Ecocert En Cuisine label, which will be renewed every year.	2020-ongoing	DE	

Action-related plans and strategies

School food service contract [DE]
Metro area food strategy: transition toward a more sustainable, inclusive and resilient food system [Greater Lyon]

Key objectives:

In 2026, food products in schools will be 50% local and 100% organic

Increase the number of diners at the CCAS food service division: go from 30,000 meals served to 40,000, and 1,300 food pantry visitors to 2,000, etc.

Achieve Level 3 Ecocert certification at the main kitchen by 2030

A city that cares and adapts

8. Expand access for all to sustainable, healthy, and high-quality food

Action 8.2

Make the residential food supply more local and turn Lyon into an edible city

Type of action: Adapt, Sequester, Raise Awareness

Issues

Build/structure local supply chains (currently overwhelmed) and reconnect the city and the country
Support inclusive food access and the right to food in an inflationary climate
Achieve food self-sufficiency for the region: now at 4.6%, Greater Lyon's goal is 15% by 2030

Action stakeholders

Greater Lyon
Chambers of Commerce: Rhône Chamber of Agriculture, CMA, Chamber of Commerce and Industry (CCI)
SAFER (Land Development and Rural Development Company), DRAAF (Regional Authority on Food, Agriculture, and the Forest), DDT, Rhône Departmental Authority on the Protection of Populations (DDPP)
Non-profit organisations, market sellers unions, local farmers and supply chains
MESA (community advocacy centre for food)
Residents

Reduce greenhouse gas emissions ◆◆
Adapt to climate change ◆◆
Energy efficiency
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Provide sustainable food for all through support for regional advocates (food pantries, call for projects on sustainable food) and by creating specially adapted third places	Annual grant for the City of Lyon's four food pantries Annual call for projects to support facilities and initiatives providing access to food, leading to opening and maintaining new sustainable food venues, providing assistance in creating more sustainable and local food supply chains Create a new Farming Centre where stakeholders from the local food industries can meet and receive support Create third places for the general public called Food Centres and certify them with labels Actions led by city-backed learning facilities for the public: teaching kitchen, cooking workshops, health workshops, bulk food purchases, shift to local organic food	2021	DECA DBNV DDT	DGTB
★★ Enhance and consolidate local farms and suppliers in the region's food service (RGM, Ici.C.Local [initiative for local short-chain suppliers], En Terroirs Connus [short chain food supply conference], Halles food market)	The City of Lyon supports making Lyon's food supply more local by advocating for a products made locally: prioritise local producers in future calls for tenders for outdoor market vendors; deploy the Ici.C.Local colour-coded labelling system at food markets so product sourcing information is easier to read and understand, organise the B2B En Terroirs Connus conference attended by local producers and people in the institutional food service and catering industries. Finally, the city is backing a study to determine the feasibility opening of a local food logistics hub, similar to a "Marché d'Intérêt Local" (local public-interest marketplace) to help supply local short-chain products across the Lyon region.	2021-2030	DECA	
★ Give the residents of Lyon opportunities to reclaim local, seasonal products by expanding urban agriculture (urban orchards, edible green spaces, community gardens, urban farms,	- Plant urban orchards and edible landscapes - Support urban agriculture in Lyon's - Build urban farms - Locate arable land that is part of the urban landscape - Back projects to build community gardens/teaching farms designed to educate the public in collaboration with schools and residents At issue: networking project originators Quartier Fertile Duchère project: farmers market, gardening/market gardening	2020-2026	DBNV DDT	DGTB DECA DCI Cemeteries

Quartiers Fertiles [fertile neighbourhoods] projects)	spaces Quartier Fertile Langlet Santy Mermoz project			

Action-related plans and strategies

Metro area food strategy: transition toward a more sustainable, inclusive and resilient food system [Greater Lyon]

Key objectives:

Increase urban orchards from 27 in 2023 to 56 in 2026

A city that cares and adapts

9. Help the residents of Lyon deal with climate change in their homes

Action 9.1

Reduce energy insecurity in Winter and Summer

Type of action: Raise Awareness, Reduce

Issues

Reduce energy insecurity across the Lyon region during economic inflation
Public health issue during global warming and Summer heat waves, which have the greatest impact on poorly insulated housing units and vulnerable households

Action stakeholders

Greater Lyon/Maisons de la Métropole et Solidarité (city government informational and support centres)
Non-profit organisations/learning facilities for the public
Residents
CAF, Soliha, PIMMS
Community centres

Reduce greenhouse gas emissions ◆ **Energy efficiency ◆**
Adapt to climate change ◆ **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
🛠 - ★★ Greater Lyon's programme SLIME+ (local energy control servicing department) is using a network of social workers and local centres to help determine which households are experiencing energy insecurity	Once the SLIME+ programme begins, Greater Lyon and the City of Lyon will need to devise a joint action for energy insecurity.	2023	CCAS DDT	Health DDT (Relais)
🛠 - ★ Within the scopes of the SLIME+ programme originated by Greater Lyon and the future partnership agreement with the Soliha housing advocacy group, help end energy insecurity among vulnerable households by changing behaviours and/or supporting energy retrofitting projects to minimise out-of-pocket costs as much as possible		2023	DDT CCAS	DDT (Relais)
★★ Continue the CCAS's "relief" support efforts for populations experiencing trouble paying their energy bills	Continue the CCAS's actions for households experiencing trouble paying their energy bills	Ongoing	CCAS	DDT (Relais)

Action-related plans and strategies

Guide to local organisations [DDT]
Social emergency guide [CCAS]

A city that cares and adapts

9. Design an inclusive ecological transition for housing that best suits the needs of Lyon's residents

Action 9.2

Perform large-scale energy retrofits in housing units

Type of action: Raise Awareness, Reduce

Issues

Guide the ecological transition for Lyon's housing units and adapt them for climate change

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆
Energy efficiency ◆
Renewable energies

Action stakeholders

ALEC (local energy and climate authority), Soliha Greater Lyon
ABF (architects of the buildings of France)
Tenants and owners associations

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Raise awareness and support projects that owners and co-owners propose for heating retrofits in housing units and related to high temperatures	Shared land meeting/shared eco-heritage meeting/Talks when granting urban development permits Tools: ALEC agreement, informational meeting in each arrondissement, etc.	2022-2026	DAU	MA
★★ Provide grants to retrofit old properties: • ECO-HERITAGE - Improve eating efficiency, specifically by testing out exterior insulating coatings • ECO-HERITAGE - Social to retrofit the pre-war public housing stock	ECO-HERITAGE committee room and informational meeting on restorations Action to raise awareness about the energy renovation and environment-related issues for construction	2022-2026	DAU	
★★ Use the Ecoreno'v programme to reduce road taxes in support of façade restoration projects and energy retrofits	Encourage green restorations for old and modern buildings and support heating restorations by reducing public domain occupancy rights	2022-2026	DAU	

Action-related plans and strategies

Restoration Charter [DAU]
Ecoreno'v Programme [Greater Lyon]
France Rénov' Programme [French government – ANAH (National Housing Agency)]

A city that cares and adapts

10. Adapt public policy to tackle climate change

Action 10.1

Include climate change in risk prevention documents at the regional and city levels

Type of action: Adapt, Raise Awareness

Issues

Protect the health of the city's 8,500 workers and 500 CCAS workers while ensuring the continuity of public service.
Prepare for future heat waves and high temperatures, and more broadly for any hazards caused or exacerbated by climate change

Action stakeholders

Residents/users
Non-profit organisations
French government
ARS, CNR, VNF, Greater Lyon

Reduce greenhouse gas emissions — **Energy efficiency**
Adapt to climate change ◆◆◆ — **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
On the administrative level, include the hazards of heat waves and extreme weather events in all of our internal risk management documents and instil an internal culture of risk awareness	Include the risks of working in extreme heat in all occupational risk assessment documents and implement resulting action plans. There are both technical and organisational subactions: - Examples of technical subactions: insulate buildings, install window film and ceiling fans - Examples of organisational subactions: instructions on airing out the premises when temperatures are cooler (nights and early mornings), increase remote work hours, change working hours, provide bottles of water, reusable water bottles, and coolers, limit outdoor work during the hottest times of day, provide more breaks, limit or postpone physical labour, anticipate temperature peaks using DRSVT alerts based on stated heat wave threshold, issue regular reminders to staff of the instructions to follow.		DRSVT	DCCI Health Operational departments DSP
🛠 - ★ Step up the provisions in the department "heat plans," particularly those intended for vulnerable populations, and pool feedback on the actions implemented	Determine what prevention measures the operational departments have taken in Summer heat waves When appropriate, organise joint working sessions to pool and improve current systems. Set up a system for departments affected by the heat to coordinate among themselves	Actions that have existed for several years	DSP Health CCAS	Children's Affairs DE DDT
★★ At the regional level, share and update information on climate change-related risks by referencing all the documents on the subject and warn about impacts of heat waves on the most vulnerable	Anticipate how climate change will affect the major risks and add the conclusions to the PCS (Community Safety Plan) and the DICRIM. Instil a risk-awareness culture in Lyon. Continue oversight and operation of the heatwave alert system run by the CCAS.	Programme already underway	DSP CCAS	Health
★★ Plan to manage crises by preventing climate and health risks and assessing the domino effects	Analyse how climate risks affect other major risks (namely technology and public health) with a view to anticipating hazards that may be caused by climate disasters related to global warming	2032	DSP	Health

Action-related plans and strategies

Municipal Safeguard Plan and the Municipal Information Document on Major Risks - DICRIM [DSP]
Local Health Contract [Health]
Lyon Education Project [DE] and the Outdoor Education Plan [Children's Affairs]
Single occupational risk assessment document, F3SCT reports [SG/DRSVT]
PPRI/PPRM/heat Wave Plan/ORSEC Plan [Prefecture]
Air Conservation Plan (ozone section) [Prefecture]

A city that gets everyone involved

11. Involve all of the city's preferred partner stakeholders in the ecological transition

Action 11.1

Make the climate and the ecological transition part of Lyon's curriculum starting in early childhood

Type of action: Reduce, Raise Awareness

Issues

Begin teaching about issues related to the ecological transition as early as possible using model systems, raising awareness and applying teaching method that prioritise nature and the living world.

Action stakeholders

Residents/users
Non-profit nurseries
Teachers/national education system

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆
Energy efficiency ◆
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments
★★ Include the climate, air and energy theme in early childhood documents	The climate theme, and more broadly the energy transition, should be added cross-functionally across practices and occupations. In particular, this is being done through framework documents and manuals: - Academic reference documents on caring for young children in Lyon - include outdoor education and gender equality - Manual for managers of early childhood organisations and guidance for non-profit nurseries about issues relating to the ecological transition and the climate - Social and sustainable development project (policy framework document being written 2023-2024: socio-demographic analysis alongside the care provided, partnership network, SD indicator for early childhood in Lyon)	2023-ongoing	Children's Affairs DDT Health
★★ Implement the ecological transition section of the Lyon Education Project during school and after-school programme hours: advocate for healthy responsible eating, reconnect with nature and the living world, encourage sustainable practices: modes of transport, reusing objects, digital technology	*These will be implemented via a number of targeted actions from the Climate Plan: food, greening with plants, outdoor education project, waste-related actions. etc.*	2022-ongoing	DE DDT

Action-related plans and strategies

Academic reference documents on caring for young children in Lyon [Children's Affairs]
Manual for managers of early childhood organisations [Children's Affairs]
Lyon educational project [DE]

A city that gets everyone involved

11. Involve all of the city's preferred partner stakeholders in the ecological transition

Action 11.2

Involve organisations that are subsidised or contracted by the city for the ecological transition

Type of action: Reduce, Raise Awareness

Issues

Mobilising the city's subsidised/contracted organisations, which is a large number of organisations and members

The boards of directors for the low-income education organisations contracted by the City of Lyon (MJCs, CSs, MEs) live in the neighbourhoods where these organisations operate. In terms of the ecological and social transition, this commitment in itself is an act of civic participation and a driver for mobilising.

Action stakeholders

Non-profit organisations and athletic clubs
Low-income education organisations
Non-profit organisation networks
Neighbourhood boards

Reduce greenhouse gas emissions ◆◆ | **Energy efficiency ◆**
Adapt to climate change | **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Get organisations contracted by the city involved by gradually introducing an environment/social/equality conditionality for receiving grants: shift from non-binding charter and commitments to an ever-stricter conditionality on supporting, training, and equipping organisations	The city subsidises many groups and organisations in a number of areas, such as low-income education, sport, culture, and youth The aim is to support these organisations and get them working alongside the city promoting greener practices. This has begun by providing charters, tools, and trainings to give the organisations as much support as possible. Conditionality measures will progressively be introduced for receiving grants. *An example for sport: Since 2021, clubs have been asked about six aspects of their sustainability programmes (modes of transport, food, purchasing, waste management, educational initiatives, and biodiversity), which weigh on the decision-making process. Via this environment/social/equality conditionality on grants, clubs are also provided free trainings and awareness sessions about sustainability in sport.* *Example in early childhood: Starting in 2022, advocating for alignment with the city's green plan, routine meetings with partners when ecological transition actions can be implemented, specific indicator in partner activity reports*	Sport: 2021-ongoing	Sport DDT DAC Children's Affairs	MTE
★★ Undertake a research and development project on bringing in and supporting stakeholders in the low-income education sector and local social development to further their ecological transition and social actions, a driver for empowering individuals and inclusive revitalisation	This objective operationally depends on a research and development project underway in DDT to build more partnerships in the ecological and social transition. It mentions the need to account for a variety of viewpoints from stakeholders in municipal public actions (elected officials, departments, partners in the non-profit sector, vendors, etc.) and then contrast and compare them in discussion forums.	2023-2026	DDT	MTE MA
Support stakeholders in the low-income education sector and local social development to further their ecological transition and social actions, a driver for empowering individuals and inclusive revitalisation	- Support hiring sustainable development officers at organisations (seed money and then operating funding) or by pooling - Expand partnership projects between the city and low-income education organisations under contract	2024-2026	DDT	MTE MA

Action-related plans and strategies

Repository of sustainable and inclusive actions for grant applications [Sport]
Guide to local organisations [DDT]
Charter for Green MJCs (youth and culture centres)

Action 11.3

A city that gets everyone involved

11. Involve all of the city's preferred partner stakeholders in the ecological transition

Guide cultural stakeholders in an ecological transition programme

Type of action: Reduce, Raise Awareness

Issues

The Office of Tourism counts nearly 200 museums and cultural venues in and near Lyon

Over 40 signatories to the City of Lyon's Cultural Cooperation Charter that sets commitments for a wide range of policy areas, including the cross-functional ecological transition.

Action stakeholders

Cultural organisations
Greater Lyon

Reduce greenhouse gas emissions ◆◆ **Energy efficiency** ◆
Adapt to climate change **Renewable energies**

Operational subactions

Subaction	Description	Timeline	Lead departments
★★ Help cultural institutions complete their Carbon Report, and then begin collaboration to devise action plans	In an effort to engage cultural stakeholders in a Carbon Report programme, and more generally in developing a climate/ecological transition action plan, the City of Lyon and Greater Lyon is providing them a simplified tool for measuring their GHG emissions and support by promoting about a dozen players	2022-2026	MTE DAC
🛠 - ★★ See that the Cultural Cooperation Charter and its section on climate are implemented	The actions in this section still need to be developed Namely, there are plans to hold an Ecological Transition Culture Forum in the second half of 2023 attended by interested cultural organisations and arts groups from the region Solicit topics from them they want to address. Then hold workshops on the topics they submit that concern everyone. The forum is a chance to get the cultural sector on board and solicit topics that concern them, and ones they are prepared to commit to and share best practices about. Mention timeframes, from the shortest term to the long-term. Generate solutions. Increase involvement in the ecological transition among cultural stakeholders by accounting for their specific issues	2023-unknown	MTE DAC
★★ Join the Metro Area Cultural Recycling Centre project	Monitor and take part in Greater Lyon's project to install a recycling centre, and then get the city's cultural organisations and charter signatories involved in running it.	2021-ongoing	DAC DEA

Action-related plans and strategies

Cultural Cooperation Charter [DAC]

Key objectives:
Support all the signatories of the Cultural Cooperation Charter by 2026.

A city that gets everyone involved

12. Involve economic players in the city's green programmes

Action 12.1

Enable and promote responsible consumerism and the circular economy

Type of action: Reduce, Raise Awareness

Issues

241 labelled "Engagé à Lyon" (Committed to Lyon) and 106 labelled "Fabriqué à Lyon" (Made in Lyon) Successfully locate and bring in other organisations and encourage them to obtain the labels
Build synergies among the labelled groups, and more broadly across the region, to promote and enable virtuous practices.
Give all of them region-wide access to responsible, circular consumerism

Action stakeholders

Greater Lyon
Chamber of Trades and Crafts, Chamber of Commerce and Industry
Traders associations, shops and businesses
Residents

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆
Energy efficiency
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
Expand and increase the climate-related impact of the Committed to Lyon and Made in Lyon labels, both in terms of the selection criteria and the label recipients' achievements	In an effort to encourage and promote participation among the establishments applying for the City of Lyon's labels on the ecological transition topics, several specific criteria have been added to the application and selection processes: - The Made in Lyon label requires local manufacturing, details about the raw materials, recycled/recyclable/biosourced materials, and durability and restoration/repair/end-of-life processes: locally made is a criterion compulsory for labelling and is in addition to the level of skill. - The Committed to Lyon label looks at four categories of a company's activities: environmental management, sustainable consumption/responsible purchasing, social management, societal impact. The climate impact criteria pertain to energy control (tracking, cost-cutting work, green energy), mobility (modes of transport for the employees, deliveries, and supplies, etc.).	Committed to Lyon: 2010 Made in Lyon: 2022-ongoing	DECA	MTE DCP
★★ Provide the residents of Lyon more ways to consume responsibly by supporting new shops selling bulk/second-hand goods/short-chain/social and solidarity economy (SSE).	- A policy on opening mobile food shops that prioritises establishments committed to sustainable food: more local and seasonal food from short supply chains. - Support the Ronalpia incubator for socially minded businesses: support for Ronalpia's incubation programme for socially innovative projects and its start-up programme, which promote SSE company spin-offs around the Lyon region - Support the social innovation incubator Alterincub - Launch an annual call for projects to support setting up and expanding SSE operations - Support actions initiated by financial backers and associations for the city's various regional missions (resource centre, Tri Box sorting containers, food and transport spaces, etc.)	Ongoing	DECA DDT (AAP QPV)	
★★ Help cut waste across the region by encouraging more repairs and reuse	- Open repair and reuse workshops in every neighbourhood - Cité des Artisans repair shop in Galerie des Terreaux shopping centre (closed since 1991, 770 m² of retail space, 320 m² of interior walkways): a social and solidarity economy project on repairs in a number of areas (furniture, bicycles, devices, equipment, etc.) with craftspeople working on-site and a few shops nearby. - Initiatives being done by low-income education organisations and neighbourhood associations The city-backed low-income education organisations also play a role in this action through recycling centres, repair/DIY workshops, etc.	2022-ongoing	DECA	

Subaction	Description	Timeline	Lead departments	Support departments
★★ Support the expansion of Lyon's local currency, the Gonette, to foster a local economy that supports ethical projects and shops committed to the climate, ecological and social transition	Pay part of the salaries for elected officials in Gonettes Accept Gonettes at city agencies Promote the Gonette internally and pay part of the city workers' salaries in Gonettes Support a larger network for the Gonette, namely by using it in the city's partner organisations	2023	DECA	
🛠 - ★★ Research and have the City of Lyon apply for a circular economy label designed for urban issues	Look into a way the city can qualify for a circular economy label suited to its competencies (i.e., region committed to the ecological transition/circular economy)	2023	DECA	

Action-related plans and strategies

Committed to Lyon label [DECA]
Made in Lyon label [DECA]

A city that gets everyone involved

12. Involve economic players in the city's green programmes

Action 12.2

Help companies and retail shops through in ecological transition by changing practices and business models

Type of action: Reduce, Raise Awareness

Issues

Get stationary and mobile traders on board in line with the city's actions (Trader Conservation Charter - 243 signatories)
A regulatory landscape (i.e., the AGEC Act [Anti-Waste and Circular Economy]) that requires traders to change their practices.

Reduce greenhouse gas emissions ◆ Energy efficiency ◆ Adapt to climate change ◆ Renewable energies

Action stakeholders

Greater Lyon
Chamber of Commerce and Industry
Chamber of Trades and Crafts
Regional non-profits
Shops and businesses

Operational subactions

Subaction	Description	Timeline	Lead departments
Guide traders toward energy conservation by deploying the Business and Retail Conservation Charter and promoting best practices in lighting	The City of Lyon's Business and Retail Conservation Charter contains five basic, quick, and easy measures to implement that greatly reduce energy consumption at shops and businesses: turn off lighting for façades, windows and signs; turn off or remove digital advertising screens; strictly control air conditioning and heating; close the doors when air conditioning or heating is in use; commit to applying medium- and long-term measures on more sustainable and conservation-minded energy management. Alongside this effort, the City of Lyon is working with the chambers of commerce, including the Chamber of Commerce and Industry	2022 - To be continued indefinitely	DECA DEU
Get traders committed to reducing and sorting waste, help start redistribution chains for unsold goods to prevent waste (including on market days)	- Reduce and sort waste when the farmers markets close - Make it easier to forage and end food waste at the end of the markets - Introduce the Zero Neighbourhood Waste programme at Valmy - Helping retailers to reduce packaging, waste and food spoilage, and to collect bio-waste through partnerships with consular chambers and by strengthening the local network of stakeholders working alongside retailers to promote the ecological transition. - Supporting the deployment of deposits	2020-2026	DECA
Support non-profits that are helping include traders in the ecological transition (waste reduction, responsible events, optimised energy use, etc.).	Annual call for "traders associations and non-profit organisations" projects aimed at supporting initiatives proposed by or designed for commercial groups involved in the ecological transition.	2022-2026	DECA

Action-related plans and strategies

City Ordinance 2021/2866 on regulating commercial occupancy of public property - No more heated terraces
City Ordinance 2022/4569 on measures to reduce the effects o air conditioning systems
Traders Energy Conservation Charter [DECA]
List of recommendations on private lighting [DEU]
The Farmers Market Law [DECA]

A city that gets everyone involved

13. Co-create the ecological transition with residents

Action 13.1

Raise the general public's awareness and involve everyone in climate-related public policies

Type of action: Raise awareness

Issues

Issues facing the ecological transition of third places: ensure the places are permanent and devise a viable business model, see that residents can get around, develop local initiatives relating to the ecological transition.

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆
Energy efficiency ◆
Renewable energies

Action stakeholders

Users/residents
Neighbourhood councils/resident councils/youth district councils
Non-profit organisations
Greater Lyon

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Open two flagship places for the ecological transition (Neyret site and Chalet du Parc) and host regional programming	The City of Lyon is planning to create a third place for the ecological transition at the Neyret site. Public meetings are being held to co-create the programming with regional players and residents. The actions will take the form of trainings about the ecological transition and the climate, new events, pilot programmes, region-focused workshops, climate plans for the players, support for project development, sharing best practices, and achievement awards. The plan also includes opening a resilience school (working name) at the Neyret site, a hub for knowledge, trainings, public discussion and experiments aimed at helping build public policies that generate local, tangible and viable solutions for the ecological, community-based and all-inclusive transition. It will rely on a collective of various players: artists, non-profits, researchers, entrepreneurs, elected officials, city workers, and residents. As for Chalet du Parc, a call for projects resulted in selecting a group led by Youse in collaboration with the GoodPlanet Foundation to renovate the chalet in Tête-d'Or Park.	2022-ongoing 2025-2026 2025	MEP MTE	
Continue educating neighbourhood and residents councils via citizen university programmes related to the ecological transition and the climate	Dedicate two or more citizen universities every year to the ecological transition. Run a trial to invite more populations to join Administrative Boards and volunteers for the 40 contracted non-profits (MJCs and community centres)	2023	MDO	DDT
🛠 - ★★ Set up a long-term extra-municipal committee and use it to discuss the city's climate action	Create a long-term extra-municipal committee that represents the interests of nature and future generations, and ensures the city's major projects are aligned with ecological, social and climate-related concerns (Mandate Plan)	2025	MEP	
Position the city as the representative for Greater Lyon's public meetings on climate-related plans, projects and programmes	Make the different parts of Lyon's democratic ecosystem available for metro area meetings by passing initiatives onto decision-making bodies (neighbourhood councils, resident councils, youth district councils, etc.) and information via tools like the Oyé digital platform	2023	MDO	MA

A city that gets everyone involved

13. Co-create the ecological transition with residents

Action 13.2

Fund and support community projects aligned with the ecological transition

Type of action: Adapt, Sequester

Issues

Bring in more populations from the QPVs (urban policy districts), particularly when submitting ideas and voting for the BUPA (participatory budget), by raising awareness about ecological transition projects
In terms of crowdfunding, the aim is to diversify the city's funding sources while making residents part of the process

Action stakeholders

Users/residents
Neighbourhood/resident councils
Contracted non-profits
Organisations and collectives from QPV areas

Reduce greenhouse gas emissions ◆ **Energy efficiency ◆**
Adapt to climate change ◆◆ **Renewable energies ◆**

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★ Provide residents an opportunity to suggest and vote on ecological transition projects through the participatory budget	Onboard a network of stakeholders and organisations in the participatory budget process to give them all a chance to propose and then vote for projects.	2022	MDO	MA DDT (regional task forces) DSITN
🛠 - ★★ Propose climate-related projects that are eligible for crowdsourcing	This action would entail choosing a project and then calling for residents to help fund it. The residents of Lyon could deposit their savings towards the project and become part of city life. This action is under review to determine opportunity and feasibility.	2023-2024	MDO Finance	
★ Support youth engagement in the ecological transition (youth climate scholarships, support for organisations, etc.)	Support youth engagement in the ecological transition: - Youth scholarships - Support (grants) for organisations that enable them to add young people to their teams (civic service, apprenticeships, etc.) to advance ecological transition actions, i.e., the city covers out-of-pocket expenses	2023-2026	MTE DDT	

A city that gets everyone involved

14. Build more international climate-related partnerships

Action 14.1

Increase our international commitments and European projects relating to the climate

Type of action: Raise awareness

Issues

Help build synergies and a more global approach to the climate
Get buy-in from local international players, i.e., the Sustainability Manual by the SRI

Action stakeholders

International players
Europe
30 local partners involved

Reduce greenhouse gas emissions ◆
Adapt to climate change ◆
Energy efficiency
Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments
Recommit the City of Lyon by signing the Covenant of Mayors and continue the City of Lyon's commitment to the Green City Accord	In 2008, the city signed the Covenant of Mayors for the Climate, and in 2019 it signed the Green City Accord. These commitments are renewed regularly. The Green City Accord is an action by European mayors that the European Commission introduced in 2020. It supplements the Covenant of Mayors in terms of the climate and energy by addressing issues it doesn't cover, and that advance the implementation of the Green Deal as well as meet the UN's sustainable development objectives. In 2023, the city is required to commit to measurable objectives for five priority areas, thereby demonstrating its motivation to overcome its region's ecological challenges: - Improve air quality - Advance the conservation of nature and biodiversity - Reduce noise pollution - Advance toward the circular economy - Improve water quality In 2023, the city is required to commit to measurable objectives for five priority areas, thereby demonstrating its motivation to overcome its region's ecological challenges. It also serves as a lever to give the city more visibility with European decision-makers and to join the community of committed cities.	2008-ongoing	SRI MTE
★★ Whenever possible, make the ecological transition part of international partnerships	Add the ecological transition topic to all new cooperation agreements signed with Lyon's partner cities	2021-ongoing	SRI
★★ Make international players in the region part of the sustainability process	Guide local players involved in international business through their sustainability process. - Four working groups held throughout 2021 - A manual for local players was finalised in early 2022	2021-2022	SRI

Action-related plans and strategies

Covenant of Mayors
Green City Accord
Sustainability Manual [SRI]

A city that gets everyone involved

14. Build more international climate-related partnerships

Action 14.2

Make city events sustainable

Type of action: Reduce, Raise Awareness

Issues

Make the ecological transition part of the city's event programming at every level: travel, waste, food, sales
The aim is to adapt the actions and monitor them for events

Reduce greenhouse gas emissions ◆◆ **Energy efficiency ◆**
Adapt to climate change ◆ **Renewable energies**

Action stakeholders

Visitors/residents
Event vendors/exhibitors
Logistics stakeholders
Sytral, SNCF, Office of Tourism

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Obtain ISO 20121 certification and implement Part 1: Engage and equip all the departments involved to "contribute to the city's environmental policy in 2030" at city events	Use the ISO 20121 process to implement a city event certification programme for sustainable development First introduce it at the Festival of Lights, and then extend it more widely to all the city's events.	2022-ongoing	DEA	Sport DAC SRI
Assess the impact of visitor travel on GHG emissions during events in public spaces	Devise a method for collecting data on visitor travel during events, and then implement it to measure the carbon footprint and to target mobility-related actions based on the population.	2023-2030	DEA	MTE
★★ Turn large commercial events into sustainable opportunities by giving more space for local, artisanal products (Festival of Lights, Rhône to Saône Festival, 14 July festivities, Festival of Music, TLMD (everyone outside), ReLyonNous city-wide festival , etc.)	The City of Lyon is committed to showcasing arts and crafts trades, and giving artisans wider exposure in what the region has to offer. As such, the new operating specifications for the City of Lyon's Christmas market at Place Carnot now require offering a portion of the cabins to artisans, and reserving one just for traders with the Made in Lyon label.	2022-ongoing	DECA	

Action-related plans and strategies

ISO 20121 standard [DEA]
Sustainable Events Charter [Office of Tourism - OnlyLyon]

A city that gets everyone involved

14. Build more international climate-related partnerships

Action 14.3

Make Lyon a sustainable tourist destination

Type of action: Reduce, Raise Awareness

Issues

The aim is for Greater Lyon and the Office of Tourism to guide tourist businesses to the wide range of labels, certifications, and national/local support programmes. Within this scope, the city is also promoting the Committed to Lyon label with these players.

The goal is to keep promoting Lyon in the French and European markets: easily accessible by train, reach a wider audience in Greater Lyon without cutting ties with markets farther away.

Action stakeholders

Tourist businesses
Office of Tourism and Conventions
Greater Lyon
SYTRAL

Reduce greenhouse gas emissions ◆ Energy efficiency
Adapt to climate change Renewable energies

Operational subactions

Subaction	Description	Timeline	Lead departments	Support departments
★★ Assist tourist businesses with their processes of obtaining certifications/labels, and specifically encourage them to apply for the Committed to Lyon label	Support and follow-up for professionals in the social sector so they can have a great impact, mainly via the labelling and certification processes. Action led by Greater Lyon in collaboration with the Office of Tourism - Special effort to promote the Committed to Lyon label at the Office of Tourism and professionals in the sector. Greater Lyon is providing financial support for social professionals during the labelling process (money for fee-based procedures and grants for any renovations).	2021-2026	Tourism project manager	DECA
★★ Work with the Office of Tourism to create city discovery routes that better spread out tourist traffic across the region	In collaboration with designated tourism officers at the district city halls, suggest alternative tourist routes that will be showcased by the city and the Office of Tourism. These routes will help more evenly distribute tourist across the region, especially in the city's largest tourist areas. Once these routes have been created, we will need to work with the OT to find the best ways to highlight them to with visitors.	2022-2024	Tourism project manager	District city halls
★★ Joint project between the city, Greater Lyon and the Office of Tourism to bolster a strategy and take targeted action to discourage planes and cars for medium- and long-distance journeys to and from Lyon, and to boost local tourism.	As part of the tourism development scheme, Greater Lyon and the Office of Tourism have set an objective to maintain a balanced and varied client base that is focused on the national market and nearby countries, while also expanding it to include local clients. The city supports this issue.	2021-2026		
★★ Begin talks about long-term parking management for tourist coaches in partnership with Greater Lyon to facilitate the use of coaches and reduce their impacts on public spaces	This entails reviewing how parking works for this mode of transport and planning coach parking based on length of stay. A complex project to achieve since there is little room available for parking these vehicles.	2025-2030	DMU	

Action-related plans and strategies

2021/2026 Sustainable Tourism Development Scheme [Greater Lyon]
2017-2030 Urban Travel Plan of Greater Lyon
- Currently being revised as the Mobility Plan [Sytral]

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PACTE CLIMAT LYON 2030

MOBILISÉS POUR UNE VILLE CLIMATIQUEMENT NEUTRE

Courtesy translation

LYON 2030
Inspirons le changement

Contents

Foreword

The *Lyon 2030 Climate Contract* was the result of work carried out by the Agora, a community of local players coordinated by the municipality. The Agora, which was established in early 2023, has 65 member organisations that are representative of the diversity of local players and are ready to work together to build a shared vision for achieving climate neutrality in the city of Lyon by 2030.

The Agora met five times during the first half of 2023. It worked on sobriety, which it identified as the top priority to successfully take on climate change. The Agora formulated 16 commitments, which are laid out in the city contract, as well as 29 proposed actions for the public authorities.

The contract is a living document and will grow as the Agora's ongoing work progresses; the ultimate objective is to cover all the challenges involved in achieving climate neutrality.

Each member of the Agora has also drawn up a *Lyon 2030 cooperation and commitment agreement* that meshes with the collective vision of the city contract. These agreements formalise their commitments and areas of cooperation with the municipality, which are tailored to their unique challenges, their capacity for action, and their core business or activity. In addition to sobriety, other priorities may be addressed.

The city contract will be submitted to the European Commission in the autumn, along with the municipality's 2023-2030 climate plan. Lyon will then officially receive the label awarded to the cities selected for the European programme *100 Climate-Neutral and Smart Cities by 2030*.

Introduction

Human activity is responsible for the changes in the climate that have been observed worldwide in recent decades. Lyon is no exception. The climate in Lyon has already changed, affecting the daily lives of residents, particularly the most vulnerable. Applying climate scenarios for 2070 to Lyon shows that, if nothing changes, it will experience temperatures similar to those in Algiers today.

Taking action for the climate requires adjusting our lifestyles and challenging our relationship to nature and to the planetary boundaries, our social structures, and our public policies. On the city level, drastically reducing greenhouse gas emissions requires inventing new ways to exist as a society and a city and imagining and implementing a more sober future. The city must also adapt to high temperatures, drier ground, and potentially an increase in extreme weather.

To take on this challenge, in 2022, within the framework of a European call for projects, the city of Lyon set the most ambitious goal possible: achieving climate neutrality by 2030. That goal covers all greenhouse gas emissions, both those produced in the Lyon region and "indirect" emissions generated by purchases of goods and services. Municipal operations account for just 5% of the city's emissions and its policies affect only 20% to 30% of regional emissions[i]. Given that limited impact, only a mass collective mobilisation and cooperation among all local players can make the goal of climate neutrality in 2030 achievable: organisations that interface with residents, economic players, teaching and research organisations, youth organisations, students, public and parapublic organisations, and more broadly each and every individual.

The municipality has proposed overhauling the framework for cooperation and action on the climate in Lyon by launching the "Lyon 2030 : inspirons le changement" (Lyon 2030: inspiring change) programme with the aim of spearheading:

- a fair ecological transition that meets the needs of Lyon residents;
- an ecological transition co-developed with local stakeholders and residents by leveraging all citizen participation processes;
- an ecological transition anchored in the Lyonnais identity through the development of an inspiring narrative;
- a smart ecological transition that fits into a dynamic of innovation, research, and cooperation, and that incorporates sobriety (e.g. with the "low-tech" approach);
- an ecological transition that goes beyond a sector-based approach to draw on local, national, and international networks to replicate and spread its results.

This determined, participatory, innovative approach fits into and complements the different programmes and action frameworks that have already been implemented on the metropolitan, regional, and national levels. It is also part of the revision of the Metropolis of Lyon's local climate, air, and energy plan (PCAET), which applies to the 50 municipalities in the metropolis, since the Agora's proposals may be used in the work on updating the PCAET which is slated to start in September 2023.

Lyon's strong commitment to fighting climate change was recognised on the European level when the city was selected for the *100 Climate-Neutral and Smart Cities by 2030* programme. This European Commission programme aims to turn 100 European cities into pioneers capable of achieving the goal of climate neutrality, set for 2050 for all European cities, as quickly as possible.

How is climate neutrality defined?

While there is no generally accepted definition of the concept, climate neutrality is broadly understood as a state of equilibrium between greenhouse gas emissions from human activities and their absorption through natural or human processes. Current definitions highlight both the need to reduce greenhouse gas emissions and the need to offset them with carbon sinks—which can be biological (forests, oceans, etc.) or technological (CO_2 capture and storage)—that absorb more carbon than they emit.

While the City of Lyon's main focus is a drastic reduction in greenhouse gas emissions, some emissions cannot be completely eliminated. Quantifying these irreducible emissions will enable a conversation about potential solutions in the medium term.

Why has the municipality set a goal of climate neutrality by 2030?

The *"Summary for Policymakers"* of the report of the Intergovernmental Panel on Climate Change (IPCC), published in March 2023 and approved by a delegation of 195 countries, explains it clearly: the 2020s will be a crucial decade in the fight against climate change: *"Climate change is a threat to human well-being and planetary health. There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all (...) Actions to limit the increase in temperature to 1.5°C would require a 48% reduction in CO2 emissions by 2030, compared to 2019 levels. (...) The choices and actions implemented in this decade will have impacts now and for thousands of years. (...) Without urgent, effective, and equitable mitigation and adaptation actions, climate change increasingly threatens ecosystems, biodiversity, and the livelihoods, health, and well-being of current and future generations".*

As we face this global crisis, the municipality's objective may appear both laughably small and disproportionately ambitious, since its capacity for action and its influence are limited and conditioned by national, European, and even international frameworks. However, cities currently generate 70% of global greenhouse gas emissions. On the scale of a single city, we can already ask the right questions and explore the roadblocks—financial, human, regulatory, organisational, etc.—and identify ways to overcome them, and develop scenarios to achieve this objective. Embodying the potential for transformation and action that lies within every city has tremendous value as an example to emulate.

Part 1: The climate in Lyon

A. The Lyon region: key figures

Territory - Area of 47.9 km² / 4,790 ha

Territorial organisation and local democracy

- 9 arrondissements, 36 neighbourhood councils, 5 youth arrondissement councils

Residents and households[ii]

- 522,969 residents in 2019 (compared to 415,487 in 1990), 269,477 households (compared to 238,413 in 2008)
- Density of 10,924 inhabitants/km² in 2019 (8,680 inhabitants/km² in 1990; 106 inhabitants/km² in France in 2019)
- Percentage of the population under age 25 in 2019: 44%
- Percentage of the population over age 75 in 2019: 7.60%
- Average household size in 2019: 1.89 people
- Families with children as a percentage of the total population: 24.9% of households, 44.8% of the population
- Percentage of single-person households: 50% of households; 37% in France

Socio-economic data[iii]

- 64% employed, 17.5% students, 9% unemployed, 2.8% retired and 6.3% other inactive individuals in Lyon
- Distribution of socio-professional categories in Lyon: 31% executives; 29% intermediate occupations; 25% office workers; 9% manual workers; 5% artisans, store owners, and business owners. In France: 19% executives; 26% intermediate occupations; 27% office workers; 20% manual workers; 7% artisans, store owners, and business owners.
- Median income: €24,570 in 2020; €22,400 in France in 2020
- Poverty rate: 15%[iv] in 2020; 14.4% in France in 2019[v]
- Social housing percentage: (2022): 22.99%[vi] (2002): 17.83%; 15.6% in France in 2021
- 9 policy priority districts in Lyon[vii]; 1,436 policy priority districts in France[viii]
- Approximately 25,000 households in Lyon (9% of households) have been identified as facing housing-related energy insecurity.

Economic activity[ix]

- Lyon is the heart of the 2nd economic region in France and the 4th region in the European Union in terms of GDP[x]
- Over 71,000 businesses in Lyon (over 47% of all businesses in mainland France).
- 9,230 small independent businesses[xi]
- 269,860 private-sector employee jobs in 2019 (+16% in 5 years)
- 79,900 public-sector jobs (24% of all employee jobs)

Buildings

- 10% of the city's area is within the recognised UNESCO site (427 ha) with a 323 ha buffer zone[xii]

> Housing (2019 data)

- 308,801 housing units of all types (primary residence, secondary residence, vacant)
- Energy consumption by building type (energy cadastre): 1,686 GWh for residential buildings (57%); 1,101 GWh for tertiary buildings (37%); 150 GWh for industry (5%)[xiii]
- Housing type distribution: 95.4% apartments and 2.7% single-family homes in Lyon / 80.7% apartments and 18.1% single-family homes in the Metropolis of Lyon / 43.5% apartments and 55.5% single-family homes in France

> Tertiary buildings (2020, INSEE**)**

- Agriculture, forestry, and fishing 12 (0%)
- Industry: 894 (3.4%)
- Construction: 1,079 (4.2%)
- Commerce, transportation, miscellaneous services: 21,301 (82%)
- Public administration, education, health care, social work: 2,664 (10.3%)

  Total: 25,950

Mobility

- 693 km of roads open to traffic (2003), 500 km of roads open to traffic (2013)
- 72,000 vehicles with Crit'air 1, 2 or 3 stickers[xiv]
- Percentage of roads limited to 30 kph or less (20 & 30 kph zones + pedestrian zones): 84% (2022)
- 369 km of cycle paths (2023), 80 km of cycle paths (2013)
- 120 bus lines, 4 metro lines, 2 funicular lines, 7 tram lines serving Lyon and more than 73 towns, 1 international train station (Lyon Part-Dieu - busiest international train station in France with 125,000 travellers per day)[xv], 1 domestic train station and 4 regional train stations
- The Rhône-Saône river route, which handles European shipping, with a commercial port (Port Edouard Herriot)

Industry

- 894 industrial sites[xvi], mainly food-related (3.4% of all business sites in all sectors) - INSEE, 2020

Agriculture:

- 12 agriculture, forestry, and fishing sites (out of 29,550 across all sectors)[xvii] - INSEE, 2020
- Orchards, community gardens, one urban farm: 30 ha (2023)[xviii]

Urban nature and water

- Rainfall: annual average 1991-2020: 820.8 mm - annual total 2022: 620.2 mm
- Artificial surface percentage: 89% (same figure in 2000 and 2020; 9% in France in 2020)
- 2,900 species observed in the past 30 years[xix], including 63 endangered species on the regional red list of the International Union for the Conservation of Nature (IUCN).
- 300 parks, squares, and gardens[xx]
- Canopy cover: 62,500 trees in the city (+5,500 trees being planted)
- Green space per inhabitant: 31 m² per inhabitant
- Public green space offer: 8 m² per inhabitant[xxi]
- 95% of the Metropolis of Lyon's drinking water comes from aquifers directly supplied by the Rhône river.
- + 2°C: the increase in the temperature of the Rhône over the past 30 years; the impact on biodiversity has already been observed.

Sports and culture

- 400 sport clubs, 66,000 members[xxii]
- 3 major sporting venues (Palais des Sports, Halle d'athlétisme Diagana, Gymnase Mado Bonnet), 8 swimming pools, 55 gymnasiums, 29 stadiums, 2 ice rinks)
- Close to 4,000 cultural and artistic venues [xxiii](visual and performing arts) in the metropolis; 71% are located in Lyon and Villeurbanne: Opéra National de Lyon, Orchestre National de Lyon auditorium, 6 municipal museums, Théâtre des Célestins under municipal management, 5 rented theatres, 1 central library (at Part-Dieu), 15 arrondissement libraries, 8 discovery stages (theatre (2), dance (1), circus (1), street and public space arts (1), music (3))
- Lyon, capital of gastronomy

B. Greenhouse gas emissions in Lyon

1. "Local" greenhouse gas emissions

Greenhouse gas emissions in Lyon include emissions linked to energy consumption in the residential, tertiary, industrial, and transportation sectors in the city, as well as non-energy emissions from agriculture, waste, and certain industrial processes. The total greenhouse gas emissions from all activities in the municipality of Lyon are estimated at 1,253 kt $eqCO_2$[xxiv]. These emissions decreased by 203 kt $eqCO_2$, a 14%[19] drop (figure for France: -14.9%[xxv]) between 1990 and 2019, while the population increased from 415,500 to 523,000 inhabitants[xxvi]. That corresponds to 3.5t per inhabitant in 1990 and 2.4t/cap. in 2019 (figure for France: 4.6 $teqCO_2$/cap.).

The main sources of emissions in Lyon in 2019[xxvii]:
The main sources of local greenhouse gas emissions[xxviii] (scopes 1 and 2) are residential and tertiary buildings at 72%, followed by road transportation at 24%. Industrial and agricultural emissions are marginal (4%) and have decreased significantly since the 1990s (-69%).

- Total local greenhouse gas emissions by sector (scopes 1 and 2):
  - 495 kt $eqCO_2$ from residential sources: 40% of emissions, +18% since 1990;
  - 400 kt $eqCO_2$ from tertiary sources (offices, stores): 32% of emissions, -15% since 1990;
  - 298 kt $eqCO_2$ from road transportation: 24% of emissions, -22% since 1990;
  - 55 kt $eqCO_2$ from industry, 4 t $eqCO_2$ from rail and river transportation, 0.3 kt $eqCO_2$ from agriculture (4%, -69% since 1990)

- Total local greenhouse gas emissions by energy type (scopes 1 and 2): 420 kt e $eqCO_2$ from petroleum products (39%), 637 kt $eqCO_2$ from gas (44%), 126 kt $eqCO_2$ from electricity (12%), 54 kt $eqCO_2$ from other sources (5%).

- **A closer look at energy consumption in Lyon (ORCAE data, 2019)**

- Final local energy consumption: 8,232 GWh, 16 Mwh/cap. in Lyon / 25 Mwh/cap. in France
- Total local final energy consumption by energy type: 3,153 GWh of gas (38%), 2 855 GWh of electricity (35%), 1,579 GWh of petroleum products (19%), 646 GWh of other sources (8%)
- Share of renewable and recovered energy in final energy consumption: 7% (86% from heating networks and 14% from solar energy)
- Total local final energy consumption by sector: 3,439 GWh (42%) for residential, 3,208 GWh (39%) for tertiary, and 1,225 GWh (15%) for road transportation, industry, agriculture, and waste (360 GWh - 4%)
- Renewable and recovered energy production and distribution by type of energy: 556 GWh: 481 GWh from heating networks (99%) and 76 GWh from solar energy (1%)

- Transportation/Mobility:
  - Final energy consumption: Total of 1,305 GWh, including 1,225 GWh for road transportation (94%), 76 GWh for rail transportation (6%), and 4 GWh for river transportation (<1%)
  - Greenhouse gas emissions: Total of 302 kt eqCO_2, including 298 kt eqCO_2 from road transportation (99%), 3 kt eqCO_2 from rail transportation (1%), and 1 kt eqCO_2 from river transportation (<1%)
- Agriculture:
  - Final energy consumption: 1 GWh
  - Greenhouse gas emissions: 0.3 kt eqCO_2 / Type of fuel and energy used: 0.2 kt eqCO_2 from petroleum products (67%), 0.1 kt eqCO_2 from non-energy products (33%)
- Industry:
  - Final energy consumption: 269 GWh
  - Energy consumption by energy type: 134 GWh for electricity (50%), 97 GWh for petroleum products (36%), 32 GWh for gas (12%), 6 GWh for renewables (2%)
  - Greenhouse gas emissions: 55 kt eqCO_2 / Greenhouse gas emissions by energy type: 28 kt eqCO_2 from petroleum products (51%), 9 kt eqCO_2 from electricity (16%)

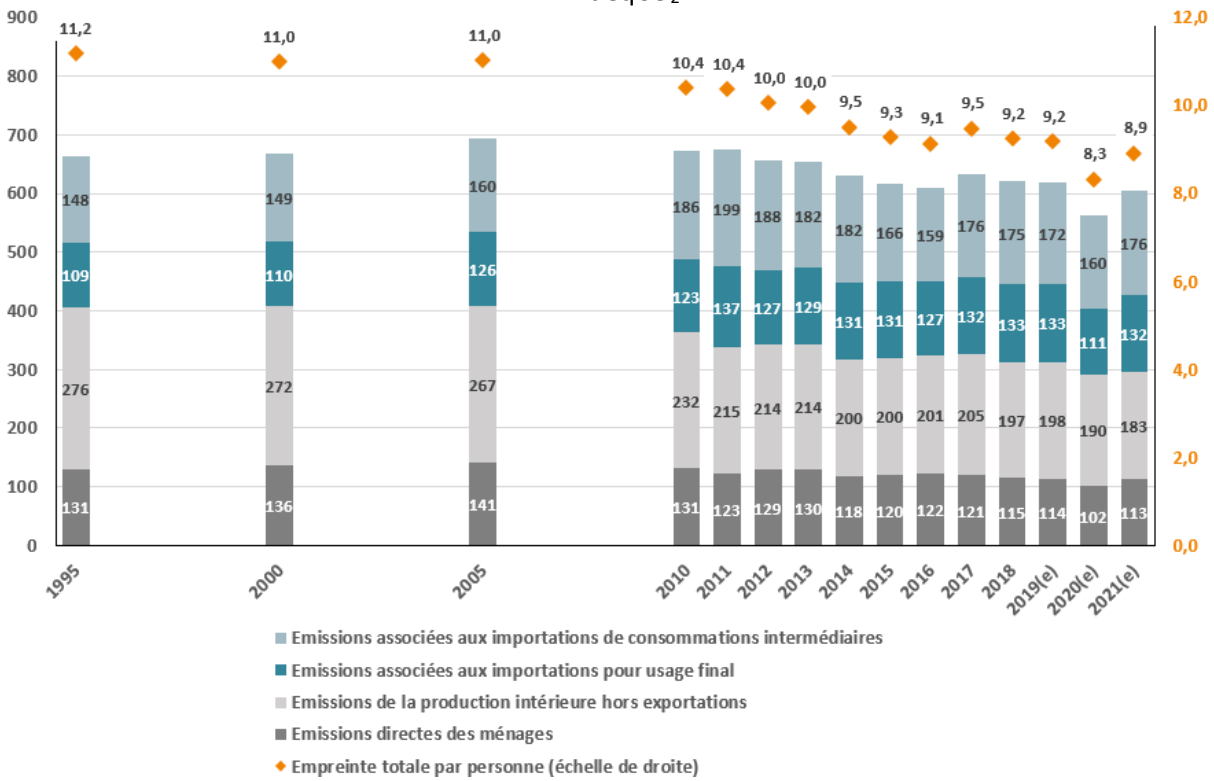
2. Carbon footprint

In addition to the emissions actually produced in a given geographical area, carbon footprint calculations also include goods and services imported to that area from other regions or countries and exclude emissions from goods and services that are exported. A carbon footprint can thus measure both the greenhouse gas emissions produced in a given area and the emissions linked to products that are imported and consumed.

In 2021, France's per capita carbon footprint was estimated at 8.9 kt eqCO_2. Three-quarters of those emissions are generated by travel, housing, and food.[xxix] With local emissions of 604 M kt eqCO_2 in 2021 (provisional estimate), import-linked emissions made up slightly more than half (51%) of France's carbon footprint.

France's carbon footprint by origin of emissions from 1995 to 2021

In Mt eqCO_2



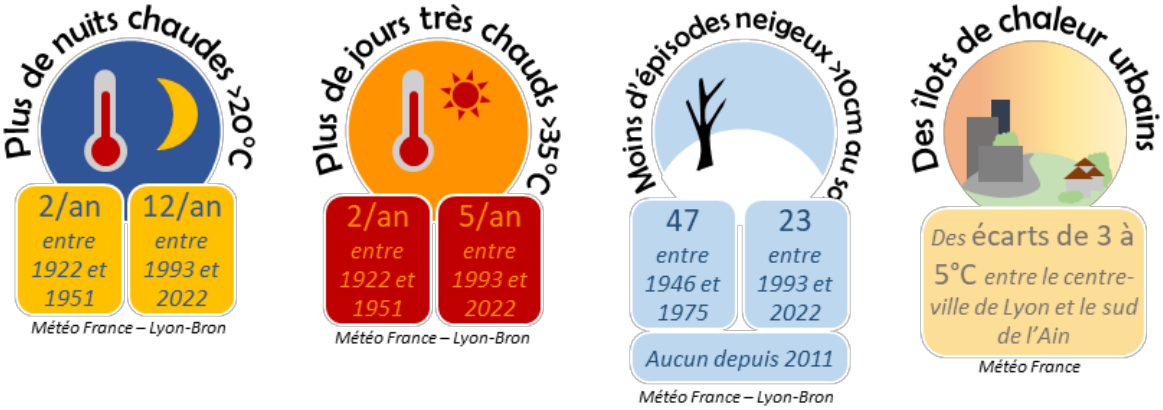
Scope: "Kyoto" scope (mainland France and overseas departments that are part of the European Union - © Sources: Citepa; Eurostat; Insee; Customs; AIE; FAO. Processing: SDES, 2022.

(e) = provisional estimates. Note: the carbon footprint covers the three main greenhouse gases: CO_2, CH_4 and N_2O; uncorrected climate data.

C. Lyon: a region already hard-hit by climate change

1. Rising temperatures in Lyon

2011-2020 est la décennie la plus chaude depuis environ 125 000 ans
Les années 2022 et 2020, avec 14,6 degrés de température annuelle moyenne, sont « premières ex-aequo » au palmarès des années les plus chaudes à Lyon-Bron.

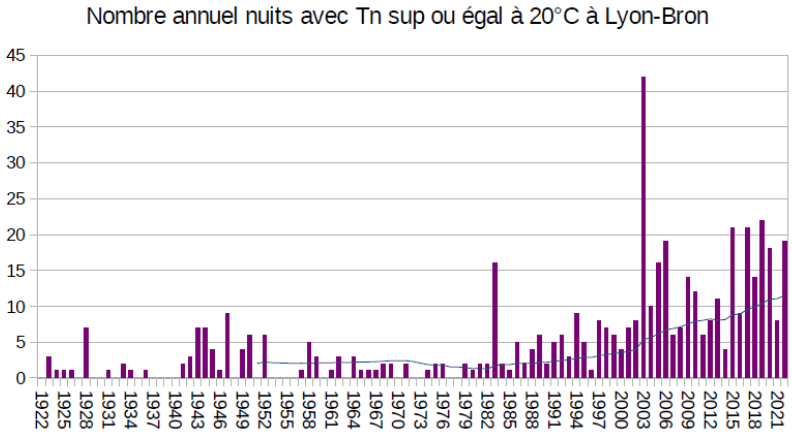


Global warming is particularly acute in Lyon

- Temperatures in France are clearly on the rise: + 1.7°C ; in Lyon: + 2.4°C since 1960[xxx]

Increasingly high temperatures

- Average number of nights with overnight lows of at least 20°C: 2 nights per year from 1922 to 1951; 12 nights per year from 1993 to 2022



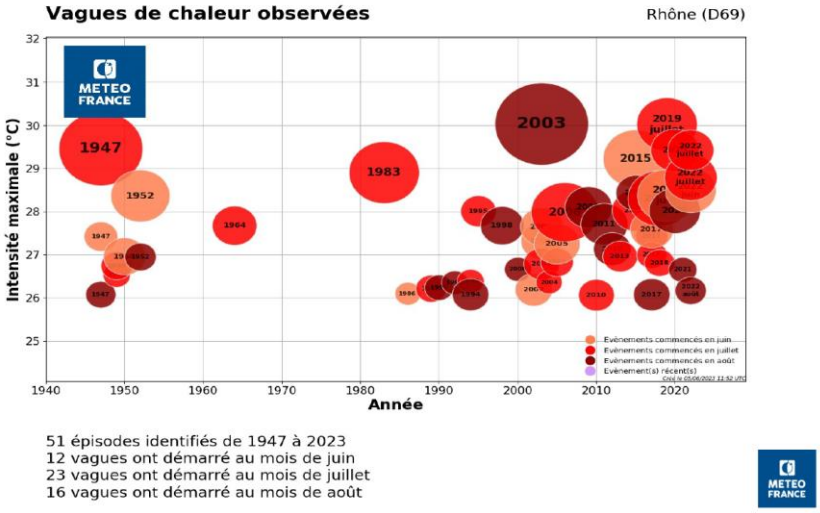
2/an en moyenne de 1922 à 1951

12/an en moyenne de 1993 à 2022

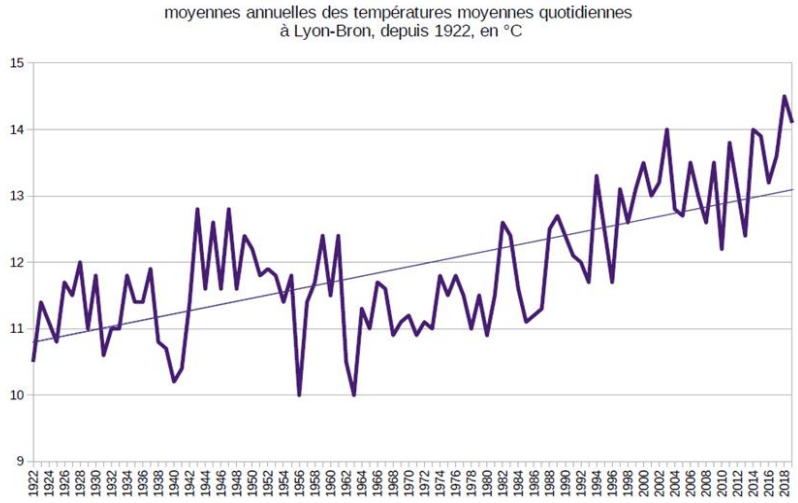
- Average number of very hot days with temperatures over 35°C: 2 days per year from 1922 to 1951; 5 days per year from 1993 to 2022

- Number of heat wave alerts since 2010: 23, for a total of over 70 heat wave days in 12 years

Vagues de chaleur de plus en plus fréquentes



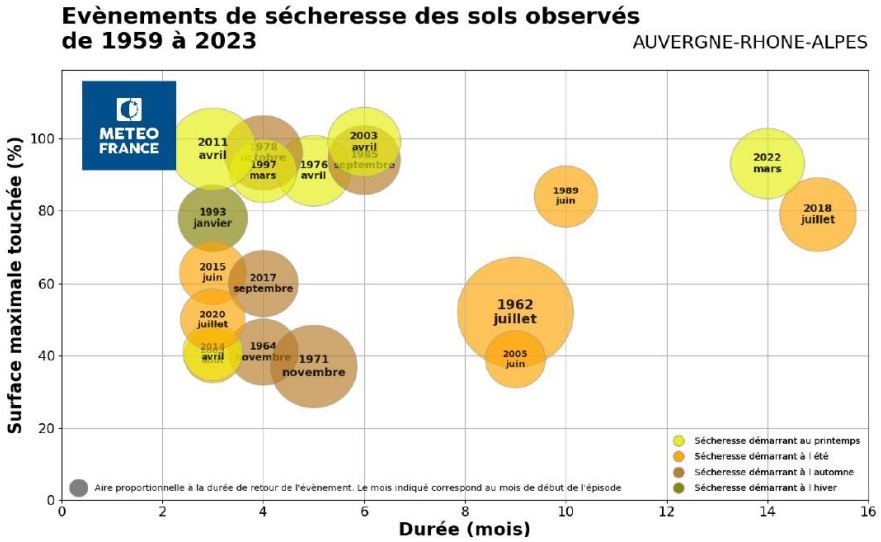
- Record temperatures at Lyon-Bron: 40.5°C (13 August 2003); 40.4°C (July 2019), 39.9°C (June 2020); 39.2°C (August 2015); 38.9°C (August 2022); 38.4°C (June 2019)
- Record low temperatures at Lyon-Bron: 25.7°C (dawn on 5 August 2018), which means that the temperature was over 26°C virtually the entire night of 4 to 5 August, after an afternoon high of 37°C the previous day.
- The years 2022 and 2020 are tied for the hottest years at Lyon-Bron, with annual averages of 14.6°C . **The 10 hottest years have all occurred since the turn of the 21st century.**



xxxi

- More serious droughts due to the increase in evapotranspiration as temperatures rise: in 2022, the Rhône department had 47 drought alert days, 79 severe alert days, and 19 crisis days.

Sécheresses des sols de plus en plus fréquentes



Milder winters

- Average snow accumulation decreased by 33 cm (31%) between the period from 1961-1990 and the period from 1991-2020.
- The number of days with at least 30 cm of snow accumulation decreased an average of 40% between 1961-1990 and 1991-2020 (ORCAE Auvergne-Rhône-Alpes). Snow events that produce accumulation of at least 10 cm have become increasingly rare. At Lyon-Bron, there were 47 between 1946 and 1975 and just 23 between 1993 and 2022.

2. The first signs of climate change which will become more severe in the coming decades

Climate projections for 2100 are now available, offering a better understanding of how Lyon's climate will change in the coming decades[xxxii].
The three main scenarios used for these climate projections are:

- **a scenario in which global warming is stabilised at 2°C in 2100:** this scenario incorporates a dramatic decrease in CO_2 emissions over the second half of the 21st century (the "RCP 2.6"scenario);
- **a scenario with no global climate policy,** in which emissions continue to increase after 2100 (the "RCP 8.5" scenario)
- **an intermediate scenario,** which incorporates a climate policy aimed at stabilising greenhouse gas emissions. This scenario generates a higher increase in temperatures than the "RCP 2.6"scenario, followed by stabilisation.

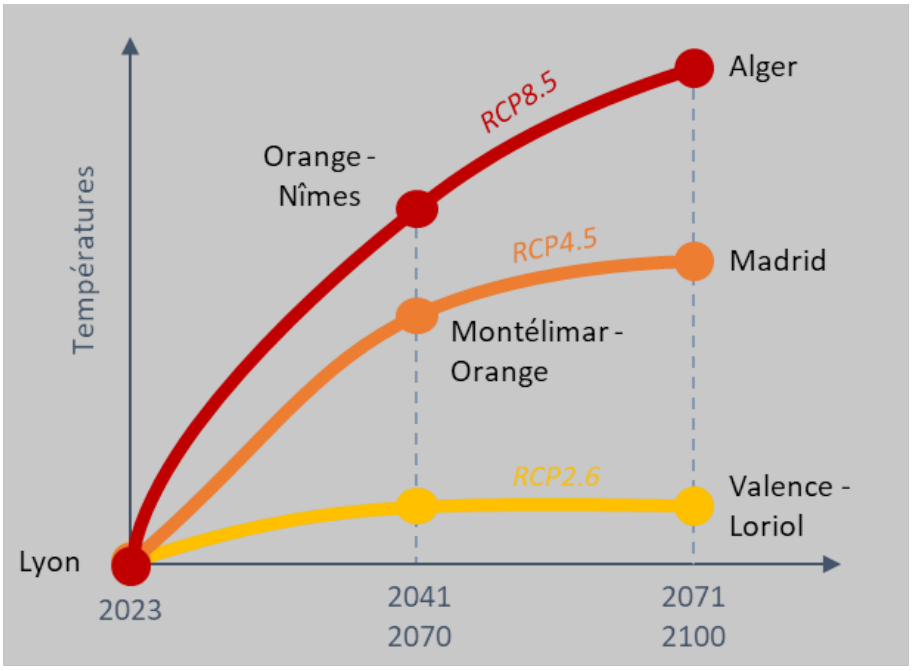
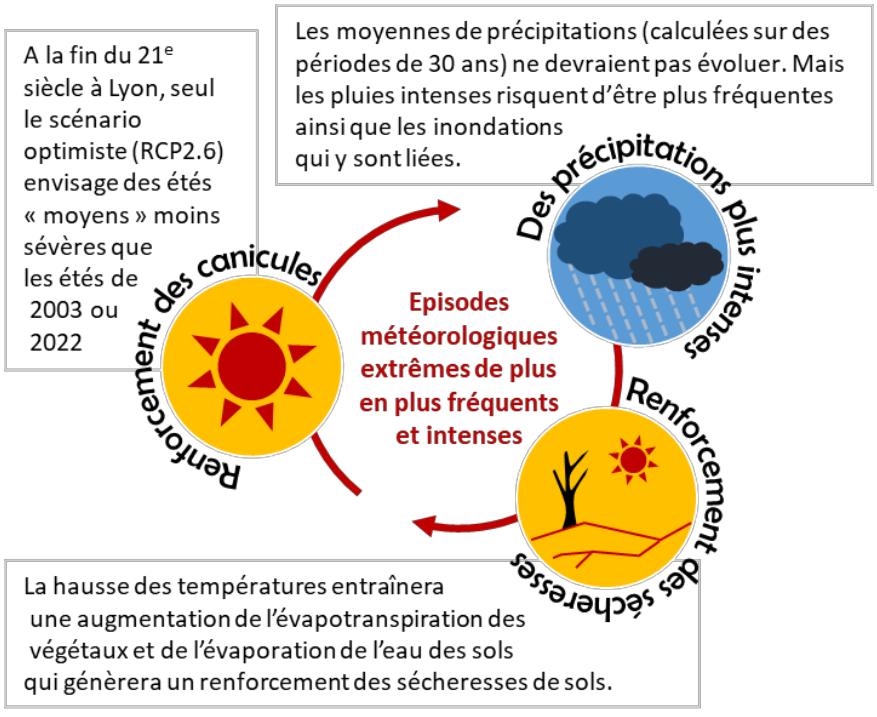


Image: Changes in temperatures in Lyon[xxxiii] compared with other locations, based on the IPPC scenarios (source: DRIAS; Météo France image)



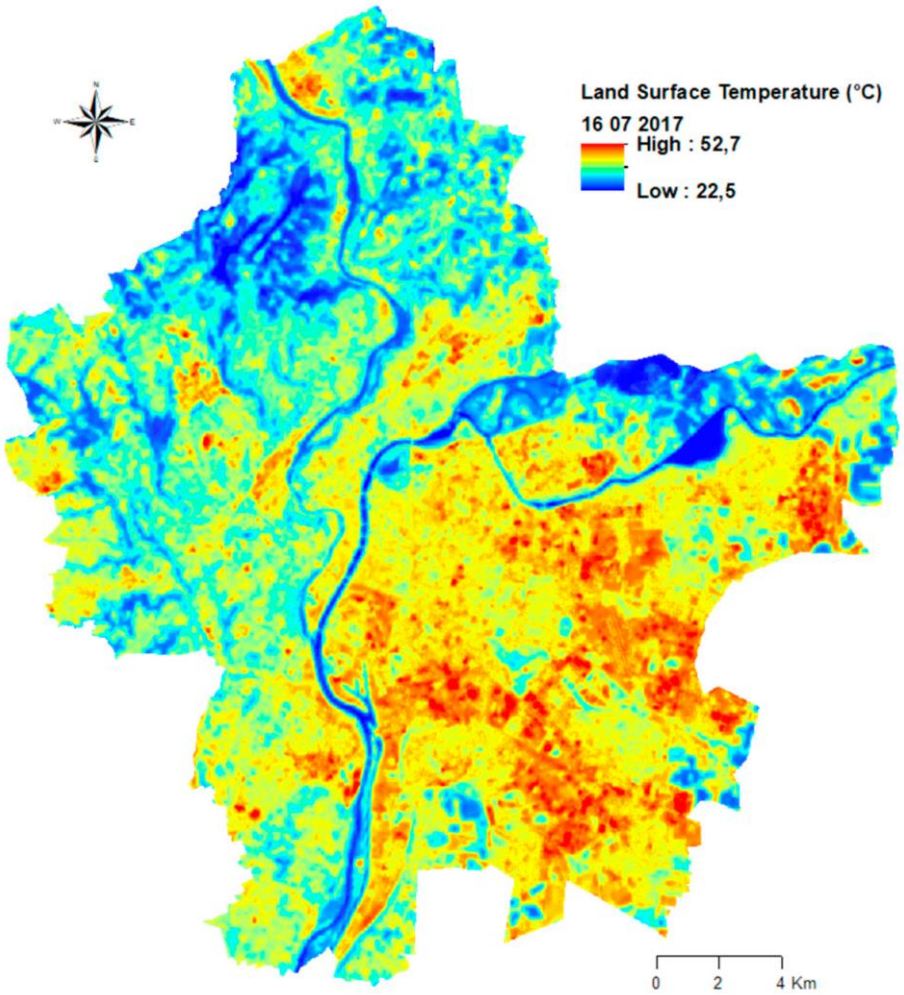
3. Lyon residents are already experiencing tangible consequences

The consequences of climate change are already visible in Lyon, with an impact on residents' daily lives, the economy, health, local biodiversity, and more. The most vulnerable and fragile residents are the most severely affected. That makes adapting to climate change a crucial challenge: the goal is to ensure that the city can, at its own level, "anticipate and limit the impact of climate change and the associated detrimental effects on socio-economic activities and nature".[xxxiv]

In other parts of the world, climate change can manifest as extreme weather events and threaten to make some areas uninhabitable. Those phenomena can impact people in Lyon: a drought thousands of kilometres away can influence food prices.

> Intensification of urban heat islands

Temperatures in many city centres are often higher than those in the surrounding rural areas, especially at night. The summer temperatures recorded in central Lyon are frequently 3 to 5 degrees higher than those in the northern Isère or the southern Ain. The difference can exceed 5 degrees during long heat waves with little wind. The intensity of this phenomenon, known as a "heat island", decreases and eventually disappears during the day before reappearing in the evening and particularly overnight, unless rain or strong winds occur.



Map of surface temperatures recorded on 17/07/2017, source: Renard et al., 2019[xxxv]

Studies by Météo-France show that greening cities reduces the extent of heat islands.[xxxvi] Residential air conditioning, on the other hand, contributes to worsening the phenomenon (by 0.25°C to 3°C)[xxxvii].

> Vulnerable and imbalanced natural ecosystems and degraded water quality

>> Impact on the flow, temperature, and quality of the water in the Rhône and Saône and groundwater aquifers

- The average dryweather flow of the Rhône decreased from 7% to 13% from upstream (Pougny) to downstream (Beaucaire) between 1960 and 2020[xxxviii]
- The Rhône estuary has warmed by 2°C in summer.[xxxix]
- In very hot weather, the lack of precipitation and increased evaporation decrease water levels. That increases the concentration of human-generated pollution (urban, industrial, agricultural, etc.), while warmer water favours the proliferation of fungi and bacteria. These two factors increase the risk of poor water quality.[xl]

>> Impact on flora and fauna

- Increased vulnerability of plant species and increased risk of tree death;
- Spread of potentially devastating pests like the pine processionary caterpillar.

> Increased natural risks

Throughout history, the Rhône and Saône have been known for their regular floods. The highest known flood on the Saône is the flood of 1840, which was significantly higher than a hundred-year flood. On the Rhône, the highest known floods are the floods of 1856 and 1928, which were close to the hundred-year flow level.

The impact of climate change on flood risks has not yet been precisely quantified. However, according to the ORECC (regional observatory on the impact of climate change), since the number of days and the intensity of winter rains are likely to increase, floods could be more extensive, with a higher risk of flooding due to run-off and high river levels.[xli] An alternating pattern of drought and intense rain could also increase the risk of landslides.

The Saône flooding in Lyon: rising waters: quai Saint-Antoine and quai des Célestins: picture taken from a building in the commercial alleyway, looking south, on 19 May 1856 / photo by Louis Froissart

> Impact on Lyon residents' health

- Excess mortality: in the past five years, mortality increases ranging from 5.3% to 25.3% have been observed in the Rhône department during heat waves. [xlii] The 2003 heat wave caused excess mortality of 80% in Lyon[xliii]
- Diseases linked to increased air pollution: ozone pollution peaks mainly occur in summer during calm, hot, sunny anticyclonic periods with little or no wind. Heat waves are thus particularly prone to these phenomena[xliv].
- Increased risk of allergies: higher temperatures mean that the blooming cycle starts earlier, lengthening the pollination cycle for highly allergenic plants like ragweed.[xlv]
- Circulation of new diseases carried by invasive species, including the tiger mosquito, which first appeared in Lyon in 2013 and carries viruses like dengue, zika, and chikungunya.

> Impact on daily life, economic activity, and public services in Lyon

- High heat causes poor working conditions: at temperatures above 30°C for office work and 28°C for physically demanding jobs, heat can put workers' health at risk[xlvi]
- Damage to transportation networks and traffic disruptions
- Increased exposure to natural risks and the related damage for the population
- Buildings weakened by clay shrinkage/swelling
- Decreased water resources that can impact the amount of energy available from dams and nuclear power plants, which need large amounts of water to cool their reactors

- Increased energy consumption in summer due to air conditioning systems and their impact (more intense heat islands, risk of leakage of coolants which are major greenhouse gas emitters, etc.)

D. Fighting and adapting to climate change will require an ambitious trajectory and a systemic vision

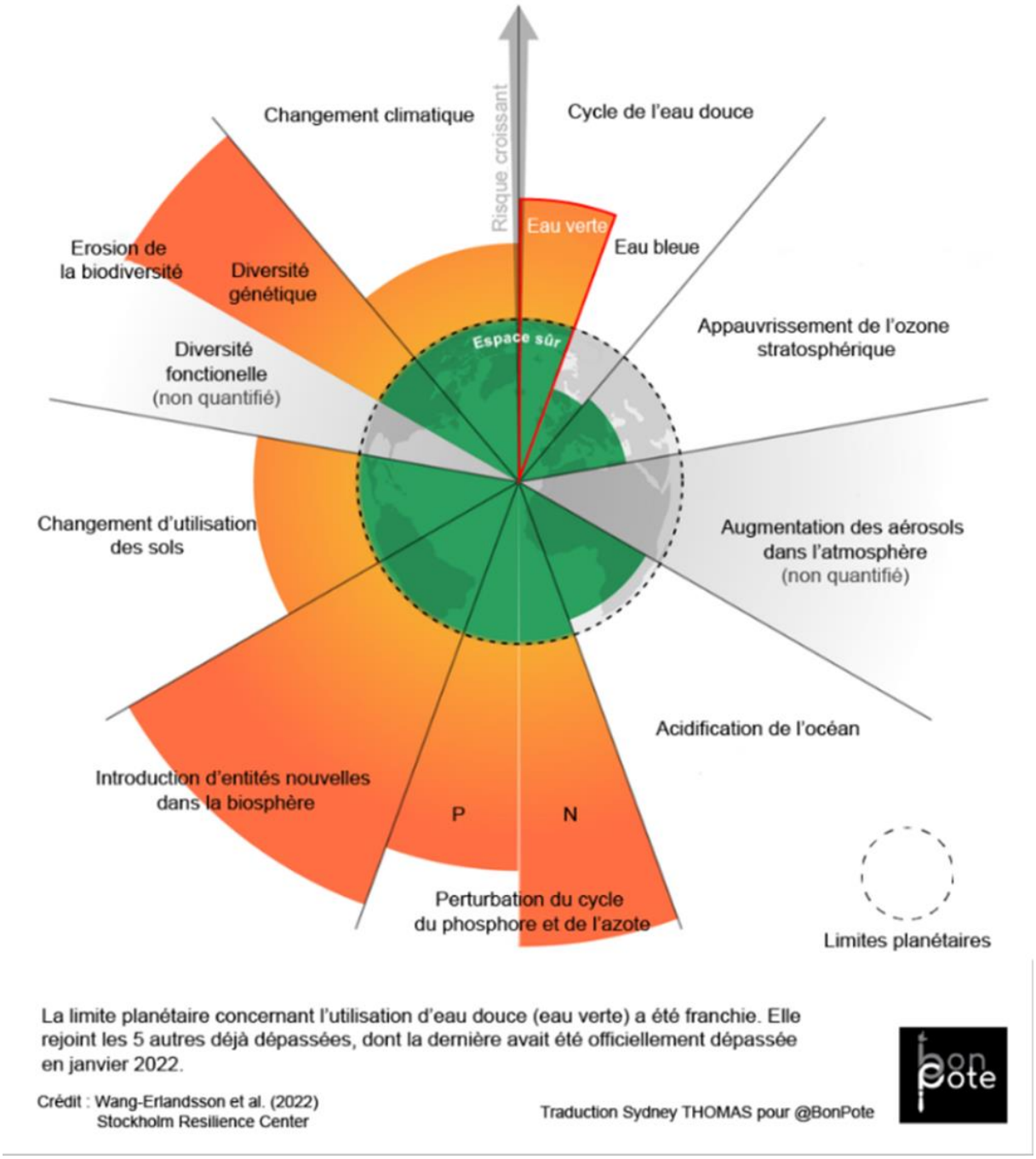
1. Drastically reducing greenhouse gas emissions to achieve climate neutrality

For over thirty years, successive reports by the Intergovernmental Panel on Climate Change (IPCC)—in other words, the international scientific community—have confirmed that human activity is responsible for climate change.

- The decade from 2011 to 2020 was the hottest in approximately 125,000 years[xlvii]
- Global fossil fuel CO_2 emissions increased 62% between 1990 and 2019[xlviii]

Climate change is one of the most concerning symptoms of a world that is breaking the planetary boundaries one by one, putting earth's habitability at risk. The concept of planetary boundaries[1] defines *"a safe and fair operating space for humanity, currently based on nine biophysical processes that, together, regulate the stability of the planet"*: climate change, the erosion of biodiversity, the disruption of the biogeochmical nitrogen and phosphorus cycles, land system changes, ocean acidification, global water use, stratospheric ozone depletion, atmospheric aerosol loading, introduction of novel entities into the biosphere. These different processes are closely interconnected. The ongoing destabilisation of several of them by human activity is already causing cascading effects. Today, at least six planetary boundaries are considered to have been exceeded.

[1] Source: Office of the General Commissioner for Sustainable Development



The goal set by the IPCC is clear: the level of greenhouse gas emissions must be stabilised and then reduced as quickly as possible to return to the residual levels that the planet is capable of absorbing. In other words, we need to aim for climate neutrality and as quickly as possible to remain under the global warming threshold of 2°C, which is considered critical because it significantly exceeds societies' ability to adapt to the effects of climate change.

The IPCC is also calling for the immediate adoption of ambitious measures to adapt to climate change, particularly in the cities that are home to over half of the global population[xlix].

2. An environmental and climate transition that must be accompanied by a social and societal transition

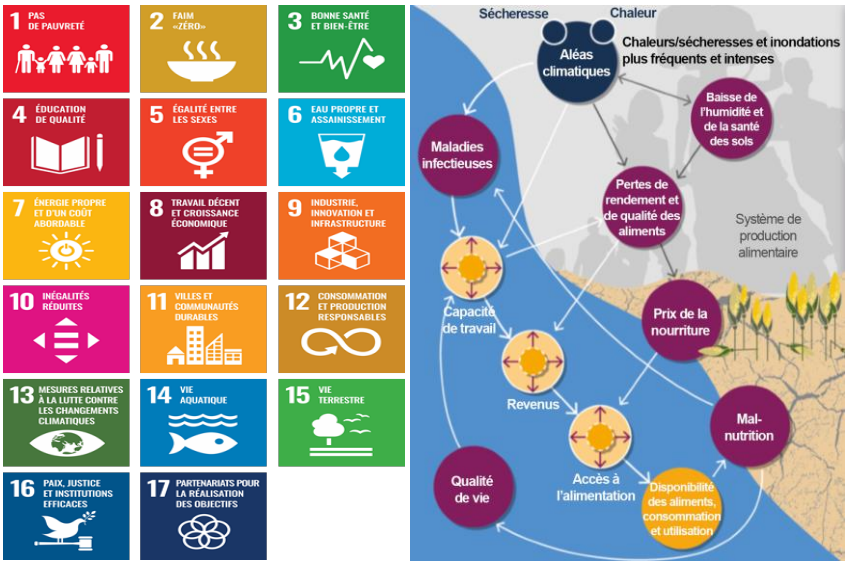
Both the causes and the consequences of the environmental and climate crisis have social implications:

- climate change could thrust 69 to 135 million people into poverty worldwide by 2030[i];
- The richest 1% of the global population produces twice as many greenhouse gas emissions as the poorest half of the global population[ii].

Efforts to fight climate change and achieve a more sustainable society must take into account other objectives, our relationship with the natural world, social issues, international dynamics, etc. These concerns are expressed by the 17 sustainable development goals adopted in 2015 by 193 United Nations member states. The sustainable development goals cover all aspects of development, including education, gender equality, water, energy, consumption and production, the climate, life below water and on land, and peace. The city of Lyon has incorporated them into its public policies.

Ultimately, a systemic approach is required to find solutions to climate issues that simultaneously take into account the planetary boundaries, essential human needs, and the existing interactions between them. With this type of approach, it will be possible to:

- make the region more resilient,
- anticipate sudden or gradual disruptions thanks to monitoring and forward-looking assessments,
- mitigate the impact,
- recover and rebound thanks to learning, adaptation, and innovation,
- move towards a new state of “dynamic equilibrium” that preserves its functions.



The sustainable development goals and the cascade effect of climate hazards on food and nutrition (Source: RE6 of the IPCC Réseau Action Climat)[iii]

Cities have a central responsibility and a decisive role to play in this global crisis: they cover 3% of the Earth's surface but are home to half of the global population and produce 70% of greenhouse gas emissions. With their dense populations and buildings, they concentrate mobility, logistics, supply, and consumption challenges and polarise economic activity and labour pools. The effects of climate change are amplified in cities.

In France, Lyon is one of the cities most severely affected by climate change. That is why, in 2022, the municipality set itself the goal of achieving climate neutrality within its territory in 2030. It also launched the "Lyon 2030 : inspirons le changement" programme to get local organisations and residents on board.

The city's ambition has been recognised by the European Commission. In April 2022, Lyon was selected to participate in the "100 Climate-Neutral and Smart Cities by 2030" programme, a network for dialogue and experimentation in European cities that aims to tackle the climate challenge by 2030.[liii] Each of the selected cities is expected to start by working with local organisations and involving residents to draft a Climate City Contract that lays out its 2030 commitments, along with an action plan and an investment plan.

Part 2: Lyon 2030: a climate-neutral city

With the “Lyon 2030 : inspirons le changement” programme, launched in 2022, the city is aspiring to new forms of commitment and cooperation to accelerate the ecological transition. It aims to publicise, synergise, and scale up local initiatives by testing new models of governance and involvement in climate issues and the ecological transition with all local players, including businesses, educational, social, cultural, and sporting organisations, neighbourhood representatives, public agencies, and with residents more generally. To that end, in 2022, it held several meetings that were open to Lyonnais stakeholders with the goal of understanding their perception of and needs related to climate change, and to bring the Lyon 2030 programme to life.

This initial stage also involved city employees, with an increased focus on the municipal assets and public services that they manage. Their efforts included work on overhauling the municipal climate plan to align it with the Greater Lyon climate-air-energy plan.

A. Public policies overhauled to address the climate emergency

1. A new 2023-2030 municipal climate plan with a broader local focus...

The municipality made its initial commitment to the climate in 2010 within the scope of its municipal jurisdiction and its own assets by preparing its first greenhouse gas emissions assessment, which is updated every three years. Its first climate plan was passed in 2013. The plan focused on mitigation, i.e. reducing the greenhouse gas emissions produced by the municipal government. In 2015, the plan was updated and the challenge of adaptation was added. Four years later, a climate air energy 2020-2026 action plan was adopted, but soon had to be enhanced with the adoption of new objectives that were voted in by the new municipal government in 2021 and 2022.

The 2023-2030 climate plan has updated municipal public policy to reflect the goal of climate neutrality. The city's commitment has three major objectives:

- drastically reducing greenhouse gas emissions from municipal assets and the public services it manages to put the city of a trajectory to achieve climate neutrality by 2030;
- working towards adapting the city to handle climate change, and more broadly to prevent the long-term effects and risks of climate change;
- raising awareness and empowering city employees and all local stakeholders.

While the new plan is largely based on the previous climate plan—half of the actions will be continued or enhanced—the other half of the plan is made up of new actions.

2. ...and that is part of the revision of the metropolis climate-air-energy plan

The city’s commitments are consistent with and linked to the current local climate-air-energy plan of the Metropolis of Lyon, which set the goal of a 55% decrease in emissions compared to 1990 by 2030 and carbon neutrality by 2050. The PCAET review process will begin in September 2023 and end in 2025. Lyon, like the 58 other municipalities in the metropolis, will be an active participant in the process, starting in late 2023 with the local diagnosis process and continuing throughout 2024 to define its major outlines and the local action plan.

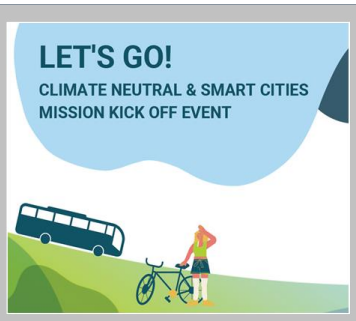
B. A new cooperation and action framework for the climate in Lyon

1. A new approach developed jointly with local stakeholders

Some 200 local players, including businesses, non-profits, and institutions, responded to the call launched by the municipality in 2022 to discuss a new framework for cooperation and action on the climate in Lyon. The meetings were a rich source of information and proposals: how climate change is perceived in Lyon, what a climate-neutral city in 2030 might be like, how to build on the actions and dynamics that are already in place in Lyon, what can be learned from the experiences of other exemplary cities, what new forms of governance to develop, how to get as many people as possible involved.

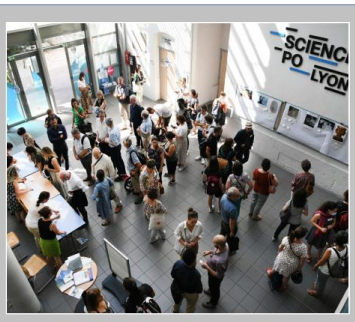
28 avril : Lyon, lauréate du programme européen 100 villes climatiquement neutres

9 mai : Célébration avec les acteurs du territoire



13 juin : Lancement officiel du programme à Bruxelles

2022



11 juillet et 20 octobre : Réunions de co-construction de la démarche Lyon 2030

16 décembre : Appel à rejoindre l'Agora Lyon 2030 et bâtir collectivement un pacte territorial vers la neutralité climatique

"Lyon is taking on a very bold challenge: achieving carbon neutrality by 2030. It might sound utopian, but we are already facing an emergency and have an urgent duty to act. And then, if you invited me to speak and contribute to mobilising stakeholders, it's because my town's example shows that it is possible and that a population can get moving and start the transition".
Extract from a speech by Jean-François Caron, the mayor of Loos-en-Gohelle, on his town's environmental transformation, 11 July 2022.

2. Climate neutrality: needs, drivers, and roadblocks

Achieving climate neutrality in Lyon is not just a technical and financial challenge: that was the unanimous conclusion reached by the local stakeholders who were asked about their needs, the obstacles to overcome, and the drivers to mobilise to take on the challenge of climate change. Several of these obstacles are considered systemic because they are inherent in the foundations of our economic and social system.

- ***Public policy and governance***

  - **Climate action on the level of the city of Lyon is partially dependent on decisions and regulations applied at other levels:** metropolitan, regional, national, European, and international. To be effective, all aspects of climate action (legislative, regulatory, financial, etc.) need to be implemented consistently and at all levels. For example, renovating all residential and tertiary buildings is crucial to achieving climate neutrality. The metropolis has rolled out an ambitious renovation policy that the city supports within its scope, in addition to working on its own properties. However, the implementation of massive renovation programmes is closely correlated with national and European.

  - More broadly, the stakeholders felt that **the State's commitment and climate action** are inadequate. They echoed the words of the High Council for the climate in its most recent reports[liv]: France is particularly vulnerable to the consequences of climate change, so its adaptation strategy and measures must be scaled up and enhanced.

  - The **connection between social and climate issues** should be clearly defined and widely shared. For example, the metropolis and the city are implementing ambitious policies to reduce emissions from road transportation, particularly with the creation of low emissions zones (LEZ). However, social acceptance of these measures and support for local stakeholders, individuals and businesses alike, are essential. The aid and support measures, such as reduced public transit fares or bonuses for switching to an electric vehicle remain confusing at this stage.

  - Climate issues have not yet been fully incorporated into **forward-looking programmes** and **local resilience policies**.

  - **Local governance** has emerged as a key driver to be structured and enhanced.

- ***Taking action***

  - Today, there is no **shared understanding** (among local governments, residents, businesses, universities, etc.) **of the climate neutrality trajectory and how to achieve it in practice.**

  - The **need to change the paradigm and work in a cooperative and cross-cutting way** was strongly emphasised. Local climate initiatives, of which there are many, are mainly sector-specific and lack clear visibility, which inhibits mass action. For example, some organisations, including companies, non-profits, and government agencies, may take action for the climate (carbon footprint assessment, internal strategy, etc.) in ways that are not linked to the official local approach. Support for local stakeholders and public-private partnerships are sector- or audience-specific, with no comprehensive vision. Another example that highlights the challenge of cross-cutting efforts and cooperation is that of food. Reducing food-related emissions involves not only changing agricultural production methods (more local, less emissions-intensive) but also changing consumer behaviours, at prices that remain affordable for everyone.

  - The **impact of the actions that have already been taken is not always measured and thus remains relatively invisible or poorly publicised**, which makes it impossible to expand these programmes or roll them out elsewhere in the city.

- ***Narratives of the ecological transition, social innovation, and participatory democracy***

  - **Lyon's climate narrative**—a common, unifying story that everyone can understand—still needs to be consolidated and shared with local organisations and residents: our shared history (where do we come from?), the representation of the actions that have already been undertaken and the results obtained... This vision may already exist at the level of a neighbourhood, an organisation, or more broadly the actions of non-profits or individuals, but it does not have the necessary popularity.

    Today, the consumerist narrative dominates, with far-reaching influence on visions, habits, and infrastructure. Quickly getting large numbers of people to engage with a vision of sobriety and the habits that go with it on every level, from consumption to mobility, real estate, and beyond, runs counter to the common ideals of our society. Social and cultural resistance to the idea of human-caused climate change is also a significant factor[lv].

    Moving past this cultural resistance will entail involving as many players as possible.

  - There is currently **no massive communication about the climate** or organisational and individual involvement in participatory governance. Broadly speaking, **climate-related governance** does not yet leave enough space for collective intelligence and individual participation.

- ***Financing the ecological transition and economic models***

  - **Public and private financial efforts are currently inadequate** to meet our climate commitments and the **cost of action compared to the cost of inaction** is not well-enough known.

  - With regard to the **investments required** to make the ecological transition a reality, focusing on a quick return on investment appears to be incompatible with projects whose economic benefits, when they exist, will only appear in the long term. In many cases, projects have intangible benefits with no direct economic impact: global climate, local cooling, health, etc. Public authorities thus have a key role to play in these investments.

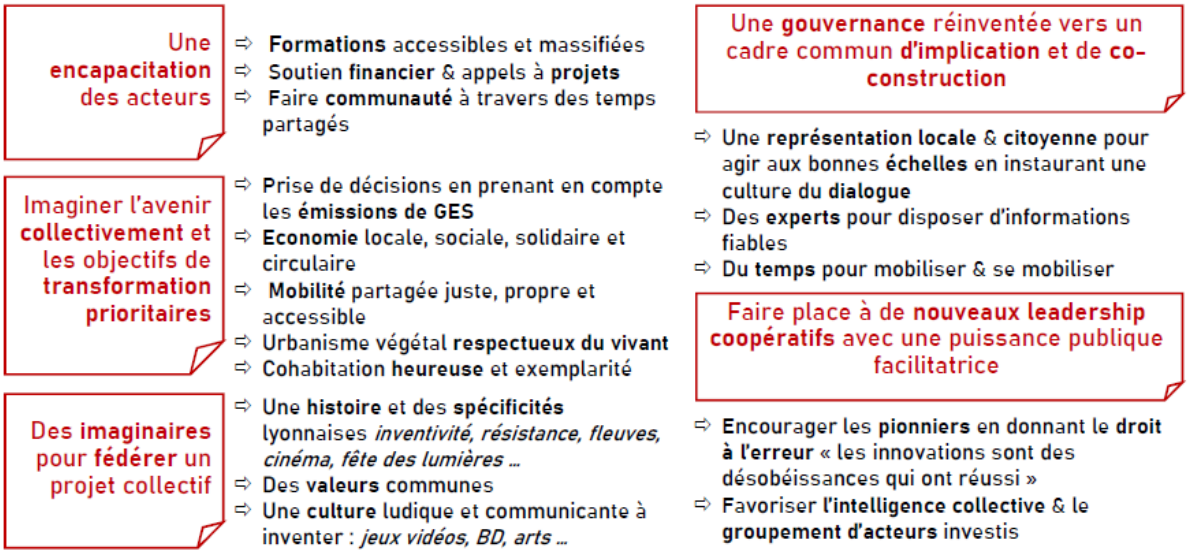
  - **Economic logic and an environment-centric approach** have an even more serious clash: all too often, consumption practices put economic players in situations where the cost of an action does not reflect its true impact. In other words, an economical solution is very rarely an environmentally-friendly solution. This situation discourages investment in environmental best practices and produces inequalities and feelings of injustice. More broadly, it challenges the principle of "polluter/payer" and its application.

- ***Monitoring and assessment of climate actions***

  - To date, **the existing tools and the data available do not enable detailed motoring of the effects of the climate-related actions that have already been undertaken** and the progress made towards achieving climate neutrality. While some practical actions are quantifiable, the majority are forms of incitement and awareness raising, making it difficult to measure their direct impact.

  - The lack of local data also affects the development of scenarios for achieving climate neutrality.

Given these issues, how can we rethink action and cooperation in Lyon? Local players have proposed five actions, which form the basis of the Lyon 2030 strategy.



C. The basis of the Lyon 2030 strategy

1. Objectives

The objectives selected for the Lyon 2030 strategy aim to mobilise local organisations and individuals and get them to take action:

- Improve **awareness-raising, training, and communication** on climate issues for local residents and stakeholders and city employees;
- **Support, assist, and promote initiatives and projects** by local players that aim at climate neutrality, particularly for young people;
- **Support and assist local organisations,** particularly neighbourhood businesses, through their transition;
- **Offer Lyon 2030 programming:** lecture series, events hosted by the city or programme partners;
- **Support and develop climate resource centres;**
- **Expand cooperation with researchers**, particularly by mobilising the metropolis research council and working on information for the general public.
- Develop a **narrative approach** in partnership with Fabrique des Transitions.

2. The major components of the programme

a. Trialling new local climate governance

At the centre of the programme is a new body, the Agora, which brings together local stakeholders. The municipality is committed to collectively developing a shared vision of the road to climate neutrality in 2030 through the Agora. This vision will be laid out in the Lyon 2030 climate contract, which the municipality will publicise extensively at the regional, national, and European levels.

The Agora will enhance public policies by incorporating local players' expectations and better connecting them with private initiatives. The municipal climate plan will progressively be updated to incorporate the Agora's proposed actions and other proposals. The goal is also for the Agora members to inspire each other and their ecosystems with their commitments to the climate and form and strengthen partnerships to accelerate ecological transition projects in Lyon.

This new framework for cooperation and action on the climate fits into the existing regulatory processes in Lyon, particularly the metropolitan climate-air-energy plan. The Agora and the Lyon 2030 programme as a whole will thus contribute to and support certain strategic aspects of the metropolitan plan, although the plan's scope is broader than that of the Agora since it involves all 59 municipalities in Grand Lyon.

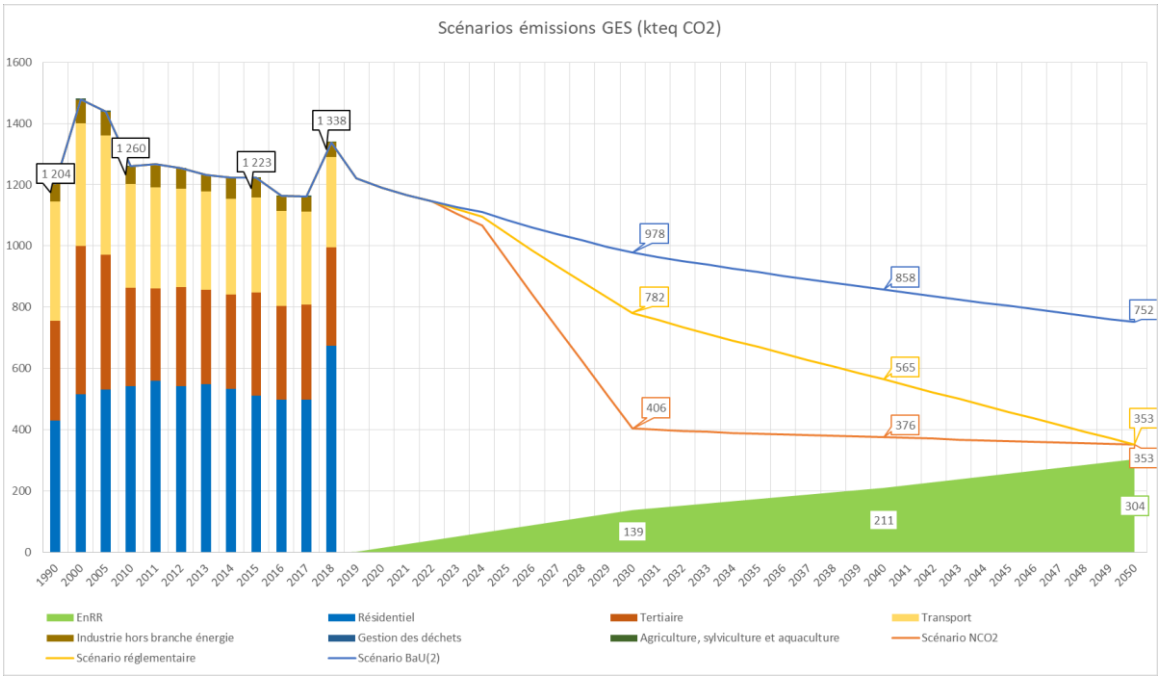
Support from the Metropolis research council
The municipality will request input from the research council formed by the metropolis on the programme and the content of the Lyon 2030 climate contract. The 14 members of the council, who are specialists in the humanities, social sciences, technology, and life sciences, may also be asked to speak to the Agora, to contribute to scientific publications for the general public, or to be involved in lectures or other public events.

b. Co-developing a vision and a trajectory for climate neutrality

At the national level, the national low carbon strategy (SNBC) has set the objective of climate neutrality by 2050, with a 55% reduction in emissions compared to 1990 by 2030. This strategy is part of the European Green Deal for 2050 and the Fit for 55.

Several scenarios for achieving climate neutrality in France have been developed by the Ecological Transition Agency (ADEME), the non-profit NégaWatt, and RTE, the electricity distribution network manager. All of these scenarios aim to achieve climate neutrality by 2050, with a focus on sobriety and the massive development of renewable energy. According to the ADEME, *"the reduction in demand for energy, which is in turn linked to demand for goods and services, is the key factor in achieving carbon neutrality. This reduction could range from 23% to 55% compared to 2015 depending on the scenarios, each of which is based on a different balance between sobriety and energy efficiency".* ADEME's scenarios project that "in 2050, more than 70% of the energy supply will be from renewable sources".

In Lyon, the municipality carried out its first city-level projections for 2030 in 2022. Three scenarios for changes in greenhouse gas emissions within the city were studied, showing that a major change and acceleration will be required to achieve climate neutrality. For example, achieving climate neutrality will require exceeding the regulatory requirements for tertiary buildings, renovating all housing units to meet the BBC (low consumption building) standard by 2030, and significantly decarbonising local mobility and energy.



Scenarios for greenhouse gas emissions trends in Lyon through 2030

Sectors / scenarios	Trend-based scenario	Regulatory scenario	Carbon neutrality achievement scenario
Residential	Renovation of 2,300 housing units per year (70% housing units built before 1970)	Renovation of 8,300 housing units (80% housing units built before 1970)	Renovation of 100% of housing units 2030; 32,800 units/year
Tertiary	Renovation of 20% of buildings, 75,000 m²/year (tertiary decree)	Renovation of 40% of buildings, 150,000 m²/year (tertiary decree)	Renovation of 40% of buildings, 150,000 m²/year (tertiary decree)
Mobility	Current trends continue 3% of vehicles replaced with electric vehicles per year	3% of vehicles replaced with electric vehicles per year Low emissions zone taken into account	5% of vehicles replaced with electric vehicles per year 2% of personal vehicle use replaced with eco-friendly mobility solutions and 10% with public transit
Renewable energy sources (thermal)	16% biogas injected into the gas distribution network Current trend continues for other energy sources	50% increase in thermal solar energy production and heat recovery (45.42 and 99.17 GWh in additional production per year, respectively) 30% biogas injected into the gas distribution network	100% increase in thermal solar energy production and heat recovery (90.83 and 198.35 GWh in additional production per year, respectively) 30% biogas injected into the network

Hypotheses used for the scenarios for greenhouse gas emissions trends in Lyon through 2030 (source: City of Lyon)

These initial scenarios, which only take local emissions into account, are based on the assumption that 20% of greenhouse gas emissions will be offset (the maximum allowed by the European Commission for the "100 Climate-neutral cities by 2030" programme). This hypothesis is not aligned with the Agora and the municipality's goal of reducing emissions and avoiding the use of offsets as much as possible. The scenarios will need to be reworked accordingly.

Other hypotheses need to be shared and refined with the players involved in the Lyon 2030 programme. Feedback and study or experiment results will need to be incorporated to make the climate neutrality scenario more reliable. In particular, the hypotheses will be reviewed to bring them into alignment with those of the metropolitan climate-air-energy plan.

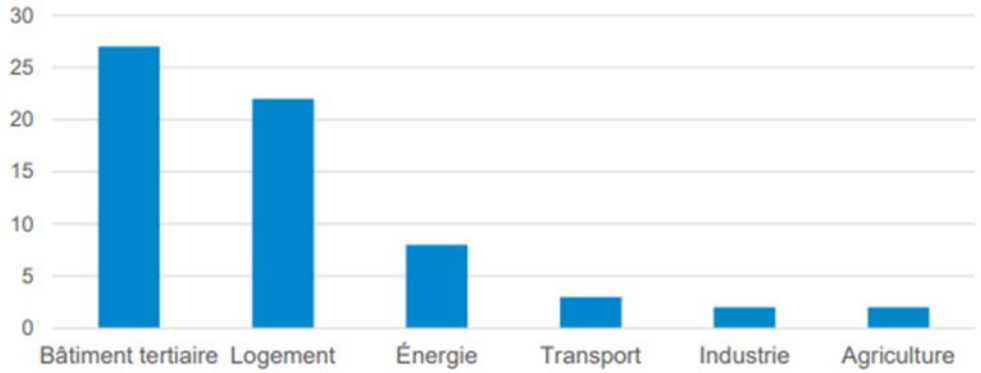
Beyond the purely technical aspects, it is essential to accompany this process with a collective discussion of how to make this scenario a reality: how can we get organisations and individuals on-board? To understand what is possible, share narratives and visions, talk about where we are coming from, what has already been done and what is left to do and how to do it, in 2022 the city signed a partnership with the non-profit Fabrique des Transitions. The objective is to work on a narrative base (what are the dominant/alternative stories) and explore the past/present/future trajectories while also incorporating contradictory narratives. This process can leverage past experiences in Lyon, including the Eau FuturE programme run by the city, which takes the aspirations, expectations, and hopes of residents/users into account[lvi].

c. Determining the cost of climate neutrality and developing an appropriate financial strategy.

In France, the national low-carbon strategy (SNBC) aims to achieve climate neutrality in 2050. Several estimates have assessed the associated costs at tens of billions of euros.

- The **additional public and private investments** required across all sectors would be about €66 Bn/year through 2030. The largest investment needs are in tertiary and residential buildings. In this scenario, the public sector (State and local governments) would need to supply €34 Bn/year, while local partners, companies, and individuals would need to contribute €32 Bn/year[lvii].

Graphique 14 – Investissements additionnels nets requis pour atteindre l'objectif 2030,
par rapport à un scénario tendanciel sans verdissement de l'économie, en milliards d'euros de 2023



Note : le transport maritime et aérien et le secteur des déchets ne sont pas couverts ici, ce qui minore le total des investissements requis.

- Another scenario estimates public investment needs at €100 Bn/year, all players combined[lviii]. Local governments would need to contribute about €12 Bn/year in investments and €1.5 Bn/year in engineering through 2030. The biggest investments would be in transportation (rail, public transit, bike paths, etc.).

  Local governments are currently investing about €5.5 Bn/year. To take on the climate challenge, they would need to increase that budget by €6.5 Bn/year through 2030: 65% from municipalities and groups of municipalities, 25% from regions and 10% from departments[lix].

Locally, during the current term, the city has invested €400 M in the ecological transition within city limits.

At the metropolis level, it would take €1 Bn/year (1.7% of the GDP) to reach climate neutrality in 2050. In Lyon, the investment required to reach climate neutrality in 2030 has not yet been defined, but work on doing so is under way as part of the "100 smart and climate-neutral cities" programme with NetZeroCities. Once the assessment is complete, an appropriate financial strategy will need to be developed with the Lyon 2030 stakeholders.

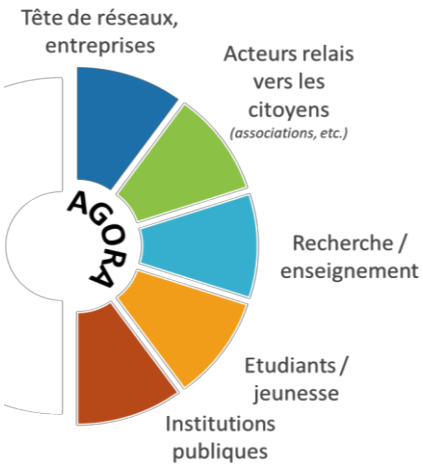
Part 3: The Agora: at the heart of the Lyon 2030 programme

One of the central components of the Lyon 2030 programme is the creation of an Agora that rallies local energy, boosts capacity to act, and accelerates climate action.

A. The make-up and mission of the Agora

The Agora brings together organisation that are representative of local diversity:

- Economic players
- Organisations that interface with residents (non-profits, etc. including some with a core focus on the ecological transition)
- Teaching and research organisations
- Youth and student organisations
- Public and Parapublic institutions



The first Agora, formed in early 2023, had 65 member organisations.

The Agora has two tasks:

- Working together to boost each member's capacity for action by:
  - jointly developing a local climate contract: the current Lyon 2030 climate contract;
  - developing a contract for each Agora member organisation: the Lyon 2030 cooperation and commitment agreements. These contracts lay out the vision and individual commitments of the members of the Agora and define their areas of cooperation with the municipality.

  The Agora will use these contracts to enhance the collective dynamic and foster partnerships and joint projects;
- Serving as a consulting assembly that the city can ask for input on issues related to climate policy and that can issue independent opinions on the subject.

The Agora will expand every year to add new local players and will contribute to platforming new points of view and new expertise. It will hold plenary meetings once or twice per year to review progress on implementation of the contract and launch new projects.

B. The first Agora in action

Following discussions with local players in 2022, the municipality proposed launching the Agora with a series of five working days in the first half of 2023. This approach had several goals: to give the Agora members the opportunity to get to know each other, to share their climate-related challenges, to lay

the foundations for a shared vision of climate neutrality, to formalise the first collective commitments to achieving that goal, and to discuss how this new assembly should operate.

To join the Agora and participate in this start-up session, each interested organisation had to respond to a call for expression of interest in which it committed to:

- attend all five days;
- appoint an Agora contact and partner for its organisation;
- draft a Lyon 2030 cooperation and commitments agreement to be signed by its director, laying out its commitments and intended for publication.

Of the 90 organisations that responded to the call for expression of interest, which ran through December 2022 and January 2023, 65 were selected on the basis of the following criteria: quality of the application submitted, availability to attend all five initial meetings, and type of organisation, since the goal was to have the Agora be representative of the city's diverse players.

Schedule of meetings and work done by the first Agora

2023

Décembre 2022 – Février : Appel à rejoindre l'Agora Lyon 2030 et bâtir collectivement un pacte territorial vers la neutralité climatique

9-10 mars : Installation de l'Agora
Faire connaissance, partager les constats, interroger les politiques publiques et les engagements privés existants, identifier les axes prioritaires d'action

3 et 4 avril : Rencontre de l'Agora sur l'axe prioritaire – SOBRIETE
Travail collectif sur les enjeux, les engagements possibles en lien avec les politiques publiques
Travail sur fonctionnement de l'Agora et la mobilisation des acteurs

20 avril : Réunion du Conseil Scientifique de la Métropole sur Lyon 2030

2 mai : Temps d'échanges sur le futur tiers lieu sur la transition écologique
(site Neyret, 1er)

8 juin : Rencontre de l'Agora
Formalisation des pistes d'engagements à inscrire dans le pacte climat Lyon 2030 et les recommandations à l'attention des pouvoirs publics - Travail sur les conventions de coopération et d'engagements

11 juillet : Rencontre de l'Agora
Travail sur les conventions de coopération et d'engagements
Présentation du pacte climat Lyon 2030 et des premières conventions de coopération

28 septembre : Présentation du pacte climat Lyon 2030 au Conseil municipal, du plan climat et du dispositif des «bourses jeunes»

30 octobre : date limite pour remettre les Conventions de coopération et d'engagements

C. The Agora's work

1. How is climate change experienced?

While it takes different forms, the impact of climate change is already being felt. The members of the Agora experience its effects both professionally and in their personal lives.

Professional impact

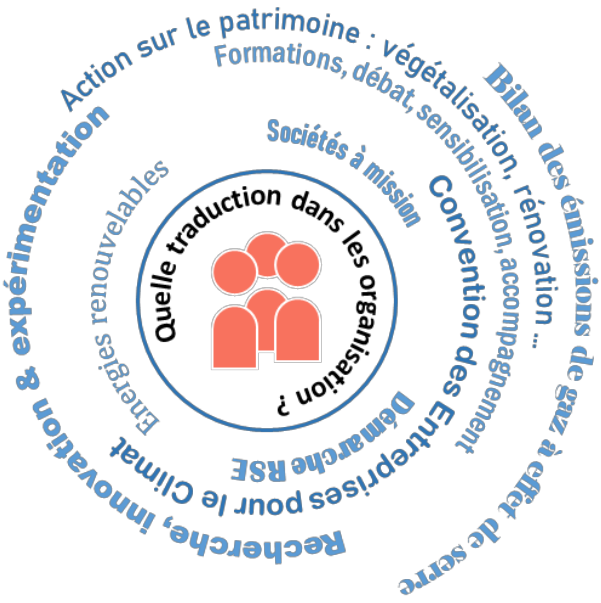
- Sectors like urban development, construction, landscaping, and logistics must change and adapt their practices;
- Heat islands affect many Agora members, particularly those that are open to the public (youth organisations, universities, etc.);
- Social issues are exacerbated for those living in run-down housing or experiencing energy insecurity; Agora members who work with these populations must take these issues into account.

Personal impact

- Environmental anxiety is extremely present: fear for the present and for future generations, work-related concerns;
- Strong drive to take action both on a personal level and at work.

2. What initiatives and projects already exist in Lyon?

Starting with what already exists, promoting it, and looking for synergies: the Agora member organisations have already implemented a broad range of measures to reduce their greenhouse gas emissions and adapt to climate change.



Examples of initiatives cited by the Agora:

Corporate initiatives:

- Process of becoming a mission-driven company in progress or already complete *> emlyon Business School, La Poste*
- Participation and involvement in the Convention des entreprises pour le climat (Business Climate Convention, CEC) *> Keolis, Hospices Civils de Lyon, ATMO Aura, Centrale Lyon*
- Corporate social responsibility measures
- Energy savings support measures for small independent businesses > the LYON ECO ENERGIE programme, support for waste and packaging reduction with the municipality, awareness-raising on new mobility options with the metropolis, the Eco Défi project by the *Chambre des Métiers et de l'Artisanat*

Initiatives to enable a better understanding of the impacts and challenges

- Carbon footprint assessments *> University of Lyon 3, ICADE, Lyon la Duchère, emlyon*
- Actions to enhance the debate / raise awareness / train / advance the conversation, internally and/or with organisations' stakeholders: all secondary schools as well as non-profits > *Conscience et Impact écologique*, specialised organisations like *RESES* for students, a guide for sporting organisations from the *Office des sports lyonnais, Club Lyon la Duchère*

Fostering cooperation and action by local organisations and individuals

- Support initiatives for local organisations or certain individuals *> MMIE* for job seekers*, TRESS* for caterers*, CJD, Chambre des Métiers et de l'Artisanat, Réseau des MJC, Solidarités nouvelles face au chômage*
- Spaces for resources, action, and cooperation > *Maison de l'environnement, Maison du Vélo*
- Work on developing economic models > *La Gonette*
- Renewable energy: empowering individuals to take action mobilising neighbourhoods, promoting new business models and shared governance models for the energy transition > *CoopaWatt*

Research / innovation

- Implementing processes for innovation and experimentation > *SERL, TUBA*

- Boosting research on topics related to the climate and the energy transition > *Labex IMU, INRAE, universities*

Sector-specific actions

- Work undertaken to transform professional practices and industries > *Opera* with eco-design for sets
- Sustainable mobility for organisations and their stakeholders > *Opera*
- Reflection and discussion of actions to take to adapt the stakeholder's assets or municipal assets > *Collectif Végétalisation du Vieux Lyon, ALEC, Grand Lyon habitat, INSA*

3. What are the keys to successfully achieving climate neutrality?

The discussions among the Agora members revealed the keys to successfully achieving climate neutrality:

The ecological transition: first and foremost about people

- Centre people and the living world
- Keep positive, desirable, and realistic cohabitation as the target
- Reassess the relationship to time, despite the urgency to act

A clear goal

- Define priorities to achieve real breakthroughs, set clear goals
- Clarify and quantify the progress achieved and set intermediate goals: "breadcrumbs"
- Make decisions through the prism of CO_2 emissions and incorporate other social and environmental concerns
- Dare to challenge the idea of growth and reorient the economy towards increased sobriety
- Ensure that the commitments made are realistic, particularly for stakeholders like very small businesses

Mass communication and mobilisation

- Communicate broadly about the impact of climate change
- Rally the public around exemplary projects and practices

D. The Agora's three focus areas

To take on the challenge of climate change, the Agora members agreed to work together on three areas.

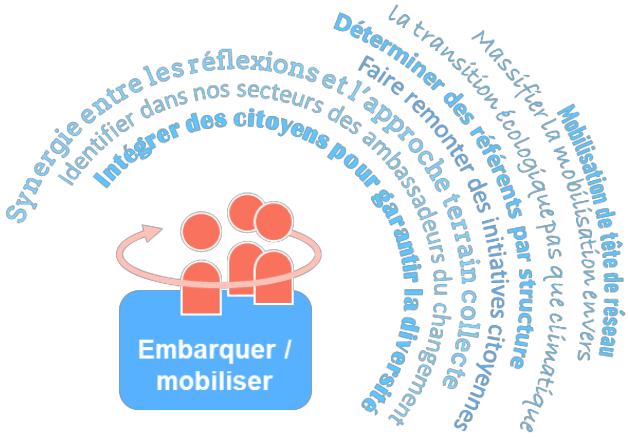
1. Focus Area 1: running the Agora and contributing to its output

While the municipality set up the initial framework for the Agora, it asked the Agora members to consider the long-term operations of this new body. The Agora members discussed initial avenues: contributing resources (time, tools, expertise, spaces), participating in working groups, launching experiments.

2. Focus Area 2: mobilisation and commitments beyond the Agora

Two actions were proposed:

- Empowering stakeholders: training/education, commitment
    - Working and communicating on a vision/imagination
    - Going through training to share a common knowledge base
- Involving/activating Lyon 2030 leaders, individuals, neighbourhoods, businesses, etc.



3. Focus Area 3: priority topics

The Agora identified sobriety as the priority that it wanted to explore in depth in its initial contract. Sobriety is an overarching theme that can be applied to a range of topics, including buildings and mobility (cf. Part 4).

This choice echoes the local greenhouse gas emissions assessment, which showed that residential and tertiary buildings and transportation (part 1) are the most emissions-intensive sectors.

The other challenges highlighted by the Agora are:

> The challenge of adapting to climate change

- Topic: Greening
  Examples of goals cited by the Agora
  - Preventing heat islands
  - Encouraging the development and use of urban orchards
  - Adapting living environments
  - Removing artificial surfaces
- Topic: Water
  Examples of objectives cited by the Agora
  - Encouraging resource conservation
  - Raising awareness of the issue: rivers, fountains, watering
  - Encouraging community and awareness-raising on climate/water issues

> The challenge of changing the economy and consumption

- Topic: Employment
  - Promoting existing local skills
  - Working on the narrative of the value of certain undervalued jobs (construction, waste management)
- Topic: Consumption/purchasing
  - Challenging needs and practices
  - Encouraging responsible purchasing
  - Fostering the regenerative economy
  - Relocalisation

The Agora may address these other challenges in the future, based on its members' interests and any requests from the municipality They may also appear in the different members' Lyon 2030 cooperation and commitment agreements.

Part 4: The goal: “sobriety”

The members of the Agora made a collective decision to prioritise work on sobriety during this initial cycle, with the goal of developing their own collective commitments and proposed actions for the public authorities. They identified sobriety as a priority due to its major impact on greenhouse gas emissions and the fact that everyone can contribute, regardless of their activities or resources.

A. Sobriety: definition and challenges

Sobriety can be defined as ***“a determined and organised approach to reducing energy and natural resource consumption through changes in lifestyles, habits, values, standards, behaviours, and organisations. It means reassessing our energy and material use and needs, as well as our vision, our society’s energy culture, and our individual and collective organisations.***

It is different from energy efficiency, which is limited to technical improvements that reduce energy consumption in a given system (building, vehicle, etc.).

It plays a major role in addressing the climate emergency and ending the use of fossil fuels by serving as a way to negotiate a more equitable distribution of the effort to reduce energy consumption.

Sobriety operates in different timeframes. Emergency sobriety aims to provide a very quick response to a break in the supply of energy, natural resources, water, food, etc. It involves a short timeframe with a high risk of a rebound effect if the measures are seen as “temporary” and developed without concertation. Systemic sobriety, on the other hand, addresses climate, environmental, and social challenges by changing standards, social and technical frameworks (local development, the organisation of time and work, the economic and financial system), and visions. It is developed over a long period and requires planning, concertation, cross-cutting cooperation, and consistence.

Barbara Nicoloso, Petit traité de sobriété, Éditions Charles Léopold Mayer

B. Sobriety: the Agora's 16 commitments

The Agora's commitments are based on a collective dialogue during which the members proposed topics and discussed their collective capacity for action. The members will implement these commitments based on their resources, scope, and capacity for action.

In addition to these collective commitments, the members of the Agora may present actions that are directly linked to their core activity, their context, their resources, and their audiences in their Lyon 2030 cooperation and commitment agreements.

SOBRIETY IN BUILDINGS

1. Increase awareness-raising, training, and education about sobriety in buildings
2. Run a collaborative space for stakeholders to foster the emergence of projects for sobriety in buildings
3. Agora members will achieve exemplary sobriety in their own buildings

MOBILITY AND TRANSPORTATION

4. Systematically implement ambitious, co-developed Employer Mobility Plans
5. Organise and promote travel sharing to encourage greater sobriety

URBAN LOGISTICS

6. Make commitments to cooperation on sustainable logistics with the metropolis and the city
7. Optimise organisations' logistics flows

SUSTAINABLE WATER MANAGEMENT

8. Audit, survey, and share Agora members' water/awareness-raising/training practices

RESPONSIBLE DIGITAL TECHNOLOGY

9. Implement a best practice framework for Agora members to make a joint commitment to a shared framework for responsible digital technology use

PROMOTION OF UNDERVALUED ESSENTIAL JOBS

10. Offer all workers (including those in undervalued roles) an opportunity to be involved in the transition and promote them

COMMUNICATIONS IN SUPPORT OF SOBRIETY

11. Raise awareness of and provide information, training, and/or education on a culture that is critical of advertising mechanisms and on sober, responsible lifestyles
12. Implement sober and responsible internal/external communications practices

CONSUMPTION AND WASTE

13. Develop a zero waste model by 2030
14. Promote responsible consumption and purchasing

COOPERATION AND SHARING

15. Share and act together

IMAGINING THE FUTURE

16. Involve the Agora in the development of the narrative of a desirable city for 2030, focused on sobriety

C. Sobriety: 30 proposed actions for the public authorities

SOBRIETY IN BUILDINGS

1. Align all public policies to support building sobriety: water, greening, eco-renovation, shared usage
2. Update local regulations to advance sobriety
3. Be exemplary in terms of buildings and their surroundings
4. Draw on usage to raise awareness and offer support
5. Provide financial support to compensate for inequalities

MOBILITY AND TRANSPORTATION

6. Adapt the city—the spaces where people live—to the rhythm of life (all users): encourage walking, encourage parents not to drop their children off in cars, educate cyclists on the rules of the road, improve pedestrian signage, increase visibility for protected paths, inform and educate the public about sharing the road etc.
7. Encourage alternatives to flying with financial and tax incentives and a new narrative
8. Stiffen parking restrictions and make alternatives to car use easier for apartment buildings

URBAN LOGISTICS

9. Develop a logistics scheme and a delivery/logistics/employment charter and status for a regulatory framework shared by all
10. Work on sharing transportation / real estate (logistics centres, river relay platforms, experiments by different players: LPA, Keolis, etc.) / vehicles (bus and tram at off-peak hours, utility vehicle sharing)
11. Fostering experimentation and logistical cooperation

SUSTAINABLE WATER MANAGEMENT

12. Remove obstacles to water recycling in buildings (rainwater/grey water - regulatory obstacles) and encourage implementation (PLUH (local urban development and housing plan), subsidies, etc.)
13. Accelerate support for impervious surface removal and greening

RESPONSIBLE DIGITAL TECHNOLOGY

14. Issue broad regulations to extend the useful life of public IT equipment;
15. Act on all levels to incite organisations to refurbish equipment
16. Cultivate societal responsibility, support, and education on sober and responsible digital technology use (screen access, logging off)

PROMOTION OF UNDERVALUED ESSENTIAL JOBS

17. Create a municipal collective agreement for essential jobs (this could take the form of a charter in which municipalities including Lyon undertake to support 100 jobs identified as essential, either by promoting them or by increasing their visibility and reminding the public that they are essential in today's society and for the ecological transition)
18. Promote best practices

COMMUNICATIONS IN SUPPORT OF SOBRIETY

19. Ban lighted signs and advertising in store windows, public spaces, and the metro
20. Create a public advertising agency to replace the market-based approach with a public interest-based approach
21. Redefine advertising contracts to balance the ratio of useful/commercial advertising

CONSUMPTION AND WASTE

22. Develop systems like labels, maps, and/or a directory to make it easier to identify and find local producers/businesses
23. Set up programmes run 50/50 by the municipality and local organisations to encourage new local consumption initiatives
24. Provide support to help farmers respond to calls for projects and public-sector calls to tender
25. Provide training and support to the general public and organisations

COOPERATION AND SHARING

26. Expand the municipality's role in organising and coordinating this type of cooperation
27. Provide the resources for collective action involving the municipality

IMAGINING THE FUTURE

28. Take control of the narratives and propose related practical actions (with the municipality and in partnership with the metropolis)
29. Mobilise local structures to join the fight for a new vision

D. Presentation of the commitments and proposed actions for the public authorities

Sobriety in buildings

Context

The residential and tertiary sectors are the biggest sources of greenhouse gas emissions in the city of Lyon (they are the second-largest source in France as a whole, behind transportation). The residential sector accounts for 40% of greenhouse gas emissions (up 18% since 1990), while the tertiary sector (offices and stores) represents 32%, down 15% since 1990.

In the residential sector: the overwhelming majority of housing units are apartments (95%), with just 2.7% single-family homes. A majority of occupants are renters (64% vs. 40% in France), 33% are owners (57% in France), and 2% are housed free of charge. Close to half of existing primary residences were built before 1970, and about 16% were built before 1919[lx].
25,000 households in Lyon (9%) have been identified as facing housing-related energy insecurity.
Gas accounts for the majority of household energy consumption in Lyon (60%), followed by electricity (29%). The heating and cooling networks represent 6% of consumption. Heating is the top energy consumer (62%), followed by hot water (14%).

The tertiary sector represents 37% of building energy consumption in the city. The vast majority of the 25,950 active employer sites identified by INSEE [lxi] in 2020 are in "retail, transportation, or miscellaneous services" (82%), followed by administrative, teaching, health care, and social work organisations (approximately 10%). Just 3% are industrial. Gas accounts for the majority of tertiary sector energy consumption (51%), followed by electricity (33%).

Following the adoption of a national sobriety plan in the autumn of 2022 and the development of an energy sobriety charter by the city of Lyon, many local organisations were interested in getting more involved, and over 240 stores and other businesses signed the charter.
Renovation and improved insulation are also major challenges. Adapting buildings to handle heat is also an increasingly significant concern.

During their discussions of the challenges of building sobriety, the Agora members raised the question of their capacity for action, given their very different profiles and activities. Some own vast swathes of real estate, while others rent small offices. However, taking action on building sobriety is a more accessible step for all organisations than some other initiatives. Sobriety in terms of defining needs (area, occupancy, etc.), the choice of materials (reuse, etc.) and space sharing should also be taken into consideration. With so many different situations, the roadblocks can be legion. The challenges of raising awareness and providing training and education on building sobriety emerged as action drivers; the need to increase cooperation was also highlighted.

The Agora's commitments

The Agora members ultimately identified three priority commitments, which they could undertake based on their context and their capacity for action:

1/ Increase awareness-raising, training, and education about sobriety in buildings

Qualitative or quantitative objectives:

1. Create/share an awareness-raising kit (=shared resource) that organisations can use. Manage, coordinate, and update it
2. Communicate on the results obtained in terms of decreased consumption (and thus increased sobriety)
3. More extensive training for ambassadors within structures

Target:

- Members of an organisation (points 1 and 2)
- Organisation-specific personnel (point 3)

Proposed indicators:

- Number of people using the kit
- Consumption reports
- Number of people trained

2/ Run a collaborative space for stakeholders to foster the emergence of building sobriety projects

Qualitative or quantitative objectives:

- Space used for co-production (not just information) and facilitation
- Space used for meetings between initiative leaders, experts/researchers (resources) and decision-makers/owners
- Office hours for support and mediation
- Bring projects to decision-makers

Target: All Agora members

Proposed indicators:

- Number of spaces available for this type of mediation
- Number of projects displayed/addressed per space

3/ Achieve exemplary sobriety in Agora members' buildings

Qualitative or quantitative objectives:

1. Significant share of future renovations use biosourced and/or re-used materials and low-tech systems
2. Make sites (roof, car park, heating, etc.) available to contribute to local renewable energy production, which can be financed and managed by Lyon residents, and raise their awareness of energy use

Target: All Agora members who can take action on their real estate assets, either as owners or by involving their landlord
Proposed indicators:

- Percentage of renovations carried out with biosourced and/or reused materials and/or number of projects completed
- Percentage of Agora members that have made their site available or persuaded their landlord to take action to contribute to local renewable energy production and awareness-raising for residents

Examples of roadblocks identified by the Agora

- Regulatory standards that prevent seamless use of business premises (insurance, leases, etc.)
- Shared management of business premises

Proposed actions for the public authorities

In addition to its own commitments, the Agora has formulated proposals for actions by the public authorities that have the ability to facilitate building sobriety initiatives:

- Align all public policies to support building sobriety: water, greening, eco-renovation, and shared usage
- Update local regulations to advance sobriety
- Be exemplary in terms of buildings and their surroundings
- Draw on usage to raise awareness and offer support
- Provide financial support to compensate for inequalities

Mobility and transportation

Context

Cars are the biggest culprit in the average French carbon footprint, averaging 2 tonnes of CO_2/year (for about 10,000 km driven). Driving on the highway for 2 seconds emits as much carbon as the entire lifecycle of a disposable cup.

In Lyon, 40% of households do not own a vehicle. Cars already account for a very small share of travel (26% of daily trips in 2015) and car use is falling rapidly: 10% drop in kilometres driven in Lyon since 2019, 22% drop in CO_2 emissions in the city since 1990. However, most of residents' carbon emissions occur outside the city limits, mainly during leisure travel (weekends, holidays). On a national level, emissions from cars increased 3% between 2021 and 2022.

Just 27% of travel in the metropolis is work-related. Employers with more than 100 employees must implement an employer mobility plan. Just 45 organisations in Lyon have done so to date.

Electric vehicles offer real potential for decarbonisation, but 80% of the new cars sold in 2023 are still thermal. The replacement of existing cars is a slow process and 98.5% of cars in mainland France still run on gas.

When it comes to low-carbon alternatives, cycling is seeing a strong increase in popularity among active adults but is decreasing among its traditional users: children, teens, young adults, and people with low incomes or no driving licence. Cycling has very high potential for urban travel since the average trip within the city of Lyon is just 4 km, about 15 minutes on a bicycle. It is attractive—70% of French people would like to cycle more—but current safety conditions are a roadblock for most people, particularly teens.

Public transit is already largely electric (TGV, TER, metro, tram, trolleybus, etc.) and accounts for a very large share of trips within Lyon. However, the potential for massive roll-outs of new public transit options is severely constrained by the difficulty in financing long-term operating deficits. Passenger revenue covers just 42% of

operating costs for the SYTRAL and 27% for TER trains; the shortfall is made up by the mobility contribution (up to 2% of revenue from companies in the metropolis) and subsidies.

Air travel generates fewer total emissions that car travel, since just 11% of people in France use it regularly. However, it is extremely problematic since it enables users to emit several tonnes of CO_2 in just a few hours and for a few hundred euros. There is currently no short-term perspective of decarbonising the industry. Current air travel trends are deeply concerning, with a 36% increase in CO_2 emissions from international flights departing from France between 2021 and 2022.
If we take international aviation and contrails' contributions to radiative forcing into account, transportation emissions in France increased 7% in a single year, compared to 2% if we exclude international aviation.

During their discussions on the links between mobility and sobriety, the Agora members considered how they could take action to limit the need for travel, jointly organise travel to reduce car use, and encourage eco-friendly mobility as employers and in their interactions with the public. In particular, the Agora members whose core activities can lead to or contribute to long-distance travel explored how they could challenge the use of air travel. For example: creating a carbon scholarship for students who apply to travel (modelled on Erasmus scholarships). Their discussions highlighted the importance of this issue. Note that in 2022, close to 8.6 million passengers travelled through the Lyon airport, 66% on international travel[lxii]. The idea of developing neighbourhood-level Inter-Employer Mobility Plans, which had already been done several years ago by the Club des enterprises de la Part-Dieu with the support of the metropolis, was also discussed.

The Agora's commitments

Following these discussions, the Agora members identified two priority commitments on the themes of mobility and transportation, with a goal of sobriety.

4/ Systematically implement ambitious, co-developed Employer Mobility Plans (PDMEs)

Qualitative or quantitative objectives:

- Develop PDMEs using a participative process
- Ensure that the highest-impact mobility is better addressed by the PDMEs—commuting or business travel
- Make the link to the carbon footprint assessment
- Commit to achieving the PRO VELO label
- Regularly update the PDME
- Work with other members to develop a neighbourhood-level Inter-Employer Mobility Plan

Priority targets: all Agora members

5/ Organise and promote travel sharing to encourage greater sobriety

Qualitative or quantitative objectives:

- Pool everyday and business travel (e.g. local discussion groups for walkers, cycle commuters, etc.)
- Avoid some long-distance travel and types of transportation (e.g. air travel)
- Launch a conversation about sobriety, communicate about the current status of practices and locally-available mobility alternatives, create new, greener travel habits

Priority targets: all Lyon residents
Proposed indicators:

- Number of Agora members with the Pro Vélo label
- Number of PDMEs adopted
- Changes in the share of different transportation modes for Agora members

Examples of roadblocks identified by the Agora

- Price differences between airline and train tickets;

- Overnight train options remain inadequate or inconvenient;
- Local development challenges;
- Feeling of insecurity when cycling;
- Lack of communication and relationships among neighbouring employers to address mobility

Proposed actions for the public authorities

- Adapt the city—the spaces where people live—to the rhythm of life (all users): encourage walking, encourage parents not to drop their children off in cars, educate cyclists on the rules of the road, improve pedestrian signage, increase visibility for sheltered paths, inform and educate the public about sharing the road etc.
- Encourage alternatives to flying with financial and tax incentives and a new narrative
- Stiffen parking restrictions and make alternatives to car use easier for apartment buildings

Urban Logistics

Context

Shipping generates about half the emissions of passenger transportation. Most emissions are generated on the road, outside urban areas. In 2020, road transportation accounted for 88.4% of land-based transportation (excluding oil pipelines); rail transportation represented 9.6% and river shipping made up 2%[2]. Rail shipping is severely handicapped by the inadequate rail infrastructure capacity around all metropolitan areas, particularly Lyon (saturated north-south lines). River shipping has large reserve capacities but a less extensive network. Both rail and river shipping are penalised by the fact that warehouses are currently built near highways, rather than waterways or rail lines.

Some 4.5 million square metres of space are dedicated to logistics in the Lyon urban area. Warehouses are often used as an interface between long-distance logistics and the "urban" logistics that serve Lyon. While urban logistics cover short distances, they represent up to a third of shipping costs.

Lyon and Villeurbanne have a total of 6,000 logistics jobs, 28% of the logistics jobs in the metropolis, particularly due to large La Poste sites (8 sites with more than 100 employees) and SNCF Réseau sites (9 sites). New projects exclusively focused on urban logistics are currently being developed (Port Edouard Heriot, the Lyon Perrache Urban Distribution Centre). The cycle logistics sector is expanding fast and theoretically offers a more efficient, cost-effective solution than truck deliveries. Cycle logistics companies have delivered 700,000 packages in the Metropolis of Lyon—equivalent to 550,000 km for a motor vehicle—since April 2022 (see appendix 2).

The Agora members have identified logistics as a key area for achieving climate neutrality. During their discussions, they explored the extent to which consumption and flows can be reduced at the source while maintaining local services and meeting the needs of vulnerable residents. They also discussed how e-commerce activities could be distinguished from local and small independent businesses' activities. Ensuring that social issues are taken into account in this sector appears to be essential. Participating in the dialogue initiatives and programmes led by local governments and developing last-mile logistics and the capacity to pool resources and experiment were mentioned as major action drivers.

The Agora's commitments

Following these discussions, the members of the Agora identified two priority commitments, which they could undertake based on their core activities and their scope of action on urban logistics.

[2] Source: Ministry for the Ecological Transitional and Territorial Cohesion

6/ Make commitments to cooperation on sustainable logistics with the metropolis and the City

Qualitative or quantitative objectives

- Take part in developing the logistics plan of the Metropolis of Lyon
- Map existing and desired logistics flows, develop a flow reduction capacity assessment
- Address needs for fast emergency service logistics
- Work on resources and tools for cycle logistics specialists
- Explore transportation sharing (real estate, vehicles, equipment, materials, etc.)
- Highlight exemplary initiatives (delivery sharing service, free cargo bike stations, etc.)

Target: intermediate and service flows; cycle logistics

7/ Optimise organisations' logistics flows

Qualitative or quantitative objectives:

- Share tools, workspaces, and equipment among organisations using a platform
- Test a cargo bike station with a view to developing this service (location, business model, training)
- Draw up a charter for a shared framework of rules

Examples of roadblocks identified by the Agora

- Economic heft of major online retail and delivery businesses
- Social status of delivery drivers / increased insecurity but also responsibility for service providers / order issuers
- Large number of players and no single point of contact (particularly for last mile logistics)
- Some logistics platforms are underused

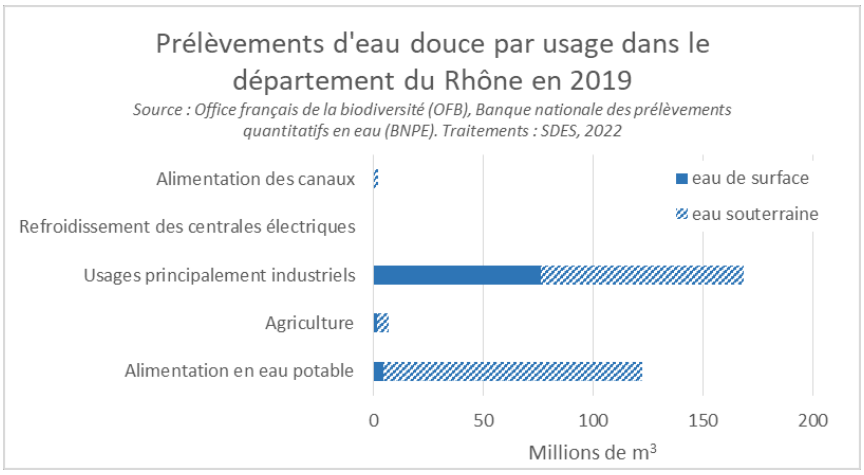
Proposed actions for the public authorities

- Develop a logistics scheme and a delivery/logistics/employment charter and status for a regulatory framework shared by all
- Work on pooling transportation / real estate (logistics centres, river relay platforms, experiments by different players - LPA, Keolis, etc.) / vehicles (bus and tram at off-peak hours, utility vehicle sharing)
- Foster experimentation and logistical cooperation

Sustainable Water Management

Context

Water is an essential common good that is often seen as abundant or even infinite. The impact of climate change, which is already making itself felt, is dramatically altering the water cycle and our relationship to this resource. Droughts are becoming both more common and more intense, with correspondingly more serious impacts on the environment and human activities. The average temperature of the phreatic zone and the Rhône have already increased by an average of 2°C over the past 30 years. By 2050, the flow of the



Rhône at its lowest ebb could decrease by 30%. By the end of the century, its average flow could be halved.[lxiii] Torrential rains will also become more frequent, leading to increased risks of flooding, mudslides, and landslides. The increasing vulnerability of this resource is a reminder of the urgent need for sustainable water management at all levels and across all uses. On the national level, the Observatoire des services publics d'eau et d'assainissement (water and sanitation utilities observatory) estimated in 2020 that French residents used an average of 149 litres of drinking water per day, for domestic consumption of 54.3 m^3 per inhabitant and per year[lxiv].

During the Agora's discussions on sustainable water management, ensuring that everyone is committed to sobriety in all uses of water emerged as the major cross-cutting challenge.
The risk of increased conflicts between different uses of water as it becomes an increasingly rare resource were also highlighted: the social challenge of ensuring universal drinking water access and the challenge of an equitable distribution of resources and risks between the upstream and downstream areas of water courses, particularly reconciling the needs of transportation, energy (nuclear and hydroelectric), biodiversity, and ecosystem preservation on a river like the Rhône. These potential conflicts will require political choices on different levels to protect the general interest over the long term. The members highlighted the importance of better arbitrating between uses and raised the question of prioritising resource allocation. In that vein, they included the objective of better sharing this common good by incorporating social justice.
The members also raised the question of the impact of decreased flows in water courses and rising water temperatures on their use as a buffer for output from water treatment and industrial plants and nuclear power plant cooling.
Finally, in urban areas, water is one of the keys to cooling and to adapting to climate change, since it is essential for greening. Plant species must be selected and optimised based on their water needs; another priority is providing cooling spaces such as fountains and swimming areas.

The Agora's commitments

Following these discussions, the Agora members identified a priority commitment on the themes of sustainable water management, with a goal of sobriety.

8/ Audit, survey, and share Agora members' water/awareness-raising/training practices

Qualitative or quantitative objectives:

- Analysis by each structure of its relationship to water (low-flow equipment, eco-friendly habits, processes that use water, virtual water in purchasing and in its business impact, etc.).
- Establish a shared best practice guide
- Train leaders (e.g. the *fresque de l'eau* workshop) to raise awareness inside and outside the organisation and bring in existing organisations that can provide support
- Run staff awareness-raising/training campaigns on job-specific issues and everyday habits
- Ramp up the skills of awareness-raising workshop leaders
- Invite the members of the Agora to attend Metropolis of Lyon's water users' assembly
- Promote greening and impervious surface removal on Agora members' sites

Target: All Agora members

Proposed indicators:

- Number of members that have initiated actions (to be monitored at Agora meetings)
- Number of Agora members that have a water leader who is responsible for auditing and monitoring; if possible, they should have undergone awareness-raising/training
- Annual meeting of the Agora water contacts

Examples of roadblocks identified by the Agora

- Regulatory: reuse of non-drinking water and experimentation
- Sociological: reuse of treated water for watering
- Societal: need to change society's vision of water and reasonable use of water (private pools, watering, etc.)

- Technical: existing buildings and impervious surfaces to be upgraded, no local water agency to support or implement initiatives

These roadblocks will require a strong commitment from the public authorities on different levels to eliminate them, accelerate existing greening and impervious surface removal programmes, and more broadly to encourage action (PLUH, subsidies, etc.).

Proposed actions for the public authorities

- Remove obstacles to water recycling in buildings (rainwater/grey water - regulatory obstacles) and encourage implementation (PLUH, subsidies, etc.)
- Accelerate support for impervious surface removal and greening

Responsible Digital Technology

Context

The virtualisation enabled by digital services creates the illusion of a low environmental impact. However, the increase in tools and services has led to a significant rise in the pressure on the environment and natural resources (water and rare earths).

In France, digital technology and services represent 2.5% of greenhouse gas emissions and 10% of electricity consumption. Their impact is largely concentrated in the digital device manufacturing phase, which accounts for 78% of the sector's carbon footprint: manufacturing of televisions, computers, tablets, connected devices, and smartphones, as well as the creation of networks and data centres. 20 million tonnes of digital waste are produced every year in France.

Inset: Greenhouse gas emissions by device type: desktop computer 169 kg eqCO_2/device• laptop computer 156 kg eqCO_2/device • smartphone - traditional 16.5 kg eqCO_2/device

According to the ADEME, if current trends continue unchecked, the carbon footprint of digital technology in France could grow from 17 to 25 Mt eqCO_2 between 2020 and 2030 due to the increase in the number of devices. Rising usage and growing data traffic would require building more data centres, driving increased electricity consumption.

Several initiatives exist on the municipal level: purchasing refurbished equipment by default (computers, screens, smartphones, copiers); donating end-of-life devices to Emmaüs Connect to be refurbished and sold at equitable prices; installing Linux on childcare centre computers, which have limited use, to increase their useful life.

During their discussions, several members highlighted the need to take into account pollution linked to digital technology, particularly device production and digital data storage. Members also raised the importance of extending the lifespan of IT equipment in the Lyon area. Several options were explored, including setting quotas for device refurbishment in the city.

For the Agora, the challenges of digital technology mainly centre on the need for sobriety in choosing and using devices, e.g. limiting the number of devices and extending their useful life and focusing on selecting and implementing eco-designed digital services (websites, applications).

The Agora's commitments

Following their discussions, the members identified a priority commitment which they could undertake:

9/ Implement a best practice framework for Agora members to make a joint commitment to a shared framework for responsible digital technology use

Qualitative or quantitative objectives:

- Charter, support, and training on new responsible digital technology practices (change resistance)

Target: Initially the members of the Agora; later to be extended by serving as a local example (partners, clients, other local organisations)
Proposed indicators:

- A survey and life cycle analysis of IT equipment
- Reduction in greenhouse gas emissions
- Percentage of devices refurbished
- Training and support programmes
- Measurement of the useful life of equipment

Examples of roadblocks identified by the Agora

- The need to raise awareness and provide support on these topics: *fresque du numérique* workshop, training, feedback, etc.
- Software obsolescence, which accelerates equipment turnover as performance becomes inadequate. This roadblock can be eliminated by using certain software and open-source solutions; however these solutions in turn encounter other roadblocks linked to user comfort and high maintenance costs.

Proposed actions for the public authorities

- Issue broad regulations to extend the useful life of government IT equipment;
- Act on all levels to incite organisations to refurbish equipment;
- Cultivate societal responsibility, support, and education on sober and responsible digital technology use (screen access, logging off).

Promotion of undervalued essential jobs

Context

"Jobs in all sectors will be affected by the low-carbon transformation. However, this impact will be highly heterogeneous, and in some cases will be massive"[3]. Transforming our society to achieve climate neutrality will necessarily impact the labour market. Some jobs will disappear because they will be irrelevant while others will become essential.

Some essential jobs are undervalued because they are seen as unattractive. The most essential jobs are often the lowest-paid and the least secure: jobs in agriculture, logistics (trucking, etc.), medical services, waste management, water, energy, etc. There is no consensus on the definition of essential or undervalued jobs, so no local statistics on these sectors are available[4]. When it comes to "green" jobs, there are about 150,000 in France according to the ADEME. For the Metropolis of Lyon, that figure is estimated at several thousand jobs, based on local figures from the French unemployment office Pôle Emploi (in 2022, there were about 1,000 water-related jobs and about 350 waste-related jobs).

During their discussions, the Agora members emphasised that these "undervalued" jobs require better support, pay, and publicity. That also means raising awareness, first and foremost among the people who do those jobs, to show them that everyone can be a part of the ecological transition and that they play an important role in our societies. Their importance for community life in complex systems should be centred.

[3] *"L'emploi: moteur de la transformation bas carbone",* The Shift Project, Summary
[4] Source: Maison Métropolitaine d'Insertion pour l'Emploi

The Agora members discussed the importance of promoting these essential jobs to make them more meaningful and attractive by changing the narrative and society's vision of them (e.g. personal stories, meetings with pupils, etc.). The need to involve all trades and professions in the conversation about the ecological transition also emerged, both within each Agora member organisation and in the Agora itself.

The Agora's commitments

Following these discussions, the Agora members identified a priority commitment to promoting undervalued essential jobs:

10/ Offer all workers (including those in undervalued roles) an opportunity to be involved in the transition and promote them

Qualitative or quantitative objectives:

- Have organisational transition plans that identify the role of each trade and profession in achieving the objective
- Promote undervalued essential jobs through internal and external communications
- Develop policies and transition plans with each trade and profession that can be involved
- Include the connection between the position and the transition objectives in each job description

Target: All Agora members
Proposed indicators:

- Number of people reached by communications
- Monitor and share each member's progress (annually?)
- Content of plans / narrative of what has been done

Examples of roadblocks identified by the Agora

- Some jobs will disappear because they will no longer be needed. Other jobs will face hiring shortages even though they are essential.
- The most essential jobs are often the lowest-paid and the least secure: jobs in agriculture, logistics (trucking, etc.), medical services, waste management, water, energy, etc.

Proposed actions for the public authorities

To take on these challenges, the members of the Agora have identified the following actions that the City could take to promote undervalued essential jobs:

- Create a municipal collective agreement for essential jobs (this could take the form of a charter in which municipalities including Lyon undertake to support 100 jobs identified as essential, either by promoting them or by increasing their visibility and reminding the public that they are essential in today's society and for the ecological transition)
- Promote best practices

Communications in support of sobriety

Context

While greenhouse gas emissions linked to advertising are difficult to identify at the city level, advertising does have a real impact on contemporary society since it strongly influences our lifestyles and drives consumption. Advertising is omnipresent on TV, on social media, and in public spaces. In Lyon in particular, public spaces are saturated with messages that are often in direct conflict with the ecological transition. There are many different forms of advertising: billboards, screens, and banners. The Metropolis of Lyon has 580 billboards and 485 information displays. Store façades can also be advertising spaces.

During their discussions, the Agora members raised the importance of sober, responsible communications. They also emphasised the importance of deconstructing the existing advertising mechanisms or challenging the model of consumption based on intense advertising. They mentioned the relevance of distinguishing between different forms of publicity: public and general interest information and commercial information. The members suggested that the latter could be limited in public spaces in order to ensure greater visibility for advertisers with a proven CSR and environmental strategy. Doing so would entail regulating advertising.

Responsible communication must be based on sustainable channels and resources and guide users toward responsible practices.

The Agora's commitments

Following these discussions, the Agora members identified two priority commitments on the theme of communicating to support sobriety.

Commitment 11/ Raise awareness of and provide information, training, and/or education on a culture that is critical of advertising mechanisms and on sober, responsible lifestyles

Qualitative or quantitative objectives:

- Internal objective for each Agora member: one action per year to reach all its stakeholders through 2030;
- For the Agora as a whole: create a shared foundation and definition for all Agora members and develop resource sharing;
- Externally: run a joint Agora campaign to promote sobriety as attractive (modelled on lobbying groups)

Target: All Agora members

Proposed indicators:

- Number of actions taken
- Number of people reached
- Feedback (showing that the communication initiatives effectively encouraged sobriety)

Commitment 12/ Implement sober and responsible internal/external communications practices

Qualitative or quantitative objectives:

- Ramp up teams' skills
- Increase inclusion and accessibility
- Reduce the impact of habits and practices (equipment, purchasing, consumption, software)

Target: All Agora members

Proposed indicators:

- Training (Number of people trained)
- Carbon impact measurement

Examples of roadblocks identified by the Agora

- Advertising contracts are very long-term

Proposed actions for the public authorities

- Ban lighted signs and advertising in store windows, public spaces, and the metro
- Create a public advertising agency to replace the market-based approach with a public interest-based approach
- Redefine advertising contracts to balance the ratio of useful/commercial advertising

Consumption and waste

Context

The residential, tertiary, and transportation sectors are the biggest greenhouse gas emitters in Lyon. However, taking the carbon footprint into account, consumption (food, purchases of goods and services, healthcare, housing, etc.) accounts for a large share of emissions. At the end of the chain, waste processing related activities generate about 4% of greenhouse gas emissions nationwide. The way that Lyon residents consume products and generate waste also impacts their health, their quality of life, and ecosystems, in addition to the impact on climate change.

On average, residents of the Lyon region[5] (which is larger than the city) spend €13,082 per year on food and other purchases. Large stores remain the biggest distribution channel for food by a large margin. Their market share stood at 62% in Lyon and Villeurbanne in 2022. Changing production and consumption habits have doubled the amount of household waste generated over the past 50 years. If nothing changes, global waste production will increase by a further 70% by 2050. In the Lyon region, more than a kilogramme of waste per inhabitant is collected every day (387 kg/year/cap. in 2020; household and similar waste).

Consumption habits are changing, however: 56% of households in the Lyon region are buying more local products, 42% choose items Made in France, and 23% are buying more second-hand goods. 41% of Lyon region households say that they are shopping more at local stores. In Lyon and Villeurbanne, 26% of consumers say they buy bulk goods. In Lyon, local agricultural products make up 4.6% of what residents eat. At the same time, 27% of Lyon residents use delivery for leisure meals.

Lyon-based retailers are taking on these challenges: 240 organisations have earned the “Lyon Ville Equitable et durable” (Lyon, an equitable and sustainable city, LVED) label and 106 hold the “Fabriqué à Lyon” (Made in Lyon) label, both of which are awarded by the city government. Many organisations, small retailers, and even some neighbourhoods have also committed to ambitious waste reduction programmes. Examples include the quartier Zéro déchet (zero waste neighbourhood) programme in the 9th arrondissement or the Mandala project in the Etats-Unis district of the 8th arrondissement.

With regard to the objective of sobriety, the Agora members identified several challenges, particularly that of being aware of each organisation’s activities to create synergies. The members also identified the challenge of developing a responsible purchasing culture; there is a need for contacts with city services to better understand the issues related to the SPASER (socially and economically responsible public purchasing promotion) programme and make purchasing seamless. The members also expressed the importance of not focusing on exclusively on recycling and refurbishment to the exclusion of talking about reducing waste production. They also identified a desire for synergies with the metropolis. Finally, the Agora members agreed on the major challenge of the circular economy: making today’s waste the resources of the future.

The Agora's commitments

Following their discussions, the members identified a priority commitment which they could undertake.

Commitment 13/ Develop a zero waste model by 2030

Qualitative or quantitative objectives:

- Eliminate single-use products
- Invest part of the budget in sustainable, sober resources, material, and services from the circular economy
- Create a connection between biowaste collection, energy savings, and green space renovation
- Eliminate waste and incineration and potentially organisations’ mixed waste bins
- Audit and map the flows of waste from Agora member organisations to make one organisation's waste another organisation's resources: turn a conversation about waste into a conversation about resources

[5] Source: 11th Lyon region consumer survey 2022

- Experiment and create governance based on this model

Targets: all Agora members

Commitment 14/ Promote responsible consumption and purchasing

Qualitative or quantitative objectives:

- Create a network of the players engaged in the process and promote their actions, particularly by creating a directory of professionals, based on labels (e.g. LVED)
- Create a responsible purchasing repository based on the model of the municipal SPASER
- Raise awareness and provide training and support to help the Agora member organisations roll out responsible purchasing policies
- Develop a responsible purchasing plan for each organisation (examine the need, share, buy refurbished, choose local products, etc.)

Target: Train the Agora members and organisations that need to make responsible purchases
Consumers, on the responsible purchasing side
Proposed indicators:

- Percentage of local purchases made by companies and consumers
- Number of organisations that receive the LVED label
- Percentage increase in use of La Gonette

Examples of roadblocks identified by the Agora

- It is hard for professionals to purchase food locally due to cost, packaging, and product traceability issues.
- Regulatory constraints also make local consumption difficult.
- Farmers know how to farm but not how to handle the logistics or respond to public-sector calls to tender.

Proposed actions for the public authorities

- Develop systems like labels, maps, and/or a directory to make it easier to identify and find local producers/businesses
- Set up programmes run 50/50 by the municipality and local organisations to encourage new local consumption initiatives
- Provide support to help farmers respond to calls for projects and public-sector calls to tender
- Train and support the general public and organisations

Cooperation and sharing

Context

Cooperation and sharing have been identified as major cross-cutting drivers to encourage sobriety. The non-profit NégaWatt has evoked a definition of “sociable” or “cooperative” sobriety which is based on sharing equipment and facilities: car sharing, shared laundry in apartment buildings, cohabitation in housing and work spaces, etc.[6].

During the discussions, several potential avenues for action at the Agora level were raised: cooperation among members on specific projects; mobilising the Agora so support and/or facilitate the emergence of neighbourhood

[6] Source: NégaWatt (2016), *“Qu’est-ce que la sobriété ?”* , Fil d’argent, n° 5, winter, p. 11-13.

cooperation and sharing initiatives; the possibility for the Agora to work with the municipality to assess how certain measures could boost or encourage cooperation rather than competition among local stakeholders (e.g. calls for projects).

The Agora's commitment:

The members' discussion on sobriety led to one commitment:

15/ Share and act together

Qualitative or quantitative objectives:

- Share experiences with the projects that the organisations run together -> create a project bank
- Revisit approaches to action to transition from individual to collective action (better cooperation) when an idea for a new project emerges

Proposed indicators:

- Number of Agora members I worked with during the year;
- Number of best practices shared during the year

Examples of roadblocks identified by the Agora

- Today, cooperation is often very complicated and complex due to procedures. E.g. calls for projects that put organisations into competition with each other
- Difficulty of measuring cooperation

Proposed actions for the public authorities

- Expand the municipality's role in organising and coordinating this type of cooperation
- Provide the resources for collective actions involving the municipality

Imagining the Future

Context

The question of narratives emerged repeatedly throughout the Agora's work during the first half of 2023. How can we move beyond a technical approach when talking about the climate? How can we can get local stakeholders and individuals on board? How can we tell a story or stories about climate action? How can we imagine attractive carbon-neutral futures?

During their discussions in April and June, the Agora members emphasised that sobriety is not just about a narrative. It is also a question of material capacity. Not everyone has the economic ability to undertake a sobriety strategy. A narrative-based approach does not necessarily need to come before action; it should accompany action and serve as a tool to further change. Sharing common alternative narratives is also a driver for cooperation and co-development. The members of the Agora highlighted the importance of updating and adopting a shared vocabulary and promoting topical real-world examples of narratives about sobriety.

The Agora members also explored potential narratives about sobriety. These narratives could be articulated around the saying "fewer possessions, more connections" and focus on all the benefits of sobriety: less consumption but more sharing, less pollution, more well-being, more quiet, a greater connection to nature, less waste, more solidarity. That will entail articulating a vision of sobriety, e.g. by imagining someone returning to Lyon after many years' absence and using all five senses to remember what the city was like in contrast to how it is now: *"I see a city where children are playing in a calm, quiet street under the gaze of seniors who are chatting in the shade of the plane trees, which fill the air with their fragrance, I hear the breeze rustling in their branches, I can feel the damp earth of the park and taste the first cherries of the season; I remember a city where summers were sweltering, where loud, aggressive cars dominated everything with their screeching tires and horns, where*

plastic bags flapped on the asphalt, where everything reeked of diesel, and where the streets were bare of shade from trees and the sound of children's laughter".

The Agora's commitments

Following their discussions, the members identified a priority commitment for all members, as well as proposed actions for the public authorities.

16/ Involve the Agora in the development of the narrative of a desirable city for 2030, focused on sobriety

Qualitative or quantitative objectives:

- Tell the story of the Agora to develop skills individually
  E.g. A Lyon resident leaves the city in a hot air balloon and returns to Lyon in 2030, rediscovering his city: "I remember what it was like", "I see what the city of Lyon has become"—focused on sobriety—and using all five senses.
- Topical narratives (food, greening) and practical examples (situations from everyday life)

Targets: all Agora members, then open it up to everyone

Examples of roadblocks identified by the Agora

- The power of narratives that support the consumer society that has existed for decades

Proposed actions for the public authorities

- Take control of the narratives and propose related practical actions (with the municipality and in partnership with the metropolis)
- Mobilise local structures to join the fight for a new vision

E. An individual commitment: the Lyon 2030 cooperation and commitment agreements

The members of the Agora are committed to contributing to enhancing and implementing the shared vision of the Lyon 2030 climate contract. The Lyon 2030 cooperation and commitment agreements are aligned with the city contract to formalise the vision and commitments of each member of the Agora, as well as their areas for cooperation with the municipality through 2030. The commitments laid out in these agreements include both enhancements of existing actions and new actions that will contribute to the commitment areas defined in the contract.

Under these agreements, the municipality undertakes to:

- facilitate the interface between local players and access to existing climate/ecological transition resources;
- actively work to identify financing and support the development of projects that involve Agora members based on the priorities and actions identified in the Lyon 2030 climate contract;
- broadly promote the organisation's commitments;
- help the organisation assess the climate impact of its actions;
- on the level of its own skills and assets, enhance its climate plan, incorporate feedback from the Lyon 2030 climate contract, and promote partnerships with the members of the Agora.

Appendix 1 – Glossary

100 climate-neutral and smart cities by 2030: A European programme launched in 2022 that aims to establish 100 European cities as pioneering centres for experimentation and innovation that will be able to inspire other European cities and make it easier for them to achieve climate neutrality by 2050.

Adaptation: Refers to actions to prepare for and manage the consequences of global warming

Mitigation: Refers to actions to reduce greenhouse gas emissions and preserve carbon sinks with the goal of diminishing the effects of human activity on global warming.

Carbon budget: International budget for greenhouse gas emissions estimated by the IPCC. It is estimated at 500 $GtCO_2$ to limit global warming to 1.5°C by 2100.

Covenant of Mayors: The leading European movement that brings together local and regional authorities around a voluntary commitment to improving energy efficiency and increasing the use of renewable energies https://fr.wikipedia.org/wiki/%C3%89nergie_renouvelable within their remit.

Heat wave: A meteorological episode in which very high daytime and overnight temperatures persist for at least three consecutive days. In Lyon, the thresholds are 20°C overnight and 34°C during the day.

eqCO_2 - carbon equivalent: A single unit of measurement has been adopted to compare different greenhouse gases. CO_2equivalent can be expressed in t, kg, g, etc. It takes into account the warming potential of different gases over a given period of time.

IPCC - Intergovernmental Panel on Climate Change: A body tasked with evaluating the state of knowledge of climate change, its causes, and its impact. It also identifies possibilities to limit the scale of climate change. Its research is central to international dialogue and agreements.

Urban heat island: an urban area, often in the city centre, marked by high air and surface temperatures compared to outlying areas, particularly at night.

Planetary boundaries: 9 planetary boundaries have been identified as limits that must not be crossed to maintain the equilibrium of the Earth system. Each limit corresponds to a critical threshold beyond which all life on Earth faces the risk of global collapse.

Carbon neutrality (or climate neutrality): A state of equilibrium between greenhouse gas emissions from human activities and their absorption through natural or human processes.

SDG - Sustainable Development Goals The 17 Sustainable Development Goals defined in 2015 by the United Nations are topical categories of urgent global political issues to be incorporated into the public policies of the international community.

ORCAE - Regional Climate, Air, and Energy Observatory Supports the development of public policies and diagnoses linked to climate-air-energy issues. It is also positioned as a resource and information centre and a space for dialogue and network building among organisations that are active on these issues.

Resilience: the ability of a system to return to the structures and functions of its benchmark state following a disruption.

Scope: In the case of carbon footprint assessments, refers to the scope within which emissions are quantified. Emissions are divided into scopes 1, 2, and 3 depending on whether they are direct (scope 1), linked to energy consumption (scope 2), or all other indirect emissions (scope 3).

Appendix 2 – The city of Lyon - Additional data

Economic activity[lxv]

- The majority of jobs in Lyon[lxvi] are concentrated in retail, services, transportation, health care, and administration (89.7% vs. 79% nationwide); 8% are in industry, 3.7% in construction, and 0.1% in agriculture.

Research and innovation

- Competitive clusters: CARA (European Cluster for mobility solutions), Lyonbiopôle (Auvergne-Rhône-Alpes healthcare innovation network), Nuclear Valley (competitive cluster for the French nuclear and defence industries)
- Clusters: Aerospace Cluster, Cluster Lumière, Pôle d'excellence européen Sécurité Globale, Cluster EDEN (Defence, safety, security), ICare (health care), Cosmet'in Lyon (cosmetology), Cluster Eco-bâtiment, Ingera2 (consulting and industrial engineering)
- Higher education: 115,724 students in Lyon[lxvii]

Buildings

- Occupancy of primary residences in Lyon: 33.7% owners, 64.1% renters and 2.2% housed free of charge. In France: 57.5% owners, 40.3% renters and 2.2% housed free of charge
- Building age (265,570 primary residences) in Lyon: 15.9% before 1919, 9.3% between 1919 and 1945, 23.7% between 1946 and 1970, 23.4% between 1971 and 1990, 18.6% between 1991 and 2005 and 9.1% between 2006 and 2015. In France (29,341,155 primary residences): 12.7% before 1919, 8.9% between 1919 and 1945, 21.3% between 1946 and 1970, 29.2% between 1971 and 1990, 16.1% between 1991 and 2005 and 11.8% between 2006 and 2015
- Percentage of thermal sieves (housing units that have received energy classification F or G): 6.5% (28.8% of housing units are not classified)
- 52 classified historic monuments and 195 listed historic monuments

Mobility

- 32,000 cycle spaces and 2,662 scooter spaces vs. 45,000 paid parking spaces for cars (34,800 in 2013)
- 2 airports serving the city (outside the city limits): Lyon-Saint Exupéry (2nd airport in France by passenger traffic and 3rd by freight volume, excluding Paris airports), 4.5 M passengers in 2021, including 2.5 M international passengers and 50,076 t of freight; Lyon-Bron (3rd business airport in France)[lxviii]
- Modal distribution in Lyon and Villeurbanne (2015 transportation survey): 45% walking, 26% car, 25% public transit, 3% cycling; (2006) 41% walking, 35% car, 20% public transit, 2% cycling
- Vehicle ownership in Lyon: 61% of households (49% with 1 car and 12% with 2 or more cars), 44% of households had at least 1 reserved parking spot in 2019; 65% of households (51% with 1 car and 14% with 2 or more cars), 42% of households had at least one reserved parking spot in 2008. In France: 81% of households (47% with 1 car and 34% with 2 or more cars), 66% of households had at least 1 reserved parking spot in 2019; 80% of households (47% with 1 car and 33% with 2 or more cars), 64% of households had at least one reserved parking spot in 2008

Industry

- Outside the city limits but with activity linked to Lyon: impact of chemistry valley (energy sector - Feyzin): 5426 GWh and 1031 kteqCO2, and pharmaceutical companies in the immediate outskirts of Lyon

Urban nature and water

- Status of the Rhône and the Saône :
  - Status of the Saône in Lyon (2021)[lxix]:
    ecological status: moderate / target less strict than good status[lxx]
    Chemical status: poor / target: good
  - State of the Rhône in Lyon (2021)[lxxi]:
    - Ecological status: moderate / potentially good up to the confluence with the Saône and then target less strict than good status
    - Chemical status: good / target: good

Appendix 3 – References

[i] Source: PCAET of the Metropolis of Lyon
[ii] Source: Insee, 2019 data
[iii] Source: Insee, 2019 data
[iv] Source: Insee
[v] Source: Insee
[vi] Source: https://www.ecologie.gouv.fr/sru/?id=726 and Urban Development Department / City of Lyon
[vii] Source: City of Lyon
[viii] Source:Insee
[ix] Source: *Portrait économique de territoire Lyon*
[x] Source: https://www.auvergne-rhone-alpes.cci.fr/economie-et-territoire/les-chiffres-cles-dauvergne-rhone-alpes#:~:text=Avec%20un%20PIB%20de%20270,des%20pays%20de%20l'UE.
[xi] Source: *Portrait économique de territoire*
[xii] Source: UNESCO, page 23
[xiii] https://geoweb.grandlyon.com/portal/apps/dashboards/11960a2199104e69b3d49ed976fc5c54
[xiv] Source: SDES, Private cars by commune on January 1, by fuel type and crit'air sticker
[xv] Source: https://events.lyon-france.com/destination-lyon/les-atouts-de-lyon/quelques-chiffres-pour-situer-lyon
[xvi] Source: INSEE Full set of Local Data - Municipality of Lyon (69123) | Insee
[xvii] Source: INSEE Full set of Local Data - Municipality of Lyon (69123) | Insee
[xviii] Source: City of Lyon, Biodiversity and Urban Nature Department
[xix] Source: https://www.lyon.fr/sites/lyonfr/files/content/documents/2021-07/Atlas%20de%20la%20Biodiversit%C3%A9%20Lyonnaise.pdf
[xx] Source: REPORT ON THE 2O23 PRELIMINARY BUDGET, City of Lyon
[xxi] Source: City of Lyon, DAU/DBNV
[xxii] Source: Observation of cultural and creative actors in the Metropolis of Lyon, REPORT ON THE 2O23 PRELIMINARY BUDGET, City of Lyon
[xxiii] Source: https://www.urbalyon.org/fr/acteursculturelscreatifs
[xxiv] ORCAE data, 2019
[xxv] Source: https://www.gouvernement.fr/indicateur-empreinte-carbone
[xxvi] Source: INSEE
[xxvii] Source: ORCAE data, 1990-2019
[xxviii]Scope 1 and 2 emissions. There are three carbon emissions measurement scopes. Scope 1 covers direct emissions from sources controlled by local players. Scope 2 covers indirect emissions linked to the energy produced, purchased, and then consumed by local players. Finally, scope 3, other indirect emissions, is divided into two categories: upstream and downstream.
[xxix] Source: Ministry for the Ecological Transitional and Territorial Cohesion
[xxx] Source: these higher temperatures are also explained by the urban heat island around the weather station, which has intensified since the first temperature recordings there.https://reseauactionclimat.org/quels-impacts-du-changement-climatique-sur-lagriculture/&sa=D&source=docs&ust=1686749537900370&usg=AOvVaw0zMVPw06EDb7N538Q1BB-4
[xxxi] Graphics Météo France
[xxxii] Source: Models developed by French climate modelling laboratories through the DRIAS (Providing Access to Regionalised French Climate Scenarios for Impact and Adaptation of our Societies and Environment) project DRIAS Futures of Climate - Homepage (drias-climat.fr)
[xxxiii] Note that only temperatures are being compared here. Lyon's climate will never be the same as that of the major cities to its south, including Algiers and any other North African cities. The winds, topography, and rainfall are not comparable.
[xxxiv] Source: https://www.ecologie.gouv.fr/adaptation-france-au-changement-climatique
[xxxv] Source: Renard, Florent, Lucille Alonso, Yasmin Fitts, Adeline Hadjiosif, and Jacques Comby. 2019. "Evaluation of the Effect of Urban Redevelopment on Surface Urban Heat Islands" Remote Sensing 11, no. 3. 299. https://doi.org/10.3390/rs11030299
[xxxvi] However, this increase is modest when studies are limited to temperatures recorded in the shade, while the temperatures felt by the human body are very different.
[xxxvii] Source: CLIM2 urban climate and air conditioning project
[xxxviii] Source: https://www.eaurmc.fr/upload/docs/application/pdf/2023-03/a00820_mission1_synthese_vf.pdf
[xxxix] Source: https://www.orcae-auvergne-rhone-alpes.fr/analyses-thematiques/climat/impacts-du-changement-climatique
[xl] ORCAE
[xli] https://www.circlesofclimate.org/wp-content/uploads/2016/02/2015_diag_adaptation_grandlyon.pdf
[xlii] GEODES, Santé publique France

[xliii] Source: Jean-Pierre Besancenot, *"Une vague de chaleur meurtrière : les enseignements de l'été 2003 en France"*, Géoconfluences, September 2004. https://geoconfluences.ens-lyon.fr/informations-scientifiques/dossiers-thematiques/risques-et-societes/corpus-documentaire/une-vague-de-chaleur-meurtriere-les-enseignements-de-lete-2003-en-france

[xliv] Source: https://www.ecologie.gouv.fr/pollution-lair-origines-situation-et-impacts - Source: *Les vagues de chaleur et leurs effets sur la santé* - Ministry for Health and Prevention (sante.gouv.fr)

[xlv] Ragweed (Ambrosia artemisiifolia L.) is an invasive annual plant that releases its highly allergenic pollen in late summer.

[xlvi] Source: INRS Guide *Travail par forte chaleur en été. Comment agir* ?

[xlvii] Source: Summary of the 6th report of the IPCC

[xlviii] Source: Office of the General Commissioner for Sustainable Development https://www.notre-environnement.gouv.fr/actualites/breves/article/climat-quelle-evolution-des-emissions-mondiales-de-co2-depuis-30-ans

[xlix] Source: IPCC

[l] Source: World Bank

[li] Source: Oxfam, https://www.oxfam.org/fr/communiques-presse/les-emissions-les-emissions-de-gaz-effet-de-serre-dun-milliardaire-sont-un#:~:text=Des%20donn%C3%A9es%20r%C3%A9centes%20publi%C3%A9es%20dans,ici%202030%2C%20leur%20empreinte%20carbone

[lii] Source: https://reseauactionclimat.org/quels-impacts-du-changement-climatique-sur-lagriculture/&sa=D&source=docs&ust=1686749537900370&usg=AOvVaw0zMVPw06EDb7N538Q1BB-4

[liii] In France, nine cities have joined the programme: Angers, Loire Metropolis, Bordeaux Metropolis, Dijon Metropolis, Dunkerque, Grenoble-Alpes Metropolis, Marseille, Nantes Metropolis, Paris and Lyon

[liv] https://www.hautconseilclimat.fr/wp-content/uploads/2023/06/HCC_RA_2023_.pdf

[lv] That resistance is clearly illustrated by fact that 37% of people in France are climate sceptics, according to the International Observatory on Climate and Public Opinion (Obs'COP)

[lvi] Source: https://met.grandlyon.com/eau-future-comment-concevoir-notre-avenir-avec-une-eau-plus-rare/et https://www.millenaire3.com/content/download/42223/fichier_associe/Eau_future_imaginaires_1.pdf

[lvii] Source: *"Les incidences économiques de l'action pour le climat"*, Jean Pisani-Ferry et Selma Mahfouz, 2023

[lviii] Source: *"Panorama des financements climat, Institut de l'économie pour le climat",* 2022

[lix] Source: *"Besoins d'investissements des collectivités"*, Institut de l'économie pour le climat (I4C), 2022

[lx] Appendix with full data

[lxi] Source: https://www.insee.fr/fr/statistiques/2011101?geo=COM-69123#chiffre-cle-10

[lxii] Source: Aderly based on airport data

[lxiii] Source: Eau/7 - Les nombreux effets du changement climatique : Millenaire 3, L'eau (1/3) : neuf fiches sur les enjeux fondamentaux

[lxiv] Source: https://economie.eaufrance.fr/chiffres-cles/consommation-journaliere-deau-potable-par-francais

[lxv] Source: Portrait économique de territoire Lyon

[lxvi] Source: Insee, employment by activity in 2019

[lxvii] Source: DAU data from a survey of institutions compared with data from the department of education (Nov. 22)

[lxviii] Source: https://www.auvergne-rhone-alpes.cci.fr/economie-et-territoire/les-chiffres-cles-dauvergne-rhone-alpes#:~:text=Avec%20un%20PIB%20de%20270,des%20pays%20de%20l'UE.

[lxix] Source: https://www.rhone-mediterranee.eaufrance.fr/gestion-de-leau/sdage-2022-2027-elaboration/donnees-techniques-de-reference-du-sdage-2022-2027

[lxx]If it is impossible to achieve "good status" for bodies of water (in compliance with the framework directive on water 2000/60/CE) or if, based on a cost-benefit analysis, the measures required to achieve good status for aquatic environments have a disproportionate cost, a target that is less strict than good status may be defined. The difference between this objective and good status must be as small as possible and apply only to a limited number of criteria.

[lxxi] Source: https://www.rhone-mediterranee.eaufrance.fr/gestion-de-leau/sdage-2022-2027-elaboration/donnees-techniques-de-reference-du-sdage-2022-2027

CE PREMIER

PACTE CLIMAT LYON 2030

EST REMIS À LA VILLE DE LYON PAR L'ENSEMBLE DES MEMBRES DE L'AGORA

ADEME • ALEC Lyon • Algoé • Anciela • AREMACS • Arty Farty •
• Association Conscience et Impact Écologique • Association Lyon la Duchère •
• ATMO Auvergne-Rhône-Alpes • Caisse des dépôts •
• Centre International de Séjour de Lyon • Cerema •
• Chambre de Métiers et de l'Artisanat Lyon-Rhône • CJD Lyon Métropole •
•Collectif Frugalité heureuse et créative AURA • Collectif TRESS•
• Collectif Végétalisation du Vieux-Lyon • Conseil de quartier Guillotière Lyon 7 •
• CoopaWatt • Dott • Ecole Centrale de Lyon • emlyon business school •
• Enedis • EQUANS • Grand Lyon Habitat • GRDF • Groupe SERL •
• Hospices Civils de Lyon • ICADE PROMOTION • INRAE • INSA LYON •
• Keolis • La Gonette • La Poste • La Ruche Qui Code SAS •
• Laboratoire d'Excellence Intelligence des Mondes Urbains (Labex IMU) •
• L'atelier Architectes • Le Passe-Jardins •
•Les Jardins Suspendus de Perrache •
• LPO AuRA délégation territoriale du Rhône • Maison de l'Environnement •
• MJC Confluence • Maison du vélo Lyon •
• Maison Metropolitaine d'Insertion pour l'Emploi • Météo-France • Métropole •
• MJC Monplaisir • Mouvement de palier • Office des Sports de Lyon •
• Opéra National de Lyon • Pacte Transition Lyon Métropole •
• Passagers des Villes •
• Réseau des MJC du Rhône, de l'Ain et de la Métropole de Lyon • RESES •
• Sciences Po Lyon • Solidarités nouvelles face au chômage •
• SOLIHA Solidaires pour l'habitat - Rhône et Grand Lyon • Tennis Club de Lyon •
• The Greener Good • TUBÀ - LYON URBAN DATA •
• Université Lyon 3 Jean Moulin • Ville & Aménagement Durable •
• Voies Navigables de France – Direction territoriale Rhône/Saône • WeCount •

LYON 2030
Inspirons le changement

Lyon Metropole's Climate Plan 2019-2025

A Local Strategy to Mitigate and Adapt to Global Warming

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

GRANDLYON la métropole

Small scale effects of global warming in Lyon

Water?

PLAN CLIM
AIR ÉNERG
GRANDLYO

Water?

Rhône river flow:

-15 à - 30% on average

- 30 à **- 40% during summer**

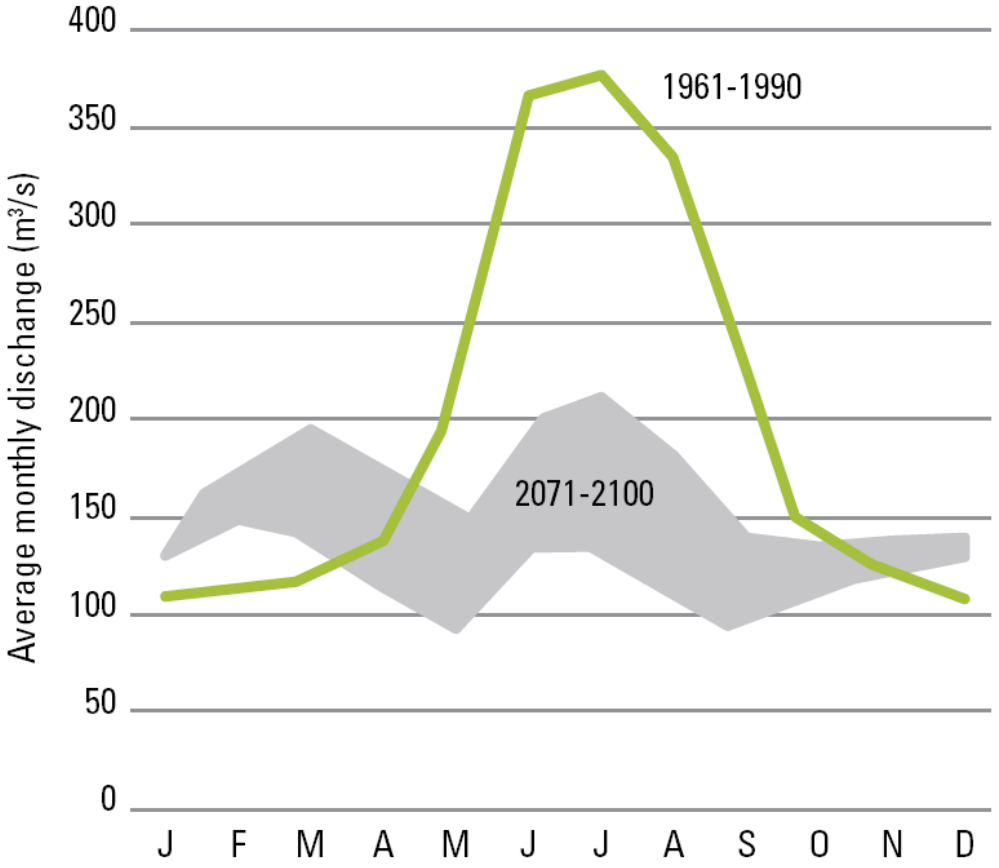
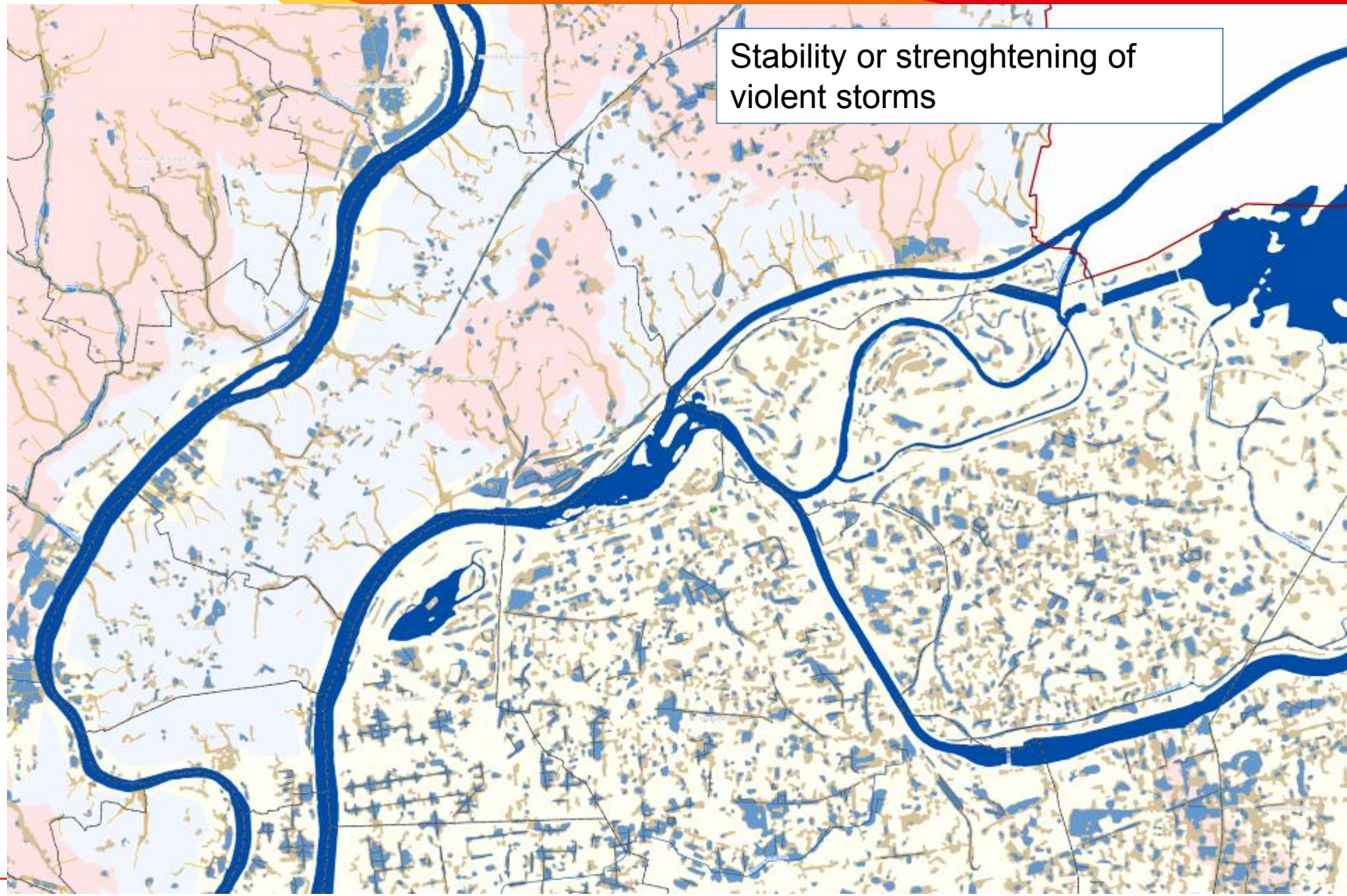


Figure 10 : débits mensuels du Rhône en amont du Lac Léman en climat actuel (1961-1990) et à l'horizon 2080 (2071-2100) selon le scénario A2 du GIEC. La zone grisée représente les incertitudes associées à la projection.
Source : Beniston, 2012.

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

LYON métropole

Rainfall?

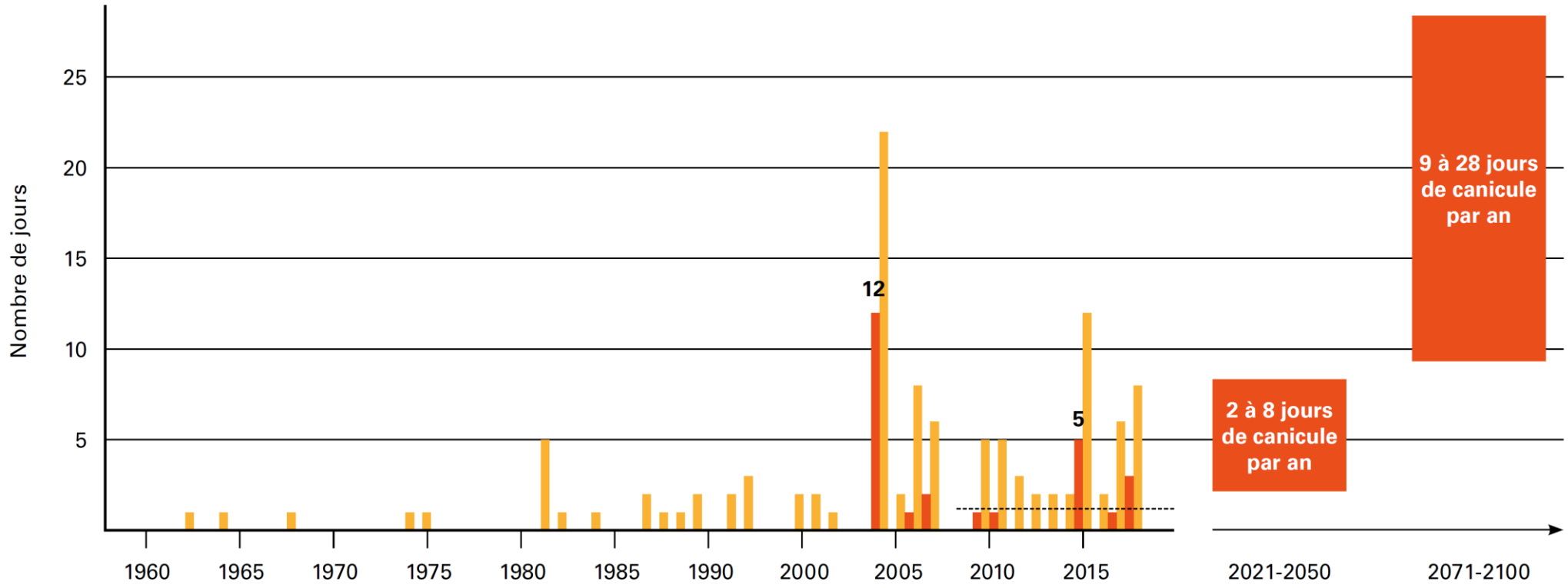


Temperatures?

Mean annual surface temperature
Source : Météo France 2011

Temperatures?

Past and future evolution of heatwave days in Lyon



Strong heat day
Heatwave day

Jour de forte chaleur = T max > 34°C et T min > 20°C
Jour de canicule = à partir de 3 jours de forte chaleur

Source : Météo France – station de Lyon-St-Exupéry (infoclimat, 2018)

The number of heatwave days will strongly increase: from 1.5 day/year on average to 28 days/year in 2100 for the worst case scenario

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

GRANDLYON la métropole

Temperatures?

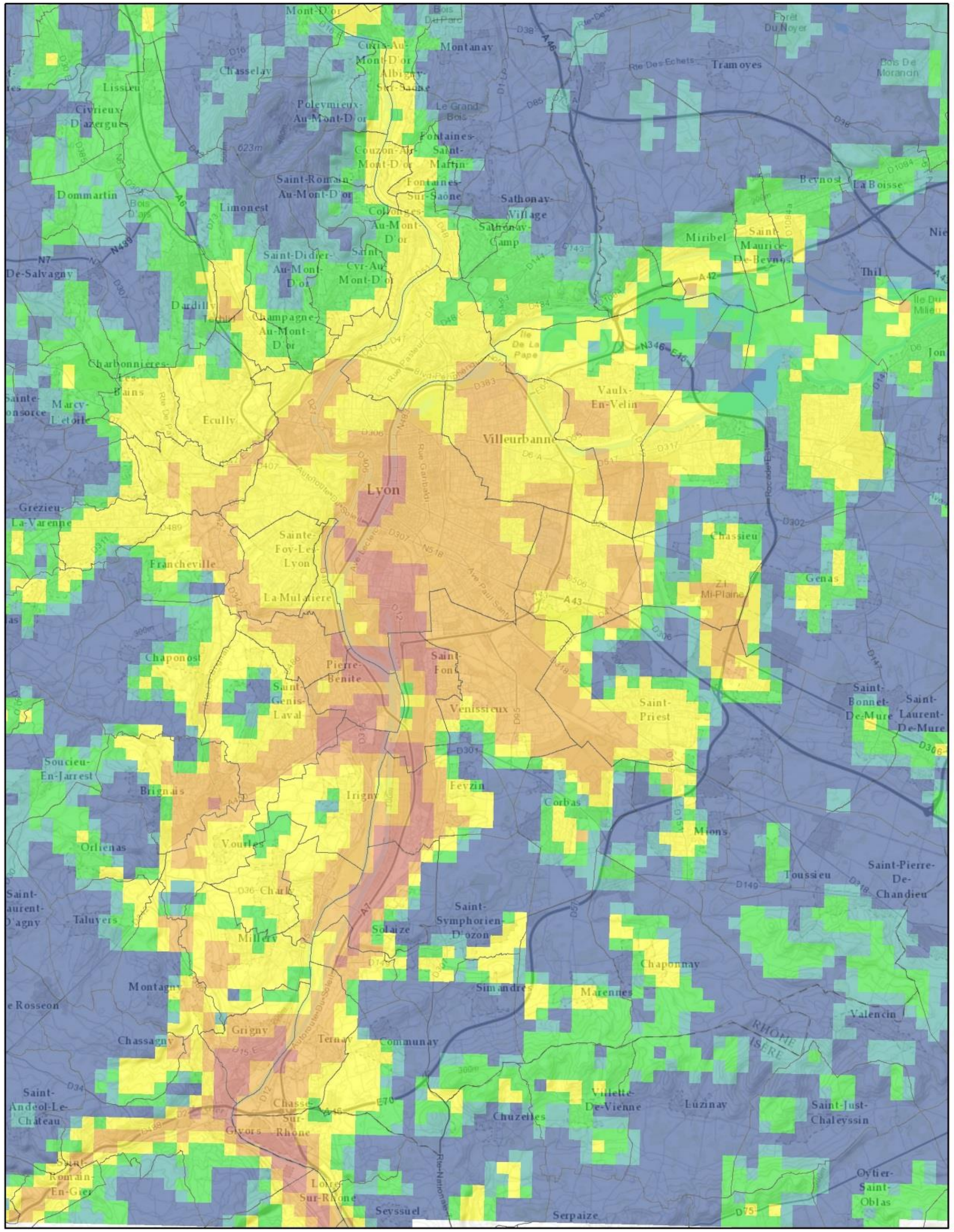
Julita Dudek's PhD 2011-2015

The urban heat island effect

ΔT ~ 5°C

Température à 2m - 20h30

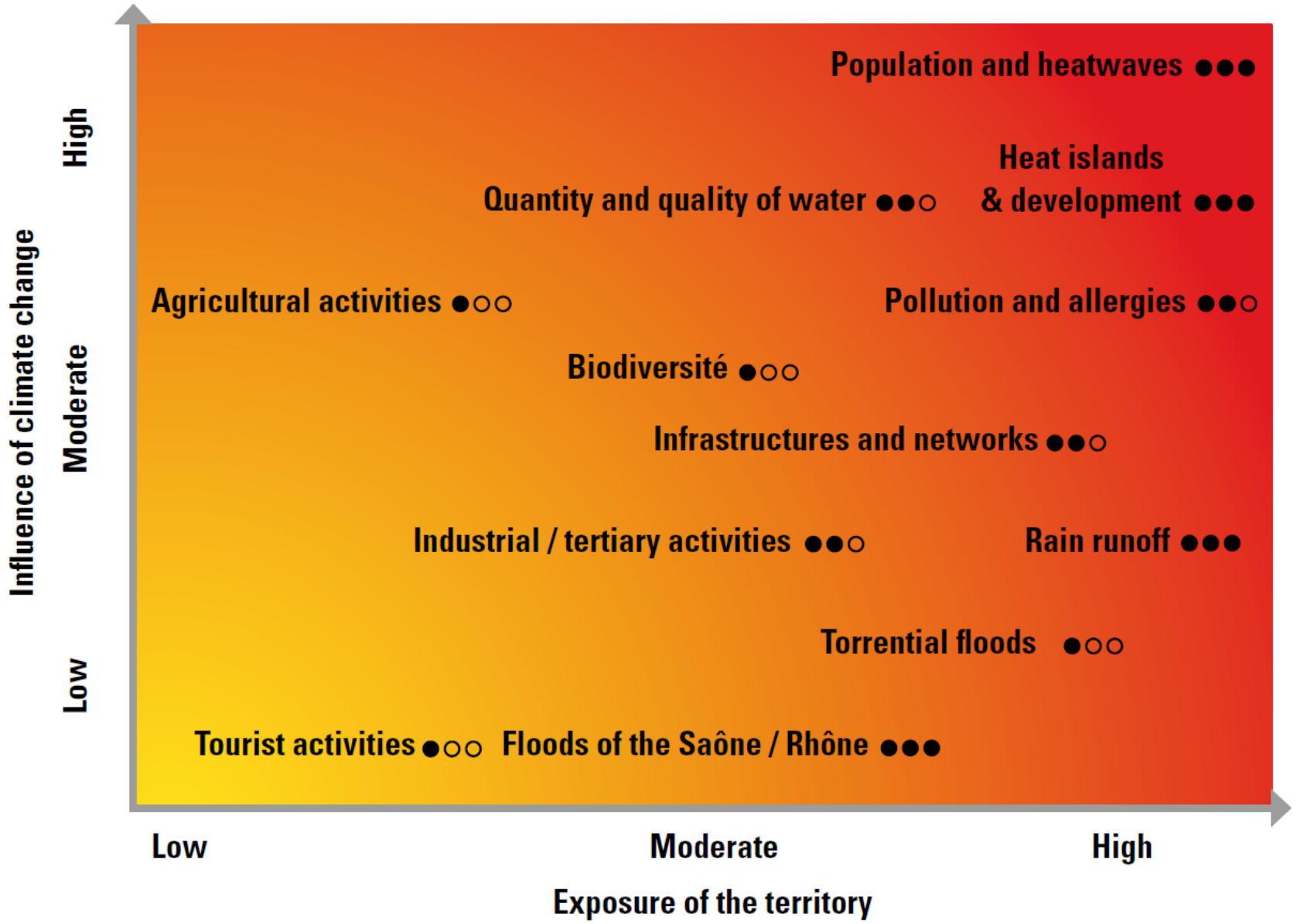
15,5 16,5 17,5 18,5 19,5



PLAN CLIMAT AIR ÉNERGIE GRANDLYON

LYON métropole

Diagnosis of our vulnerabilities

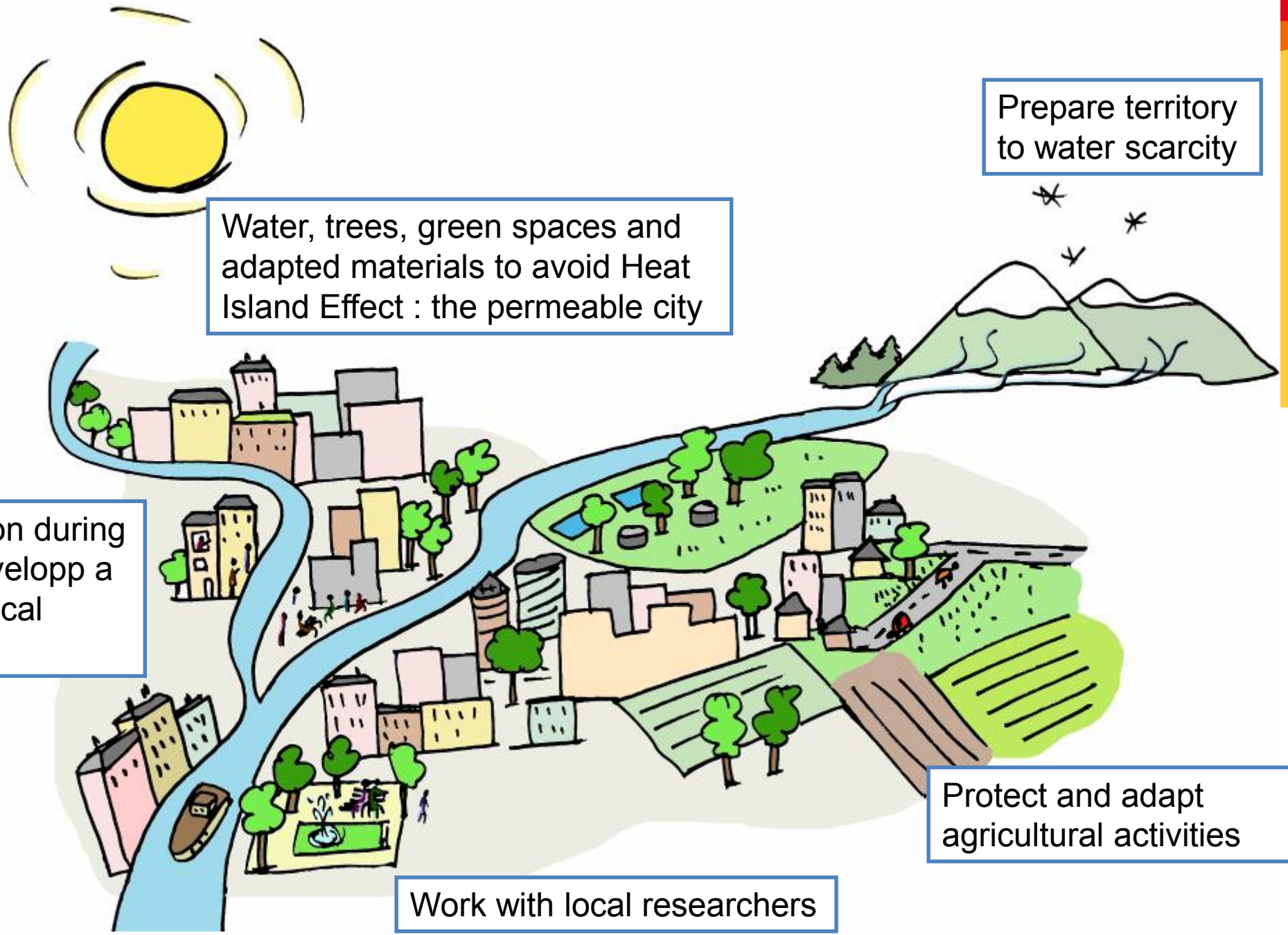


Summary of the vulnerability of the territory of Grand Lyon to the impact of climate change. Source: eQuiNeo, 2014.

Scientific expert report and local climate knowledge

●○○ Low
●●○ Diffuse
●●● High

Climate Change Adaptation



Prepare territory to water scarcity

Water, trees, green spaces and adapted materials to avoid Heat Island Effect : the permeable city

Assist population during heatwaves, developp a « culture » of local climate change

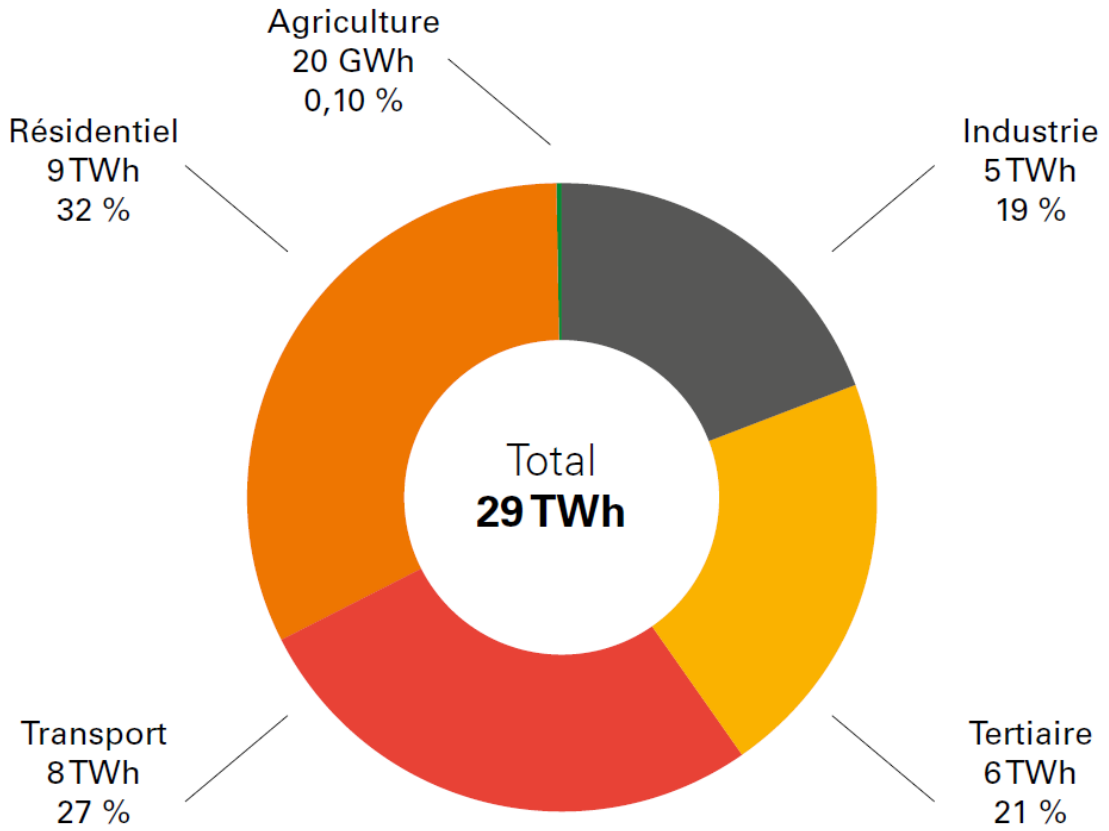
Protect and adapt agricultural activities

Work with local researchers

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

Lyon Metropole's Climate-Air-Energy Plan

Diagnosis
Local distribution of energy consumption

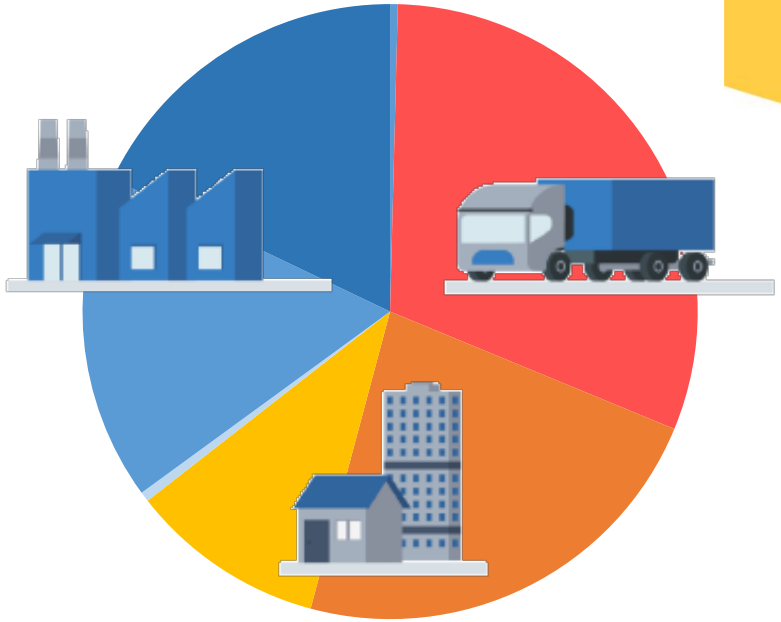


In 2015, energy consumption of the territory:
29 TWh/yr
3 billion €/yr

Diagnosis
Local distribution of greenhouse gases emissions

GHG emissions
(Source: ORCAE, 2016)

In 2015, GHG emissions of the territory:
6.3 $MtCO_2$/yr



-21% In 16 years

- Transports
- Residential/accomodation
- Tertiary
- Waste treatment
- Industry (without energy prod°)
- Oil-industry

Diagnosis
Local distribution of greenhouse gases emissions

Bilan Carbone®
of the property and
Services of Grand Lyon

- Public procurement
- Buildings
- Waste management
- Water service
- Official travel

Emissions under the influence of current community public policies

- New homes in the ZAC (mixed development zone)
- Social housing
- Public transport
- Urban heating
- Urban development

All other emissions

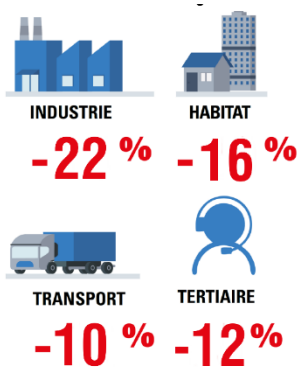
- Businesses: industrial installations, goods transport ...
- Municipalities
- Residents: private homes, transport, consumption

The First Climate Plan (voted in 2012, goal 2020)

ÉMISSIONS DE GAZ À EFFET DE SERRE DEPUIS 2000

In 2016 **-21%**

Objectif 2020 **-20%**



CONSOMMATION D'ÉNERGIE DEPUIS 2000

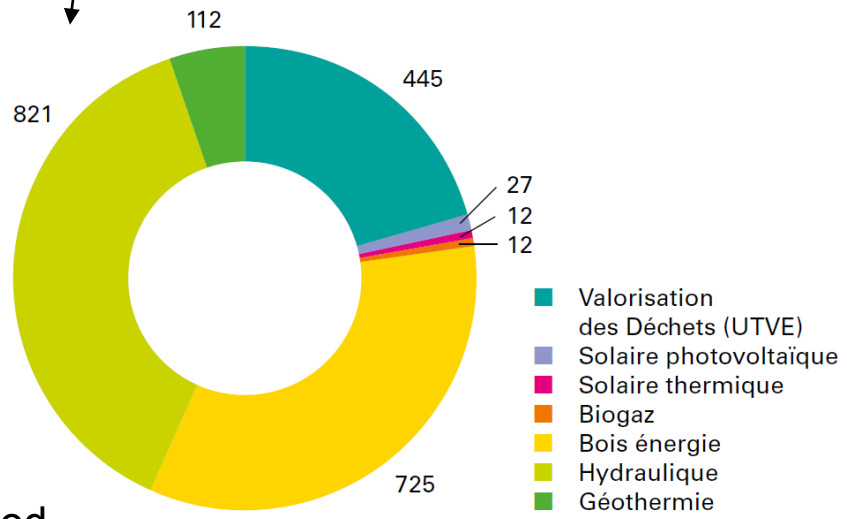
In 2016 **-12.6%**

Objectif 2020 **-20%**

PART D'ÉNERGIE RENOUVELABLE LOCALE

En 2015 **7%**

Objectif 2020 **20%**



Source : ORCAE, 2019

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

Population growth was about 15% on the same period

The First Climate Plan (voted in 2012, goal 2020)

Examples of actions

Heat and cold networks: from 44 to 100 MW produced by local biomass boiler rooms

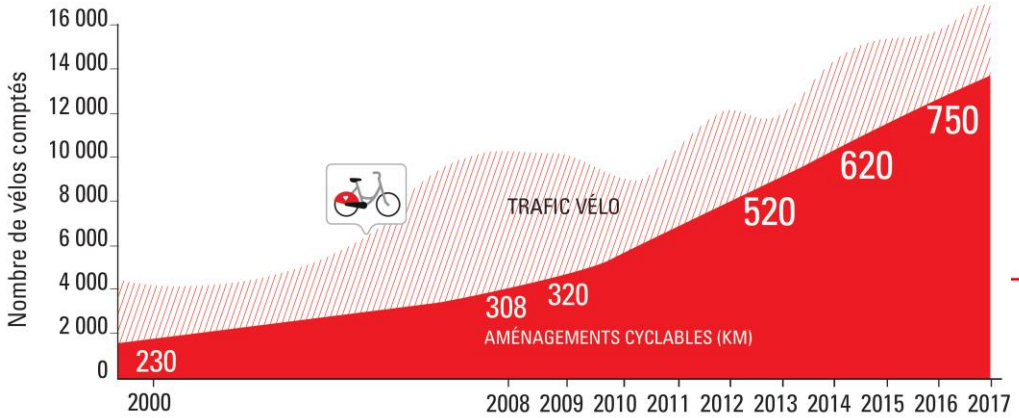
LYONéCOENERGIE

250 small and medium businesses assisted in their works to reduce energy consumption

Solar register, Civic investment…

ECORENO'V

Eco-renovation: 12 000 housings funded (since 2015)



Alternative mobilities:

- +30% of public transportation attendance level since 2006
- 40 000 regular carpoolers
- 8 000 carsharers

The First Climate Plan in pictures

- Public transportation:
  + 30% attendance in 10 ans

The First Climate Plan in pictures

- 12 000 housings renovated to high energy efficiency since 2015

The First Climate Plan in pictures

- Bikes: x 3 since 2010

The First Climate Plan in pictures

- 250 small and medium businesses benefit from advice to lower their energy consumptions

The First Climate Plan in pictures

Urbain heating system from wood: x 2 in 7 years

A brand new Climate Plan
Combination of several process

Mitigation
(2019)

SCHÉMA DIRECTEUR ÉNERGIES GRANDLYON

Voluntary document
Operational roadmap of Lyon Metropole

Adaptation
(2017)

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

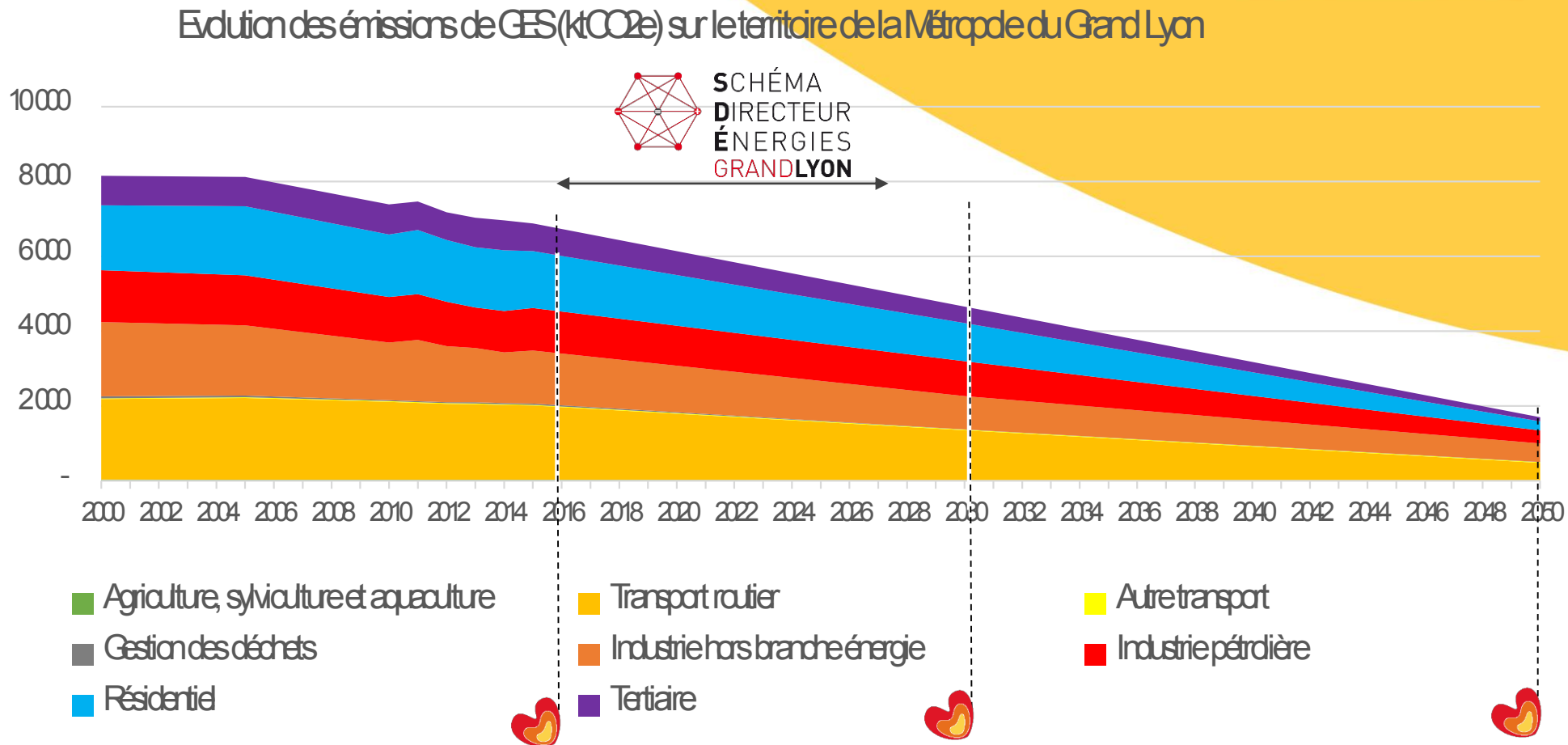
Air
(2016)

2019-2025

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

Required document
Concise designed for partners

The ‘Climate-Air-Energy’ trajectory



today

5 tCO_2/cap

7% of renewable energy

- 16 % GHG emissions compared to 2000

- 9,5 % energy consumption

- 50 % fine particles and NO_x emissions

in 2030

3 tCO_2/cap

17% of renewable energy

-43 % GHG emissions compared to 2000

- 30 % energy consumption

- 70 % fine particles and NO_x emissions

in 2050

1 tCO_2/cap

53% of renewable energy

- 79 % GHG emissions compared to 2000

- 63 % energy consumption

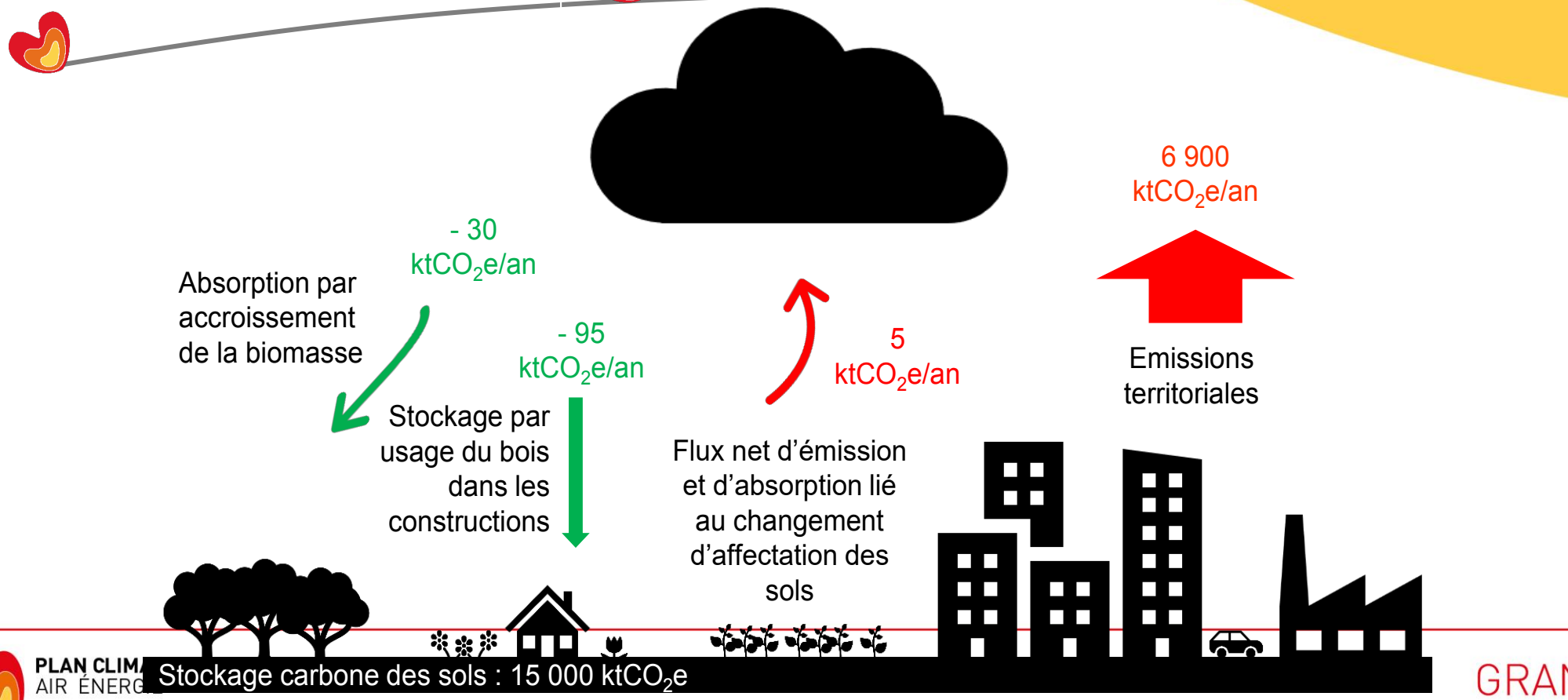
Carbon storage

NEW

Today:
absorb **2%** local emissions

2030 :
5% of local emissions

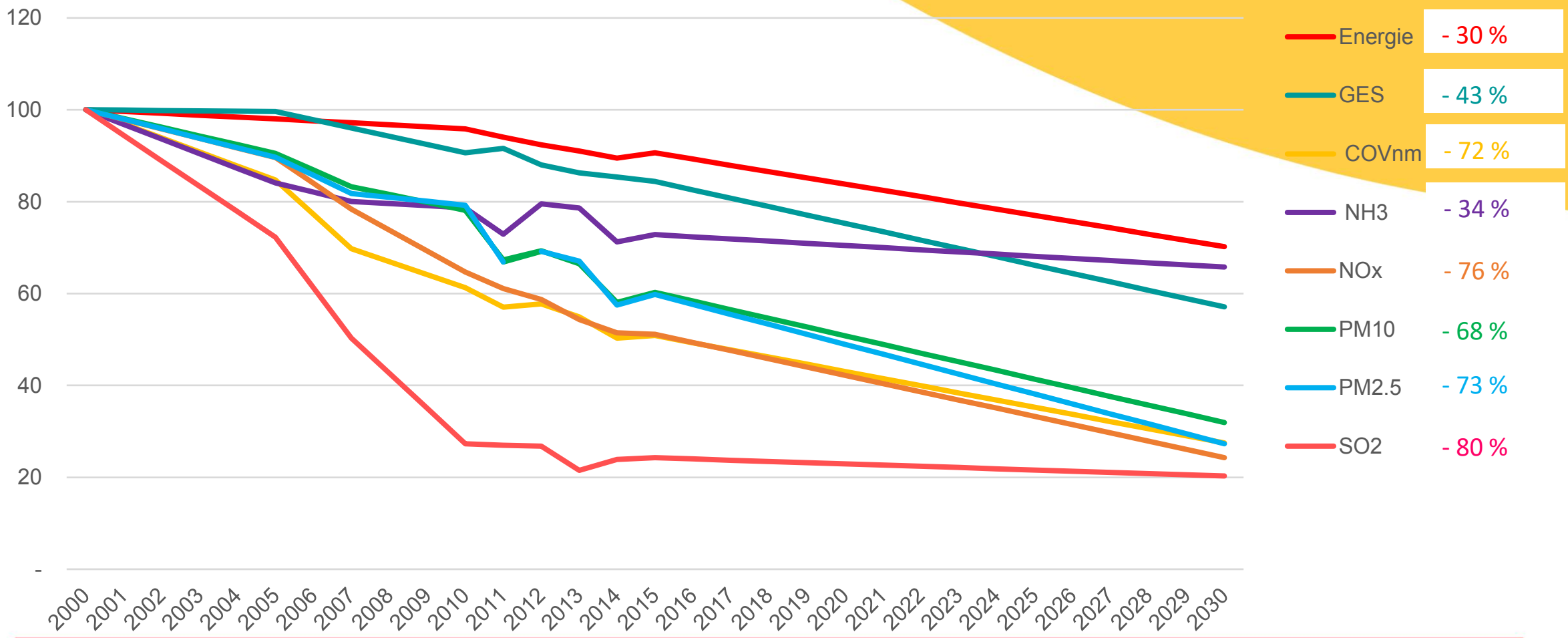
2050 :
~ 10% of local emissions



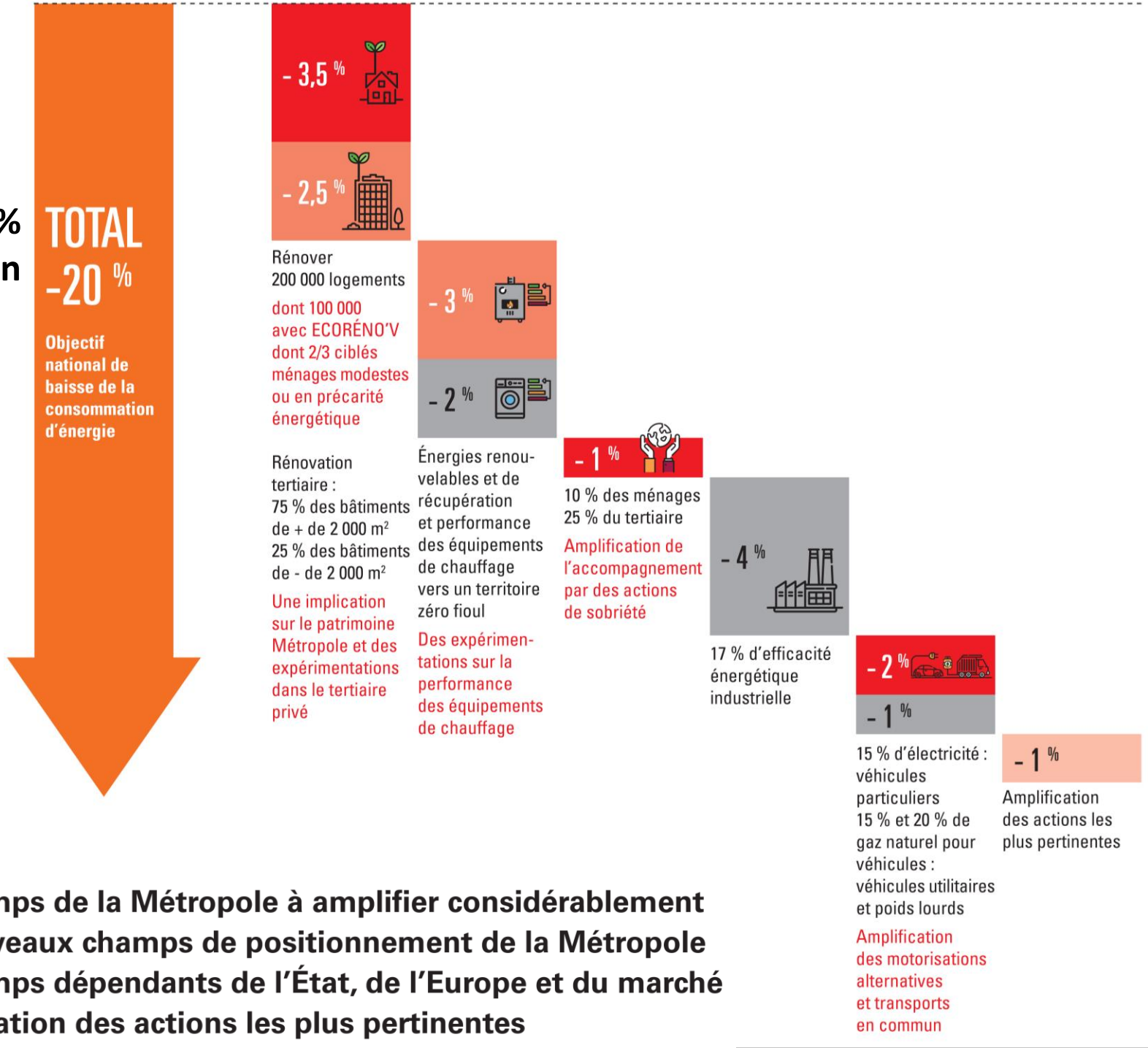
Local carbon flow in 2015 (source: Agatte)

Air quality: pollutants emissions

Evolution des émissions annuelles et des consommations du Grand Lyon
base 100 en 2000



Actions leading to a 20 % decrease of energy consumption (from 2013 to 2020)



- Les champs de la Métropole à amplifier considérablement
- Les nouveaux champs de positionnement de la Métropole
- Les champs dépendants de l'État, de l'Europe et du marché
- Amplification des actions les plus pertinentes

Actions leading to a production of 17 % of renewable energy in our energy mix

TOTAL 17 %

De consommations d'énergies renouvelables et de récupération dans le territoire

Objectif national : 32 % de consommation d'EnR&R

8 %

Réseaux de chaleur urbains
200 000 équivalents logements
à 65 % d'EnR&R
x 2,5

Vers un classement sur Centre Métropole

1,5 % Chaleur industrielle

2,5 % Bois

0,5 % UTVE

0,5 %

Méthanisation

Boues d'épuration

Déchets privés

Part réduite biodéchets

Un accompagnement fort des projets privés

1 %

Photovoltaïque x 10

Une approche équilibrée entre investissement, appui aux projets collectifs et prise de participation

1 %

Soutenir les projets de récupération de chaleur entre industriels

2 %

Favoriser le développement du chauffage au bois individuel et collectif performant non raccordé au RCU, du solaire thermique et de la géothermie

- Un socle de production d'énergies renouvelables et de récupération existant
- Les potentiels d'énergies renouvelables et de récupération à développer par la Métropole
- Les potentiels d'énergies renouvelables et de récupération dont le développement dépend du positionnement de la Métropole

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

Action plan – goal 2030

I. TOUS HÉROS ORDINAIRES

1. Ancrer l'administration dans l'écoresponsabilité
2. Favoriser les initiatives locales des communes
3. Susciter et accompagner les changements d'habitudes

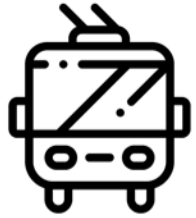
II. UNE ÉCONOMIE INTÉGRANT LES ENJEUX DU CHANGEMENT CLIMATIQUE

4. Promouvoir une industrie sobre en carbone
5. Accompagner les petites et moyennes entreprises vers la transition énergétique
6. Adapter les pratiques agricoles
7. Approfondir la connaissance scientifique locale

III. UN AMÉNAGEMENT DURABLE ET SOLIDAIRE

8. Planifier et construire une métropole sobre en carbone
9. Eco-rénover l'habitat social
10. Eco-rénover l'habitat privé
11. Eco-rénover les bâtiments tertiaires
12. Se préparer au climat de demain : la ville perméable et végétale

IV. UN SYSTÈME DE MOBILITÉ SOBRE ET DÉCARBONÉ



13. Mieux articuler les modes de transport entre eux
14. Développer la pratique des modes actifs
15. Améliorer la performance et l'attractivité des transports collectifs
16. Réguler la mobilité automobile
17. Agir sur le transport de marchandises
18. Accompagner le déploiement de motorisations propres

V. NOTRE TERRITOIRE EN LIEN AVEC SES RESSOURCES

19. Augmenter la production d'EnR&R locales
20. Organiser le développement et la transition des réseaux de distribution d'énergie
21. Contribuer à la structuration de la filière bois régionale
22. Préserver la ressource en eau et les milieux aquatiques
23. Développer les partenariats avec les territoires proches

Action plan – goal 2030

I.

TOUS HÉROS ORDINAIRES

1. Ancrer l'administration dans l'écoresponsabilité
2. Favoriser les initiatives locales des communes
3. Susciter et accompagner les changements d'habitudes

Awareness actions for **80 000** household & **¼** employees

Action plan – goal 2030

II.
UNE ÉCONOMIE INTÉGRANT LES ENJEUX DU CHANGEMENT CLIMATIQUE

4 Promouvoir une industrie sobre en carbone

5 Accompagner les petites et moyennes entreprises vers la transition énergétique

6 Adapter les pratiques agricoles

7 Approfondir la connaissance scientifique locale

LYONécoENERGIE
réduisez votre facture énergétique

1 700 small and medium businesses will benefit in 2025 from works funds and support to reduce energy consumption

Action plan – goal 2030

III.
UN AMÉNAGEMENT DURABLE ET SOLIDAIRE

8 Planifier et construire une métropole sobre en carbone

9 Eco-rénover l'habitat social

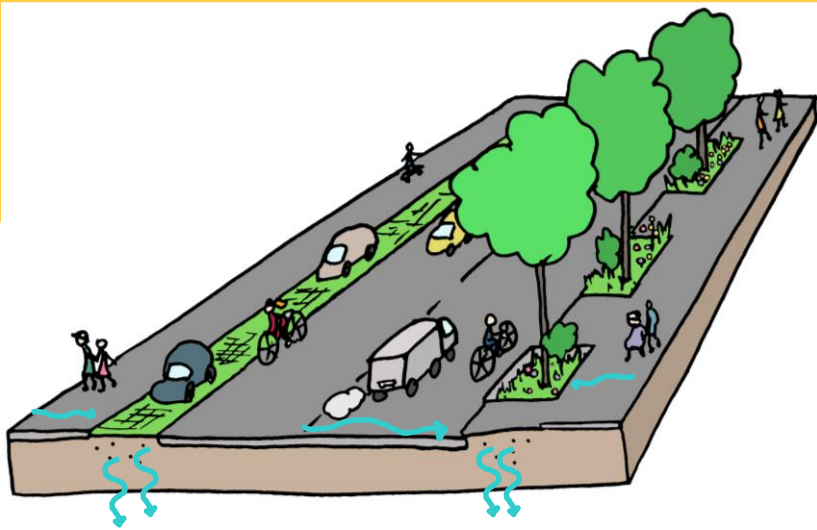
10 Eco-rénover l'habitat privé

11 Eco-rénover les bâtiments tertiaires

12 Se préparer au climat de demain : la ville perméable et végétale

ECORENO'V

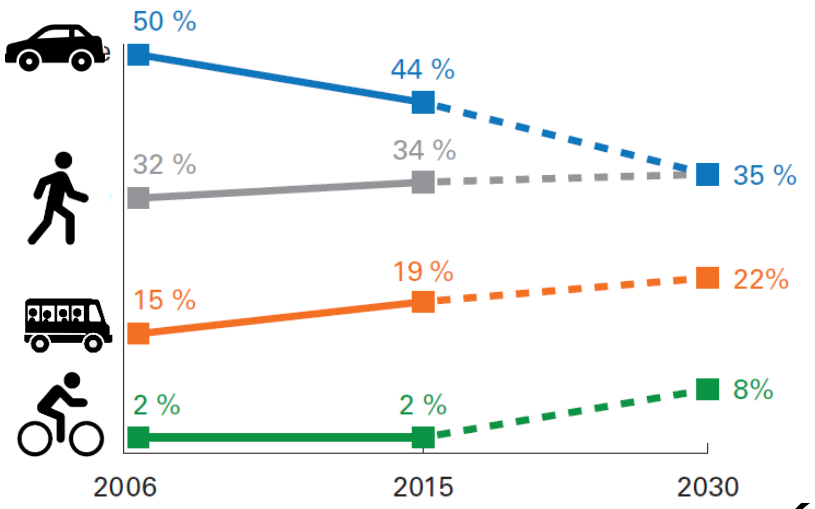
200 000 housing eco-renovated of which 100 000 with funds from Ecoréno'v



Garibaldi street: rainwater infiltration

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

Action plan – goal 2030



	15%	1%	1%
	10%	15%	5%
	1%	20%	1%
TCL hors tramways et métros	54%		1%

x 4 of the bike modal proportion

IV.
UN SYSTÈME DE MOBILITÉ SOBRE ET DÉCARBONÉ

13 Mieux articuler les modes de transport entre eux

14 Développer la pratique des modes actifs

15 Améliorer la performance et l'attractivité des transports collectifs

16 Réguler la mobilité automobile

17 Agir sur le transport de marchandises

18 Accompagner le déploiement de motorisations propres

Bicycle paths development

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

GRANDLYON la métropole

Action plan – goal 2030

Solar panels on the rooftop of a school in Lyon

x 10 photovoltaic solar panels production

x 5 thermal solar panels production

100 % sewage sludge methanation

x 3 connection to district heat network supplied with 65 % of renewable energy

Voting of Lyon Metropole's Climate-Air-Energy Plan

Unanimously voted on December 16th 2019

145 partners signed the climat plan on November 28th 2019 during the 6th Energy Climat Conference

PLAN CLIMAT AIR ÉNERGIE GRANDLYON

GRANDLYON la métropole


MERCI !

Greenhouse gas emissions: baseline inventory and scenarios to 2030

Courtesy translation

Part 1 - Baseline inventory of greenhouse gas emissions (Module A-1)

A. Description and assessment of GHG baseline inventory

In order to establish the baseline level of GHG emissions and determine the gap between emissions and carbon neutrality, and also to build its action plan, the City of Lyon has completed the data requested below.

These datas specified below are based mainly on that produced by the Auvergne Rhône Alpes Regional Climate, Air and Energy Observatory (ORCAE). Created in 2018 through the merger of several observatories specialised in air, energy, greenhouse gas emissions and climate change, the ORCAE observatory produces indicators that meet regulatory requirements : pollutant concentrations, population exposure, energy consumption and production, greenhouse gas emissions, annual carbon absorption in the region, heat networks, etc;

B. Methodology and definition of sectors

The consumption and emissions recorded below correspond to an emissions inventory based solely on scopes 1 and 2 for all of the region's activities. The required scope 3 datas which covers waste management and the treatment of wastewater generated by the region, has been estimated separately.

The emissions inventory includes :

- Carbon dioxide (CO2)
- Methane (CH4)
- Nitrous oxide (N2O)

Regarding the fluorinated GHGs, a recent development of the method has made it possible to include the following fluorinated GHGs : hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3).

While data on emissions of these gases is reliable for recent years, it remains uncertain for older datas. They are therefore included here to meet European requirements, but are excluded from the figures shown in the Lyon 2030 climate contract.

The modelling of energy emissions is based on:

- the final energy consumption balance ;

- primary fuel consumption by heating networks and household waste incineration plants (UIOM) connected as a substitute for heat/cold deliveries.

Energy consumption is associated with appropriate emission factors depending on the fuel, the type of boiler, any pollution control systems on industrial sites, etc. Non-energy emissions are the product of activity data and an appropriate emission factor taken from the national methodological guide drawn up by the Centre Interprofessionnel Technique d'Études de la Pollution Atmosphérique (CITEPA). The current version is based on the national emission factors published in the OMINEA 19.1 database [OMINEA_2023.pdf (citepa.org)] produced by CITEPA, the interprofessional technical centre for the study of atmospheric pollution.

1. Residential

The residential sector includes emissions from:

- Energy:
  - Homes
  - Petrol-powered leisure equipment
- Non-energy:
  - Garden fires and cable burning
  - Domestic use of solvents and pharmaceutical products

2. Tertiary

The residential sector includes emissions:

- Energy: this includes:
  - the eight "Buildings" sectors defined by CEREN, which use heating and other uses (domestic hot water, cooking, specific uses of electricity): Offices, Cafés Hotels Restaurants, Shops, Education/Research, Health, Community housing, Sport, culture and leisure, Transport-related activities (logistics, public transport)
  - Other electricity-consuming industries : Street lighting, General consumption of residential and tertiary buildings, Cold stores, Large public or private research centres, National defence premises, Telecommunications sector, Water sector, Publishing sector, Data centres, Ski resort ski lifts
- Non-energetic: anaesthesia

3. Manufacturing industry - Non-energy industry

The manufacturing industry sector, which covers a wide range of activities, includes emissions from:

- Energy
- Non-energy:
  - Paint application
  - Use of solvents
  - Manufacture and use of chemical products: glues, paints, inks, etc.
  - Processes in the steel, chemical and non-ferrous metals (aluminium) industries
  - CO2-producing decarbonation processes: lime, cement, tiles/bricks and glass
  - Aerosol cans

4. Energy conversion

The energy conversion sector includes emissions from:

- Energy
- Non-energy:
    - Gas distribution networks (leaks)
    - Processes in the steel and oil industries

5. Waste treatment

The waste treatment sector includes emissions:

- Energy
- Non-energy:
    - Waste incineration
    - Solid waste landfills
    - Waste water treatment
    - Compost and biogas production

6. Agriculture

The agriculture sector includes emissions from:

- Energy: buildings, greenhouses, agricultural and forestry machinery
- Non-energy:
    - Enteric fermentation
    - Organic and nitrogen compounds from animal waste ○ growing with fertiliser
    - Agricultural waste fires and bush burning ○ Use of pesticides and limestone

7. Road transport

Road transport covers all vehicles on public roads (cars, light commercial vehicles, heavy goods vehicles, city buses, coaches and motorised two-wheelers). Traffic volumes (Average Annual Daily Traffic) are estimated for the main road network (motorways, trunk roads and most departmental roads) and broken down according to more than 300 detailed vehicle types from CITEPA's national vehicle fleet.

The road transport sector includes emissions from:

- Energy: tailpipe emissions
- Non-energy: none

8. Other transport

a. Rail transport

Rail transport includes :

- Train movements on all railway lines
- Public rail transport: metro, funicular and tramway. The rail transport sector includes emissions :
- Energy: emissions from heat-powered trains
- Non-energy: none

b. Air transport

The air transport sector includes emissions:

- Energy:
    - Aircraft emissions
    - Ramp engines and thermal auxiliaries: the associated emissions are calculated for Lyon St-Exupéry airport, as emissions from other platforms are considered negligible.
- Non-energy: none

c. River transport

River transport includes energy emissions:

- of freight traffic on the Saône/Rhône route
- of passenger and pleasure boat traffic on the Saône/Rhône axis, the Canal Latéral de la Loire and the Canal de Roanne à Digoin.

C. Gaps in the GHG inventory

1. District heating and cooling network

Despite the meticulous work carried out by ORCAE to provide the most reliable and up-to-date data possible on energy consumption and greenhouse gas emissions, errors and uncertainties may persist. To date, an error has been brought to our attention concerning emissions linked to the district heating and cooling network. For 2019, this data has not been recorded for the residential sector.

We have therefore temporarily replaced this incomplete data with data from the previous year, 2018. They are not included in the overall figures and graphs, but are displayed in *orange* in the summary table of greenhouse gas emissions. This problem is specific to greenhouse gas emissions data and does not affect energy consumption data.

2. Waste and wastewater treatment

The inventory of GHG emissions for the Lyon area does not include the quantification of GHG emissions linked to the collection and treatment of waste and wastewater produced by the area. Only direct emissions linked to waste treatment facilities in the Lyon area (e.g. UTVE Gerland) are included.

It is therefore proposed to estimate the emissions linked to Scope 3 of the region's waste. The division of responsibilities for waste collection and management in France makes an exhaustive approach to this aspect difficult:

- The Lyon Metropole is responsible for the collection and treatment of household waste for the residents of the Metropolitan Area. It plans the management and reduction of this waste on its territory.
- The Region plans and coordinates the management of all waste (household and professional) through regional waste prevention and management plans.
- Business waste produced by all sectors of activity is the responsibility of the producer. The collection and treatment of this waste is usually entrusted to private service providers.

This is why we have chosen to estimate an order of magnitude based on national data. In 2017, the national low-carbon strategy estimated emissions linked to waste management in France at 14.6 Mt

CO2eq. By cross-referencing these emissions with INSEE population data, waste-related emissions are estimated at **0.219 tCO2eq/inhabitant**. This would correspond to **112,882 tCO2eq** for Lyon.

This initial estimate provides an order of magnitude, but remains highly imperfect:

- It does not take into account the specific characteristics of a highly urban area with very little industry or agriculture.
- It does not take into account the local dynamics at work, which enable the inhabitants of the Lyon Metropolitan Area to produce 387 kg/year/inhabitant[1] of household waste, i.e. almost 200 kg less than the national average of 582 kg/year/inhabitant[2] of household waste in 2019.
- Waste treatment facilities are located in the city and emit CO2, both to treat some of the waste from Lyon residents and to treat waste from neighbouring areas. The method used does not allow emissions linked to the specific treatment of waste emitted by the area to be subtracted, which generates a risk of double counting.

3. Carbon sequestration

Given that the City of Lyon has very little vegetation, carbon sequestration in the area has been considered negligible and has not been included in either the initial inventory or the modelling.

To give an order of magnitude, on the scale of the metropolis, which comprises 59 municipalities including some rural and forested areas, the annual flow of carbon absorption is estimated at 41 kteqCO2/year compared with GHG emissions of 5733 kteqCO2/year.

D. Final energy use by source sectors

Base year	2019			
Unit	MWh/year			
	Scope 1	**Scope 2**	**Scope 3**	**Total**
Buildings	**3 461 227**	**3 186 070**		**6 647 290**
(Fuel type/ energy used)	Gas 3 099 780 Petroleum products 361 440	District heating and cooling 407 400 Electricity 2 638 310 Thermal renewable energies 140 360		
Transport	**1 233 063**	**71 611**		**1 304 670**
(Fuel type/ energy used)	Gas 20 993 Organo-fuels 91 641 Petroleum products 1 120 428	Electricity 71 611		
Waste	**10 290**			**10 290**
(Fuel type/ energy used)	Electricity 10 290			

[1] Lyon Metropolitan Area 2030 waste master plan (grandlyon.com)
[2] Waste management in France | vie-publique.fr

Industrial Process and Product Use (IPPU)	**268 980**			**268 980**
(Fuel type/ energy used)	Solid mineral fuels 256 Electricity 134 345 Thermal renewable energies 6 018 Gas 31 675 Petroleum products 96 684			
Agricultural, Forestry and Land Use (AFOLU)	**1 040**			**1 040**
(Fuel type/ energy used)	Electricity 241 Gas 122 Organo-fuels 46 Petroleum products 632			

E. Activity by source sectors & GHG emissions by source sectors

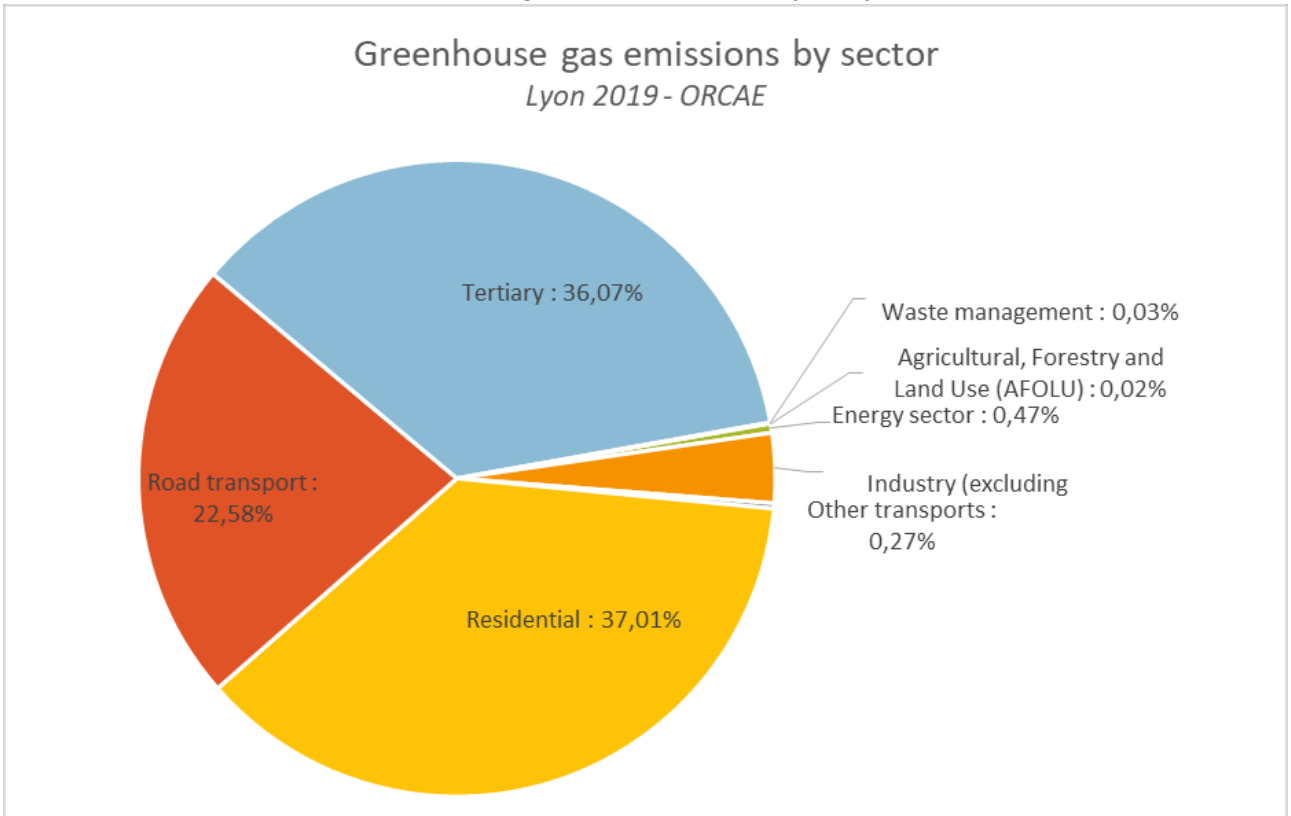
Base year		2019 - kgCO2eq / year	
	Scope 1	Scope 2	Scope 3
Buildings	**808 934 182**	**170 543 235** ***+13 422 854 residential district heating and cold***	
Residential	**443 261 923**	**52 762 090** ***+13 422 854 district heating and cold***	
Other specific electricity uses		8 670 854	
Other uses	380 260		
Garden fires and cable burning	12 139		
Heating	354 863 621	23 580 977 ***+11 039 393 district heating and cold***	
Cooking	29 984 849	2 339 835	
Lighting		3 635 625	
Domestic hot water	57 132 910	6 464 977 ***+2 383 460 district heating and cold***	
Cooling	4 106 705		
Washing		3 963 117	

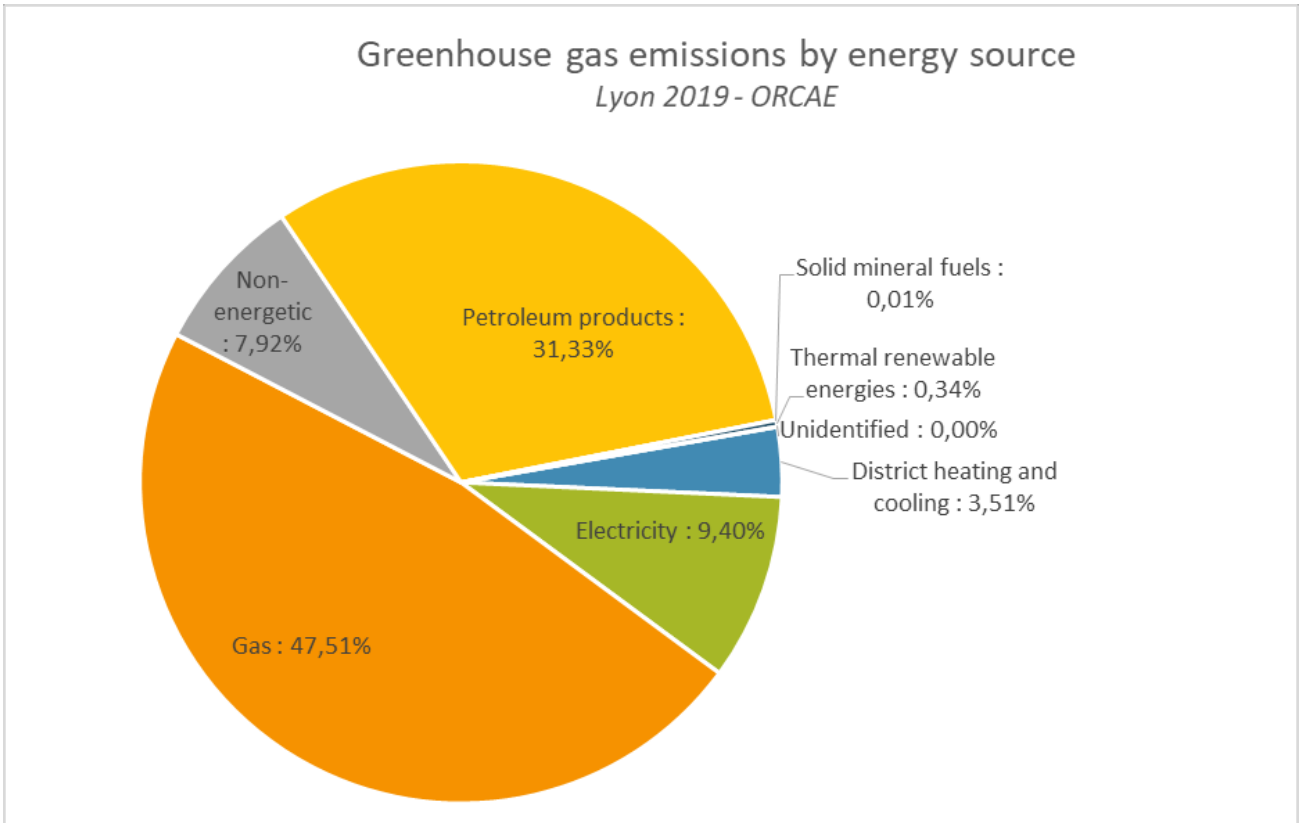
Leisure	139 996		
Solvents	748 148		
Tertiary	**365 672 259**	**117 781 145**	
Other uses	15 653 790	13 507 752	
Heating	225 588 571	50 785 986	
Air conditioning	38 009 326	6 158 889	
Cooking	17 123 039	2 004 554	
Street lighting		1 128 647	
Domestic hot water	26 093 264	11 946 467	
Specific electricity		28 935 026	
Cooling	34 539 095		
Water chiller	6 765 968		
Industrial	244 228		
Foam	1 048 250		
Heat pumps		3 313 824	
Solvents	606 728		
Transport	**304 761 961**	**1 490 538**	
Road transport	**302 573 282**	**27 216**	
Air conditionning	3 845 739		
Freight transport	95 563 494	11 186	
Passenger transport	202 733 240	16 030	
Refrigerated transport	430 809		
Other transport (rail, river)	**2 188 679**	**1 463 322**	
Freight transport	495 399	90 249	
Passenger transport	1 693 280	1 373 073	
Waste **Industrial Process and Product Use (IPPU)**	**44 788 545**	**442 533** **8 908 777**	
Aerosols	5 062 674		
Other industrial uses	2 724 552		
Other tertiary uses	22 082 783		
Heating	370 314	6 621 260	

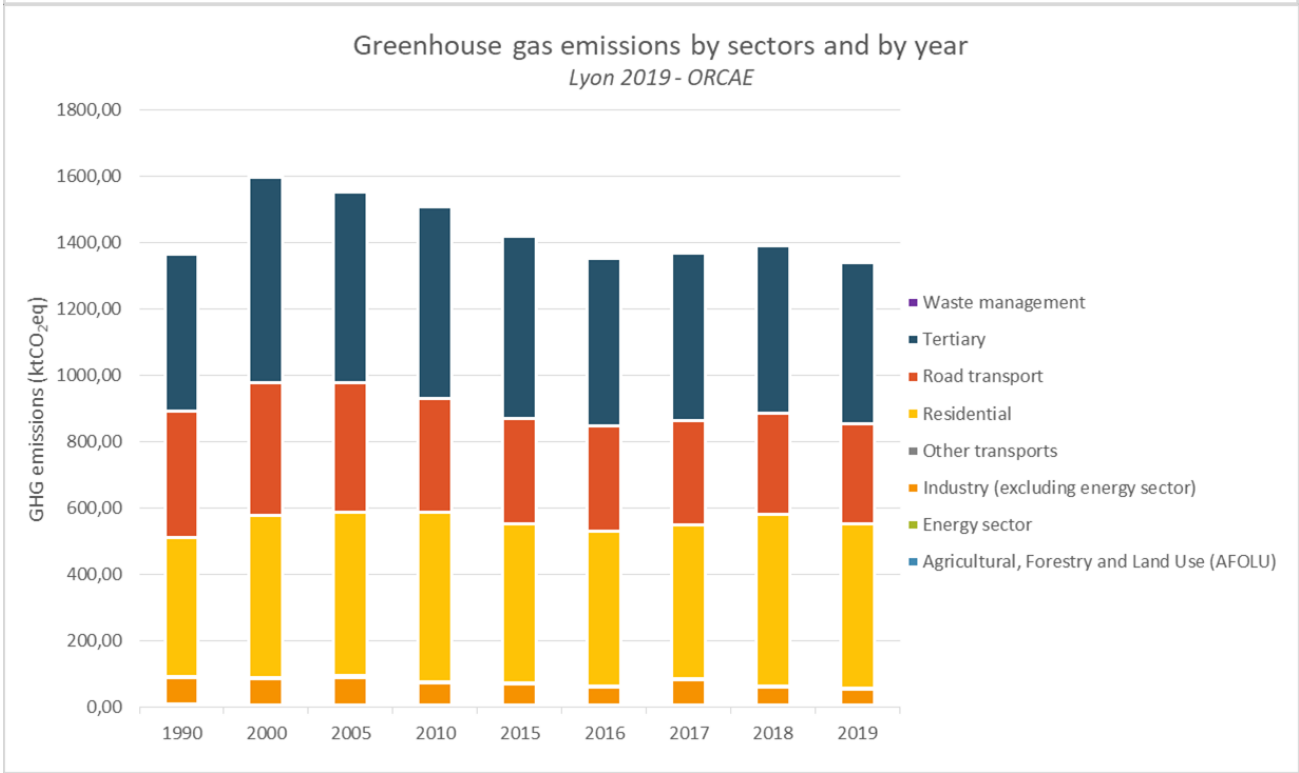
Electrical equipment	721 784		
Fire extinguishers	709 987		
Cooling	2 209 952		
Industrial (excluding energy)	4 645 599	2 287 517	
Industrial (energy branch)	6 260 900		
Agricultural, Forestry and Land Use (AFOLU)	**272 294**	**6 326**	
Agriculture - machinery	155 198		
Agriculture - Farms	51 427	6 326	
Agricultural burning	538		
Livestock	21 115		
Crops	44 016		
Total	**1 158 756 982**	**181 391 409** ***+13 422 854 district heating and cold***	

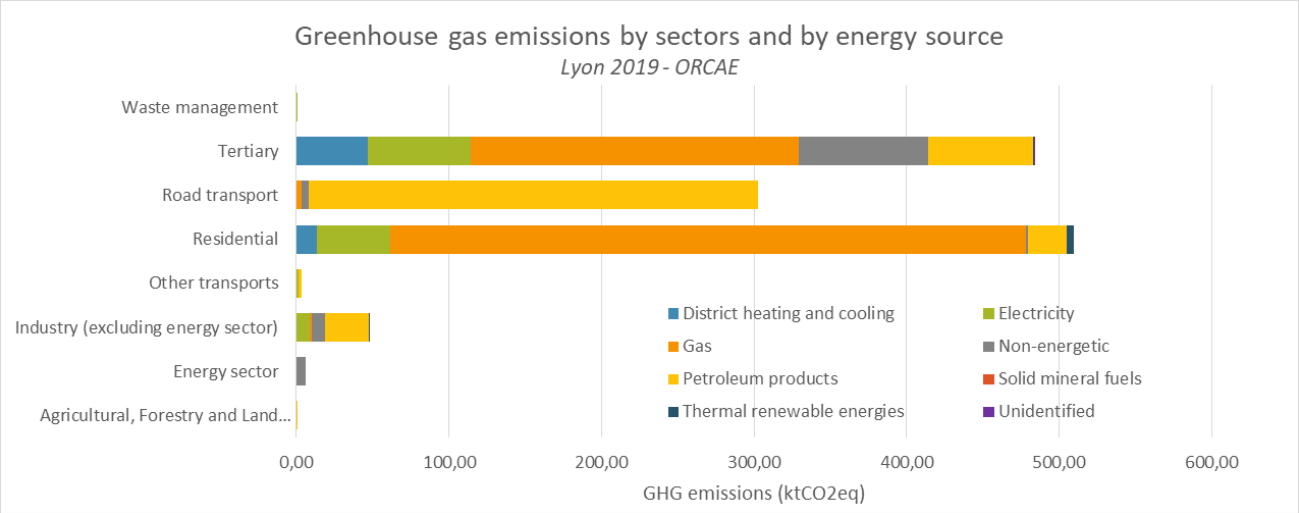
F. Graphics and charts

Datas for the emissions of Greenhouse gas within the territory of Lyon




Greenhouse gas emissions by energy source
Lyon 2019 - ORCAE
Non-energetic : 7,92%
Petroleum products : 31,33%
Solid mineral fuels : 0,01%
Thermal renewable energies : 0,34%
Unidentified : 0,00%
District heating and cooling : 3,51%
Electricity : 9,40%
Gas : 47,51%


Greenhouse gas emissions by sectors and by year
Lyon 2019 - ORCAE
GHG emissions (ktCO2eq)
1800,00
1600,00
1400,00
1200,00
1000,00
800,00
600,00
400,00
200,00
0,00
1990
2000
2005
2010
2015
2016
2017
2018
2019
Waste management
Tertiary
Road transport
Residential
Other transports
Industry (excluding energy sector)
Energy sector
Agricultural, Forestry and Land Use (AFOLU)



Données intégrant les émissions résidentielles liées au chaud et froid urbain

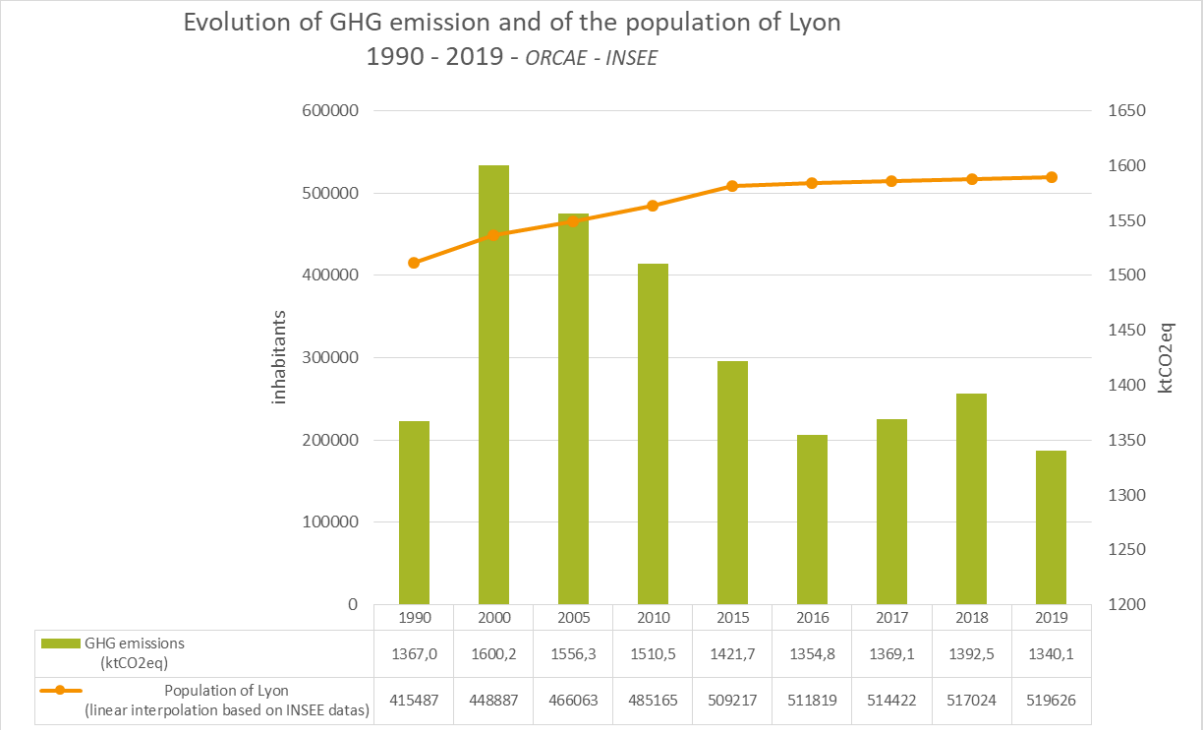
G. Explanation of data in relation to developments in the region

Sources: ORCAE, INSEE

1. Territorial context

a. Population growth:

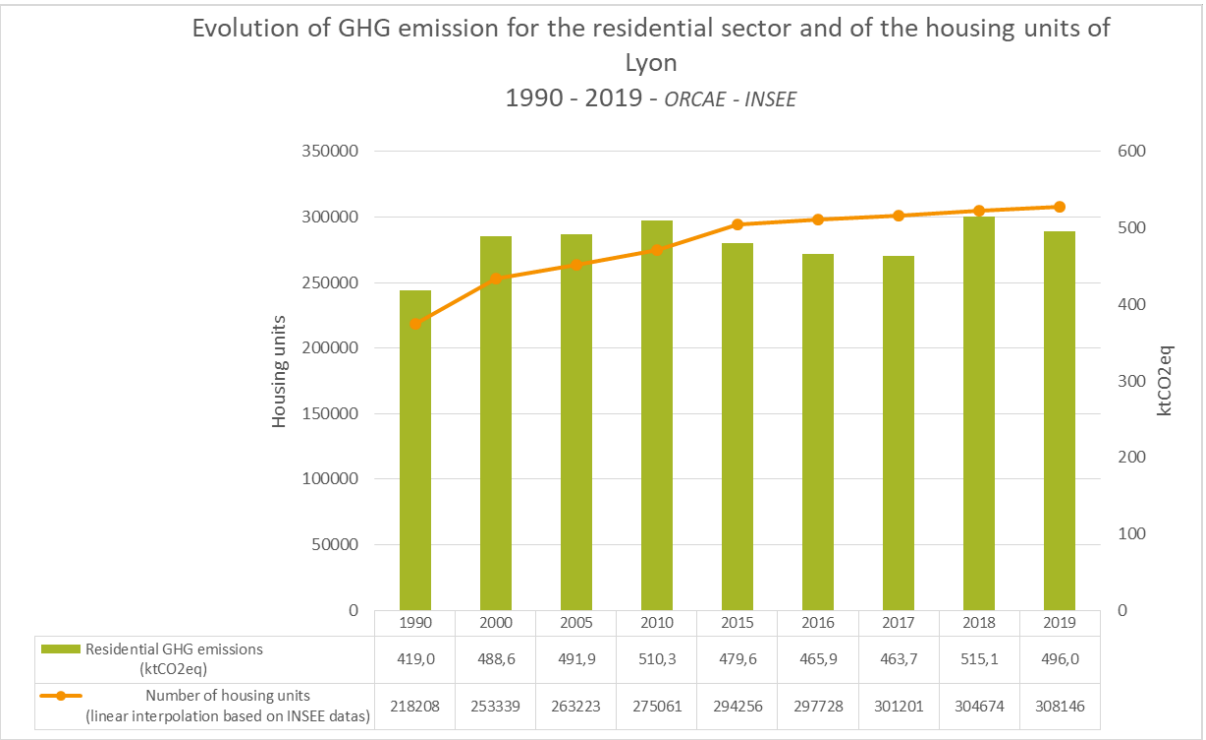
Lyon's population grew by almost **7.1%** between 2010 and 2019.



	1990	2000	2005	2010	2015	2016	2017	2018	2019
GHG emissions (ktCO2eq)	1367,0	1600,2	1556,3	1510,5	1421,7	1354,8	1369,1	1392,5	1340,1
Population of Lyon (linear interpolation based on INSEE datas)	415487	448887	466063	485165	509217	511819	514422	517024	519626

b. Residential:

The number of homes rose by 12% between 2010 and 2019, and more than 70% of new homes were built before 1990.



c. Tertiary:

In 2021, **82.2%** of Lyon's population work in the service sector, 10.1% in public institutions (administration, education, health, etc.) and industry account for 3.4% of jobs.

d. Transport:

Lyon has 4 metro lines, 2 funicular railway lines, 7 tramway lines and more than 120 bus lines, serving more than 3,000 stops. 39% of Lyon residents do not own a car.

The public transport network provides 1.8 million journeys every day.

1. Total territorial energy consumption:

Total energy consumption fell by 2.2% between 2010 and 2019. In 2019, the main consumer sectors are:

- Residential 42
- Tertiary 39
- Road haulage 15% of total

The transport, waste and wastewater and industrial processes sectors have reduced their energy consumption, while the stationary energy (residential and tertiary) and agriculture sectors have increased over the same period:

Consuming sectors	Evolution 2010-2019
Residential and tertiary buildings	+0,9%
transport (road and other)	-9,3%
agriculture, forestry and other land uses	+36%
Waste and wastewater	-56, 2%
Industrial processes and products use	-25,9%

2. Total territorial GHG emissions:

GHG emissions fell by 11.3%.
The main emitting sectors are:

- Residential : 37 %
- Tertiary : 36 %
- Road transport : 23 %

The buildings, transport, waste and wastewater and industrial processes sectors have reduced their GHG emissions, while those of the agriculture sector have increased over the same period:

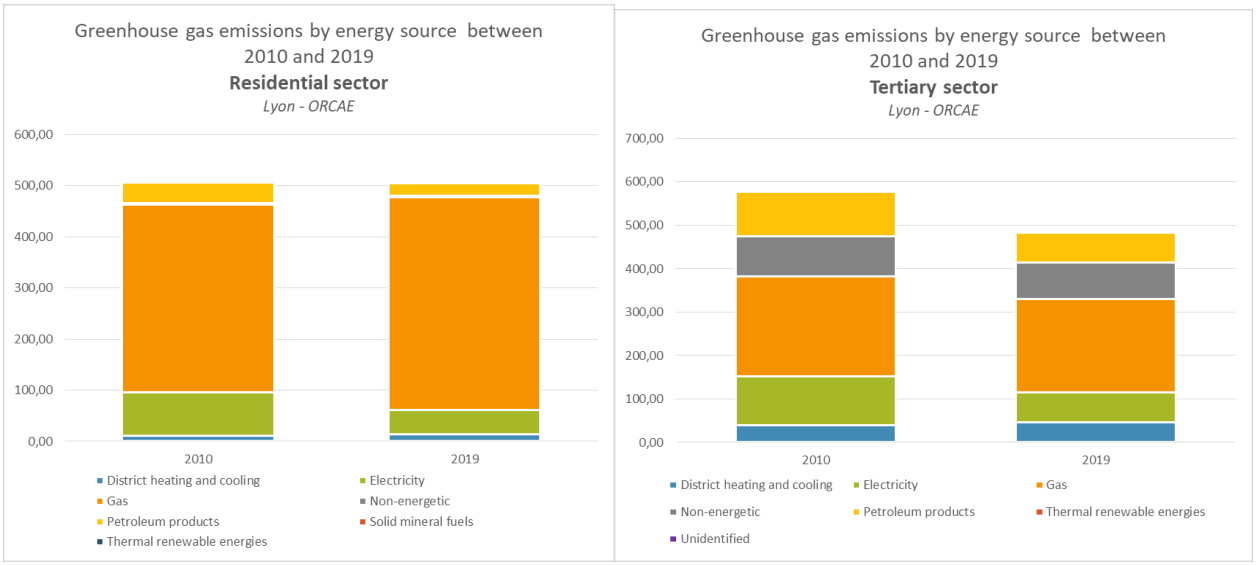
GHG emission sectors	Evolution 2010-2019
Residential and tertiary buildings	-9,9%
transport (road and other)	-12,2%
agriculture, forestry and other land uses	+19,5%
Waste and wastewater	-72,1%
Industrial processes and products use (with energy sector)	-25,8%

3. Focus on emissions from the main emitting sectors

Residential and tertiary buildings

Energy consumption in the residential and tertiary sectors rose by 2.8% and 16.3% respectively.

The use of gas as an energy source represents 59.5% in the residential sector and 32.8% in the tertiary sector, with an increase of 4.8% in residential consumption and stagnation in tertiary consumption between 2010 and 2019. Oil-based products are gradually being replaced by gas and the development of district heating, with consumption falling by 43% in the residential sector and 27.8% in the tertiary sector. These developments are having a marked impact on greenhouse gas emissions.



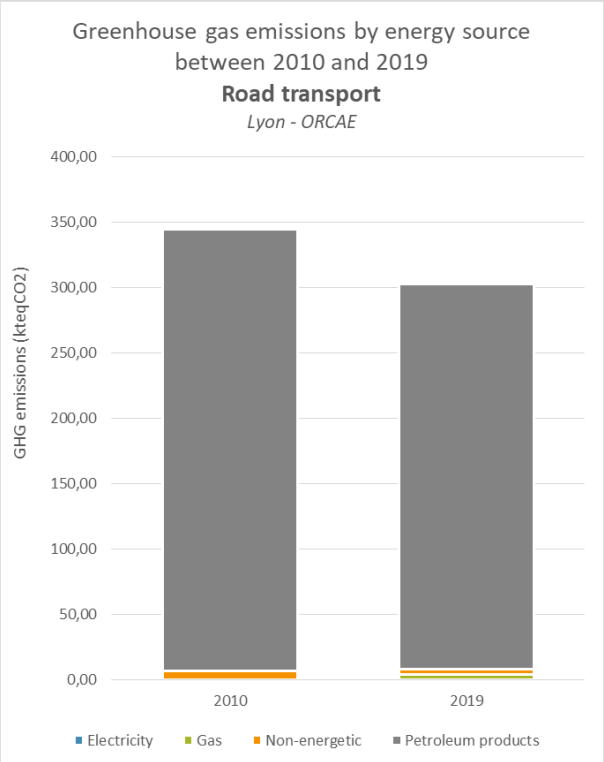
kteqCO2 - Data including residential emissions linked to district heating and cooling

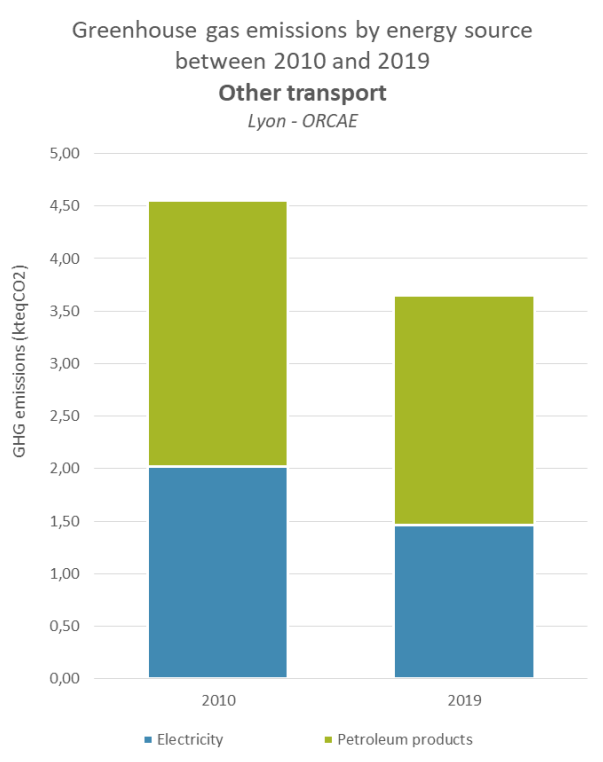
Road transport:

Energy consumption of petroleum products in the road transport sector fell by 10.4% and GHG emissions by 12.1%.

Other transport:

Other forms of transport increased their energy consumption by 10% but reduced their greenhouse gas emissions by 20% over the same period, with a shift in consumption towards less emissive organo-fuels produced from renewable organic raw materials and electricity.





Part 2 - Climate neutrality scenarios and impact pathways (Module B-1)

The City of Lyon wanted to analyse the potential changes in GHG emissions in its area according to different scenarios. The objectives are both to identify what can be achieved by the actions currently planned and the additional efforts that would be required to achieve carbon neutrality.
The City of Lyon has carried out this work using the economic model proposed by NetZeroCities and the following methodology:

1) The initial state of the model was adjusted on the basis of our knowledge of the area in terms of buildings, transport and energy. The adjustment was made in such a way as to ensure that the data in the model's initial state differed as little as possible from the emissions actually measured by the ORCAE (data presented above).
2) The assumptions for 2030 were then worked on:
    a) By first identifying all the objectives set by the various public policies applicable to the Lyon area - *See "Assessment of current climate policies and strategies"*
    b) Then by identifying the areas in which the City of Lyon, either through its competences or through the Agora and cooperation with Lyon Metropole, has the means to take action to further reduce GHG emissions - "climate priority" scenario
    c) Then by identifying the additional actions needed to achieve as much as possible of the 80% reduction in emissions - "climate neutrality" scenario

You can consult the full methodology of the model here: https://netzerocities.app/group-capabilitybuildingprogrammebuildingastrongeconomiccase

The assumptions and results of the 2 studied scenarios are detailed below with the means to achieve these objectives. In addition, the model proposes a "business as usual" reference scenario

A. Policies and assumptions for 2030

Sector	Public policies *40 to 45% reduction in greenhouse gases between 2019 and 2030*	"climate priority" scenario *55 to 60% reduction in greenhouse gases between 2019 and 2030*	"climate neutrality " scenario *70 to 75% reduction in greenhouse gases between 2019 and 2030*
All	French laws and regulations Lyon Metropole's Climate Plan 2019 2025	*All hypothesis of business as planned scenario*	*All hypothesis of business as planned scenario and "climate priority" scenario* + a significant increase in the proportion of renewable electricity produced locally, to help reduce the proportion of fossil fuels in the electricity produced in France.
Buildings	Energy master plan for the Lyon Metropolitan Area	**Heating** + Decarbonising district heating on a massive scale by purchasing biogas rather than fossil fuel gas. + increase in the proportion of heat pump heating replacing fossil fuels **Points to watch**: District heating is a metropolitan responsibility. Achieving these objectives is therefore highly dependent on action by the metropolitan authority.	**Construction & renovation** + Very significant acceleration in the renovation of buildings in the region and better quality of renovations carried out, with more highly efficient renovations associated with an acceleration in the renewal of electrical equipment for more efficient appliances, but also with the continuation of energy-saving measures taken from 2022 in both the public and private sectors. + Increased compliance with new-build standards through greater awareness among project developers and construction companies and better monitoring of compliance with national regulations. **Heating** + Increase the number of homes covered by district heating + a further increase in the use of heat pumps to replace fossil fuels, accelerated in particular by summer heat waves Slight increase in the proportion of purchases of biogas as a replacement for fossil fuels by private companies motivated by reducing their carbon footprint **Points to watch**: District heating is a metropolitan responsibility. Achieving these objectives is therefore highly dependent on action by the metropolitan authority.
Transport	National low-carbon strategy roadmaps and projections Lyon Metropolitan Area Urban Transport Plan Low-emission zone in the Lyon area	+ Reducing the need to travel, in particular through the Ville du ¼ d'heure initiatives, by adapting parking policy.	+ Further reduction in travel requirements + Greater modal shift from cars and motorised two-wheelers, in particular through parking policy, awareness-raising and the acceleration of traffic calming projects. + Accelerating the acquisition of electric vehicles thanks to Lyon's low-emission zone, combined with support for changes in use and the accelerated deployment of on-street electric charging points. The development of car-sharing by the City of Lyon is also helping to encourage people to switch from private combustion-powered cars to shared electric vehicles. **Points to watch**: In order to achieve the objectives, greater aid will be needed and progressively greater monitoring of compliance with the EPZ, combined with fines. These actions cannot be carried out by the City alone, but must involve the Metropole, which is implementing the EPZ, and the French government, which is providing aid for the purchase of electric vehicles.

There is one major, transversal point of vigilance to be noted in these scenarios: a major shift from fossil fuels to electric power, whether in buildings or transport, presents challenges and risks. These shifts will require electricity networks and power generation to be adapted. They will also lead to a very high level of dependence on electrical energy, and more particularly on nuclear energy, which is subject to cooling problems during heat waves and remains dependent on international supplies. This also raises broader questions about the resilience of the area.

This is why, in addition to the electrification of fossil fuel uses, both the Agora and the City of Lyon more broadly support the commitments and actions in favour of sober uses set out in the Lyon 2030 climate contract and the Climate, Air and Energy Plan. The structure of the model has only allowed this type of action to be valued to a very limited extent.

B. Initial state of the model

The table below shows the reference state taken following adjustment of the initial state of the model used.

A-1.4b: GHG emissions by source sector (from economic model inputs)					
Base year	2019				
Unit	t CO_2 equivalent/year				
	Scope 1	Scope 2	Scope 3	Total	% of Total
Transport	329531			329531	21%
Buildings & Heating	940142			940142	61%
Electricity		149068		149068	10%
Waste*			88094	88094	6%
Other	35840			35840	2%
Total	1305513	149068	88094	1542674	100%

C. Scenario results

The table below shows the results of the projections to 2030:

- From the reference scenario developed by the model - "Business As Usual" scenario
- "Climate priority" and "climate neutrality" scenarios, the assumptions for which are set out above.

A-2.3: Emissions gap (kt CO2e)											
	Baseline emissions (BAU 2030)	**Residual emissions offsetting[1]**		**Emissions reduction target - "climate priority" scenario**		**Emissions gap - "climate priority" scenario** ***(amount necessary to achieve net-zero)***		**Emissions reduction target - "climate neutrality" scenario**		**Emissions gap - "climate neutrality" scenario** ***(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)*	*(Absolute value)*	*(% of BAU 2030)*
Transport	257	65	25%	141	55%	65	25%	169	66%	23	9%
Buildings & Heating	917	170	18%	577	63%	157	17%	748	82%	0	0%
Electricity	150	30	20%	65	43%	56	37%	75	50%	45	30%
Waste	40	8	20%	5	13%	27	67%	5	13%	27	67%
Other[2]	36	7	20%	21	58%	8	22%	26	73%	2	7%
Total	1400	280	20%	810	58%	312	22%	1023	73%	97	7%

[1] Residual emissions consist of those emissions which can't be reduced through climate action and are being offset. Residual emission 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.

D. Trajectories and impacts

B-1.1: Impact pathways							
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years) 2019 - 2023**	**Late outcomes (3-4 years) 2023-2025**	**Direct impacts - "climate priority" scenario** ***(Emission reductions - kt CO2e - 2019-2030)***	**Direct impacts - "climate neutrality" scenario** ***(Emission reductions - kt CO2e - 2019-2030))***	**Indirect impacts (co-benefits)**
Transport	*All*						Limiting pollution and nuisances linked to thermal mobility and preserving air quality Limiting water pollution and harm to biodiversity from road traffic and hydrocarbons Limiting the need for fossil fuels
	Reduced motorized passenger transportation need	City of ¼ hour, teleworking / enterprise mobility strategies	Strong shift in working patterns towards teleworking Models of the ¼ hour city	Implementation of the ¼ hour city facilities	18	37	Improving neighbourhood life and social links Promoting the local economy and services
	Shift to public & non-motorized transport	Parking policy, development and safety of cycle and pedestrian routes, reduction in speed in town, assistance with the purchase of bicycles, employers covering part of the cost of season tickets, etc. Developing the public transport network and	Changes to parking charges to encourage soft mobility, elimination of parking spaces, creation of a number of safe cycle "Voies Lyonnaises" and pedestrian routes, particularly around schools, 30km/h speed limit in town, Support for the purchase of bicycles, loans and hire facilitated by the Metropole for young people	Moving towards ecological and social parking charges, continuing to remove parking spaces, continuing with cycle and pedestrian path projects, continuing to raise awareness and take action. New bus and tramway lines, dedicated bus lanes...	24	30	Job creation Reducing traffic congestion Reducing the health risks associated with a sedentary lifestyle Making low-carbon mobility accessible to all

B-1.1: Impact pathways							
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years) 2019 - 2023**	**Late outcomes (3-4 years) 2023-2025**	**Direct impacts - "climate priority" scenario** ***(Emission reductions - kt CO2e - 2019-2030)***	**Direct impacts - "climate neutrality" scenario** ***(Emission reductions - kt CO2e - 2019-2030))***	**Indirect impacts (co-benefits)**
		frequency Enterprise mobility strategies					
	Increased car pooling	Carpooling lanes, dedicated applications and appropriate compensation for carpoolers	Experimenting with dedicated carpooling lanes, then making them permanent Improvements to the Metropole's dedicated car-sharing application	Deployment of the Métropole car-sharing tool, to be relayed by the City as part of its cultural structures, events and employer mobility plan.	22	18	Social links
	Electrification of cars + motorbikes	Low-emission zone in the Lyon area, national subsidies for the purchase of electric vehicles, car-sharing, deployment of recharging stations, etc.	Low-emission zones, national subsidies for the purchase of electric vehicles, car-sharing, deployment of recharging stations, etc.	*Lawsuit*	13	23	
	Electrification of buses	Network capacity, vehicle autonomy and/or bus lane electrification capacity	First electric buses, then expansion of the electric fleet	*Lawsuit*	14	12	
	Optimized logistics	Development of rail and river logistics Facilitating carbon-free last-mile logistics	Experimenting with logistics relay docks for deliveries to town centres or building sites	Metropolitan logistics master plan Logistics hotel project at the Port of Lyon	34	34	Reducing congestion on the public highway

B-1.1: Impact pathways							
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years) 2019 - 2023**	**Late outcomes (3-4 years) 2023-2025**	**Direct impacts - "climate priority" scenario** ***(Emission reductions - kt CO2e - 2019-2030)***	**Direct impacts - "climate neutrality" scenario** ***(Emission reductions - kt CO2e - 2019-2030))***	**Indirect impacts (co-benefits)**
			Creation of parking spaces dedicated to carbon-free mobility	Wider roll-out of current experiments Future projects promoting the circular economy (city of repairers, etc.)			
	Electrification of trucks	Network capacity, vehicle autonomy and/or motorway electrification capacity	*NC*	*NC*	14	14	
Buildings & Heating	Building renovations (envelope)	A ban on renting out heat loss properties, a tertiary sector decree for the energy renovation of tertiary sector buildings, financial aid, technical support for projects, etc.	Boosting housing renovation and efficiency with national, metropolitan and municipal support	Continued support, Gradual ban on renting out heating flats, Complete, high-performance renovation of public buildings	76	169	Reducing air pollution from heating Making decent housing accessible to all Reducing the impact of hot weather on everyone Limiting energy pressures by reducing consumption (buildings, lighting, etc.) Reducing the need for construction and land artificialisation Limiting the impact of night-time lighting on biodiversity Lower energy costs
	New energy-efficient buildings	Environmental regulations for new buildings, local planning regulations	RT2012 thermal regulations Creation of the Urban, Architectural, Landscape and Environmental Quality Charter	Implementation of RE2020 environmental regulations Continued deployment of the Urban, Architectural, Landscape and Environmental Quality Charter	8	9	

B-1.1: Impact pathways							
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years) 2019 - 2023**	**Late outcomes (3-4 years) 2023-2025**	**Direct impacts - "climate priority" scenario** ***(Emission reductions - kt CO2e - 2019-2030)***	**Direct impacts - "climate neutrality" scenario** ***(Emission reductions - kt CO2e - 2019-2030))***	**Indirect impacts (co-benefits)**
	Efficient lighting & appliances	Increasing efficiency of appliances, energy costs	Improving public lighting by switching to LEDs and reducing energy consumption by increasingly fine-tuning night-time shutdowns for assets and roads Sobriety charter for companies and businesses National sobriety drive	Further improvements to public lighting Sustainable energy-saving measures	9	12	
	Decarbonizing heating generation	Development and decarbonisation of district heating			484	557	
Electricity	Decarbonizing electricity generation	Development of national and local renewable energies	Growth in projects to develop rooftop solar panels (citizen systems, solarisation of public buildings, etc.) Eco-heating network certification for the metropolitan district heating system Increased use of renewable energy in municipal purchasing	Continuation of solar projects and development of renewable energy in district heating	65	75	Reducing air pollution linked to energy production Diversifying low-carbon energy sources Making low-carbon energy accessible to all
Waste	Increased waste recycling	Sorting waste at source, reducing	Compost experiments Progressive	Implementation of source separation of bio-waste	5	5	Limiting the environmental, social and societal impacts of resource

B-1.1: Impact pathways							
Sector	**Subsector**	**Systemic levers**	**Early changes (1-2 years) 2019 - 2023**	**Late outcomes (3-4 years) 2023-2025**	**Direct impacts - "climate priority" scenario** ***(Emission reductions - kt CO2e - 2019-2030)***	**Direct impacts - "climate neutrality" scenario** ***(Emission reductions - kt CO2e - 2019-2030))***	**Indirect impacts (co-benefits)**
		packaging, developing the circular economy	implementation of the anti-waste and circular economy law Development of second-hand and reconditioned public procurement				extraction Creating jobs Reducing the impact of waste on the natural environment Avoiding food waste

E. Scenarios: limits and prospects

The City of Lyon has identified 2 action scenarios. The first "climate priority" scenario enables the city to achieve a 58% reduction in GHG emissions in its territory between 2019 and 2030. This scenario focuses its actions mainly on the levers available to the city, but depends on the actions of the Lyon Metropole, particularly on its energy purchasing policy for the heating network. It also depends heavily on the commitment of everyone in the region to renovating buildings and changing the way people travel.
The second "climate neutrality" scenario enables the city to achieve a 74% reduction in GHG emissions in its area between 2019 and 2030. It involves not only the city itself, but also all the other players in the region and beyond:

- residents and businesses to get involved in renovating buildings and changing mobility and consumption patterns. More broadly, the industry needs to be in a position to keep up with the pace of renovation and change in mobility.
- the Metropolis, to accelerate the development of urban heating networks and the mass connection of buildings to these networks, and to promote sustainable mobility;
- The government, to continue and step up support and assistance for the renovation of residential and tertiary buildings and the move towards low-carbon mobility. More broadly, to initiate a major change in laws and regulations at all levels in order to give full priority to the climate;
- Europe to go further, not only in terms of financial support, but also in terms of a real shift towards stricter climate regulations in all sectors and a drastic limitation on the use of fossil fuels.

To achieve this, the climate must become the number one priority for everyone involved.

The Agora's commitments in these sectors will give a boost to some of the region's key and exemplary stakeholders:

- SOBRIETY IN BUILDINGS
  - 1. Raising awareness, training and educating people about energy efficiency in buildings
  - 2. Leading a dialogue between stakeholders to encourage the emergence of low-energy projects in buildings
  - 3. Exemplary sobriety of the built heritage of Agora members
- MOBILITY AND TRANSPORT
  - 4. Systematically implement ambitious, jointly-constructed Employer Mobility Plans
  - 5. Organising and encouraging public transport to promote greater sobriety
- URBAN LOGISTICS
  - 6. Committing to sustainable logistics cooperation with the Metropole and the City of Paris
  - 7. Optimising logistics flows within structures

In this modelling exercise, the City of Lyon decided not to go any further than the 73% reduction in GHG emissions. Indeed, given the available levers included in the model, it seemed unrealistic to push the cursors any further, given the constraints and the current rhythm in indicator evolution.

On the other hand, through the Agora, the municipality and its region are making a commitment that goes well beyond the transport and buildings parameters taken into account in the model. Their actions will help to reduce the area's GHG emissions in other sectors and through less direct levers. The commitments undertaken by the Agora and set out in the Lyon 2030 climate contract are as follows:

- SUSTAINABLE WATER MANAGEMENT
  - 8. Audit, list and share the practices of Agora members on water / awareness / training
- DIGITAL RESPONSIBILITY
  - 9. Establishment of a best practice framework for Agora members to commit together to a common framework for responsible digital content.
- ENHANCING THE VALUE OF ESSENTIAL AND NEGLECTED PROFESSIONS
  - 10. Enable all professions (including those that have been discredited) to play a part in the transition and promote them.
- FOR COMMUNICATION IN FAVOUR OF SOBRIETY
  - 11. Inform, raise awareness, train and/or educate people to develop a critical culture of advertising mechanisms and to adopt sober and responsible lifestyles.
  - 12. Implement sober and responsible internal/external communication practices
- CONSUMPTION AND WASTE

    - 13. Building a Zero Waste model by 2030
    - 14. Promote responsible purchasing and consumption
- COOPERATION AND POOLING
    - 15. Sharing and working together
- SKETCHING OUT THE FUTURE
    - 16. Involving the Agora in writing a story about the desirable city by 2030 - around sobriety

As far as the City of Lyon is concerned, these other levers are detailed in the Climate, Air and Energy Plan for the City of Lyon (see Climate, Air and Energy Plan for the City of Lyon and the Communal Centre for Social Action 2023-2030). These include the city's responsible purchasing policy, which encourages virtuous businesses and the structuring of innovative sectors; the cultural cooperation charter and the culture and climate promotions, which commit the region's cultural players to the ecological transition; the environmental certification of the city's events and the work undertaken with the stakeholders of these events; and all the initiatives aimed at raising awareness of the climate and the ecological transition among all the people of Lyon.

It is important to remember that the Lyon 2030 approach, supported by the City of Lyon, is firmly rooted in a dynamic of continuous improvement of actions and commitments in order to go further and faster in the climate action of both the municipality and the region. It is this iterative approach that will enable us to work together towards the goal of carbon neutrality.
Through this approach, the City aims to initiate transitions that go beyond the climate issue by integrating complementary and essential principles:

- Inclusivity and social justice, for a climate transition for all the people of Lyon;
- Democracy and collective construction, for a climate transition that mobilises all energies and intelligence in the construction of a common project;
- Taking account of the living world through environmental health and biodiversity, for a transition whose scope must go beyond the human and take into account the health of our entire environment.

These three key principles form the basis of the municipality's action in favour of the climate. Taking these issues into account also means ensuring that the region is more resilient to climate disruption.

Finally, the priority today is to drastically reduce greenhouse gas emissions, in the knowledge that certain residual emissions cannot be completely neutralised. Quantifying these irreducible emissions will enable us to start thinking about solutions in the medium term. The City wishes to take the time to work on this aspect in depth so as to put in place the most integrated compensation solutions possible.

Assessment of current climate policies and strategies (Module A-2)

Courtesy translation

Part1- List of relevant policies, strategies and regulations (A-2.1)

In France, public policies on the climate and ecological transition are the result of the interlocking of regulatory and strategic planning documents at various scales, all of which are highly interrelated:

- at national level, through major structuring laws, national objectives and commitments, and national planning documents. The national level is likely to cover all sectors.

  The national level also responds to supra-national commitments: the commitments made at the various COPs and in particular the Paris Climate Agreement of 2015, the objectives set by the European Union through the European Green Deal, etc.

  The State also produces prescriptive territorial documents such as risk prevention plans and atmospheric protection plans.

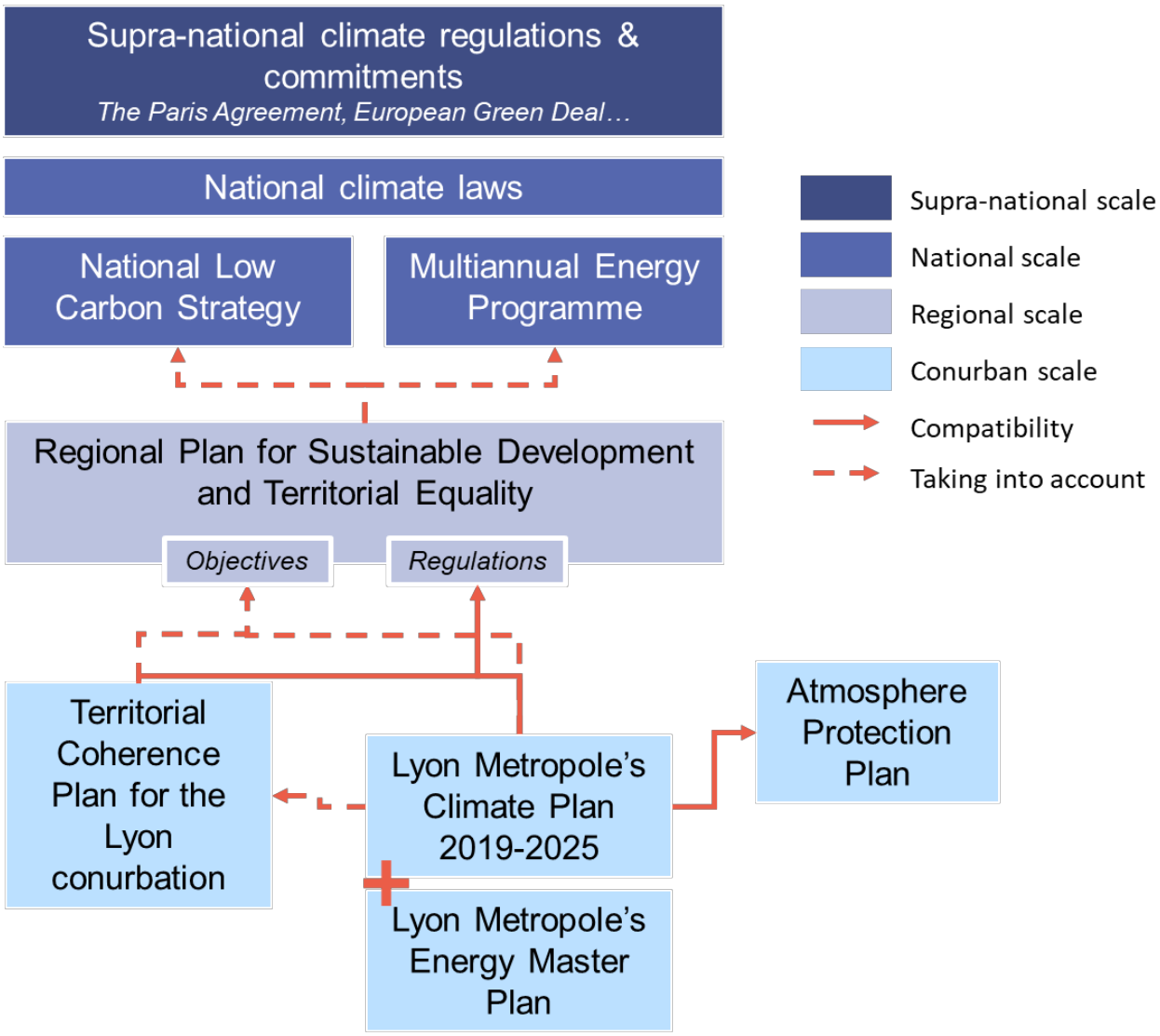
- At regional level, the Regional Plan for Sustainable Development and Territorial Equality provides a vision of the priorities to be given to spatial planning on a number of climate-related issues: the location of various infrastructures of regional interest, housing, economical management of space, intermodality and development of transport at a regional scale, energy management and development, the fight against climate change, air pollution, the protection and restoration of biodiversity, waste prevention and management.
  This document is drawn up jointly by the State and local authorities.
  It forms the basis for local planning documents.

- At the level of the Lyon conurbation, which brings together several inter-municipalities, the Territorial Coherence Plan defines the major planning and development guidelines for the Lyon conurbation over the next 20 years. It incorporates national and regional public policies on housing, the economy, transport and the environment.
  This document forms the basis for local planning documents.

- At the level of Lyon Metropole, the territorial planning documents are thematic with an operational dimension, as these plans directly concern the Metropole's competences: Local Intercommunal Town Planning and Housing Plan, Lyon Metropole’s Climate Plan 2019 2025, Energy Master Plan, Urban Transport Plan, Local Programme for the Prevention of Household and Similar Waste, Lyon Territorial Food Plan, etc.

At national and metropolitan level, public policies are set out in a series of strategic documents. At municipal level, the City of Lyon uses these documents to incorporate public policies into the work of its departments and the exercise of its responsibilities. As well as simply transposing them locally, the City of Lyon is adjusting the objectives to meet its commitment to carbon neutrality by 2030.

Public policies are detailed at the various scales below.



Adapted from AMORCE

A. European policies & objectives

Sector	Type, name and title	Description	Relevance, objectives and the need for action
(Buildings, transport, waste, IPPU, AFOLU)	*(Name of policy/ strategy/ plans)*	*(Description of policy/ strategy/ plans)*	*(Impact on the ambition of climate neutrality and possible actions to be planned)*
All	Green Deal (2019) and "Fit for 55" Climate Package (2021)	Green Deal: the roadmap to a carbon-neutral Europe by 2050 Fit for 55 climate package. The main strategic areas include ● Introduction of a carbon tax at borders, ● Action plan for the circular economy ● Drawing up a European climate law	Target: 55% reduction in greenhouse gas emissions by 2030 compared with 1990 levels (compared with -40% previously). Barriers & issues: The need to review all European sectoral policies and to assess all new policies in the light of this climate objective. Providing the means to achieve these objectives (tools, funding, etc.).
Transport	European agreement on the end of hybrid engines - 2022	In application of the climate package, a ban on the sale of diesel, petrol and hybrid vehicles in 2035.	Relevance: contributes to the development of electric vehicles in the car fleet.

Adapted from work carried out by Indiggo for the City of Marseille

B. National policies & objectives

Sector	Type, name and title	Description	Relevance, objectives and the need for action
	(Name of policy/ strategy/ plans)	*(Description of policy/ strategy/ plans)*	*(Impact on the ambition of climate neutrality and possible actions to be planned)*
All	Law on energy and climate n°2019-1147 of 08/11/2019	The Energy and Climate Act of 8 November 2019 aims to respond to the ecological and climate emergency. It enshrines this emergency in the Energy Code as well as the goal of carbon neutrality by 2050, by dividing greenhouse gas emissions by at least six by that date.	Key objectives: ● A 40% reduction in fossil fuel consumption by 2030 compared with 2012 (compared with 30% previously); ● the end of coal-fired electricity generation by 2022 ● Renovate "thermal flats", i.e. class F and G homes, by 2029 ● establishment of the High Council for the Climate

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	National Low Carbon Strategy V2, set by decree no. 2020-547 of 21/04/2020.	Sets the national objective of carbon neutrality by 2050, sets sectoral objectives for carbon neutrality, and associated carbon budgets. Revised every 5 years. Sectoral decarbonisation roadmaps are currently being drawn up. They set out and specify the decarbonisation objectives for each target.	Objective: national carbon neutrality by 2050
All	Multiannual Energy Programme	The Multiannual Energy Programme expresses the guidelines and priorities for action for the management of all forms of energy in mainland France, in order to achieve the energy policy objectives defined in the Energy Code (art. L 100-1, L 100-2 and L 100-4). The Multiannual Energy Programme must be compatible with the objectives of reducing greenhouse gas emissions set by carbon budgets, particularly for the energy sector, as well as with the Strategy national low-carbon strategy. It covers 2 successive 5-year periods. MEP 1: 2016-2023, MEP 2: 2019-2028 was approved in April 2020. MEP 3 will cover the period 2024-2033.	
Transport	Law on Mobility Orientation Act n°2019-1428 of 24/12/2019	This law on the orientation of mobility radically reforms the general framework of mobility policies, by integrating environmental issues. Drawn up following the national conference on mobility, it has four objectives: to move away from dependence on the car, to accelerate the growth of new forms of mobility, to make a success of the ecological transition, and to plan investment in public transport.	Objectives: - carbon-neutral land transport by 2050 - triple the modal share of cycling by 2024 - aiming to increase the number of public charging points fivefold by 2022 - Deployment of low-emission zones
All	Law on Climate and Resilience no. 2021-1104 of 22/08/2021	This law reflects some of the 146 proposals put forward by the Citizens' Climate Convention and adopted by the Head of State. Key measures : - environmental labelling, development of bulk sales with an obligation for major retailers to devote 20% of their floor space to bulk sales by 2030. - additions to the Law on Mobility Orientation, with the creation of low-emission zones in conurbations with more than 150,000 inhabitants by the end of 2024, a ban on domestic flights when there is a train alternative in less than 2.5 hours, an end to the sale of the most polluting new cars (emitting more than 95 gCO2/km) in 2030 and the most polluting new HGVs, buses and coaches in 2040. - Accelerating the renovation of heating flats - the principle of Zero Net Artificialisation in the regions by 2050.	The aim is to reduce greenhouse gas emissions by 40% by 2030, in a spirit of social justice. Obligation to comply with the European commitment to reduce emissions by 55% by 2030 compared with 1990 levels.

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	Law no. 2023-175 of 10/03/2023 on the acceleration of the development of the renewable energy production	The law aims to speed up procedures and free up the necessary land (e.g. car parks, derelict sites, motorway verges, etc.), accelerate offshore wind power and improve the financing of renewable energy projects.	
All	Law no. 2021-1485 of 15/11/2021 to reduce the environmental footprint of digital technology in France	The law is based on 5 objectives: - Raising awareness of the environmental impact of digital technology - Limit the renewal of digital equipment - Promoting environmentally-friendly digital uses - Promoting energy-efficient data centres and networks - Promoting a responsible digital strategy for local authorities: From 2025, local authorities with more than 50,000 inhabitants will have to draw up a responsible digital strategy.	The aim is to limit the carbon impact of digital technology, and in particular to curb the 45% growth in national emissions between 2020 and 2030. This objective is in the process of being translated into concrete action in the national roadmap for decarbonising the digital sector.
Waste	Law no. 2020-105 of 10/02/2020 on the fight against waste and the circular economy	The law focuses on a number of key areas: reducing waste and moving away from disposable plastic, providing consumers with better information, combating waste, improving production and combating illegal dumping.	Objectives: - -15% less household waste per inhabitant and 5% less waste from economic activities. - 100% recycled plastic by 2025 and an end to the marketing of single-use plastic packaging by 2040.

Adapted from work carried out by Indiggo for the City of Marseille

In addition to this legislative framework, the General Secretariat for Ecological Planning, which reports to the Prime Minister, is responsible for coordinating national ecological planning. This planning is based on 3 levels:

- planning work on sectoral decarbonisation : biodiversity, water, adaptation; health and resources
- mobilising stakeholders and rolling out planning, in particular by debating sectoral measures
- Regulatory work with draft legislation:
  - Energy and climate programming bill
  - Green Industry Bill
  - Agricultural policy bill

C. Regional policies & objectives

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	Regional Plan for Sustainable Development and Territorial Equality - Auvergne-Rhône-Alpes approved in 2020 ***Under review***	This regional plan is an integrating plan that sets medium- and long-term objectives for the region in 11 areas: - regional balance and equality, - location of various infrastructures of regional interest - Opening up rural areas, - habitat, - sparing use of space, - intermodality and transport development, - energy management and development - combating climate change - air pollution - protecting and restoring biodiversity, - waste prevention and management	Objectives: the regional objective is to achieve a 30% reduction in greenhouse gas emissions, from both energy and non-energy sources, by 2030 compared with emissions in 2015, with priority given to the sectors that emit the most, namely transport, buildings (residential and tertiary), agriculture and industry. Beyond that, by 2050, all players will have to contribute to the national ambition of reducing greenhouse gas emissions by 75% compared with 1990 and aiming for carbon neutrality. Reduce the region's energy consumption by 23% per capita by 2030, and increase this effort to -38% by 2050

D. Inter-municipal / metropolitan policies & objectives

Sector	Type, name and title	Description	Relevance, objectives and the need for action
	(Name of policy/ strategy/ plans)	*(Description of policy/ strategy/ plans)*	*(Impact on the ambition of climate neutrality and possible actions to be planned)*
All	Territorial Coherence Plan for the Lyon conurbation - SEPAL ***Approved in 2010 - Amended in 2017*** ***Under review***	The Territorial Coherence Plan sets the fundamental long-term guidelines (20 years) for the organisation of the Lyon conurbation in all its components, harmonising public policy objectives in terms of housing, economic development, transport and the environment. It is based on a number of fundamental choices: - the choice of economic development, - the choice of residential development, - the choice to make the environment a factor in development, - the choice of solidarity.	Objectives: The Territorial Coherence Plan aims to reduce greenhouse gas emissions by 20%, cut energy consumption by 20% and increase the share of renewable energy to 20% by 2020 compared with 1990. A 30% reduction in greenhouse gases by 2030. Need for action: The objectives are no longer in line with the national framework, which is why a review of the Territorial Coherence Plan has been underway since 2022.

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	Atmosphere Protection Plan for the Lyon conurbation - Prefecture ***Approved in 2022***	In agglomerations where limit values or target values for the concentration of atmospheric pollutants are exceeded or are likely to be exceeded, the State must draw up air quality plans to achieve these values. This is the role of the Atmosphere Protection Plan. Measures covering industry & construction, residential & tertiary, agriculture, mobility and urban planning	Air quality objectives, but with actions that will contribute to a non-objective reduction in greenhouse gas emissions (reduction in industrial emissions, replacement of heating systems, renovation of buildings, agricultural practices, transformation of mobility, etc.).
All	Lyon Metropole's Climate Plan 2019-2025 - Lyon Metropole ***Approved in 2019*** ***Under review***	Lyon Metropole's Climate Plan is a strategic and operational planning approach that applies to all sectors of activity. Main areas of action : - all ordinary heroes - an economy integrating the challenges of climate change - sustainable and inclusive development - a low-carbon mobility system - our region and its resources	Objectives: - a 43% reduction in greenhouse gas emissions by 2030 compared with 2000, - a 30% reduction in energy consumption by 2030 compared with 2000, - doubling the share of renewable energies in the region's energy consumption by 2030. The need to act: The Metropole has undertaken to update its Climate Plan in order to move the region towards carbon neutrality by 2050. Lyon Metropole is a key partner in the carbon neutrality of Lyon's territory through its expertise in mobility, waste and the circular economy, town planning and housing, etc.
Buildings	Energy Master Plan - Lyon Metropolitan Area ***Approved in 2019*** ***Under review***	To define its energy transition strategy for 2030, Lyon Metropole has adopted an Energy Master Plan. This tool provides an overview of energy production and consumption across the region, and enables us to plan for future developments. The aim is also to organise the networks and production facilities to achieve a more sustainable energy system.	Objectives: - -20% less energy consumption by 2030 than in 2013 - 17% of renewable and recovered energy as a proportion of metropolitan consumption by 2030, i.e. a growth rate of 100%. - To achieve: -43% reduction in greenhouse gas emissions compared with 2000 The need to act: The Metropole has undertaken to update its Climate Plan, and therefore it's Energy Master Plan, in order to move the region towards carbon neutrality by 2050.

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	Intercommunal Local Urban Plan integrating the local housing programme - Lyon Metropole	A land management tool, the intercommunal Local Urban Plan organises the living environment within Greater Lyon. It maps out the city of the future by reconciling local and communal interests with those of the Lyon conurbation. The gradual changes will make it possible to link urban development with mobility possibilities and, in order to limit the need to travel, to offer more and more green space.	The need for action: The Intercommunal Local Urban Plan is a powerful tool for new construction, but cannot be used to transform existing buildings, which are in the majority in Lyon.
Waste	Local Programme for the Prevention of Household and Similar Waste 2019-2024 & Waste Master Plan 2030 - Lyon Metropole	This action programme sets out the objectives for reducing waste quantities and the measures put in place to achieve them. It is structured around 7 key areas: 1. Encouraging public bodies to set an example 2. Raising the profile of waste prevention in the region 3. Experiment with new ways of charging for public services 4. Combating food waste 5. Encouraging local management of bio-waste and reducing the production of plant residues 6. Giving a second life to products destined for the scrap heap 7. Promoting eco-consumption	Objectives: The reduction targets show a reduction in residual waste of -1.50% per year on average from 2019 to 2024. This objective is complemented by the waste master plan: - Reduce by 25% the annual production of household and similar waste per inhabitant, i.e. approximately -90kg/inhabitant - Increase material and organic recovery, and reach 60% of waste recovered - Reduce by 50% the amount of household and similar waste collected by the metropolis that is incinerated - Aiming for zero landfill for bulky items
AFOLU	Lyon Regional Food Project - Lyon Metropole	An operational action plan developed jointly with the various departments and stakeholders in the area to implement the metropolitan food strategy.	Objective: To increase food self-sufficiency from 4.6 to 15% and give all residents access to healthy, high-quality food by 2030.

Sector	Type, name and title	Description	Relevance, objectives and the need for action
Transport	Urban transport plan 2017-2030 for the Lyon conurbation - Sytral ***Approved in 2017*** ***Currently being revised as a Mobility Plan***	An urban travel plan is a planning document that determines, within an urban transport perimeter, the organisation of the transport of people and goods, traffic and parking. The Urban transport plan has chosen to structure its action plan around a strategy based on 8 axes: seamless mobility ; ● a public space that welcomes and facilitates active modes of transport ● efficient and attractive public transport ● regulated and rational car mobility; encouraging and supporting changes in behaviour ● guarantee access to mobility for all and in the most vulnerable areas ● integrated freight transport ● appropriate governance and funding.	Objectives: ● To achieve the following targets for journeys made within the Urban transport plan area of application by 2030: 35% by car and motorised two-wheelers; 35% on foot (including walking aids); 22% on public transport (urban and non-urban); 8% by bicycle. ● Reduce by at least 5% by 2030 the number of kilometres travelled by private cars and road haulage compared with 2015 in the area covered by the Urban transport plan. ● Reduce greenhouse gas emissions from road transport in the Urban transport plan area by more than 35% in 2030 compared with 2005. Need for action: The GHG emission reduction target set by the Urban transport plan is insufficient to achieve carbon neutrality. The current review will enable us to raise the level of ambition of the region's mobility strategy.

In a context of accelerating climate action at all levels, the targets currently set by public policy fall considerably short of the goal of carbon neutrality for both 2030 and 2050. This is why many of these policies are being reviewed to make them more ambitious. New strategic areas are also emerging, with the Lyon Metropole in particular drawing up a logistics plan for goods and services.

E. Policies implemented by the City of Lyon

Sector	Type, name and title	Description	Relevance, objectives and the need for action
	(Name of policy/ strategy/ plans)	*(Description of policy/ strategy/ plans)*	*(Impact on the ambition of climate neutrality and possible actions to be planned)*
All	Climate, Air and Energy Plan for the City of Lyon and the Communal Centre for Social Action 2023-2030	This is the fourth edition of the City's Climate Plan since its first commitments in 2007. Building on the experience of its predecessors, the City is resolutely pursuing and strengthening its climate action. Co-constructed with municipal departments, it is the framework document for the municipality's climate action on its assets, skills and services.	Objectives: - drastically reduce greenhouse gas emissions to put the municipality on a trajectory towards climate neutrality by 2030, while also improving air quality - adapting the region to climate change and, more broadly, preventing the long-term effects and risks of climate change - The fight against climate change can only be systemic if everyone is involved at their own level. If the fight against climate change is to be systemic, everyone needs to be involved at their own level.
All	Lyon 2030 climate contract	Co-constructed with local players in Agora Lyon 2030, which is a framework document for climate action in the region.	Objective: To become carbon neutral by 2030
Buildings	Strategy for the ecological transition of buildings 2023 and Energy Efficiency Plan 2022	Plan long-term actions to renovate municipal assets, improve energy performance and reduce energy consumption	Objective: to reduce the energy consumption of municipal buildings by 25% by 2030 compared with 2019, by 50% by 2050 with a diminution of -80% of GHG emissions by 2050.
Buildings	3rd Lighting Plan 2023	A plan for the organisation and implementation of urban lighting, this third Lighting Plan sets out an ambition for urban nights: to go beyond the question of light alone and conquer the mosaic represented by the different components of night-time, while integrating the challenges of sobriety.	Objective: To reduce consumption from 21,200,000 kWh in 2021 to 17,150,000 kWh in 2030 by converting a further 13% of light points to LEDs and developing dimmable lighting for a further 2,600 points. A 75% reduction in public lighting consumption between 2000 and 2050.
Buildings	Charter for urban, architectural, landscape and environmental quality	It sets a new course for sustainable and responsible urban planning, which has been jointly developed and shared with the signatories.	Its objectives include reducing the carbon impact of construction, developing nature in the city and biodiversity...

Sector	Type, name and title	Description	Relevance, objectives and the need for action
All	Scheme to promote socially and economically responsible public procurement 2021-2026	As a framework document, it commits the municipality to purchasing in support of the ecological, social and economic transition.	Objectives: - 100% of tenders questioned for their carbon impact/energy consumption by 2024. 30% of contracts issued with an "energy and GHG management" mechanism in 2023. - Increase the proportion of renewable energy in the City of Lyon's total energy purchases. - By 2024, 30% of intellectual service contracts will be carried out using low-carbon means of transport. - Increase the proportion of markets where deliveries received are transported mainly by low-carbon means. - New buildings: from 2022 onwards, 100% of contracts will include an environmental consideration that goes beyond the new environmental building regulations on energy and climate content (E+C-). - Renovations: 100% of contracts for buildings subject to the tertiary sector decree (buildings over 1,000 m², excluding exemptions for historic monuments) include an environmental consideration, including energy and climate.
Waste	Digital strategy 2022-2026	It identifies 5 areas for a chosen and sustainable digital future, including one on the sobriety of municipal digital equipment.	Objectives: Increase lifespan, reparability, purchase of reconditioned products By 2030: 100% reconditioned purchases of desktop PCs, monitors and smartphones
All	Cultural cooperation charter	Developed jointly with cultural players, it identifies the areas in which the region's cultural facilities need to be mobilised. It makes the municipality's commitment to the ecological transition the cross-cutting theme of its actions.	Objectives: Include culture in the objective of carbon neutrality
All	ISO 20-121 standard for events organised by the City of Lyon	This approach has been in place since 2021, in the form of a continuous improvement process designed to control the social, economic and environmental impact of events, starting with the Fête des Lumières and extending to all events produced or supported by the municipality.	Objectives: Make events part of the carbon-neutral objective

Sector	Type, name and title	Description	Relevance, objectives and the need for action
Transport	City of Lyon employer mobility plan ***- To be approved in December 2023***	This strategic document encourages staff to adopt alternative modes of transport to the private car and carbon-based forms of transport. It covers work-related and home-to-work journeys, as well as the use of municipal sites by users and service providers (public services, events, etc.).	Objectives to be discussed : ● Increase the modal share of active modes from 35% to 45%. ● Reduce the number of car journeys between home and work from 83% to 70%. ● Inform 100% of employees about existing offers and services to help them change their mobility and support 5% of employees in changing their mobility. ● Make 100% of the municipal fleet compliant with the low-emission zone ● Reduce commuting accidents linked to active mobility by 5-10%. ● Reduce GHG emissions by 41% from the current level of 3,200 tCO2eq
Building	Lyon's property master plan ***- In preparation for 2025***	It builds a shared strategic vision over the long term on all aspects and issues relating to property assets, including climate issues.	*Objectives to be defined*
Waste	Lyon's Zero Waste Zero Waste strategy ***- In preparation for 2024***	It aims to set an example when it comes to municipal waste and, in coordination with the Metropolitan Council, supports initiatives proposed and carried out by local players.	*Objectives to be defined*

In addition, for over 15 years, the municipality has committed to international agreements to affirm its commitment to the climate. As a result, it now belongs to a network of Major European and global cities that are committed to the ecological transition.

- Eurocities - since 2008: Networking to promote the role of a network of partners under the banner of ecological transition.
- Covenant of Mayors for Climate Change - since 2008: A joint commitment by several of the world's major cities to drastically reduce greenhouse gas emissions.
- Climate Air Energy Label for the Territoire Engagé pour la Transition Écologique approach - since 2013: French version of the European Energy Award label. Methodology designed to promote and assess the quality of local climate and energy policies.
- Green Cities Accord - since 2019 : Agreement signed by mayors to guide them in deepening their ecological commitment. Helps them implement measures to make their cities greener, cleaner and healthier.

Part 2 - Evaluation of policies and their impact on GHG emissions

To measure the effects of these public policies, an initial study was carried out using the economic model proposed by NetZeroCities. This made it possible to estimate an effect of public policies and current trends that would enable greenhouse gas emissions to be reduced by around 40% between

2019 and 2030 if all the objectives of these policies were effectively achieved. This reduction is clearly insufficient to achieve the objective of carbon neutrality to which the City of Lyon has committed for its territory.

Achieving this objective would require a stronger commitment and, above all, an acceleration in the implementation of actions at all levels, particularly with regard to buildings and transport, which are major sources of emissions in the area.

This is why the City of Lyon is taking action and mobilising its region to accelerate and strengthen climate action at its own level. Nevertheless, a significant amount of work will be needed to change public policies and regulations at different scales in order to remove obstacles and work together to make Lyon a pioneer in climate neutrality.