

## **Status-quo report - Lyon**

### **Table of Contents:**

#### **Introduction**

#### **I - Institutional characteristics of the Urban Community of Lyon**

#### **II - The French institutional landscape in the field of energy**

#### **III - Local governance in the area of energy**

#### **IV - The climate and energy policy of Grand Lyon**

#### **V - Towards an energy strategy and a future master plan for energy**

## **Introduction**

The purpose of this report is to support and supplement, by a qualitative analysis, the baseline produced by Grand Lyon in the context of the WP 1.

Over and above the raw figures as appearing in the baseline, this document allows the French energy context to be put in perspective, nationally and locally, and the margins for manoeuvre and orientations chosen by Grand Lyon for implementing its energy and climate policy.

## **I - Institutional characteristics of the Urban Community of Lyon**

Within the Rhône-Alpes region, the Urban Community of Lyon brings together 58 municipalities, and a population of 1.2 million, and covers 52,715 hectares.

Created in 1966, the Urban Community of Lyon is a public establishment for inter-municipality cooperation which operates in the following areas:

- Highways
- Potable water distribution and wastewater treatment
- Domestic refuse collection and processing
- Transport and parking
- The production of urban design and development documents (PLU, master plan)
- Habitat and social housing
- The major amenities for the agglomeration
- The economic development plan for the territory

The Urban Community also manages public spaces, technopolitan sites, the setting-up of businesses, land reserves, abattoirs, the wholesale market, and the creation and extension of cemeteries.

Some of Grand Lyon's responsibilities are delegated to external organisations:

- Potable water
- Social housing
- Public transport
- Parking
- The wholesale market for perishable food and horticultural products

The Urban Community is administered by a Community Council, the equivalent of the Municipal Council in a municipality.

It comprises 156 members, appointed for 6 years, within the Municipal Councils of the municipalities forming Grand Lyon.

A number of seats on the Council are allocated to each municipality pro rata to the size of its population, with each municipality having at least one seat.

The Council meets around ten times per year, at public meetings, where around one hundred dossiers are examined each time. Each decision is reached by a majority.

The Community Council delegates some of its prerogatives to its chairman and the Committee. Elected by the elected by the community assembly of 25 April 2008 and the

chairpeople of the 5 permanent committees (preparation authorities of the community councils), the Committee reaches decisions by delegation of the Council. Each vice-chairman is responsible for a precise area: urban transport, finance, heritage, urban ecology, cleanliness etc.

The budget of the Urban Community of Lyon stands at 1,935.2 million Euro in 2013. Since 1990, it has taken the name of Grand Lyon.

## **II - The French institutional landscape in the field of energy**

### **1) National level**

#### **The Ministries for the Ecology, Sustainable Development, Energy, Transport and Housing**

The Ministry for Ecology, Sustainable Development, Energy, Transport and Housing defines and implements policy regarding energy and its uses.

The major objectives of French energy policy are enshrined in the so-called POPE programme law of 13 July 2005. These objectives were also incorporated in the Energy Code created by order no. 2011-504 of 9 May 2011:

- to ensure security of supply;
- to maintain a competitive price for energy;
- to preserve human health and the environment, in particular by fighting against the worsening of the greenhouse effect;
- to guarantee social and territorial cohesion by ensuring access for all to energy by the continuity of the public utility.

Achieving these objectives is the responsibility of the DGEC (General Energy and Climate Directorate). In this context, four major axes have been defined:

- managing the energy demand;
- diversifying the energy mix;
- developing research and innovation in the energy sector;
- providing transport and storage means in line with needs.

With regard to the organisation and functioning of the energy system, the DGEC:

- defines the framework for the development of energy infrastructures in France for the horizon of 2020 by means of two systems:
  - o the multi-year programming of investment in electricity and heat production (PPI). It is in this context that calls for tenders are issued for production (allowing security of supply and the development of renewable energies to be ensured);

- the multi-year outline investment plan (PIP) in the area of gas;
- approves the development plan for the public electricity transmission grid.
- with the Minister responsible for the Economy, it sets the regulated electricity sales tariffs;
- defines with EDF, in the context of the public utility contract, the conditions for implementing the public utility obligations and the additional commitments entered into by the company.
- draws up the general regulations for the electricity sector and ensures the protection of interests such as the environment and the safety of property and people.

The objectives and the roadmap for France to meet the challenges of global warming are defined in the Environmental Grenelle and are reflected by the production:

- of the Territorial Climate Plan: it provides in particular for the generalisation of low-consumption buildings with a horizon of 2012 and energy-positive buildings with a horizon of 2020, and the reduction in energy consumption in existing buildings by at least 38% by 2020;
- of the Plan for the development of renewable energy with a high environmental quality: launched on 17 November 2008, its objective is to increase to at least 23% the renewable energy share of energy consumption with a horizon of 2020;
- of the Particle Plan aiming to reduce emissions of particles and NOx.
- of Regional Climate, Air and Energy Plans (SRCAE): roll-out of the Environmental Grenelle at regional level.

## The Higher Energy Council

The Higher Energy Council (CSE) is an organisation put in place by the Ministry for Energy with the principal objective of advising it on national energy policy. It is consulted about all the State's regulatory acts relating to this policy and about the decisions relating to the electricity and gas markets.

The CSE is also responsible for evaluating the progression of renewable energy in the final energy consumption in relation to France's commitments entered into in the context of the European Energy and Climate package.

At the request of the Energy Ministry, the Higher Energy Council may issue opinions about other topics. These opinions issued by the CSE are consultative and have no legal value.

The CSE is made up of representatives from various organisations including 5 local authority representatives.

## The Energy Regulation Commission

The Energy Regulation Commission (CRE) is an independent administrative authority, created on the occasion of the opening up of energy markets to competition by the law of 10 February 2000 concerning the modernisation and development of the public electricity utility, now codified in the Energy Code.

The CRE contributes to the smooth operation of the electricity and natural gas markets for the benefit of end consumers and in compliance with the objectives of the energy policy.

Its missions are to regulate the electricity and gas grids and markets. It does this by:

1. Guaranteeing the right of access to the electricity and gas grids. In this context, it:
  - Sets the tariffs for use of the public electricity and gas grids.
  - Is the recipient of contracts concluded between the managers or operators of the grids and the users, and notifications of refusals to conclude contracts or protocols for access to the grids.
  - Settles disputes between the users and managers of the grids concerning access to the grids.
2. Ensuring that the grids are working correctly and are being developed. In this context, it approves the annual investment programmes of the natural gas and electricity transmission grid managers and ensures that the necessary investment for the proper development of the grids is made.
3. Guaranteeing the independence of the grid managers.
4. Contributing to the construction of the European internal electricity and gas market.
5. Monitoring the transactions made on the electricity, natural gas and CO<sub>2</sub> markets.
6. Ensuring that the retail markets are working correctly. In this context, it gives opinions to the ministers responsible for the economy and energy with regard to regulated electricity and gas sales tariffs and with regard to social tariffs for vulnerable people.
7. Helping with the implementation of the means for supporting the production of electricity and the supply of electricity and gas. In this context, it:
  - issues an opinion on the tariff orders setting the purchasing conditions for the energy produced by the installations, recycling household waste and using renewable energy (article L. 314-4 of the Energy Code);
  - proposes to the Energy Minister the conditions at which the sale of controlled access to historic nuclear energy (ARENH) takes place;
  - annually proposes to the Minister responsible for Energy, the amount of the contribution to the public utility charges for electricity (CSPE) and the contribution to the social solidarity tariff (CTSS) (articles L. 212-9 and L. 121-38 of the Energy Code).
8. Informing all consumers.

## **The Environment and Energy Management Agency**

**The Environment and Energy Management Agency (ADEME) is a public establishment of an industrial and commercial nature, created in 1990, placed under the joint oversight of the Ministries for Ecology, Sustainable Development and Energy and for Further Education and Research.**

ADEME is involved in the implementation of public policies in the areas of the environment, energy and sustainable development. The agency makes available to businesses, local authorities, public authorities and the general public:

- its capacities in terms of expertise and advice;
- its assistance in the implementation and the funding of projects and research.

It is also involved in the formation and coordination of observation systems to get a better knowledge how different sectors are developing.

## **2) Local level**

### **The Regions**

In application of the Grenelle II law, the regions are responsible for producing:

- the Regional Climate, Air and Energy Plans (SRCAE): this plan defines the orientations to mitigate and adapt to the effects of climate change at regional level by using the potential of renewable energy, by developing energy efficiency and by preserving air quality. It may incorporate the territorial climate and energy plan.
- the Regional Wind-Power Plan (SRE): this plan allows the establishment of Wind-Power development zones to be organised.

A Regional Plan for Connection to the Renewable Energy Grid has to be produced by the manager of the electricity transmission grid (RTE) in accordance with the SRCAE's orientations and has, as its objective, the facilitation of the development of green, clean, reliable and renewable energy (solar and wind power in particular).

Moreover, the regions have regional energy and environment agencies. In the Rhône-Alpes, RhônAlpénergie - Environnement is an association created in 1978 which advises local authorities and business in the public utilities sector about energy saving, the promotion of renewable energy, environmental protection and the implementation of sustainable development.

### **Départements / Municipalities / Public Establishment for Inter-Municipality Cooperation**

## **1. General functioning**

The Grenelle II law called upon the *départements*, urban communities, agglomeration communities and municipalities and communities of municipalities with more than 50,000 residents:

- to adopt a territorial Climate and Energy Plan by 31 December 2012. Where the local authority has committed to a territorial sustainable development project or local Agenda 21 project, the climate and energy plan constitutes the climate aspect of it;
- to produce a sustainable development report prior to the adoption of their budget.

In the area of energy, the municipalities have the following competences:

- the putting in place of actions to manage the energy demand (MDE). The EPCI's can also intervene in support of these actions;
- mission of overseeing the public utility of energy distribution (electricity, gas and heat) in their territory. This mission of oversight can be delegated to inter-municipality energy syndicates (for example: SYDER, SIGERLY etc.).

## **2. Roll-out in Grand Lyon**

Grand Lyon's current competences with regard to energy are:

- the production of a Climate and Energy Plan with actions limited to its scope of intervention;
- support for action to manage the energy demand and the development of renewable energy (deliberation 2011-2407). This is a competence shared among various stakeholders (EPCI, municipalities and associations such as the Local Energy Agency;
- management of the Bron and Villeurbanne heating network.

The administration of electricity and gas distribution networks for the territory of Grand Lyon is in the hands of SYDER (230 municipalities, including 9 in Grand Lyon), SIGERLY (56 municipalities including 51 in Grand Lyon) and the City of Lyon.

SIGERLY also carries out the administration of heating networks in 10 municipalities of Grand Lyon. The other municipalities manage their heating networks directly.

## **Electricity and gas grid managers**

### ***The transmission grids***

The transmission grids are the large infrastructures which distribute energy over the entire territory (the energy "motorways").

For electricity, the transmission grid manager is RTE for the entire national territory.

For gas, the transmission grid manager is TIGF in the southwest of France and GRTgaz for the rest of the national territory.

### ***The distribution networks***

The distribution networks are the networks which distribute energy among a number of municipalities and, within one municipality, among a number of homes (the energy "A roads"). These networks belong to the local authorities.

The management of the electricity and gas distribution networks is in the hands of appointed managers who are subject to public utility missions.

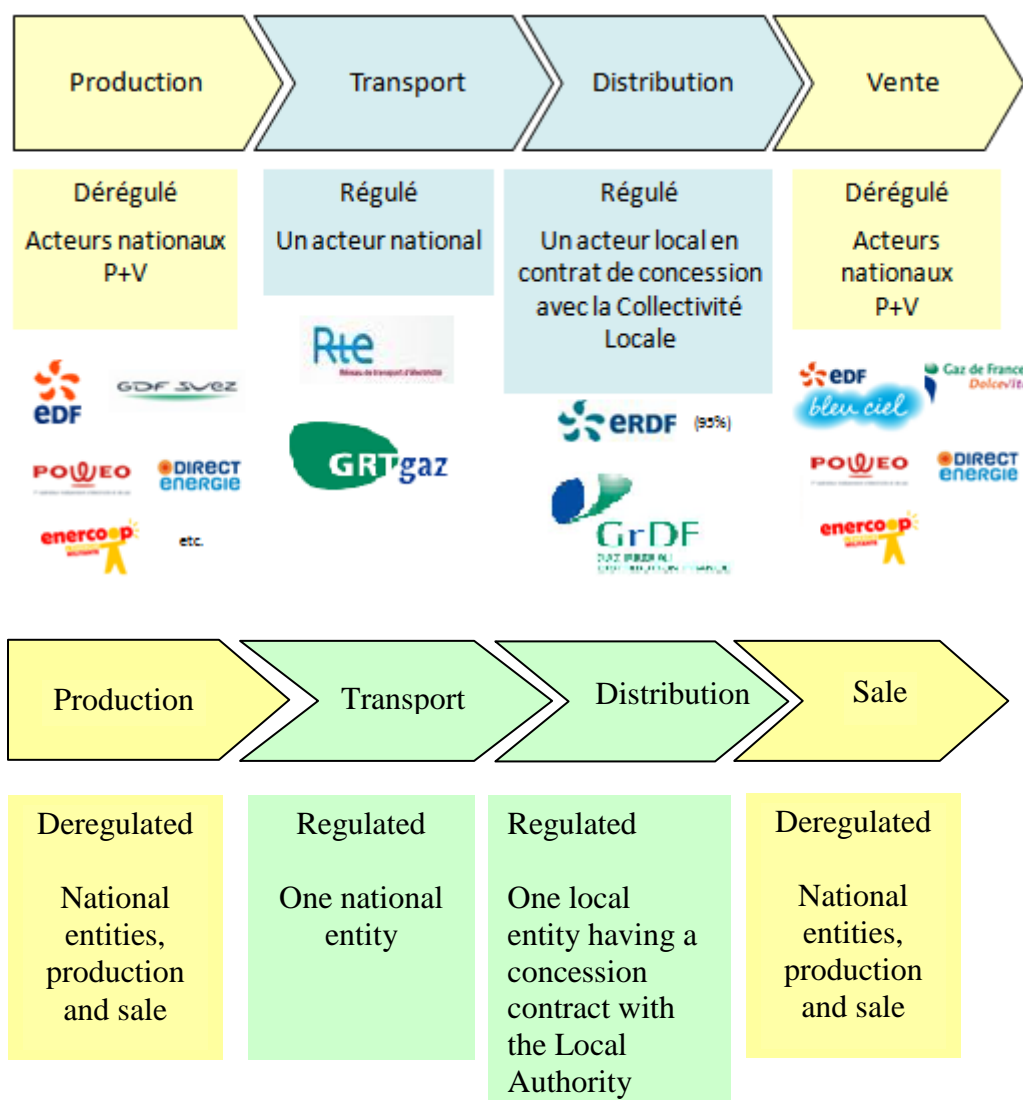
95% of the national electricity distribution is operated by ERDF. The other 5% is run by local distribution businesses (ELD). ERDF is the only distribution network manager in Grand Lyon.

96% of the national gas distribution is operated by GrDF. The other 4% is carried out by 24 ELDs such as the Syndicat professionnel des entreprises gazières non nationalisées (SPEGNN), Régaz and the GDS network.

The missions of the distribution network managers are the provision of the public utility, the safety of the networks, and the quality of the electricity and gas supplied.



## Value chain of electricity and gas



### III - Local governance in the area of energy

All the municipalities in France, generally grouped into inter-municipality or *département* “technical” syndicates (Syder and Sigerly for the territory of Grand Lyon), are owners of the electricity distribution networks (low and medium voltage) and, for those with a supply, the gas networks (low and medium pressure). Nonetheless, the nationalisation law of 1946 required that the management of the gas and electricity networks be entrusted to the operators of the ErDF and GrDF networks, except for around 5% of municipalities. This is done by means of concessions, the specifications for which do not provide any link between electricity or gas distribution and the territorial energy policy. Consequently, the responsibilities relating to the management of the networks lie in practice with ErDF and GrDF, which are public

subsidiaries of two multinationals of which the State is a majority shareholder (EDF) or minority shareholder with a power of veto (GDF Suez).

In addition to its operational responsibilities in particular in terms of urban design, development, roads, waste management and water management, Grand Lyon acquired in late 2011 responsibility for supporting the management of the energy demand and for supporting renewable energy development. Grand Lyon is also in charge of the administration of the Lyon-Bron-Villeurbanne heating network under the terms of a concession contract entered into with an operator for a 25-year period from 2013. The other heating networks present in the territory are either private networks or public networks administered by the municipalities or the energy syndicates.

Upon the creation of the metropolis on 1 January 2015, Grand Lyon will also become the organising authority of the electricity and gas distribution networks, a responsibility which is today in the hands of the municipalities, who have in turn delegated it for the most part to the syndicates.

Since the launch of the climate plan process, we have seen the 3 x 20 challenges being taken into account in the various relevant public policies (water, refuse, transport) implemented in the territory of Grand Lyon.

The challenge over the next few years lies in the field of urban planning (limitation on the urban sprawl, coordination of urban projects / energy production etc.).

A first stage in reinforcing the links between urbanistic policies and the energy industries was the Grand Lyon's creation of a platform of stakeholders in urban planning and energy.

Review of the working group of energy and planning stakeholders

Launched in the context of the response to the call for European Smart Cities projects, the strategic energy planning workshops aim to bring together all the stakeholders in the areas of urban planning and energy.

More precisely, they are intended to allow the following:

- a common culture to be established in relation to energy planning issues,
- the framework to be prepared for the production and the organisation by the partners of a future energy master plan,
- contributions to be made to and participation in the research and development work to be carried out in the context of the European TRANSFORM project, in particular with regard to the construction of an energy diagnosis at demonstration site level (in this case, the Part Dieu district), which can then be produced at the level of the agglomeration.

This group of representatives thus constitutes the hard core of forward-looking reflection on energy at the level of the agglomeration and is a driving force in terms of innovation and strategy at local level.

## **IV - The climate and energy policy of Grand Lyon**

### **1) The major orientations of public policies relating to energy**

A notable aspect of Grand Lyon's climate and energy plan approach is the fact of having prompted or reinforced consideration of energy in each of Grand Lyon's public policies. Henceforth, each major department of Grand Lyon knows that it can play an important role in the achievement of the 3 x 20 objectives even if the public policy which it implements seems a priori very remote from the topic of energy.

#### **Waste strategy:**

Grand Lyon manages waste for 58 municipalities, including the city of Lyon, i.e. 1,300,000 residents and 536,583 tonnes of waste per year.

In the context of its strategic waste management plan for 2007-2017, Grand Lyon set itself a certain number of objectives in terms of energy, in particular:

- a reduction in burying and above all a reduction at source in the production of waste, allowing a possible reduction in CO<sub>2</sub> emissions of 27,500 tonnes equivalent CO<sub>2</sub> per year.
- recycling to supply energy to homes. The thermal and electric recycling by the 2 household waste incineration plants in Grand Lyon allows a saving of the equivalent of 81,373 tonnes of CO<sub>2</sub>, compared with the CO<sub>2</sub> emissions which the use of fossil energy for the homes concerned would have generated.
- the recycling of the biogas from the final waste storage centre at Rillieux la Pape, which provides heating for 172 homes. 220 tonnes equivalent CO<sub>2</sub> are thus avoided compared with recourse to fossil energy sources for the homes concerned.

#### **Water strategy:**

The sewage master plan defines, for the next 15 years, the major orientations of Grand Lyon's policy in terms of sewerage for wastewater and rainwater management.

It sets a coherent framework for investment, operation and management aiming to improve the medium-term and long-term sewerage system, in connection with changes in environmental regulations.

It takes into account the management of wastewater and rainwater, in order to contribute to the health of residents, to conserve aquatic environments and to prevent flooding by the reduction of flows and pollution, and the collection and treatment of wastewater, including rainwater.

Since 2005, numerous efforts have been made in the area of sewerage to respond to the various sustainable development aims, with the priorities being to contribute to the achievement of the objectives of the Climate Plan and to preserve the safety of personnel and the well-being of the population:

- monitoring and reduction of energy consumption: pumping stations, treatment stations and improvement in the yields of existing stations, heat recovery feasibility study, limiting of transport etc.
- reduction and optimisation of waste and purification management: reduction at source of pollutants and volumes getting into the systems.

Of the actions undertaken, the search for energy production potential in connection with the recycling of waste from waste-treatment stations can be cited. Thus, the recovery and

recycling of the heat from the incineration of by-products from the treatment stations at Pierre Bénite and Saint Fons results in a reduction in CO2 emissions of 11,919 tonnes per year for 51,117 tonnes of non-inert waste incinerated.

Moreover, a slurry recycling system for the production of biogas has been put in place in the purification station at La Feysine.

An additional step could be taken with the prospect of studying, in the context of the production of the energy master plan, the potential for heat recovery from the new wastewater mains pipes.

Grand Lyon has also committed to the promotion of energy economy certificates (CEE).

In the context of purification stations being brought into compliance, the decision was made to make energy efficiency (and thus the future operating costs of these plants) one of the criteria for the selection of equipment. Grand Lyon's Water Department has facilitated the award of Energy Economy Certificates by its choice of efficient material for its purification stations (€ 330,000 won over 2010-2012).

### **ICT strategy: to change from a set of individual actions to an all-encompassing strategy structured around 3 main axes.**

The main objectives sought by the digital strategy aim:

- To make digital technology a lever of growth and a vector of innovation for the agglomeration's economic development;
- To build a united metropolis on a human scale: to support changes in society due to digital technology by promoting the emergence and appropriation by all of new urban services and new practices;
- To make the environment a driver of development: to ensure the roll-out of the right telecommunications infrastructures for economic development and ones which take on board the environmental challenges.

Roll-out of fibre-optics, superfast communication

Conscious of the challenge of superfast communication in particular in terms of competitiveness and jobs, Grand Lyon has sketched out the major lines of the roll-out of fibre-optics.

To "fibre-optic" the 58 municipalities of the Urban Community of Lyon by 2019 at the latest, it has taken measures to facilitate private roll-outs and in addition will support a public initiative network. Grand Lyon intends to provide all its residents with equitable digital access by offering superfast services at optimum conditions in terms of diversity and tariffs. The fibre-optic roll-out will allow new services and uses, both professional and private, to emerge: e-health, e-education, e-commerce, online video games, TV services, e-culture etc.

On 8 October 2012, Grand Lyon voted in the superfast digital development strategy for its territory, which has two complementary parts:

- A raft of measures to support and monitor private roll-outs;
- A public initiative network concerned first of all with serving business areas, business buildings and public buildings, but which could be extended, if an actual need is felt, to less dense residential areas.

The first agreements with private operators to cover the entire territory with superfast access: Grand Lyon has wished to establish a close cooperation with the private operators present or committed to superfast network roll-out. This cooperation manifests itself in bipartite agreements with each of the operators: Numericable, Orange and SFR.

These agreements organise the methods for the in-depth monitoring of the roll-outs undertaken and then completed by the operators and specify the measures taken by Grand Lyon to support and facilitate the operators' roll-outs.

They relate to the entire territory of Grand Lyon. These agreements are offered for a duration which is compatible with the final deadline, set by Grand Lyon as the end of 2019, to ensure the service is provided throughout its territory.

## **Strategy for buildings**

The building sector accounts for around 17% of greenhouse gas emissions in the territory (not including emissions associated with the urban heating network).

The orientations decided on to achieve the 3 x 20 objectives are threefold:

- the urban densification and the prioritisation of urban renewal in rebuilding the city as it stands,
- the massive renovation of 16,000 homes per year (12,000 private and 4,000 social housing) with high energy performance levels (known as BBC renovation),
- the medium-term and long-term need to incorporate the best technologies in terms of heating, to use renewable energy and to develop heating networks for the majority,
- support in achieving neutrality for all stakeholders (occupants of offices and homes).

These extremely ambitious objectives will need to go hand-in-hand with a massive effort by the construction sector, in terms of the training and recruitment of labour. A doubling in turnover of the sustainable building sector is anticipated.

Moreover, the partners in the climate plan are currently considering the establishment of a "one-stop shop" which would help to simplify the process of rehabilitation work undertaken by households.

This would involve entrusting a single organisation with the job of carrying out financial simulations (forecast cost of works and expected subsidies), receiving the various subsidies and passing them on to the household.

In the longer term, a complete engineering service could be deployed, which would include in addition to financial engineering, design and site monitoring skills.

## **Mobility / transport strategy**

Grand Lyon's mobility / transport strategy is described in the urban transport plan, a reference document on this subject.

Insofar as mobility is a major component of greenhouse gas emissions, the stakeholders of the climate plan and transport collaborated closely in the production of an action plan aiming to respond to the climate and energy challenges of the agglomeration of Lyon.

The reference scenario selected in the context of the climate and energy plan with regard to personal mobility requires action on all fronts: sustainable modes, public transport, car-sharing, regulation of the place of the car in the city, urban densification.

The expected changes in modal shares are as follows:

- a very strong increase in bicycle use,
- an increase in walking, including in outlying areas,
- a major increase in use of public transport, in particular in outlying areas.

In terms of direct and indirect emissions of greenhouse gases, there is a big drop allowing the following objectives to be achieved: at 580k t CO<sub>2</sub>, the drop from the 2000 emissions is more than 21%.

This scenario does not include electric car usage which would allow a further saving in the order of 3 to 4%.

With regard to goods transport, the implementation of organisational changes (transport of goods on behalf of others) is on the increase. Being more efficient, this allows worthwhile energy savings: the increase in the number of deliveries per trip and the use of more suitable vehicles allows a drop of 5% in tonnes km per resident.

The scenario also predicts a greater modal shift towards rail and river transport (with the modal shares in tonnes km for rail and river transport reaching 2% in 2020).

### **The smart sustainable city process**

Grand Lyon has embarked on the structuring of a “smart city” strategy in order to address the challenges facing urban areas (problems of congestion, deterioration in air quality, increasing scarcity of natural resources, in particular fossil fuels) and to make innovation one of the drivers of sustainable urban development.

The Grand Lyon project combines economic dynamism and sustainable development: it involves finding new technological, urban, social and environmental solutions to improve the quality of life in the city and, in doing so, creating new jobs. The solutions developed are to allow the following:

- saving of resources whether by optimising their use, by discovering new industrial processes or moreover by integrating new energy sources (solar, wind etc.),
- a reduction in each individual’s energy costs,
- an improvement in the air quality in the agglomeration.

The issue of well-being and quality of life lies at the heart of consideration, by means of the development of new services, in particular those for people for whom use of the city is less easy (the elderly or the disabled).

The smart city process of the metropolis of Lyon is based on 4 foundations:

- a global approach: energy, mobility, new services, economic development, environment, urban development,
- residents placed at the heart of the strategy with concrete projects and direct benefits put in place,
- a collaborative project involving the various stakeholders in the area: businesses, citizens, academic and industrial partners,
- trials at various territorial levels through to entire districts.

LES EXPÉRIMENTATIONS S'ORGANISENT AUTOUR DE 4 GRANDES THÉMATIQUES



QUI SE DÉCLINENT EN PLUSIEURS DIZAINES D'EXPÉRIMENTATIONS ET NOTAMMENT : (CI-CONTRE)



Des objectifs thématiques

	Nouvelles mobilités	Services numériques	Energie / Smart grids	Conditions de l'innovation
	<b>Devenir la ville référente dans les nouvelles mobilités</b>	<b>Faciliter la ville et la vie en développant de nouveaux services</b>	<b>Faire du Grand Lyon un acteur majeur de l'intelligence énergétique</b>	<b>Renforcer la capacité d'innovation des acteurs du territoire</b>
	Proposer une offre complète de mobilité responsable	Développer les plateformes support aux services de demain	Déployer le réseau électrique de demain, collectant et distribuant une production ENR décentralisée et intermittente	Accompagner l'implantation de structures dédiées à l'innovation
	Proposer aux acteurs économiques des solutions d'optimisation de la logistique urbaine	Développer de nouveaux services aux publics	Responsabiliser et conseiller l'utilisateur pour réduire sa consommation	Offrir aux entreprises un dispositif d'innovation partenariale de très haut niveau
	Structurer la ville autour de hubs de mobilité intelligente	Inciter la créativité citoyenne	Penser les nouveaux modèles économiques sur l'énergie	Fédérer un écosystème complet autour de l'innovation (universités, laboratoires, privés)
		Optimiser le pilotage de la ville		Favoriser le déploiement d'infrastructures permettant l'innovation

Les projets en cours

	Nouvelles mobilités	Services numériques	Energie / Smart grids	Conditions de l'innovation
	OptimodLyon	Services sans contact (NFC)	Lyon Smart Community (NEDO)	Smart Data
	Move In Pure	Services publics dématérialisés	Greenlys	Lyon Urban Data
	Co-voiturage dynamique	Capteurs innovants	Smart Electric Lyon	Cellule Expérimentation
	GéoVélo	Mobilier urbain intelligent	Watt & Moi	Déploiement fibre optique (THD)
	E-Partage	Monitoring urbain	TRANSFORM	Plateformes technologiques, IEED, IRT, Labex IMU ...
	...	...	Linky	...

	New mobility options	Digital services	Energy / smart grids	Innovation conditions
	To become the reference city for new mobility options	To help the city and life by developing new services	To make Lyon a leader in terms of smart energy	To reinforce the innovative capacity in the territory
	To offer a complete range of responsible mobility options	To develop platforms which will support the services of tomorrow	To roll out the electricity grid and network of tomorrow, collecting and distributing a decentralised and intermittent renewable energy production	To support the establishment of organisations dedicated to innovation
<b>EXPERIMENTATION IS ORGANISED AROUND FOUR MAIN TOPICS</b>	To offer economic stakeholders optimisation solutions for urban logistics	To develop new services to the public		To offer businesses an extremely high-quality partnership innovation system
Thematic objectives	To structure the city around smart mobility hubs	To encourage creativity in its population	To advise the individual and make him / her accountable for reducing energy usage	To establish a complete eco-system around innovation (universities, laboratories, private entities)
		To optimise management of the city	To think about new economic models for energy	To promote the roll-out of infrastructures allowing innovation

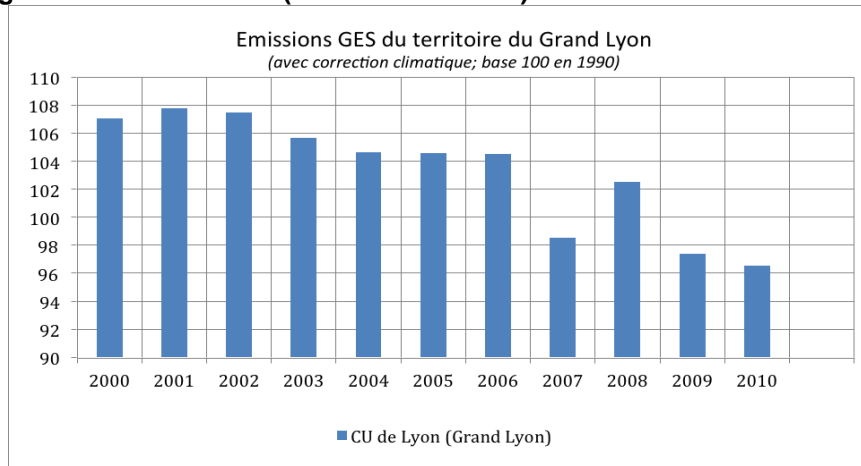
	New mobility options	Digital services	Energy / smart grids	Innovation conditions
	Optimod'Lyon	Contactless services (NFC)	Lyon Smart Community (NEDO)	Smart data
	Move in Pure	Public services dematerialised	Greenlys	Lyon urban data
<b>WHICH ARE SUBDIVIDED INTO DOZENS OF EXPERIMENTS, FOR EXAMPLE: (SEE OPPOSITE)</b>	Dynamic car-sharing	Innovative sensors	Smart Electric Lyon	Experimentation cell
Projects under way	Géo-vélo (cycling)	Smart urban furniture	Watt & Moi	Fibre-optic roll-out (THD)
	e-sharing	Urban monitoring	TRANSFORM	Technological platforms, IEED, IRT, Labex IMU
			Linky	



## 2) Review of the energy hotspots in the territory

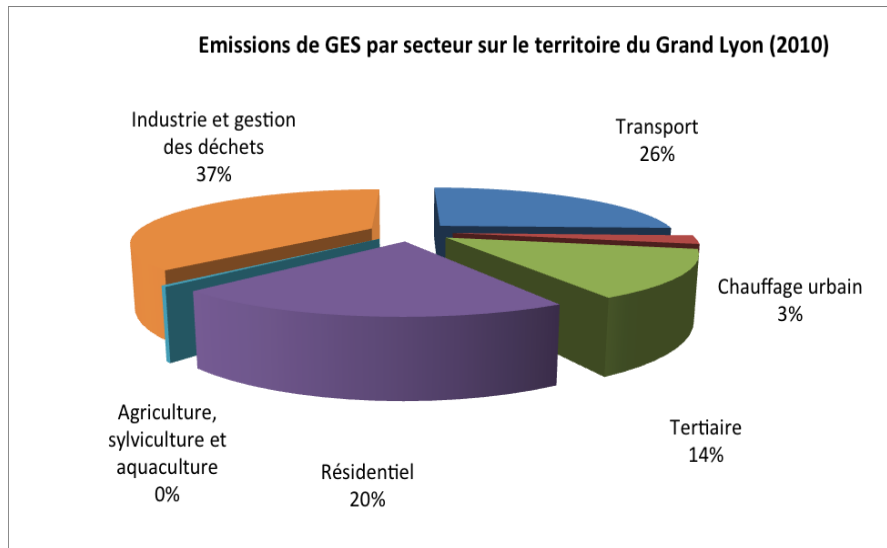
These results are from the model of the Regional Observatory of Greenhouse Gas Emissions (OREGES). They cover the entire regional territory and are consolidated at various infra-regional levels, including that of the territory of Grand Lyon.

- **Changes in CO2 emissions (climate correction)**



Greenhouse gas emissions in the territory of Grand Lyon  
(with climate correction; base of 100 in 1990)  
Urban Community of Lyon ...

- **Spread of CO2 emissions by sector of activity**



- **Greenhouse gas emissions by sector in the territory of Grand Lyon (2010)**

Industry and waste management 37%

Transport 26%

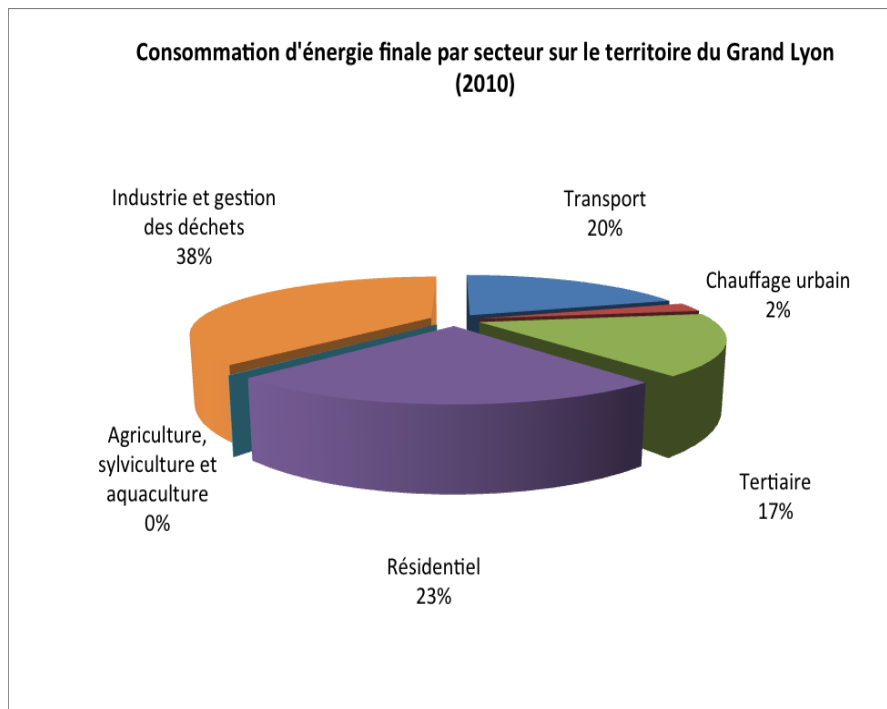
Agriculture, forestry and aquaculture 0%

Urban heating 3%

Residential 20%

Tertiary 14%

- Spread of energy consumption by sector of activity



- Final energy consumption by sector in the territory of Grand Lyon (2010)

Industry and waste management 38%

Transport 20%

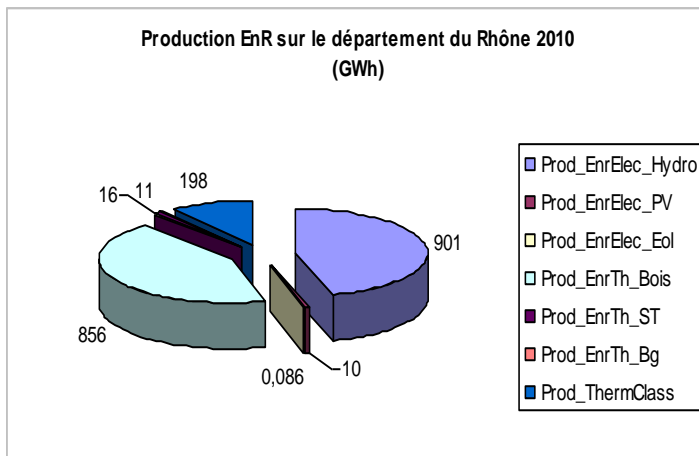
Agriculture, forestry and aquaculture 0%

Urban heating 2%

Residential 23%

Tertiary 17%

- Production of renewable energy in the *département* of the Rhône
- Renewable energy production in the *département* of the Rhône, 2010



Hydro-electric energy production  
 Prod.& Sale of electric renewable energy production  
 Wind-power electric renewable energy production  
 Wood thermal renewable energy production  
**ST** thermal renewable energy production  
**Bg** thermal renewable energy production  
**Class.** thermal production

### 3) The current objectives of Grand Lyon's climate and energy plan (PCET)

#### What is a Climate and Energy Plan?

The Territorial Climate and Energy Plan (PCET) is a territorial sustainable development project, the main purpose of which is to combat climate change. Instituted by the National Climate Plan and subsequently enshrined in the Grenelle I and Grenelle II laws, it is a framework of commitment for the territory.

Grand Lyon's PCET is based on a partnership approach involving, in 2013, 74 public and private partners (businesses, public establishments, research institutes etc.).

Grand Lyon's PCET has two objectives in its sights:

- Mitigation of / reduction in Greenhouse Gas emissions. The aim is to restrict the territory's impact on the climate by reducing greenhouse gas emissions;
- Adaptation to climate change. The aim is to reduce the territory's vulnerability to the impact of climate change which cannot be entirely avoided.

A PCET is characterised by target figures for the reduction of greenhouse gas emissions and by the definition of an adaptation strategy for the territory.

The implementation stages

Grand Lyon has asserted its commitment with regard to Energy and Climate since 2005, via its Agenda 21.

In 2007, Grand Lyon initiated the implementation of a Climate and Energy Plan in its territory. Today, the urban community is recognised at national level for its partnership approach in drawing up its Climate and Energy Plan.

The plan was produced in three stages and has already given rise to 2 Climate and Energy Conferences bringing together all the partners.

- **17/05/2005 :** Publication of Grand Lyon's first **Agenda 21** (2005-2007). The fight against the greenhouse effect is one of the 5 orientations and focuses on

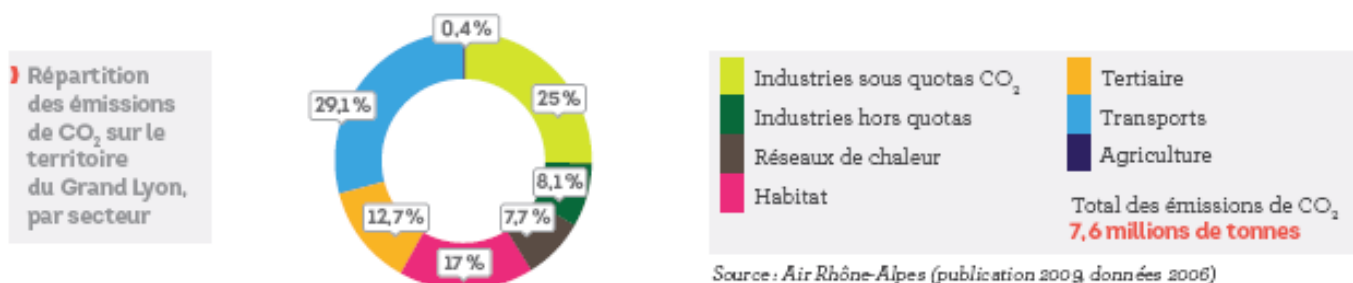
the areas of sustainable mobility, energy management and sustainable development. Action 39 puts in place a Climate and Energy Plan.

- **28/11/2007 :** Grand Lyon's deliberation, recognising the **European 3 x 20 objectives** by 2020 and factor 4 with a horizon of 2050.
- **2009 :** 1<sup>st</sup> stage of the Climate and Energy Plan - **Diagnosis**: publication of an initial study of greenhouse gas emissions, of energy consumption in the territory by sector of activity and of the main challenges associated with adaptation to climate change.
- **06/05/2010 :** 1<sup>st</sup> Energy and Climate conference: putting in place the partnership process.
- **2010/2011** 2nd stage of the Climate and Energy Plan - **Vision 2020**: in conjunction with close to 200 partners in the territory, production of scenarios allowing a 20% reduction in greenhouse emissions to be achieved by the horizon of 2020.
- **28/11/2011 :** 3<sup>rd</sup> stage of the Climate and Energy Plan - **The Partnership Action Plan**: signed by 60 partners, on the occasion of the 2<sup>nd</sup> Energy and Climate Conference.
- **2012** 1 framework deliberation and 9 deliberations on the implementation of the sections of the Climate and Energy Plan (habitat, goods transport, Chemistry Valley etc.).
- **2013** The partners of the Climate and Energy Plan met at the 3<sup>rd</sup> Energy and Climate Conference to share an initial progress report on the actions undertaken (28 October).

### The quantified objectives

The territory's greenhouse gas emissions were evaluated by Air Rhône-Alpes at 7.6 million tonnes of CO<sub>2</sub> / year in 2000. This is the reference point from which Grand Lyon and 60 partners in the territory have committed to a 20% reduction, which corresponds to **1.5 million tonnes CO<sub>2</sub> / year**. The 26 actions identified in the 5 sections of the partners' Action Plan should allow these objectives to be achieved by 2020.

In the diagnosis carried out in 2009, the "emissions survey" of Grand Lyon's territory indicates that the CO<sub>2</sub> emissions come principally from industry (including energy production and waste management), transport, and the residential and tertiary sectors.



Moreover, the diagnosis also showed that Grand Lyon could only act directly on 5% of CO<sub>2</sub> emissions in the territory via its public utilities and could influence 20% of emissions via its

local policies (residential, transport, urban planning, environment). This shows the real value of the partnership action.



Source : Bilan Carbone du Grand Lyon (2009) et cadastre des émissions de CO<sub>2</sub> (Air Rhône-Alpes, publication 2009)

Spread of CO2 emissions in the territory of Grand Lyon by sector		Industries without CO2 quotas Industries without quotas Heating networks Habitat	Tertiary Transport Agriculture Total CO2 emissions 7.6 million tonnes
		Source: Air Rhône-Alpes (published in 2009, 2006 data)	
Grand Lyon's influence on CO2 emissions in the agglomeration	Heritage carbon balance and services of Grand Lyon Public order Buildings Waste management Water utility Employee travel	Emissions under the influence of current community public policies New homes in urban development zones Social housing Public transport Urban heating Urban development	All other emissions Businesses: industrial installations, goods transport etc. Municipalities Residents: private homes, transport, consumption
Source: Bilan Carbone du Grand Lyon (2009) and Cadastre des émissions de CO2 (Air Rhône-Alpes, published in 2009)			

Since the start of 2012, the Climate and Energy Plan has been in its operational phase and a number of actions are starting to bear fruit. Thus, from a quantitative viewpoint, the actions of the Climate and Energy Plan undertaken to date have allowed a **CO2 reduction evaluated at 100,000 tonnes CO2 / year**.

These reductions represent a 1% to 2% drop in emissions in the territory. These figures will be refined by the quality processes of the Climate and Energy Plan. Thus, the Cit'ergie® (2013-2014) certification process will allow more in-depth monitoring of the actions and the putting in place of indicators.

Moreover, initial information from the survey inventory of greenhouse gas emissions in the territory shows that, during the period 2000-2010, greenhouse gas emissions in the territory fell by 10%.

## **V - Towards an energy strategy and a future master plan for energy**

To put in place an energy strategy for the entire territory, Grand Lyon plans to draw up an energy master plan.

The purpose of this tool is to provide a **forward-looking vision of the energy planning to be put in place in the territory of Grand Lyon to clarify the consequences of public policies in terms of energy and to guide and enrich the establishment of a local energy policy.**

In this context, it offers an optimum vision of the **organisation and development of the energy system (production, grids and networks, consumption) in the territory, in response to the challenges of sustainable development and the smart city** and which takes into account:

- the current situation in the territory;
- the challenges of energy transition;
- the territory's resources, assets and constraints;
- the public policies of the territory and the projects arising from them (development, transport, habitat, waste etc.).

### **An energy master plan to prepare Grand Lyon for new responsibilities with regard to energy and to build an energy policy at territory level:**

The energy master plan provides a basis from which an energy policy can be established.

The territorialisation of energy resulting from the energy master plan (SDE) allows **orientations to be given** to territorialise energy transition and to put in place a local energy policy built on the following levers:

1. the implementation of measures aiming to reduce consumption in coordination and coherence with the sustainable development strategy, the PCET (renovation, replacing fuel oil with gas or wood etc.), the smart city strategy and the regional energy policy;
2. the rational development of energy networks (heat / cold, gas and electric);
3. the development of renewable energies;
4. guaranteeing social and territorial cohesion by ensuring access for all to energy.

### **An energy master plan to integrate energy in the setting of objectives for public policies and in the design of projects arising from them:**

Public policies and local development do not systematically take optimum account of energy in their implementation. Yet, they have a direct influence on the development and design of energy distribution networks (gas, electricity and heating), in the development of renewable energy projects and in energy consumption.

Moreover, the structuring of all energy networks plays a driving role in energy management and the development of renewable energy.

The SDE is an energy planning tool which aims to clarify the taking into account of energy issues in the orientation of public policies (transport, housing, environment etc.), urban services and their operational implementation.

The objective is:

- for projects at study stage: to integrate energy sufficiently upstream in the design of projects so as to optimise the use of the energy networks, to promote the development of renewable energy sources, and to reduce consumption.
- for future projects and policies: to incorporate the vision of energy organisation given by the SDE when establishing urbanistic policies and when deciding on the territory's local development, for example: development of a heating network close to a mixed development zone, knowing the impact of public transport or of the electric vehicle on the energy network, identification of zones in the local urban development plan (PLU) for renewable energy projects etc.).