The City of Besançon's energy and climate orientations and strategy

Background

The City of Besançon, confronted with local and global energy and the more recent climate challenges, and being aware of the part it could play in tackling them, decided to redefine its policy, mobilising its forces to reduce its energy dependency, develop renewable energy, reduce greenhouse gas emissions and anticipate climate change by developing an adaptation strategy.

The signing of the Covenant of Mayors in 2009 is a practical example of this commitment, shared with over 3,000 local authorities in Europe. The City of Besançon thus committed to reaching the 3x20 objectives by 2020, that is: reducing its energy use and greenhouse gas emissions by 20% compared to 2005, and developing renewable energy production so as to reach 23% of its energy requirements.

As a follow-up to Agenda 21 and the first Cit'ergie certification, a Territorial Energy and Climate Plan (TECP) was prepared jointly with Greater Besançon. The programme of actions is in line with the "energy and climate" section of Agenda 21 and with the Cit'ergie and eea Gold label programme of actions, the eea label being used as a tool for continuously assessing the authority's energy and climate policy.

This energy excellence and success are measured by the Cit'ergie and eea Gold labels, which validate the results and give the level achieved by the municipality.

The programme of actions enables the city to continue the path it set itself a few years ago, whilst measuring progress made; it defines the 2020 strategy as well as the measures to be implemented from 2011-2015 to reach these objectives.

The programme is being prepared at a time of increasing energy prices. This situation makes improving energy efficiency and reducing external energy dependency all the more vital, especially as geopolitical risks are also increasing.

The City of Besançon is fully aware of the consequences of climate change and increasingly scarce raw material and energy resources. The action plan is intended to help the municipality limit theses risks by taking measures in a number of areas: housing, mobility, municipal buildings, education and fuel poverty, in close connection with Greater Besançon Metropolitan Council.

Its expertise in the energy and urban development fields, its exemplary action in municipal buildings and its close relations with territorial stakeholders (citizens, businesses and community organisations) place the City of Besançon on the right track to becoming a more sustainable city.

A new economy is developing around these issues (building trade, transport operators, engineering, etc.).

All sectors of activity are concerned and social and environmental side benefits are expected.

The City Council and Greater Besançon Metropolitan Council are engaged in a number of major projects:

- Housing development programme,
- Increased interventions on municipal buildings,
- Territorial development strategy via the Local Energy and Climate Agency project,
- Consistency of the actions carried out as part of other spatial organisation policies: PLH (local housing plan) and PDU (local travel plan) first of all, and then SCoT (territorial integrated development plan) and PLU (local urban development plan).

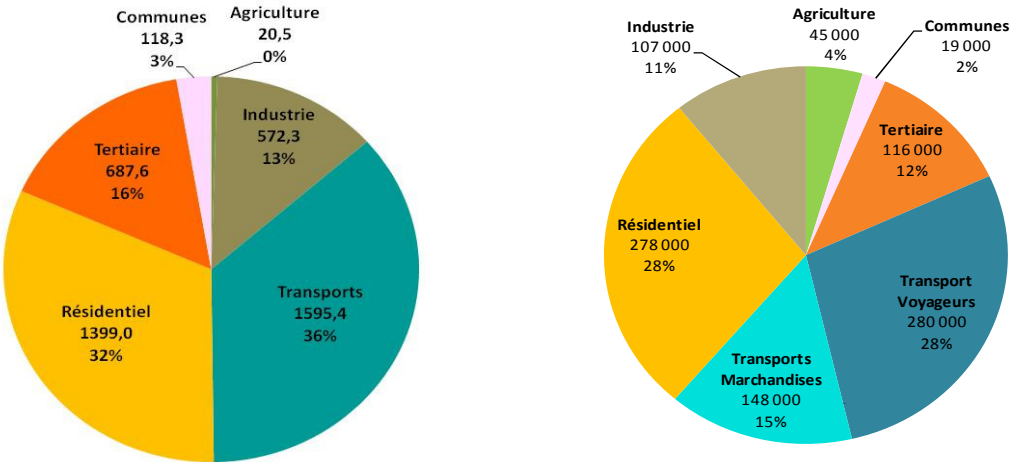
On grounds of efficiency and consistency at territorial level, the TECP, the objectives and the programme of actions are jointly prepared, defined and co-ordinated by both local authorities.

Territorial data and objectives

The Greater Besançon territory uses 4,400 GWh and generates 1,000,000 tonnes of CO_2 equivalent annually. The most energy intensive and greenhouse gas emitting sectors are transport and housing.

The City of Besançon is only one of the 59 communes of the metropolitan area but it accounts for 61% of its energy use, hence its predominant role and weight in metropolitan affairs.

Greater Besançon
Annual energy use break-down in GWh (left)
and GHG emissions (right) per sector in tonnes of CO_2 equivalent
(Sources: ATMO and Energies Demain 2010)



Greater Besançon's targets for 2020

- Reduce energy use by 900 GWh/year,
- Reduce emissions by 200,000 t CO2 eq./year,
- Increase renewable energy production by 500 GWh/year.

The City of Besançon's current situation

Energy use

In 2005, 2,700 GWh of energy were used in the city of Besançon's territory, including 44% in the housing sector and 28% in transport. This means that 71% of the energy used in the territory is linked to sectors in which the local authority has planning competencies. 26% is the result of tertiary, industrial and agricultural activities.

The remaining 3% concern the energy used in municipal buildings.

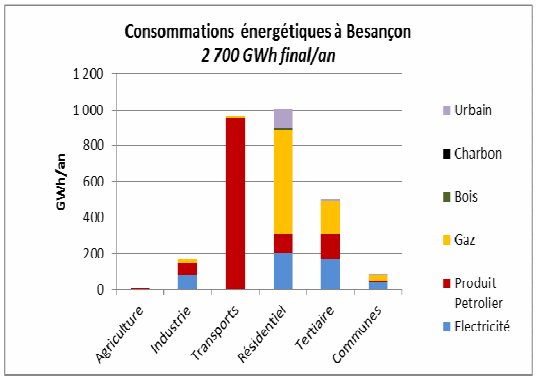
Greenhouse gas emissions

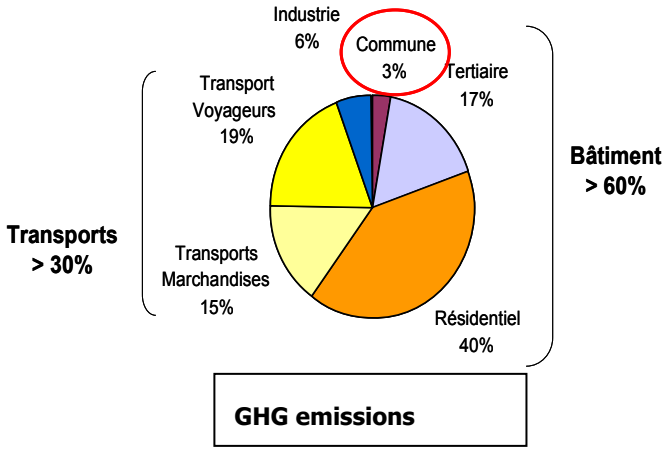
In 2005, 550 kt CO_2 eq./year were emitted in the city of Besançon's territory. The sector breakdown is roughly the same, with over 95% of greenhouse gas emissions generated by energy use.

The transport sector, however, is responsible for a larger share (34%) as this sector mainly uses oil-products that have a higher carbon content than other energy sources (like the gas and electricity used in the housing sector).

Renewable energy

In 2007, the production of renewable energy was estimated at 185 GWh/year, that is, 6.8% of the energy used in 2005. Most of this production comes from renewable and unavoidable sources developed by the Planoise district heating system.





The City of Besançon's targets for 2020

- Reduce energy use by 500 GWh/year by 2020 (- 200 GWh/year by 2015)
- Reduce emissions by 100,000 t CO_2 eq./year by 2020 (- 40,000 t CO_2 eq./year by 2015)
- Multiply the local production of renewable energy by 3 by 2020 (x2 by 2015)

The City Council's main work streams

The aim is to ensure action continuity and to consolidate the efforts already undertaken in municipal buildings. The energy and climate plan must also help set objectives in terms of water and energy utilities.

The energy and climate plan, however, must not be limited to the local authority's competences. The City Council also has the role of co-ordinator to ensure consistency of all commitments made at territorial level and to make sure that all territorial stakeholders are engaged in this virtuous dynamic movement.

The City of Besançon's programme of actions concerns areas where the municipality can have an influence like spatial planning and municipal buildings, as well as the mobilisation and co-ordination of territorial stakeholders.

Fighting fuel poverty

This phenomenon is gaining momentum in the territory due to increasing energy prices. It is therefore, necessary to link this social problem with environmental issues and to develop a specific action aimed at the most concerned households.

The City Council pursues its action in this field by:

- **Implementing a wide-ranging fuel poverty scheme aimed at identifying and supporting households experiencing fuel poverty.**

Treating fuel poverty situations means identifying said situations and developing support measures. The City of Besançon will continue reinforcing its action with households experiencing

fuel poverty by identifying cases, instigating "emergency" solutions and awareness raising actions as well as referring said households to financial schemes.

▶ Promoting a different mobility

- **Improving public transport's relevance by acting on parking provisions in the town centre**

Parking management is the key to controlling car traffic; reinforced constraints on private cars combined with the development of alternative solutions, like the tramway, can help local authorities accelerate modal shifts from private cars to other modes of transport.

- **Continuing to develop cycling in the city and metropolitan area**

Developing cycling is a powerful lever for reducing car use and improving quality of life as well as perception of the territory. The objective is to **continue the policies implemented in the city area**.

- **Developing car-sharing and electrical vehicles within the city**

All citizens must be encouraged to develop a more rational and mutual use of cars in the years to come. The development of car-sharing can help in this by making the possession of more than one car less necessary, thus contributing to a reduction in car ownership levels. The tramway should have a major impact on journeys made within the Besançon territory and contribute to reducing car use.

- **Reducing the impact of goods transport in the city centre**

The city is in a position to limit the impacts and nuisances of the last few kilometres of goods transport.

▶ Setting an example with municipal buildings

The City of Besançon's municipal buildings account for 3% of the territory's energy use, that is, ca. **88,000 MWh/year** in 2005. They generate **14,000 tCO_2 eq./year** in terms of greenhouse gas emissions. The city council reinforced its energy use management actions in 2006 and the results are already visible. Municipal buildings used **57,840 MWh/year** in 2010, that is, a ca. 7.5% drop compared to 2005 despite a continuous increase in the number of municipal buildings. This **roughly 1,000 MWh/year reduction** concerns the energy used for heating purposes.

The annual energy operating budget dedicated to municipal buildings reached €4,600,000 in 2006; it is steadily increasing due to the increase in the number of buildings managed by the local authority and to soaring energy prices. Energy efficiency improvements are more than offset by these two factors.

This environmental and energy situation combined with the economic need to reduce operating expenses justifies the implementation of an ambitious action to reduce energy expenditure, especially as regards buildings which account for 65% of the bill.

The City of Besançon has defined five strategic orientations for its municipal buildings:

Financing energy-saving measures in buildings and developing renewable energy

The City of Besançon has decided to commit funds to building refurbishment works and to developing renewable energy.

This set of works has been defined so that the most profitable investments finance the least profitable ones, thus leading to an **overall payback period of 15 years based on expected energy savings**. The investments are covered by a loan and the **annual instalments are repaid from the money saved on the energy bill.**

Optimising the use of public space and facilities via an awareness-raising campaign aimed at users

Since 2005, many awareness-raising and building space optimisation actions have been carried out in municipal buildings. These actions generated significant energy savings that have to be continued by applying three measures:

- Reinforcing awareness-raising actions amongst all municipal administration directorates by relying on good practice examples: DISPLAY campaign, regular information and training courses, profit-sharing schemes, etc.
- Disseminating these good practices to all municipal buildings which are not directly managed by the local authority.
- Implementing a specific electricity demand-side management plan for buildings.

Optimising building operating conditions

The objective is to continue the positive momentum previously initiated by:

- Updating energy use management and monitoring tools;
- Improving Centralised Building Management systems to allow for a more accurate management of building operations;
- Continuing municipal staff training in energy and climate issues;
- Continuing to renovate energy systems.

Optimising municipal staff journeys by car

The implementation of an Administration Mobility Plan (Plan de Déplacement Administration - **PDA**) helps rationalise transport-related energy use by municipal staff. This plan serves a dual purpose as it:

- Optimises all municipal staff journeys, whether for commuting or business purposes: partly paid public transport pass (50%), Vélocité programme (free bike rental service), etc.;
- Optimises the municipal captive vehicle fleet to reduce fuel consumption by developing "eco-driving", creating a **"rational driving scheme"** and improving the fleet.

Improving street lighting management

In 2006, the local authority set the objective of reducing energy use from 26.3 MWh/km/year to 15 MWh/km/year. In 2010, the City Council subscribed a 1 million euro loan to accelerate the

process, the loan being repaid from savings on operating costs. This upgrading programme is to continue in 2011 and 2012 with a €500,000 annual investment. Other financing possibilities are also being examined.

Summary of the measures taken in municipal buildings:

These measures aim to reach the following objectives by 2014, considering a 2005 baseline:

- A total energy use reduction of **15.5%;**
- A total related emission reduction of **25%**;
- A renewable integration rate of 28% for heat, 16% for electricity and **22%** on average.

Maintaining these efforts till 2020 would enable the municipality to:

- Reduce energy use in buildings by **25% compared to 2005**,
- Reduce the local authority's energy use by **27% compared to 2005**,
- Reduce related emissions by **39% compared to 2005**,
- Achieve a RES integration rate of 37% for heat, 20% for electricity and **30% in total**.

This momentum is essentially based on already implemented actions and is in line with, and even exceeds the 3x20 objectives.

Water and sewerage

Water management involves using energy and represents a significant cost in operating budgets. Controlling treatment processes and networks is therefore a subject for action.

- Concerning the drinking water system, the objective is to develop a two-tier action aimed at:
  - Improving distribution efficiency –currently 82%- so as to use less energy for distributing the same volume of water;
  - Reducing water consumption through awareness-raising campaigns.
- Concerning the sewerage system, the objective is to implement the Master Plan prepared in 2008 and 2010, including multiple actions involving methods aimed at reducing energy use and greenhouse gas emissions. An awareness-raising action will also be conducted at the same time as the plan is being instigated.

Mobilising territorial stakeholders

Programme implementation will lead to the effective mobilisation of all economic players, local authorities and citizens.

- **Co-operation and communication within and outside the territory**

The ambitions set by the Energy and Climate Plan must be shared and supported by all, but above all by the inhabitants. Communication and dissemination tools aimed at raising awareness of energy and climate issues and of the actions implemented by the local authority are, therefore, indispensable. The strategy consists of adapting communication and awareness-raising actions to different target groups like:

- School children, by reinforcing existing environmental educational actions;
- Households, by using the "Families take action for the climate" flagship scheme to identify energy and climate "ambassadors" who could then spread the message to other families.

Energy and climate actions also need to be continuously watched and the City Council is already engaged in a number of networks that need to be kept and maintained so as to be able to benefit from new co-operation forums.

Creating a Local Energy and Climate Agency in the Greater Besançon metropolitan area

In addition to setting an example in their buildings and in areas within their remit, the Greater Besançon Metropolitan Council and Besançon City Council also have to act as co-ordinator amongst territorial stakeholders so as to indirectly influence significant energy use and emission levels that they do not control in order to reach the 3x20.

The creation of a Local Energy and Climate Agency fulfil this mobilisation and co-ordination need within the territory. The LECA has a three-fold motto: federate, mobilise and co-ordinate.

Considering the establishment of a semi-public company

The idea is to have an operation tool for promoting RES takeoff, mutualising works in co-ownership properties, etc.

Spreading the use of a total cost approach within the municipal administration

Investment selection procedures tend to privilege initial investment amounts without considering operating (energy and water expenses, labour costs), maintenance and end of useful life costs. The total cost approach calculated over the whole equipment service life is necessary both in the local authority's interest and in the general interest.

Monitoring and evaluating energy and climate actions

Actions are monitored and evaluated at two levels:

- At territorial level, to check the path followed by the authority on a number of indicators taken from the 3x20;
- At political level, through the Cit'ergie process, which will serve as a basis for regularly assessing the energy and climate policy, in particular when it comes under review in 2014-2015.