The Energy Transition Chronicles

BRUSSELS-CAPITAL (BELGIUM), AN URBAN LABORATORY OF ENERGY EFFICIENT BUILDINGS

This document is an extract from the publication entitled **"The Energy Transition Chronicles"** prepared by Energy Cities with the support of the Franche-Comté Regional Council and of ADEME (French Environment and Energy Management Agency). You can get the full-text version (with the stories of Schönau, Växjö, Burgenland, Brussels-Capital and Heidelberg) via Energy Cities' website www.energy-cities.eu - Resources > Publications.

The Energy Transition Chronicles

Energy Cities provides local authorities with support for implementing their own energy transition process. The *Proposals for the energy transition of cities and towns* (www.energy-cities.eu/30proposals) are illustrated with around a hundred of inspirational examples from all over Europe. In this document composed of five case reports, Energy Cities goes further and tells the tale of energy transition success stories. Because it is important to show that energy transition is "possible". Why, how, with whom, for what results? We interviewed local players and decision-makers to find out more. Here are their stories…



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ADEME Agence de l'Environnement et de la Maîtrise de l'Energie

The region

Brussels-Capital Region
Belgium
1.15 million inhabitants

Local key players

Evelyne Huytebroeck, Brussels-Capital Minister of the Environment, Energy and Urban Renovation from 2009 to 2014

Grégoire Clerfayt, Head of the Energy Department at Bruxelles Environnement from 2011 to 2014

Key figures

800,000 m^2 is the total surface area of passive buildings in the Brussels-Capital region (vs. zero in 2007)

23% is the reduction in CO_2 emissions per capita compared to 1990

1,800 businesses are involved in the "sustainable construction" activity of the Job-Environment Alliance

4,300 jobs are expected to be created by 2020 as part of the "sustainable construction" activity

Milestones

2002 The Belgian government adopts the 2nd federal plan for sustainable development - Brussels-Capital launches its Air-Climate Plan

2004 Brussels-Capital has a new government – The building sector is identified as a priority – Involvement of stakeholders and financial incentives (energy bonuses)

2005 Launch of the "Energy Challenge" for households

2006 Launch of the PLAGE project supporting property asset managers in implementing energy management systems – Study tour to Freiburg (Germany) on the theme of passive buildings

2007 Call for "Exemplary Building" projects: construction of the first passive buildings – Transposition of the European Directive on the Energy Performance of Buildings into local law

2008 Creation of the 0% "Green Loan"

2009 The passive standard is made mandatory for new public buildings

2011 Decision to impose the passive standard on all buildings by 2015

2012 Signature of the "Bruxelles Passif 2015" agreement - Brussels-Capital is the 1st local authority to impose a passive standard in the world

CONTENTS

KEY POINTS TO REMEMBER

In only ten years, the Brussels-Capital Region has become one of the frontrunners of sustainable construction in Europe. Thanks to an ambitious energy policy initiated in 2004, the Region has progressed from 0 m^2 of passive buildings in 2007 to over 800,000 m^2 in 2014. Energy use per capita has dropped by 25% and greenhouse gas emissions by 16% since 2004. As a signatory to the Convention of Mayors, the Region has set itself ambitious objectives and is committed to reducing its greenhouse gas emissions by 30% by 2025 compared to 1990.

Thanks to the experience acquired in the last decade, the Region has developed a genuine energy culture which culminated with the adoption of a passive building standard for all new buildings, public and private alike, in 2015. This new standard is the result of a joint effort by the Region and the construction industry.

In 2004, the election of a new government, more sensitive to regional energy issues, resulted in the adoption of an energy policy. A voluntary energy and environmental strategy enabled Brussels-Capital to reach a high number of professionals and private individuals, with promising first results. The Region did not, however, ignore the social dimension and the necessary protection of consumers in general and of the most vulnerable/deprived sections of the population in particular. As the main contributor to greenhouse gas emissions, the building sector became the priority target of the Region's energy transition process. Building performance improvement was set to follow three phases: awareness, incentive and demonstration (phase 1), support and large-scale implementation (phase 2) and massive investment (phase 3).

The last phase is intended to broaden the scope of energy transition from existing buildings to the whole city so as to achieve a truly sustainable city culture.

PART 1 – THE BRUSSELS-CAPITAL'S ENERGY TRANSITION CHRONICLES

1 BRUSSELS-CAPITAL, AN ATTRACTIVE AND COSMOPOLITAN REGION

Brussels-Capital is one of the three regions that make up Belgium. Attractive and cosmopolitan, the Region was created in 1989 and comprises 19 municipalities. It benefits from stable economic growth and has many titles: capital of Flanders, capital of the French Community, capital of Belgium and capital of the EU. With 1.15 million inhabitants in 2013, Brussels-Capital concentrates around 10% of the Belgian population in an area of 161 km². With 692,442 jobs in 2011, it is the most important employment area in the country. Brussels-Capital's GDP accounts for 19% of national GDP whereas it covers just 0.5% of national territory. Economic activities include European, federal and international administrative functions as well as financing and business services.

Its "multi-capital" status is, however, also a source of inconvenience. Only a limited number of the jobs created go to local people. Of the 3 regions, Brussels-Capital has the highest rate of unemployment, which affects 20% of the labour force, against 8.8% nationally. People under 25 and with low qualifications are the most affected. Brussels-Capital is also experiencing a phenomenon common to many conurbations, with well-to-do citizens moving to suburban areas, considered to be more pleasant. Over 50% of employees commute to the city centre every day, mostly by car, thus contributing to transferring the wealth produced in Brussels to the other two regions and thus, paradoxically, increasing poverty. The asymmetry between the amount of wealth produced and available resources generates strong disparities in terms of income, training opportunities and access to housing. This "social polarisation" has led to a territorial fracture. In some neighbourhoods, the population is getting poorer and access to housing is becoming more difficult. Most buildings are old and energy-inefficient, therefore absorbing a significant share of the residents' income.

From a demographical point of view, Brussels-Capital is at a record high. Its population increased by 15% between 1990 and 2012 and continues to grow steadily. The population is getting younger and the birth rate is rising. According to ISBA[1] forecasts, Brussels-Capital is set to pass the 1.27 million inhabitant mark by 2020.

2 A JOB-ENVIRONMENT ALLIANCE FOR A SUSTAINABLE CITY

2.1 EARLY STAGES – LIFE-SIZE EXPERIMENTS

In 2004, the election of the Brussels-Capital government marked the beginning of the energy transition. Before 2004, energy policy was not considered a priority. In the 1990s, the Brussels' public authorities contemplated integrating sustainability into regional planning. In 1998, Brussels-Capital became a

[1] ISBA : Institut Bruxellois de Statistique et d'Analyse –Brussels Institue for Statistics and Analysis

member of Energy Cities[2], the European association of local authorities in energy transition. At the same time, the European Union took measures to promote sustainable energy and energy efficiency, notably via the 2002 European Directive on the Energy Performance of Buildings (EPBD)[3] that the Member States were to transpose into national law. In the early 2000s, the Belgian government adopted the 2nd Federal Sustainable Development Plan (2004-2008). At that time, Brussels-Capital was more concerned with air quality issues and adopted an Air-Climate Plan in 2002[4].

Energy made its first appearance on Brussels' political agenda in 2004 when the newly elected Brussels-Capital government created a Ministry of Energy, Environment and Urban planning which was assigned to Evelyne Huytebroeck, a member of the Green Party. The political decision to promote energy efficiency was motivated by true awareness of climate change issues and increasing energy prices. The Ministry rapidly identified buildings as the priority area as they offered the highest energy saving potential at regional level. The situation was indeed alarming: Brussels-Capital was listed as one of the heaviest energy users and main CO_2 emission contributors in Europe. A household survey carried out in 2001 showed that 78% of the 475,000 housing units in Brussels were built before 1970, i.e. before the first oil crisis[5], at a time when energy was not a major issue. Residential and office space buildings accounted for 74% of Brussels-Capital's end energy use, with the residential sector alone representing 41%. Buildings were responsible for 70% of CO_2 emissions in the region. The region was also experiencing a housing shortage of several million units at a time when the population was rapidly increasing.

Finally, it has to be said – and all local authorities would agree on this - that energy users failed to see the importance of energy efficiency. Technical information was too complicated for those interested in taking action, professionals could not keep up with demand, energy efficiency investments were not given priority in resource allocation plans and renewable energy-based technologies were underused due to poor economic viability[6].

2.2 INVOLVING LOCAL STAKEHOLDERS TO MAKE GREATER PROGRESS

In 2004, the Ministry decided to take action and, with the assistance of IBGE[7] (Institut Bruxellois pour la Gestion de l'Environnement – Brussels Environmental Management Institute), also known as Bruxelles Environnement, developed an energy policy which included an awareness and incentive focus, a social dimension and phased-in regulations. Under this legislature, a number of services[8] to energy users were put into place, first dedicated to public authorities and private businesses, and then widened to households.

"Facilitators" henceforth provided citizens with free advice on how to reduce energy use, first for the service industry, and then for private individuals. Energy experts were trained to support professionals, institutions and businesses in technical aspects relating to energy and eco-design. An incentive policy was also developed by Brussels-Capital to encourage private individuals to improve housing energy efficiency (insulation, heating appliances, white goods, renewable energy systems) through a series of bonuses. These so-called "energy bonuses" aim to cover all or part of the additional cost of retrofitting a building to high energy efficiency standards. The bonuses have been a major success and have resulted in significant

[2] Energy Cities: http://energy-cities.eu/
[3] 2002/91/EC Directive: http://europa.eu/legislation_summaries/other/l27042_fr.htm
[4] Air-Climate Plan 2002-2010: http://www.belgium.be/fr/publications/publ_leefmilieu-brussel-lucht-en-klimaatplan-2002-2010.jsp
[5] "Vers une Région bruxelloise sobre en carbone à l'horizon 2025" – March 2010
[6] IEE PassREg, "The success model of Brussels" (page 6)
[7] IBGE: http://www.bruxellesenvironnement.be/
[8] http://evelyne.huytebroeck.be/IMG/pdf_BILAN_NRJ_2009.pdf

improvements for a reasonable investment. The fund used to finance these bonuses was gradually increased from 1.2 million euros in 2004 to 14 million euros in 2009.

In 2005, the *Défi Énergie*[9] or 'Energy Challenge' initiative was launched. The objective was to work with households on how to improve consumer behaviour, a crucial measure considering that 59% of occupants are tenants who have no leverage on the building structure itself[10]. Households were then encouraged to reduce their energy bills by adopting a number of simple, energy-saving measures, both at home and when travelling. The operation demonstrated that up to 20% of energy use depends on consumer behaviour.

In 2006, Bruxelles Environnement launched PLAGE[11] (*Plan Local d'Action pour la Gestion Énergétique*), a local energy management action plan aimed at helping public property managers (schools, hospitals, swimming pools, etc.) install an energy management system at a reduced cost through a 4-year support programme. After 4 years, heating energy savings amounted to 18% on average, whereas electricity use was stabilised.

2.3 TOWARDS EXEMPLARY BUILDINGS FOR ALL

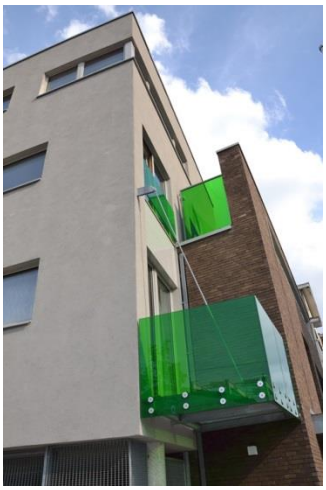
Also in 2006, two events accelerated the energy transition process. A delegation from Brussels discovered passive buildings, a concept that at that time seemed unfeasible and very far from Brussels' reality, on the occasion of a study tour organised by Energy Cities to Freiburg, Germany. The delegation was composed of private and public decision-makers, local political leaders, architects, town planners, property developers and social housing managers. They discovered an emblematic city in the field of sustainable construction and discussed with property developers and owners' associations large building retrofitting and renovation projects, project profitability and specific day-to-day management issues. When asked about the lessons learned during this study tour to Freiburg, the Brussels delegation was unanimous: passive buildings were a feasible option at a reasonable cost. Grégoire Clerfayt[12], Director of the Brussels-Capital's "Energy, Air, Climate, Sustainable Construction and Economy" Unit, then met with a representative of the Franche-Comté Regional Council (France) at an IMAGINE[13] seminar, who explained to him the principles of the call for sustainable construction projects. Grégoire Clerfayt found the concept of encouraging innovation and the development of high energy and environmental efficiency buildings highly attractive. The idea was to make building owners and the construction industry aware of "low energy" and passive building techniques so as to change construction and retrofitting practices. The Minister, Evelyne Huytebroeck, also appreciated the idea of promoting the passive standard on the basis of a competitive tendering process.

The call for "Exemplary Building" projects was launched in 2007 with four requirements: (1) the projects should meet the passive building standard (new buildings) or the low/very low energy standard (retrofitting); (2) they should promote eco-design; (3) be of high architectural quality; and (4) be simple and easily reproducible from both a technical and financial point of view.

The "Exemplary buildings" competition was designed to provide financial incentives to building owners, whilst reinforcing and stimulating the expertise of architects. Citizens, building owners, architects, engineers, consultancies and businesses were challenged to produce projects based on criteria that were

[9] Défis Énergie: http://www.bruxellesenvironnement.be/Templates/defi-energie-menages/defi_energie.aspx?langtype=2060
[10] "Vers une Région bruxelloise sobre en carbone à l'horizon 2025" – March 2010 (page 13)
[11] PLAGE : http://www.bruxellesenvironnement.be/Templates/Professionnels/Informer.aspx?id=32601
[12] Grégoire Clerfayt joined the Ministry of Energy, Environment and Urban Renovation in 2004 and became Head of the Energy Department at Bruxelles Environnement (IBGE) in 2011
[13] IMAGINE is an initiative by Energy Cities which helps towns and cities by providing them with a foresight platform of collaboration and exchange leading to action and change: http://www.energy-cities.eu/imagine

so far unheard of in Brussels-Capital, leading to the first passive buildings to be constructed in the Region. These were extremely varied: residential buildings, including privately-owned and council housing, houses and blocks of flats, office space buildings, schools, rest homes and hospitals. The calls for projects met with unexpected success and attracted many, high quality proposals. The Region decided to repeat these calls for projects every year and increased the resources of the fund. These Exemplary Buildings opened up new avenues for the experimentation of passive buildings in Brussels-Capital, which progressed from 0 m² in 2007 to over 80,000 m^2 of passive buildings already constructed or in the process of being built in 2009. This further confirmed the idea that the passive standard[14] was feasible and could be implemented at no significant additional cost for the construction – or even renovation in some cases - of residential, school or office space buildings.



In June 2007, the government transposed the European Directive on the Energy Performance of Buildings (EPB) into Brussels law. The local ordinance on EPB was the most ambitious in Belgium and aimed at reducing energy use by at least 30% in all newly constructed or renovated buildings, including social housing. This legislation was an important driver in bringing about a real transformation in built property.

Brussels-Capital's energy strategy stands out by its social dimension in a delicate context. Energy expenses weigh heavily on households' budgets and the cost of fossil energy keeps increasing. In Brussels, one inhabitant in four lives below the poverty line and the gap between the richest and the poorest is increasing[15]. Social and energy issues have become inseparable. The Region therefore laid down the principle that any regulation aimed at improving energy efficiency must benefit those who struggle the most to pay their energy bills.

The local government is also aware that reducing its own energy bill creates budget margins that can be used to help those in dire need and that the energy policy is a social policy in that it creates jobs in an unemployment-stricken region.

In 2008, the renovation bonus system was revised to make it more accessible to the most deprived Brussels households. The 2006 ordinance transposing the European directive on the opening-up of the gas and electricity markets into local law integrated consumer protection clauses and the "Energy Challenge" was gradually opened to the most vulnerable sections of the population, social workers being trained in the rational use of energy. Then in 2008, Bruxelles Environnement and the alternative credit cooperative CREDAL developed a new service, called "**Green Loan**", for low income households to benefit from a 0% interest loan to finance energy efficiency work in their homes.

The energy policy that was put in place in 2004 therefore contributed to developing an energy culture reinforced by the local government's voluntary approach and focusing on consumers' awareness and incentives. This favourable context stimulated energy efficiency demand, guaranteed the support of experts, made financial aid available and set an example in the field of sustainable construction. The life-size experiments (PLAGE, Exemplary Buildings, energy bonuses) were conducted with professionals from all sectors who tried out new concepts, developed expertise and created a technical benchmark. The government supported this process by adopting an appropriate legislative framework. The results were

[14] The passive standard reduces heating requirements to 15 kWh/m²/year, against 150 for conventional buildings, thus making conventional heating systems unnecessary. This performance is made possible by high insulation and air-tightness levels, coupled with a heat-exchanger ventilation system for comfort.

[15] "Politique énergétique de la Région Brussels-Capitale – Bilan 2004-2009", p. 21

measured and showed that reducing energy use was possible: energy consumption dropped by 10% and CO_2 emissions by 12% between 2004 and 2007. Equally significant is the number of jobs created in the construction industry, which represented over 25,000 jobs in 2009. Retrofitting bonuses alone generated additional turnover of 100,000 million euros and resulted in the creation of 1,000 to 1,500 jobs[16]. The Region also noticed the beneficial impact of sustainable energy measures on local development. Energy transition was identified as an economic revival driver and the Region initiated a reflexion on this subject.

2.4 CONSOLIDATION YEARS – CAPITALISING ON EXPERIENCE

Brussels-Capital gradually became a full member of the club of sustainable energy pioneers. Whereas not so long ago the local government used to send representatives to other countries to learn from more advanced cities, in 2009 it hosted the annual conference of the Energy Cities network[17]. The new government decided to ensure the continuity of its energy policy through a strong political declaration: "Sustainable regional development at the service of Brussels inhabitants - *Un Développement Régional Durable au Service des Bruxellois*[18]". Minister Evelyne Huytebroeck was re-elected for a second term. The knowledge and expertise acquired under the previous legislature made up a solid base for reinforcing, structuring and improving the energy strategy. In February 2009, Brussels-Capital seized the opportunity of the launch of the Covenant of Mayors[19] at the European parliament to join the initiative, thus reaffirming its commitment on the European scene with a 20% CO_2 emission reduction objective by 2020.

In the second phase of its energy transition, the creed of the Brussels-Capital government was to capitalise on experience. Ever more stringent regulations were adopted based on the EPB directive requirements. Convinced of the exemplary role of the public sector, in July 2009, the government decided that the passive standard should be made mandatory for all new public buildings and that retrofitting of public buildings should meet the low-energy standard. The legislation became effective in 2010. All public organisations depending on the Region - administration, para-regional organisations and social housing - had to be exemplary in the measures adopted and in their practices. This legislation also proved a strong economic growth driver, the public sector being a major economic player and public procurements representing 15% of Belgium's GDP[20]. Brussels-Capital generates 20% of this GDP and concentrates a high number of local, regional, community, federal, European and international public institutions. Public procurements can therefore help prepare the market to more stringent future requirements in the field of sustainable construction.

In 2011, the government went even further and decided to extend the passive standard to all new buildings, public and private alike, by 2015. The building trade went along with this decision but warned about the difficulty for some players to meet the criteria. Before reaching this decision, the Region organised a consultation with the construction industry stakeholders in 2009. These multilateral discussions led to the "Brussels passive 2015[21]" agreement. The initial objectives were maintained but greater attention was given to the specificities of the construction market and to builders' freedom of action. The signing of the agreement in 2012 was the climax of Brussels-Capital's "sustainable building" policy. It was the first time that such a standard was adopted by a local authority worldwide, the European Union expecting to make it mandatory only by 2021[22].

[16] "Politique énergétique de la Région Bruxelles-Capitale – Bilan 2004-2009", p.27
[17] www.energy-cities.eu
[18] Declaration of political interest of 16th July 2009: http://www.bruxelles.irisnet.be/files-fr/a-propos-de-la-region/competences-regionales/accord-de-gouvernement-2009-2014-rbc
[19] Covenant of Mayors: http://www.conventiondesmaires.eu/
[20] GDP: Gross Domestic Product
[21] "Passif 2015" technical addenda: http://evelyne.huytebroeck.be/IMG/pdf/131004_passif_2015_annexe_FINALE.pdf
[22] http://evelyne.huytebroeck.be/IMG/pdf/131004_passif_2015_discours_FINAL.pdf

As a general rule, this decision was well received by the construction industry. The first experimentations started in 2005, meaning that the building sector could rely on ten years of experience by 2015. Some opposed the decision, but the life-size experimentations were conclusive and spoke in favour of the government. After stimulating demand, Brussels-Capital had a duty to support supply by reinforcing the construction sector.

2.5 THE CREATION OF THE JOB-ENVIRONMENT ALLIANCE

This period of consultation led to the creation of the Job-Environment Alliance (*Alliance Environnement-Emploi-AEE*) in 2010[23] with sustainable construction as its first priority. The Alliance aims to prepare a socioeconomic plan to help building firms grow, thus meeting one of the government's priorities, which is to boost the local economy as part of the Contract for Economy and Employment (C2E). The Region is suffering from deindustrialisation[24] and is plagued with high employment, especially among young people and people with low qualifications. Sustainable development represents a huge potential for jobs and business development.

The Job-Environment Alliance is a multisectoral partnership bringing together social partners, the Brussels-Capital construction confederation, trade federations, socioprofessional integration players, as well as public stakeholders involved in environmental, employment and training issues. The Alliance targets building firms, workers, job seekers (especially those with low skills), schools offering construction curricula and training centres. The Alliance offers a unique collaboration opportunity to players who are not used to meeting one another and even less working together. It is based on a two-phase participative approach[25]. During the first, "*bottom-up* [26]" phase, the stakeholders take part in discussion workshops to identify the obstacles, difficulties and deficiencies that hamper the sector's transition towards more sustainable construction practices and propose an action plan. In the second, *"top-down"* phase, a monitoring committee analyses their input, taking institutional constraints and public priorities into account, and defines the scope and priorities of the actions. Monitoring is carried out by operational people, called "action pilots" using a series of indicators and results assessed periodically to measure progress. After three years, 130 public and private organisations have been involved and 64 actions defined. The Alliance has a 5.5 million euro budget to implement the measures[27].

The local support services for citizens such as the "*Maisons de l'Énergie*" (energy centres) have been revamped. A Reference Centre[28] has been added to the range of services aimed at developing the ecobuilding and renewable energy sectors by improving training for unskilled workers. The Centre also carries out studies on new professions in the building trade to guide and prioritise training requirements.

[23] Officially signed in 2011
[24] http://charlespicque.info/web/wp-content/uploads/2011/12/dossier-de-presse-d%C3%A9f.pdf (page 5)
[25] 2010 -2014 multiannual report: http://www.aee-rbc.be/wp-content/uploads/2014/03/140313_AEE_Chapeau_preview_entier.pdf
[26] http://fr.wikipedia.org/wiki/Approches_ascendante_et_descendante
[27] 2011 JEA report: http://www.logementdurable.eu/wp-content/uploads/20110714_bilan_AEE_FINAL.pdf
[28] Reference centre: http://www.bruxellesformation.be/bruxelles-formation-ses-partenaires/partenaires/les-centres-de-references.html

In June 2012, Brussels-Capital received a prize at the "Sustainable Energy Europe Awards"[29] ceremony organised by the European Commission. This distinction acknowledged the Region as one of the leading European local authorities in the field of sustainable development. As the European Commission pointed out, *"The efforts of the Brussels-Capital Region prove that things can change when public authorities set the example and implement ambitious policies"*.

More recently, in May 2013, the Region adopted an Air, Climate and Energy Management Code[30] (COBRACE). This code is part of the government's ambitious vision (2009 government agreement[31]) and includes air, climate and energy policies, which are all linked as they involve the same sectors and players: the construction industry and the transport sector, public authorities, businesses and citizens. COBRACE merged all these policies, adapted several environmental and energy regulations and placed the green transition within a strict, legal framework.

Building a sustainable future for cities is a challenge. Brussels-Capital has chosen to develop several measures in a number of areas impacting life in the city, like improving energy efficiency in buildings. A sustainable city is also built by implementing cross-sectoral policies in neighbourhoods: in addition to building retrofitting programmes, the Region has also developed "sustainable district contracts[32]" to create a new local dynamic in terms of housing, public space and community equipment. For Brussels-Capital, being a sustainable city means supporting the hundreds of community initiatives being developed in its territory. The Region's ambition is to develop a true sustainable city culture in which respect for the environment contributes to human and social development.

3 IMPACTS AND RESULTS

Just 10 years ago, Brussels-Capital suffered from a reputation of being an energy sieve, but the government worked hard to reverse the trend. Various life-size experiments were conducted to test and demonstrate the capacity of local players to improve energy performance. Since 2009, capitalising on its experience, the Region has drastically changed its energy culture.

The result is a success story. End energy use per capita dropped by 13% between 1990 and 2012, i.e. a 400 million-euro saving for the whole region per year since 2004. CO_2 emissions per capita decreased by 23% compared to 1990[33]. In the building sector, end energy use per capita fell 10% and CO_2 emissions 26% compared to 1990.

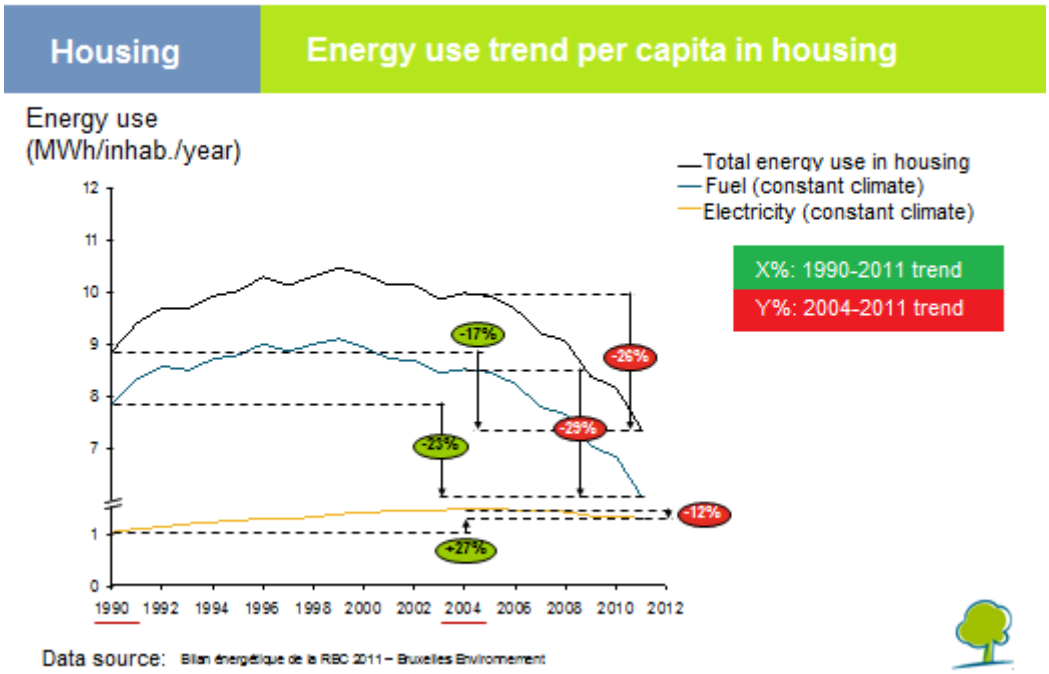
[29] EUSEW http://www.eusew.eu/component/see_projectview/?view=see_projectdetail&index=1&tagId=-1&countryID=-1&catId=5&pageNum=0&projectid=7491

[30] COBRACE explanatory document: http://urbanisme.irisnet.be/actualites-accueil/pdf/cobrace-document-explicatif

[31] See page 29 of the 2009-2014 governmental agreement: http://www.bruxelles.irisnet.be/files-fr/a-propos-de-la-region/competences-regionales/accord-de-gouvernement-2009-2014-rbc

[32] Sustainable District Contracts: http://www.quartiers.irisnet.be/fr/accueil

[33] Speech by Evelyne Huytebroeck "Bilan 2004-2014: une nouvelle culture de l'énergie"



Between 2007 and 2014, 33 million euros of subsidies were granted to 243 projects (1,866 housing units: 952 passive and 914 low energy units corresponding to 354,142m^2 of passive and 267,361m^2 of low energy buildings) as part of the calls for "Exemplary Building" projects.

The "Energy Challenge" has attracted 6,772 participants since 2006. Between 2004 and 2013, 160,000 energy bonuses were granted, totalling 113 million euros.

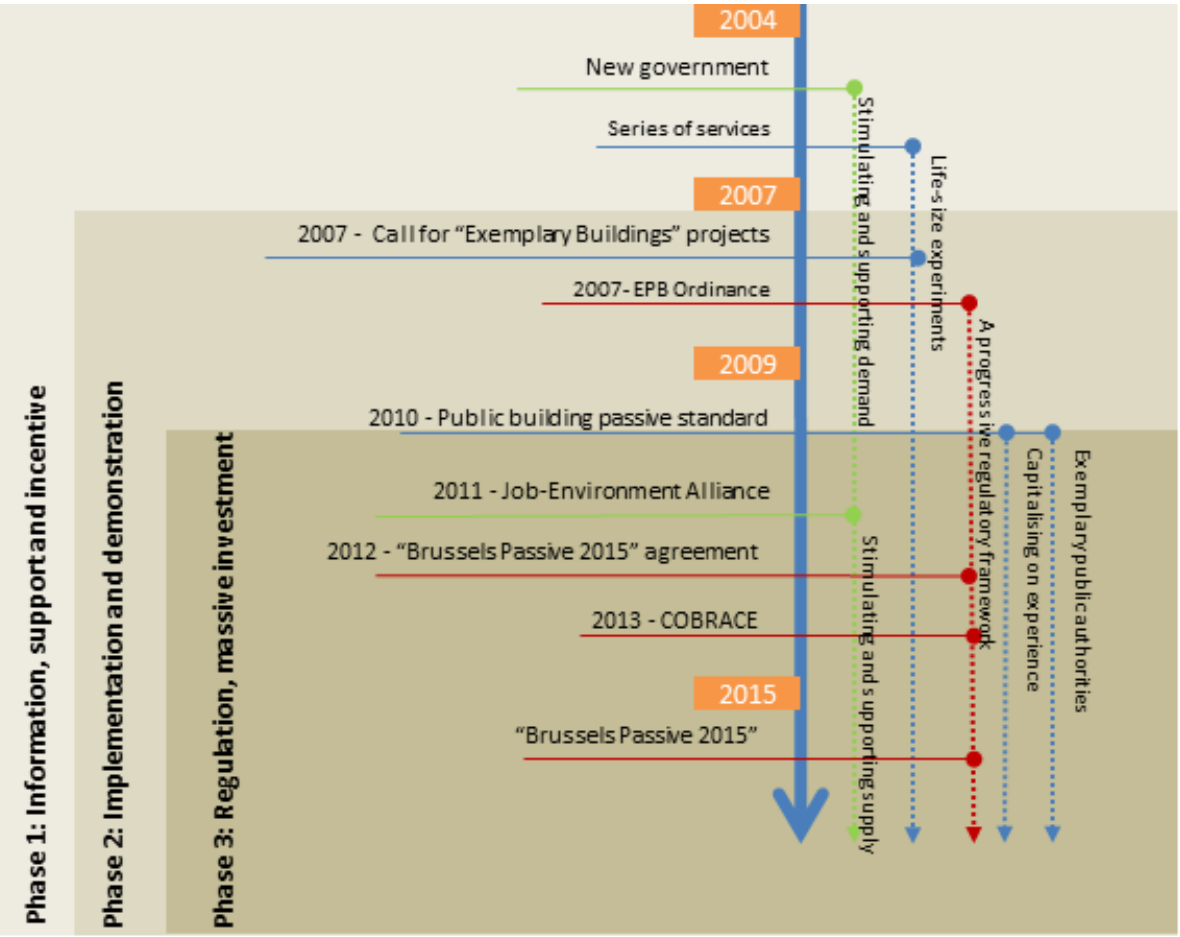
Between 2011 and 2013, 184,000 hours of training were delivered as part of the Sustainable Construction activity of the Job-Environment Alliance: 26 schools took part, i.e. almost all the schools in Brussels, and around 1,800 businesses were involved in the transition towards Sustainable Construction. Job creations resulting from rolling out current measures and policies (2020 horizon) are estimated at 4,300[34] for the "Sustainable Construction" activity alone (10,100 for all the Alliance activities).

The share of the regional budget dedicated to energy policy increased from 3.6 million euros in 2004 to 60 million euros in 2014, with the government earmarking 30 million euros for its Sustainable Development department. This comes on top of the tax on gas and electricity use which generates an additional 30 million euros. The energy department of IBGE, which employed 4 people in 2004, had 117 employees in 2014.[35]

The energy policy has helped develop a true energy culture. Brussels-Capital knows that building construction/renovation and architecture play an important role but are not the only drivers leading to a sustainable city. Citizens are taking an increasingly active part through dozens of initiatives carried out by groups of citizens or community organisations and which contribute to transforming the city. The development of this "energy culture" can be seen in the strong increase in traffic on the IBGE website, which registers around 50,000 hits per month, or the number of visitors to the *Fête de l'Environnement* (Environment Festival), around 20,000 each year.

[34] http://www.aee-rbc.be/uncategorized/le-rapport-pluriannuel-2010-2014-de-lalliance-emploi-environnement-en-ligne/
[35] 2014 activity report : http://documentation.bruxellesenvironnement.be/documents/RAP_20140521_Jaarverslag_FR.pdf?langtype=2060

A number of prizes have acknowledged the Region's progress, such as the S*ustainable Energy Award* in 2012 or the 3rd ranking in the Green European Cities index[36], just behind Copenhagen and Stockholm, in 2013. Brussels-Capital is one of the leading World and European metropolitan areas in the field of sustainable urban management.



The Brussels-Capital's energy transition process over time

[36] https://www.swe.siemens.com/belux/web/fr/presse/presse/cc/Pages/green-city-index-update.aspx

PART 2 – ANALYTICAL INPUTS

1 THE BRUSSELS' ENERGY TRANSITION GOVERNANCE MODEL

This part addresses the governance model and identifies the players, their roles and interactions in the Brussels-Capital's energy transition process.

The energy transition process is orchestrated by the Brussels-Capital government through the Ministry of Energy, Environment and Urban Renovation and by IBGE. Like the other Belgian regions, Brussels-Capital has full powers in the fields falling within its jurisdiction as a Region, which include the environment, energy policies and employment, and in the fields of jurisdiction it transferred from the City of Brussels and the former province. The Region also cooperates with the Federal State regarding initiatives that are linked to its status as Capital of Belgium and seat of the European institutions. The Region has its own parliament and government and exercises its legislative power through enforceable ordinances. Another specific feature is the Region's two official languages as the people of Brussels belong either to the French or Flemish community. Regional MPs are elected for five years and are divided into two lists: French-speaking and Dutch-speaking. The political parties are elected by proportional representation and the governments must then form coalitions. In a nutshell, to be able to govern, a compromise with various partners (from different communities and political parties) must be reached.

The mission of IBGE is twofold: on the one hand it carries out research, plans and advises the Ministry and on the other hand, it stimulates, supervises and ensures the implementation of the political strategy.

In 2004, the Ministry and IBGE knew what they wanted to achieve: use less energy and reduce CO_2 emissions. The building sector was rapidly identified as the main target as it was responsible for over 70% of end energy use and CO_2 emissions. Neither the industry, which is quite limited in the region, nor mobility, which was identified as a regional planning issue rather than an energy one, were then considered to be priorities.

Once the target identified, there remained a simple question: how to introduce the necessary changes from scratch? Two possibilities: either the Region launched large projects alone, at a high cost, or it encouraged local players to take initiatives and supported project holders and managers engaged in eco-construction. Brussels-Capital chose the second option, the participative method, which consists of stimulating demand, supporting pilot and innovative projects, and picking up enthusiastic initiatives by citizens, businesses and public authorities. The idea is to start with local people's needs and rely on their skills, before letting other players join the momentum. To encourage businesses and citizens to participate, the Region chose to focus on energy, a stimulating lever with a financial saving potential.

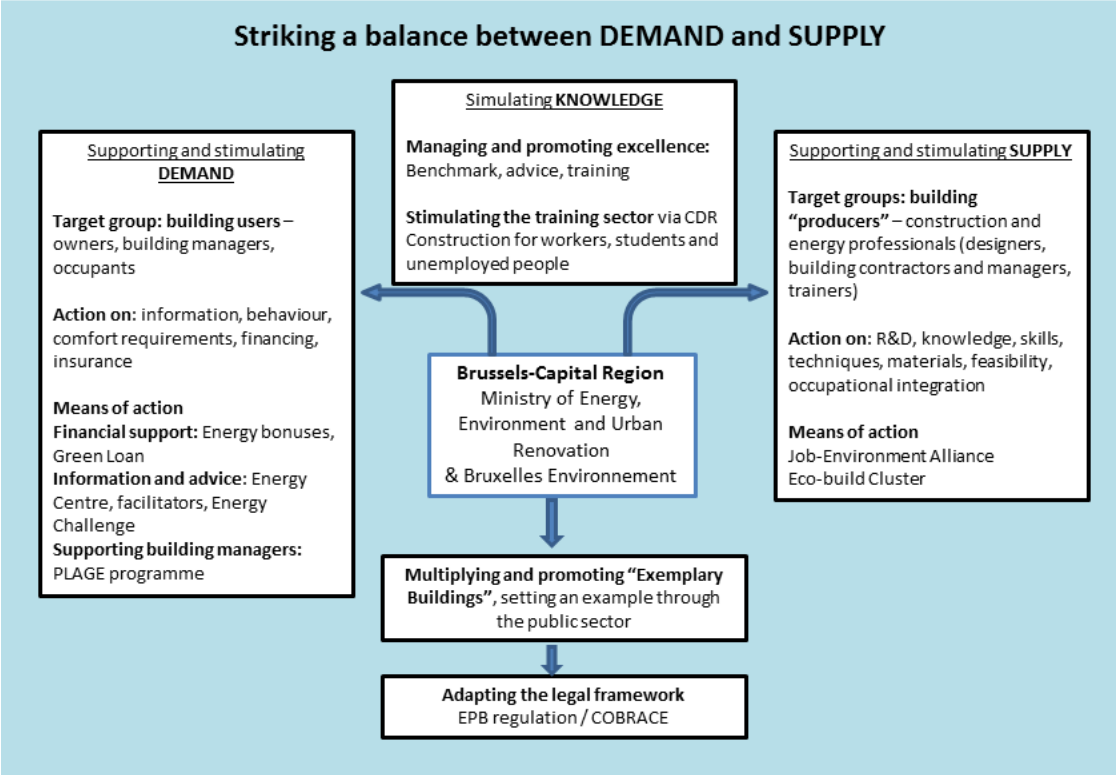
As a first step, the Region created a number of support services for volunteer citizens and businesses who wanted to innovate and to live and work differently: consuming less whilst making the most of city life. The Region decided to work on two aspects: first "hardware", i.e. the buildings, technical facilities and materials, and second "software", i.e. information, training for professionals, changing uses and behavioural patterns, maintenance and equipment. This involved producing benchmarks and creating trade networks and associations.

What helped accelerate the energy transition momentum were not big conferences or wide-ranging negotiations, but life-size experiments (PLAGE, BATEX, Energy challenges…) which served as benchmarks.

They created a suitable framework for innovation and excellence: professionals could test out new concepts, develop expertise and produce a set of technical guidelines for sustainable construction. In a nutshell, these experiments helped:

- Involve a large number of construction professionals and develop a true "energy culture";
- Demonstrate that the passive standard was feasible at no major extra cost for both new buildings and renovation work;
- Identify a lever for reviving the local economy and stimulating job creations;
- Lay down a gradual, yet ambitious regulatory framework by making the passive standard compulsory for all new buildings by 2015.

This host of best practices and their "snowballing" effect drastically changed the Region in an even more visible way. Institutional players followed suit. The *Société de Logement de la Région de Bruxelles-Capitale*[37] (SLRB) in charge of social housing made sustainable development a priority of its 2010-2014 strategic plan. Its exemplary energy management made it possible to reduce tenants' maintenance charges and had very positive social and economic impacts. New housing units will now have to display the lowest occupancy cost[38] for the future occupier. The *Société de Développement pour la Région de Bruxelles-Capitale*[39] (SDRB) is also active in the field of economic expansion and urban renovation. In order to make the region more attractive to citizens, housing units for low income people have been created under public-private partnerships in neighbourhoods lacking residential buildings. SDRB has become a pioneer in sustainable construction and has been entrusted with building and marketing the first passive block of flats.



[37] SLRB http://www.slrb.irisnet.be/
[38] The occupancy cost is made up of the rent (or mortgage loan reimbursement) plus utility charges.
[39] SDRB : http://www.sdrb.be

The incentive and demonstration phase made it possible to accumulate significant results over several years. Brussels-Capital used this experience to build a real vision for the future ("Bruxelles Passif 2015") and gave itself the resources to make it happen. A new phase then started so as to consolidate and expand building energy efficiency on a wider scale. Demand had to be stimulated and the professional supply needed restructuring. The Region became a role model for energy management in its own public buildings with passive building and low energy retrofitting standards. Simultaneously, the Region used the Job-Environment Alliance to develop a local supply of local businesses capable of meeting its new energy ambition. This Alliance was the result of synergies between the energy policy and the 2009 governmental agreement on the revival of the local economy. The new building and retrofitting sector represents a huge potential in terms of job creation and economic development and may well be an answer to the high unemployment rate experienced by the Region[40] especially among the under 25 and unskilled people. The Alliance is the result of this analysis carried out jointly by the Ministry of Energy and the Ministry of Economy.

2 ACTION DRIVERS

This part identifies the action drivers that have contributed to accelerating or reinforcing the energy transition in the Brussels-Capital Region.

2.1 REGIONAL JURISDICTION

Like the other Belgian regions, Brussels-Capital has its own jurisdiction that is similar to that of a state[41]- especially in the field of regional planning, the environment, economy, transport, energy policy and the organisation of local powers[42]. It has the capacity to pass laws and can therefore have its energy policy enforced in accordance with its strategy. It also has the power to transpose European directives.

2.2 A PROGRESSIVE, AMBITIOUS REGULATORY FRAMEWORK

The EPB (Energy Performance of Buildings) regulation of Brussels-Capital is one of the most ambitious in Europe. It was adopted in 2008 for new buildings and heavy retrofitting work and was reinforced by the adoption of the passive standard for all new public buildings in 2011 and private buildings by 2015. The adoption and then reinforcement of these regulations encountered very little opposition as the Region enacted them progressively, building on years of experience in sustainable construction.

2.3 THE CHOICE OF A PARTICIPATIVE APPROACH

To engage its energy transition, Brussels-Capital turned to its citizens, professionals and institutions. It encouraged community initiatives and projects led by committed project managers and designers. Stakeholders were gradually involved, first by creating a momentum with volunteers, then by setting an example through the public sector and creating trade networks and associations. The Region supported and financed external organisations, like the consumers' federation or trade associations (heating engineers, architects, construction, etc.). These federations have become partners and ambassadors of the regional energy policy.

2.4 SYNERGIES TO BOOST THE LOCAL ECONOMY

[40] Of the three regions that make up Belgium, Brussels-Capital has the highest rate of unemployment, which affects 20% of its labour force, against 8.8% nationally.
[41] The regional government: http://www.bruxelles.irisnet.be/a-propos-de-la-region/le-gouvernement-regional
[42] The government's jurisdiction: http://www.bruxelles.irisnet.be/a-propos-de-la-region/les-competences-regionales

One of the conclusions from the 2004-2009 legislature under Evelyne Huytebroeck is that the construction and renovation sector has a significant economic development and job creation potential. This potential can be used to create synergies between public and private players around common objectives. The Job-Environment Alliance initiated by the Ministry of Energy and the Ministry of Economy proved to be an efficient tool.

2.5 BRUSSELS, AN URBAN LABORATORY

In 2004, the Region knew what to do but did not have the resources to implement it. The series of life-size experiments, with the call for "Exemplary Building" projects as the flagship action, helped stimulate and encourage innovation. Project managers, architects, engineers, consultancies and businesses took up the challenge of presenting projects meeting totally new criteria in Brussels. The first results were very promising: many high quality projects showed that Brussels had plenty of resources. The experience thus acquired through these years made it possible to produce a set of technical guidelines and to confirm that the passive standard is perfectly feasible without any significant extra cost for new and renovation work.

2.6 STUDY TOURS

Study tours are an opportunity to get together a very varied group of people: public and private decision-makers, political leaders from the Region and the municipalities, architects, town planners, property developers and social housing managers. Study tours also help bring Brussels' stakeholders together, initiate debate, discover others' practices and experiences (like passive buildings in Freiburg in 2006) and discuss with counterparts from other countries. The lessons learned from these study tours have been instrumental in fighting preconceived ideas and confirming the desire to take action locally.

PART 3 – RESOURCES

1 RESOURCE PERSONS

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2 DOCUMENTARY RESOURCES

Job-Environment Alliance (Alliance Emploi-environnement), official website: http://www.aee-rbc.be/

be.passif 2015, *Bruxelles passif en 2015*, http://www.bepassive.be/viewer/02/fr/

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PassREG, *Brussels Success Model*, http://www.passreg.eu/index.php?page_id=289

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Find the full-text publication “The Energy Transition Chronicles” on Energy Cities’ website www.energy-cities.eu Resources > Publications.