MOLOC Project
INTERREG Europe
Report of the 5th study visit in Lille

27, 28, 29 May 2019, City of Lille

European Green Week

- **Participants**

Please refer to the **Annexe 1 – List of participants.**

➢ Context and summary

MOLOC is a European cooperation project co-financed by the INTERREG Europe programme. It brings together the cities of **Lille** (lead partner), **Hamburg**, **Turin**, **Suceava** and the **Mining Research Institute** with the city of **Katowice** and the European **Energy Cities** network.

MOLOC aims at developing a new approach to building the low-carbon city, combining **quality of life and energy efficiency**. MOLOC stands for Low-Carbon Morphologies: the project explores the obstacles that limit the impact of local policies aimed at **sustainable urban development**. All partners are developing solutions against these brakes to elaborate an action plan by the end of 2019, before implementing it in 2020 and 2021.

More than two years ago, in March 2017, Lille hosted for the first time the European and local partners to launch the project. Since then, a lot of work has been done.

At the origin of the MOLOC project, a question guided our work*: in a context of urban growth, how should we continue to create conditions for new housing, new jobs; and at the same time develop solutions against climate change?*

To answer these questions, the partners of the MOLOC project have decided to work on two main aspects.

The first aspect is the **identification of the main obstacles to the low-carbon city.** All partner cities, as well as their local stakeholders, have identified their main obstacles.

The second is a **series of study visits** organised in 2018-2019 to learn from best practices. We had the opportunity to visit projects in Turin, Hamburg, Katowice and Suceava. The study visit in Lille is the last of this series.

On the first day, after the city of Lille presented its actions contributing to create a low carbon city as opening to the morning, the European partners presented "good practices" carried out within the framework of the MOLOC project. In the afternoon, participants visited the Fives-Cail urban project, the association Inhabit 2030 which works on the rehabilitation of 1930 model houses as part of an international competition, and also the actor La Fabrique des Quartiers who is redefining blocks.

On the second day, we visited the passive building of the lessor Partenord in the Bois Habité district, which was also presented with the SPL Euralille. In the afternoon, we went to the COVALYS Energy Recovery Centre of the European Metropolis of Lille in Halluin.

Finally, on the third day we went to the Rizomm building of the Catholic Institute of Lille to discover the LiveTree project, before debriefing with the partners on the visits made, and discussing the continuation of MOLOC, the action plan and the next meeting.

The event is labelled a "partner event" within the framework of the **European GreenWeek**. We will thus benefit from a more important communication around the event.

Indeed, the content of this event highlights the contributions of European cooperation to improve local and regional policies, which is of particular interest to the European Commission in its objective of improving the implementation of its Environmental Action Programme.

➢ **Monday 27/05/2019**

Morning : Opening, moment of exchange/inspiration between European partners, City of Lille and local partners
Location : Fondation de Lille

✓ **Opening**
By Stanislas Dendievel, Deputy Mayor in charge of urban planning

The city of Lille has committed itself through several aspects to the implementation of a "low-carbon" city. Its strategy aims to address two major challenges: climate change and social justice.

In terms of social justice, in 2004 the city promoted a proactive policy based on social mix, in order to allow the most vulnerable inhabitants to stay within the city centre, while at the same time attracting more prosperous inhabitants, through rent regulation and the development of social housing. In addition, since 2001, the city of Lille has been developing an ambitious cultural policy, allowing demonstrations in all the city's districts, now under the theme of "The Eldorado". Finally, the city's internal services are constantly mobilized to design quality public spaces.

With regard to climate change, the city is taking the side of density in order to preserve natural and agricultural areas. In 2016, the new mobility plan increased bicycle use by 67%, metro use by 10% and bus use by 23%. Since 2008, buildings have been designed to be energy efficient, and the Maison de l'Habitat Durable (“Sustainable Housing Centre”) has helped over 3000 homeowners to renovate their homes.

Actions are also being taken on public lighting, the place of nature in the city, and rainwater management. All urban projects, such as Fives-Cail or the Rives de la Haute Deûle, take into account the collection of runoff water on site.

Finally, all initiatives to reduce waste, and to stimulate composting (and urban farms), recycling and circular economy are supported. This includes the "participatory budget" which aims to finance projects proposed by citizens. Out of 300 initiatives submitted this year, 18 were selected by a popular jury. In view of this great success, a call for projects for a second participatory budget will soon be launched.

The contribution of the MOLOC project to these objectives consists in the exchange of knowledge and good practices that feed into the low-carbon strategy of each of the partners. Study visits are also an opportunity to obtain feedback and analysis from external perspectives on ongoing or completed projects.

✓ **Presentation of the meeting venue**
By Delphine Vandevoorde, head of la Fondation de Lille

The *Fondation de Lille*, located in the historic site of the *Pavillon de Saint-Sauveur* (formerly a hospital), receives donations, donations and legacies, and redistributes them to projects of general interest, international solidarity and environmental actions.

Created by Pierre Mauroy, former Prime Minister and former Mayor of Lille, it was recognised as a public utility in 1997.

She also hosts a Francophone literary prize for amateur writers around the world.

The Lille Foundation was created on the American model of "Community Foundations": a foundation at the service of the territory in which it is established. It is a tool at the service of solidarity in the

Hauts-de-France Region. In addition, it is a "Fondation Abritante", i.e. it can host other Foundations created by companies or private individuals within it.

For more information: http://www.fondationdelille.org/

✓ **Presentation of the MOLOC project**

By Aurélien Parsy, coordinator of the MOLOC project, City of Lille

The European Interreg Europe MOLOC project, funded by the European Union, aims to strengthen links between European regions and to design public policies inspired by these cooperations.

The ambition of this project is to design low-carbon public policies in all partner cities, taking into account the different morphologies, shaped by the history of each, and their context and priorities.

Here, we are asking about the development of cities while reducing their greenhouse gas emissions. This involves in particular the energy transition, simultaneous with a reflection on mitigation and adaptation to climate change, through sustainable urban planning approaches.

To meet these challenges, partners must produce an action plan within six months - end 2019 - that will include resolutions to move towards a low-carbon city.

For more information: https://www.interregeurope.eu/moloc/

✓ **Presentation of "good practices" from MOLOC partner cities**

1. **Turin (Italy) : the integration of energy transition and environmental protection issues into the new metropolitan master plan**
   By Liliana Mazza of the Department of Urban Planning and Development of the City of Turin, Sara Torabi Research Director at the Polytechnic University of Turin

Turin has 884,733 inhabitants in its urban area and 2,269,120 in its metropolitan area (2017 figures). While its urban area is experiencing a decline of its population, the metropolitan area is seeing its number increase. This context of relatively low land pressure in the city of Turin allows it to pursue a land policy focused on the conversion of brownfield sites into green public spaces. Approximately 150 out of 350 zones have been transformed.

In this context, the MOLOC project makes it possible to evaluate the environmental and sustainability guidelines of the Master Plan of the City of Turin.

The aim is to reduce soil consumption and increase its permeability in order to absorb rainwater, by anticipating the consequences of climate change and improving outdoor air quality by reducing greenhouse gas emissions, in particular through soft and active mobility.

There is also an objective of improving energy efficiency of buildings, and rehabilitating existing buildings towards passive building requirements, or even energy consumption close to 0. This point is also reinforced by a simultaneous European project, called CESBA MED (Common European Sustainable Built Environment Assessment) which works on an urban scale, when MOLOC works on a larger scale.

The contribution of the Polytechnic University of Turin as an external expert then consists in analysing the relationship between the Master Plan and the tools implemented and regulations, and developing requirements and prescriptions to be included in sectorial, and neighbourhood urban regulations.

The University is also working on the links between different public policies, programs and plans in order to maximize the environmental performance objective everywhere in a holistic approach. To this

end, it participates in the development of data and maps on energy transition and adaptation to global warming.

Finally, this approach will help decision-making based on multi-criteria evaluations and qualitative and quantitative indicators (KPI Key Performance Indicators).

2. Katowice (Poland) : actions to tackle air pollution in Silesia

By Jakub Kulach and Adam Powazka, from the Katowice City Hall

Katowice is a city of 292,000 inhabitants (2017 figures), whose demographic trend has been declining over the past decade or so. About 60% of the population is of working age (19-60 years), 16% will soon be (0-18 years), and 24% is of retirement age (60 years and over).

Katowice has experienced rapid economic growth in the modern business services sector since the 2000s. Small and medium-sized enterprises also play an important role, representing 99.78% of urban businesses (113,700 jobs). And the mining industry still has its place, especially in the city centre with 3 mines still in operation, including 1 in the process of closing (there were 12 at the beginning of the 20th century).

From : Katowice City Hall

For example, air quality is a crucial issue, with Poland having the highest concentration rates in Europe of Benzopyrene (BaP, a pollutant of the polycyclic aromatic hydrocarbon family), and fine particulate matter PM10 (according to the 2016 *Air Quality Report* published by the European Environment Agency). These pollutants are produced in particular by burning coal, hydrocarbons or other substances to run an engine or to heat oneself.

The main sources of heating in Katowice are the heating network (32.1%), coal in domestic boilers (21.4%), and natural gas (16%). In the Silesian region, coal remains the majority (56%).

The 5 current strategic axes to develop this issue are:

1. *Support for the poorest citizens*

People in difficult economic situations, without gas heating or too far from central heating, can benefit from a subsidy that will help them buy quality coal instead of burning household waste.

2. *The implementation of new regulations*

The "Silesian Province Anti-Smog Resolution" Act allows municipal police to inspect private homes to ensure that no household waste or other prohibited fuel is used for heating. In 2018, the municipal police carried out nearly 5000 inspections. It can also use drones for this purpose.

3. *Investment in municipal projects*

The municipality is providing €67.5 million to modernise social housing, develop new heating sources and connect them to local heating networks. Around €66 million are provided for public buildings, also developing LED lighting, small solar and photovoltaic installations, and an energy management system. Finally, approximately €9 million are planned for heating and connecting the mixed residential sector.

4. *The allocation of subsidies to citizens*

The city subsidizes citizens for the improvement of heating systems and installations, the construction of new solar and photovoltaic installations. This is also made possible by the city's participation in the government's Clean Air programme.

5. *Ecological education.*

Regular "eco-responsible" meetings with citizens are organised, particularly in schools and at events.

3. Suceava (Romania) : all-electric public transport
By Dan Dura, Head of the Office of European Integration and Development Strategies, City of Suceava

The city of Suceava is located in the North-East of Romania, 450 km from the capital Bucharest, and 60 km from the Ukrainian border. It has a population of 115,918 inhabitants over 52.1 m², and its economic activity is mainly based on industry, tourism and services, and the construction sector. The city is located at the crossroads of two major European roads.

Suceava faces several major transport challenges, including: an insufficient number of bridges to cross the Suceava River, dividing the city; a lack of a structure capable of monitoring and controlling public transport vehicles in real time; a lack of a parking policy that would reduce the use of cars in the city centre, and facilities for non-motorised vehicles; and traffic-related air pollution, on which residents are not very aware.

To overcome this, the city of Suceava wishes to develop a low-carbon public policy, which would improve the quality of life of the inhabitants, by making the city attractive to economic and industrial actors.

In addition to the MOLOC project, the city of Suceava relies on three other projects in the field of decentralised and European cooperation, which are:

- "Swiss - Romanian cooperation program" on electromobility and LED street lighting
- URBACT Projects: EVUE (Electric Vehicles in Urban Europe), FREIGHT TAILS - Action planning network
- Integrated Urban Development Plan (2010-2014) of the ERDF fund, on public lighting, public transport, cycle paths, parking and pedestrian areas.

Concerning the modernisation of public lighting throughout the city, between April 2015 and September 2019, around €6 million will be available to replace street lamp bulbs, thus saving electricity (€330,000 has already been saved to date), as well as reducing greenhouse gas emissions (around 1.278 t eqCO2 avoided).

On electromobility, the city plans to buy electric vehicles and install charging stations, and also to buy electric bicycles and their infrastructure, and for buses.

4. **Hambourg (Germany) : Wilhemsburg climate protection plan and link with the green strategy 2030**
By Stefanie Wodrig, Free and Hanseatic City of Hamburg, Chancellery of the Senate

The Hamburg Master Plan aims to manage the transition in terms of energy and resources. Hamburg's particularity of being both a city and a state gives it legislative rights. With 1.8 million inhabitants, it is the second largest city in Germany.

Hamburg is pursuing the objective (in line with the European Union's objectives) of reducing its greenhouse gas emissions by at least 80% by 2050, compared to 1990. Hamburg develops strategic policies for the transformation of urban spaces, green economy, but also for climate communication, taking into account elements of governance and participation at the neighbourhood level.

The **Climate Plan** adopted in 2015 therefore includes measures to mitigate and compensate for climate change, in order to increase resilience. It makes it possible to define individual areas of action such as urban development or the definition of indicators to measure projects.

For example, "the number of neighbourhoods in which the transformation into a climate-friendly and climate-friendly city has begun".

The Wilhelmsburg district is a model that will be highlighted, in particular by the International Building Exhibition (IBA), which is a visionary urban development instrument, a kind of meeting in Germany on the future of urban development, which will show 70 projects carried out between 2006 and 2013 on the island of Elba, located between "HafenCity" (in the north) and "Harburg" (in the south).

✓ **Closing of the morning and presentation of the Climate Solidarity Fund**
By Marie-Pierre Bresson, Deputy Mayor for International and European Cooperation - Tourism, MOLOC project pilot

The Climate Solidarity Fund (FSC) is a fund hosted by the Lille Foundation, and developed by the city of Lille, the CERDD (Sustainable Development Resource Centre), the GERES (Renewable Energy, Environment and Solidarity Group), with the support of the *Dynamique Climat* Nord-Pas de Calais collective.

The idea came from the International Relations Department of the city of Lille. Initially, the aim was to get municipal officials to estimate the CO2 emissions generated by their air travel as part of the city's policy of opening up to the world.

Thus, an online calculator converts the number of tonnes of CO2 emitted into euros, the price per tonne being estimated at 22 euros, to determine the amount of the donation, which can be tax-deductible. The calculation methodology applied is based on data from the Goodplanet Foundation and the ADEME carbon footprint methodology.

Today, the Climate Solidarity Fund is the first fund of its kind to be open to the entire Lille, metropolitan and regional territory. The Lille Foundation thus manages the receipt of donations and, at the same time, of applications from associations submitted in response to calls for projects related to climate change.

For more information : http://www.fondationdelille.org/climat/

Afternoon: Site visits in Fives
Location: Fives district

- ✓ **Site visit of the Fives-Cail urban project**
  By Armelle Marrière, urban planner at the city of Lille, in collaboration with SORELI

The site of the Fives-Cail urban project is located in the Fives district, east of Lille city centre. It was one of the most famous symbols of yesterday's industrial activity in Lille: the Fives-Cail Babcock metallurgical factory (FCB). Founded in 1812, it employed about 6,000 people on a site of nearly 100 hectares at its peak.

The FCB factory was renowned for the great diversity of its industrial activities with international influence, such as the creation of railways exported throughout Europe, but also many works known for their notoriety and still in use today, such as the first steam locomotives, the Alexandre III Bridge and the elevators of the Eiffel Tower.

The FCB factory is also known to have been the scene of social struggles and progress. Pierre Degeyter, who wrote the song "The International", was a worker there.

The Fives-Cail urban project is one of the largest ongoing projects in the city of Lille. For a total area of 25 hectares, 1200 housing units labelled "eco-neighbourhood" will be created and many activities will be carried out around a social inclusion project using the job creation potential of food and gastronomy, and relying on the culinary heritage of the people in the district as much as possible.

To support this approach and encourage the re-appropriation of the site by the inhabitants of the district, the associative fabric is mobilized in a transitional urban planning process, around a place called "the common kitchen" where workshops and activities are regularly organized. Actors involved in reintegration through employment and associations providing assistance to the most disadvantaged are also involved in the implementation of the project because the district has a very high rate of unemployment, particularly among young people. The transitional urban planning process also includes a "Gourmet wasteland" similar to the future "Food court" of metropolitan scope planned in the project.

Thus, the "Tast'n'Fives" project (winner of European Urban Innovative Action funding) began with the construction of an international hostelry school in the former factory halls. The urban and architectural bias is to affirm that destruction is not a prerequisite. The actors involved in the project are therefore committed to not demolishing the halls and to studying their potential in order to include them as much as possible in the future project. Indeed, the halls represent an enormous volume capable of revealing the industrial past of the district and making it a marker. Rails will also be preserved and as well as their layout in the ground to structure public spaces and soft and active mobility routes, as well as other evidence of the neighbourhood's industrial past.

For more information: https://www.uia-initiative.eu/fr/uia-cities/lille / http://www.lavantgout-lille.fr/ / https://www.lille.fr/Nos-equipements/Fives-Cail

- ✓ **Presentation of the Inhabit2030 project (Habiter2030)**
  By Béatrice Auxent, President of the association Inhabit2030

The Association “Habiter 2030” was created with the aim of participating in the Solar Decathlon Europe 2019 competition.

The "Solar Decathlon", created by the United States Department of Energy in 2002, is an international competition of architecture, design, urban planning, sociology, engineering... in which multidisciplinary university teams compete to create innovative housing that meets the teams' ecological and territorial challenges. The objective is to promote innovation and the transmission of a scientific, technical and industrial culture (STIC) on renewable energies, passive construction, bioclimatic construction, etc.

The concept is to choose a habitat model, and reproduce it as a prototype that will then be subject to ten criteria:

1. The architecture
2. Engineering and construction
3. Energy efficiency
4. Communication and social awareness
5. Neighbourhood integration and impact
6. Innovation and sustainability
7. Accessibility and sustainability
8. Comfort conditions
9. The functioning of the house
10. The energy balance

This year, 16 teams from 13 different nationalities joined the competition. They all had two years to think about the challenge and develop a modular and dismountable prototype, before heading to Budapest (Hungary) where they presented it during 15 days of public exhibition. Inhabit2030 was the only French team selected, it brings together 200 students, teachers, trainers and professionals, and many industrial and institutional partners.

Inhabit2030 has chosen to present a prototype of a "1930" house, example of semi-detached houses from the 1850-1950 industrial period which represent a very large heritage in the Hauts-de-France (estimated to 700 000) which need deep energy renovation. To do this, Inhabit2030 relied on several partners, including La Fabrique des Quartiers, to produce the prototype of the control house and carry out tests on real houses.

Structure bois du prototype de la maison témoin « 1930 » par H2030
Photo MOLOC, 27/05/2019

The main themes worked on by Habiter 2030 are:

- “Frugality (or sobriety) assessed from the perspective of the life cycle analysis of components and building materials
- A multifunctional design in the broad sense where each designed device has several functions
- Study the impact of variations in time on housing: how can the house adapt to the passing of time, whether it is the time of the day, the year or also of life?
- The systemic integration of the human being, from producers to inhabitants.
- Insulation as a thickness to be inhabited.
- The pooling of energy production and consumption (extended reflection from the house to the group of houses: strips, blocks, streets), which constitutes a reservoir of innovation and performance.”

For more information: http://solar-h2030.eu/

- ✓ **Visit of the Boris Vian project**
  By Caroline Delbe and Marie-Charlotte Minoux operations manager, La Fabrique des Quartiers

The Neighborhood Factory is a metropolitan development tool designed to rehabilitate and to enhance old and deteriorated housing districts. At the service of local authorities, its share capital is held by the European Metropolitan Area of Lille, the cities of Lille, Roubaix, Tourcoing and the Société Publique Locale d'Aménagement (SPLA).

The wasteland of the former Boris Vian College located in the Fives district was the subject of urban renewal at the same time as two workers' housing estates, the Brunswick city and the Morel courtyard, whose deteriorated condition made rehabilitation impossible. For a total area of 2 hectares, it was decided to create an alternative legal structure to the Mixed Planning Zone (ZAC), choosing to group everything together on the same single building permit for 188 housing units.

This has made it possible to optimise the link with Intermunicipal Local Urban Development Plan (PLUi) in order to build shared underground car parks, green spaces and common buffer structures. In parallel, a study and negotiation work carried out by the SPLA made it possible to connect all the programmes to the city's district heating network.

In addition, this single building permit operation has also made it possible to guarantee architectural coherence throughout a project that has been designed by the same architects but with different partners, with the aim of guaranteeing quality public spaces.

Cité Brunswick *Projet Boris Vian*
Source : http://www.lafabriquedesquartiers.fr/les-autres-projets/boris-vian-lille

- ➢ **Tuesday 28/05/2019**

Morning : Visit of Euralille3000 sites
Location : Bois Habité district

- ✓ **Presentation of the Bois Habité district**
  By SPL Euralille

The "Bois Habité" neighbourhood uses vegetation as a density mediator to guarantee the privacy of residents regardless of their type of housing and on which floor it is located. Thus, the fabric is organized so that there is no transition between housing and the street, but between housing and green public spaces. The height of the frame designed in relation to the height and placement of the vegetation makes it possible to reduce the risk of damage despite the density requirement. The higher

units benefit from a view of the treetops of public spaces. Added to the underground parking lots, and the passageways and stairs that open onto terraces, the pedestrian square is neat.

Visit of the Bois Habité district
Picture MOLOC, 28/05/2019

- ✓ **Visit of the passive building of the social landlord PARTENORD in the Euralille 2 district "Bois Habité".**
  Par Céline Vannieuwenhuyse, urbanist at the City of Lille

The "Bois Habité" district is situated in the 22ha Euralille Mixed Devlepment Zone, just at the east of the city centre. It contains a building named "Vert Ebène", recognized as the first collective social housing project to be labelled "Passiv Haus" in France by the "Passiv Haus Institut" (German) represented by the French association “La Maison Passive”.

This label is only issued if the thermal calculations and design justify an energy consumption that doesn’t exceed 15kWh/m²/year. That is about 80% less energy consumed than a new conventional house. Here, the wooden framework acts as an insulating envelope and continuous mechanical ventilation (CMV) distributes calories. We were able to visit one of the 44 passive housing units, delivered in January 2013.

- ✓ **Visit of the wasteland and presentation of the Saint Sauveur project and its energy scenario**

By Cécile Judeaux, Environment Project Manager at SPL Euralille

The Saint-Sauveur project's energy planning is done at a project scale in the Saint-Sauveur district, which is taking shape on a railway industrial wasteland in the heart of the city.

It is the subject of a research agreement, signed in 2016, winner of the "Ecocity" subsidy managed by the State's Future Investment Plan (PIA) programme. It involves local authorities (European Metropolitan Area of Lille, City of Lille), ENSAM (Ecole Nationale Supérieure d'Arts et Métiers), the urban project management team, and energy concessionaires (ENEDIS, GRDF, RESONOR).

The objective is to define a global energy strategy at the district level, which integrates the challenges of reducing the environmental impact of energy and the economic impact of energy consumption.

To carry it out, several preliminary steps are set up:

- A comparative analysis of energy supply scenarios
- Dynamic modelling of energy consumption,
- The search for possible mutualizations
- Integration of smart grids issues
- And the interoperability of networks, energy mix, renewable energy and resources recovery, and storage.

The district's energy supply is planned in conjunction with the Metropolitan Energy Recovery Centre (“Centre de Valorisation Energétique”) managed by the European Metropolis of Lille, from which the heat will be recovered, in particular to the Lille heating network (called RESONOR) from 2020. It will be able to supply the district with renewable energy, in addition to local production (solar thermal panels on the roof). The "smart grids" and "smart metering" (smart meters) will then be able to orchestrate a pooling of energy flows that will contribute to the redistribution of surpluses according to needs (islets, swimming pool...), thus reducing heat losses.

In parallel, the Saint-Sauveur project's buildings lots allow sobriety and energy efficiency by using principles of bioclimatic architecture (passive inputs, natural ventilation, etc.) and the performance of the outside layer (insulation, waterproofing, etc.). In addition, the greening of the islets will improve thermal comfort in summer and help fighting heat island effect.

View on the Saint-Sauveur wasteland
Picture by Florent Moreau – VDNPQR
From : https://www.lavoixdunord.fr/550241/article/2019-03-11/pour-tout-comprendre-la-friche-saint-sauveur-passee-au-crible-du-vrai-faux

Afternoon: Site visits around the MEL heat highway project
Location: Energy Recovery Centre (ERC) in Halluin

✓ **Visit of the COVALYS Energy Recovery Centre of the European Metropolis of Lille**
By Hervé Carron, director of COVALYS

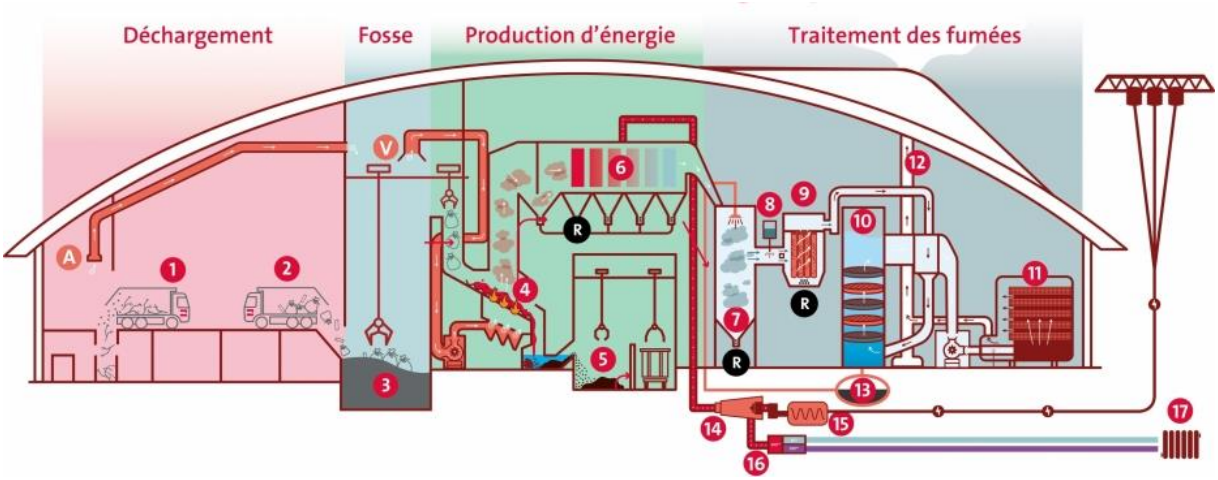
The Energy Recovery Centre, located in Halluin, at the north-eastern part of Lille Metropolis and called ANTARES, is a thermal treatment plant for the combustion of non-recyclable household waste with a capacity of 350,000 tonnes per year (defined by the operating order), which represents 10% of the territory's total fatal.

COVALYS (65% owned by Veolia through its subsidiary VALNOR, and 35% by IDEX), obtained by agreement with MEL the public service delegation for a period of 12 years.

COVALYS is therefore in charge of operating this equipment, and the construction of the thermal energy transmission infrastructure network from Halluin, to supply the city's urban heating networks. This project is known as the "metropolitan energy highway".

Investments under this public service delegation contract amount to more than €40 million for the CVE (creation of the transmission network), and more than €25 million for adaptation work on the existing networks.

Operating diagram of the Antares Energy Recovery Centre



From : https://www.covalys.fr/schema-de-fonctionnement

Each furnace has a nominal processing capacity of 14.5 t/h for a PCI (lower calorific value) of 2,200kcal/kg. A domestic fuel oil burner ensures a heat of 850°C for 2 seconds during the shutdown and start-up phases, combustion taking place at 1000°C for about 1h to 1h30.

To recover the hot air, each furnace is topped by a naturally circulating recovery boiler that produces superheated steam. From the three recovery boilers, the CVE produces 132t/h of steam at 42 bar and 370°C, which is recovered in electrical form by two turboalternator units with a nominal power of 16.7 MW each.

This fatal energy recovery makes it possible to send around 250 GWh of heat to the networks, i.e. half of the heat sales in 2017, and 70% of the renewable energies used for the MEL heating networks.

The CVE significantly reduces carbon emissions by 60,000 tonnes of CO2 per year, related to coal combustion and delivery, and reduces MEL's fossil energy imports by €5 million. In addition, it helps to reduce fine particulate emissions, and thus improve air quality.

- ✓ **Presentation of the connection projet to the district heating network**

By the Energy Department of the European Metropolitan Area of Lille - Mathieu Neau

The heat recovery allowed by the Centre de Valorisation Energétique (CVE) and named Antarès located in Halluin will supply the metropolitan heating network currently being deployed.

The MEL has a 21 km "heat highway" project. It will pass over the municipalities of Halluin, La Madeleine, Lille, Marcq-en-Barœul, Mouvaux, Neuville-en-Ferrain, Roncq, Roubaix, Tourcoing, and Wasquehal.

It will be used to supply the heating networks:

- RESONOR in Lille of 40 MW, over 42km, and
- R-Energies in Roubaix of 10 MW over 19.8 km,

To do this, COVALYS will also create 3 substations, all on MEL's land right-of-way:

- a substation next to the CVE,
- one near the Louis Pasteur crossroads and the Lycée Pasteur (Lille)
- one next to the Chaufferie de l'Alma and Quai de Gand (Roubaix)

The CVE and its connection to the urban heating network meet the challenge of decarbonizing energy in the metropolitan area, where 47% of the energy consumed is used to heat. They make it possible to limit dependence on fossil fuels (oil, coal, gas, etc.), in a context where the price of heating tends to increase. This major step towards ecological transition will cover the needs of 40,000 households.

- **Wednesday 29/05/2019**

Matin : Visites dans le quartier Vauban – Projet LiveTree
Lieu : Rizomm, Quartier Vauban

- ✓ **Presentation of the Rizomm building and the LiveTree project**

By Yohann Rogez, operational manager of the "LiveTree" strategic programme

The Live TREE Project (Transition to Energy, Ecology and Economy) is a program led by the Catholic University of Lille, which is part of the Rev3 strategy- Third Industrial Revolution dynamic led by the Hauts-de-France region.

It aims to develop energy transition within the the Vauban-Esquermes district, where the Catholic University of Lille (30,000 students, 5,000 employees, 2 hospitals and several buildings) owns land, in the very heart of the city.

The Catholic University of Lille therefore represents an opportunity to experiment ecological transition, here, through the construction of a "smart city" model that would take into account the socio-technical aspects related to the energy transition: behavioural changes.

The aim is to make the campus a place of education for students in transition, by designing demonstration buildings, such as the Rizomm. The Live TREE project is also an opportunity to develop the education offer by integrating the challenges of the third industrial revolution (new economic models, transition, energy...), and by creating a new master's degree in "energy performance management" at HEI (Ecole des Hautes Etudes d'Ingénieur).

Among the project's key areas of focus is an ambition to act on the energy efficiency of buildings, local energy production (solar panels, geothermal energy, etc.), and the self-consumption of energy by thinking of pooling and storage solutions.

To this end, it is planned to build a smart grid on the scale of the block, then the district, in conjunction with a management centre that would manage energy flows in order to send them where there are needs, managing surpluses. In the long term, each building will be equipped with sensors to measure the actual energy consumption, allowing it to be redistributed as needed.

Important work is also being done on pedagogy to ensure that the new management of the buildings is really appropriate.

The Live TREE project receives co-funding from the Regional Council, the European Metropolis of Lille (€1 million/year) under the "MEL So Connected" call for projects, ADEME for 5 years under the smart grids project, and an ERDF grant.

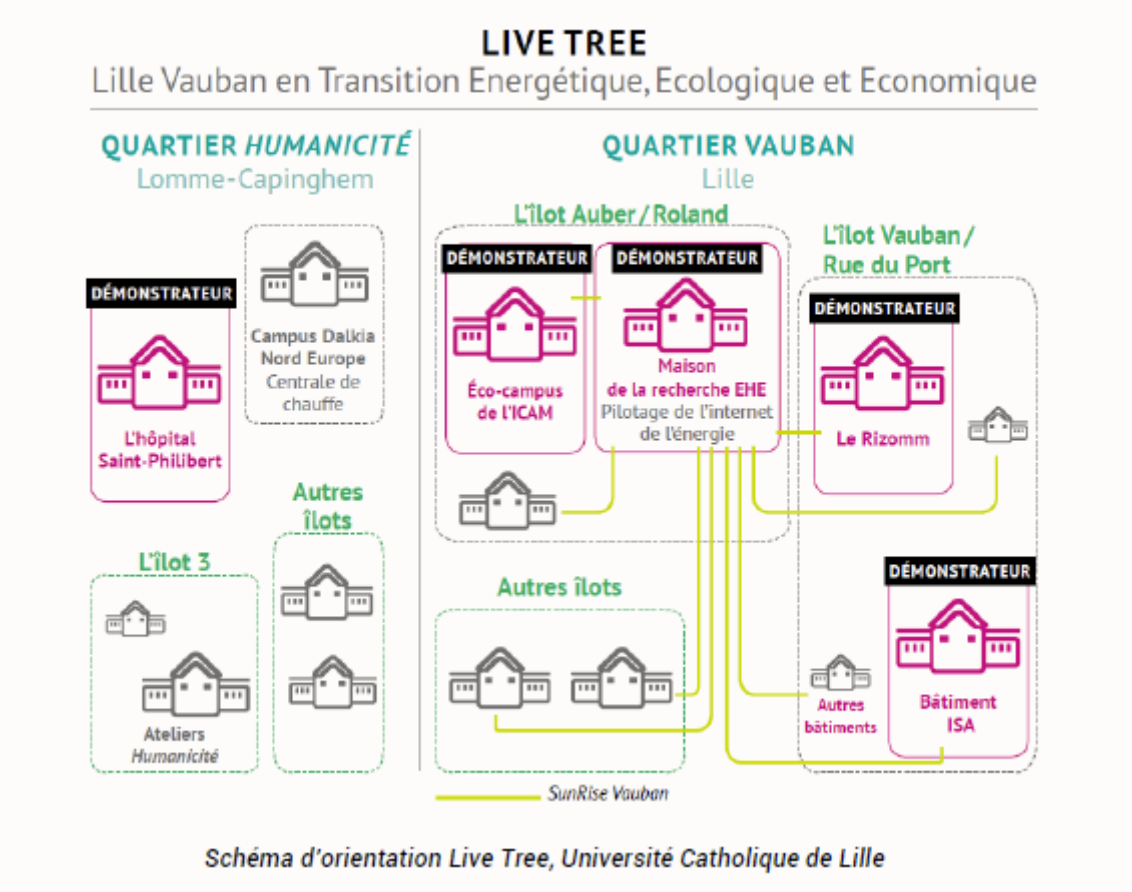


Schéma d'orientation Live Tree, Université Catholique de Lille

From : https://livetree.fr/

Afternoon : Debriefing
Location : Rizomm, Quartier Vauban

- ✓ **Debriefing of the three days of study visit and internal working session on the progress of the action plans**

During the debriefing session at the end of the event, the partners made the following observations:

1. *Integrated approach for urban projects*

On the urban projects of Saint-Sauveur, Fives-Cail (including the Habiter2030 project and the Boris Vian project) and Euralille3000 (Bois Habité), the partners in the four cities all appreciated:

- The **holistic approach to urban projects**: taking into account land, heritage, social, economic, environmental, demographic and other aspects in a global guide plan.
- The involvement of many **public and private stakeholders** in the design phase.
- The mobilization of **experts** on the different themes at stake.
- The **mix distribution of housing, equipment and shops** that they consider appropriate.
- The importance given to **social housing** and/or more vulnerable populations

Above all, citizen participation seemed to them to be exemplary. The Italian, Polish and Romanian partners pointed out that more often in their cities, the decision on projects was vertical, from decision-makers to inhabitants, the opinion of inhabitants not being systematically taken into account.

The Italian partners highlighted the quality of **temporary urban management** in Fives-Cail and Saint-Sauveur, even thinking of asking the elected representatives of the city of Turin to integrate this aspect into their future metropolitan master plan, which is currently being revised.

The Italian partners also wish to have more exchanges with the City and the European Metropolis of Lille on the **control of land consumption** in the territory, in particular the tools within the framework of the PLU or the study of mutable sites.

2. Energy planning and self-consumption

The Italians are currently working with the Politecnico di Torino University on island-wide energy sharing as part of the European SCORE project (https://www.score-h2020.eu/). The work presented by the Catholic University of Lille as part of the LiveTree project is therefore of great interest to them.

3. MEL project on the highway of heat

All the partners greatly appreciated the visit to the construction site of the connection of the Lille urban heating network to the Halluin Energy Recovery Centre. The Polish partners pointed out that this type of project would be difficult to implement in Silesia because of citizen protests that could arise over possible air pollution from waste combustion.

4. Global remark low-carbon city

Energy Cities provided a more global analysis of the projects seen during the study visit. Their work in MOLOC has so far consisted in analysing the obstacles to the low-carbon city and comparing the nature of the challenges between each city.

At the end of the 5 study visits organised in the MOLOC project, they highlight two important aspects:

- **All cities have a common challenge: increasing citizen participation.** Whether it is on urban projects, behaviour change on the use of fossil fuels or mobility, all MOLOC partner cities are facing an ever-increasing demand from residents to integrate their visions. Cities must therefore find the appropriate responses to these demands, while ensuring that planning issues on a larger scale (metropolitan or regional) are addressed.

- The obstacles to integrating low-carbon aspects into municipal policies are not technical or financial but mainly related to **project governance**: mobilization of transversal teams, involvement of citizen and stakeholder colleges, political impetus.