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The French network of public and private stakeholders for sustainable cities

Innovative solutions for sustainable cities

Industrial Demonstrators for Sustainable Cities

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INDUSTRIAL DEMONSTRATORS FOR SUSTAINABLE CITIES

A SPECIFIC SUPPORT FROM THE STATE

/// A MECHANISM FOR PUBLIC-PRIVATE GROUPINGS

The call for Industrial Demonstrators for the Sustainable City projects (Démonstrateurs industriels pour la ville durable - DIVD) is aimed at companies of various sizes and business lines: SMEs, start-ups, large groups in the construction industry, digital technology, transport and urban service sectors, as well as universities, public establishments, etc. These companies and the regional authorities supporting them form public-private consortiums, which locally deploy technical, organizational and governance innovations at all the stages of the urban design.

▶ A dedicated interministerial team

Assistance from the State is provided in project mode by a dedicated interministerial team, in liaison with the Ministries, Directorates and regulatory bodies concerned.

For each DIVD, we appoint:

- a national referent for the Urban Planning Construction Architecture Plan;
- A local correspondent, within the decentralized departments in charge of development.

▶ Assistance to remove the technical, legal and financial barriers to innovation

In the future, the industrial demonstrators will be showcasing French expertise internationally.

For this reason, the State assists them to remove the barriers to realizing their projects with:

- technical and legal support and the implementation of the derogation mechanisms provided for in the law;
- financial support for the engineering;
- the coordination of an exchange network;
- the national and international promotion of the projects.

KEY FIGURES

- **16 demonstrators (2016)**
- **112 companies, subsidiaries and state-owned industrial and commercial establishments (EPIC)**
- **Dedicated team:**
  - **3 coordinators,**
  - **4 national referents,**
  - **15 local correspondents,**
  - **1 assistant to the project management (AMO)**

> *We do not want to deregulate the procedures but we realize that in land planning and development it is sometimes necessary to knock down a few barriers. The support from the State […] facilitates dialogue, and that should be emphasized.*
>
> **Bruno Tirmant**
> VNF, at the DIVD club of 13 January 2017

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/// A COLLECTIVE TAILOR-MADE APPROACH

▶ The State in touch with the DIVD Club

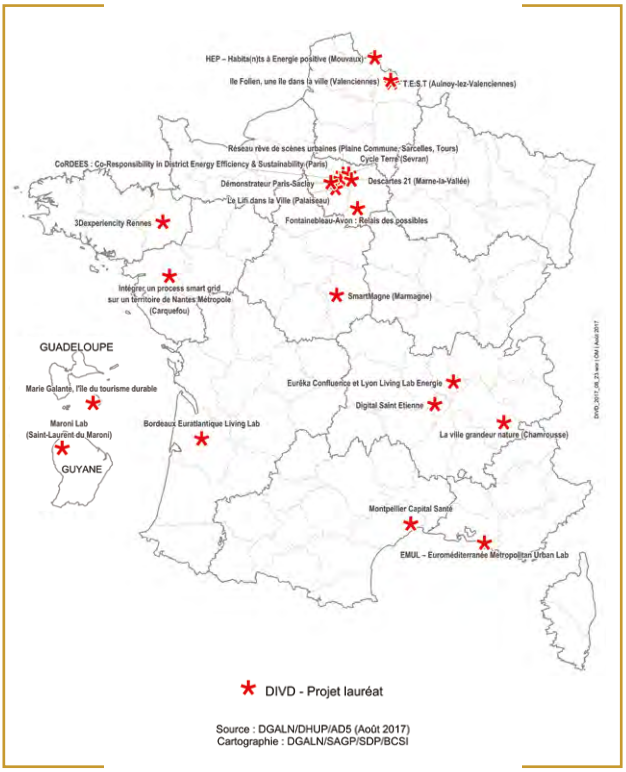
Through this approach, the State and the companies adapt their mode of functioning to guarantee the agility that is necessary for the innovation process.

To co-build and guide the approach, the demonstrators' 'club' is invited twice a year by the State.

▶ An innovative method: the example of the 'barrier group' (French: "groupe verrou")

The 'barrier group' brings together the industrial demonstrators for the sustainable city and supportive experts, in order to:

- identify the technical and legal barriers to the realizing the projects;
- act out the State's commitment to contribute to removing them;
- share the solutions and good practices.



A COMMITTEE OF PARTNERS

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LA FLEURIAYE,
THE LARGEST CERTIFIED PASSIVE BUILDING COMPLEX IN EUROPE

In Carquefou, 600 housing units with a passive objective have been built. The ZAC (joint development zone) of La Fleuriaye in Carquefou is an environmental equation combining biodiversity, passive construction, and renewable energy. This project has successively been labelled Industrial Demonstrator for sustainable cities in March 2016, then was certified SMILE (Smart Ideas to link Energy) in February 2018 and was finally awarded the Grand Prix of the Green solutions Awards, in the district category.

INNOVATIONS

▶ **Energy-neutral district: production greater than or equal to consumption, innovative legal set-up for photovoltaic technology, development of communication-capable transformers, technical and economic optimization on all the processes. Development of Smart Grids in new and existing buildings for optimization purposes but also for educational and societal purposes (Display screen).**

▶ Passive construction enables the 3 aspects of sustainable development mentioned above to be combined by proposing to more than 1,000 inhabitants:

- Lower energy costs
- Cleaner air to breathe
- A reduction in overheating in the summer

▶ The flats will be equipped with a new generation of electric meters allowing tenants to monitor their consumption. According to current estimates, for a 60 m^2 flat, the average annual heating bill would be around €100.

▶ All the south-facing roofs will be equipped with photovoltaic panels, and **at least 80% of the district's electricity consumption will come from renewable energy. This enables the operation to be eligible for the "Bâtiment Passif Plus ou Premium"** (Passive Building Plus or Premium) labeling, by being virtually self-sufficient in renewable energy. **The objective is to reach a 100% coverage of the total consumption in primary energy** for all uses of the buildings.

OBJECTIVES

➜ **620 housing units (320 1st phase and 300 2nd phase) as unrestricted housing, affordable housing, assisted rental, unrestricted lots, 5,000 m^2 of tertiary buildings, an equestrian center, a Medical Educational Institute. The aim is to create:**

- a real living environment combining cultural facilities (theater, FRAC (regional fund for contemporary art), music school), tertiary activities: 120 companies, 1,500 employees, 1,600 housing units in the long term, leisure facilities (bowling, equestrian stopover) and proximity of shops;
- socially mixed housing, with 30% of rental flats for social housing, 25% of affordable housing and 45% of unrestricted housing in Fleuriaye Ouest;
- functionally mixed with a diversity of service and tertiary activities, public and private facilities all within a 100 ha basin that is pleasant to live in.

STAKEHOLDERS

- **Project Ownership:** Nantes Metropolis,Town of Carquefou, Loire-Atlantique Développement SELA
- **Real estate operators:** Samo, Vilogia Bouygues Immobilier,
- **Urban planner, Architects:** AUP, Magnum PADW
- **Real estate and energy operators:** Artelia, Legendre Énergie
- **Thermal Technical Consultants:** Energelio, Albdo, Pouget Consultants.
- **Assistance to Contracting Authority:** Amocité, Claude Figureau (ecologist)
- **Companies:** Eiffage Construction
- **Public electricity network operator:** Enedis

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IMPLEMENTATION

▶ A coherent governance, committed stakeholders, a management with integrated multidisciplinary skills.

▶ For Fleuriaye Ouest, Nantes Metropolis and the Town of Carquefou are joint decision-makers on the project orientations. It was recognised by Loire Atlantique Développement - SELA in 2011 for its proposition to commit to energy efficiency and the environment.

▶ In Fleuriaye Est, the Economic Interest Grouping (French: GIE) created in 1995 makes it possible 20 years later to bring together all the companies around common actions ranging from business services to services for individuals. The very existence of the GIE and the actions already underway will enable us to propose in an efficient way a set of technical and economic optimization actions structured around energy and the environment.

KEY DATAS

➜ **All the south-facing roofs of the buildings are equipped with photovoltaic panels,** i.e. 6,000 m² which cover more than 80% of the housing's total energy consumption.

➜ **Although concrete was preferred to wood in the buildings overall, Bouygues experimented the Thermibloc technique.** This material is composed of 80% wood shavings and 20% cement, it is a formwork block with fit-in insulation over which the builder pours concrete once the wall is built, thereby securing the bearing structure.

➜ **This project has won the Industrial Demonstrator for sustainable cities label, has been certified SMILE and was awarded the Grand Prix of the Green Solutions Awards in the district.**

RESULTS

/// **The creation of a new peri-urban district including functional and social mixing and a diversity of building typologies in an enhanced living environment. The largest passive housing operation in France.** The largest passive housing operation in France: the 318 passive Plus housing units are distributed among three programs:

- **The SOLEO – VILOGIA program:** 110 flats in two buildings, as GF(ground floor)+3, allocated between housing for young workers, social housing, affordable housing and unrestricted housing.
- **TEMPO – BOUYGUES IMMO program:** 140 flats distributed in 8 small buildings over 3 storeys. 15 to 20 flats will be unrestricted housing.
- **PASSIVE'O – SAMO program:** 68 rental flats for social housing only, distributed in 2 three-story buildings.

/// **Yosemite, first office building labeled Passivhaus Premium**

Built by the developer GSE and commercialized by Manac'h Immobilier, it is also the only office building in the region with a negative energy performance diagnosis (EPD) since it produces more energy than it consumes, largely from its roof equipped with photovoltaic panels. With a total surface area of 1,630 m² divisible, as well as 56 parking places, it is stretches over 3 floors (GF+2).

FINANCIAL ASPECT OF THE OPERATION

/// **Management of costs and definition of a fair allocation of investments and management costs.** Each stakeholder in the construction chain took its responsibilities to limit the construction and the housing management costs:

- **The planner:** by defining critical operation sizes to ensure that the real estate operators benefit from the scale effect,
- **The urban planner:** by defining plots limiting masking effects and optimizing free solar energy collection due to their orientation and a roof form predefined in the specifications for land transfer on the islet,
- **The real estate lessor and developer operators:** by comparing a wide diversity of construction systems and technical equipment; by making use of arrangements of the design / realization type; by making their roofing available to solar investors without any fees,
- **The consultancy firms** with expertise in passive design or in biodiversity directly associated to the urban or buildings' project management, at the request of the planner,
- **The single photovoltaic lead contractore** to ensure that solar investors benefit from economies of scal,
- **The co-ownership unions and specialized geometers,** involved from the outset to fairly assess the value of joint costs in the future and to help in the choices to be made in the design phase.

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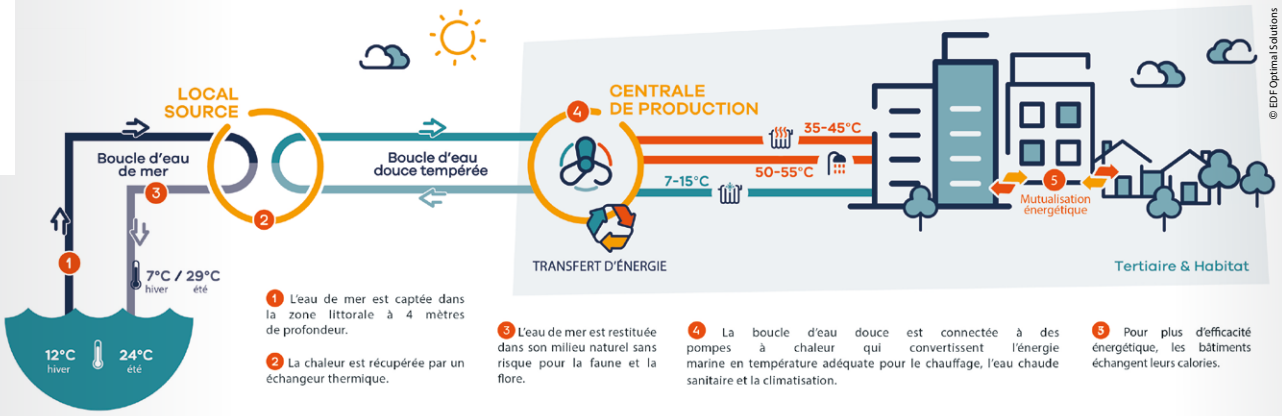
LES CALORIES DE LA MER AU SERVICE D'UN ÉCOQUARTIER



SEAWATER-HEATING LOOP

WHEN THE ECOCITY IS POWERED BY SEAWATER

The building sector (residential and tertiary) used more than 45% of the final energy consumed in 2014. It remains by far the most energy-consuming sector, ahead of transport, agriculture and industry. The ambition for the EcoCity is therefore to decrease greenhouse gas emissions by 40% by taking action at the construction stage and to increase the proportion of renewable energy to one third of the energy production by 2030.

OBJECTIVES

- In a dense urban environment, a seawater loop offers a service that is adapted to the needs of real estate operators and subscribers, combining reliability, flexibility and technical and financial robustness over the long term (25 to 30 years). It is also part of the "low cost easy tech" logic, since this innovation is reproducible at low cost.
- Seawater heating is thus a powerful marker of the Mediterranean EcoCity. Conditioned by its coastal location, it meets the Mediterranean climatic constraint by enabling the development of a heating and cooling network, without consequences on the urban heat island.

INNOVATIONS

Seawater heating, sustainability for the EcoCity

Seawater heating, i.e. the technology that draws calorific energy from seawater to heat and air condition buildings, is a sustainable answer to this energy problem. It is an innovative process which will ensure a renewable energy production at 70% and thereby improve the thermal balance of property activities by facilitating, in particular, the generalisation of the positive-energy building (French: BEPos). As part of an overall sustainable development approach, seawater heating also makes it possible to reduce CO_2 emissions and to reduce fuel poverty in the area through the implementation of an energy solidarity system on the scale of the EcoCity's district.

Seawater loops in the heart of the EcoCity

Two seawater loops are currently in service in Euroméditerranée's EcoCity, when at full capacity they will be able to supply nearly a million square metres. In the area of La Joliette and Arenc, the Thassalia seawater heating network operated by the Engie Group began supplying the first offices and shops in 2016. At full capacity, it will be able to supply more than 500 000 m², i.e. a production of 16 MW of cooling and 18.6 MW of heating. Further north, in the Extension area, since Spring 2017, the first Smartseille buildings have been heated and air conditioned by 'Massileo' a smart renewable energy network deployed by Optimal Solutions (subsidiary of Dalkia, EDF group) which will eventually supply 500 00 m² of buildings.

These exemplary projects are both supported by ADEME and the ERDF, as well as by the local authorities and the Investments for the future program.

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STAKEHOLDERS

- Massileo
- Optimal Solutions
- Dalkia (groupe EDF)
- Euroméditerranée
- Eiffage Immobilier
- Grand Port Maritime de Marseille (maritime port of Marseille)
- DIR Méditerranée
- General Council of Bouches-du-Rhône
- SNCF Network
- City of Marseille

IMPLEMENTATION

- Within the framework of a partnership with Eiffage Construction, Optimal Solutions studied a low carbon solution which uses local renewable energy to supply the Smartseille eco-neighbourhood.
- Optima Solutions then moved towards seawater heating and then adapted its solution, in agreement with the Euroméditerranée public development institution (French: EPA), so as to be able to supply all the buildings to be built within the Euroméditerranée 2 area.

KEY FIGURES

- 75% of renewable and recovery energy
- 80% reduction in CO_2 emissions (compared to a traditional energy solution)
- 500,000 m^2 of buildings
- 21 MW of heating and cooling production capacity (including 2.5 MW for the Smartseille eco-neighbourhood)
- 4 kWh returned in heating and cooling for 1 kWh of electricity consumed

FINANCIAL ASPECT OF THE OPERATION

/// €10 M of investment for the 1st instalment.

/// €1.7 M of subsidies (€778,000 of ADEME subsidies and €942,000 of ERDF subsidies).

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massileo Optimal Solutions dalkia GROUPE EDF

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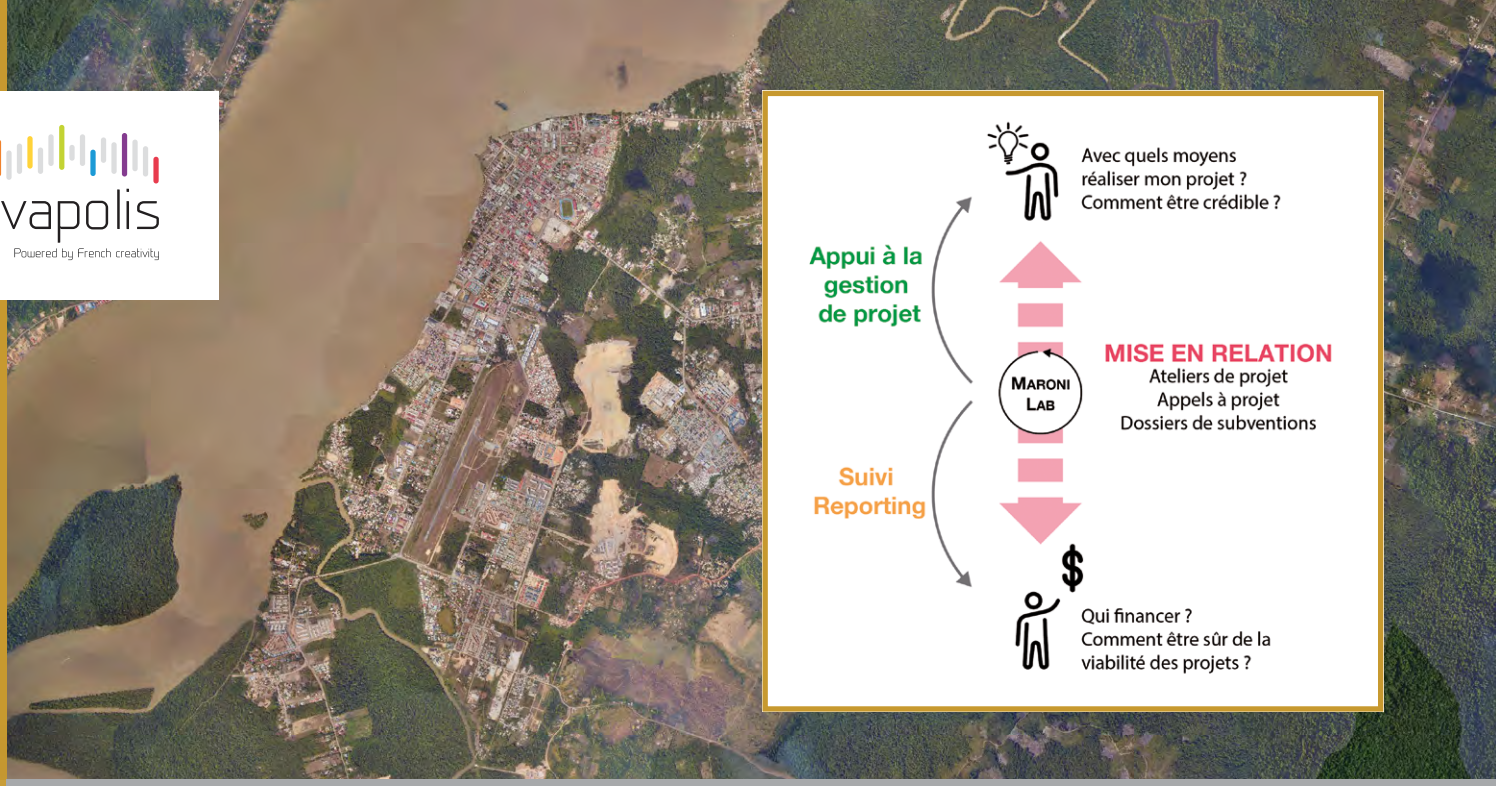


THE MARONI LAB,
URBAN EXPERIMENTAL LABORATORY

Saint-Laurent du Maroni is the 'western capital' of French Guyana, where there are high levels of demographic and urban growth. Located at the mouth of the Maroni river and on the coastal road, the city has cross-border connections with Surinam. It is a logistic platform for the all the goods coming up the Maroni river.

It is today the second city of French Guyana and will become the first city of French Guyana by 2030. Urban development issues are therefore crucial. The municipality is seeking to develop innovative development strategies that are adapted to the singularity of the territory and to the cross-border dimension of the situation with the municipalities of Saint-Laurent du Maroni in Guyana and Albina in Surinam.

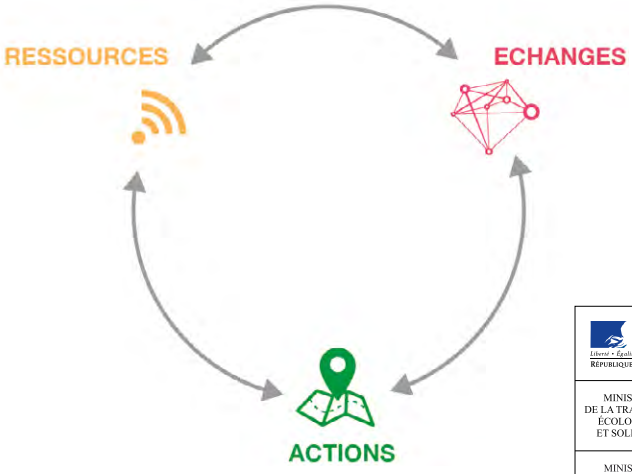
Since 2012, the City has sought the assistance of the public land management and development establishment of French Guyana (French: EPFA Guyane) in developing its urban strategy. In this context, an international urban planning workshop on the theme of territorial solidarity and urban development of the city of Saint-Laurent took place from 6 to 20 May 2016 via "*les ateliers de Cergy*" (Cergy workshops) to reflect on the urban transition and the possible futures of Saint-Laurent du Maroni.

The Maroni Lab is one of the proposals of this international urban planning workshop of Saint Laurent du Maroni. It is seen as a useful for the territory in the form of an independent association to support and stimulate the initiatives of urban players, whether institutions, professionals, inhabitants or users. The Maroni Lab was created at the beginning of 2018 and will implement its first activities in the course of the year.

INNOVATIONS

▶ **The aim of the Maroni Lab, an urban experimental laboratory,** is to lead an inclusive reflection on the urban development of Saint-Laurent du Maroni and to develop innovative actions through:

- **Resources:** A facilitated access to urban data; A place for data production and exchange; A space for the capitalisation and dissemination of experiences.
- **Exchanges:** A place for reflection; A place for sharing experiences; A place where partnerships are created; A place of innovations.
- **Actions:** Support and conduct urban projects; Generate urban experiments; Support the initiatives of users and inhabitants.



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STAKEHOLDERS

▶ **The consortium of the Sustainable Demonstrator for the Sustainable City (French: DIVD) Maroni Lab** consists of the City of Saint-Laurent du Maroni and the public land management and development establishment of French Guyana (Etablissement Public Foncier et d'Aménagement de la Guyane - EPFAG). The EPFAG is the pilot of the consortium.

▶ Furthermore, today many stakeholders are involved or showing interest in participating in the Maroni Lab or in the projects that it will support:

- **Institutions:** The French Development Agency (AFD), Directorate for the Environment, Development and Housing (DEAL) of French Guyana, ADEME, CAF (family allowances fund), CNRS, Ateliers de Cergy, the Ministry of Territory Cohesion and the Ministry for an Ecological and Solidary transition through the label "*Démonstrateur Industriel pour la Ville Durable*" (Industrial Demonstrator for the Sustainable City).
- **Professionals:** SODIM, Bouygues, local architects, social engineering office.
- **Associations :** 6 associations locales (Jeunesse, Médiation sociale, Santé, Théâtre, Vidéo, FabLab).
- **Associations:** 6 local associations (Youth, Social mediation, Health, Theater, Video, FabLab) Inhabitants & users: a dozen people as individuals.

IMPLEMENTATION

▶ The Maroni Lab also aims to encourage and facilitate projects led by persons or structures that would not have sufficient recognition or capacity to do so without support.

▶ This will allow ideas to emerge directly from the users of the city and inhabitants of poor districts. The Maroni Lab can therefore act as a form of guarantor between financing bodies and project leaders.

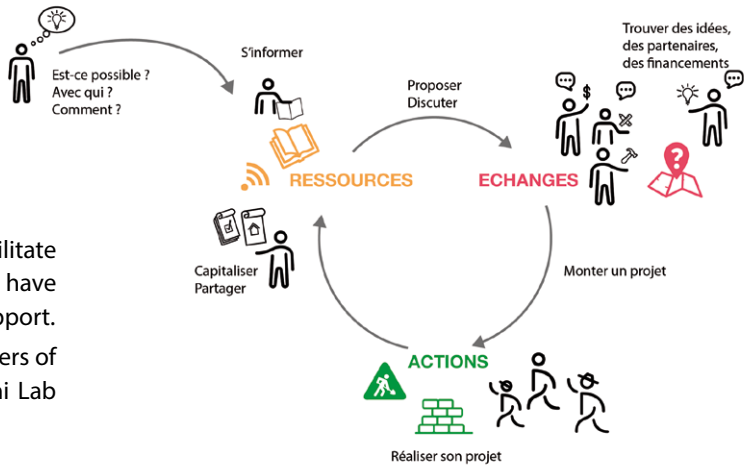
▶ The Maroni Lab is also a space to host researchers or students, and invite them to capitalise on the projects to foster innovation.

▶ **The projects that could be supported are urban-related but can be of all sorts: mapping of a district, development of a square, of a community garden, installation of urban furniture, mobile application for transport management, shared car or canoe, bioclimatic architecture, self-builds, etc.**

▶ The actions of the Maroni Lab will also concern the following sustainable development aspects:

- Support to foster the emergence of a social and solidarity-based economy through a productive territory enabling the resources to be used locally.
- Social cohesion, the participation of inhabitants by including them in the various processes that will be put in place.

▶ **Mobility, with virtuous urban forms of transport on the scale of both the districts and the city.**



ACTIONS DEPLOYED

/// To initiate the process, the first actions identified are:

- **Set up a participative mapping** carried out by the inhabitants and high school students with support from professionals and high school teachers. This will make it possible to identify the assets and constraints of the districts, in particular in informal areas, and thereby locate with the city's users the most promising project sites or themes for the development of the area.
- **Launch a call for micro-projects** to inspire project leaders and encourage them to carry through their ideas.
- **Regular thematic workshops** One of these has already been held on self-builds and housing cooperatives. Others could be organised on transport, renewable energy, digital technology, for instance.

/// To this day, several actions have been conducted:

- **The awareness of local stakeholders was raised.** 60 people from institutions, from the professional environment, from associations, and individuals participated in the presentation/debate on the project in October 2017.
- **Thematic workshops were held,** one on the social production of housing brought together 25 people and the other on self-building attracted 15 people.

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EPFA Guyane territoire d'avenirs

Ville de Saint-Laurent du Maroni
Sèves de Guyane

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BUILDING AN ENERGY STRATEGY

ASSOCIATED GOVERNANCE

The SAS Ile Folien undertook in Valenciennes, on the canalized Escaut river, the development of an exemplary, reproducible district, with 47,000 m² of built area, on an island in the heart of the City. This development will create 3,000 m² of tertiary buildings (floor surface) and 35 000 m² of housing.

The SAS Ile Folien develops this project in the context of a PUP (Partnership Urban Project) signed in 2015 with the City of Valenciennes.

INNOVATIONS

The ambition in terms of energy is clear.

"Third Energy Revolution"

The project is part of the "Third Industrial Revolution" approach, developed by the Hauts de France Region. The aims of this Third Industrial Revolution (REV3 TRI) are the development and production of decentralized renewable energy in particular.

Hydroelectric and geothermal energy

The energy aspects are addressed, on the one hand, by the input of electricity on the site through hydraulic production structures installed on the Escaut river, and on the other hand, by the installation of a geothermal heating network.

Innovative lighting and mobility

Apart from the buildings, a technical roadway surrounds the real estate project and provides for suitable lighting. Depending on the materials installed, energy savings certificates are accessible. It is also planned to provide on-site electric charging stations for cars and bicycles, as well as a public transport package.

STAKEHOLDERS

The stakeholders of SAS Ile Folien are Voies Navigables de France (French Navigable Waterways) and Sofilo, subsidiary of EDF.

OBJECTIVES

Technical objectives

- The aim is an urban project with zero local CO_2 emissions, in line with ambitious energy criteria (RT 2012 - 15% - equivalent to the EFFINERGIE program).
- A BEPOS / EFFINERGIE objective for buildings to minimize energy needs.

Mutualization objectives

- The energy strategy is not limited to the Folien island area and in particular, studies are in progress on the interest of deploying the energy solution projected for the Folien island in the district of the Faubourg de Lille in Valenciennes, a NPRU district. Indeed, the strategy puts the emphasis on the potential for mutualization (between networks - geothermal and solar energy for instance), storage and curtailment of productions on the site in order to optimize the site's energy management between, on the one hand, the input of electricity on the site through hydraulic production structures installed on the left bank on a discharge arm of the Escaut river, and on the other hand, the installation of a geothermal heating network. The energy study of the district highlighted the possibilities of energy mutualization between different structures: high school, clinic, Rives creatives (Creative riverbanks), Data center, and so on.

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IMPLEMENTATION

▶ The aim is also to put in place the possible and strategic governance bodies for the proper management of the energy networks envisaged on the site. Smart grids are vectors for on-site energy efficiency through the synchronous coupling of energy production and consumption on the site. The solution to this problem lies in a dialogue between all the electricity protagonists:

- the actors of the heterogeneous decentralized production,
- the built energy network,
- an electric vehicle with a storage system that is also electric,
- the final user interacting with his smart meter.

This does not mean being energetically autonomous but devising a smart electric dialogue.

The regulatory developments and the last Decree No. 2016-704 of 30 May 2016 on experimentation with local flexibility services on portions of the public electricity distribution network will optimize leeway management and the role of each of the actors.

RESULTS

/// **A reproducible methodology was produced and highlights the elements to be simulated in order to define an energy strategy.**

- **Needs and consumption:** thermal and electricity needs in hourly periods by type of building and usage. By allocating the different energy systems to the buildings, this enables the power demands, i.e. the load curves, to be simulated.
- **Production :** the quantities of energy produced and their costs calculated by the analysis of the local means of production on the sites (on buildings: solar photovoltaic and thermal systems, heat pumps, etc.), internal remote production means (in the district: geothermal technology, heat pumps, cogeneration or trigeneration units, parked electric vehicles, etc.) and remote production means (external: suppliers and especially hydroelectric plants).
- **Storage:** the new possibilities for thermal storage / electric storage in sites / districts / thermal batteries, batteries, electric vehicles, and so on.
- **Micro-grid:** on the production, storage and consumption trio on two scales: building and district.
- **Management of consumption and change and control over behaviors:** in order to assist in the proper management via smart grids and relieve the fear of new technology, a definition of the collaborative and citizen participation approach to the monitoring and assessment process.

KEY DATA

➜ **Possible extension of the Folien island's geothermal network towards the Rives créatives (Creative riverbanks), the high school of the Escaut, the Vauban polyclinic and the district of the Faubourg de l'Ile**

Possibility of obtaining a rate of renewable energy near 50%, which enables a reduced VAT rate of 5.5% instead of 20%

➜ **Electricity production by a micro-hydroelectric plant installed on the waterfall:**
• Power: 100 to 120 MW – Producible: 700 to 800 Mwh/year
• Investment: €1 M

Possibility of self-consumption on the heat pumps of the geothermal network - amortization time estimated at about 25 years (without the potential grants)

➜ **Electricity production by a micro-hydroelectric plant installed on the lock:**
• Producible: about 80 Mwh/year
• Possibility of self-consumption on the lock or 1 heat pump of the geothermal network

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SAS ILE FOLIEN

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THE FRAME OF REFERENCE FOR SUSTAINABLE DEVELOPMENT

FOLIEN ISLAND – VALENCIENNES

A DOCUMENT IN THE SERVICE OF THE INTEGRATED URBAN OFFER

Valenciennes and the CAVM are an economic and urban miracle. The situation there was indeed alarming in the mid-1980s, it was a deteriorated city with a disaster-stricken image. Economic redevelopment in the strategic automotive and rail sectors, along with an ambitious policy for urban renovation and the development of public transport by local elected officials at the end of the 1990s, have given the CAVM and the City a new breath of life in the past 20 years. As part of the continuity of this logic of industrial and urban reconquest, the Folien Island is one of the major urban projects that the City and the CAVM have included on their agenda for this second decade of the 21st century.

INNOVATIONS

- In 2012, VNF and EDF, the property owners of the Folien Island, undertook with all the partners to develop a sustainable neighborhood around the waterway leisure port, exemplary in its design, reproducible in its method, audacious in its architectural and technical component, which redefines the art of living well together, and integrates into the city and its equilibrium. Beyond the design of this project, its planning and its adaptation to urban procedures, it seemed necessary to the partners to relate the genesis of this new district through a frame of reference based on sustainable development (French: référentiel de développement durable - RDD). Translating and sharing the project's ambitions in terms of sustainable development; producing a written record that is also exemplary and innovative.
- Sustainable urban planning is a cross-cutting approach which takes into account the site's possibilities, its specificities and the culture of the stakeholders in the territory. In the same way that the project of the chief urban planning architect is imposed on the architects of the property developers, the RDD is imposed on the investors.

STAKEHOLDERS

- **The city of Valenciennes**
- **The Community of the agglomeration of Valenciennes Metropolis (CAVM)**
- **Voies navigables de France (VNF) (French Navigable Waterways)**
- **EDF**
- **AIRELE-consulting firm**

STAKEHOLDERS
and their Sustainable Development approach

- **The themes of the Agenda 21 of the city of Valenciennes :** Creating a common sustainable development culture; Reinforcing the attractiveness and influence of Valenciennes; Improving the living environment and quality of life; Promoting sustainable mobility; Developing a policy for housing and public facilities in the districts; Implementing a follow-up of the City's Agenda 21.
- **The Sustainable Development objectives of the CAVM:** The economy, housing and urban renovation projects; Social cohesion, Planning/development and facilities in the territory; Environment; Events.
- **The 8 sustainable development objectives of VNF:** Co-responsible VNF; intermodality and modal shift; optimized and environment-friendly management of the water resource; accessibility and territorial development of uses of the waterway; environmental and societal performance of the VNF's property and built heritage; sustainable socio-economic development model for the waterway transport sector; conducting an exemplary approach on the major upcoming projects; reinforced sustainable development management approach.

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The 9 commitments of EDF: Environment [Energy operator with the lowest CO_2 emissions in Europe / adapting the production and offers to climate change / reduced environmental impact in particular on biodiversity]; societal [access to energy and Eco energy efficiency / proximity to territories / educational effort on energy]; governance [sharing values within the Group in liaison with the stakeholders / dissemination of the Group's activities and results in terms of sustainable development / participating in the national and international debate].

IMPLEMENTATION

This RDD was drafted based on the analysis of the documents defining the project (feasibility and in-depth technical studies and then the Preliminary Project), meetings with the local institutions, coproduction workshops with the project owner and its project management team: architect, urban planner, landscaper, construction economist, and specific consultancy firms.

The development of the Folien Island is a private development operation, conducted by the SAS Ile Folien, the project owner. The project ownership is composed of a steering committee and a technical committee for the duration of the Folien Island's development. The steering committee includes the project owners and their partners: VNF, EDF, the City of Valenciennes, the CAVM, the inter-municipal associations in charge of the transport and waste disposal networks, the project management (Studio Odile DECQ), and technical operators commissioned by the project owners.

The aim of this steering committee is to share and pool all the information relating to the project's progress and to collectively validate the strategic directions taken, technically monitor the technical and economic studies at the different development stages of the project.

The Island's inhabitants, through the Association Syndicale Libre (ASL), will be invited to participate in the steering committee and - beyond the time period of development and commercialization of the district - to a monitoring committee, bringing together the planner, the property developers, the City, the CAVM: all will have a role to play in the monitoring and assessment of the district's performance in terms of sustainable development.

RESULTS

/// Building on the Folien Island, an exemplary city heart, bordered by an Eco waterway port, whose operational mode and ambitions are presented in a RDD for the Folien island.

/// The project takes place in a context that is both buoyant and complex: an island which is at last turning towards the city center, a waterway activity which is establishing itself, sustainable development issues in the Escaut Valley, commitments of all the stakeholders.

/// The result is the commitment to 5 shared themes:

- Aim 1: fighting climate change and protecting the atmosphere;
- Aim 2: biodiversity, environments and resources;
- Aim 3: seeking the fulfilment of all human beings;
- Aim 4: social cohesion and solidarity;
- Aim 5: responsible production methods and consumption patterns.

/// This RDD was adopted in 2011, at the stage of the preliminary project and has taken different forms as the works progress. It also served in the recognition of the project by the Hauts-de-France Region when it was named an exemplary district of the "Troisième Révolution Industrielle" (Third Industrial Revolution). It will then be monitored by a control panel and will have to fulfill the initial commitment of the project: zero local CO_2 emissions.

KEY DATA

- **The RDD was the subject of an assistance order to a specialist consulting firm: AIRELE.**
- **The RDD was drafted over 12 months on the basis of participatory workshops but also with close consultation of the regulatory documents: Impact Studies, Water Law Declaration, etc.**
- **The RDD is intended to be experienced and shared by the future inhabitants and to make an impact on the Faubourg de Lille district.**

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The Vivapolis network aims to federate French public and private stakeholders involved in conceiving, building and operating sustainable cities, in France or abroad, in order to improve synergy and help them be, individually and collectively, more efficient in their action.

These sheets have been produced by the Vivapolis network members who attented different work groups to promote examples of innovative solutions for sustainables cities.

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