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The Urban Lab of Europe !

The CoRDEES project Journal N°1

*Project led by the **City of Paris***

ENERGY TRANSITION

European Union
European Regional Development Fund

Région Hauts-de-France

The CoRDEES project

With this CoRDEES project, the City of Paris aims to achieve a breakthrough by creating a new energy ecosystem at Clichy-Batignolles, a 54 hectares eco-district under construction. The aim is to reach the energy efficiency objectives: 50 kWh per square meter and 90% less CO_2 emissions.

CoRDEES proposes to combine three main solutions in an integrated approach. The project will establish a first of its kind multi-stakeholders energy governance system: the Urban Energy New Deal (UEND). This new deal will define on a collective basis the energy commitments and the contractual, financial and regulatory conditions necessary to its successful implementation.

The project partners will develop a Community Energy Management Platform (CEMP) to analyse and consolidate, in real time, energy data from buildings (electricity and heat) and public facilities (electric vehicle stations, street lighting and automated waste collection) in the area covered by the project. Project partners will use this consolidated data to define optimisation scenarios for the energy management of these buildings and facilities.

Finally, CoRDEES will test out new services to empower stakeholders and target groups to achieve energy efficiency goals. The set-up of an Urban Sustainability Trustee Facilitator (USTF), a new actor, will bring together all these solutions to provide technical recommendations, ensure stakeholder cooperation, end user empowerment and coordinate the creation and implementation of the different services.

Partnership:

- Ville de Paris
- Une autre ville (UAV) - Private Company
- PARIS BATIGNOLLES AMENAGEMENT (PBA)- Private Company
- ARMINES - Research centre
- EMBIX - Private Company

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1 Executive Summary

During 2015, after the City of Paris was informed by the UIA of its selection to be part of the first round of projects, they released a press note with the information of the good news for all to know; The CoRDEES project was a reality, and the challenge was on the table.

"The City of Paris, in partnership with Paris Batignolles Aménagement, EMBIX, Une Autre Ville and Armines/ParisTech, is a winner in the European "Urban Innovative Actions" call for projects launched by the European Regional Development Fund. As a result, the CoResponsibility in District Energy Efficiency & Sustainability (CoRDEES) smart grid project will receive €4.3 million in co-funding from the European Union".

This initial large-scale smart grid (intelligent energy network) project in Paris is now being deployed in the western sector of the Clichy-Batignolles development area, where construction is already underway since 2002.

This is the first of a series of journals which will follow up on the project progress during the following three years, until its completion. In this first edition, the project is presented, so most of its content is dedicated to the presentation of the City, the District and the project, together with the technical and transversal related challenges. There is also an introduction to the Partners who are on board the CoRDEES team. They will have to count with many others who are already involved in the development of this new urban area, and with the new inhabitants who will give sense to all the work done, once they go to live to their new dwellings in the new district.

The last two sections describe the main activities and results so far and introduce the next actions. The results are presented as a series of activities which have been carried out by the project partners in order to achieve the project's three main objectives.

We have tried to capture the best ideas generated up to now by the CoRDEES team, for them to become, hopefully, and example for others who would like to replicate such an interesting initiative in their own city.

2 The City of Paris towards a sustainable future

2.1 A European approach

Energy Union and Climate Action: Driving Europe's transition to a low-carbon economy

In 2014, the European Union (EU) made a clear commitment: to collectively reduce greenhouse gas emissions by at least 40% by 2030 compared to the 1990 levels, across all sectors of the economy. The proposals present binding annual greenhouse gas emissions targets for the Member States from 2021 to 2030 for the transport, buildings, agriculture, waste, land-use and forestry sectors as contributors to EU climate action[1].

According to the second state of the energy union report[2], published in January 2017, the transition to a modern, low-carbon economy is happening. The Energy Union Framework Strategy sets out the ambition to move away from an economy dependent on fossil fuels, and the decarbonisation of the European economy is well under way.

Overview of the EU Policies´ impact: a view on Smart Grid research and demonstration Projects across Europe.

In the publication "Smart Grids Project outlook 2017"[3], the Joint Research Centre (JRC) elaborates a database focusing on smart grids in the EU 28 Member States; it includes 950 projects, with around 5 billion € of investment, covering 6 project domains.

The domains with highest investment in Europe are smart network management (34%), demand-side management (25%) and integration of Distributed Generation and Storage (22%), together accounting for around 80% of the total investment. In relation to the innovation status, around half of them are research focused, while the other half are demonstration projects (however, the funding is 32% and 68% respectively). Amongst most of them, European funding seems to play a key role for unlocking investments, especially in those countries where smart grids are still not high on the national agenda.

In relation to policy making and influence, the report states that adequate policy and regulatory frameworks accelerate smart grid investments. Consequently, these long-term-focused investments contribute to making a country attractive for investors and attract foreign capitals to seek partnerships with local stakeholders.

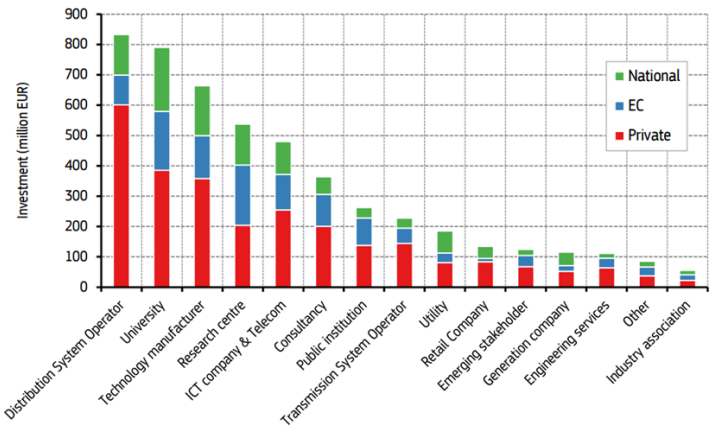
When making the final decision, investment decisions are closely linked to the perceived opportunities and risks associated with smart grid projects, and to the possibility of getting a fair return on equity: the majority of funding efforts are coming from Distribution System Operators, followed by universities and technology manufacturers (from a list of 15 identified key stakeholders).

In terms of geography, the investment is concentrated in a few countries (Denmark, Germany, Spain, France and the United Kingdom), with each country following its own pace.

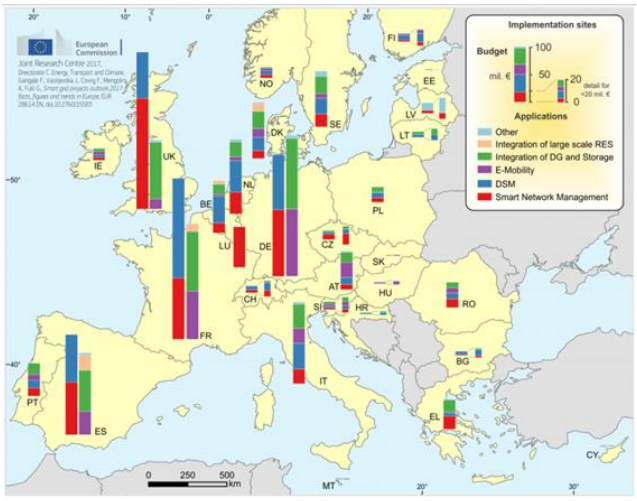
[11] https://ec.europa.eu/jrc/en/news/driving-europe-s-transition-low-carbon-economy.
[22] https://ec.europa.eu/commission/sites/beta-political/files/2nd-report-state-energy-union_en.pdf.
[33] https://ses.jrc.ec.europa.eu/sites/ses.jrc.ec.europa.eu/files/u24/2017/sgp_outlook_2017-online.pdf.

In relation to public EU funding as a tool for EU Policy implementation, the JRC database includes all EU funding instruments that offer financial support to promote the transition towards a smarter and more sustainable energy system. About 30% of the projects in the database received EU funding.

As for the implementation sites, these are the real life environments where the technologies are tested for real life market viability assessment. Their location can therefore shed some light on the national and regional interest for the development of specific smart grid solutions.



Stakeholders and investment levels identified in EU. Source: https://ses.jrc.ec.europa.eu/sites/ses.jrc.ec.europa.eu/files/u24/2017/sgp_outlook_2017-online.pdf.



Smart grid projects in Europe, by project domain. Source: https://ses.jrc.ec.europa.eu/sites/ses.jrc.ec.europa.eu/files/u24/2017/sgp_outlook_2017-online.pdf.

2.2 The French and Parisian roadmap towards the energy transition

The CoRDEES Project bases all its activities in the Clichy Batignolles District[4], an urban area in the northwest side of the Paris metropolitan area. The City of Paris[5] is fully aligned with the city and nation's priorities. There are two main plans in place, and in line with the Project goals; The Smart City Action Plan and the Paris' Climate and Energy Plan[6].

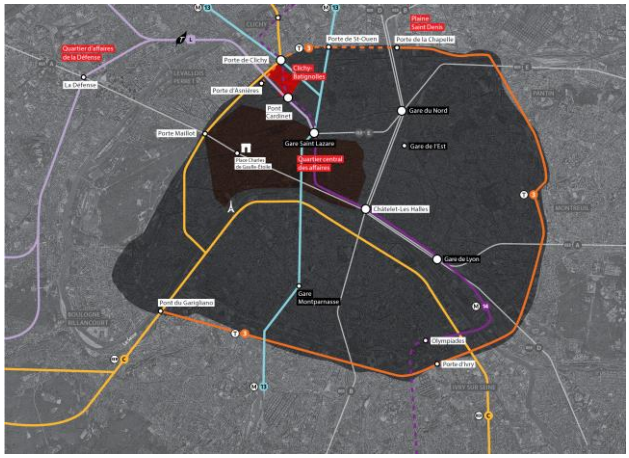
At Local level, the Smart City Action Plan sets up ambitious goals to cut its environmental impact. Its main target indicators are the reduction of greenhouse gasses emissions (by 25%), the reduction of energy use (25%) and the increase of the renewables share in the urban environment (25%).

There are three legal tools in place to pursue the abovementioned targets; The French Building Digital Transition Plan, the Energy Transition law and the National Eco-district Label, which provides recognition for exemplary sustainable urban projects.

The Paris' Climate and Energy Plan objectives are more specifically quantified: energy consumption of 80 kWh/m^{2}yr for refurbished buildings and 50 kWh/m^2·yr for new buildings. The City also has a plan towards a smart city transformation goal, The Paris' Scheme Manager for Digital City. This scheme sets the goals for the digital transformation of the City, and needs to be understood in the frame of the historical,

[4] http://www.clichy-batignolles.fr/english.
[5] https://www.paris.fr/.
[6] http://parisactionclimat.paris.fr/en/p/charte.

architectural and urbanistic configuration of a city like Paris, where there is a strong urban atmosphere, full of history and character.
This scheme is therefore targeting digital services for citizens and the public administration, ICT tools to improve urban management and the involvement of citizens participation in the digital transformation.



City of Paris Transport plan. Source: PBA.

3 The CoRDEES project as a small piece of a historic whole

Paris is the capital and most populous city of France. In 2015, its population added up to around 2,250,000 inhabitants, who live in an area of 105 square kilometres. By the 17th Century, Paris had become one of Europe's major centres of finance, commerce, fashion, science, and the arts, a position that it still retains today.

The CoRDEES project is to be deployed in the Clichy-Batignolles District, in the 17th City District, north-west of Paris, covering an area of 54 hectares in the vast Batignolles railway enclave. This area of the City has been developed since 2002, in line with the City Hall plans to sustainably develop the Capital.

To get a perception of the area and the impact of the Urban regeneration in place, the figures on the right give an insight into the most relevant numbers of the project.

The CoRDEES project is set in the Frame of the first round of calls for proposals of the Urban Innovative Actions. Within the City Hall, three Departments are in charge of the project roll-out Phase; The Smart City Unit, which will assume the global project Management, the Energy Unit will ensure strategic coordination on energy issues, and the Urban Ecology Agency, in charge of the Climate Plan Impact.

A 10 hectare park, the future Paris Courthouse and more than 500,000 square meters of mixed-use developments are the driving forces behind this urban transformation, reaching well beyond the scope of the Clichy-Batignolles project. By renewing this part of the 17th "arrondissement", the project also contributes to the metropolitan dynamics working across the North West of the Greater Paris Area.

Key figures

- **54 Hectares overall.**
- **10 Hectares of the Martin Luther King Park.**
- **140,000 sqm office space.**
- **120,000 sqm for the new Paris Courthouse and Regional headquarters of the Judicial Police.**
- **31,000 sqm of shops, cultural and recreational facilities.**
- **38,000 sqm of public facilities.**
- **12,700 jobs.**
- **6,500 inhabitants.**

3.1 A new urban area for a new century of Paris

Within the 54 Hectares area, the CoRDEES project is targeting objectives to be demonstrated in a real environment. The area selected for the integration of the intelligent energy network under development is on the West side of the District, and covers around 15 Hectares. The intervention area of the CoRDEES implementation is shown in the figure on the right.

The East side of the District has already been delivered to the end users, mainly for residential use, and the North area, including the new Court House of the City of Paris and the Pneumatic Waste Collection system and the Judicial Police headquarters, are in the final stages of their construction process.

The CoRDEES project is involving the last groups of buildings to be delivered, covering office, residential and commercial uses. The first buildings to be delivered will be occupied by the end users in the first months of 2018.

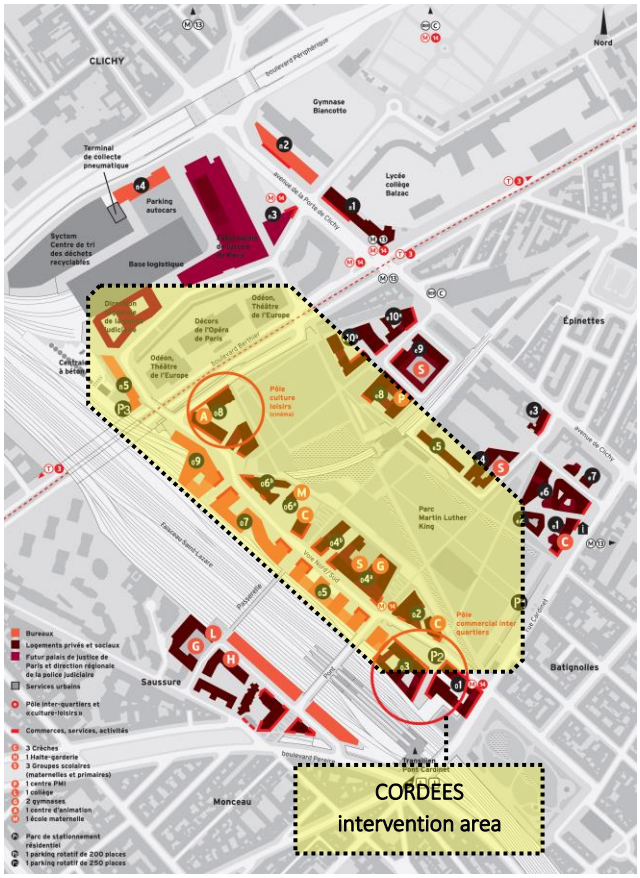


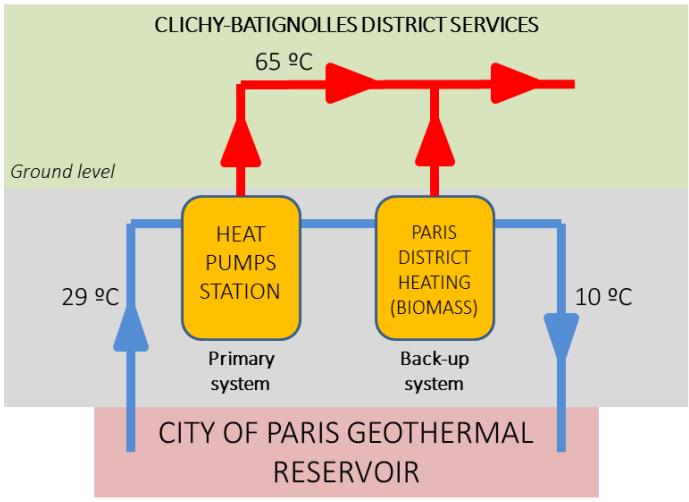
Illustration of the Clichy-Batignolles area and the CoRDEES selected blocks. Author: PBA & Juan Cuevas.

Panoramic view of the CoRDEES blocks under construction. Author: Juan Cuevas.

There are 12 buildings divided in 9 construction lots. From those buildings, 5 of them will dedicated to office use, and 7 will have residential use.

Lot	Surface (m^2)	Use
1	16,505	Doctoral student housing, housing, shops
2	11,274	Housing units, day care, shops
3	20,461	Housing, offices, shops
4a	16,925	Housing, shops and service, gymnasium and school
4b	12,602	Housing, shops and services
5	21,220	Offices, shops and services
n5	10,000	Offices
6a	9,473	Housing, migrant worker housing, nursery, school, day care, shops and services
6b	8,226	Housing, shops and services
7	24,200	Offices, shops and services
8	29,618	Housing, activity centre, shops and a 7-screen cinema
9	17,085	Offices, shops and services

The City of Paris is lucky to have a geothermal reservoir some hundred meters below its surface. From this geothermal well, water is extracted at 29ºC and returned back to land at 10ºC, after being circulated by a heat pump station, and a back-up heat exchanger station fed by the City of Paris district heating system, which is centrally fed by waste incineration at the scale of the whole City. These 2 stations raise its temperature up to around 65ºC for heating and sanitary hot water direct use.



Simplified layout of the Clichy Batignolles geothermal system. Author: Juan Cuevas.

3.2 The project objectives

The CoRDEES project has 3 main objectives. At the level of application and in the field where these are to be deployed, all of them are innovative, for two main reasons.

The first one is the **great variety of stakeholders involved, and the early engagement strategies** to get them involved in the search for a consensus solution. This is indeed a challenge to be overcome, as the variety of interests is wide, and not easy to match towards a common goal which is aiming to be over each individual will.

The second reason which makes this project singular is the **unique combination of renewable energies, building uses and involved promoters and designers**. All to be seen in the peculiar atmosphere of the City of Paris, where urbanism and architecture are somehow disrupted by projects like the one taking place in Clichy-Batignolles. These 3 main objectives can be described as follows:

First of all, the **Community Energy Management Platform** (**CEMP**): An interoperable/multi-user platform for monitoring, consolidating and analysing in real time energy data for all buildings (electricity and heat), public facilities (EV stations, street lighting, automated waste collection) and defining optimization scenarios.

The second objective is the development and testing of the **Urban Energy New Deal** (**UEND**):
A new multi-players energy governance, which will collectively define energy commitments as well as the contractual, financial and regulatory conditions for the project's successful implementation.

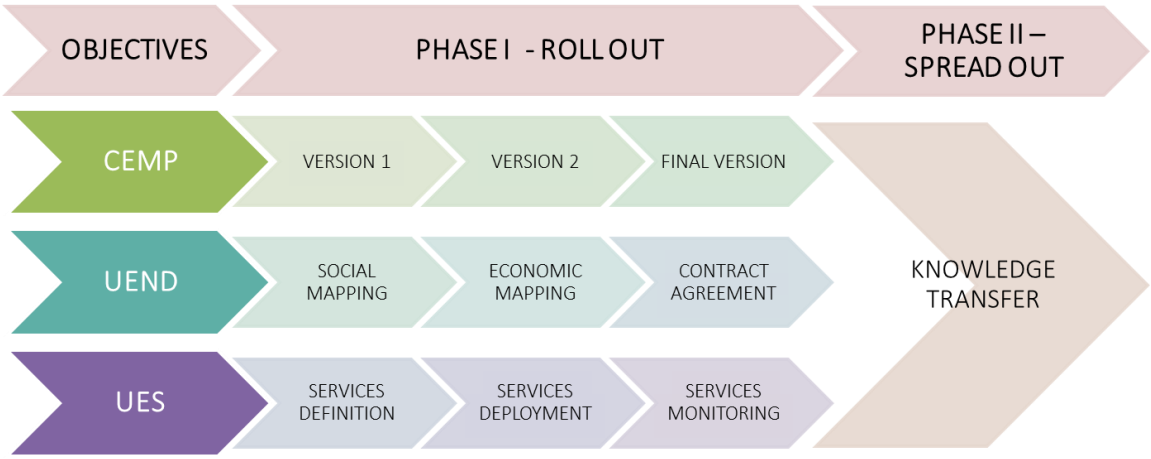
The third one, also to be tested in real conditions on-site, is the **Urban energy Services** (**UES**): Test new services empowering stakeholders and target groups to achieve energy efficiency goals.
As an integrating objective, a new actor, called the **Urban Sustainability Trustee Facilitator (USTF)**, will also be developed, to bring together the 3 solutions. It will provide technical recommendations, ensure stakeholders´ cooperation, end user empowerment and will also coordinate the services creation and implementation.

Presentation of the CoRDEES Project Objectives.
Author: Juan Cuevas.

4 The roll-out plan

The project started in November 2015 and is planned to have two phases; the first one is the roll-out phase, Phase I, which is the development and deployment, monitoring and evaluation of the three objectives listed, and is planned to last 3 years. After this phase is completed, we will move towards Phase II, which will consist of one full year to capture and transfer the knowledge generated due to the implementation of Phase I.

An indicative chart of the project planned actions, form its kick off until its termination might be of good use for the reader to understand the temporary dimension of the project milestones, considering that the initial interventions in the District started in early 2002. One cannot change a city in a year, and even after 15 years of hard work, there are still many activities that need to be done.



CoRDEES project work-flow chart. Author: Juan Cuevas.

A core aspect of the project developments is related to their iterative nature: as the CEMP and the UEND have a strong ICT component, works towards their completion are iterative and incremental, in terms of development and data content respectively. There are at least 2 versions before getting the final one, which will include all lessons learned during the development process.

As an outcome of the list of objectives presented, the project aims at achieving the following quantified expected results:

- 1st smart grid in the biggest eco-district in Paris.
- 93,66% of the energy consumed in Paris is imported.
- 85% of the energy will be self-supplied in Clichy Batignolles thanks to 200 ,000 m^2 of solar panels and geothermal wells.
- x3 the production of renewable energies by 2025 in Paris. 3,5 GW/h of solar photovoltaic energy will be produced in Clichy-Batignolles by 2020 while only 3 GW/h of solar photovoltaic energy was produced in Paris in 2014.
- x2 the potential of production of geothermal energy in Paris by 2020.
- 83 % of heat requirement is provided by geothermal energy in Clichy-Batignolles.

5 The Partners on board

Five Partners have joined efforts to make the project a success. Their field of activity is covering a wide spectrum of expertise, providing an overall consortium profile which promises interesting outcomes from their collaborative work. Their specific profile and main role in CoRDEES are described in this section.

Leading Partner: **City of Paris**. Main Urban Authority.
Dept. Involved: Smart City Unit and Energy Unit.
Description and role: Three Departments are involved in the CoRDEES project. On one hand, the Smart City Unit, as a strategic cross-cutting unit, will assume global project management. Their main goal is to consolidate stakeholders' interests towards the common goals of the project, acting as a facilitator in the search of agreements amongst them. Besides that, the City Hall is committed to circulate knowledge and technologies inside and outside the City, to become an example for other initiatives, within or outside the French capital city. By this, their role in this respect will also be related to the improvement of the collective intelligence processes. On the other hand, the Energy Unit will ensure strategic coordination on energy issues; as this is a key barrier to overcome in terms of regulation and energy models, their role will be directly related to the smart energy governance development. Finally, the Urban Ecology Agency will ensure the link with the overall climate plan strategy. This core team will be supported by Finance and Communication Departments, where specific actions in this regards are organised.

Partner: **Une Autre Ville**.
Nature: French SME, Consultancy services for sustainability and urban development.
Description and role: Une Autre Ville is specialised in sustainability and energy performance issues at the scale of urban design projects and new districts developments, both on strategic and operational levels, with a specific focus on governance, contracting and financial issues on these matters. The company has been providing their services to Paris Batignolles Amenagement since 2012. Their main contribution will be to provide their competences for the development of the Urban Energy New Deal and of the business model of the Urban Sustainability Trustee Facilitator, defining the services for both clients and operators, together with EMBIX.

Partner: **Paris Batignolles Amenagement**.
Nature: French - Urban Developer - Infrastructure and Public Services provider.
Description and role: PBA has been the urban developer of the Clichy Batignolles project for the past 6 years. They have established the energy performance and renewable energy targets with the building developers, and the specifications for the electricity and heating networks with their operators. PBA initiated the "smart energy" working group which was the origin of the CoRDEES project. Their main role is therefore related to the CO_2 emission target definition, and the evaluation of the global energy performance of the buildings developed, served by the networks designed to achieve the established goals in both energy demand and supply sides. As urban developers, they will carry out most of the project investments – thus explaining the largest share of the project overall budget.

Partner: **ARMINES**.
Nature: Private – non for profit French higher education and research institution.

Description and role: With competences in energy policy evaluation, demand side management, energy end-use and systems simulation among others, ARMINES has a wide experience in European funded research actions since 1994. The Unit involved in CoRDEES is the Centre for Energy Efficiency of Systems, and their expected contribution to the project is related to 3 main areas of knowledge: First, they will develop building energy simulations to report the project expected impacts. Second, they will lead the development of the project monitoring and demand-side management strategies, to gather quantitative and qualitative data towards a fruitful completion of their third main contribution; the global energy performance evaluation of the district.

Partner: EMBIX

Nature: Private – SME – Smart grids and energy consultancy services.

Description and role: EMBIX has already worked with the City of Paris, UAV and PBA on energy performance and smart grid issues in Clichy Batignolles. They are already leading the "smart energy" working group on Paris Batignolles district, which aims at providing "smart energy management" guidelines for building developers. There are 2 core contributions they plan to deliver within the CoRDEES project: First, they will be responsible for the design, development and implementation of the CEMP and user interface. Second, they will design the energy services for end-users and energy operators, in close collaboration with the Urban Developer, UAV.

The project team is therefore composed by a variety of background profiles and experiences, with public and private enterprises, small and large. This is indeed a plus in terms of expected outcomes, as this mix of synergies creates a positive atmosphere and ground for innovation.

Project Presentation, May 2017. Source: City of Paris.

6 Challenges for implementation

To have a complete overview of the activities being developed in the project and to draw lessons stemming from this implementation for the benefit of other European cities, we identify two different types of challenges.

Firstly, there are **technical challenges**, those quantifiable and measurable, which are related to the very specific nature of the solutions developed by the project. Being aligned with the project objectives, the project team should keep them in the horizon of their work, and use them as a guide for their day-to-day work.

Secondly, we should also consider the challenges related to the implementation of such an innovative integrated urban development project. These are the **implementation-related challenges which are common to all UIA projects**; cross-cutting challenges under continuous revision throughout the execution of the project. Somehow, we can say that the technical challenges are fixed and clear, while the implementation-related challenges are dynamic and continuous, on the road to the achievement of the first.

6.1 The technical challenges

The **technical challenges** for the implementation of the project's 3 main objectives are described in this section, together with some considerations to bear in mind in relation to how they might be addressed.

Challenge 1: **Development of the commitment scenarios and orientations for the CEMP and services, on contracting and financial schemes, on the business models of the New Deal and USTF and on the general coordination of digital and field services.** All the stakeholders of the project should understand that, besides their individual (economic and business-related) interests, they will have to adapt to the common aim of the project. This will necessarily force them understand the others and be flexible. Fluent and well-targeted communication is therefore a valuable tool to get this done.

Challenge 2: **Define specific activities to be led by the USTF, design the new contracting and financial scheme of the New Deal, negotiation with different stakeholders involved in the district development, particularly working in the design and implementation of B2C services. In relation to the budget; control, supervise and minimize project expenditures.** The district developers have a key role in relation to this challenge; they will have to make the best use of the public authorities negotiation power to achieve agreements with the energy companies, in order to achieve a formula by which the district energy management model is efficient and beneficial for all, not only in terms of cash flows, but also considering image, environment and sustainability.

Challenge 3: **Development of methods and numerical models for project monitoring and evaluation. Elaboration of methods and strategies to pursue tenant/user commitments towards low energy/CO_2 consumption at dwelling, workspace, building and district level.** For this challenge to be accomplished, the scenarios should be clearly defined, the user interface should trigger citizen involvement (tenants should probably be trained) and all data should be smartly gathered and analysed, overcoming privacy issues.

Challenge 4: **Design, development and implementation of the CEMP, the User interface and the overall energy services platform, with the collaboration (and to be approved by) both end-users and energy operators.** Key aspects to address this will probably be related to tenants' awareness strategies towards energy and environmental issues. The platform should of course provide clear, common and easy to understand benefits to all its users, providing benefits and not raising questions.

Chapter 6:, above describes the project achievements so far in relation to these 4 technical challenges.

6.2 Implementation-related challenges

On the other hand, and considering the project implementation phase as a continuous relation among the involved Partners and stakeholders, **the challenges** related to the implementation of the project are affecting all the stakeholders involved in the roll-out phase, from the kick-off event to the final events in 2020. The stakeholders represent a variety of actors and institutions, which have their own interests and limitations towards the common objective of a fruitful project completion, and it is by their interrelations during the 3 years´ duration that

the implementation-related challenges will have to be overcome. To name a few, some of these stakeholders are; real estate agencies and landlords, construction companies and hardware providers, smart service providers (data users), network operators, local energy producers, facility and property managers, unions or associations of owners, energy providers, end users, municipalities, councils and district authorities, local planning and/or developing authorities…

From the relations and interactions of those named in the list above, and others engaged to the project during implementation, there are 5 implementation-related challenges identified at this stage of the project.

All of them are closely inter-related, and each of them will be monitored during the coming months and following editions of this Journal. Some identified problems have already been solved, and some new ones have not yet been fully addressed; in both cases, innovation, open minded focus, flexibility and persistence towards the achievement of a common goal will be the main strengths of the consortium towards a successful project deployment.

1. Leadership for implementation: **Individual interests need to be balanced towards the consecution of a global and common objective.**

Communication is a key element here, and the CoRDEES Partners are devoting plenty of time to meetings and discussions, where the boundary conditions and the flexibility towards a common understanding are being identified, in a continuous way. There is a clear barrier to overcome here, related to confidence; when setting the limits, and the flexibility of those limits, confidence is a key unlocker; companies do not naturally share information related to their core business, and this is only revealed when an existing relation of confidence (via contract or not) is set.

2. Eco-Public procurement may become a barrier towards innovation penetration at user level.

As the district where the project is being deployed is half way to completion, and many housing units have already been delivered to tenants, the project partners have all the tools to identify the lessons learned in the East Side in order to minimize negative impacts coming from bureaucratic protocols and public competences in different areas of the community under construction in the West (transport, energy, green areas, etc.…). This challenge has three different implementation paces; (i) public procurement is a typically slow process (with great potential to be shortened, with the adequate actions), (ii) innovation's penetration speed varies depending on the acceptance and benefits of the innovation itself (and by this, the solutions provided should be clearly good for all), and (iii) getting the innovation at user level, in a district with a variety of inhabitants (social housing tenants, private dwelling owners, commercial users…) is probably requiring the implementation of tailor made strategies to be shortened.

3. Cross-department working typically leads to low level of clear communication.

In line with the previous one, this challenge is being already dealt by Partners. Meetings and discussions are taking place not only among different departments of the same company, but also at a level of the same department from different companies (somehow a "cross-company" relation). One of the keys to find common points of progress is probably related to an adequate balance between power (range), competence (knowledge) and interest (goal). A good solution to overcome these barriers is already in place; the well-known saying "divide and rule": First, they are organising individual meetings, and once all information is gathered,

they prepare and organise group meetings, with all the different interested parties in the same room, and a clear objective for the meeting... The experience acquired in this respect with the stakeholders of the East Side may also be of great value in the coming months.

4. Participative approach and continuous engagement by Delivery Partners.

The blocks under construction in the CoRDEES area, are being executed by different contractors. This is considered as a positive work distribution, as it helps the quick identification of deviations of key progress indicators (scope, time and budget) among contractors. Permanent communication is ongoing, with the goal of identifying problems at an early stage. In this respect, Partners have signed a charter document with the involved stakeholders, where they agree on how to work together towards energy efficiency; this is not an end itself, but a means to achieving the project goals.

5. Quantification of the results, and the added value of the deployed measures.

The project team is already monitoring the renewable contribution to the district, and the energy consumption of the delivered units. This may serve as a baseline to measure the CoRDEES impact in the units to be delivered in the coming year. In order focus the monitoring works on the added value identification, and so to avoid "loosing ourselves in a data forest", it is indeed a good idea to agree on the protocol to evaluate the impact of the project savings; the amount, frequency and quality of data to gather, and of course, the way to discard the inevitable "out of range" data, will save a lot of time to the project team. Once these agreed, the ICT selection and the privacy issues to overcome are easier to identify, target and pursue. A mistake in a monitoring activity is totally worth avoiding, as time cannot go back.

7 Most relevant works up to date

Looking back again to the three main objectives of the project, there is a clear list of progress points up to date, since the project Kick-Off Meeting. In this section, there is a summary with the most relevant ones considered.

COMMUNITY ENERGY MANAGEMENT PLATFORM

The **geothermal** system and the heat production plant have been **monitored** since the beginning of the project. The station is in operation to serve the East side of the district, and for the CoRDEES project, which covers the West side, this data is going to be very **valuable**. The geothermal daily share is showing to be around **85%** for this side of the district, and this is in line with the project targets.

Analysis and integration of the new **legal framework** to improve the benefits of the PV systems to be installed is ongoing: the general outcome is that energy can be **self-consumed** rather than sold to the grid operator. **Simulations** and economic balances **have been carried out**.

Meetings with stakeholders (real estate agencies, investors of offices and shops and network operators – Eau de Paris, operators, etc.) with which they had no previously established relation. Interlocutors, interests and priorities are being identified.

Identification of the interests of those stakeholders in terms of energy efficiency measures they want to implement (smart meters, air conditioning and heating systems required). A first picture of what they wish to have in relation to the project targets is done.

The **protocol for data aggregation** has been developed. By this, tenants who wish to share their individual energy consumption data will receive dedicated feedback, and those who don´t wish to share them will be aggregated in groups of 10, for the whole buildings to receive feedback from the project.

Blocks under construction in Clichy-Batignolles, May 2017. Source: City of Paris.

URBAN ENERGY NEW DEAL

Bilateral meetings with building operators have taken place during the past months, aiming at identifying **win-win situations** in relation to their energy efficiency interests and motivations, **engaging** them to assume interventions. The **contractual models** to give flexibility to the PV operation in a synergic way for building users and PV operators are under development, counting on possible **regulation modifications**.

For the new district governance set in the contracts, the **commitment scenarios** have been set up to fit the **building use** (dealing with operators) **and typology** (dealing with the developers) to their energy **performance**. The **scenarios have been defined** and they just need validation and legal approval.

As for the economic links that connect all the stakeholders of the district, a first **charter has been written**, and will be signed in the coming weeks. This charter is a roadmap document, where **all parties agree** on the processes to follow when **pursuing energy efficiency** specific actions.

The **roadmap for the Energy Sustainability Trustee Facilitator technical operations has been developed**. It includes the **responsibilities** and **work share** among **partners**, to ensure that the buildings are operated in a **coherent** strategy to be connected to the district heating system.

URBAN ENERGY SERVICES

After performing an international benchmark on energy services, all **stakeholders were mapped and analysed**. As an outcome of this work, **three service categories** have been defined. The first one is the service provided by the **platform** (data visualization, analysis and alerts of consumption gaps). The second one is the contribution to an **efficient building operation**, for building managers and operators. And the last is an **awareness and tenant involvement** service towards sustainable development via local social network.

To identify the ways to implement those services, a number of **meetings with a variety of experts** have taken place, such as energy sociologists. These meetings confirmed the importance of those services. Some lessons learned are: **(i)** The platform and data visualization are very

important but **not a finality**. **(ii)** The **importance** of providing a service of commissioning or operation monitoring. **(iii)** If we want to have a **real impact** on consumption reduction, we have to focus on energy coaching at the **individual level**. Armed with these conclusions, a detailed **budget and a list of specifications to launch two public tenders** was prepared. The first contract is dealing with the technical assistance for the **Facilitator** and commissioning for buildings, operation and **Operator Agreement** monitoring. The second is not written yet and will be focused on coaching for end users, employees and public servants (teachers mostly). Both will be launched in the coming months.

8 What to see next spring in Clichy-Batignolles

Works are in good progress, and the Consortium is having regular meetings and events where progress is achieved. The CoRDEES project lessons learned are being compiled and shared with local authorities, interested stakeholders, and the public in general, in events that take place every now and then in the "Maison du Project", in the Clichy Batignolles District. There are also many students and young people in general following the project progress up to now. For the coming months, in the different areas of knowledge where works are on progress, the calendar is full of interesting dates to come. To wrap up this first journal, we now list some of the achievements to be overcome in the next months, to have them as a lighthouse to follow-up the consecution of the long-term strategies, based on a day-to-day good work done.

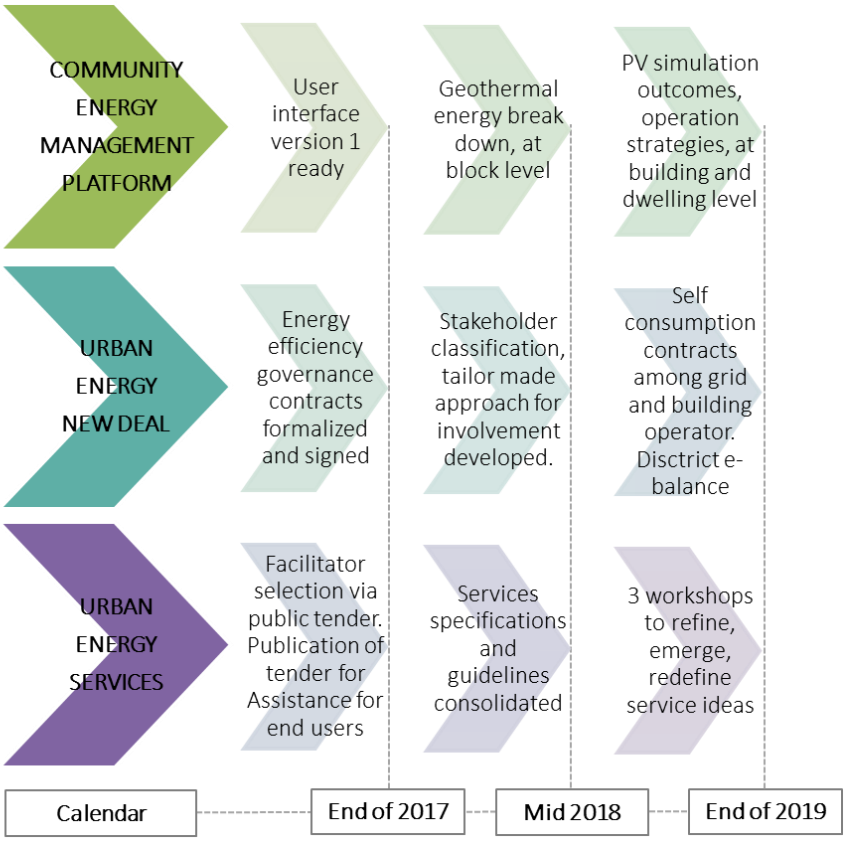


Diagram with next steps for the coming six months. Author: Juan Cuevas.

Urban Innovative Actions is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020.

UIA projects will produce a wealth of knowledge stemming from the implementation of the innovative solutions for sustainable urban development that are of interest for city practitioners and stakeholders across the EU. This journal is a paper written by a UIA Expert that captures and disseminates the lessons learnt from the project implementation and the good practices identified. The journals will be structured around the main challenges of implementation identified and faced at local level by UIA projects. They will be published on a regular basis on the UIA website.

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