

## The double Smart Grid of Nanterre Coeur University

by Morgane Dufour / 2021-02-22 12:00:00 / France / 6995 / FR



**Year of commitment** : 2020

**CO2 Impact** : 510 tonnes of CO2 avoided per year

**Digital services** : Urban data management, Smart grid

**Water cycle** : Used Water



7 000 000 €

**Builder**

Dalkia Smart Building

**Manager / Dealer**

Dalkia Smart Building

### GENERAL INFORMATION

Dalkia Smart Building designed and built the **first Double Smart Grid in France**. An innovative project from an environmental point of view which enhances **5 local renewable energy sources** and deploys artificial intelligence in order to optimize the energy consumption of buildings as much as possible.

### A doubly smart energy solution

#### *Smart thermal*

It produces hot and cold via geothermal, aerothermal, biomass and waste heat recovery. In addition, it links the different buildings (offices, homes, shops), pools the needs of occupants and allows buildings to exchange their calories. For example, the heat released during the production of cold for businesses is recovered and used to produce hot water for homes and vice versa.

Thanks to this energy solidarity and to an innovative energy mix combining geothermal, aerothermal, biomass and waste heat recovery, it provides heating, hot water and air conditioning from **60% renewable energies**.

## Smart electric

It produces part of the electricity necessary for its own operation via photovoltaics and cogeneration for **self-consumption**.

## Digital management and energy storage

For even greater efficiency, **digital control of the network** makes it possible to adapt energy production to consumption in real time.

Thanks to its approach that is both ecological and innovative, the *Nanterre double Smart Grid* offers users an optimal level of comfort while guaranteeing controlled loads over time.

## The key points

- **60%** renewable and recovered energies
- **5** local energy sources
- **100%** self-consumption of electricity
- **27 years** guarantee of results
- **76,000 m<sup>2</sup>** of real estate

Photo credits: Magenta Films / ADEME

## Progress Status

In progress

## Data Reliability

Self-declared

## Funding Type

Private

## Website Enterprise / Infrastructure

<https://www.dalkiasmartbuilding.fr/double-smart-grid-ecoquartier-nanterre-coeur-universite>

## Sustainable Development

**Attractiveness** : Users and stakeholders are involved in the operation of the project via information systems installed in the entrance halls and communications deployed on eco-gestures.

**Well Being** : Several means have been put in place to improve the well-being of users and stakeholders, such as temperature monitoring, consumption monitoring and the reporting of information and the dissemination of communications in real time.

**Social Cohesion** : The infrastructure creates social links thanks to energy solidarity and the sharing of energies within the eco-district.

**Preservation / Environmental Improvement** : The initiatives taken to encourage the preservation of the environment and the improvement of biodiversity are based on the use of 60% of local renewable energies in the energies delivered at the scale of the eco-district.

**Resilience** : The infrastructure is monitored and managed with remote alarm feedback, the technologies used are known and mastered, which gives it strong resilience to external disturbances. It is a reliable and robust system.

**Responsible use of resources** : To feed this smart and sustainable network, Dalkia Smart Building has identified 5 sources of renewable and recovered energy in the region: geothermal energy, photovoltaic panels, biomass cogeneration, heat recovery from wastewater and aerothermal energy.

## Testimony / Feedback

*"Here at Nanterre Coeur University, our heating network allows us to use 60% of renewable energies, including geothermal energy and heat recovery from wastewater." Arnaud Westrich, President of Dalkia Smart Building*

*"What convinced us is the control of costs for users, today we are generally at the mercy of fluctuations in fossil fuels and in the context of renewable energies we are not there at all. can control the costs for the future and that is a benefit for the users and the inhabitants of the site. " Arnaud Bekaert, Managing Director of Development IDF and Urbanera Bouygues Immobilier*

## Governance

Dalkia Smart Building and Bouygues Immobilier (in partnership)

**Holder Type** : Private Company

Dalkia Smart Building

Builder Type : Other

Dalkia Smart Building

Manager / Dealer Type : Private

Bouygues Immobilier was chosen by the city of Nanterre and the EPA Paris La Défense to participate in the "Coeur de Quartier" urban development project. Its mission was to build a sustainable and intelligent district, exemplary of the *smart city* approach, in order to contribute to the attractiveness of the Seine Arche Defense area.

Dalkia Smart Building, a subsidiary of Dalkia Groupe EDF, was chosen as a privileged partner to design and build a *smart grid*-type energy solution to promote the region's renewable energies while guaranteeing a controlled level of charges for users.

Bouygues Immobilier called on Dalkia Smart Building to design and build this innovative solution with the aim of optimizing the energy management of the sustainable Nanterre Coeur University district.

Consult the Nanterre Coeur University district case study: <https://www.construction21.org/france/city/h/nanterre-coeur-universite.html>

Business Model :

The economic model of the project is based on a CREM (Design Realization Operation Maintenance) with financing.

The operation was jointly financed by Dalkia Smart Building, Bouygues Immobilier and ADEME. Dalkia Smart Building, as network operator, operates the facilities and is responsible for achieving network performance, the administrative management necessary for its operation and the sale of energy to subscribers. The operator reports annually on the results of the past year to the ASL (Association Syndicale Libre) which was set up within the eco-district. This makes it possible to monitor and validate with all subscribers, members of the ASL, the key figures and the achievement of the expected performance.

## Sustainable Solutions

Double thermal and electric Smart Grid

Description : The solution is based on a doubly intelligent network:

Smart thermal: it produces hot and cold via geothermal energy, aerothermal energy, biomass and waste heat recovery. In addition, it connects the different buildings (offices, shops and housing) which allows both to pool the needs of the occupants and to the buildings to exchange their calories.

Smart electric: it produces part of the electricity necessary for its own operation of smart thermal via photovoltaic and cogeneration in self-consumption. Most ? digital piloting! For even greater efficiency, digital control of the network makes it possible to adapt energy production to consumption in real time.



CO2 Impact : 510,00

- Smart city :
- Circular economy
- Digital services
- Renewable energies
- SmartGrids

<http://nanterre-coeur-universite.com/>

Company (es) Website :

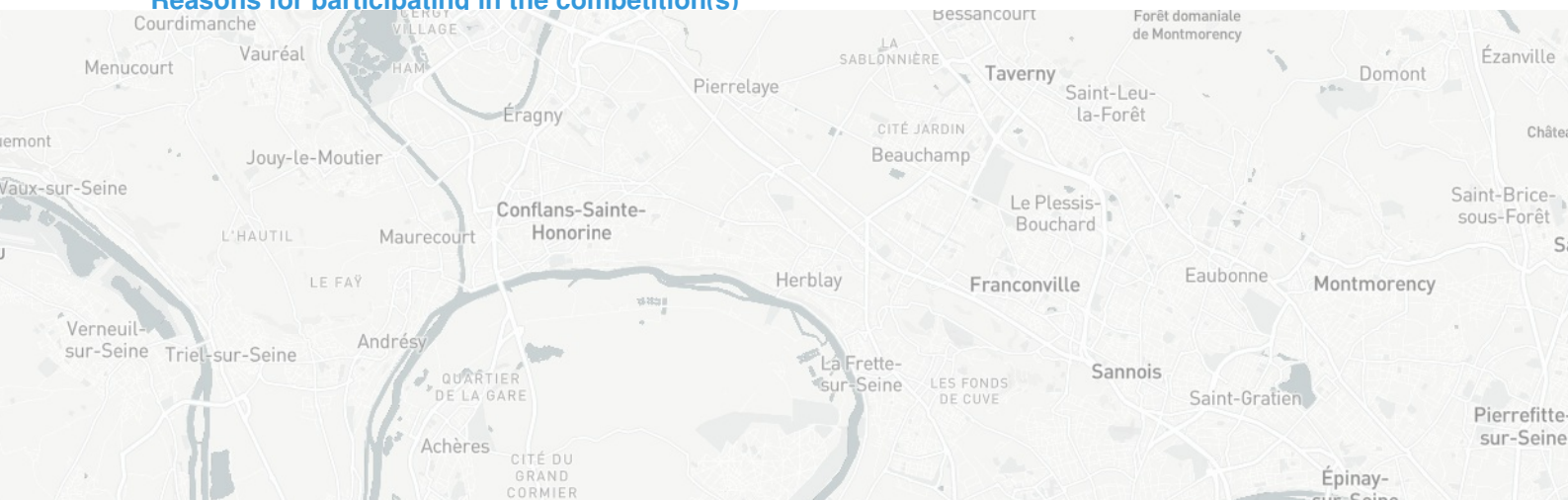
Company (es) Website :

## Photo credit

Architectural perspectives (Sketches): Bouygues Immobilier - Infime / Photographs: Magenta Films / ADEME

## Contest

## Reasons for participating in the competition(s)





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