my SMART Life

An European urban transition project towards more sustainable cities through innovative solutions, in the fields of mobility, energy and digital.

Smart City

Global project

Coordination: Cartif
European grant: 18 M€
30 partners, 6 countries
Period: Dec.2016 - Nov.2021
Demonstrators: Nantes, Hamburg, Helsinki

@mysmartlife_EU
https://mysmartlife.eu/

Nantes demonstrator site

Coordination: Nantes Métropole
European grant: 4,5 M€
10 partners

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Digital

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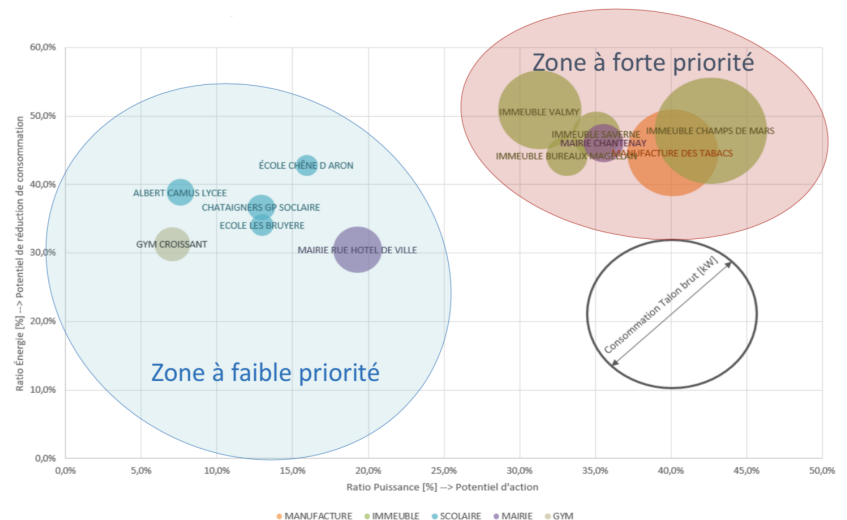

Nantes Métropole

Detection of anomalies in the consumption baseline

This experimentation was conducted with Akajoule, and accompanied as well as experimented by Nantes Metropole. This partnership implementation was carried out as part of both the Energy Datalab and the use case research for Nantes Metropole's Urban Data Platform. More information can be found in D2.11 and D2.8: https://mysmartlife.eu/publications-media/public-deliverables/

► OBJECTIVES

› To experiment with a new use based on the electrical load curves of public buildings.

› To target the most important sources of energy savings

› To carry out a diagnosis of the energy optimisation levels of public buildings, based on residual electricity consumption.

► IMPLEMENTATION

CHALLENGE / CONTEXT

With the deployment of smart electricity meters throughout France, Nantes Metropole can access the electrical load curves of its buildings and public facilities. To conduct a policy of renovation and internal energy optimisation, it is not always easy to target the highest priority buildings from a panel of several hundred buildings. The use of load curves can provide a first level of sorting, by looking for signs of an energy optimisation opportunity in the electricity consumption baseline.

SOLUTIONS

The Energy Datalab collects and makes available to Nantes Metropole the electrical load curves of 300 smart meters of its public equipment. For the most part, the meters provide information on consumption in public buildings. Nantes Metropole has given an API access to this selection of data to Akajoule. This data is also integrated into Nantes Metropole's Urban Data Platform.

The work is based on a variety of identifiable characteristics of the residual energy consumption: peaks that are too high, recurrent peaks, baseline that is constantly too high, etc. These different typologies are first identified. Then, it allows targeting certain types of anomalies, desired irregularities. For example, to target heavy renovations, we will look for buildings whose baselines are constantly too high (compared to the recommended values). Obviously, this is part of an energy-saving approach, the aim being to provide a decision-making aid based on operational objectives, but the result is only an incentive to prioritise targeted buildings. The next step is to carry out on-site diagnosis and more detailed analyses. Ultimately, this could prefigure an agile process with the tool to improve it.

Based on the irregularities, several indicators for decision support are attached to the buildings. These indicators make it possible to situate all the buildings observed in a triple entry grid (as shown on the front page): the potential for reducing the, baseline consumption, the share of the baseline in the total consumption and, finally, the gross value of the baseline. The buildings that score most strongly in these three criteria will be targeted first.

MONITORING

This experimental action is evaluated at two levels:

› The relevance and use of the prototyped service: the tool clearly meets a need identified by managers of energy flows in public buildings. To measure the effectiveness of the visualisation, a second appointment was made, one year later, to see the evolution of the buildings in the optimisation radar after the first had undergone energy renovation work.

› This is also part of an overall approach to experimenting with new services based on the data in the Urban Data Platform which, in connection with the previous points, must be evaluated.
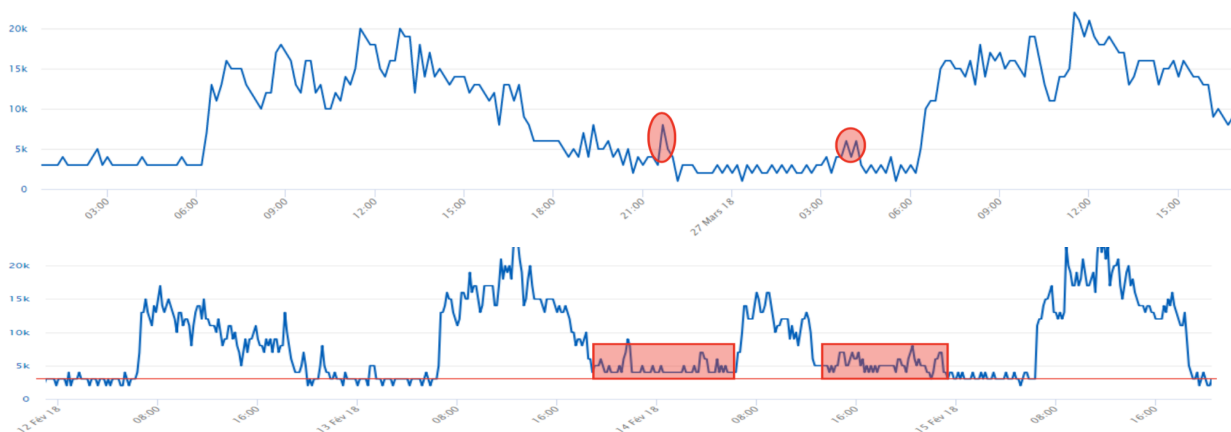
► BENEFITS

Users

› To facilitate the targeting of public buildings for energy retrofitting works and actions to improve energy management

› To provide feedback on the possibility of using and exploiting energy data envisaged for public buildings

Environmental

› To contribute to the reduction of energy consumption and CO_2 emissions

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