



LifeGreenCity

Layman's Report Greencity

Set up of a software platform for the real-time management of energy consumptions in public buildings in Nantes and Vigo



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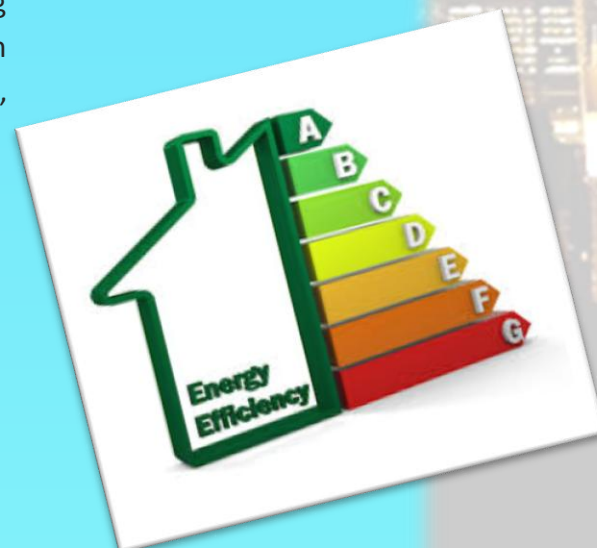


Energy management in public buildings

A European issue

Nantes (France) and Vigo (Spain) are two important cities: Nantes is the 6th most populous city in France, and Vigo is the biggest town of the Galician region. Both located next to the Atlantic coast, they benefit from a natural environment which is rich but fragile. Thereby, Nantes and Vigo are well involved in environmental policies. Nantes has been elected European Green Capital in 2013.

- The issues raised by a better **energy management** are multiple. In a context of depletion of fossil fuels, the **costs** of energy are higher and higher. Furthermore, if the using of renewable energy is obviously an interesting alternative, it is still just a little developed in the public sector and expensive. Thus, a changing in the energy management in public buildings aiming at decreasing the gas, diesel oil, water and electricity consumptions represents an important **challenge**.
- The European Parliament has introduced a certificate of energetic efficiency for public buildings through its **Directive 2002/91/CE**, which is in force since 2003 and transposed in the Member States in 2006. This certificate is accorded for a minimal energetic efficiency set by the Member States, which is calculated during technical audits following a standardized calculation method. Each public building of the European Union is eligible for this **certificate**, which sets its energy requirements according to its size in m².
- In order to fit as well as possible this Directive, **measures** have to be implemented locally. Not only the States governments, but also the authorities at a **regional or city scale** have to be involved in policies aiming at reducing the energy consumptions of the public buildings. Citizens, as first users of those public buildings are also major actors in the implementation of actions to reduce the energy consumptions. Hence, two kind of measures have to be set up in public buildings in order to get the **energy efficiency certificate** implemented by the European Directive 2002/91/CE: technical actions and awareness actions for users.



Project objectives and fact sheet

The **Life+ Greencity** project aims at setting up a system allowing the municipalities of **Nantes** (France) and **Vigo** (Spain) to control and manage the consumption of electricity, gas, diesel oil and water in the perspective of a more integrated urban management.

This software platform improves the visibility of energy and water consumptions, enabling to point out the energetic waste and implement the best possible adapted reduction actions. In the frame of the project, users have been made aware about the issues raised by a better energy management, and they have been actively involved in measures against energy waste.

The actions implemented in the frame of Greencity project aim at...

- **Reducing** energy consumption by up to 20% and thus reduce equivalent CO₂ emissions by up to 10% in public buildings of Nantes and Vigo
- **Increasing** the overall efficiency of the building in terms of electricity, water, diesel oil and gas consumption, further reducing equivalent CO₂ emissions
- **Promoting** good practices
- **Increasing** the awareness of citizens to both environmental and economic solutions
- **Providing** an inventory of the energy management in numerous cities of the European Union
- **Disseminating** the results of the project at a European scale



Project factsheet

Project type : Life+

Project website : www.lifegreencity.eu

Coordinating beneficiary: Schneider Electric

Associated beneficiaries: City of Nantes, FAIMEVI, Cyrisea, Euroquality

Implementation countries: France and Spain, in the cities of Nantes and Vigo

Project duration: 34 months

Total cost: 1 620 670€

EU contribution: 756 088€ (50% of total eligible budget)

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Partners

The logo for Schneider Electric, featuring the company name in green and black text with a stylized 'E' icon.

Schneider Electric is a French company which is committed to delivering energy efficiency measures to its customers through a broad range of solutions including metering, data acquisition and analysis, and detailed energy efficiency audits. As a specialist of energy management on a world scale, Schneider Electric has a strong presence around the globe with a network of offices. As a result, it is exceptionally well positioned to provide a variety of Energy Management Services and solutions. During the project, it has been the main coordinator and beneficiary, and has developed the Greencity software platform.

The logo for the Ville de Nantes, featuring a stylized 'M' and the text 'VILLE DE Nantes' in white on a blue background.

Nantes is the capital city of the Pays de la Loire region and Loire-Atlantique department and it is located at 50 km from the Atlantic coast. The city is the 6th largest in France, while its metropolitan area ranks 8th with over 800,000 inhabitants. The involvement of the municipality has been essential to set up the project in the public buildings of Nantes.

FAIMEVI (Fundación Axencia Intermunicipal da Enerxía de Vigo) was born in May 2004, under the support of the Department of Innovation, Industry and Trade of the Government of Galicia. It promotes the environmental and renewable energy policies locally. This national foundation has already been committed in numerous collaborative European projects raising environmental issues. Its involvement has been necessary for the implementation of the project in the agglomeration of Vigo.

The logo for Fundación faimevi, featuring the text 'fundación faimevi' in blue and black with a stylized 'E' icon.

CYRISEA supports its customers in the design and implementation of Information Systems Management Energy: Build Management System, Remote reading multi-energy and Energy monitoring solution. In the frame of Greencity, it has analysed and evaluated the results obtained in terms of energy savings.

The logo for Cyrisea, featuring a stylized blue and green wave icon followed by the text 'Cyrisea' in green.

Euroquality is a service provider established in 1997 specialised in Innovation and European research projects. Its main activities are consultancy in innovation, technology transfer, economical studies and policy evaluation, technological audits and the management of European research and development projects. Euroquality is also an expert of IT developments and communication services. In the frame of Greencity, it has among all managed the whole project and carried out the dissemination of the results.

The logo for Euroquality, featuring the text 'www.euroquality.tr' above a stylized 'E' icon and the word 'Euroquality' in blue.

Results

Equipment of the public buildings

47 public sites in Nantes and **6 public sites** in Vigo have been equipped with systems of metering associated with a software platform allowing the management and the following-up of the water, gas and electricity consumptions, developed by Schneider Electric. Among them, **7 buildings** in Nantes and the **6 sites** of Vigo have been equipped with **sub-meters**, a more precise system. A sub-metering strategy allows identifying and integrating consumption data by use and / or specific area (electricity lighting, ventilation electricity, gas restaurant, gas heating ...).

Results in term of energy savings

Thanks to this system, energy savings have been calculated and characterized. During the whole project in the two cities, **18,4% of energy savings** have been realized, corresponding to 16,6% of electricity savings, 7,7% of district heating savings and 22,6% of gas savings. The water savings for the whole project haven't been calculated because of technical issues as data recording problems in Nantes.

In **Nantes**, **18,0% of energy savings** have been measured, corresponding to 13,8% of electricity savings, 7,7% of district heating savings and 22,6% of gas savings.

In **Vigo**, **22,9% of electricity savings** have been measured in the frame of the GreenCity project.



School Dervallières Chézine in Nantes 18,2% of lighting savings



School Bembrive in Vigo 29,3% of lighting savings and 28,3% of heating savings



Neighborhood house Bottières in Nantes 19,4 % of electricity savings

Reduction actions

To achieve those results, reduction actions have been set up in the concerned buildings. Some actions consisted in optimising the consumptions by directly fighting against energy waste, some others relied on the awareness of users. Thanks to the real-time following-up consumptions system, **energy savings** have been determined.

Awareness actions

- ✓ Encouraging users to **turn off** all the equipment during the weekends and on holidays
- ✓ Display of **posters** describing the « 10 simple steps to save energy »
- ✓ Designation of **students in charge** of lights, windows and doors in schools
- ✓ Display of **environmental advices** on flushing, switches and radiators
- ✓ Scientific workshop with an **Energy Box** in Nantes



Optimisation actions

- ✓ Setting-up of heating and lighting **schedules**
- ✓ Decrease of the **set point** temperature
- ✓ Purchasing of low-consumption equipment and of **strips** with **switch** for electrical devices
- ✓ Creation of **water leaks alarm** system



Awareness Campaigns

Competition between schools in Nantes and Vigo

A competition of energy savings has been organised between **12 schools** in **Nantes** and the **3 schools** of **Vigo**. The goal of this « best performing city » contest is to stimulate the motivations of the stakeholders to save energy through the implementation of reduction actions, and to educate children as early as possible about the environmental issues raised by energy management. This competition took place from November 2012 to March 2013 in Nantes, and from November 2012 to June 2013 in Vigo. Only the electricity consumptions of the two groups of schools have been compared: the schools of Nantes have saved **4,8% of electricity**, while in Vigo the savings reached **15,6%**. The results of this competition are available on a page of the Greencity website, which has been designed especially for children.



Vigo Mayor presenting the project

Display of a poster outside the school Sully in Nantes



European survey

A survey about monitoring of energy consumption in public buildings has been sent by e-mail to the main cities of the 27 EU member states. The aim of this survey was to perform an inventory of the local energy policy and to assess the needs at the city level, but also to constitute an updated **database of contacts** to disseminate the results of the projects. The European survey has been sent to around 600 contacts corresponding to 334 cities. **63 cities** have answered in total with at least two answers per country. It has been observed that only **30%** of cities own a real-time energy management system, because of a lack of money, of competences or of interest. However, the great majority of municipalities is involved in an **environmental policy**, and they are **concerned** by the issues raised by the energy management. The main conclusion is that there is a real need and demand of such **real-time energy management** system.



Virtual dissemination

Online public portal (www.lifegreencity.eu)

- Information on the project, its main achievements and events.
- Main publications and biannual newsletters
- Presentation of the results per city

Virtual dissemination of the results of awareness campaigns (on the project website)

- Website page especially dedicated to the follow up of the competition, adapted for children. A game has been set up in order to introduce the competition results.
- Presentation of the European survey: employed method, main results and link to the questionnaire

Communication around the dissemination events

- Listing of all events to which Greencity participates: EcoCity World Summit...
- Details about the events and links for registration

Restricted access for partners (on the project website)

- Exchange of project documents
- Consultation real-time of the advancement of the project, and following-up of the energy savings results

What is meant by "virtual campaign"?

The GreenCity virtual campaign is the result of various online actions and activities targeting largest possible population. The main objective is to increase the public awareness about issues raised by a better urban energy management.



Physical dissemination

Communication to other European cities

Using of the database constituted in the frame of the European survey to disseminate the results of the project

Sending of the newsletters to the people in charge of the energy management in the European cities

Adapted communication depending on the way to manage energy, drafting of recommendations

Dissemination in figures

- 9 posters (5 posters + 4 posters for the Final Conference)
- 1000 leaflets (500 in English, 500 in Spanish)
- 5 press releases (3 in French, 1 in English, 1 in Spanish)
- More than 122 000 visitors on the website
- 7 events attended



EcoCity World Summit in Nantes (France), 25-27th September 2013, and Final Conference of the project. This annual event gathers both public and private actors of the sustainable town planning at a global scale. In the frame of this world summit, GreenCity has presented its main results and attended the whole event through a permanent stand.

Forthcoming communication

The GreenCity activities will continue after the end of the project through dissemination activities. Different channels will be used such as the Greencity website, communication campaigns and events related to the energy management.

DISSEMINATION ACTIVITY

Given that the GreenCity website will be active for the next five years, the awareness tools developed during the project will continue to exist, thus making the citizens aware of the energy efficiency issues.

VIGO will keep implementing energy savings actions notably in the schools and public buildings in order to further contribute to the awareness of citizens regarding energy issues.



NANTES (Séquoia) will keep implementing awareness actions in the school and organizing workshop with the energy box. In addition, the "10 things to do to save energy at school" poster will be further displayed in other schools. Finally, energy performance diagnostics will be annually updated and displayed in the public buildings to inform users of energy consumption trends.



DISSEMINATION TOWARDS EU STAKEHOLDERS

- Diffusion of communication tools about the project (leaflets, newsletters, etc.) to **334 cities in Europe** and **energy efficiency stakeholders**
- Dissemination to the **European Environment Agency (EEA)**
- Keeping relationships with the other **LIFE+ project** teams via the **national contact points**

To ensure the sustainability of the project and to promote energy efficiency best practices in EU, the results on the project will also be disseminated at EU level.

In order to ensure the impact of the project in the future in terms of dissemination, the project will be highlighted and presented during the future energy conferences.

Disseminating the results of the project in Spain and France through schools, universities and decision makers will spread awareness of local and national energy goals and encourage future actions in those countries on energy efficiency.

