Best practice: Government of Catalonia (PPA)

Background

In recent years the consumption of energy in public buildings is becoming a major concern for public authorities due to high energy prices and the upward trend in energy prices in the future.

The Government of Catalonia has a large stock of buildings, as much as of property as of rent. Therefore the energy consumption of these buildings is an current issue in the catalan policies and regulations. The goverment of catalonia is focusing on different aspects and areas to reduce these energy consumptions.

One of the more important problem the government encountered was the difficulty of data collecting and processing. The energy data was scatterd in the different departments that the buildings belonged.

The main needs were the following:

- Management of a large number of buildings

- Management of buildings by typology, by main constructive characteristics, by time uses, by territory, etc

- Management and control of energy consumption of stock buildings

- Evaluation of the impact of the energy efficient measures implemented (EEM)

In summary, a useful tool of being able to evaluate the whole set of buildings in an easy and simple way, and at the same time fast, without having to contact intermediaries technicians to get the information - sometimes it requires some days to get them.

Actions taken

In this period of the EDI-Net application is working, the Government of Catalonia has already registered 1.162 buildings in total. The below figure shows the introduced infomation proportion in the total buildings.
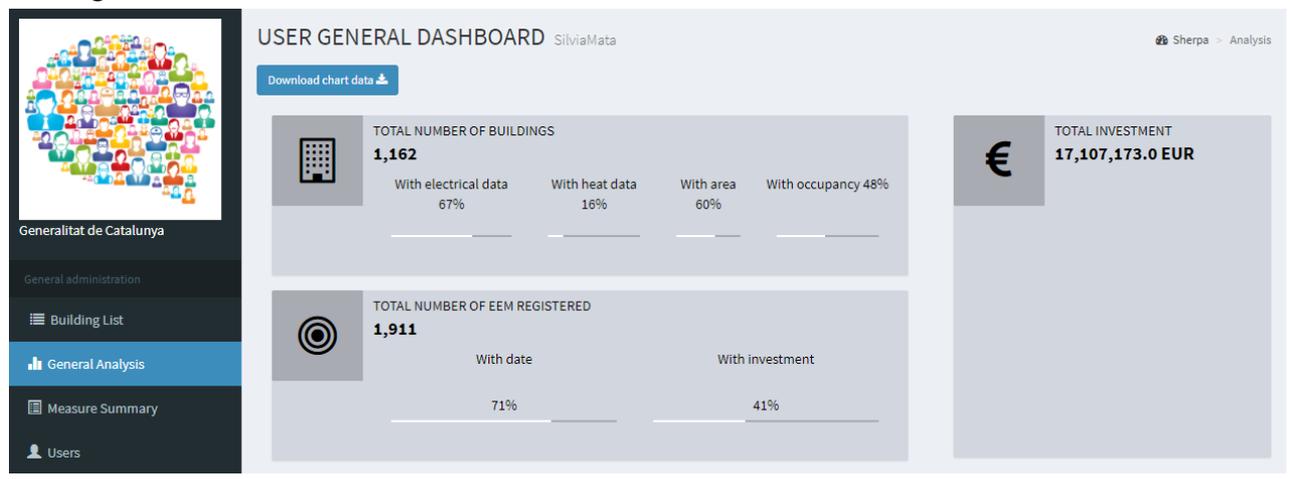
Only the 67% of the catalan public buildings have introduced the CUPS (identification spanish codes of the supply points), this code allows linking each building with its energy consumption and in this way EDI-Net can collect the consumption data.

Of the total introduced buildings, only 208 buildings have sub-hour meter, which allows to have a more exhaustive and precise control of the consumptions. In Spain, this type of sub-hour meter is not mandatory for public buildings. Therefore its implementation has an economic cost for the spanish public authorities. For that reason, only the 18% of the registered buildings has it installed at the moment. One of the approved measures by the catalan government is carrying out is the installation in all public buildings of this type of meters. However is a long process because of the amount of the catalan public buildings.

On the other hand, a large number of measures have been implemented to reduce energy consumption and increase the performance of building facilities. These 1.911 measures have had a cost of 17.107.173 € in total. The below figure shows the implementation EEM and their cost regarding departments and typology of buildings.
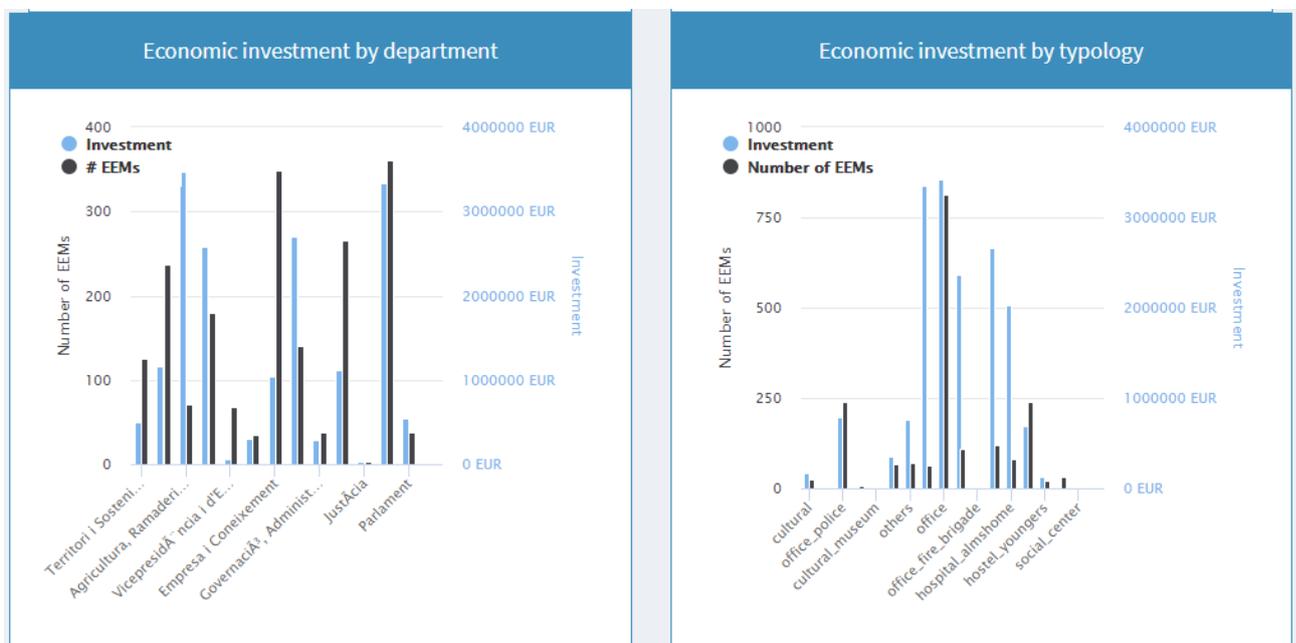
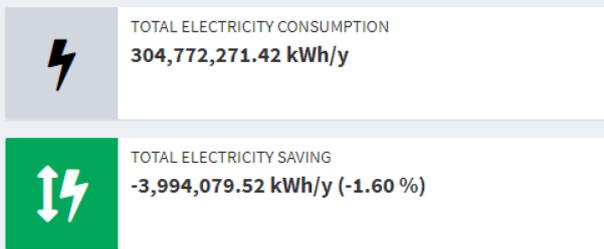EDI-Net application has been crucial to register and assembled the energy data in only one database.

This combination consumption data and energy efficiency measures data have been useful understand and determine the impact produced by the EEM implementation. This work opens the software to be very aproppiate in the preparation of new energy renovation projects.

In this sense the EDI Net software constitutes a very beneficial tool to register experience and generate knowledge useful for investment decisions in buildings.
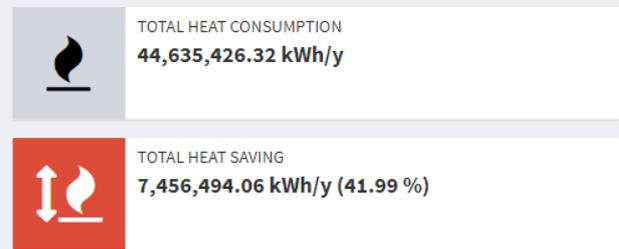
Results

From Government of Catalonia is entering energy data in EDI-Net application, has been saving around 1.60% of total electric energy in all buildings (1162 units). In the below figure shows the energy concumption in the last year.
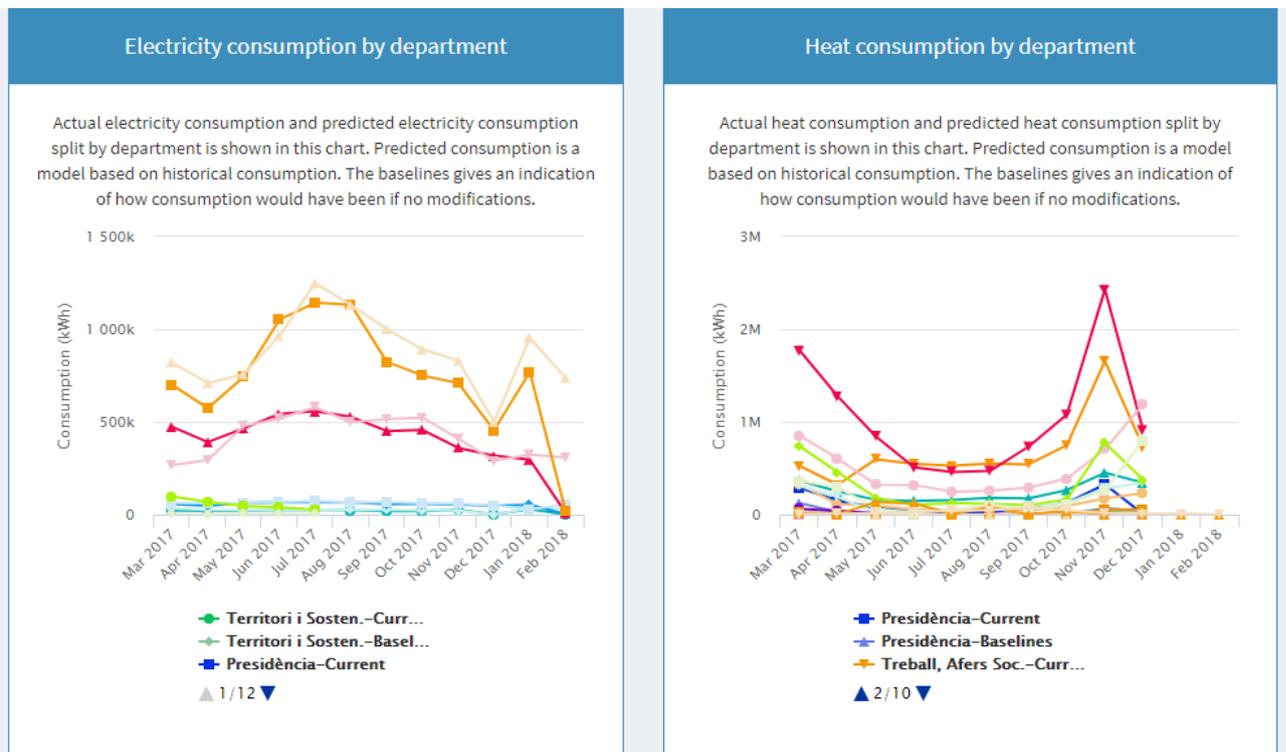
Electricity Consumption

TOTAL ELECTRICITY CONSUMPTION
304,772,271.42 kWh/y

TOTAL ELECTRICITY SAVING
-3,994,079.52 kWh/y (-1.60 %)

Heat Consumption

TOTAL HEAT CONSUMPTION
44,635,426.32 kWh/y

TOTAL HEAT SAVING
7,456,494.06 kWh/y (41.99 %)

EDI-NET application and the results it extracts are used to high-level monitoring, for example, for the evaluation of the involvement of the different departements of the Generalitat in the common objective of reducing consumption in the Catalan administration.

Electricity consumption by department

Actual electricity consumption and predicted electricity consumption split by department is shown in this chart. Predicted consumption is a model based on historical consumption. The baselines gives an indication of how consumption would have been if no modifications.

- Territori i Sosten.–Curr…
- Territori i Sosten.–Basel…
- Presidència–Current

▲ 1/12 ▼

Heat consumption by department

Actual heat consumption and predicted heat consumption split by department is shown in this chart. Predicted consumption is a model based on historical consumption. The baselines gives an indication of how consumption would have been if no modifications.

- Presidència–Current
- Presidència–Baselines
- Treball, Afers Soc.–Curr…

▲ 2/10 ▼

In the same way, it allows you to quickly find out the types of buildings that have the most energy consumption or which have a lower performance. Therefore, it allows us to know which ones need urgently an improvement action.

Specially comparing consumption between similar buildings should be useful to modify management trends. This is a opportunity for periodic review of results and comparative analysis in the framework of Interdepartamental Commission.
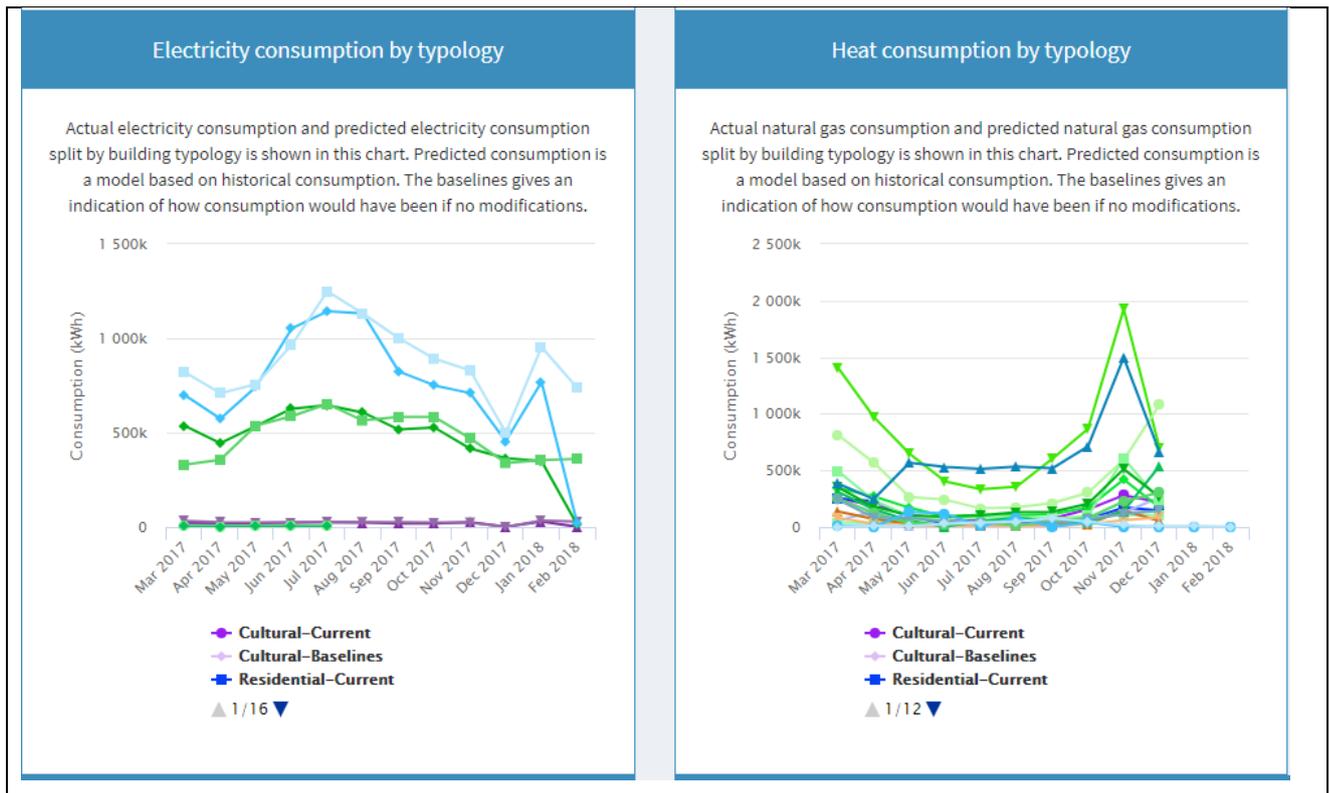
Financial information

For the moment, the entering data in EDI-Net is only for the energy values, that is electric and thermal kilowatt consumption. For this reason we can not explain any cost savings at the moment.

On the other hand, the investment of implemented EE Measures have been registered, although the energy savings can not know yet. Without the energy savings can be not able to calculate the extra financial information.

We will hope in the next years can implementate the finacial study for the implemented EEM and determine the cost savings for them.

Replication and plans

This best practice is going to be replicated in several municipies of the catalonia region. At the moment we are working to capture more authoroties local to use the EDI-net application.

In adittion, the Government of Catalonia has been making sinergies with other european project to promove the use of EDI-Net. For example, in the SHERPA project, the partners have introduced their regional pilot buildings in the application, in this way, they are able to evaluate the produced energy savings and make a comparative between their buildings by typology and by departments. Besides they can see the recommendations of EEM that the benchmarking tool make for each building. This list of recommendations are the feasible EEM with its implementation' investment, that each building could be implement to reduce its energy consumption.