

## Cemetery of Les Corts de Barcelona. First self-sufficient equipment in the city

by [Marta Aladrén Ribas](#) / 2018-06-12 12:32:53 / Espagne / 5760 / ES



**Year of commitment** : 2015

**Address 1 - street** : BARCELONA, España

**Green energies** : Thermal solar, Photovoltaic solar



**256 680 €**

**Builder**

Comsa, S.A.

### GENERAL INFORMATION

Les Corts Cemetery is one of the facilities where the implementation of a global project to improve the energy self-sufficiency of the equipment is proposed. The photovoltaic installation, of 56.42kWp, generates almost all of the electricity demanded by the equipment, with a battery system, with an energy availability of

320kWh / day (C20, which means that it is sized for a discharge in 20 hours). It is an installation assisted by the electricity network, in other words, the installation is expected to operate autonomously to the electricity grid most of the time but, in case the demand for electricity exceeds the amount of energy that can be delivered the photovoltaic installation and the batteries operating in parallel, through a micro-network manager, would produce the commutation of this installation to the company's electrical network, feeding the consumption through it.

The production of this photovoltaic installation is of the order of 74,500 kWh / year, with the expected power consumption of the order of 69,000 kWh / year. At the annual clean balance level and without contemplating simultaneities, that is, if we were injecting into a network, we could say that the photovoltaic installation covers 100% of the electrical needs. The Cemetery of Les Corts demands the order of 2,120 kWh / year for the heating of hot sanitary water, which is used mainly for showering services of the personnel working. In the self-sufficiency project, the installation of 2 solar thermal collectors was proposed to reach the demand of the Cemetery's ACS with a coverage of 90.77%. The installation of air conditioning (heating and cooling) of the cemetery of Les Corts that is part of the project to improve energy self-sufficiency of the same contemplates the application of improvements in energy efficiency in equipment and machinery, by replacing practically the entire current system of climate by another system that contemplates a machine with compressor to gas of variable flow VRV more different terminal units, splits of wall and cassettes of ceiling, based on the needs of climatización and morphology of the spaces to acclimate. The system will consist of an outdoor unit and ten indoor units. This outdoor unit has a power of 25.2kW in cold and 27kW in heat with cold yields of 4.29 and 4.39 in heat. The outdoor unit is controlled through a control unit that allows to program the operation of all indoor units. The substitution of the climate system means a saving in terms of electric energy consumption of the order of 40% with respect to the current electricity consumption for the air conditioning of the buildings of the Cemetery. As for the Ceiling lighting system, both external and internal, the optimization of the current system is sought. The objective is that with the same existing points of light reduce the electrical consumption relative to the lighting system, maintaining at least the current light levels and verifying, with the applicable regulations, the compliance of the lighting levels. In this case, it was proposed to replace almost all existing luminaires with LED and low consumption luminaires. The replacement of the current lighting system, both inside and outside, means a saving of electricity of the order of 65% of the current electricity consumption for lighting.

## Progress Status

Delivered

## Data Reliability

Self-declared

## Funding Type

Public

## Sustainable Development

### Attractiveness :

The project was carried out in collaboration with the Energy Agency of Barcelona, which has supervised the project and has been present in the monitoring of the actual operation of the installation.

Users can follow the operation of the installation through production indicators published on the Cementiris de Barcelona website and an information screen in the Les Corts cemetery.

### Well Being :

### Social Cohesion :

This installation has been visited several times by engineering schools and vocational training for its photovoltaic operation.

### Resilience :

### Responsible use of resources :

This installation allows to reduce between 75 and 85% the electric power consumption of Les Corts cemetery, by installing photovoltaic solar panels with a power of 45Kwp that allow to supply the diurnal energy necessary for the installation and storage in batteries of the surplus produced to be able to supply the necessary electricity when there is no solar production. To increase self-sufficiency, a solar thermal system was installed for the ACS, the replacement of the LED lighting system and the installation of the VRV central air conditioning system.

## Governance

Cementiris de Barcelona, SA

**Holder Type :** Public Local Firm

Comsa, S.A.

**Builder Type :** Construction Industry

**Manager / Dealer Type :** Private

## Sustainable Solutions

Photovoltaic self-sufficiency

### Description :

A park of photovoltaic panels has been implemented with a power of 45 Kwp and 5 inverters of 10Kw that through a manager (microgrid manager) manages the charge of a bank of gel batteries of 320 Kwh (in C20) allowing to supply the electrical energy necessary during the hours of sun to the installation and to load the

bank of batteries with the surplus of the production. In case of not having solar production or load in the battery bank, the company can export the surplus of consumption to the company network, but the battery bank is only charged through solar production. For the optimization of the photovoltaic project we included measures to reduce the energy consumption of the cemetery, such as the change of electric heaters of ACS by a solar thermal system by means of accumulators, the replacement of the existing lighting by LED technology and the change of the installation of air conditioning by a VRV system with higher energy efficiency.

A strong point is the goal of being as self-sufficient as possible.

- Energy/climate :
- Renewable energies



## Contest

### Building candidate in the category



Premio de los Usuarios



Gran Premio Ciudad Sostenible

