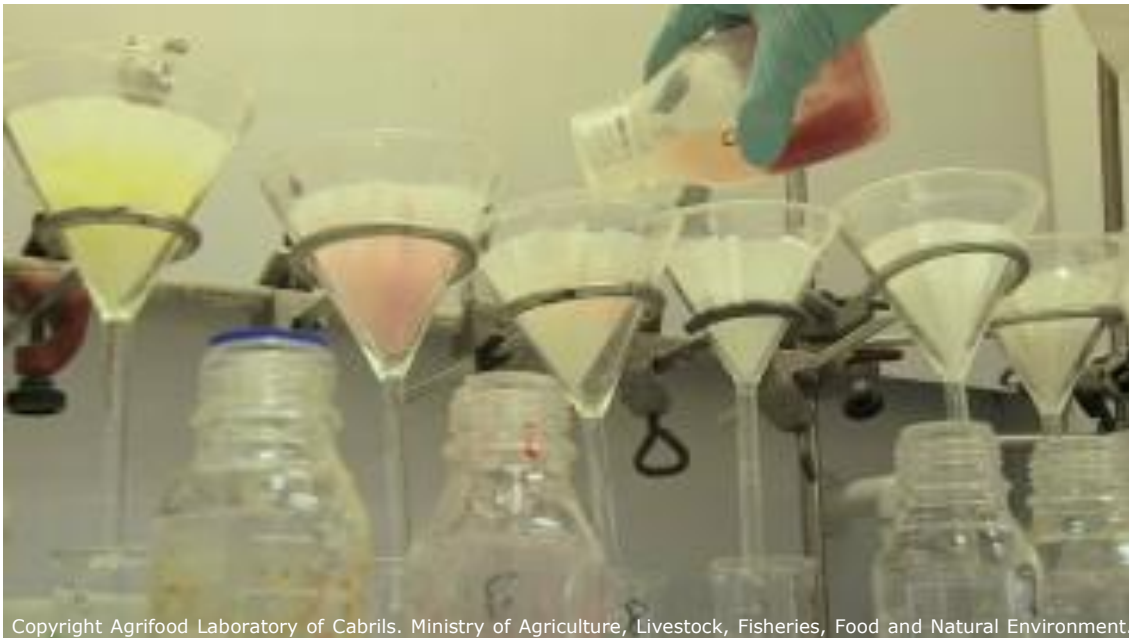




## Energy Performance Contracting and maintenance service drives energy efficiency

Agrifood Laboratory of Cabrils. Ministry of Agriculture, Livestock, Fisheries, Food and Natural Environment. Government of Catalonia

- Energy performance contract (EPC) with guaranteed energy savings
- Five years contract with a guaranteed 15% reduction of annual energy consumption



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### Standard product

- There wasn't an EPC with guaranteed energy savings
- Energy consumption and CO<sub>2</sub> emissions:
  - 57.92 toe/year
  - 180 tCO<sub>2</sub>/year

### GPP 2020 tender

- EPC with guaranteed energy savings (15%)
- Energy consumption and CO<sub>2</sub> emissions:
  - 49.23 toe/year
  - 153 tCO<sub>2</sub>/year

### Results

- Energy savings:
- 8.69 toe/year
  - 43.44 toe/contract (5 years)
- CO<sub>2</sub> savings:
- 27 tCO<sub>2</sub>/year
  - 135 tCO<sub>2</sub>/contract

## Contract tendered

- The Agrifood Laboratory of Cabrils (LAC), from the Ministry of Agriculture, Livestock, Fisheries, Food and Natural Environment Ministry of the Government of Catalonia, tendered the Energy efficiency and maintenance service.
- The tender uses the Energy Performance Contracting (EPC) model, with guaranteed energy savings. A minimum of 10% in energy cost reduction and 5% in water cost reduction is mandatory.
- The contract runs over 5 years and has a value of 306,800 € (VAT excluded). Out of this amount 260,000 € correspond to the maintenance service and 46,800 € to the energy efficiency service.
- The tender is aligned to the framework of the *Catalan Government buildings energy efficiency plan 2011-2014* and follows the goals of the *Energy and climate change plan 2012-2020*, approved by the Government of Catalonia respectively on 30 August 2011 and 9 October 2012.

## Procurement approach

### Procedure used

Open procedure, subject to harmonised regulation.

### Technical specifications

The purpose of the contract was divided into two major services:

- The provision of conduct, preventive, corrective and regulatory maintenance service in the building installations.
- The provision of energy efficiency service, including:
  - The implementation of Energy Conservation Measures (ECM's) in lighting, heat and cooling production and distribution, energy management and water saving.
  - The technical and energy management of the installations, optimising the resources with the aim of improving the energy efficiency and accomplishing the established operating conditions. Additionally, technical assistance is given during the procedures of monitoring and control of the energy purchase.
  - Measurement and verification of the guaranteed savings by using the International Performance Measurement and Verification Protocol (IPMVP).
  - Training and awareness in energy and water good practices addressed to the users of the building. Training addressed to the building energy manager.
  - Implementation in the building of procedures and requirements of the international standard ISO 50001.
  - Building Energy Performance Certificate once the ECM's would be implemented.

The energy consumption from 2013 was taken as the baseline. On this basis the following percentage of energy savings has to be achieved with the proposed actions and measures:

- 10% in electricity consumption.
- 3% in water consumption.

### **Award criteria**

The following award criteria were applied:

A) Award criteria automatically measurable (55 points):

1. Economical criteria: valuation of the guaranteed economic saving per year (25 points).
2. Technical criteria for the energy efficiency service evaluation (30 points):
  - Annual electricity saving proposal (25 points).
  - Water saving proposal (5 points).

B) Award criteria evaluable through a value judgement (45 points):

1. Criteria for the maintenance service valuation (20 points):
  - Maintenance project (10 points).
  - Quality control procedures (5 points).
  - Maintenance team (2 points).
  - Transition service plan (3 points).
2. Criteria for the valuation of the proposed ECM's (25 points):
  - Presentation of ECM in all the scopes proposed in the tender (15 points).
  - Technical proposal: technical quality of the equipments, level of detail of the presentation of each ECM, global energy efficiency of the installation and implementation timetable (5 points).
  - Adaptation of the ECM's to the main needs and characteristics (3 points).
  - Level of data automation and computerisation (2 points).

### **Contract clauses**

#### *Minimum guaranteed savings and technical management of the installations*

The awarded company has to achieve the guaranteed savings during the execution of the contract, accomplishing with conditions of lighting, air conditioning and operation of the building as specified in the tender.

All the implemented actions have to fulfil the current legislations and have to be validated by the Ministry of Agriculture, Livestock, Fisheries, Food and Natural Environment.

The technical management service of the installations will include the monitoring of the building energy expenditure with counters and sensors, as well as an open software compatible with the existing systems of the building.

#### *Penalties*

The penalties for the contractor for not achieving the total guaranteed saving are:

- If the achieved savings are between the 76% and the 100% of the guaranteed savings, the penalty will be the corresponding to the cost of the not saved energy (=kWh not saved x energy cost according to the current tariff).
- If the achieved savings are under the 75% of the guaranteed savings, the penalty will be the corresponding to the cost of the not saved energy increased by a 50% (=kWh not saved x energy cost according to the current tariff [€/kWh] x 1.5).

#### Measurement and verification plan

The bidding companies had to present and, where appropriate, execute a measurement and verification plan. This had to be done for each of the proposed actions, using the International Performance Measurement and Verification Protocol (IPMVP) EVO 10000 – 1:2010.

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#### Contract monitoring

For the right contract monitoring it is important that the awarded company implements all the necessary equipment (sensors, meters, etc.) that allow the proper monitoring of energy consumption, comfort conditions and correctly verifying the achieved savings.

The awarded company will inform daily about the maintenance incidences and will submit a monthly and an annual report that will include, among other, the following information:

- Evolution (in detail) of the ECM's implementation.
- Real and global monthly consumption for each energy source and water.
- Real monthly savings for each energy source and water.
- Real monthly economic saving.
- A consumption monitoring for each ECM implemented will be done, in order to verify the guaranteed savings.
- Justification of the achieved savings.
- Energy prices used for the calculation of the achieved savings.

## Criteria development

The standard tender specifications for energy efficiency services of the Catalan Government buildings has been further worked on with the stakeholders of the energy services market. The aim was to obtain a successful tender specification model and give confidence to the market, that is still immature in Catalonia.

The recommendations made in the audit do not have the character of a "closed list" and the bidders can propose other measures that would deem appropriate (technically and legally possible). The building energy consumption in 2013 has been taken as baseline to calculate the energy saving minimum requirements. Once the tender documentation was published and before handing in their offers, the ESCO companies have been able to make a visit to the building and its installations.

## Results

	CO <sub>2</sub> emissions	Energy consumption
With energy efficiency service	153 t CO <sub>2</sub> /year	49,23 toe/year
Without energy efficiency service	180 t CO <sub>2</sub> /year	57,92 toe/year
Annual savings	27 t CO <sub>2</sub> /year	8,69 toe/year
Total savings (5 years contract)	135 t CO <sub>2</sub>	43,44 toe



### Calculation basis

- The energy consumption in 2013 is used as baseline to calculate the energy savings per year.
- The guaranteed energy consumption savings (15%) is obtained from the winning bid.
- The CO<sub>2</sub> emission reductions have been calculated using the following conversion factor for electricity: 267 gCO<sub>2</sub>/kWh (peninsular mix for 2014). Source: The Catalan Office for Climate Change – Government of Catalonia.
- It is foreseen to have savings in the water and energy cost of the building accounting for 14.28%, equivalent to 10,463 Euros/year.

## Lessons learned

The realisation of this tender has allowed continuing working in this strategic action line of the Government of Catalonia, learning different aspects that will help to improve the tender specifications of future projects:

- The importance of the right definition of the current consumptions of the building and its daily energetic behaviour, knowing the hours of higher consumption and the reasons, what are the installations that represent the higher percentage of the energy consumption, etc.
- How to define the energy efficiency fee from the guaranteed energy savings.
- Which are the most important criteria to evaluate the bids.
- How to define measurement and verification protocol in order to check annual savings.
- Contributing to standard tender specification for EPC in the laboratory sector.

- Comparison of the performance between buildings.

## Contact

Catalan Institute for Energy

Government of Catalonia

[icaen.gencat.cat](http://icaen.gencat.cat) | Francesc Vidal: [francesc.vidal@gencat.cat](mailto:francesc.vidal@gencat.cat)

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## About GPP 2020

**GPP**  
**2020** | procurement  
for a low-carbon  
economy

GPP 2020 aims to mainstream low-carbon procurement across Europe in support of the EU's goals to achieve a 20% reduction in greenhouse gas emissions, a 20% increase in the share of renewable energy and a 20% increase in energy efficiency by 2020.

To this end, GPP 2020 will implement more than 100 low-carbon tenders, which will directly result in substantial CO<sub>2</sub> savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – [www.gpp2020.eu](http://www.gpp2020.eu)



## About PRIMES

Across six countries in Europe; Denmark, Sweden, Latvia, Croatia, France and Italy, PRIMES project seeks to help municipalities overcome barriers in GPP processes, many of which lack capacity and knowledge.

PRIMES aims to develop basic skills and provide hands-on support for public purchasing organizations in order to overcome barriers and implement Green Public Purchasing. This will consequently result in energy savings and CO<sub>2</sub> reductions. – [www.primes-eu.net](http://www.primes-eu.net)



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