

Savings and energy efficiency

Facilitation of energy saving habits in municipal facilities



Contracting authority:	Granollers City Council
Contract:	Service for the technical support for the development of an energy strategy for municipal facilities
	Awarding date: 29/08/2017
Savings:	<ul style="list-style-type: none"> • 66,6 tonnes CO₂ emissions saved • 246.045 kWh final energy saved • 0,43 GWh primary energy saved • Economic savings of 54.914 Euros

SUMMARY

- Methodology to progress towards a new energy culture through the direct involvement of users and managers of facilities (ESTALGIA).
- Campaigns and activity programmes focused on the energy performance of 62 municipal facilities (energy demand and users habits).
- Objectives: reduction of electricity, gas and water consumption depending on the type of facility; and awareness raising of users to change habits regarding how energy is consumed.

Procurement context

Climate change mitigation and the fight against energy poverty are global challenges in which local action is key. The European Union has set objectives for emissions reduction, energy efficiency increase and renewable energy share in the consumption of primary energy. Municipalities have defined joint action frameworks¹ to achieve those objectives.

Granollers City Council passed its Sustainable Energy Action Plan (SEAP) in 2009 and in 2014 joined the Covenant of Mayors Initiative on Climate Change Adaptation, with the commitment to integrate into existing municipal planning adaptation measures for the municipality against the negative effects of climate change.

To reduce energy consumption in their buildings and facilities and give continuity to the SEAP, Granollers City Council has developed energy saving programmes and campaigns on sports facilities (2012), educational centres (2013) and municipal facilities (2014). These measures to promote energy saving - based on the involvement of municipal facilities managers, companies, organisations and users - have become an action brand called ESTALGIA. It has received the support of Barcelona Provincial Council and is one of the inspirational good practices of the new programme “Pass the Energy” of Barcelona Provincial Council on support for municipalities to improve the management of public facilities through fair and sustainable energy use and consumption.

In 2015 the Energy Strategy for Municipal Facilities in Granollers 2015-2020² was defined, which includes the implementation and consolidation of the ESTALGIA methodology into all types of municipal buildings. ESTALGIA is an acronym formed from ESTALvi + enerGIA (saving + energy in Catalan). This methodology consists of: a basic energy diagnostic of the facilities; a proposal of specific actions to improve the energy saving and efficiency; training addressed to stakeholders and campaigns to raise the energy and water awareness among the users of the buildings. Energy and water consumption data are collected and compared with previous periods and the results are inferred in terms of relative energy and water savings.

In May 2017, the call for tenders for the technical support for the development of the Strategy for 2017-2019 was published.

INNOVATION IN PROCUREMENT

Implementation of a pioneering and proven energy saving strategy based on the involvement of facility managers and users for change of habits.

Performance-based clauses are used based on compulsory energy and economic savings objective.

¹ The broader and better known is the Covenant of Mayors for Energy and Climate, which in Catalonia counts with a high level of adhesions and is promoted by the Network of Cities and Towns for Sustainability.

² Document written in the framework of the *Green Partnerships for greener Cities and Regions* project of the MED European Programme).

Needs analysis

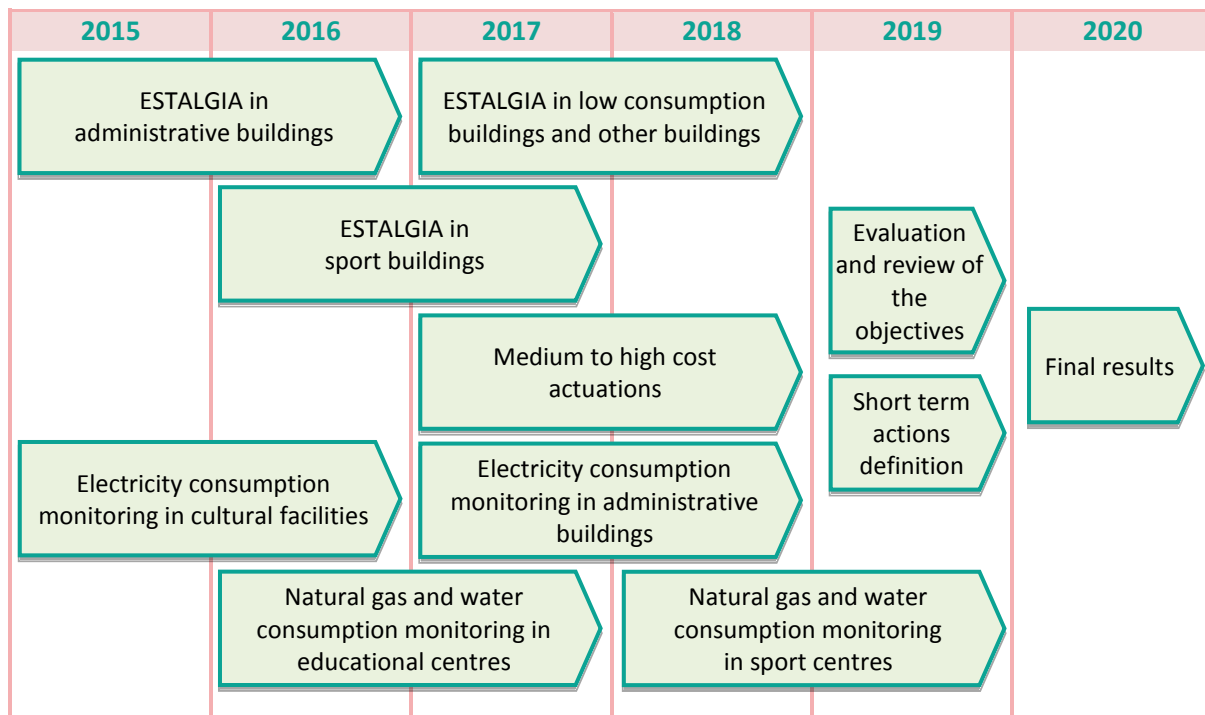
Previous action on energy efficiency and conservation, alongside the contents of an energy strategy for municipal facilities, have allowed the needs for this service contract to be defined in a very clear way. Granollers was also able to identify realistic objectives linked to the contract performance.

The Energy Strategy for Municipal Facilities in Granollers 2015-2020 define two main needs to solve with this tendering process:

- To make ESTALGIA methodology available for all municipal facilities;
- and to strengthen and consolidate ESTALGIA results with information, monitoring and specific actions.

From this basis, the strategy also identifies the main consumers of electricity, natural gas and water in order to prioritise the typology of facilities to which the service contract is addressed. Finally, it schedules the development of the actions along the period 2015-2020, as can be seen in the next figure.

Schedule of the actions defined by the Energy strategy of the municipal facilities of Granollers 2015-2020



Contract conditions and verification

TECHNICAL SPECIFICATIONS

- Development of the energy savings programme in line with the ESTALGIA methodology and brand.
- Elaboration of energy saving data reports on the implementation of energy saving programmes and campaigns in sports, educational, administrative and social-use facilities.
- Assurance of achievement of the saving objective defined in comparison to consumptions and expenditure from 2016.

AWARD CRITERIA

- Innovative strategies within the proposal for involving users, municipal managers and other stakeholders in the development of energy efficiency programmes (15 points).
- Higher savings objectives than those defined in the tender specifications (5 points).
- Improvement of offered activities regarding the number of visits to the facilities, people allocated to the service, telemetry equipment and training activities (15 points).
- Reduction of the deadlines to present the balance reports (7 points).
- Increase the duration of the technical support service (7 points).
- Economic offer (51 points).

VERIFICATION

Due to the nature of the contract, verification of the award criteria is based on the upkeep of the quality standards of the service.

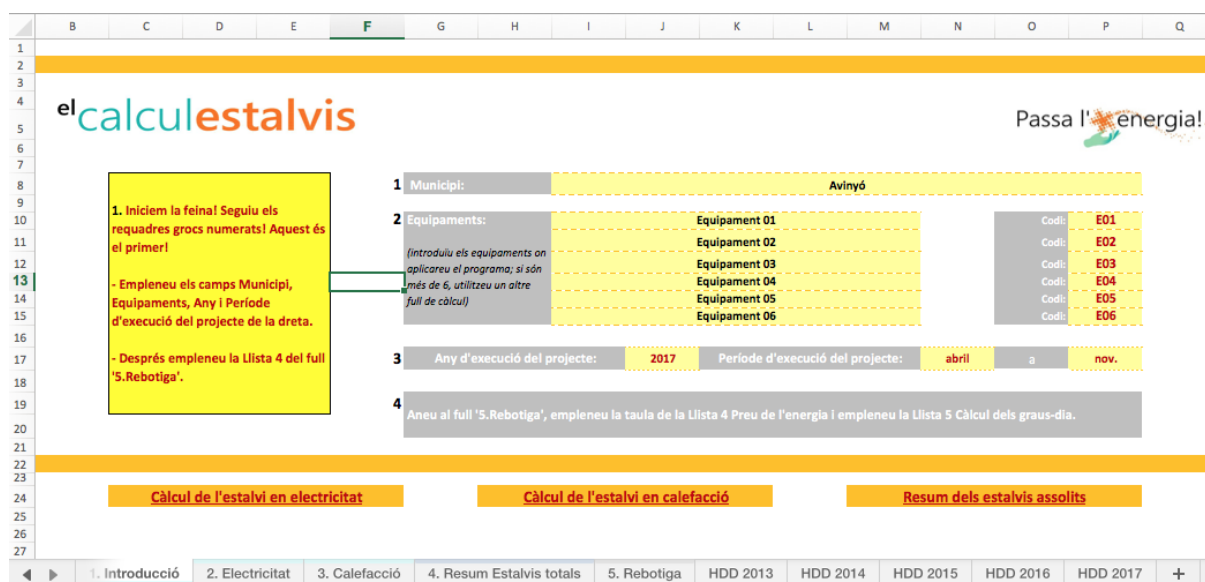
Regional approach to SPP

The service concept and the ESTALGIA methodology result from a previous initiative, in which the collaboration of several regional administrations was important. A good example is the “Marathon for energy saving”, a solidarity energy saving campaign carried out by several municipalities within the province of Barcelona in which the economic savings from reducing energy consumption were used to fight energy poverty. It is a campaign that takes place in February and seeks to reduce the consumption of electricity, gas and water in several facilities. The economic savings are used to implement actions to fight energy poverty.

This initiative, promoted by Granollers City Council, is one that has inspired a wider action programme called “Passa l’energia” (Pass the energy) managed by Barcelona Provincial Council. This regional authority provides technical, material and economic support to all local authorities in the province that commit to save energy in their facilities and allocate economic savings for homes in the

municipalities that suffer from energy poverty. A calculation tool has been developed to obtain the outputs of the actions developed by each municipality.

Calculation tool of "Passa l'energia" program



<http://www.diba.cat/web/mediambient/passaenergia>

Results

Environmental impacts

The expected energy saving defined in the tender are the following:

Table 1: Environmental and economic savings for all sports facilities

Supply	Final Energy Saving objective (%)	Final Energy Saving estimation	Primary energy savings, GWh/yr	CO ₂ emission saved	Economic saving estimation
Electricity	10%	93,927 kWh		28.9 t	20,664 €
Gas	5%	21,704 kWh		5.1 t	1,302 €
Water	25%	4,477 m ³		-	4,074 €
Savings		115,631 kWh	0.26	34.1 t	26,040 €

Table 2: Environmental and economic savings for all educational centres

Supply	Final Energy Saving objective (%)	Final Energy Saving estimation	Primary energy savings, GWh/yr	CO ₂ emission saved	Economic saving estimation
Electricity	Same consumption as in 2015	22,100 kWh		6.8 t	3,978 €
Gas	5%	108,314 kWh		25.7 t	6,498 €
Water	Same consumption as in 2015	14.373 m ³		-	18,397 €
Savings		130,414 kWh	0.17	32.5 t	28,874 €

CALCULATION BASIS

- Energy saving objectives have been defined as a minimum percentage to be achieved during 2017 in relation to consumption from 2016.
- Energy saving approximation has been calculated from consumption reduction for 2017 regarding the consumption in 2016.
- Economic saving approximation has been calculated based on the savings objectives and the supplies fee from 2016.
- Expected savings are based on the calculations conducted for the elaboration of the Energy Strategy for Municipal Facilities of Granollers 2015-2018.

The previous tables are approximations from tender specifications. Real data from 12 sport facilities until December 2017 show reductions of energy consumption and lower CO₂ emissions, both compared to 2016 and average of the period 2014-2016.

Economic impacts

Thanks to the savings in the consumption of electricity, gas and water in the 62 facilities, a reduction of 54,000 € in the expenditure for those supplies is expected, which is higher than the costs for the contracted technical support services.

According to preliminary data of 12 sport facilities, in 2017 the expenditure on electricity, gas and water has been reduced by 11,182 €, representing 1.71% less compared to 2016.

Contract management

During the execution of the contract, several actions are being implemented in order to meet the objectives set:

- Application of proven methodologies by other organisations to define the strategy of action (for example application of the Pareto Principle, also known as the 80/20 rule).
- Collection of information provided by the City Council: data of the facilities, plans, consumptions and other information of energy interest.
- Site visits in order to check the localisation of the meters, take suggestions from managers of the sites, detect barriers or problems, and gather additional data that may be relevant.
- Preparation of a calculation file for the collection of data for all equipment (consumption, ratios, persons in charge, supply companies, cost of energy, remarks, etc.) to forecast energy and water savings.
- Gathering of information on stakeholders: managers, concierges, users, maintenance and cleaning services, municipal services, sports services of the Barcelona Provincial Council.
- Proposal of a person to be responsible for manual data collection in each facility.
- Temporary installation, if deemed necessary, of telemetry equipment for energy consumption with network communication, in order to improve control and, above all, to raise awareness of managers and users.
- Training, through practical sessions, on consumer habits aimed at staff, entities or other actors involved.
- Formulation and implementation of non-technological action proposals that improve the energy performance of the facility (using synergies and maintenance contracts), whether they involve an economic expense or not.
- Control visits, collection and analysis of data subsequent to non-technological actions.
- Drafting of a final report.

Lessons learned and future challenges

- To act on the demand of energy, the commitment and involvement of facility managers, energy managers and users is key.
- It has been proven that energy efficient buildings can be inefficient due to the habits of its users or the management of the facility managers.
- Monitoring and dissemination of energy consumption contributes to support the effectiveness of energy saving actions.

- A one-off action, even if appropriate and successful regarding energy savings, doesn't ensure the entrenchment of good habits in involved actors. Work during 2-3 years is needed to consolidate a new energy culture.
- The link of specific energy saving campaigns to a solidarity cause increases participation and results.

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Annex 1 – Calculation of the environmental savings

Location of energy contracting	Catalonia	
CO ₂ -emissions per kWh electricity (kg/kWh)	0,308	<i>If you know your own rate, enter it on the sheet "General Assumptions".</i>
Lifetime of the measures implemented in the course of the contract	1	years

INPUT DATA (TOTAL)						
Energy source	Baseline		Conventional tender		Green tender	
	Current annual energy consumption		Expected annual energy consumption		Expected annual energy consumption	
Electricity, conventional	116.027	kWh		kWh		kWh
Electricity, green		kWh		kWh		kWh
Heating oil		l		l		l
Natural Gas	12.324	m ³		m ³		m ³
Wood pellets		kg		kg		kg
Wood		kg		kg		kg
District heating		kWh		kWh		kWh
Coal Briquette		kg		kg		kg
Lignite high quality		kg		kg		kg
Lignite low quality		kg		kg		kg
Coke/Anthracite		kg		kg		kg

TOTAL

Expected results	SAVINGS (TOTAL)					
	Savings (Baseline / Green tender)			Savings (Conventional / Green)		
	Per year	Per lifetime	Percentage	Per year	Per lifetime	Percentage
Primary energy savings, (GWh)	0,4	0,4	100,00%	0,0	0,0	# DIV/0!
Reduction of CO ₂ emissions, (t CO ₂)	66,6	66,6	100,00%	0,0	0,0	# DIV/0!

About SPP Regions

SPP Regions is promoting the creation and expansion of 7 European regional networks of municipalities working together on sustainable public procurement (SPP) and public procurement of innovation (PPI).

The regional networks are collaborating directly on tendering for eco-innovative solutions, whilst building capacities and transferring skills and knowledge through their SPP and PPI activities. The 42 tenders within the project will achieve 54.3 GWh/year primary energy savings and trigger 45 GWh/year renewable energy.

SPP REGIONS PARTNERS



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