C4S — TEAM UP FOR ENERGY

Public lighting renovation in the municipality of Águilas, Spain

Energy Performance Contracting (EPC)

Fact sheets on funding and financing opportunities

Background

The energy performance contracting (EPC) is nothing new. It had its origin in the 80's, in the American industries, to respond to the energy crisis of the 70's. Its success was based on aspects such as: strengthening of the concept of 'improving energy efficiency' in response to cost containment policies; diversification of activities: global energy services contracts as a turnkey system that provided enough technical credibility; transformation of a potential risks and competitive threats of the environment into new business opportunities. And all this without requiring initial user disbursement and recovering the capital invested with the energy savings obtained.

Objective

The main objective of the EPC is to get a 'creative financing' form for capital improvement which allows funding energy upgrades from cost reductions, without running the risk of investing in a new and more efficient technology.

Description of the funding opportunity

The energy performance contracting is based on a contractual arrangement between a municipality and a provider, which is normally an energy service company (ESCO). This company is a natural or legal person that delivers energy services and/or other energy efficiency improvement measures in a user's facility or premises and accepts some degree of financial risk in so doing. The payment for the services delivered is based (either wholly or in part) on the achievement of energy efficiency improvements. Therefore, the ESCO assures certain performance criteria for the measure implemented. The investments in that measure are then paid for in relation to a contractually agreed level of energy efficiency improvement.

During the contract lifetime, the ESCO provides several services dealt with the energy performance like the energy supply, maintenance of the new installations or guaranties to assure the correct system operation.

As shown in *Figure a*, energy savings derived from a higher energy efficiency not only pay the investments and other services like the maintenance of the new installations, but also revert a certain cost reduction in the global municipal bill from the first year and without any kind of expenditure for the public body.
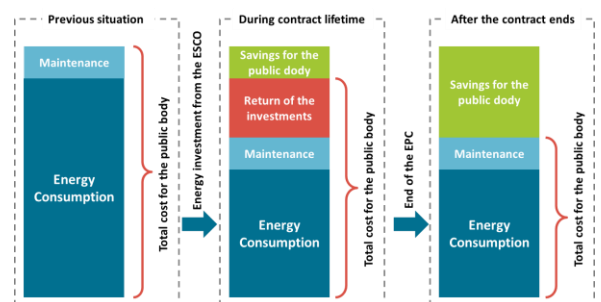

Figure a. Business model of an ESCO implementing an EPC

One of the main advantages of the ESCO model and the EPC is that the municipality does not assume any risk of implementing a new technology. Indeed, while in a conventional operating scheme, the municipality must get the skills needed to understand the new technology and to do an efficient design of the new installation, find investment funds and contracts energy supply and maintenance, within the EPC operating scheme, the municipality only deals with the ESCO, which is in charge of the financing, engineering, design, maintenance and energy supply (Figure b). This signifies an important

discharge of risks and responsibilities for the municipality in favour of the ESCO.
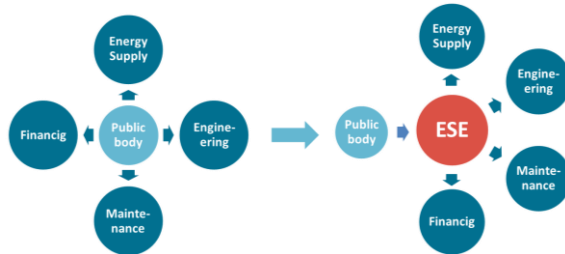

Figure b. Conventional versus ESCO models

Pros and cons of the EPC

The main advantages of the EPC are:

- Reduction of risks and costs in case of unforeseen events
- No further expenditures for the municipality
- Reduction of the energy costs
- Release of human resources previously dedicated to maintenance and operating works
- Maximum performance guaranteed
- At the end of the contract, all installations will belong to the public body and no more costs are allocated for the investment return. Then the municipality gets important cost saving.

However, this contract model has also some cons, like:

- The contracts lifetime is often quite long (7-12 years)
- The property of the new facilities/equipment during the contract time belongs to the ESCO and not to the public body
- New concept for the municipality. The procurement process is complex and require some assistance to prepare tender documents and to evaluate the proposals
- Initial savings are lower than in the case of the municipality made its own investment

Energy performance contract for the public lighting renovation of the municipality of Águilas, Spain

The municipality of Águilas, in the Region of Murcia, Spain, has a large public lighting system with the following characteristics:

- Number of light points: 8.702
- Lighting control panels: 116
- Total installed power: 1.680 kW
- Annual energy consumption (electricity): 7.520.400 kWh
- Annual energy cost: 985.832,82 €

The system was mainly based on sodium and mercury technology, offering a saving potential of 68% in case of using LED technology.

The investment amount to change all the lamps to LED and to adapt the installations (mainly the control panels) to the present regulations was 3.747.072,59 €. With this change, the annual electricity consumption is cut down to 2.386.130 kWh, which represents an annual energy bill of 320.633,75 € compared to previous 985.832,82 €.

After the procurement process, the awarded company offered a new service including the proposed investments, maintenance of the whole system, total guarantee with a 24h telephone support line, as well as the energy supply, for a total amount of 726.897,39 € per year, which represents a cost reduction of 26%. The lifetime of the contract is 8 years. After this period, the savings will grow up to 67% (665.199,07 €/year).

In addition, other services were offered by the tenderer, like the ornamental lighting of the main fountains and monuments, as well as Christmas and Carnival lights.

Summary Table	
City & country	Águilas, Spain
Investment project	Public lighting renovation
Sector of SECAP	Public lighting
Year	2018
Funding opportunity	Public private partnership
Energy saving	5.134.270 kWh/y
Cost saving	258.935,43 € - 665.199,07 €
Green energy produced	N/A
Impact on the environment	1.700 tCO$_2$/y

Measures elebible for EPC

- Investment in renewables
- Investment in energy efficiency

Municipality of Águilas

This fact sheet is part of a series on funding opportunities, which can be found here: html-link

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