

Beyond Energy Action Strategies



D.3.5 – Report on best practice implementation of bankable energy actions



**Best practice title:
Upgrade of the Street Lighting in 20 local authorities in Cyprus**



Submission date: 28 February 2017



Co-funded by the Intelligent Energy Europe Programme of the European Union

CONTENTS

1	Upgrade of the Street Lighting in 20 Local Authorities in Cyprus	3
1.1	General	3
1.2	Context for the action	3
1.3	Project description	4
1.4	Results and outputs.....	4
1.5	Funding plan	5

1 Upgrade of the Street Lighting in 20 Local Authorities in Cyprus

1.1 General

The project “Upgrade of the Street Lighting in 20 Local Authorities in Cyprus” was directed for Cyprus in the territories of twenty (20) Local Authorities in several locations and Districts in Cyprus and covered urban, rural and tourist areas.

Energy savings in street-lighting is a priority for Local Authorities in Cyprus, who aim through energy saving measures to significantly reduce both carbon dioxide emissions and the annual spend for public lighting, which in many cases is more than 10% of their annual budget.

The total number of existing lighting that was intended to be replaced with new lighting technology Light Emitting Diode (LED) was 55.940. The project was designed to be implemented through Energy Performance Contract (EPC), by an Energy Services Company (ESCO), that would be awarded the contract through the public procurement procedure.

1.2 Context for the action

All the twenty (20) local authorities in the project had already signed either the “Covenant of Mayors” or the “Pact of Islands” or both. All the local authorities had developed in collaboration with the Cyprus Energy Agency their Sustainable Energy Action Plans (SEAPs), aiming to implement actions for achieving their carbon emissions reduction targets by 2020. Upgrading the street lighting in order to save both energy and carbon emissions, but also to reduce their energy costs was one of the top priorities in the authorities’ agenda towards their 2020 targets.

One of the most important barrier was the ownership and the responsibility for the maintenance and operation cost for street lighting. The situation regarding street lighting was unclear for decades in Cyprus. Although most lighting fixtures belonged to the local authorities and they also had the responsibility to pay the electricity and maintenance bills, they have no say in the design, technology and installation of lighting fixtures. It was only possible to receive services from the only one utility company, the Electricity Authority of Cyprus. Through meetings, workshops and consultation processes the option for local authorities to have third party services for the installations and maintenance of new street lighting fixtures was established. This was only possible with public procurement which was also a long and a time-consuming procedure.

The implementation of the project required an important initial investment. However, most of the local authorities were not able at that time to invest or apply for a bank loan due to the effects of the financial crisis. Thanks to the business plan elaborated through BEAST, it was possible to identify the most suitable business model which was Energy Performance Contracting.

1.3 Project description

A total number of 55.940 existing street lighting fixtures aimed to be replaced with more efficient LED lights. Through the EPC contracting (Shared Saving Contract), the ESCO company that would be awarded with the contract should undertake the financial risk to implement the project (if met the qualification award criteria), and would be paid back through the archived energy savings (measurable and verifiable). The baseline year was the 2014, meaning in numbers of street lighting fixtures as well as the consumed energy. Any new installation or expansion of the street lighting network would be excluded from the energy saving calculations.

The total cost of the project was estimated at approximately 20 million euros, however this was subject to the offer of the ESCO, as well as the duration of the contract, also a subject of the award criteria. Besides the actual project implementation cost, there was a cost of preparation of the tender documents and the accompanying studies. More specifically, the studies evaluated the important parameters such as the luminance of existing lightings, the lighting height, road width, black spots identification etc. A photometric analysis carried out to a significant number of roads according their classification (avenues, streets, pathways) and the adequacy of the existing infrastructure assessed. At the same time, a market and technology research took place for the selection of the appropriate technologies/equipment for the purposes of the project. Consequently, all the data acquired included in the tender documents. For the facilitation of the project, technical assistance for the preparation and review of the tenders as well as street lighting measurements were occurred.

The tender documents prepared by the Cyprus Energy Agency who was also the contracting authority on behalf of the local authorities, has invited ESCOs for bidding the project tender, through open competition, respecting the National and EU public procurement rules. This also led to public-private partnerships with an ESCO model and EPC contract to be experimented for the first time in Cyprus.

This project fold under the public (green) procurement procedure and therefore was in line with relevant legislation. The EU Directive 2004/18/EC of the European Parliament and the Council of 31 March 2004, on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, was transposed into National Legislation, through the Law N12(I)/2006 which was amended by the Law N91(I)/2010. Provisions of both Laws N12(I)/2006 and N91(I)/2010 were amended by the Law N40(I)/2011 but still provisions of all mentioned Laws were in force. Legislative requirements for ESCOs in Cyprus were regulated in compliance with 2006/32/EC Directive.

1.4 Results and outputs

A joint public procurement for the improvement of street lighting in 20 local authorities was launched for Energy Performance Contracting. It was estimated that the project would achieve energy savings of about 10-12 GWh and 2 to 2.5 M€ per year. The procurement failed to Contract sign because of the technical ineligibility of the proposals. However, this project even if it not implemented it can be considered as best practice because it laid the groundwork for the implementation of similar projects in the future. In other words, this project managed to bring together all relevant stakeholders concerned by the street lighting (e.g. police, local authorities, public service, EAC, etc.). In addition, all

parties understood the importance of the upgrade of the street lighting and the effects this may have on the energy savings, cost savings and quality of street luminance.

The move to LED outdoor lighting had been gathering pace over the last five years with the technology to be improving rapidly and the cost to be costs falling quickly. By 2020, the energy saving compared to today's conventional lighting was expected to reach 90 per cent. LED Street lighting technology can cut energy bills and significantly reduce CO₂ emissions. Significant overall savings will come from reduced energy demand, protection against rising energy prices and lower maintenance and inspection costs.

Although many local authorities lacked budgets for capital investment in comprehensive energy projects, EPC purchasing options through accredited ESCOs enabled energy-efficiency projects with no upfront costs and included guaranteed payback and results. An ESCO could undertake the implementation of this project, due to its short payback time, good IRR and NPV.

The first call for tenders for Energy Performance Contracting proved that the size of the project, combined with the immature ESCO market in Cyprus were additional barriers to the successful initiation of the project. In addition to this, a significant decrease in electricity prices in recent years had an impact on the financial bankability of the project. Therefore, it was recommended that the project should be implemented in the next 1-2 years with a smaller joint public procurement in order for the ESCO's to have the capacity to handle such a project.

1.5 Funding plan

As mentioned above this project was based on Energy Performance Contracting (EPC) where an (ESCO) implements the project to deliver energy efficiency. The Local Authorities would use the cost savings to repay the costs of the project to the ESCO, including the costs of the investment. Essentially the ESCO would not receive its payment unless the project delivers the energy savings as expected.

Under a shared savings contract the Local Authorities would take over some performance risk, however they would avoid any credit risk. Therefore, a shared savings contract is more likely to be linked with TPF or with a mixed scheme, with part of the financing coming from the ESCO, whereby the ESCO repays the loan and takes over the credit risk.

Thus, the ESCO should calculate the share of the savings that should be achieved, as well as the exact duration of the contract. Some ESCOs preferred to get 100% of the savings at the beginning of the project and decreased this percentage after the payment of the investment (profit included) but some other ESCOs chose differently.