



## **Policy recommendations from the Streetlight-EPC project**

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Despite the great potential, most European regions have not yet seen a significant development of Energy Performance Contracting (EPC) markets. Due to its lower technical and economic complexity than building-related projects, street lighting is a good "learning and testing ground" for EPC.

The project "Streetlight-EPC", funded by the Intelligent Energy Europe Programme, created demand and supply for EPC in 9 European regions by providing regional EPC facilitation services and supporting projects towards implementation. The project had a focus on smaller municipalities.

In the frame of Streetlight-EPC, 47 projects were implemented using a variety of EPC models and 16 more with other financing or operational models. In total, 29 million Euro are invested (leverage factor of 27 EU funding compared to sustainable energy investment made). Through these projects, more than 28,000 MWh will be saved annually as well as over 3.5 million Euros for electricity and maintenance costs. 42 of the projects were street lighting refurbishments, 21 related to indoor lighting and/or building refurbishment (e.g. heating systems). Details on these projects and the facilitation services are available on [www.streetlight-epc.eu](http://www.streetlight-epc.eu).

This document presents the key findings of this project with a focus on speeding up market development of EPC and other energy efficiency investments in lighting but also other sectors. It aims to give policy recommendations to actors on local, regional, national and EU levels.

### **EPC can take many forms**

EPC is a flexible model that can take a large variety of forms. This permits it to be adapted to specific legal, economic and social contexts of each region and project.

The two core aspects are:

- contractually guaranteed savings and
- financial consequences for the ESCO if these are not achieved, e.g.
  - withholding/reducing the payment to the ESCO
  - a bank guarantee from the ESCO which can be drawn if savings are not achieved
  - retention of a percentage of the payment until an assessment shows savings have been achieved over time
  - the ESCO must adjust/replace the equipment until savings are achieved



Other aspects can vary greatly depending on the regulatory and economic context as well as the market development level in the specific region, especially:

- who finances and whether a project is completely or partly financed by EPC: depending on the specific context, the municipality may have access to capital at lower cost than the ESCO. In this case, the investment is financed by the municipality and the savings are guaranteed, for example, by a bank guarantee.
- which contract model is chosen
- who performs the audit (in a number of projects in Streetlight-EPC, this was part of the activities of the facilitation services), who designs the system (done either by a specialised planner before the tender/contract signature or by the selected ESCO), who does the refurbishment work and who does maintenance. For the last two aspects, solutions can be found to involve local businesses, the current maintenance company as well as the existing staff of the municipality. In some cases, the current maintenance company developed ESCO services in the context of the project.
- the project size and contract duration: investment amounts of Streetlight-EPC projects ranged between 3,000 and 11 million Euros (see also below under "small is also beautiful), contract duration varied between 4 and 15 years.
- whether maintenance cost savings are included in the contract or not: in many projects, this was not possible due to the lack of data on actual maintenance costs (as they are often not separately recorded but rather included in a number of the municipal budget lines). However, where this was possible, additional cost savings could sometimes be as high as electricity cost savings, allowing significantly more measures to be refinanced by the savings.
- how the ESCO fee is calculated (including who benefits from "extra" savings), the billing schedule and how changes in energy prices are taken into account
- etc.

The Streetlight-EPC projects demonstrate that a range of possibilities exist to develop the right business models for each context.

## **Recommendations**

When designing programmes to develop EPC markets or developing specific projects, it is key to make the best possible use of the EPC model (contractually guaranteed savings and financial consequences if these are not achieved) but not to prescribe specific designs or approaches that exclude good and economically viable solutions.

A key aspect in this context is to remove one market barrier which is that, in some countries, projects implemented with EPC are excluded from national funding programmes. This means that municipalities that want to refurbish their buildings or installations have to choose between EPC (which is not yet a trusted instrument) and a public programme which is well-known.

## **It is all about trust and knowledge**

### **EPC: high interest, low knowledge**

The project showed that many stakeholders have a high interest in the instrument of EPC. However, significant knowledge gaps on technical and economic aspects exist. Also, prejudices (e.g. "using an ESCO will increase project costs due to the ESCO's profit", "ESCO solutions threaten local jobs") often need to be proactively overcome by a trusted information source.

First of all, when developing a facilitation service for a region or a country, it is important that the facilitating organisation develops a deep technical, financial and contractual know-how within the organisation. Municipalities need to understand the business model and develop trust in it. Potential ESCOs may need information on technical, economic and contractual aspects. Banks and financing institution require information on how EPC works in order to trust that the savings will be achieved and allow for the refinancing of the investment.

### **If there is a will, there is a way**

Streetlight-EPC proactively reached out to municipalities and created an interest and trust in EPC. Motivated by a new possibility to address a burning problem (the need to refurbish their street lighting system), pioneering municipalities managed to overcome some of the other market barriers, especially relating to complex procurement rules. With the solutions found by these pioneers, other municipalities gained the confidence to follow their steps.

## **Recommendations**

A strategic approach in reaching out to all target groups and stakeholders and providing them with concrete and situation-specific information is needed in early phases of market development. "Explain, explain, explain" is the motto to be followed. The facilitation service has to understand and respond to the viewpoints of engineers (who sometimes overestimate the contractual challenges) as well those of financing experts (who may tend to underestimate the technical delivery of the savings guarantee). Good practice examples relevant for the specific context (such as those prepared with Streetlight-EPC) are very helpful.

## Streetlight-EPC: A strategic approach to market development

### Step 1: Increasing internal know-how and preparing tools

- analysis of the current regional situation (challenges and opportunities for the development of the EPC market)
- meetings with financing organisations
- developing tools (quick-checks, guides and FAQs on streetlight-EPC)

### Step 2: Identifying and reaching out to potential projects

- holding information events for various target groups, increasing interest and connecting actors and stakeholders
- working with banks and financing organisations to increase the understanding of the EPC model
- distributing the tools to relevant stakeholders
- organising bi-lateral meetings with potential clients or ESCOs
- initial assessment of technical and economic viability of potential projects (e.g. completing and analysing quick-checks)
- identifying the most promising projects

### Step 3: Supporting municipalities and (potential) ESCOs in project development and implementation

- advice on technical, financial and regulatory aspects of EPC
- support in project audits
- guidance on procurement rules, contractual and technical issues

## Quality is king

### Good technical project preparation is key

EPC is a long-lasting partnership - the right approach in project preparation is therefore key for the success of the project. It is crucial to have a meaningful and accurate inventory of the existing system (while at the same time not so detailed that the costs become prohibitive) as well as a good-quality audit to determine reliable numbers for saving potentials.

EPC is more complex to prepare than a "normal" refurbishment project, due to the savings guarantee, but also because it brings a new player - the ESCO - into the process. But once the contract is running, it is much easier for the owner of the streetlight system.

### LED: offers choice, requires knowing your needs

LED solutions are proven technologies that are suitable for very small and very large projects and that permit high energy savings at high lighting comfort levels. However, due to their wide-ranging possibilities and the fact that street lighting directly affects citizens and the local

business community, determining the optimal solution for different locations requires understanding the specific needs and priorities. For example, quality issues such as glare or light colour play an important role in citizen acceptance.

## **Better projects through EPC**

If the right approach is taken, EPC supports solutions with higher-level technical quality than would have otherwise been chosen. The whole process is geared towards an optimum of costs and performance (and not just focussed on costs as this is otherwise often the case). The ESCO is usually a highly specialised company with a deeper knowledge in the technologies involved than a general contractor. And by contractually guaranteed energy savings, it is in its own interest to deliver quality solutions such as long-life lamps, detailed analysis and planning and quality installation materials.

A well-defined tendering process can also greatly contribute to high technical quality: instead of doing a simple selection based on price, several Streetlight-EPC projects conducted the tender selection in several steps. For example, first a threshold for the technical quality had to be passed. Only bids above this threshold were included in the second step in which price and other economic issues were compared.

In many of the projects realised within Streetlight-EPC, the municipalities clearly stated that due to EPC, their project has a significantly higher technical quality than what they would have been able to achieve on their own (due to the lack of specialised knowledge and staff time resources) and that this had a very positive impact on the populations' acceptance. A number of them considered this as a benefit as important as the financing aspect itself.

## **Small is (also) beautiful**

In order to profit from European financing mechanisms, projects need multiple-million level investments. Also, in principle, specific transaction costs in relation to savings decrease with the project size, making more projects economically viable. As numerous municipalities in Europe are quite small, bundling of projects has been a favoured approach in recent years to increase investment levels.

Streetlight-EPC projects showed some of the advantages and disadvantages of such a pooling across municipalities:

It worked very well where a structure of cross-municipal cooperation already existed and a strong facilitation service ensured progress - also in the face of different viewpoints and speed of decision making. The financial support available through PDA instruments has shown itself to be a very useful instrument in financing the significant work load required to do this. An active and knowledgeable facilitation service can also work towards standardisation in inventories, audits and contract preparation - this will then actually decrease preparation costs

(which otherwise may not be lower due to the complexity of having multiple decision making bodies involved).

Several disadvantages were also identified: one obviously is the lengthy preparation process - each involved municipality has its own decision making bodies and meeting calendars and a comparatively small change, for example in the contract text, may lead to long delays. With aggregation to larger projects, the risks also increase - in terms of the technical side (e.g. base line calculation) but also in management and financing. Large project sizes also discourage the participation of SMEs in the EPC market.

A number of Streetlight-EPC projects were relatively small investments in one single municipality. The facilitation services also supported local electrical companies in developing EPC services and becoming ESCOs. However, these companies are likely to need additional financing sources for their future projects and here access to European financing would be very beneficial.

## **Recommendations**

In an early market development phase, it is better to have fewer, but good quality and convincing projects. Careful project preparation and the use of high quality lamps are greatly recommended. Smart approaches in the structuring the tendering process can help to ensure that a choice for best performance and not lowest price is made. A careful analysis of how project bundling is to be approached is recommended. Involving the citizens in the project preparation increases acceptance and the understanding that these projects are not only about saving money or energy but also about security and quality of life for them.

## **Facilitation works - and what else is needed**

The Streetlight-EPC project has shown that market facilitation can be an effective instrument to start regional EPC markets. Different regions and countries face different challenges. In addition to the lack of knowledge and trust and difficult access to capital which is common to all regions, in some regions, the lack of ESCOs, ownership issues, and specific procurement rules presented market barriers which were - at least partly - successfully addressed. In doing so, the facilitation worked towards establishing a "good practice" for EPC and other energy efficiency investments in their regions and countries.

In addition to a different approach to procurement, EPC requires a new culture of collaboration between the public and private sectors. Many municipalities, especially - but not only - smaller ones, do not have sufficient staff capacities (both in time and knowledge levels) to start this process on their own.

In the face of the complexity of project preparation, finding a solution for financing is often not enough to make such projects move forward. A successful approach has been to work very

closely with individual municipalities, taking them "by the hand" and guiding them through the project steps.

Energy agencies are often well placed to fulfil the role of facilitators as they have the necessary expertise. Also, they are a trusted source of information for the municipalities and businesses in their region.

After the project end, the facilitation services will be continued by the regional partners. This will either be done with regional funds, as a part of the existing energy management services provided to municipalities or as a new service (for example for inventories, audits or a part of the verification & monitoring process). Also, some agencies are working actively with PDA instruments which provide funding for project preparation.

## Recommendations

Obviously, only some market barriers can be addressed through market facilitation. In addition to the much discussed aspects of availability of capital, the Streetlight-EPC project identified some areas that need political or legislative intervention on EU, national and regional levels.

Explicit political support and marketing for EPC would very much help to make the instrument better known and to endorse its ability to contribute to energy and cost savings. A credible approach could be to use it in the own public buildings and also to financially support facilitation services.

There is a need to streamline public programmes to encourage EPC (and not discourage it by making municipalities choose between public funding and using EPC). Also, costly and complex regulatory barriers have to be reduced. This also includes clear definitions of the financing rules for on/off Balance Sheet energy efficiency projects.

And lastly, new approaches need to be found to include more SMEs in the EPC market. This would not only support job creation in a new technology-based service industry but also increase the acceptance among many municipalities who might prefer to work with a local company. Here support to encourage smaller projects might be very helpful.

## The project partners

