Streetlight-EPC

Project approach, key results and lessons learnt

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The Region of Upper Austria - Oberösterreich Regional energy agency - OÖ Energiesparverband

- 1.4 million inhabitants, capital Linz, industrial region
- the OÖ Energiesparverband
  - funded by the regional government
  - provides services to private households, business and municipalities (energy advice, training, building certification etc,
  - operates Cleantech-Cluster (170 energy technology companies)

Sustainable energy:
- 35 % renewable energy (16 % biomass, 14 % hydro, 5 % other)
- 57 % renewable heating
- avoided imports of fossil fuels: > 1 billion Euro/year
- more than 200 EPC projects
A challenge for municipalities -
an opportunity for EPC!

So far, in many European regions, EPC markets are not well developed.

- due phasing out of 80 % of the street lighting lamps, municipalities are under pressure to act
- new LED technologies offers high savings with comparatively short pay-back times
- street lighting is a good "learning and testing ground" for EPC (lower technical and economic complexity)

This creates an opportunity:
- to establish EPC markets
- to support the market introduction of efficient lighting technologies
Overcoming "the chicken or the egg" problem
The "no demand, no supply" challenge

ESCOs
- specialists in energy efficiency
- qualified in technical operation of plants/buildings
- good understanding of contractual & financial issues
- able to finance the investments

The clients (= municipalities)
- understand the business model
- develop trust
- overcome legal constraints

Pressure created by phasing out of streetlamps is a real opportunity for starting EPC markets!
IEE project
Triggering the market uptake of energy performance contracting through street lighting refurbishment projects in 9 regions

Streetlight-EPC

Project duration: 1 April 2014 – 31 March 2017
Streetlight-EPC

• creates demand and supply for EPC projects in 9 regions by **setting up regional EPC facilitation services** (providing comprehensive support both to municipalities and to SMEs as potential ESCOs).

• performs **real-life procurement of 36 EPC street lighting projects** during the project life, creating knowledge and trust in both LED and other street lighting technologies and the EPC model.

• The project team: 9 regional agencies/organisations (providing the EPC facilitation services), 9 municipalities (committed to implement EPC projects) and FEDARENE
Streetlight-EPC - Project Partners

- 19 partners in 9 countries
- co-ordinator: OÖ Energiesparverband

<table>
<thead>
<tr>
<th>Region</th>
<th>Regional partner</th>
<th>City/county partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Austria</td>
<td>OÖ Energiesparverband</td>
<td>Wels</td>
</tr>
<tr>
<td>North-West Croatia</td>
<td>REGEA</td>
<td>Zagreb County</td>
</tr>
<tr>
<td>South Bohemia/Czech Republic</td>
<td>ECCB</td>
<td>T. Sviny</td>
</tr>
<tr>
<td>Pomerania/Poland</td>
<td>BAPE</td>
<td>Gdansk</td>
</tr>
<tr>
<td>Carlow &amp; Kilkenny County/Ireland</td>
<td>CKEA</td>
<td>Kilkenny County</td>
</tr>
<tr>
<td>South East Sweden</td>
<td>ESS</td>
<td>Kalmar</td>
</tr>
<tr>
<td>Podravje/Slovenia</td>
<td>ENERGAP</td>
<td>Maribor</td>
</tr>
<tr>
<td>Macedonia</td>
<td>MACEF</td>
<td>Skopje</td>
</tr>
<tr>
<td>North/Central Spain</td>
<td>ESCAN</td>
<td>Santander</td>
</tr>
</tbody>
</table>
The EPC facilitation service

- key element in the EPC market development
- interests and connects actors
- identifies promising "candidate projects"
- comprehensive support to municipalities and to SMEs (potential EPC clients) and potential ESCOs in project development and implementation:
  - initial assessment of technical and economic viability
  - support in project audits
  - guidance on procurement rules, contractual and technical issues and financing (public and private sources)
The EPC facilitation service - strategic approach

Step 1: Increasing internal know-how and preparing tools
- analysis of the current regional situation
- meetings with financing organisations
- developing tools (quick-checks, guides and FAQs)

Step 2: Identifying and reaching out to potential projects
- information events
- organising bi-lateral meetings with potential clients and ESCOs
- initial assessment of technical & economic viability of projects (quick-checks)
- identifying the most promising projects
- working with banks and funding organisations

Step 3: Supporting specific 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
Quick checks, guides and FAQs

Available at www.streetlight-epc.eu in 10 languages:

- **Quick checks** for a first initial assessment of the suitability of EPC street/indoor lighting refurbishment
- **Guide** on implementing streetlight-EPC projects
- **FAQs** on streetlight-EPC
- Examples of implemented projects
Activities of the facilitation service

Identifying and reaching out to potential projects in 9 regions:
• 52 regional events held with over 1,500 participants
• 163 "quick-checks" completed
• over 380 enquiries answered and documented
• more than 255 FAQs available
• 51 bi-lateral meetings held with financing bodies

Supporting specific project development and implementation:
• 75 projects supported
  50 street lighting, 25 indoor lighting projects
The challenges differ

- Banks that do not understand the business model
- Ownership issues
- No/few (good) ESCOs

Lack of information by municipalities
- the ESCO will make too much money
- I have to fire the maintenance staff (municipal staff/local electrician)
- the ESCO will go bankrupt
- I can build new street lighting with an EPC project
- Who pays what to whom and when

- Low electricity prices
- Public procurement rules (perceived or real barriers)

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Facilitation works: 40 implemented projects!

- **30 projects already implemented using a variety of EPC models**
- 10 more projects implemented with other financing or operational models
- more projects in the pipeline!
- 10+ new ESCOs
## Examples of street lighting projects

<table>
<thead>
<tr>
<th>Name of project</th>
<th>Santander, Spain</th>
<th>Kalmar, SE Sweden</th>
<th>Gdansk, Poland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Before</td>
</tr>
<tr>
<td>Capacity (kW)</td>
<td>4,509</td>
<td>2,166</td>
<td>6</td>
</tr>
<tr>
<td>Annual electricity consumption (kWh)</td>
<td>21,400,000</td>
<td>4,300,000</td>
<td>27,000</td>
</tr>
<tr>
<td>Annual electricity costs (Euro)</td>
<td>2,100,000</td>
<td>600,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Investment (Euro)</td>
<td>11,000,000</td>
<td>18,300</td>
<td>11,000</td>
</tr>
</tbody>
</table>

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## Examples of indoor lighting projects

<table>
<thead>
<tr>
<th>Name of project</th>
<th>Internal lighting, Kilkenny, Ireland</th>
<th>Gas station, Upper Austria</th>
<th>Lupa company, North/Central Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of project</td>
<td>Before</td>
<td>After</td>
<td>Before</td>
</tr>
<tr>
<td>Capacity (kW)</td>
<td>62</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>Annual electricity consumption (kWh)</td>
<td>86,700</td>
<td>35,300</td>
<td>321,100</td>
</tr>
<tr>
<td>Annual electricity cost (Euro)</td>
<td>13,900</td>
<td>5,650</td>
<td>30,000</td>
</tr>
<tr>
<td>Investment (Euro)</td>
<td>170,000</td>
<td></td>
<td>62,400</td>
</tr>
</tbody>
</table>
A variety of EPC models (1)

EPC can take many forms (depending on the legal, economic and social contexts of each region and project)

2 core aspects defined in the project:

• Contractually guaranteed savings
• Financial consequences if these are not achieved, e.g.:
  - withholding/reducing payment to the ESCO
  - bank guarantee from ESCO which can be drawn by client if savings are not achieved
  - retention of a percentage of payment until assessment shows savings have been achieved over time
  - ESCO must adjust/replace the equipment until savings are achieved

Other aspects can vary greatly!
A variety of EPC models (2)

Variable aspects are for example:

- who finances
- who performs the audit
- who designs system
- who does refurbishment work
- who does maintenance
- project size
- project completely or partly financed by EPC
- maintenance cost savings included in the contract or not
- calculation of ESCO fee & billing schedule
- how changes in energy prices are taken into account
- who benefits from "extra" energy savings
- duration of the contract
- ownership issues after the end of the contract
- provisions in case of bankruptcy of ESCO or client
- etc.
Some key findings (1)

• **EPC: high interest, low knowledge**
  "explain, explain, explain", also to overcome prejudices "using an ESCO will increase project costs due to the ESCO's profit", "ESCO solutions threaten local jobs"

• **Know-how and trust are key**
  ESCO need knowledge in technical, contractual and financial aspects, clients need to understand and trust EPC and the ESCO

• **Developing EPC facilitation services**
  - deep technical, financial & contractual know-how within the organisation
  - work very closely with individual municipalities
  - "quality approach": better fewer but convincing projects

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Some key findings (2)

- **Good project preparation is key:**
  - Meaningful inventories of existing systems (but not so detailed that costs become prohibitive) and good-quality audits
  - LED: offers choice, requires knowing your needs, choosing quality products is key
  - Projects are often prepared by engineers who tend to overestimate the contractual challenges
  - Procurement issues need to be clarified early on with specialists: often there are solutions if there is a will
  - Financing experts tend to underestimate the technical delivery of the saving guarantee ("an ESCO is not a bank")

- **Great potentials in indoor lighting EPC projects**
  Strongly dependent on the country context, also combination of different measures in different buildings

- **Facilitation works!**
World Sustainable Energy Days 2017: 1-3 March, Wels/Austria

- European Energy Efficiency Conference
- **Energy Efficiency Services Conference**
- European Nearly Zero Energy Buildings Conference
- Energy Efficiency Watch Conference
- Young Researchers Conference
- European Pellet Conference
- Trade Show - Energiesparmesse: +1,600 exhibitors

www.wsed.at
Facilitating the ESCO market now is the time to get active!

www.streetlight-epc.eu

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