Energy performance contracting in public buildings sector

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ESCO invests in energy refurbishment of public building and ensures energy savings based on the used EPC business model.
Advantages of EPC for the public building owners

• The building owner does **not use own funds** and **transfers its investment risk** to the ESCO

• **Energy efficiency improvements are guaranteed** by the ESCO and the payment of EPC service fees is linked to the achievement of these guarantees

• The ESCO’s **technical know-how** and **professional energy management services** are used by the buildings owner

• EPC is one of the best ways to finance **deep energy retrofit of public buildings** and to **reach the EU targets and obligations**
Project objective:
The overall objective is to increase the market uptake of technologies for the improvement of EE in public buildings and services by means of fostering private sector participation in innovative financing schemes for EE investments. Specific objective is to develop local capacities of municipalities to set-up and use Energy Performance Contracting (EPC) for the financing of investments in energy efficiency improvements in public buildings and services.

Find out more: www.enpc-intrans.eu

EnPC-INTRANS – Capacity Building on Energy Performance Contracting in European Markets in Transition:

- project budget 1,922,871.85 EUR
- project duration 2015 - 2017
- financed by EU Research and Innovation Programme - Horizon 2020

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Energy Performance Contracting in European Markets in Transition

**Romania:**
- 2013-2016 national project *The starting up of a private market of ESCO services in Romania*
- 6 participating towns + a sector of Bucharest
- 15-19 GWh/year of potential savings
- 2 public tenders launched: Craiova and Galati
- Investment: 2 million EUR (schools) and 1.5 million EUR (hospitals)
- Co-financing from local authorities: 48-56%
- Contract duration: 10 years
- Goal is to develop a standardized model for EPC

**Slovakia:**
- Pilot projects:
  - *Psychiatric hospital* in the town of Plešivec
    - Guaranteed savings 1.484 MWh/year; total savings 132 000 EUR/year; Total investment 1.22 million EUR
    - Measures: heating and hot water preparation system, appliances (laundry room), etc.
    - Financing: 40% European Energy Service Initiative and 60% ESCO
    - ESCO: Siemens s.r.o.
  - *Various public buildings refurbishment* in the city of Malacky
    - Central heating system, ventilation and lighting, replacement of windows and doors

**Latvia:**
- Law on Energy Efficiency (March 2016)
- Building and Energy Conservation Bureau (ESEB) – mostly works with multi-family residential buildings
- ESEB + project SUNShINE (H2020) is planning to introduce a fund that could use innovative investment schemes (forfeiting, etc.)
- 2014 - *Guidelines for municipalities and state institutions on energy service procurement* for improvement of energy efficiency in buildings
Invitation

!!! INTERNATIONAL CONFERENCE !!!

- agenda
- registration

15 November 2016
Stuttgart-Esslingen
Germany

Find out more: www.enpc-intrans.eu
Main stages of an EPC project

1. Decision to use EPC
   - Project identification
     - Data collection, negotiations
   - Preliminary analysis
     - Proposal of EE measures
2. Contract close
   - Procurement procedure
     - Verification of data, tender dossier
   - Installation of measures
     - Management of installation
3. Guaranteed operation
   - Implementation of other measures
4. M&V of energy savings
Data collection

The typical situation in public sector, national or local level (cities or municipalities)

General building data: ???

Monthly energy consumption:
- electricity:  ???  kWh/m²
- fuel oil:  ???  l/m²,
- gas:  ???  m³/ m²
- water:  ???  m³/ m²

Costs or bills are most of the time just transferred somewhere else for payment

Payment of received bills
Fully operational
ENERGY MANAGEMENT INFORMATION SYSTEM
- Croatia -

Continuous monitoring and control over energy usage - prevention of unnoticed increase of energy consumption.

Established EE TEAMS with assignment to decrease and control energy usage, propose energy saving actions and enter data to consumption to EMS software.

Remote hourly data gathering is next step in development of EMS software

Easy access to relevant general and energy data for EPC-s and possible energy savings in each of them. Enough data for preparation of plan of investments according to available funding

Established structure for verification of achieved savings

Dissemination of knowledge and experience
Energy management information system
Croatian Programme for energy refurbishment of public buildings 2016 - 2020

- There are around **14 million m²** of public buildings that have to be refurbished.
- More than **65% build before 1980**.
- **75% of public buildings are located in continental part** of Croatia (25% are in Mediterranean part).
- Office buildings, hospitals, multi-apartment public buildings and educational buildings consume around **94% of energy**.
- **38% of office buildings, 32% of educational buildings and 18% of hospitals** are **cultural heritage buildings**.

Overall investments for the period 2017-2020 are around 300 million EUR.
The implementation process - Slovenia

1. Adoption of the **Long-Term Strategy** (October 2015)
2. Establishing the **Project Office** (October 2015)
3. Setting up the **implementation system** (February 2016)
4. Publishing the appropriate **guidelines for the implementation process** (technical, operational and financial guidelines) (February 2016)
5. Call for **five demonstration pilots** – 3 projects selected
   Conditions and criteria - same as for future calls for proposals, Complete energy renovation, state of readiness, feasibility, Energy Performance Contracting
6. **Instructions and Technical Guidelines** (April 2016)
7. Guidelines for the energy renovation of buildings with **Cultural Heritage** – applying the criteria of positive discrimination
8. **Sustainable construction guidelines** - Ministry, responsible for construction will publish them by end of 2017
9. **Seminars and workshops** performed by Project Office (Municipalities, Ministries, Public) – ongoing
Classical model - Slovenia

Private Partner

- Assures funding
- Implements measures
- Provides services and guarantees savings
- Pays for services

Public Partner

- Assures funding
- Gets part of savings

Concession Agreement
**Two-track model - Slovenia**

- **Private Partner**
  - Concession Agreement
  - Pays for Concession
  - Provides services and guarantees savings
  - Pays for services

- **Public Partner**
  - Assures funding
  - Services for implemented measures
  - Gets part of savings

- **Private Partner that implements measures (PPtIM)**
  - Public procurement for PPtIM
  - Implements measures
### Procurement procedures

#### Baden-Württemberg

#### Preparation
- Preparation of procurement documents
- Competition notice
- Preliminary qualification competition

#### Preliminary call
- Analyzing of applications
- Queries to applicants
- Final Analysis of applications

#### First call
- Selection of tenderers
- Sending electronic access data to tenders
- Tender 1 / Tender 2 / Tender 3 / Tender N
- Rough analysis by tenderers
- Clarification of tenderer queries
- Sending the rough analysis (preliminary tender) to public authority
- First tender evaluation

#### Negotiations
- First negotiation process
- Revised offers

#### Second call
- Second tender evaluation
- Second negotiation process
- Revised offers

#### Last call
- Final tender evaluation
- Economic comparison / owner-directed way
- Municipal council
- Rejections to other tenderers
- Permission from the supervisory office

#### Contract awarded to the best offer
- Contract management
- Signing of the contract
Examples of finished projects
Baden-Württemberg

Study visit of Croatian delegation in June 2016 – Karlsruhe, Pfinztal and Murrhardt
Examples of finished projects
Baden-Württemberg

- School 1
- School 2
- School 3
- School 4

- Wood chip boiler
- Heating water storage 90 m³
- District heating system
- Peak load gas boiler and CHP
- Kindergarten
Examples of finished projects
Baden-Württemberg

Planned
Heat production

Achieved (in year 2014)
Heat production
Examples of finished projects
Croatia

Swimming pool in city of Sisak

- Complete building envelope reconstruction
- Reconstruction of heating system
- Reconstruction of HVAC systems
- Heat exchanger retrofit for pool’s hot water
- Solar water heaters
- Usage of thermal water
- Heat pump for domestic hot water and water in a swimming pool
- Water efficiency measures
Examples of finished projects
Croatia

Hospital KBC Križine

Clinical hospital energy refurbishment

- April to September 2015
- Built in 1965 (Ak = 37,000 m²)
- Around 15 million EUR
- 60% private capital + 40% of grants from Croatian Environmental Protection and Energy Efficiency Fund
- Contract duration is 14 years
- Before renovation 1.3 million EUR/a
- After renovation < 0.6 million EUR/a
- 55% of energy savings
- 74% water savings
- 120-160 workers on site every day
- > 30 Croatian companies involved
- During renovation the hospital was working

[Video Link]
Energy performance contracting vs. owner's self-financing

Maybe you’ll ask yourself:

*Why would a contractor be more economic than self-financing?*

1. Because saving energy is ESCO’s core competence!
2. Because ESCO can plan and build more cost efficiently!
3. Because ESCO only gets remuneration by performance!

*win–win situation for client, ESCO and the environment*
Thank you!

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