


# MAKING ESCO PROJECTS WORK FOR MUNICIPALITIES

Dipl.-Geogr. (Univ.) Alexandra Waldmann  
Network:GREEN

ManagEnergy Capacity Building Workshop,  
Bilbao 7 November 2012



## AGENDA

Part I - presentation

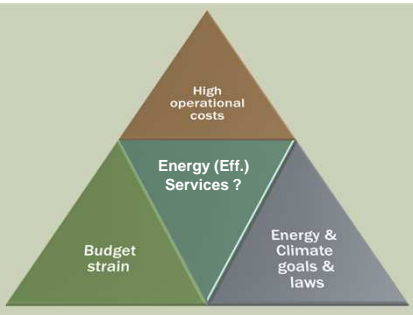
- What are ESCO projects about?
- What makes ESCO projects a success ?

Part II - working groups and discussion

- Project Preparation
- Procurement Process
- Key contractual issues

www.networkgreen.eu

## DRIVERS ...



## ENERGY EFFICIENCY IS ...

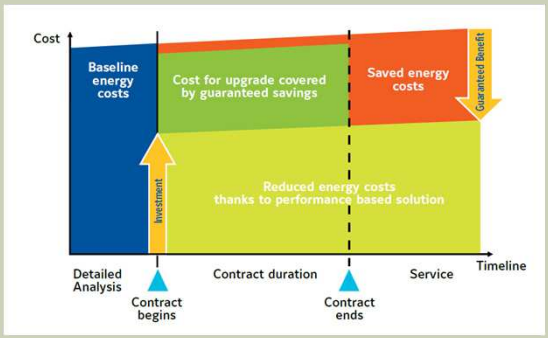
- ... the most important energy resource
- ... an investment, not an expense
- ... a hedge against rising energy prices and climate risks
- ... about choosing the right energy management option

## WHAT ARE ESCO PROJECTS ?

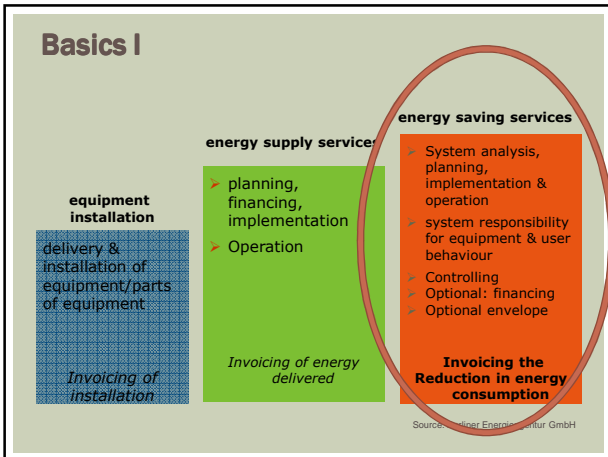
- **ESCO = Energy Service Company**
  - Key feature: takes on certain risks in delivering energy efficiency services
- **Energy Services:**
  - Energy Performance Contracting (EPC)
  - Energy Supply Contracting
  - Integrated Energy Contracting
  - Technology Specific EPC (e.g. lighting)

www.networkgreen.eu

## A SELF-FUNDED ENDEAVOUR



Source: Institute for building efficiency



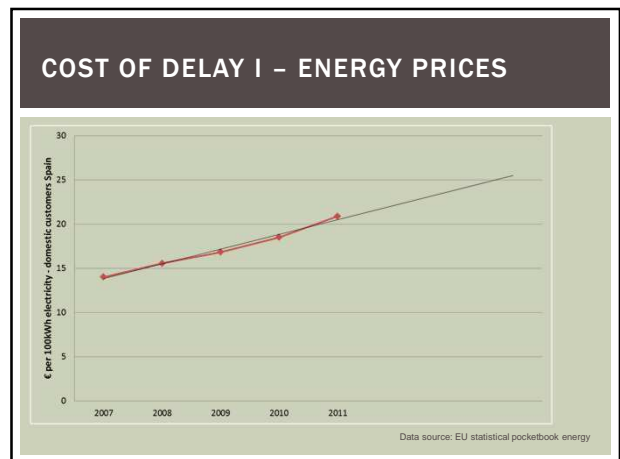
### WHAT ESCOs DO

- Leveraging private capital for public sector energy efficiency
- Transform costs into savings - guaranteed
- Stabilise the building value
- Reduce operational cost
- Increase operational reliability
- Resulting in positive effects on the environment

www.networkgreen.eu

### WHAT ESCOs DON'T DO

- ☒ Solve all your problems
- ☒ Take all risks
- ☒ Not a bank
- ☒ Relieve you from all work or responsibility
- .... It is about a partnership!



### COST OF DELAY II - WASTED CAPITAL

Simple calculation:

**Wasting >1.200 € per day!**

	without savings	MWh at 22% savings	
Baseline year	416.000	20.000	416.000
yr.0	416.000	20.000	324.480
yr.1	457.600	20.000	360.173
yr. 2	499.200	20.000	389.376
yr.3	549.120	20.000	428.314
yr.4	619.840	20.000	483.475
cum.sum	2.541.760 €		1.985.818 €
			<b>555.942 €</b>

### USING ESCOs / EPC IS ...

- A viable way to address energy performance improvements
- Procurement process to assure best value for the customer
- NOT a magic carpet

www.networkgreen.eu

### APPLICATION & PREREQUISITES

successfully applied in

- administrative buildings, schools, kindergarten, universities, sports facilities, streetlighting, theatres, prisons, etc.

needs

- Above average energy consumption
- Stable and long term ownership and use profile
- Availability of historic energy data (baseline development)

!

## Proper Preparation Prevents Poor Performance

Deciding what you want

Prioritising

Project preparation and development

Competitive Tendering

**Energy Saving Guarantee Contract:**

- System modernisation
- Reduction of energy consumption
- Cost reductions
- Environmental Benefits

Photos: (c) Berliner Energieagentur GmbH

### ENERGY SAVING PARTNERSHIP BERLIN

- Pool: 20 buildings, 1.550 prisoners (max)
- Energy costs 2002: ca. 1,8 Mio €/a
- Guaranteed savings: 33,34 % p.a. (606.000 €/a)
- Investment (hardware): 2,5 Mio. €
- Budget relief for JVA: 162.000 €/a
- CO2-reduction: 4.686 t/a
- Contract duration: 12 years

Source: Berliner Energieagentur GmbH

### ENERGY SAVING PARTNERSHIP BERLIN

- Total investment (25 pools): 51.600.000 €
- Total savings guaranteed: 11.700.000 €
- Average guaranteed savings: > 25%
- On average 10 local SMEs involved in projects as subcontractors to ESCO

Source: Berliner Energieagentur GmbH

### INTERMUNICIPAL EPC

- Number of Buildings: 26, grouped in 8 "pools"
- Energy cost baseline: 1.719.000 €/a
- Total Investment: ca. 9 billion €
- ESCOs: Siemens, Badenova
- Guaranteed savings (%): 32 %
- Guaranteed savings (€): 635.649 €
- Contract duration: 15 years (ave.)
- CO2 avoided: 3.888 t/a

Source: Berliner Energieagentur GmbH

## FINANCING OPTIONS



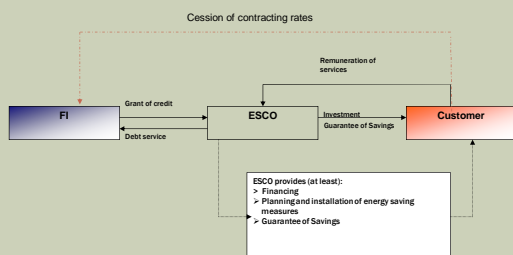
- Owner financing
- ESCO financing
- Third party financing (bank)
- Governments grants, loans and/or fiscal incentives
- A combination of the above
- In most cases: no upfront investment of building owner

www.networkgreen.eu

## ON-OFF BALANCE SHEET

- **The payments for the EPC installments are actually already part of your budget today!**
- Who provides the financing depends also on who gets the best financing conditions
- Financing options can be off or on balance sheet for the customer, but need to be looked at for each project
- Consider special purpose vehicles (e.g. Fund with earmarked operational budget to pay for services of ESCO, external SPV in case of large projects)
- Discuss with your accounting department, think outside the box

## Financial flows - Example



## COSTS IN EPC PROJECTS

1. Capital cost- e.g. annuities
  - Investment minus subsidies
  - Financing cost (interest rate, fees...)
  - Annuities: Duration of use plus interest rate
2. Consumption cost- e.g. gas and electricity
  - Energy cost or energy savings on a yearly basis
  - Important: consider development of energy prices
3. Operation and maintenance cost
  - All operation & maintenance incl. replacement & staff cost

Sum of all categories: total/life/project cycle cost  
Cost comparison always based on project cycle cost!

Source: EESI

## CONTRACTUAL ISSUES

- Guaranteed energy (cost) savings
- Fair share of the customer in the savings
- Investment (level and structure)
- Energy controlling system
- Maintenance of the installed equipment
- Standard of comfort and documentation of applied measures

www.networkgreen.eu

## SUCCESS CRITERIA

- System improvements through bundling measures, instead of singular measures; grouping buildings
- transparent contractual and procedural standards stand for cost efficiency and secure project development
- competition ensures high economic efficiency
- Payment of contractor performance based
- Decrease in consumption & costs of more than 20 % possible

Source: Berliner Energieagentur GmbH

**Thank you for your attention !**

Dipl.-Geogr. (Univ.) Alexandra Waldmann  
[networkgreen@gmx.eu](mailto:networkgreen@gmx.eu)

phone : +386 51 615 800