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# ESCOs and their Value for the Municipal Sector: Successes and Barriers in Central Europe

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# Structure of the presentation

- ◆ Energy services, ESCOs, energy performance contracting;
- ◆ Advanced national ESCO markets in Central Europe – Hungary and the Czech Republic;
- ◆ Lessons learned and the way ahead.





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# Reference

Joint Research Centre of the European Commission – ESCOs in Europe, 2005 Status report (available for free download) and **2006 update** (work in progress), for more information see



## ENERGY SERVICE COMPANIES IN EUROPE



## STATUS REPORT 2005



PAOLO BERTOLDI AND SILVIA REZESSY

European Commission, DG JRC,  
Institute for Environment and Sustainability, Renewable Energies Unit

2005

EUR 21646 EN

<http://energyefficiency.jrc.cec.eu.int/ESCO/esco.htm>



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# Energy services

*Energy services* include a wide range of activities, such as

- ◆ energy analysis and audits,
- ◆ energy management,
- ◆ project design and implementation,
- ◆ equipment specification, purchasing, installation, commissioning;
- ◆ maintenance and operation,
- ◆ monitoring and evaluation of savings,
- ◆ property management, building/facility refurbishment
- ◆ energy and/or equipment supply.





# Energy Service Companies (ESCOs)

ESCOs provide energy services to final energy users and

- ◆ ESCOs guarantee the energy savings (a performance guarantee can revolve around the actual flow of energy savings from a project, or can stipulate that the energy savings will be sufficient to repay monthly debt service costs);
- ◆ The remuneration of ESCOs is directly  **tied** to the energy savings achieved;
- ◆ ESCOs can finance, or assist in arranging financing for the operation of an energy system by providing a savings guarantee.
- ◆ They are engaged in the ongoing monitoring and operation of the system at least for the duration of the project.



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# The idea of performance contracting (1)



We shall give you a steam engine free of charge, install it and serve it for five years. We guarantee that the coal for the machine costs less than the feed (energy) you now have to use for horses doing the same work. And all we ask of you is that you give us one third of the money you save.

James Watt, 1736–1819





## Energy performance contracting (2)

- ◆ Under an EPC arrangement an ESCO implements an EE or RES project and uses the stream of income from the cost savings, or the renewable energy produced, to repay the costs of the project, including the costs of the investment.
- ◆ The ESCO will not receive its payment unless the project delivers energy savings as expected.
- ◆ Numerous ways to structure a contract: shared and guaranteed savings, first-out, BOOT, chauffage, leasing



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# Energy Performance Contracting (3)

A means to deliver infrastructure improvements to facilities that lack any of the following:

- ◆ Energy engineering skills;
- ◆ Manpower or management time;
- ◆ Capital funding;
- ◆ Understanding of risk;
- ◆ Technology information;





# Types of financing arrangements

- ◆ **ESCO financing:** internal funds of the ESCO (own capital or equipment lease);
- ◆ **Energy-user/customer financing:** internal funds of the user/customer backed by an energy savings guarantee provided by the ESCO or borrowing in the case when the energy-user/customer as a direct borrower has to provide a guarantee (collateral) to the finance institution;
- ◆ **Third-party financing (TPF)** refers to debt financing. As its name suggests, project financing comes from a third party, e.g. a finance institution, and not from internal funds of the ESCO or of the customer.
  - *ESCO borrows* the financial sources necessary for project implementation;
  - *Energy-user/customer takes a loan* from a finance institution, backed by an energy savings guarantee agreement with the ESCO.

# Hungary and the Czech republic: the ESCO frontrunners in Central Europe



# Hungary

- ◆ ESCO industry dates back to the early 90s;
- ◆ Approx. 30 ESCOs, but 5-6 cover 80 % of the market;
- ◆ Conservative market size estimate of 150-200 million Euro;
- ◆ Early start with public lighting, more recently heating and hot water projects in the spot, also AC, RES applications;
- ◆ **Public sector** has been the main ESCO client, **industrial clients** are getting more and more attention (on-site co- and tri-generation);
- ◆ Commercial financing is NOT a problem, banks eager to lend to ESCOs;
- ◆ “Cherry picking” possibilities drying up, stagnation and redirection at the market.



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# The Czech republic

- ◆ Market started in the early 90s, till 2001 development slow (Law on Energy Management);
- ◆ Around 15 ESCOs, number growing, 2 new companies set out in 2005;
- ◆ Market potential estimates: about 10-15 million Euro/y in the public sector and 5-10 million Euro/y in the private sector;
- ◆ Healthcare sector has been the market starter; district heating; educational buildings, other state property; high interest in military property;
- ◆ Recently energy delivery contracting getting more common;
- ◆ Most interest in projects related to heat delivery, piping, pipes insulation, boilers replacement, fuel switching
- ◆ Project bundling is common (tendering assets by city and region administrations), medium-sized towns are very active in this;
- ◆ Banks are interested in lending; multinational ESCOs use corporate financing





## Lessons learned (1)

- ◆ Huge market potential: "low hanging fruits" (e.g. public lighting);
- ◆ Bad state of buildings;
- ◆ Early privatization of banking and/or energy sector;
- ◆ Clear attribution of energy-related tasks (no split incentives)
- ◆ High degree of decentralisation and fiscal independence of municipalities;



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## Lessons learned (2)

- ◆ Capacity building, dissemination (in banks, among clients etc.).
- ◆ Openness of banking sector
- ◆ Complementing (international) support schemes
- ◆ Obligatory audits;
- ◆ Model documents, procedures;





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## The key role of the financing sector

Financing, and the education of financial people, are critical needs in most countries. An ESCO industry in a given country cannot develop or sustain itself without local financing. Concerted efforts to educate bankers and financiers must become a major priority, to all who wish to foster the commercial provision of energy services.





# Typical barriers to ESCOs in CEE (1)

- ◆ Energy prices not cost-reflective (explicit or implicit subsidies or cross-subsidies);
- ◆ Low awareness, lack of information and skepticism from potential clients;
- ◆ Misunderstanding the concept: an ESCO is *neither* a bank, *nor* a charity organisation – it does economically viable projects for profit!
- ◆ Legislative background (public procurement, housing associations);
- ◆ Transactions cost (project bundling is crucial);



## Typical barriers to ESCOs in CEE (2)

- ◆ High degree of centralisation (incl. fiscal);
- ◆ Lack of motivation and commitment, election-cycle based thinking;
- ◆ Lack of data to construct baselines;
- ◆ Balance-sheet problems, accounting rules;
- ◆ Competing support schemes;
- ◆ In-house knowledge discredits ESCO guarantees.



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# The way ahead for ESCO market uptake

- ◆ Increase Dissemination of ESCO Services and Projects;
- ◆ Launch an Accreditation System for ESCOs;
- ◆ Develop Funding Sources;
- ◆ Standardise Contracts and M&V;
- ◆ Promote EPC in Government Buildings;
- ◆ Harness the power of public procurement.





# Conclusions

- ❖ ESCOs can bring a wide array of benefits to the public sector: energy efficiency improvements, process optimisation, bill reduction, O and M, energy procurement;
- ❖ Municipal institutions are by far the most common ESCO clients in Europe, public buildings do kickstart the ESCO market;
- ❖ So far focus on supply-side projects (heating systems) – economies of scale, (comparative) technical and contractual simplicity, lower risk and shorter payback time than demand side;
- ❖ Working with ESCOs is ONE solution – not the only one – and it does have its cost



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# Thank you for your attention!

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# Back-up slides: typical contractual arrangements



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# Guaranteed savings

The ESCO guarantees a certain level of energy savings and in this way shields the client from any performance risk.

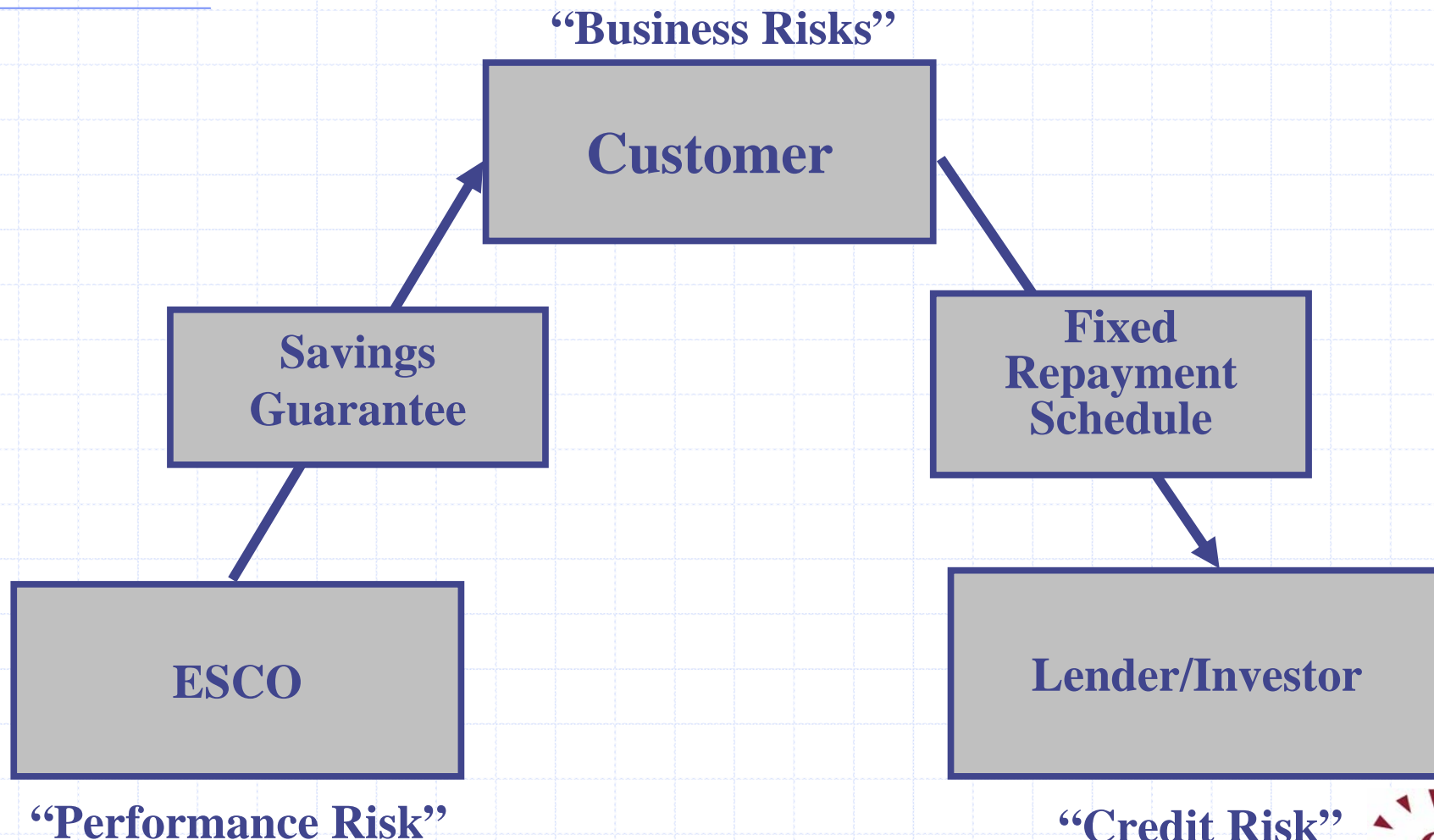
- ◆ Because the ESCO takes over the entire performance and design risk, it is unlikely to be willing to further assume credit risk: The customers are financed directly by banks or by a financing agency
- ◆ Customer repays the loan and assumes the investment repayment risk. If the savings are not enough to cover debt service, the ESCO covers the difference.
- ◆ Likely to function properly only in countries with a well established banking structure, high degree of familiarity with project financing and sufficient technical expertise, also within the banking sector, to understand energy-efficiency projects (e.g. the UK, Austria, and more recently, Hungary). Difficult to use in introducing the ESCO concept in developing markets. However, it fosters long-term growth of ESCO and finance industries





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# Guaranteed Savings (user financing)





# Shared savings

The cost savings are split for a pre-determined length of time in accordance with a pre-arranged percentage: there is no 'standard' split as this depends on the cost of the project, the length of the contract, the risks taken by the ESCO and the consumer.

- ◆ the client takes over some performance risk, hence it will try to avoid assuming any credit risk: TPF or financing via a mixed scheme with financing coming from the client and the ESCO are more common.
- ◆ The ESCO assumes both performance and the underlying customer credit risk. Such contractual arrangement may give rise to leveraging problems for ESCOs, because ESCOs become too indebted and at some point financial institutions may refuse lending to an ESCO due to high debt ratio;
- ◆ A situation where savings exceed expectations should be taken into account in a shared savings contract: the ESCO may attempt to 'lowball' the savings estimate and then receive more from the 'excess savings';
- ◆ A good introductory model in developing markets because customers assume no financial risk.
- ◆ Tends to lock out small companies and may limit long-term market growth and competition between ESCOs and between financing institutions;



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# Shared Savings

(ESCO provides financing)

“Business Risks”

Customer

“ESCO”  
“Performance &  
Credit Risk”

Project Services  
Savings Guarantee

Lender/Investor  
100% Funding





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# Other performance contract models

*Chauffage*: an extreme form of energy management outsourcing, where an ESCO takes over complete responsibility for the provision to the client of an agreed set of energy services (e.g. space heat, lighting, motive power, etc.). The fee paid by the client under a chauffage arrangement is calculated on the basis of its existing energy bill minus a percentage saving (often in the range of 5-10 %). Thus the client is guaranteed an immediate saving relative to its current bill;

The *'first out'* approach involves the ESCO being paid 100 % of the energy savings until the project costs – including the ESCO profit – are fully paid. The exact duration of the contract will actually depend on the level of savings achieved: the greater the savings, the shorter the contract;





# Other performance contract models

The Build-Own-Operate (*BOOT*) model may involve an ESCO designing, building, financing, owning and operating the scheme for a defined period of time and then transferring this ownership across to the client. Clients are charged accordingly for the service delivered: the service charge includes capital and operating cost recovery and project profit. *BOOT* schemes are becoming an increasingly popular means of financing CHP projects in Europe.

*Leasing* can be an attractive alternative to borrowing because the lease payments tend to be lower than the loan payments; it is commonly used for industrial equipment.

- Capital leases are installment purchases of equipment. In a capital lease, the client (lessee) owns and depreciates the equipment and may benefit from associated tax benefits. A capital asset and associated liability appears on the balance sheet.
- In operating lease the owner of the asset (lessor) owns the equipment and essentially rents it to the lessee for a fixed monthly fee; this is off-balance sheet financing source. It shifts the risk from the lessee to the lessor, but tends to be more expensive to the lessor. Unlike in capital lease, the lessor claims any tax benefits associated with the depreciation of the equipment.