



Developing an ESCO Industry in the European Union

Paolo Bertoldi,

European Commission, Directorate General JRC

Silvia Rezessy,

Central European University, Environmental Sciences and Policy Dept.

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Introduction - 1

- The European Union (EU) has now 25 Member States (MS).
- The paper describes the status of the ESCO industry in the 25 MS plus Romania and Bulgaria, which should join the EU in 2007.
- In the EU the electricity and gas liberalisation process is on-going, and the status of opening of the markets varies from MS to MS. By 1st July 2007 all customers shall be able to choose their electricity and gas supplier.
- The EU and its MS have agreed to comply with the Kyoto targets, and will introduce Emission Trading as from 1st January 2005



Introduction - 2

- There is a very different level of development of the ESCO industry (in terms of e.g. types of services, size and turnover of ESCOs, number of ESCOs) in the various EU Member States.
- There is still significant variance in the definitions and concepts.
- The differences in level of development is due, among other, to the pro-active national and local promotion programmes as well as the introduction of project financing.
- The paper presents the development and current status of the ESCO industry in the various MS and recommends a common strategy to further the ESCO industry



Definitions - 1

- The Energy Service Provider Company (ESPC) Companies provide energy services to final energy users, including the supply and installations of energy-efficient equipment, and/or the building refurbishment, maintenance and operation, facility management, and the supply of energy (including heat). ESPC provides a service for a fixed fee and take no risk have offered energy services for a number of years.
- ESPCs became active in Europe in recent years either:
 - (1) through regulation, in particular for the provision of heating in public buildings (e.g. in Italy or France), or
 - (2) with the gradual restructuring of electricity and gas utilities (e.g. in Germany, where several municipal utilities were initially forced to offer energy services, and later developed this as a business activity), or
 - (3) via business ventures by large building control and equipment manufacturers.



Definitions - 2

An ESCO also offers the same services; however, an ESCO differs from an ESPC in the following ways:

- (1) it can *finance*, or arrange financing for, the operation of an energy system;
- (2) it *guarantees the energy savings* (as reflected in the contract), and
- (3) its *remuneration is directly tied to the energy savings achieved*, i.e. they share some risk.



Financing

- Shared Savings is still the most common option;
- Smaller ESCOs would prefer the Guarantee Saving concept, however the financing sector is not ready (except in the UK, Austria and Hungary);
- Third Party Financing is not yet widely known and adopted, and many ESCOs are financing the investments themselves.



Shared Savings

(ESCO provides financing)

“Business Risks”

Customer

**“ESCO”
“Performance &
Credit Risk”**

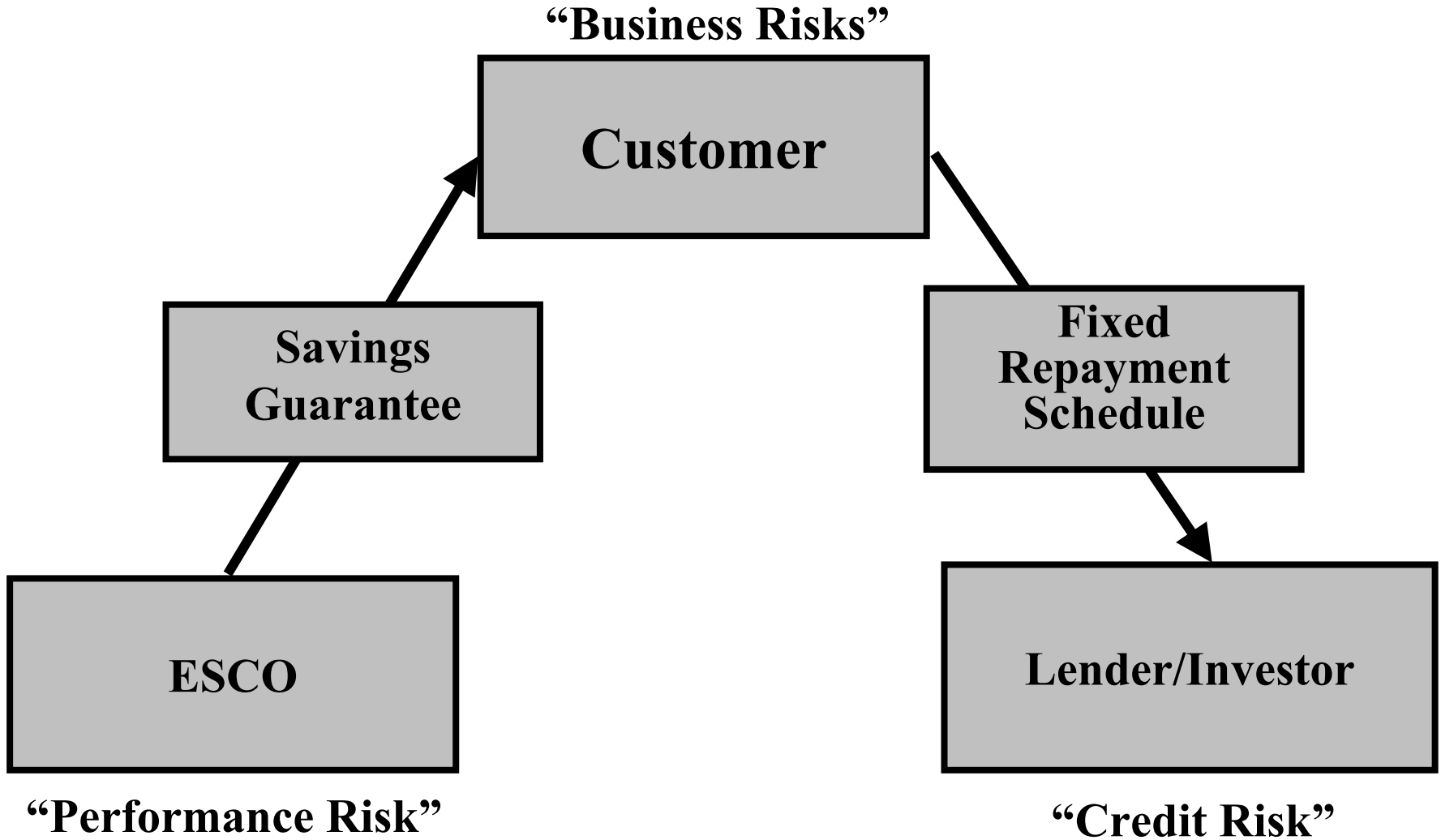
**Project Services
Savings Guarantee**

**Lender/Investor
100% Funding**



Guaranteed Savings

(user financing)



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Type of Projects

- The majority of ESCOs' projects in EU MS have focused on:
 - co-generation;
 - public lighting;
 - heating, ventilation, and air-conditioning;
 - energy management systems.
- The majority of ESCO projects in Europe have been undertaken in the public sector, primarily because the public sector is perceived as having 'safer' clients, moreover in some MS (e.g. Germany and Austria) also as a result of national or local energy agencies taking the lead with public sector buildings.
- The recent energy industry restructuring has stimulated projects in CHP for large commercial centers, hospitals, and industrial facilities (BOOT contracts); it has also triggered public lighting projects, where municipalities tendered lighting operation, including the supply of electricity.



Country Survey: Italy

- Some ESPCs started to operate in Italy in the early 80's by providing "heat service" to public buildings under contracts to supply the fuel and to operate/upgrade the boilers. During this period, several CHP plants were installed in hospitals.
- The Italian market is still dominated by ESPCs. A few large multinational companies coming from the heat supply and the building control sectors dominate the Italian ESCO industry. A few new ESCOs are starting operation, mainly in street lighting. The Italian banks are still reluctant to provide financing for ESCO projects.
- The introduction of the White Certificates scheme should facilitate the development of the ESCO industry in Italy.
- Italy can be therefore placed in the lower part of the medium band of ESCO development.



Country Survey: France

- The delegated management of public services introduced the logic of unbundling of the quality level of the public service from the means to provide it, which led to the creation of companies able to bear the financial risk of operations.
- TPF is allowed in the public markets: if the operator proposes actions reducing energy use, he can finance them from the future benefits. Analysis of the French practice proves that there are strong advantages in operation and maintenance based ESCO contracts.
- Co-generation is a good example of EPC in France, its development has led to the introduction of a series of new services for sizing, financing, building, and operating CHP units.
- The French market is rather well developed, although very 'special' and largely dominated by a few very large companies. France can be placed in the upper part of the medium band of ESCO development.



Country Survey: Spain

- Several private ESCOs have been operating for a number of years. In addition there are regional energy agencies and the national energy agency (IDAE), which act as ESCOs. The private ESCOs are especially active in financing wind farms, while public ESCOs, are trying to foster new markets such as co-generation with biomass, and solar thermal and photovoltaic applications.
- TPF is a popular mechanism, with some variations e.g. joint ventures used for large-scale projects, while more traditional schemes are applied for smaller investments. The number of banks and other financial institutions that carry out energy projects by means of TPF is rapidly increasing.
- The ESCO industry in Spain is well established and is growing, especially due to the support of the regional and national energy agencies.



Country Survey: Germany

- Germany is the most mature ESCO market in the EU. By the end of 2000, more than 70,000 contracts for energy services had been concluded.
 - This activity was very successful in the City of Berlin where 750 public buildings have been upgraded through EPC since 1995.
- Presently, about 500 ESCOs are active on the German market and accumulate a total annual turnover of about 3 billion Euro. Energy services are being implemented at 120,000 sites. The financial and technical support to ESCO projects is shared between non-government programs (e.g. credit programs by eco-banks, efficiency checks by energy agencies, and boiler replacement by utilities), and government programs (e.g. loan /funding schemes, R&D programs, and incentive programs for renewable energy)
- Germany, together with Austria, is by far the most developed ESCO market in Europe.



Country Survey: Austria

- To date the energy efficiency of about 500 to 600 buildings has been improved via EPC, as compared to almost zero in 1998; these buildings represent roughly 4-6 % of all service sector buildings. The main customers and driving forces are the federal building administration; a few large cities (Graz, Salzburg); and some small and medium-sized municipalities. Private commercial buildings are not typical EPC customers.
- In Austria, as in Germany and Spain, the regional and the national energy agencies played a crucial role in the development of ESCOs. The EPC projects in small and medium-sized municipalities have been supported by regional programs, e.g. in Styria, Upper Austria, and Tyrol. E.V.A., together with several partners has just started a specific program targeting private service buildings (office buildings, shopping centers, hotels, etc.).



Country Survey: UK

- There are approximately 20 ESCOs operating in the UK. The major players are subsidiaries of large international control equipment companies, oil companies, and electricity utilities. Many new small companies offering more than one service (e.g., consulting plus finance) consider themselves to be ESCOs.
- Popular customers are located both in the private sector (commercial buildings, industry generally excluding process aspects) and in the public sector (large state owned hospitals, prisons and defence establishments, local authority housing).
- ESCOs with significant capital may use their own finance, but most major ESCOs use external TPF from banks.
- There are no current support mechanisms for ESCOs in the UK. The only favorable tax regime is that the ESCO can claim capital tax allowances on the investment it makes, and pass this on to the customer. The UK, due to its large experience in project financing and entrepreneurial spirit, has developed a flourishing ESCO industry.



- There are some ESCO activities and developments in Belgium, Portugal, Sweden and Finland (the two most successful among these countries), Switzerland and Norway (Note: these two are non EU countries).
- In these countries there is a limited number of ESCO (e.g. less than 10: 4 companies in Belgium, 3 in Finland).
- Project are mainly in lighting and building (e.g. Belgium and Norway), some CHP projects (e.g. Portugal), and in the industrial sector (Finland).
- In the Netherlands, some utilities offer energy management and energy services contracts (without taking over the risk).
- The ESCO industry in Greece and Ireland is rather sluggish.



Country Survey: Hungary

- There are 29 ESCOs. The larger ESCOs are mainly multinational companies. More than two-thirds of ESCO customers are municipalities. Most projects target district heating systems and public lighting. The utility-based ESCOs are developing very intensively, and while the ESCO market is growing, they are increasing their market share.
- Banks and credit institutions are very active in financing ESCO projects. Many international actors (EBRD, IFC/GEF, EC, USAI) have been supportive in the promotion of the ESCO industry in Hungary through different programs.
- The Hungarian energy efficiency industry is better established than in most other countries with formerly centrally planned economies and also in some Western European countries. Hungary is one of the leading countries in the EU to develop the scope of ESCOs. In the period 1996-2000, the number of ESCOs active on the market increased at least fourfold. Various reforms, governmental programs, international aid, and local legislative, economic and financial conditions made it possible for the Hungarian ESCO industry to work successfully.



Country Survey: other Central and Eastern European Countries

- In **Romania**, 20 small private companies were selected in 1993 by USAID to be trained to act as an ESCO. The EBRD launched an initiative in 2002 to create an ESCO focused primarily on small CHP. Romanian banks still consider the costs and risks of lending for energy efficiency projects too high. Through the co-operation between the Romanian Government, the World Bank and the GEF, the RFEE has been created as a revolving debt facility and should leverage co-financing from other commercial sources, in particular banks. The industrial sector is initially the target of the fund, with commercial buildings and later municipal services to be included.
- ESCO development is also ongoing in **Slovenia** and in the Baltic states of **Lithuania**, **Estonia** and **Latvia**. In **Croatia**, the first ESCO started operation in 2003 with assistance from the World Bank. In general, the EBRD and the World Bank have been very active in promoting the ESCO industry, in capacity building and in training of the ESCO clients and financial institutions.



Country Survey: other Central and Eastern European Countries

- Several multinational companies are operating as ESCOs in the **Czech Republic**, especially in public sector buildings, district heating and industry. An important development has been the requirement for mandatory energy audits in state-owned buildings, and for industrial companies, which are obliged to implement all low-cost energy efficiency measures identified.
- **Poland** has a very limited number of ESCOs operating mainly in the district heating sector. In the district heating sector, the tariff setting methodology creates a perverse incentive. A positive development is the inclusion in the gas, electricity and heat tariffs of the cost of projects to reduce energy end-use consumption.
- In **Bulgaria**, ESCOs are functioning on a limited scale and primarily in the municipal sector: schools and public lighting. The ESCO projects cover small heating plants, and most of the ESCOs projects are for heat supply at a negotiated price. USAID has provided a loan portfolio guarantee. The World Bank will extend a 300,000 USD grant to Bulgaria to help to establish an energy efficiency fund.



Summary of Country Development

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Strategy to Foster the Development of the ESCO Industry: Increase Dissemination of ESCO Services and Projects

- The first action recommended is to increase information about energy-efficiency projects, financing opportunities, and services offered by ESCOs, particularly in the countries with a less developed ESCO industry and in situations where there are limited financial or technical capabilities (e.g. in public buildings).
- Demonstrating successful applications of the ESCO concept, applications of energy-efficient technologies, and the concept of energy performance contracting, and creating areas of expertise in ESCO development are critical factors in the future role and success of ESCOs in the EU.
- To attract potential customers, government agencies could identify and qualify customers with energy efficiency potential and, acting on behalf of a single customer or preferably a group of customers, undertake the procurement of turnkey energy efficiency equipment installation and services. This has proven very valuable in developing the ESCO industry in Germany and Austria.



Strategy to Foster the Development of the ESCO Industry: Launch an Accreditation System for ESCOs

- An important action is to ensure that ESCOs provide a qualified and reliable service. In many EU countries, there is are many companies eager to call themselves ESCOs, but without proper qualifications. In the United States, an ESCO accreditation system has been implemented by the National Association of Energy Service Companies (NAESCO). In Europe, an effort is underway to define the minimum set of qualifications for ESCOs, together with a system to assure the quality of service. While a temporary voluntary solution can be valid in the short term, a long-term solution could be found in a mandatory European standard as proposed by the draft Energy Services Directive, which says (art. 7) that energy services shall be provided by qualified ESCOs.



Strategy to Foster the Development of the ESCO Industry: Develop Funding Sources

- Funding feasibility studies, energy audits and the preparation of financing applications would increase their ability to secure additional information and decrease the amount of equity capital required. Sources of debt and equity financing need to be located. Several possible funding sources should be investigated: private banks and lending institutions; venture capital firms; equity funds; strategic partners (e.g., utilities and engineering firms); leasing companies; and equipment manufacturers. A revolving fund to finance energy-efficiency measures could also be set up (this has been a big success in Spain). Under this option, a master loan agreement would be standardised and executed between an ESCO and the debt facility.



Strategy to Foster the Development of the ESCO Industry: Standardise Contracts and M&V

- A fourth action is to standardise contracts, and measurement and verification (M&V) procedures to help end-users and the financial community better understand EPC. Rather than developing a single standard energy services agreement, it would be preferable to focus on standard language for a set of key contract provisions (e.g. insurance, equipment ownership and purchase options). This will allow standard contract forms to be built up gradually. European banks should fund only those performance-based projects that are subject to M&V protocols, and the International Performance Measurement and Verification Protocol (IPMVP) is a good first step. The questionable results of unverified efficiency programs place a cloud over the entire industry.



Strategy to Foster the Development of the ESCO Industry: Promote EPC in Government Buildings

- A fifth action is to promote EPC in national and local governments' buildings. Government-owned property is a major energy user and can represent a significant proportion of the potential ESCO market (used successfully in Austria and Germany). ESCOs can provide government organisations with valuable expertise and private sector investment capital. However, EPC is very often regarded as unconventional finance by government authorities. Rules and regulations may simply not allow EPC on government property (e.g. in Greece). Therefore, an important first step to establishing a more hospitable environment for EPC is to review regulations and remove institutional impediments.



Strategy to Foster the Development of the ESCO Industry: Develop a European TPF Network

- A sixth action is to develop a TPF network. The network would include ESCOs, national and regional energy efficiency agencies, associations of ESCOs, lighting and equipment manufacturers and suppliers, electrical and mechanical contractors, financial institutions, utilities, and other suppliers of energy services that have an interest in accelerating investments in energy efficiency. The network could co-ordinate the efforts of a variety of diverse actors to accomplish market penetration of energy-efficient technologies, collaborate on information dissemination, and periodically exchange information on members' experiences.



Conclusions

- The current status of the ESCO industry shows significant differences from country to country ranging from the top countries (Germany, Austria, and Hungary), to the middle range countries (Spain, the UK, and to a lesser extent Italy, Sweden, and France), to the other countries including some new EU Member States and the New Accession Countries, whose ESCO industry has been lagging behind.
- Recent policy developments, such as “white certificates,” may result in a strong development of the ESCO industry in France, Italy and the UK. In the long term, a combination of legislative measures, such as the proposed “Energy Services” Directive, coupled with the strategic actions proposed in the paper, could trigger a wide expansion of the ESCO business in all European countries
- The introduction of the Kyoto Protocol and its flexible mechanisms (ET, CDMs, and JIs), and the related legislation for responding to these mechanisms, will create a new opportunity for developing the ESCO industry. Energy-efficiency projects offer a very cost-effective approach to reducing greenhouse gas emissions.



Thank you for your attention

Paolo.Bertoldi@cec.eu.int

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

Ephlas01@phd.ceu.hu, Silvia Rezessy