

Developing an ESCO Industry in the European Union

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ABSTRACT

Although the European Commission and the Member States of the European Union (EU)¹ have promoted a number of policy initiatives, including legislation, to foster the Energy Services Company (ESCO) industry, a recent survey of ESCO businesses in the EU has indicated that major differences exist in the development of the ESCO business among the various countries. In some countries more than 500 ESCOs have been successfully operating for a number of years, while in other countries only a few ESCOs have recently started to operate. This difference could be explained by several factors, such as: (1) different levels of support offered to ESCOs by national and regional energy authorities, (2) local market structures and rules, and (3) variation in the definitions, roles and activities of “ESCOs”.

The results of this survey are used to formulate a long-term strategy to foster the development of ESCOs in Europe. The strategic actions recommended build on successful experiences in Europe and are proposed with an eye to existing and planned legislative measures, such as the proposed Energy Service Directive and the introduction of the Kyoto flexible mechanisms. The strategic actions include accreditation of ESCOs, standardisation of measurement and verification, and easier contracting procedures for ESCO projects (e.g. procurement rules), to trigger the expansion of the ESCO business in the larger EU.

Introduction: the Present Status of the ESCO Industry in Europe

In Europe many Energy Service Provider Companies² (ESPCs) have offered energy services for a number of years. ESPCs became active 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.

ESCOs also offer these same services; however, ESCOs differ from ESPCs in the following ways: (1) they can *finance*, or arrange financing for, the operation of an energy system, (2) they *guarantee the energy savings* (as reflected in the contract), and (3) their *remuneration is directly tied to the energy savings achieved*, i.e. they share some risk. Small and/or under-

¹ As the paper is written, the EU comprises 25 countries. For more information, see <http://europa.eu.int/>. The paper covers also Bulgaria and Romania, which are expected to join the EU in 2007.

² Companies providing 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). They provide a service for a fee and *take no risk*.

capitalised ESCOs that cannot borrow significant amounts of money from the financial markets believe that their role is not to finance the energy efficiency investments. Instead, they prefer a scheme where the customers are financed directly by banks or by a financing agency and where the ESCO is only a technical engineering company that guarantees results. This scheme is likely to function properly only in countries with a well established banking structure and sufficient technical expertise within the banking sector to understand energy-efficiency projects (e.g. the UK, Austria, and more recently Hungary). Third Party Financing (TPF) has not been widely used by ESCOs in Europe, where most ESCOs have been founded either by large companies or as subsidiaries of large companies and under energy performance contracting (EPC) arrangements have provided financing themselves (mainly in France, Italy and Germany). Only recently have more ESCOs started implementing EPC using a private bank or a lending institution as a project financier. The European energy service market is still dominated by large multinational companies that provide facility management and have large engineering and project management skills. In many cases ESCOs are more interested in the business of selling energy or equipment than in exploiting the financial opportunities of energy savings.

The majority of ESCOs' projects in Europe have focused on co-generation, public lighting, heating, ventilation, and air-conditioning, and 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 that do not normally go out of business, but in some cases (e.g. Germany and Austria) also as a result of national or local authorities and energy agencies taking the lead with public sector buildings. The recent energy industry restructuring has stimulated projects in combined heat and power (CHP) for large commercial centers, hospitals, and industrial facilities; it has also triggered public lighting projects, where municipalities tendered lighting operation, including the supply of electricity.

At the EU level, the European Commission has been promoting the ESCO industry and TPF for a number of years.³ National ESCO promotion activities have also been very important and in large part account for the differences in ESCO development between European countries.

This paper builds on and summarizes the results of a recent survey of the ESCO business in the EU. The purpose of the survey was to gather insights and discuss experiences of energy efficiency experts, national authorities and ESCO professionals on the development and status of national ESCO industries. A dedicated ESCO questionnaire was developed and distributed among the above mentioned target groups. The paper starts with a review and analysis of some national ESCO developments. Based on successful experiences in Europe and with an eye to existing and proposed legislative measures, a set of recommendations is formulated that may form the foundation of a possible long-term strategy to further the development of ESCOs in Europe.

³ The first initiative was in 1988 when the European Commission adopted a Recommendation to Member States to promote ESCOs and the use of TPF, defining it and describing how it operates. In 1992, the European Council and Parliament adopted a Directive (93/76/EC), where Member States were invited to design and implement programmes to use TPF in the public sector. Under the European Commission's THERMIE and SAVE programs, several studies and pilot projects were implemented to promote ESCO and TPF activities, mainly in public buildings and CHP. In 1993, a standard ESCO-type contract was published. Recently, the European Commission DG JRC conducted a survey of ESCOs in the EU, resulting in the creation of the first EU database of ESCOs (see http://energyefficiency.jrc.cec.eu.int/html/list_esco.htm).

National ESCO Developments

The following sections report on the status of the ESCO industry in some European countries. They are based on the responses to the questionnaire, expert interviews and a review of publications (Bertoldi 2003, Vine 2003 and others cited in the text). The recent IEA-DSM study on Performance Contracting (Westling 2003) constitutes a major contribution to the characterization of the European ESCO market.

Italy

The first 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. Some TPF was conducted, mostly in the service sector. During this period, several CHP plants were installed in hospitals. In 1984, the association of heat supply companies (ASSOCALOR) was established. In the middle of the 90's, ASSOCALOR changed its name to AGESI (the Italian energy service industry association) in response to a new legislative framework that required public authorities to consider energy-savings options when looking at energy supply options.

Recently, an innovative policy mix was introduced in Italy, which ensures additional cash flow for energy efficiency projects and thus provides a strong incentive for ESCO activities. The Italian scheme combines energy-savings targets for electricity and gas distributors with tradable energy efficiency certificates, and cost-recovery through tariffs. ESCO projects are eligible for certification, and it is expected that several electricity distributors will purchase certificates from ESCOs, increasing the financial attractiveness of ESCO projects. Many traditional energy supply and/or engineering firms are now rushing into the ESCO market without much experience and expertise. This could endanger the further development of ESCOs if no certification or quality check on future projects is introduced.

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. Italy can be therefore placed in the lower part of the medium band of ESCO development.

France

The term "energy service" appeared recently in France as a generic name to designate a rather broad range of activities. Before this name was introduced, many companies were already providing such services, all more or less based on the concept of Energy Performance Contracting (EPC).⁴ The delegated management of public services partly explains the French

⁴ Six mechanisms are combined in the French history of energy services: 1) Creation of a public utility, (water and district heating networks); 2) Operation contracts for the public buildings (e.g. public purchase rules); 3) Operation contracts for private buildings; 4) Contracts for profit sharing (TPF – these were the first French ESCOs); 5) Wider automation and new control systems for buildings and industry; 6) Outsourcing with two components: maintenance for multi-services and lump price purchase of various services. Operational contracts for the public buildings within public purchase rules led to a coding in items (P1/P2/P3/P4): to ensure the indexing of the prices, to apply the value added tax to different rates, to distribute the elements of the invoice in accordance with the law, between owner and

model of the ESCO industry. It introduced very early on 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: a significant factor in the ESCO industry's development. The essential clause allowing TPF in the public markets is the clause of "Control of energy savings with guarantee of result" (GR-ME): if the operator proposes actions reducing energy use, he can finance them from the future benefits. Analysis of the French practice through actual case studies (Dupont and Adnot 2004) proves that there are strong advantages in operation and maintenance based ESCO contracts. Co-generation is a good example of EPC in France for two reasons. First, co-generation is becoming the dominant 'Trojan horse' used by new independent producers to obtain market share. Second, 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.

Spain

In Spain several private ESCOs have been operating for a number of years (Blanco 2003). 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, in particular IDAE, are trying to foster new markets such as co-generation with biomass, biomass technologies for different uses, and solar thermal and photovoltaic applications. ESCOs sometimes compete with national expert companies in the field, like IDAE.

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. In conclusion, ESCOs in Spain are well established and are growing, especially due to the support of the regional and national energy agencies.

Germany

Germany is the most mature ESCO market in the EU. The German ESCO market is characterised by more than 200 EPC agreements made since the mid-1990s, primarily in public buildings⁵ in the commercial sector. By the end of 2000, more than 70,000 contracts for energy services had been concluded, which have resulted in total investment exceeding 5 billion Euro, more than 50,000 generation units, a total installed thermal capacity of 46 GW, and a total installed electric capacity of 8 GW (Brand and Geissler 2003).

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,

tenants or occupants, to enter them in the public accounts. This coding and the demand of public accounting for fixed results for a fixed price largely determined the features of EPC in France.

⁵ This activity was very successful in the City of Berlin where 750 public buildings have been upgraded since 1995.

and incentive programs for renewable energy). Germany, together with Austria, constitutes by far the most developed ESCO market in Europe.

Finland

There are three ESCOs in Finland with ongoing projects, one of them being a business unit of a multinational company providing operation, maintenance and construction services. These companies are very active (Väisänen 2003). Two ESCOs develop and implement only EPC projects. The size of the Finnish market is estimated to be in the range of 350 to 400 million Euro. While the turnover in 2002 was estimated to be between 4 and 5 million Euro, it is rapidly increasing. The main customer is the processing industry (80 %); the municipal sector also has several projects in the pipeline. Commercial buildings and small and medium size enterprises (SMEs) are marginal sectors with only a few minor projects.

There are no new ESCOs entering the market, although this would be essential in order to make EPC a real choice for energy users. For the next two years, there will be a special focus by the Finnish energy authorities in the municipal sector.⁶ There have been a few attempts to get the attention of financial institutions, but there is clearly a chicken and egg problem: as long as the market is not large enough, financial institutions are not interested, and as long as financial institutions are not interested, it is difficult to expand the market. These features place the Finish ESCO market among the least developed in Europe.

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. The Austrian Energy Agency (E.V.A.) states that “Austria is – together with Germany – *the* EPC pioneer in Europe” (Leutgöb 2003). 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.).

United Kingdom

There are approximately 20 established ESCOs operating in the United Kingdom (UK). The major players are subsidiaries of large international control equipment companies, oil

⁶ The Ministry of Trade and Industry (MTI) grants subsidies (15 to 20 %) on certain types of energy-efficiency projects, but, in principle, only to those buildings and industrial facilities where the owner has signed a Voluntary Agreement on Energy Conservation with the MTI. EPC projects are considered a special area to be promoted and all EPC projects are subsidized by 15 to 20 %. In the case of the Voluntary Agreement, an additional 5 % is granted (total 20 to 25 %)

companies, and electricity utilities. Many new small companies offering more than one service (e.g., consulting plus finance) consider themselves to be ESCOs.

There is no established definition of “ESCO”. ESCOs use different titles, such as Contract Energy Management (CEM) companies, TPF companies, Technology Performance Contracting (TPC) companies, etc. The boundary between CEM and other non-conventional finance businesses is blurred. Generally, those providing a totality of services and risk sharing are termed CEM companies. Commonly, the major players deal only with customers whose annual energy bill exceeds 50,000 pounds.⁷ 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 (such as oil company/ utility owned ESCOs) may use their own finance, but most major ESCOs use external TPF from banks. Undisclosed TPF is a popular financing technique used by major ESCOs⁸. There are no current support mechanisms for ESCOs in the UK, and there never have been such mechanisms. 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 in whole or in part⁹. The UK, due to its large experience in project financing and the more innovative spirit of enterprises, has developed a flourishing ESCO industry, which could further develop due to the UK Carbon Levy.

Other Western European Countries

There are some ESCO activities and developments in Belgium, Portugal, Sweden (the most successful among these countries), Switzerland, and Norway, but these are limited in number (e.g. 4 companies in Belgium), mainly in lighting and building projects (e.g. Belgium and Norway) and some CHP projects (e.g. Portugal). In the Netherlands, some utilities offer energy management and energy services contracts. The ESCO industry in Greece and Ireland is rather sluggish.

Hungary

According to a survey made by the Energy Centre Hungary and UNDP, there are 29 ESCOs, or ESCO related companies.¹⁰ The larger ESCOs are mainly multinational companies (about 7 large companies are in this category). More than two-thirds of ESCO customers are municipalities. Most projects target district heating systems and public lighting. The rest of the projects are industrial and renewable energy related. There have been various trends over the years, shaped by the actual legislative and financial background: earlier public lighting projects were typical, today the CHPs (typically gas engine based CHP) are in the spotlight. There have also been some fuel conversion projects, and boiler house re-constructions. The utility-based ESCOs are developing very intensively, and while the ESCO market is growing, they are

⁷ Around 90,000 USD, see www.oanda.org

⁸ Under this arrangement, the customer does not see the source of finance and signs only a single contract with the ESCO for all its services including the finance.

⁹ Not all the investment, however, qualifies for capital allowances. Under some circumstances, the customer and ESCO can structure the ESCO contract as an off balance sheet finance arrangement.

¹⁰ “Related” meaning that many of these companies deal with TPF, but this is not the main profile of the company

increasing their market share. In addition to earning a profit, the utility-based ESCOs target expanding the market share of the electric utilities.¹¹ When the ESCO operates the modernized energy equipment, the whole intervention may be considered to be an “energy service” and a lower VAT rate applies.

Banks and credit institutions are very active in financing ESCO projects. Many international actors (European Bank for Reconstruction and Development, International Finance Corporation/Global Environment Facility, European Commission, U.S Agency for International Development (USAID)) have been supportive in the promotion of the ESCO industry in Hungary through different programs.¹²

Analysts from the international energy community have observed that the Hungarian energy efficiency industry is better established (in terms of longevity) and at the same time more solidly based (in terms of competition and maturity of the market) than in most other countries with formerly centrally planned economies and also in some Western European countries and that Hungary is one of the leading countries to develop the scope of ESCOs (see Ürge-Vorsatz, Langlois & Rezessy 2004 and references herein in this volume). In the period 1996-2000 alone, the number of ESCOs active on the market increased at least fourfold. Various reforms, governmental plans and programs, international help, and local legislative, economic and financial conditions made it possible for the Hungarian ESCO industry to work successfully.

Other Central and Eastern European countries

The experiences of ESCOs in formerly centrally planned economies are rather mixed (Evans 2000).

Several multinational companies are operating as ESCOs in the Czech Republic, especially in public sector buildings (schools and hospitals), district heating and industry. However not all ESCOs use EPC. In the late 90s, the financial difficulties of hospitals and the economic slowdowns in industry led these two sectors to be regarded as unreliable project sites (Evans 2000). An important development has been the inclusion in the Energy Management Act of a requirement for mandatory energy audits in state-owned buildings, in buildings of institutions funded by the state with an annual consumption over 1500 GJ, and for industrial companies with annual consumption above 35,000 GJ. Institutions and building owners are then obliged to implement all low-cost energy efficiency measures identified. These provisions have supported the development of EPC that also includes the cost of the audit (ECS 2003).

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 to increase costs by stipulating that annual tariff increases are based on the costs actually incurred in the previous year, i.e. input costs plus fees for operation (ECS 2003). A positive development

¹¹ The electric utilities currently have territorial monopolies in Hungary. This is true for electricity supply but not true for ESCO services – i.e., utilities can provide ESCO services outside of their service territory.

¹² One innovative program is the guarantee support scheme for the financing of energy-efficiency projects developed by the IFC in cooperation with the GEF, called Hungarian Energy Efficiency Co-Financing Program. Partial guarantee support is provided for banks that finance private ESCOs (50 % in the pilot scheme and 35 % under the ongoing HEECP-2). The objective is to overcome barriers such as high perceived credit risk of energy efficiency projects and the high transaction costs of smaller projects (ECS 2003). The financial institutions that participate in HEECP represent over 90 % of the banking sector in the country.

is the inclusion in the Energy Law of a provision that the cost of projects and services to reduce energy end-use consumption may be included in tariffs for gas, electricity and heat (ECS 2003).

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 to the United Bulgarian Bank (UBB), under which USAID guarantees 50% of credits taken by municipalities or municipal companies, private industries, and companies with less than 50% state share for implementing energy efficiency projects. The World Bank will extend a 300,000 USD grant to Bulgaria to help to establish an energy efficiency fund.

In Romania, 20 small private companies were selected in 1993 by USAID to be trained to act as an ESCO; financial support was granted by USAID to help them start and to motivate industrial consumers to become involved. A private company is now active as an ESCO. The Romanian-American Enterprise Fund and 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 Romanian Fund for Energy Efficiency (RFEE) was established with 8 million USD for investment and 2 million USD for technical assistance. The RFEE is intended as a revolving debt facility with an expected program life of 8 years and should leverage co-financing from other commercial sources, in particular domestic banks. The industrial sector is initially the target of the fund, with commercial buildings and later municipal services to be included. The public sector was left out of the fund because of poor credit risk (ECS 2003).¹³

ESCO development is also ongoing in Slovenia and in the Baltic states of Lithuania (Iqbal 2003) 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

A Possible Strategy to Foster the Development of the ESCO Industry in Europe

In the authors' view, given the current status of ESCO development in the different European countries, and the success achieved by some countries (in particular Germany, Austria, Spain, UK and Hungary), there are six strategic actions recommended to foster the development of the ESCO industry in Europe. As some of these actions have already been implemented in some countries, the recommendations do not necessarily need to be taken at EU level, but could be implemented at a national level where appropriate.

¹³ The Romanian Energy Efficiency Law (199/2000) and its amendments stipulate that consumers who consume more than 200 toe must have an energy audit every two years. Consumers with annual consumption above 1000 toe and municipalities with population above 20,000 are obliged to develop energy efficiency programs that include no-cost and low-cost measures, as well as measures for up to 3-6 years, the latter accompanied by an investment program based on feasibility studies.

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 (e.g. Ireland, Greece, the Netherlands, Portugal, Belgium, many new EU Member States, as well as the New Accession Countries) and in situations where there are limited financial or technical capabilities (e.g. in public buildings). Energy managers of companies are important stakeholders for the promotion of ESCOs. Thus, a key measure would be the organisation of training courses for energy managers, making them aware of ESCO activities, and measurement and verification methods and protocols for energy savings.

As experience in Hungary shows, information for financial institutions is another crucial factor. Information provision may be coupled with incentives for the “first movers”: the EU may develop a website dedicated to those financial institutions that support ESCO-type projects.

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 (national or local) 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.¹⁴ This has proven very valuable in developing the ESCO industry in Germany and Austria.

Launch an Accreditation System for ESCOs

A second important action is to ensure that ESCOs provide a qualified and reliable service. In many EU countries, there 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.¹⁵

Develop Funding Sources

A third action is to develop funding sources. ESCOs need working capital for marketing and project preparation and development. 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

¹⁴ The typical method is to develop and issue a request for proposals (RFP) to the energy efficiency industry.

¹⁵ This is proposed by the draft Energy Services Directive, which says that energy services shall be provided (art. 7) by “qualified” ESCOs, installers and energy advisors and consultants. Art. 8 of the Directive asks for “appropriate qualification, accreditation and certification schemes” for such energy services providers, “with a view of maintaining a high level of technical competencies of personnel and the quality and reliability of energy services offered”.

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. The balance of financing would come from the ESCO, the customer, or another equity investor. Alternatively, the debt facility could provide 100% of project costs, but returns to the debt facility would be higher to reflect the higher risk.

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. The development of standard contracts has been an elusive task as various companies consider their contract approaches unique and proprietary. Rather than developing a single standard energy services agreement, NAESCO, for example, is now focusing 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.

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.

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.

Conclusion

While the initial ESCO concept started in Europe more than 100 years ago and moved to North America, it is now showing some resurgence in Europe. 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 the new Italian Decree on energy efficiency that allows ESCOs to carry out energy-efficiency projects and be eligible for “white certificates,” may result in a strong development of the ESCO industry (a similar scheme will be adopted in France). In the long term, a combination of legislative measures, such as the proposed energy service Directive imposing a certain level of energy-efficiency projects to be delivered by utilities, coupled with the strategic actions proposed in this paper, could trigger a wide expansion of the ESCO business in all 25 EU countries plus Bulgaria and Romania.

Finally, the introduction of the Kyoto Protocol and its flexible mechanisms (emissions trading, clean development mechanism, and joint implementation), and the related proposals for Directives 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. Emerging carbon markets will create new opportunities for project financing and the further diffusion of M&V techniques used in energy performance contracting.

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