D2.4 Country Report on Identified Barriers and Success Factors for EPC Project Implementation

SPAIN

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Transparense project

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Abbreviations

ESCO: Energy Service Company
EPC: Energy Performance Contract
EED: Energy Efficiency Directive
EESI: European Energy Service Initiative
EIB: European Investment Bank
IDAE: National Energy Agency
OECC: Spanish Climate Change Office
ICO: Official Credit State's Agency
BBVA: Bilbao Vizcaya Argentaria Bank

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Source for the Figures: Transparense Survey, ESCAN 2013

Summary

The present report aims at providing an overview of the existing EPC market in Spain. The report focuses on identified barriers and success factors for the implementation of EPC projects.

The report is building on the results of the survey carried out by Escan consulting, the market knowledge of the authors, data and information gathered by two other similar projects, the European Energy Service Initiative[1] (EESI) and the ChangeBest project[2]. It is also intended as a continuation on the work of the European Commission's Joint Research Centre – Institute for Energy, and more particularly on its 2012 Status Report on Energy Service Companies Market in Europe[3] and Spanish ESCO market 2013.

In Spain the survey was sent to 20 companies that are working on Energy Efficiency Services Market and some of them dealing with EPCs. Also to 5 financial institutions and agencies dealing with energy efficiency and/or renewable financial programmes

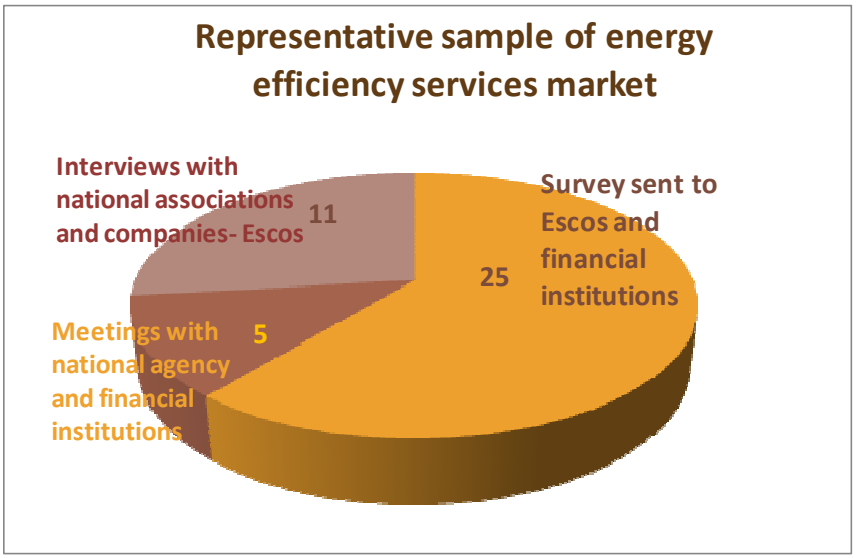

Figure 1: Representative sample of energy efficiency services market in Spain

Also several meetings with 2 managers of the National Energy Agency that managed financial programmes and 3 financial institutions or banks supporting Energy Services have been carried out.

[1] http://www.european-energy-service-initiative.net/eu/toolbox/national-reports.html
[2] http://www.changebest.eu/index.php?option=com_content&view=article&id=43&Itemid=10&lang=en
[3] http://publications.jrc.ec.europa.eu/repository/bitstream/111111111/15108/1/jrc59863%20real%20final%20esco%20report%202010.pdf

Escan consultants did carry out interviews to the national associations of Escos (A3E and Anese) and to 9 energy services companies. Once the survey responses had been obtained, additional information was gathered by Escan in order to present a thorough and up-to-date picture of the state of the EPC market in Spain.

- The Energy Efficiency Services market appears to be mainly composed of *medium and large companies* due to the fact that they are the only ones with sufficient financial capacity to assume the investment and returns in the long term. In 2012 the first five market operators did meet a market rate of 50%.
- The main contracts with energy efficiency and energy supply (ESC) started in 2008 in public and private buildings; some industries also utilise the services of ESCOS for improvement the energy consumptions; In 2010 "energy efficiency plans 2000ESES and 330 buildings" with ESCOS did start and about 10 buildings did utilise this model of ESC and energy efficiency measures.
- Since year 2010 local authorities are performing contracts with ESCOs for some public buildings (schools, etc) and street lighting; the EPC model is only used at very few projects for industries and buildings.
- The *legislative and financial barriers* are difficult to overcome although the national ESCO Associations that include the main companies of energy efficiency services try to work on them.
- Also the *EPC concept is difficult to understand* by customers and it is important to define regular administrative items: contracts terminology, guarantees, etc.
- No suitable financing schemes for the development of EPCs and ESCO projects;
- Need for training of staff in the energy efficiency sector, mainly for the financial banks and some institutions;
- Some success instruments are also included in this report focused on how to overcome these barriers.

1 Introduction

1.1 Methodology

The contents of this report are based on two main sources:

- the results of a nation-wide EPC survey which was sent to the country's main actors within the EPC market.
- the market knowledge of the authors, as well as research from local / national literature (publications and studies, legislation documents, official statistics and databases).

The first step in collecting the data used in this document was to distribute a survey focused on Energy Performance Contracting (EPC) to the country's most relevant energy services companies, organisations, public agencies/policy makers and financial institutions. The survey contained questions around four main areas: existing ESCOs and national EPC market; EPC models, financing models and policy initiatives. The answers were then analysed and the results are presented in this report in aggregated form.

1.2 What is Energy Performance Contracting

Energy performance contracting (EPC) is when an energy service company (ESCO) is engaged to improve the energy efficiency of a facility, with the guaranteed energy savings paying for the capital investment required to implement improvements. Under a performance contract for energy saving, the ESCO examines a facility, evaluates the level of energy savings that could be achieved, and then offers to implement the project and guarantee those savings over an agreed term.

A typical EPC project is delivered by an Energy Service Company (ESCO) and consists of the following elements:

- **Turnkey Service** – The ESCO provides all of the services required to design and implement a comprehensive project at the customer facility, from the initial energy audit through long-term Measurement and Verification (M&V) of project savings.
- **Comprehensive Measures** – The ESCO tailors a comprehensive set of measures to fit the needs of a particular facility, include energy efficiency and in addition, can include renewables, distributed generation and water conservation.
- **Project financing** – The ESCO arranges for long-term project financing that is provided by a third-party financing company, typically in the form of a bank loan.
- **Project Savings Guarantee** – The ESCO provides a guarantee that the savings produced by the project will be sufficient to cover the cost of project financing for the life of the project.

Energy Performance Contracting allows facility owners and managers to upgrade ageing and inefficient assets while recovering capital required for the upgrade directly from the energy savings guaranteed by the ESCO. The ESCO takes the technical risk and guarantees the savings.

The ESCO is usually paid a management fee out of these savings (if there are no savings, there is no payment) and is usually obligated to repay savings shortfalls over the life of the contract. At the end of the specific contract period the full benefits of the cost savings revert to the facility owner.

The methodology of Energy Performance Contracting differs from traditional contracting, which is invariably price-driven. Performance contracting is results-driven: ensuring quality of performance. ESCOs search for efficiencies and performance reliability to deliver contractual guarantees.

1.3 Definition of EPC and EPC provider

While there are a vast number of definitions of EPC within Europe, within Transparense project we use the EU wide definition provided by the Energy Efficiency Directive[4] (EED):

"'energy performance contracting' means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings;".

At the same time, within Transparense project, the focus will be given to the EPC projects, where the above mentioned "contractually agreed level of energy efficiency improvement" is **guaranteed** by the EPC provider[5]. This is in line with the EED, as in its Annex XIII, guaranteed savings[6] are listed among the minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications. Moreover, in the article 18 of EED, Member States are required to promote the energy services market and access for SMEs to this market by, inter alia**,** disseminating clear and easily accessible information on available energy service contracts and clauses that should be included in such contracts to **guarantee energy savings** and final customers' rights.

Further, within the Transparense, we define the companies providing EPC as follows:

[4] Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC was approved on 25 October 2012.

[5] Guarantee of energy efficiency improvement is defined by EN 15900:2010 as "commitment of the service provider to achieve a quantified energy efficiency improvement".

[6] Annex XIII of the EED lists the minimum item as: „Guaranteed savings to be achieved by implementing the measures of the contract."

" **'EPC provider'** means a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises"

Such definition respects the fact that EPC is only one type of energy services, and is in line with the definition of the energy services provider specified in the EED (for its definition see the glossary at the end of the report). Within the Transparense texts, we use the commonly used term "ESCO" as equivalent of the energy service provider

Energy Performance Contracting allows facility owners and managers to upgrade ageing and inefficient assets while recovering part or all capital required for the upgrade directly from the energy savings guaranteed by the ESCO. The ESCO takes the technical risk and guarantees the savings.

The ESCO is usually paid a management fee out of these savings and is usually obligated to repay savings shortfalls over the life of the contract. At the end of the specific contract period the full benefits of the cost savings revert to the facility owner. The methodology of Energy Performance Contracting differs from traditional contracting, which is invariably price-driven. Performance contracting is results-driven: ensuring quality of performance. ESCOs search for efficiencies and performance reliability to deliver contractual guarantees.

2 The EPC market in Spain: an introduction

The Energy Efficiency Services market appears to be mainly composed of medium and large companies due to the fact that they are the only ones with sufficient financial capacity to assume the investment and returns in the long term. In 2012 the first five market operators did meet a market rate of 50%.

The Spanish ESCO market is still considered to be medium in the private sector, and it has been increasing in the public sector, mainly in local and autonomies contracts. It has been driven slightly by large national programmes and registered a continuous, though slow growth during the period 2005-2007 and 2007-2010 with a big increase between 2011 and 2013.

Small companies are also playing an important role in this market though not as real ESCOs but as installation providers, equipment providers without the assumption of financial risks. Regarding national companies there is a mix of large utilities, construction and multiservice companies, facilities companies and small and medium companies. Most of them are oriented to the energy services sector as a way to diversify their activity. During last five

years some companies that were distributors and installer of renewable technologies (solar thermal and biomass mainly) are now ESCO companies in order to compete in the market.

These companies are mainly operating in cogeneration, heating, ventilation air conditioning, street lighting, public buildings, private non residential buildings and district heating. Some of them (10-15 companies) also operates in biomass, solar thermal for heating and SHW.

The National Energy Agency managed a database of ESCOs and more than 700 companies were registered in January 2013. Some of them are ESCOS and most of them are equipment suppliers, manufacturers, etc. that with other companies, ESCOs, can achieve several kind of ESCO contracts such as ESC, EPC or others solutions.

In the last years more ESCO project apply guaranteed contracts, such as EPC although shared savings model is preferred to guaranteed savings. The most likely range 60-80 ESCO contracts are active at present time.

The large interest in registration at IDAE indicates the expectations for a fast market growth in the close future, combined with the search for new market opportunities by a large number of companies that were heavily affected by the collapse of the construction sector (JRC survey 2012).

The Association of Energy Efficiency Companies, A3E and the National Association of Energy Services Companies, Anese, were created in year 2009. At present time A3E and Anese with more than 60 and 100 members respectively that provides energy efficiency services with different modalities of contracts, and one of them is EPC.

Another association, AMI, is the Association of big ESCO Companies and started in 2001 with the aim to assess on legal and energy efficiency issues. This association is composed by 19 big companies of installation, maintenance of buildings, construction, utilities and multiservice companies. In order to be member of AMI is necessary to prove experience in ESCO projects. It is member of EFIEES, the European Federation of Intelligent Energy Efficiency Services and represents more than 90% of the Public Contracts in Spain.

Adhac is the Association of district heating and cooling providers companies and was created recently. It is member of the Euroheat & Power Association. About ten members are partners and represent more than 60% of the facility providers for district heating and cooling installations in Spain.

The broad acceptance of ESCO associations in Spain is also shown in the survey carried out within the Transparense Project – all ESCOs answered that they are members of national associations.

According to the Transparense survey, the number of ESCOs is about 20 and about 100 more companies that participate in ESCO projects and technological partners.

Companies that provide sporadic project implementation of EPCs	
CLECE Group	FERROVIAL SERVICIOS
COFELY GdF SUEZ	IMTECH
DALKIA Spain	SCHNEIDER ELECTRIC
EULEN Group	SIEMENS
ELSAMEX	SAN JOSE ENERGIA
FENICE EDF	VALORIZA FACILITIES
ACCIONA	COBRA
ALDESA	GRUP SOLER
GAS NATURAL SERVICIOS	IBERDROLA
IMESAPI	ISS
EMTE	ORTIZ

Figure 2: ESCOs with sporadic project implementation of EPC. Source: ESCAN.

The market development for EPCs over the last three years - according to the results of the Survey – had seen **slightly growth** said 64% of the respondents, while 27% said it had seen major growth and 9% answered the market development suffer a little change. In the public sector as beneficiary is in which more has increased the market.

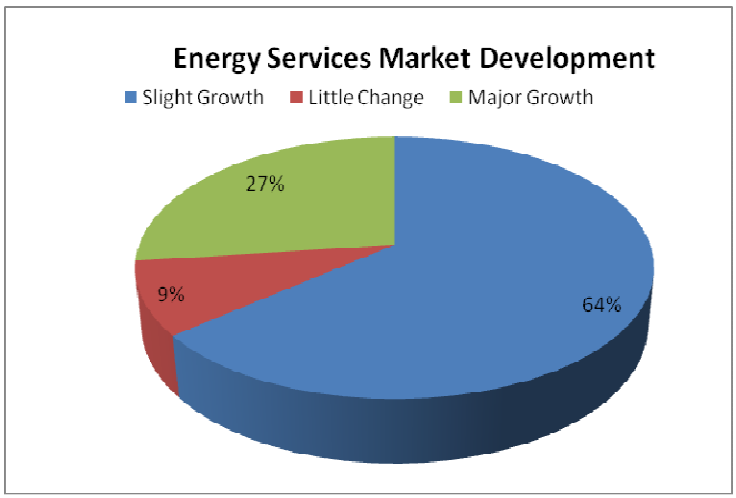

Figure 3: Energy Services Market Development. Source: Transparense Survey, ESCAN 2013

About pure EPC in Spain started in late 2008 and few projects are under this modality at present time. The most used contracts are Energy Supply Contract, ESC with measures of energy efficiency. The ESCO provides the energy, provides the investment for the new technologies, the maintenance and guarantee of the new installation. The client pays a fixed quota monthly during the contract period. The energy savings varies from 10% till 30% depending on the situation of the old equipment, situation of the building envelope and the new technology that is chosen (for example project of refurbishment street lighting can achieve 50-80% energy savings and projects focused on heating replacement about 20%).

The length of the contracts varies from 4 till 20 years. The industry sector prefers short term contracts and the public buildings and street lighting 12-30 years contracts.

Data from the Transparense survey indicates that 55% of the interviewed ESCOs the EPC orders over last 2 years have been from 11 to 20, 18% from 1 to 5 and from 6 to 10, and 9% for the last group (20 EPCs projects).

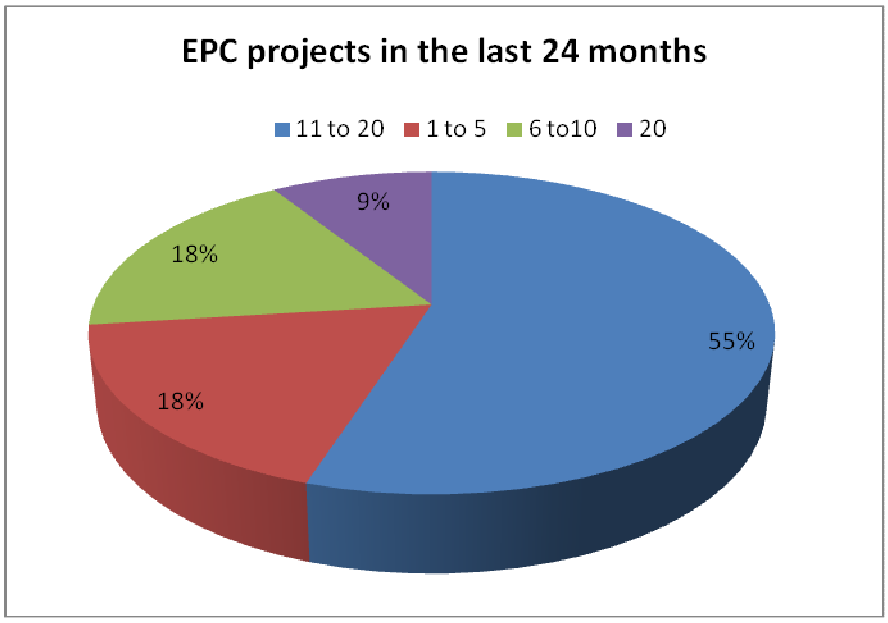

Figure 4: EPC Projects in the last 24 months. Source: Transparense Survey, ESCAN 2013

In 2006 The National Energy Agency IDAE with Association AMI did design the model of mixte contract *contrato mixto* for the public sector

In October 2007 the new law of contracts for the public sector, Law 30/2007, modified by the Legislative Decree 3/2011 that incorporated the Public Private Cooperation Contract, *CCPP Contrato de Colaboración Público- Privada.*

In July 2009 the model of that contract was published by the *la Junta Consultiva de Contratación Administrativa.*

In January 2010 the Activation Plan of 330 buildings of the Central Government was launched. This "Plan 330 ESEs" aimed reduce 20% of the energy consume to 330 buildings by 2016 using the energy service contracts performed by ESCOs. The Plan is totally stopped,

The first ESCO project using the model contract CCPP of the Central Government is executed at Cuzco Ministries Complex. Procurement processes for Central Government Buildings are: Patent and Trade Office, Defense Ministry, Employment and Social Affairs Ministry that are stopped at the short listed stage.

The Spanish Government has stopped the 330 ESE Plan due to Deficit reasons, because they consider that the investment in the ESCO Projects can be accounted as National Deficit, AMI has given the Government different legal reports in the opposite opinion, in order to prove that according to the ESCO Agreements, they should not be considered Deficit according to the EUROSTAT rules.

In November 2010 the "Plan 2000 ESE" aimed that 2,000 public centers were identified and that did become energy efficiency projects, 1,000 belonging to the Regional and Local Government and another 1,000 to the Central Government. The results of this plan will be seen at medium and long term and due to several difficulties no many energy efficiency projects are carried out.

Since late 2011 local governments, town-halls and private sector are increasing the number of contracts for ESC+ improvement measurements and some of them EPC; mainly energy services focused on new installation of street lighting and heating systems.

The Survey shows the rates of the installed technologies and measures and are include in the next Figure.

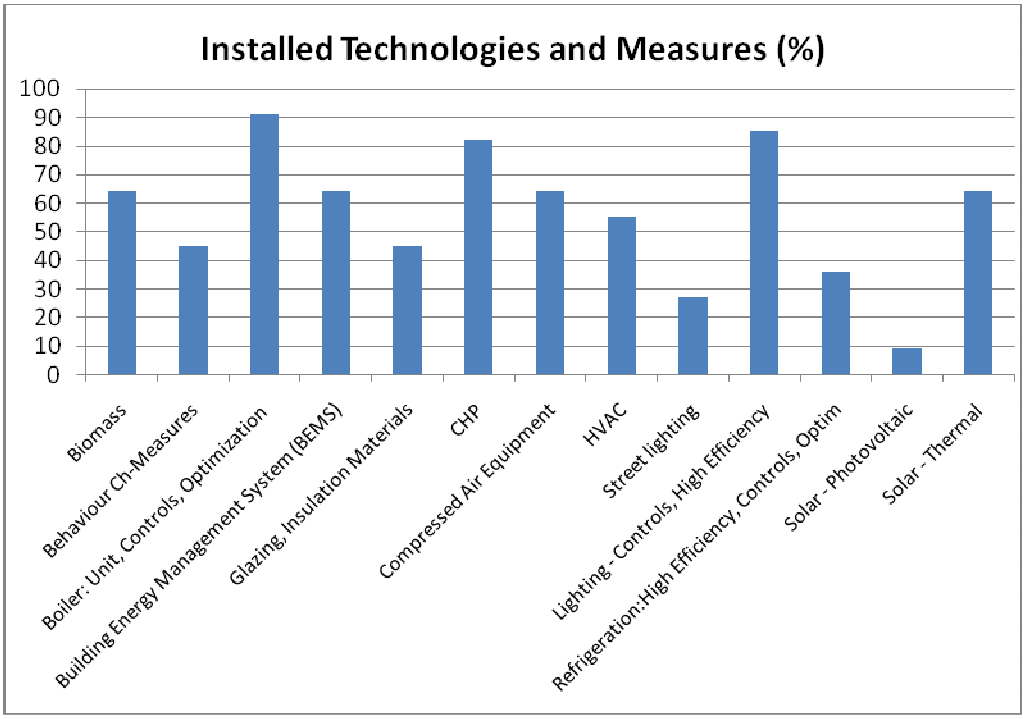

Figure 5: Installed Technologies and Measures (%).
Source: Transparense Survey, ESCAN 2013

"The size of the ESCO market is estimated to be 400-500 million annually (calculating all costs i.e. energy supply costs, investments plus maintenance and considering all types of projects) , what supposed a growth of 11 % with regard to the previous year. This result indicates, that the services directed to the progress of the energy efficiency in buildings and other facilities present a notable development potential, in a context of increasing need on the part of Public administrations and private enterprises of optimizing resources, cutting expenses away and reducing the environmental impact of its activity".

The facilities that generate a major volume of business are the offices buildings belonging to public and residential, with 30 % of the whole, followed by the industrial plants, with a participation of 18 %, the public system of illumination, with 15 %, and the hospitals, with 12%.

Regarding the client type, the private clients concentred 70% of entire value of the market, about 280 million Euros in 2012, and the other 30% correspond to public clients". Study about the Energy Services Demand maintains the increasing, ClimaEficiencia August 2013.

In this line the Transparense Survey indicates that the EPC orders of most interviewed companies during last 12 months have increasing slightly.

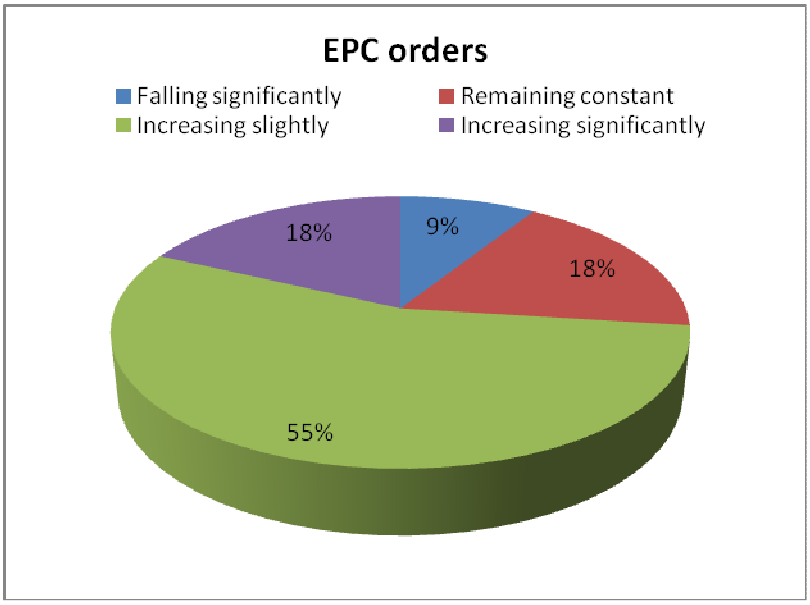

Figure 6: EPC orders. Source: Transparense Survey, ESCAN 2013

Private industries and private buildings (households, offices,..) the economy recession in Spain did not allow the development of energy services market very quickly and the financing for energy efficiency projects in general, and EPC in particular, is one of the main barriers.

Commercial banks have been the most common source of finance to ESCOs. Since the beginning of the economic crisis, lending conditions have tightened. Currently, several ESCOs are using their own equity to finance projects, which cannot be sustained on the long term. Some ESCOs have signed agreements with private funds to have access to credit. The National Energy Agency with BBVA manages the Jessica-Fidae Fund. This revolving fund provides different modalities of financing for local and regional institutions and private sector to support the PIDUS, Integral Plan for Sustainable Urban Development.

3 Legislative framework

- Action Plan of Energy Saving and Energy Efficiency 2011-2020 is the Second NEEAP sent to European Commission and it includes the chapter "Dynamization of market of energy services in the building sector". The public sector should be an example using the advantages of the ESCOs in order to replace the obsolete and non-efficient equips and achieve energy savings.
- At present time (October 2013) the next Plan of Energy Efficiency 2014-2020 is being elaborated.
- Also in 2007 Building Energy Certification and Regulation of Thermal Installation, RITE were promulgated in order to set measures on energy certification and energy efficiency in buildings. The process of energy certification of new buildings started in 2011 and the RD 235/2013, de 5 de abril, set the basic procedure for energy certification of existing buildings and construction of new buildings "nearly zero" since year 2020.
- The main goal of the Government is the transposition of the Energy Efficiency Directive, EED.

  Furthermore, there is an ESCO working group, made up of IDAE, regional energy agencies and the ESCO associations. The goal of the group is to boost the energy services market, raise awareness, and develop model contracts for public and private clients respectively. Also the Spanish Industry Minister (MINETUR) has created a working Group for the transposition of the 2012/27 Energy Efficiency Directive, in which the 3 Associations (Ami, Anese and A3E) participate. The Spanish Minister of Development has created a Group of experts with AMI members in order to develop a new Strategy of Energy Efficiency Regeneration and Rehabilitation.
- Plan of energy refurbishment of buildings and the Law 8/2013 of Urban Rehabilitation and Refurbishment and include the grants to the citizens and facilitates a household to the disadvantage groups; this was published by the RD 233/2013 of 5th April of Ministry of foment. The plan includes grants for buildings and installation in order to improve the conservation status, accessibility guaranty and improve the energy efficiency. Buildings should be constructed before 1961, with 70% minimum destined to household use and be the habitual residential place. The financial subsidy will be up to 2.000 Euros per household for energy efficiency measures; and if the building energy demand is reduced to 50% the financial subsidy will reach up to 5.000 Euros per household.

- The Climate Project aims to support and promote low carbon activities by purchasing verified emission reductions. Two calls for projects have been developed in 2012 in 2013 by Ministry of Agriculture and Environment with support of 20 million euro. In 2012 this Climate Project did buy 800 000 tCO2 from 37 projects.

- Program about loans and grants for energy refurbishment of buildings sector residential and hotels, PAREER. This programme started in September 2013 as a tendering procedure managed by IDAE with the next characteristics:
  - Improving the energy efficiency of the thermal envelope: under the combined modality of cash delivery without compensation and soft loan.
  - Improving the energy efficiency of heating and lighting: refundable loan.
  - Replacing conventional sources of energy by biomass in thermal installations: refundable loan.
  - Replacing conventional sources of energy by geothermal energy in thermal installations: refundable loan.

The aim is "to promote integrated actions that promote the improvement of energy efficiency and the use of renewable energies in existing buildings of the residential sector and to carry out the 4 Article of the Directive 2012/27/UE on the Energy Efficiency".

4 Identified Barriers

The main barriers identified in the Spanish market include:

- The EPC is complicated for the client and it is necessary to simplify the product and provide information about the advantages (guarantees about the compliance of the savings, contracts terminology, etc)
- No suitable financing schemes for the development of EPCs and ESCO projects;
- Need for training of staff in the energy efficiency sector, mainly for the financial banks and some institutions;
- There is a lack of best practices on EPCs to show the potential benefits to customers;
- Public Administrations. Barriers on the procedures, long time contracts, long time tendering processes; problems about accounting sytem "computo of deficits". This affects to the national government procedures and it means the investments are considered to be deficit to effects of national accounting. For the whole sector this one of the barrier, because this has paralyzed the whole Plan 330.

According to the Association AMI, the normative is published by the Government but there are difficulties to start new projects:

a) Lack of trust. The non existence of the ESCO as a company that is regulated by normative.

b) Excessive requirements in the CCPP. Admission Criteria.

c) Slowness in the process of contracting.

d) Legal concrete difficulties.

Less information about EPC concept and benefits have relevant decision-makers at local or regional level, small ESCOs and financial institutions (banks). Existing awareness is mainly from seminars, workshops and other educational events rather then from direct personal contacts with organizations involved in Energy Contracting. Level of real understanding in particular at financing level is low.

According to the Association of Energy Services Companies –Anese – the main barriers are lack of normative from the central government; lack of an agreement with the financing sector in order how they should analyse the projects; nowadays each ESE for each project has to negotiate with a bank or financial institution. The main constrain is that –with the economic crises - the banks are reluctant to provide loans for long time periods, they also demand high guarantees, etc in order to provide a loan; another barrier is the final client does not understand the ESCO model, Energy Services neither EPCs.

The III Congress of ESCOS celebrated in October 2013 did present the main conclusions and barriers of the market development of ESEs:

- ✓ Few projects focused to reduce the energy demand of buldings, industries... the main barrrier are the high investments.
- ✓ In some local and regional government real case studies with energy savings and demostrated profitability are going on. The ESCO model is functioning slowly and the role of the public sector as key example to be replicated.
- ✓ Although the Spanish Government did vote not in favor of the European Directive 2012/27/EC EED, the compromise of the government is to comply with the requirement of it.
- ✓ Nevertheless the sector show their worriness because the uncertainty generated with the reform of the energy sector, the negative effects that for energy efficiency and renewables development.
- ✓ Banks and financing institutions offer some financing tools although the protagonism of the project quality should be taken into account more that the company solvency.

4.1 Regulatory and administrative barriers

This part exposes which elements are providing to be an obstacle for the development of EPC projects taking into account the regulatory framework.

4.1.1 General regulatory barriers

Typical structural barrier is lack of understanding of EPC and their benefits, confidence that a project investment will be covered by the guarantee energy savings (EPC concept). Also that there are not many EPCs in Spain and Government is not using this model.

4.1.2 Regulatory and administrative barriers in the public sector

A model for ESCOs to apply for ESC and energy efficiency measures in the Government public buildings was created. Very few projects did appear with this modality due to very long periods of tendering process, time consuming and costs for the ESCOs. At this moment several tendering are stopped mainly due to:

- No clear interpretation in the budgetary law about recognition/not recognition of EPC liabilities as public debt
- No clear interpretation in tax and accounting acts concerning liabilities recognition

About barriers for a further development of the market of EPCs: lack of standard guidelines, no information available therefore generally lack of interest from the government. The industry and private sector are doing few EPCs projects although the ESCOs are ready for more projects.

4.2 Structural barriers

The responses of Transparense survey show that the main barriers to EPC bussines were financial crisis and structural barriers.

The results of the survey show in the next graphic the main barriers considered by ESCOs.

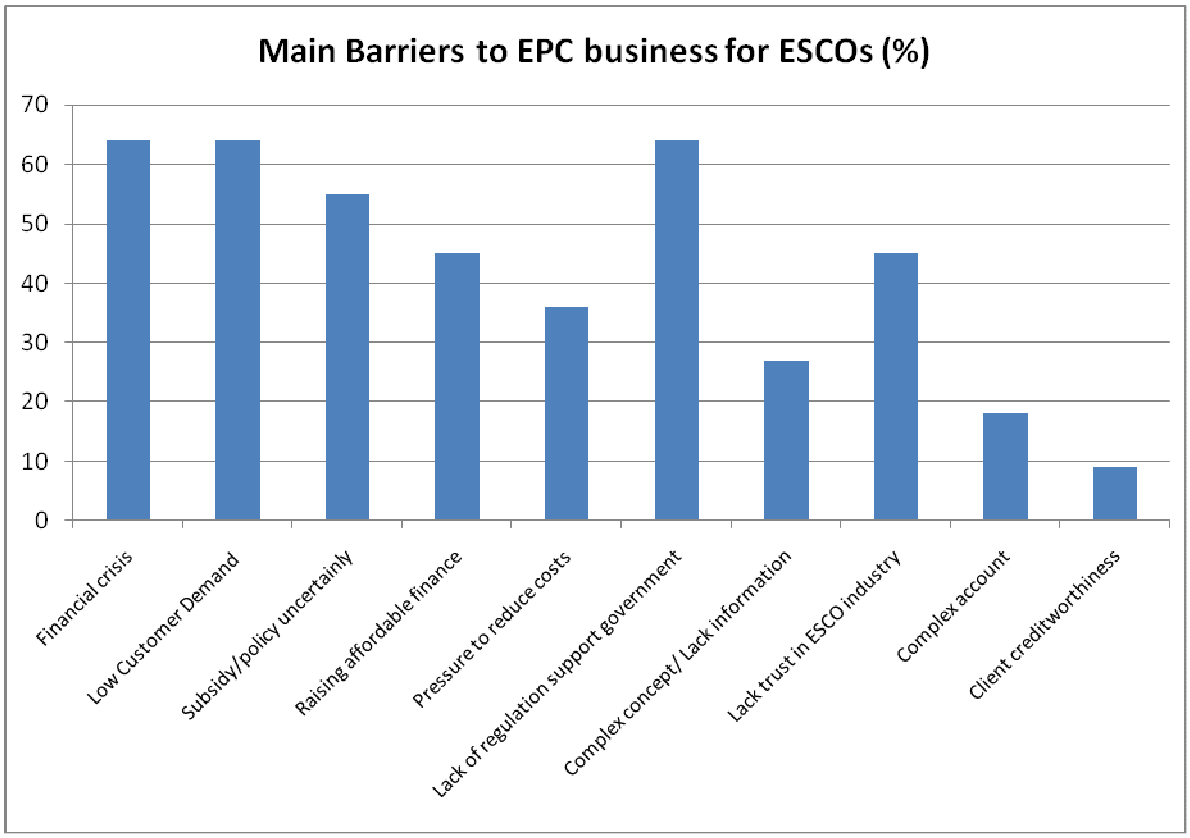

Figure 7: Main Barriers for ESCOs. Source: Transparense Survey, ESCAN 2013

Structural barriers as ”customer demand” were clearly an issue for most of the respondents 65% of ESCOs and 60% of banks and financial entities considered ”customer demand” as a driver for EPC business.

Another main barrier is the ”financial crisis” that was answered by 65% of ESCOS and 80% of banks.

Main barrier was also ”Lack of regulation suppport from the government” with 65% of ESCOS and 60% of banks answered it.

The survey also did show that 55% of ESCOS and 40% of financial institutions-banks reflect that subsidy/policy uncertainty as barrier for EPC development.

Other barriers were”pressure to reduce energetic costs” in order to increase the competitiveness 36% of the ESCOs responses but none of the banks thought this was a barrier.

”Raising of affordable financing” was answered by 45% of ESCOs and 80% of the other group.

Other barriers”Tendering process for public contracts is difficult” and ”lack of knowledge information by the final user citizen about EPC” were considered by ESCOS and banks.

Main barriers to the EPC business identified by financial institutions -banks	Percentage
Raising affordable finance	80%
Financial crisis	80%
Subsidy / policy uncertainty	40%
Regulation / Lack of support from the government	60%
Complexity of the concept / Lack of information	20%
Lack of trust in the ESCO industry	20%
Tendering process for public contracts is difficult	25%
The final user citizen does not know about EPC neither about ESCO	25%

Figure 8: Main Barriers to the EPC by banks-financial institutions.

Source: Transparense Survey, ESCAN 2013

4.3 Financial barriers

The situation in Spain is that the investments for the energy efficiency projects are done by the ESCOs mainly that provide the financing for the investments (own capital, TPF, etc.).

The multinational companies provide their inhouse capital and the medium - small companies require banks or financial entities for the investments. With the financial crisis the public institutions have small finance capability to invest in refubishment of buildings, replacement of old heating equipments, street lighting..etc. The opportunity for the ESCO to provide integral services including replacement of those energy consumption-equipments and systems by new efficient technologies, systems, maintenance, guarantee of equipment, energy supply and the required investment for that.

The energy supply is not managed and the ESCO offers services to do that. Therefore the integral service provided by ESCOs is:

- The management of energy supply, for instance the ESCO negotiate to the utility in order to buy electricity to a better price - as in Spain market of gas and electricity is free market-.

- The replacement of technologies if necessary.
- Operation, maintenance and guarantees of the HVAC systems.
- Sometimes new cogeneration plants or tri-generation in order to provide heating to the industry and to sell the produced electricity.

In both cases public and private energy efficient projects, the contracts are usually long and with high investments. It is necessary the credits of the banks.

The project investment is supported mainly by ESCOs and in few cases by the client.

Main barriers for the ESCOs and clients are the raising affordable finance and supports all the risks. The banks require prefeasibility study for the new project and the "good economic characteristics" of the company. The credits are provided after several months and not all the projects achieve them. In general for small companies is difficult to have access to good loans. Some European and National Funds provide good credits for specific projects investments (buildings refurbishment, plans, hotels, renewable energy sources).

During last year soft loans and other financial support from the government and European Funds are included in section 6 "Success factor" start to be used for some projects investments.

Summarising the main financial barriers are difficulties of finance for projects, bearing of the credit risk and subsidy uncertainty.

5 Success factors

In the conducted survey, ESCOs mention the following **main drivers of the EPC business**: **customer demand, increasing energy prices and the pressure to reduce costs.**

The customer demand is increasing due to the economic crisis and the higher knowledge of ESCO model by institutions and industries;

The energy prices during last three years have increased about 22%. This means that the public institutions and private sector are more awareness about energy efficiency measures in order to reduce energy consumption.

Another driver of the EPC business is the pressure to reduce cost that is mainly in order to increase the competitiveness decreasing the energy consumption of products.

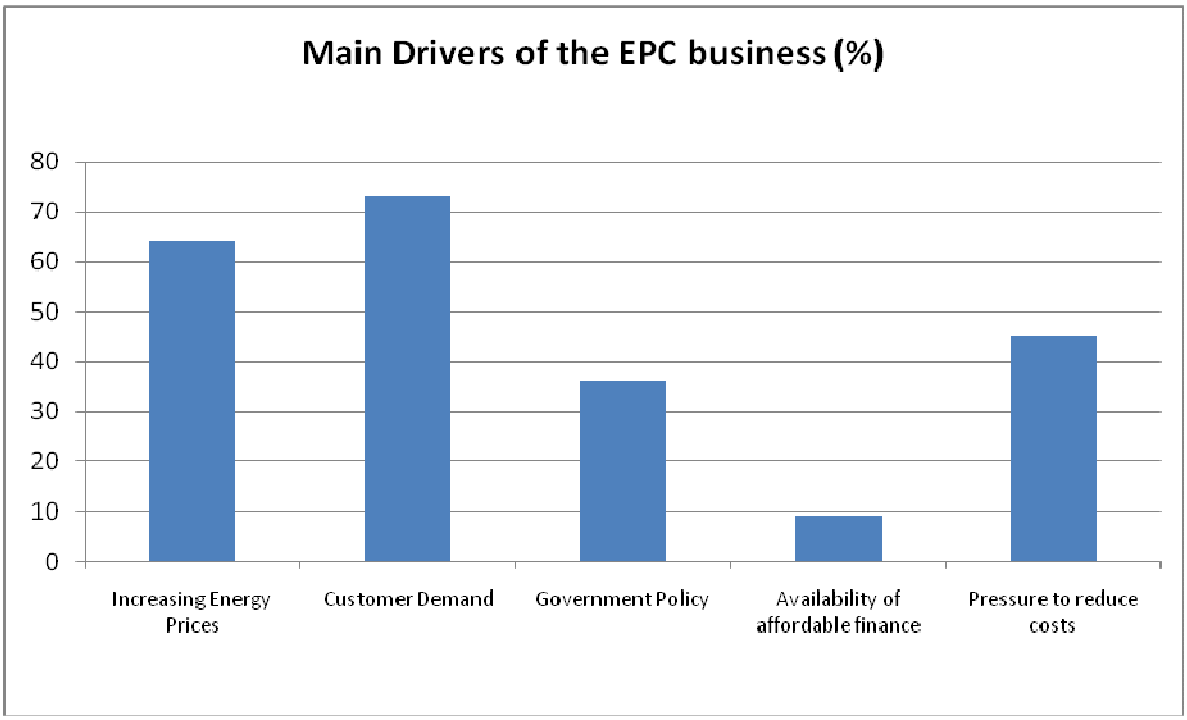

Figure 9: Main Drivers of the EPC business. Source: Transparense Survey, ESCAN 2013

5.1 Successful regulatory models

Action Plan of Energy Saving and Energy Efficiency 2011-2020 is the Second NEEAP sent to European Commission and it includes the chapter "Dynamization of market of energy services in the building sector". The public sector should be an example using the advantages of the ESCOs in order to replace the obsolete and non-efficient equips and achieve energy savings.

Also in 2007 Building Energy Certification and Regulation of Thermal Installation, RITE were promulgated in order to set measures on energy certification and energy efficiency in buildings.

- **Key drive: Incorporation of the ESCO as a regulated company by normative and effective register**

Nowadays it is important to highlight the active role of ESCO associations searching for the development of the market. The Associations is a tool to contact different companies to work together in projects, provide update information to ESCOs about regulations, policies, provide assessment to prepare the "best offer", etc.

Associations also organise meetings, Congress etc. In Spain three ESCO Congresses have been organised in 2011, 2012 and 2013. At the First ESCO Congress more than 800 people attend it and it was celebrated with the Ministry of Energy; in the III ESCO Congress- October 2013 - more than 550 people with the participation of the government of Vasque Region and the Regional Energy Agency, EVE.

5.2 Successful structural models

The model of CCPP Contract Public Private did not have many success although was the first step in order ESCOS could apply to offer energy services in the public sector. Several projects with ESC and efficiency measures did start in 2010 -2011.

- **Key drive: Adaptation of public procurement law and procedure**

Some EPCs are in the industrial sector and also in shopping centres. Each contract is different and the duration and investments varies between 4-10 years.

5.3 Successful financing models

One of the main barriers for the EPC market development is the access to financing for the investments. Nevertheless some funds and grant programmes are available.

➢ **Key drive: Credit lines and other financial support mechanism**

Jessica Fidae Fund

The European Investment Bank, EIB and National Energy Agency, IDAE did sign the Fund in july 2011.The Jessica Fidae Fund was presented in Genera Exhibition in Februrary 2013. It is operated by the EIB through the Spanish BBVA Bank.

The Fund comprises 123 MM€ of which 87.86 MM€ are supplied by EIB.
Sustainable urban projects shold be focus on energy efficiency or/and renewable energy sources included in *PIDUS, Plan integrado de desarrollo urbano sostenible*.

The measures include clean transport, solar and biomass projects and energy efficiency. Regarding energy efficiency comprises energy efficiency and energy management projects, refurbishment of existing buildings, new buildings with A or B energy class and renoval or extendion of district heating and cooling.
They can be carried out at buildings (public and private), industries, transport and infrastructures of public services (street lighting, traficc lights, local infrastructure..) of one of the 10 Regions (Comunidades Autonomas) incluided in EFRD, European Fund of Regional Development .

Jessica FIDAE cofinance 50% of the elegible investment, and the other 50% should be provided:

- ✓ Cofinance: min. 100,000-€ per project aproximately
- ✓ Format: Loan
- ✓ Timing: 20 year max.
- ✓ Exclusion period: up to 3 years

Green Buildings Equity Fund I

This fund provides the financing for the investment and allow the ESCO to carry out the projects and the operation and maintenance.

Furthermore the Fund can constitute a society with the ESCO for the development of a projects bulk.

An ESCO requires to invest 1 million Euros to achieve a business of 0.5 million euro yearly. Using this Fund the ESCO can generate the same volume of business and invest just a fifth part of the total investment. This model is a Third Partly Financing adapted to the typology and situation of the Spanish extinting projects.

This "Green Buildings Equity" has done the first investment in two systems of thermal production with biomass of 3MW, that provided haeating and SHW to more than 400 families in Zaragoza. Also improvement soft industrial processes with intensive energy use, hotels, hospitals with high energy consumption.

Several investors' profiles: funds, institutional investors or private investors.

ICO financial line

Ministry of Industry, Energy and Tourism created Sustainable Economy Fund in 2010. 8700 million euro of those 3871 million Euro did come from ICO, Official Credit Body and the rest by financial houses.

In 2010 and 2011 Financing Line of the Sustainable Economy Fund for investment projects or for sustainable refurbishment of households was available.

At present time, ICO manages four Credit Lines with 22.000 million Euros for year 2013.

The four lines are: ICO Companies and Entrepreneurs, ICO Guarantee SGR, ICO International and ICO Exports. ICO Companies and entrepreneurs' financial line support the creation of new companies or the improvement and maintenance of existing ones.

Refurbishment of buildings, maintenance of companies, acquisition of vehicles, etc are included in this line that presents the next characteristics:

- ✓ Loan with low interest
- ✓ Maximum 10 million Euro

BIOMCASA II, SOLCASA II, GIT CASA

The national energy agency manages these three programmes in order to promote the use of renewable energy sources, biomass solar and geothermal sources for heating purposes. The projects are usually ESC and not EPC.

Pimasol

The Ministry Council has set the Impulse Plan for Environment PIMASOL in August 2013. The total investment is 400 million Euros and 50% is co-financed by European Investment Bank

Ministry of Agriculture, Food and Environment provides 5.21 million euro for the acquisition of CO_2 emission reductions, CERs.

The beneficiaries are the hotels that carry out energy rehabilitation projects; it is required to achieve B classification or improvement of 2 energy classes. All documentation is evaluated by the Spanish Climate Change Office, OECC and the hotel can sell the reduction for a maximum 10420 Euro per hotel.

The measures of the energy rehabilitation projects can be isolation of facades, covers and windows, replacement of monitoring and management systems that allow emission reductions; also measures of energy generation with renewable sources for auto-consume of sanitary hot water and HVAC.

Financing for energy efficiency and renewable energy sources in hotels

The Technologic Hotel Institute and Sabadell Bank start the financing line for the Sustainable Hotel Programme this month -October 2013-.

Turnkey projects “llave en mano” with the renting modality for measures on energy efficiency in several areas: HVAC, SHW, renewable energy sources, heating pumps and circulating pumps, thermal envelope and smart glazing, monitoring systems, etc.

The financial line can provide up to 100% of the investment for the necessary equipment renovation and equipment increase and services to achieve energy savings.

The hotel will pay a monthly rate with the savings generated in the project, the hotels could rent more efficient equipment and new technologies thanks to a high profitability system and with controlled expenses for medium and long-term

If the hotels wish to reacquire the equipment the bank will offer tailored values of reacquisition for equips, up to 3%.

5.4 Other success factor: energy efficiency assurance

The investor/financier should know the risks of the energy efficiency project investments and also the mechanisms for the risks decrease.

Methodologies in order to cover certain risks as the coverage of credit risks, promoter risk, *(seguro de responsabilidad civil, seguro de caucion…)* In 2013 the insurance for technology and machinery of the projects of Efficient Energy Services, that includes the **assurance of the guarantee energy savings** is available in Spain. The main objective is the protection for the investor –financier if the produce savings is lower than the one included in the EPC. The insurance covers up to 100% of the guarantee energy savings and also the equipment and machinery of the ESCO.

With this new insurance is expected the boosting and more development of financing for projects. Source: HSB Engineering Insurance -Ribe Salat. III ESCO Congress, Bilbao 2013.

Definitions and glossary

Term	Definition
energy efficiency (EE)	means the ratio of output of performance, service, goods or energy, to input of energy (as defined by EED)
energy efficiency improvement	means increase in energy efficiency as a result of technological, behavioural and/or economic changes (as defined in EN 15900:2010)
energy management system	means a set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective (as defined by EED)
energy savings	means an amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, whilst ensuring normalisation for external conditions that affect energy consumption (as defined by EED)

final energy consumption	means all energy supplied to industry, transport, households, services and agriculture. It excludes deliveries to the energy transformation sector and the energy industries themselves (as defined by EED)
guarantee of energy efficiency improvement	means commitment of the service provider to achieve a quantified energy efficiency improvement (as defined in EN 15900:2010)
energy performance contracting (EPC)	means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings (as defined by EED)
EPC provider	means a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises
energy service provider /energy service company (ESCO)	means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises (as defined by EED)
energy service (ES)	the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings (as defined by EED)

References

Changebest European project, Escan, s.l. (2011). National Report on Energy Efficiency Service Business in Spain.

III National Energy Services Congress, Bilbao (2013).

Enerdata 2011. Energy efficiency trends in EU services.

National Energy Agency, IDAE: Second National Energy Efficiency Action Plan –NEEAP.

Government of Navarra (2013): Practical Guidebook of energy performance contracting with guaranteed savings. Guía práctica de contratación de servicios energéticos con garantía de Ahorro (2013), Navarra.

Climaeficiencia (August 2013) Article about the Energy Services Demand maintains the increasing. La demanda de servicios energéticos mantiene su crecimiento.

Bioenergy International Español (September 2013). Green Buildings Equity Fund I - Crosscheck Capital Partners.

ICO 2013. Leaflet Financial Lines for the year 2013.