



D2.5A Country Report on Recommendations for Action for Development of EPC Markets

SPAIN



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Transparensense 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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1 Summary

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

The report is building on the data and information gathered by two other similar projects, the European Energy Service Initiative¹ (EESI) and the ChangeBest project². 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 2010 Status Report on Energy Service Companies Market in Europe³



Framework for Climate and Energy 2030
 Possibility of revision in 2020 to target 30% (2030) pending a Commission Report by the end of 2014
 Fixing priority sections for the Commission

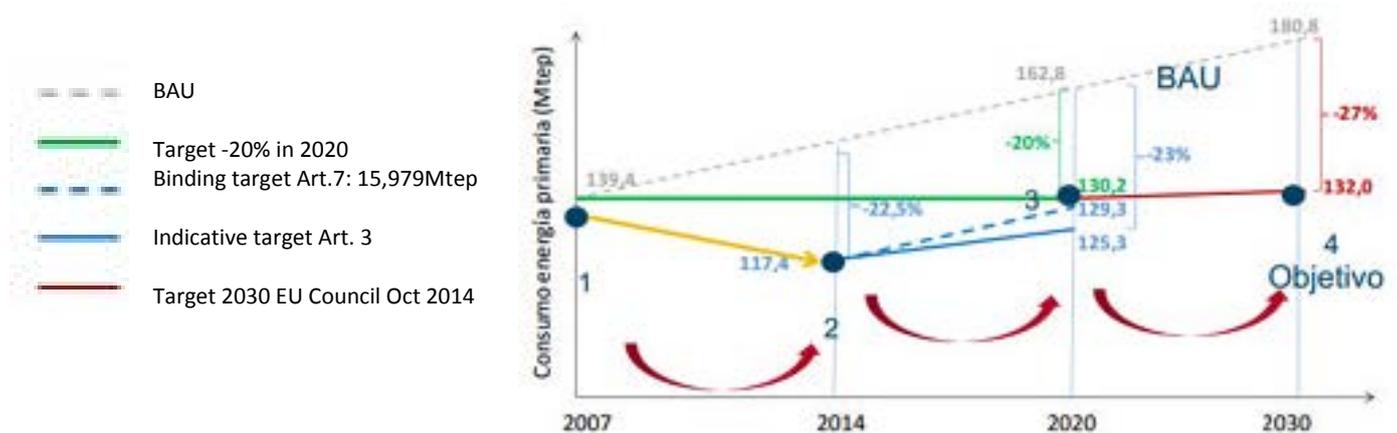


Figure 1: Main aspects of the framework 2030

Annual TACC 2004-2011	Energy intensity Primay Energy Consumption /GDP	Energy intensity Final. Energy Consumption/ GDP
UE 27	-2,12%	-2,24%
Spain	-2,46%	-2,35%

Energy Saving Obligations: in April 2013 a target of 16.000 Ktpeps/año was ordered, with 330 Ktpeps by 2014. The RD 8/2014 established that the objective should be split into parts (saving obligations and energy efficiency 40%, ERDF European Regional Development Fund 31%, and 29% of alternative measures).

¹<http://www.european-energy-service-initiative.net/eu/toolbox/national-reports.html>

²http://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>

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The key recommendations that aim to help boosting EPC market in the Spain and maintaining the high quality of EPC projects are to:

- The main goal of the Government is the transposition of the Energy Efficiency Directive, EED.
- The existence of an ESCO as a company regulated by legislation and the creation of an effective ESCOs register for the development of the energy efficiency services market.
- In the National Accounts investments on energy efficiency should not be considered as 'deficit'. This administrative barrier should be eliminated as several projects have not been developed due to this reason.
- Simplification, centralization and coordination of the public policy for energy efficiency. A process of energy services for public buildings is often handled by two or three different ministries.
- Partnerships are a tool for contact with different companies and work together on projects. They also provide the updated information to its members on regulations, policy advice to prepare "best offer" information, etc.
- Key drives are the new lines of credit and other mechanisms. During the last three years some funds and programs of support for the energy efficiency services market are emerging. These support mechanisms will promote the market and also the EPC model.

2 Introduction

2.1 Methodology

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

- The results of 2 nation-wide EPC survey which was sent to the country's main actors in 2013 and in 2015 within the EPC market by Escan.
- 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

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companies, organisations, public agencies/policy makers and finance houses. 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.

The survey was sent to 3 ESCO Associations and 5 EPC providers. The respondents are 2 associations: AMI (Business Association of Integral Maintenance and Energy Services) and ENACE (National Building Certifiers Entity) and three companies: CLECE Energy Services, TERMIA Energy Auditors and Cofely Energy Services.

Once the survey responses had been obtained, additional information was gathered by the authors in order to present a thorough and up-to-date picture of the state of the EPC market in Spain. This report also makes a series of recommendations tailored Spain national EPC market. These recommendations are based on the information gathered from the respondents to the surveys (in written form or in conversations), as well as on the authors' knowledge of the national market and of any relevant literature/research piece.

This report aims at showcasing the successful experiences for EPC providers in Spain and separating what has been proven to enhance the EPC offering from what constitutes potential barriers. The recommendations contained in this report have been made in order to tackle the issues highlighted in the previous Transparensense report (Transparensense National Report on identified barriers and success factors for EPC project implementation).

The authors believe that EPC providers / customers and the EPC industry as a whole will benefit from replicating the success factors observed within the national market. These recommendations should be seen as “best practice” guidelines and disseminated within Spain in order to improve the quality of the EPC market.

2.2 What is Energy Performance Contracting

Energy Performance Contracting (EPC) can provide substantial energy savings in the EU countries using the principle of repaying the energy efficiency investments directly from the saved energy costs.

The **key characteristics** of an EPC project are the following:

- **Turnkey service:** The energy service company (ESCO) provides all services required to design and implement a comprehensive energy saving project at the customer's facility, from initial energy audit to measurement and verification of savings.
- **Without the need for up-front capital:** Energy efficiency investments are repaid directly from energy savings and related financial savings, so there is not need for up-front capital on the customer's side.

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- **Risks for customers minimized:** The ESCO assumes the contractually agreed performance risks of the project.
- **Savings guaranteed:** The ESCO guarantees the achievement of the contractually agreed level of savings and is obliged to compensate savings shortfalls.
- **Support in finding financing:** The capital to finance the EPC project can either be supplied out of the Client's own funds, by the EPC provider or by a third party. Provision of financing by the EPC provider is an option, not a necessary part of the EPC 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.

While there is a vast number of definitions of EPC within Europe, within Transparensense project we use the EU wide definition provided by the Energy Efficiency Directive (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 Transparensense 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. **Guarantee of energy efficiency improvement** is commitment of the service provider to achieve a quantified energy efficiency improvement. (EN 15900:2010).

This is in line with the EED, as in its Annex XIII, guaranteed savings 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 Transparensense, we define the companies providing EPC as follow:

"EPC provider' means an energy service provider who delivers energy services in the form of EPC. "

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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 as follows:

"**Energy service provider**' means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises", where the '**energy service**' is defined by the EED as follows: "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".

Within the Transparensense texts, we use the commonly used term "ESCO" as equivalent of the energy service provider.

2.3 EPC Code of Conduct

An important step towards a transparent and trustworthy EPC market is the acceptance and widespread usage of the European Code of Conduct for EPC⁴ (Code of Conduct) (JSI and SEVEN 2014). The Code of Conduct has been officially launched on 28th of August in Brussels. It was developed within the Intelligent Energy Europe project Transparensense, in cooperation with inter alia EPC providers, clients, and European ESCO associations.

The Code of Conduct defines the basic values and principles that are fundamental for the successful preparation and implementation of EPC projects within European countries. Thus it creates one common European quality standard for EPC projects. Provided that a significant number of the energy service companies (ESCOs) sign the EPC Code and will adhere to its basic principles when implementing EPC projects, the transparency and trustworthiness of EPC markets will increase. Code of Conduct faces the major barriers on the EPC markets as identified by the Transparensense market survey: low confidence in EPC providers, complexity of the EPC method and low demand on the client side.

The key success factor is that EPC providers understand that they benefit from adhering to a set of rules for the EPC business due to an increase in trust on the client side and a resulting increase in demand for EPC projects. Also, the Code of Conduct can be used by governments, being major EPC clients, as minimum requirements for the EPC projects conducted on their property.

⁴European Code of Conduct for EPC can be downloaded from the Transparensense project website <http://transparensense.eu/eu/epc-code-of-conduct>.

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For example, the key characteristic of an EPC project is that the EPC provider guarantees a contracted level of the energy savings and/or related costs. If these are not achieved, he has to compensate the shortfalls in cost savings to the client. This is one of the main principles of the Code of Conduct, which helps to make it clear to the client that they should require such guarantees from the companies. The wording of the final version of the Code of Conduct is a result of discussion with wide range of stakeholders from 20 European countries, and has been endorsed by both European ESCO associations; eu.ESCO and EFIEES.

As a result of the above, the EPC market as a whole in Spain will benefit from adherence to the Code of Conduct in terms of increasing the quality and volume of the EPC projects. More on the Code of Conduct implementation in Spain can be found in the Country Report on the Uptake of the European Code of Conduct for the Energy Performance Contracting prepared within Transparense project.

3 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 embryonic 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 (Bertoldi, Boza-Kiss, and Rezessy 2007; Marino et al. 2010), with a big increase between 2011 and 2013. Due to whenever there are more ESCOs, the market is continuously growing.

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 also operates in biomass, solar thermal for heating and SHW.

The National Energy Agency managed a database of ESCOs and more than 750 companies were registered in January 2015. Some of them are ESCOs and most of them are equipment suppliers, manufacturers, etc. that with other companies, ESCOs, can achieve several kind of

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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. According to AMI data, 300 contracts are active of AMI associated.

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.

Anese is creating a list of certified companies that are available to provide the contracts with all the steps of a project: design, economic analysis with guaranteed energy performance, maintenance and verification of the savings (CMVP).

Another association, AMI, is the Association of Maintenance and Energy Efficiency Services 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 the board of EFIEES, (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. Adhac carries out every year a Study of Censo de Redes de climatización en España serving as reference to the Ministry MINETUR for his reports about the networks in Spain.

ADHAC, A3E and AMI, with the Spanish Association of HVAC, ATECYR and the Spanish Association of Normalisation and Certification, AENOR start doing some analysis for the achievement of companies and experts as AENOR accreditation of ESCO.

AENOR is legally responsible for the development and dissemination of technical standards in Spain, so the result of accreditation and subsequent rule, be a legally recognized and enforceable accreditation.

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

According to the Transparensense survey, the number of ESCOs is about 30 and about 100 more companies that participate in ESCO projects and technological partners.

The Energy Services Market Development for EPCs over the last three years - according to the results of the Survey – had seen **little change** said 60% of the respondents, while 20% said it had seen major growth and 20% answered the market development suffer a slight growth.

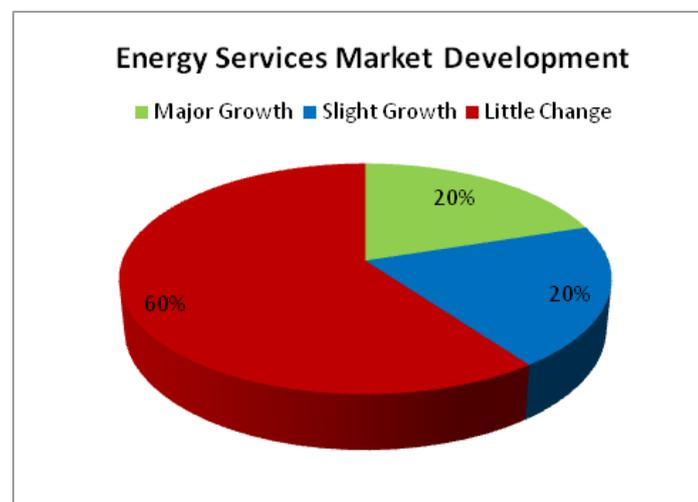


Figure 2: Energy Services Market Development. Source: Transparensense Survey, ESCAN 2015

The length of the contracts varies from 5 till 15 years. The industry sector prefers short term contracts and the public buildings and street lighting medium and long-term contracts, usually between 12 and 30 years contracts.

Data from the Transparensense survey 2015 indicates that in **60%** of the interviewed ESCOs, the **EPC projects in the last 24 months have been from 6 to 10**, in 20% from 1 to 5 and more than 20 for the remaining 20%.

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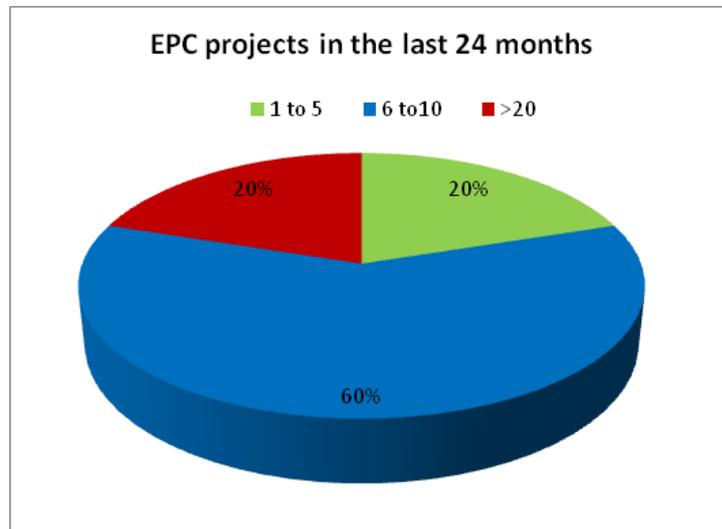


Figure 3: EPC Projects in the last 24 months. Source: Transparensense Survey, ESCAN 2015

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 CCPP model contract 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.

In November 2010 the “Plan 2000 ESE” aimed that 2,000 public centers were identified and that did become energy efficiency projects. 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 and energy efficiency improvement measures and some of them EPC; mainly energy services focused on new installation of street lighting and heating systems.

The Transparensense survey 2015 shows the rates of the **installed technologies and measures** and are include in the next Figure.

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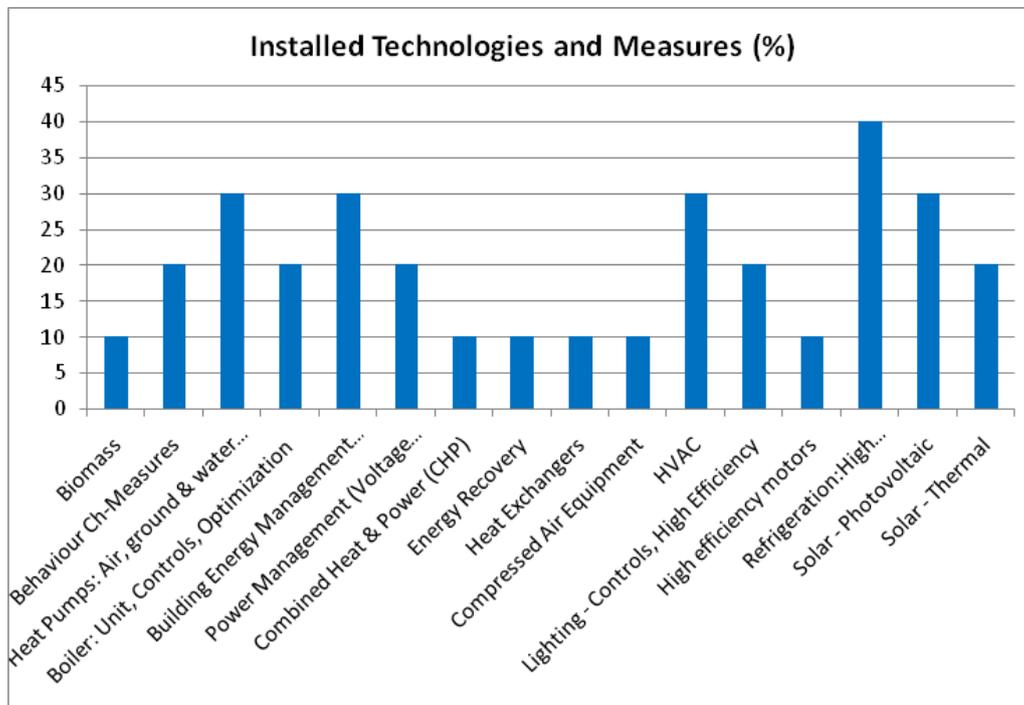


Figure 4: Installed Technologies and Measures (%).
Source: Transparensense Survey, ESCAN 2015

In this line the Transparensense Survey indicates that the **EPC orders** of most interviewed companies during last 12 months **have remained constant or have fallen slightly**.

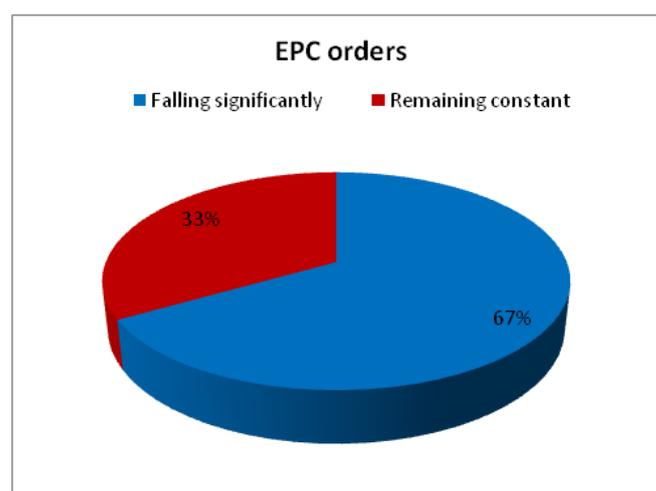


Figure 5: EPC orders. Source: Transparensense Survey, ESCAN 2015

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 project, is one of the main barriers.

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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.

4 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 equipments and achieve energy savings.
- At present time (May 2015) the National Plan of Energy Efficiency PNAEE 2014-2020 has been published.
- The main goal of the Government is the transposition of the Energy Efficiency Directive, EED.
- RD 8/2014 of 4th July, “Approval of urgent measures for the growth, the competitiveness and the efficiency”. One of the measures is that companies with more than 250 employees have to engage energy audits every 4 years or to carry out an energy management system in the company. The target of the system is 1.5% savings of the total energy sales. It is also foreseen the creation of a register of energy audits with the objective to check the fulfillment of this obligation and the creation of a National Fund for Energy Efficiency.
- 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 that 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

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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.

5 Identified Barriers

The "barriers and success factors for the development of EPC projects" report was conducted based on a questionnaire to major ESCOs, energy-related institutions, financial institutions and companies. ESCOs also associations and contributed to the text AMI.

The main barriers of the Spanish market are:

B.1.-The EPC concept is difficult to understand by customers and is important to define the administrative terms used: terminology contracts, guarantees, etc.

B.2.-Lack of confidence in the energy service companies, because it is a foreign company that must be disclosed consumption data, economic data, costs, etc. customers (mostly private) are reluctant to provide these data.

B.3.-Lack of appropriate project development and EPC ESCOs financial schemes.

B.4.-Weak specific training of employees, mainly in banks and financial institutions and financial market related.

B.5.-Difficulties know good EPC projects set an example for stimulating the market.

B.6.-Public administrations. Barriers in procedures, long-term contracts, long bidding processes; issues on the accounting system "computation of the deficit." This affects the procedures of national government and means that investments are considered deficit for the purposes of national accounts. For the entire sector these barriers have paralyzed all the "Program of 330 buildings."

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According to the Association of Integral Maintenance Energy Services AMI, despite the existence of regulations published by the Government, there are difficulties in starting new projects, especially in the field of State Administration:

- a) The lack of confidence. The absence of rules to regulate ESCOs.
- b) Excessive requirements in the CCPP. Admission Criteria.
- c) The slowness of the procurement process for the public sector.
- d) Specific legal difficulties.

In April 2015 starting the negotiations for a new Law of Procurement of the Public sector in which AMI is participating and it could be achieved by removing some of the barriers.

Table 3. Summary of EPC market barriers

	Description of the barriers	Commentaries
Barrier 1	The Energy Performance Contracting, EPC are not easily understood by the clients.	It is important to report EPC and administrative terms used: terminology contracts, warranties
Barrier 2	Lack of confidence in the energy services companies.	It requires much time and several meetings demonstrating the credibility for the potential customer to make a decision.
Barrier 3	Lack of appropriate financial schemes for the project development of ESCOs and EPCs. Obtaining affordable financing and the current financial crisis. "Financial risk".	Innovative schemes are needed to facilitate affordable financing.
Barrier 4	Weak specific training of employees, mainly in banks and financial institutions.	Currently very few banks are lending on energy efficiency projects, and partly for lack of knowledge. (Nevertheless few are offering financing Sabadell Bank, Santander Bank and BBVA ...)
Barrier 5	Difficulties of good EPC projects set as an example for stimulating the market.	With more projects (best practices) in Spain other potential customers could learn and use these contracts.
Barrier 6	Public administration barriers: Barriers in procedures, long-term contracts, long bidding processes; issues on the accounting system "computation of the deficit", excessive requirements in the CCPP (Public-private procurement contracts).	Unfortunately it has been very little EPC contracts with the central government and some procurement procedures are stopped in various stages of the proceedings.

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6 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 16% electricity and 38% gas.

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.

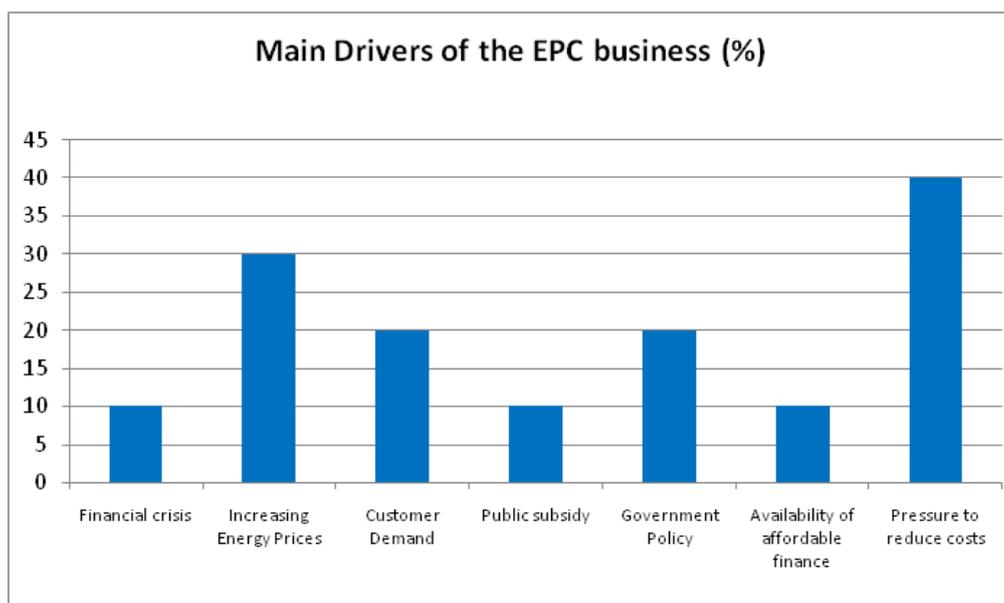


Figure 6: Main Drivers of the EPC business. Source: Transparense Survey, ESCAN 2015

6.1 Successful regulatory models

Action Plan of Energy Saving and Energy Efficiency 2014-2020 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 equipments 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.

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- **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 since 2011 four National ESCOs Congresses have been organised. The last one was in October 2015 and Escan with associations did organise a workshop about the Market opportunities energy services, EPCs.

The Code of Conduct was included in the debate as very useful for the companies which include it in their presentations to the clients.

6.2 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 +EPC did start in 2010 -2011.

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

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

In Spain the EPC models are used in different buildings-demands:

For the Residential sector

The energy consumption patterns are very similar: HVAC usage, times, etc; the number of heating hours per building is very similar and also for other issues as electricity demand. Guaranteed energy savings are provided by some companies or ESCOS. They have different approaches and one example is the 40-7-0 model. This means 40% guaranteed energy savings, 7 years of contract duration, and 0 over expenses for the clients.

For Street lighting

The most utilised model is EPC + ESC. The contract duration is usually 8-20 years. The municipality pays a fixed fee per month and it is revised every year according to the electricity price. Guaranteed saving are 50-70%.

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Industrial sector

EPC model is used in few projects. The contract duration is 4-6 years. Guaranteed energy savings are usually 10-30%.

Tertiary sector (hospitals, schools...)

EPC model is used in few projects. The contract duration is 8-10 years. Guaranteed savings are usually 20-40%

6.3 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

F.I.D.A.E. is a holding fund managed by the European Investment Bank (EIB), co-financed by the European Regional Development Fund (ERDF) and the National Energy Agency (IDAE). The financing institutions selected are the BBVA Bank and Santander Bank.

The JESSICA initiative covers the funds and enables Member States to use the Structural Funds to make repayable investments in projects forming part of an integrated sustainable development plan, the PIDUS (*Integrated plan for sustainable urban development*).

The current amount of the Fund is 123 MM€ of which 87.86 MM€ are supplied by EIB.

Likewise projects should be encompassed within the following sectors:

- a) Public buildings and private buildings (except for private residential buildings).
- b) Industry: companies of any size.
- c) Transport: infrastructure, equipment and fleets of public and private transport.
- d) Infrastructure of public services related to energy.

Priority topics are energy efficiency, clean transport, solar and biomass projects.

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PAREER – CRECE fund

The Fund for Energy Rehabilitation at Residential Buildings and Hotels (PAREER) of IDAE includes a budget of 75 million Euro in 2015.

This aid program with the Action Plan of Growth, Competitiveness and Efficiency (CRECE), include actions for energy refurbishment in currently existing buildings.

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.

ICO financial line

Ministry of Industry, Energy and Tourism created Sustainable Economy Fund with ICO, Official Credit Body and by financial houses.

Since 2010 the 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.

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.

It is a fund to freelances, companies and public or private entities to conduct productive investments in Spain. Refurbishment of buildings, maintenance of companies, acquisition of vehicles, etc are included in this fund.

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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 CO₂ 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.

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.

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.

6.4 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 caución...) 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.

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7 Action plan for EPC market development

This section builds on the stakeholder analysis and identified market barriers and includes an action plan actions to improve the market for efficient energy services agreements, especially the Energy Performance Contracts, EPC.

This action plan consists of six main groups of actions:

1. Information and simplification of Energy Performance Contracts EPC.
2. Increase and strengthening knowledge-confidence in ESCOs.
3. Create and adapt appropriate financing lines.
4. Staff training in energy efficiency services.
5. To promote energy service projects.
6. Simplification and appropriate requirements in public administration tendering process and procurements.

1. Information and simplification of Energy Service Contracts type EPC

There is still a lack of knowledge in the private sector and in some both regional and local administrations about the EPC contracts.

Since 2007, the energy services market for the public sector is performed with local, regional authorities and central government in order to improve the energy systems of various types of procurement, like EPC.

The contracts, according to the facilities of ESCOs, uses models the "4 P" or "5 P" that include energy supply, maintenance and management of facilities with their guarantees, and investments to perform, being the P5 improvements in the ESCOs to achieve savings.

Nr.	Phases
P1	Supply: energy management electric bills, gas, biomass, etc.
P2	Maintenance: including preventive maintenance
P3	Full guarantee: repairs and replacement of damaged item
P4	Improvement works and renovation of facilities
P5	Other investments, depending on the contract

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In particular, the global and integrated action that is the subject of this Agreement is intended to grant the use and operation of street lighting facilities of the City Council to Energy Services Company to meet the following benefits:

Phase P1 Energy Management: implementation of energy management techniques and exploitation necessary for the correct work of the installations covered by the contract; including the management of energy supply in demand for lighting installations. This includes the costs of the energy consumed by the installations covered by this contract.

Phase P2- Maintenance: implementation of preventive maintenance for the perfect functioning and performance of the external lighting installations and all its components, including their regular cleaning, all in accordance to the requirements of the ITC-EA-06 of the Regulation on energy efficiency in external lighting installations.

Phase P3- Total Guarantee: repair with replacement of all damaged items on the premises as regulated in this document in the form of Total Guarantee.

Provision P4 - Works of improvement and update of outdoor lighting installations: implementation and financing of improvement works and renewal of street lighting facilities specified in the energy audit. The Energy Efficiency Directive 2012/27 / EU recommends to provide clear and accessible information on energy service contracts, detailing the clauses to be included to ensure energy savings which are provided to the public sector in particular models of energy performance contracting (EPC).

2.- Increase and strengthening knowledge-confidence in ESCOs

Unawareness and lack of confidence in the energy service companies may be due to the services traditionally performed internally in the company or externalized to known companies. Some customers are reluctant to provide energy consumption and economic data to an external company to their organization.

The draft Royal Decree about energy audits, accreditation of energy service providers and auditors incorporates the Article 16 "Availability of qualification system accreditation and certification of Energy Efficiency Directive DEE" into legislation.

This draft Royal Decree includes the PSE figure. PSE is the Energy Service Provider defined as the natural or legal person with appropriate technical qualification (for individuals) and at least one person with a university degree (in the case of legal entities) and in both cases with

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civil liability insurance covering the risks arising from their actions. In the case of installation or maintenance companies should be included in the register of Regional Governments as authorized companies for the specialty corresponding to the energy service provided (heating systems, lighting, refrigeration, etc.).

In addition, it provides for the establishment of an Administrative ESCO Register in the Ministry of Industry, Energy and Tourism (Minetur).

3.- Create and adapt appropriate financing lines.

In recent years public institutions face to a difficult economic situation, mainly due to not properly management, budget cuts, lack of liquidity and many debts.

To implement energy efficiency improvements in buildings, lighting systems, equipment, etc. these entities require capital and most of them do not have it. In the case of low investment probably yes, but in the case of major improvements, such as boilers replacement, updated street lighting, etc. there is a lack of funding. If an entity has the investment itself is usually performed by concession, but if the necessary investment is higher an external financing line is required.

Some European Union funds are available: ERDF for some regions; Jessica-Fidae fund for major improvements with various regions involved; the Regional Governments manage the aid but they are mostly for citizens, example Rebate plans (rebates for boilers, elevators, windows and domestic appliances).

In private financing some banks offer loans or leasing programs for these projects. Santander Bank, Sabadell Bank with its program of leasing and renting and BBVA provide loans of Jessica Fidae.

To acquire this financing is not an easy task, especially for small and medium investments; example in investments from 35000 to 200000 Euros because it is difficult to prove their profitability. Additionally there is a lack of real support programs and funding that promote those investments.

4.- Staff training in energy efficiency services

Studies and market analysis in most countries show a lack of training of personnel, mainly in the financial sector and some institutions.

The energy efficiency measures, consumption savings or improvement of outdated equipment in many public buildings are not still priorities; some examples are sports centers, public swimming pools, schools, etc. Therefore, it is necessary a work of knowledge

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transference and training about the relevance of optimizing energy consumption, make improvements or new equipment and facilities and thus achieve energy savings.

Since 2007, and with the participation of the Institute for Energy Diversification and Saving, IDAE and the School of Industrial Organization, EOI, working and training groups have been created.

In addition the Transparensense project through Escan, s.l. organizes Training Courses on *Energy Efficiency Services and EPC model* which are welcomed by professionals.

5.- To promote projects focused on the energy efficiency

In Europe, the EPC model was first used ten years ago primarily in Germany, Austria and gradually extended to the rest of Europe.

In Spain there are several types of contracts with the public sector, although there are few cases of installations using EPC contracts with guaranteed energy savings. The energy services companies recover the investments with the achieved energy savings. Therefore the use and promotion of this type of model in the public and private sector is recommended.

6.- Simplification and appropriate requirements in public procurement procedures

Finally, there is widespread thinking of many companies about procurement processes for improvements and energy services for its slow and not simple processes. Moreover, in some cases, the technical and economic requirements requested are excessive for the contracts.

Process simplification and appropriate handling public procurement requirements are necessary.

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Table 4. Actions to EPC market developments.

	Action associated with barrier no (see Table 1)	What should be done and how	Who should act	When should actions be taken	Comments
Action 1	B1: The Energy Performance Contracting, EPC are not easily understood by the clients.	Information and simplification about EPC contracts.	Companies and institutions using EPCs	Shortly	Still lack knowledge of the private sector and some regional and local administrations
Action 2	B2: Lack of confidence in the energy services companies.	There is no an official accreditation of ESCO and there are few companies that actually implement full EPC projects. Therefore, it is necessary to develop the Project of Royal Decree	The Ministry of Industry Energy and Tourism must approve the Draft RD. Associations and companies of the sector.	Continuously	There is a database of ESCOs with more than 900 registered companies, but less than 10% which are really ESCOs with technical and financial capacity to complete EPC projects. New figure of Energy Service Provider, ESP approval pending.
Action 3	B3: Lack of appropriate financial schemes for the project development of ESCOs and EPCs. Obtaining affordable financing and the current financial crisis. "Financial risk".	Create and adapt credit lines suitable for EPC.	Banks, financial institutions and institutions.	Shortly	Some European Funds for major projects of public entities. In most cases, only loans are offered.
Action 4	B4: Weak specific training of employees, mainly in banks and financial institutions.	Organization of courses and EPC training sessions.	Entities and private companies, banks and financial institutions.	Continuously	Seminars and specialized training courses.
Action 5	B5: Difficulties of good EPC projects set as an example for stimulating the market.	The government and public institutions should promote and use this model to stimulate the market.	The government and public institutions. Transposed Energy Efficiency Directive.	In the short term.	Encourage this type of EPC model.

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Action 6	B6: Public administration barriers: Barriers in procedures, long-term contracts, long bidding processes; issues on the accounting system "computation of the deficit", excessive requirements in the CCPP (Public-private procurement contracts	Process of procurement simplification.	Government	Continuously	Need to transpose the Energy Efficiency Directive. In bidding adjust the requirements of the most consistent companies' projects.
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8 Recommendations

8.1 Governmental strategy to boost the EPC market

The main goal of the Government is the transposition of the Energy Efficiency Directive, EED.

The Directive provides in Article 7, the requirement to justify an amount of energy savings by 2020. In fulfilling this obligation, Spain has informed the European Commission a goal of 15,979 accumulated ktoe of energy savings for the period 2014-2020.

Moreover, Article 7 of the Directive, establish that each Member State will determine a system of energy efficiency obligations, whereby energy distributors and/or retail energy sales companies will required to achieve, from the year 2014, by 2020, the goal of saving equivalent to 1.5% of sales annual energy.

RD 8/2014 of 4th July approval of urgent measures for the growth, the competitiveness and the efficiency. One of the measures is the big companies have to engage energy audits every 4 years or to carry out an energy management system in the company. The target of the system is 1.5% energy savings of the total energy sales.

Establishing a national system of energy efficiency obligations whereby the gas and electricity trading companies, operators of petroleum products wholesale and operators of gas wholesale will be allocated an annual fee of energy savings, called savings obligations.

It is also foreseen the creation of a register of energy audits with the objective to check the fulfillment of this obligation and the creation of a National Fund for Energy Efficiency.

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8.2 Removal of legislative and administrative barriers

It is essential to remove the main legislative and administrative barriers in order to develop the energy efficiency services market and to implement projects with Energy Performance Contracts, EPCs.

The actions that should be undertaken to remove legislative and administrative barriers are:

- National legislation transposing of the Energy Efficiency Directive 2012/27/EU and to avoid the uncertainty generated by the reform of the energy sector including energy efficiency and renewable energy sources of the current government.
- The existence of an ESCO as a company regulated by legislation and the creation of an effective ESCOs register for the development of the energy efficiency services market.
- EPC concept is difficult to understand for the customers and it is important to define the administrative terms used: terminology contracts, guarantees, etc.
- In the National Accounts investments on energy efficiency should not be considered as 'deficit'. This administrative barrier should be eliminated as several projects have not been developed due to this reason.
- Simplification, centralization and coordination of the public policy for energy efficiency. A process of energy services for public buildings is often handled by two or three different ministries.
- Normally there are not many projects with the EPC contract model in Spain and the Government should encourage the use of this model to stimulate the market.

8.3 Information dissemination, education and networking

In Spain some measures about information, dissemination and training on the market for energy efficiency services were conducted at government level only; and measures focused on EPCs are rarely raised.

For example, in the III Congress of Energy Efficiency Services in October 2013 in Bilbao, only one communication EPC case of the city of Sweden was addressed.

In January 2014 it was held in Barcelona the European Conference of ESCOs and EPC several cases were presented.

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In October 2014 the IV National Congress of ESES was celebrated and organized by the ESCO Associations; Escan did present the TRANSPARENSE project in this Congress with more than 200 attendants.

Today it is important to highlight the active role of associations seeking ESCO market development. Partnerships are a tool for contact with different companies and work together on projects. They also provide the updated information to its members on regulations, policy advice to prepare "best offer" information, etc.

8.4 Financial instruments to support EPC

Some of the barriers to energy service companies and the business of EPC identified by financial institutions as Transparense Survey conducted by Escan in 2013 are the "obtaining affordable finance" and the "financial crisis".

Another barrier identified for the development of the market is the financial risk.

Key drivers are the new lines of credit and other mechanisms. During the last three years some funds and programs of support for the energy efficiency services market are emerging. These support mechanisms will promote the market and also the EPC model.

Some examples are: Jessica - Fidae Fund; Equity Funds, such as Green Building Equity Fund I; ICO Financing Lines; IDAE programs, such as PAREER-CRECE, Program with loans and grants for the rehabilitation of buildings in the residential sector and hotels; the new "Insurance of Energy Efficiency" which is an insurance that guarantees energy savings to the customer, covering the deficit (shortfall) in energy saving compared to insured savings generated.

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