



COUNTRY REPORT ON THE ENERGY EFFICIENCY SERVICES MARKET AND QUALITY

Spain



QualitEE Project

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The QualitEE consortium comprises 12 partner organisations covering 18 European countries, an expert advisory board, including the European standards body CEN/CENELEC, and 59 supporters from major financial institutions, government bodies, trade associations and certification bodies.

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Definitions and glossary

Term	Definition
Client	means any natural or legal person to whom an energy service provider delivers energy service
Energy Efficiency Directive (EED)	means Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency
energy efficiency improvement*	means increase in energy efficiency as a result of technological, behavioural and/or economic changes
energy efficiency*	means the ratio of output of performance, service, goods or energy, to input of energy
energy efficiency service (EES)**	means an agreed task or tasks designed to lead to an energy efficiency improvement and other agreed performance criteria
energy efficiency improvement*	means an increase in energy efficiency as a result of technological, behavioural and/or economic changes
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
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
energy supply contracting*** (ESC)	means a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered
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
energy service*	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
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
energy*	means all forms of energy products, combustible fuels, heat, renewable energy, electricity, or any other form of energy, as defined in Article 2(d) of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics
EPC provider	means an energy service provider who delivers energy services in the form of Energy Performance Contracting
ESC provider	means an energy service provider who delivers energy services in the form of Energy Supply Contracting

energy service project facilitator (facilitator)	means an advisory company working on behalf of the client to procure and/or implement an energy service project
Integrated Energy-Contracting (IEC)	means a combination of energy efficiency measures with energy supply contracting typically with short term 'operational verification' rather than ongoing Measurement & Verification
Savings	means energy savings and/or related financial savings; the financial savings include the costs of energy provision and can also include other operational costs, such as the costs of maintenance and workforce
The International Performance Measurement and Verification Protocol (IPMVP)	is the widely referenced framework for "measuring" energy or water savings, which is available at www.evo-world.org

Notes:

*Definitions according to the Energy Efficiency Directive

**Definition according the European standard EN 15900:2010

***Definition is a simplified version of IEA DSM Task Force 16 definition

1 EXECUTIVE SUMMARY

The objective of this report is to compile evidence to inform about the development of European & national quality criteria and the implementation of quality assurance schemes for energy efficiency services (EES). This report has been developed as part of the "QualitEE – Quality Certification Frameworks for Energy Efficiency Services" project supported by the EU's Horizon 2020 programme. The QualitEE project aims to increase investment in EES and improve trust in service providers.

Information has been collected through a market survey as well as literature review. An analysis has been conducted and conclusions formed to be presented in this report as well as in the online database on the QualitEE project website.

This report aims to improve the market knowledge of stakeholders so that they can make better informed decisions based on evidence. The barriers and success factors for energy efficiency services, their quality determinants as well as the related legal, political and institutional framework have been mapped. Lessons learned from existing certification frameworks will serve to establish strategies for the implementation of national quality assurance schemes.

In this report, an analysis of the legal and institutional framework of EES in Spain is presented. In addition, the main standardization systems applied to this type of services are analysed.

Due to the characteristics of the energy services market in Spain, the report focuses on two different types of services: EPC contracts and ESC contracts. Within each of them, a picture of the current situation of each typology in the country is made, using the survey carried out in previous months as the main source of information.

The Spanish EPC Market is presented as a divided one. On the one hand, 7% of enterprises are considered large companies and they have had approximately 50% of market share in recent years. The remaining quota is very fragmented since 93% of the companies -around 1,150- are SMEs registered as ESCOs.

Regarding EPC market sectors, although most of the ESCOs in Spain have clients from the private sector, the demand from the public sector is expected to grow in the coming years.

Concerning ESC market sectors, most of the clients are municipalities. Offices and retail also have a significant presence in the client portfolio of the ESC providers surveyed.

Throughout this study the results from the online survey in Spain are compared with the results from the online survey across All Countries that responded. The main barriers and drivers for EPC and ESC business models have been identified through the survey. Most of them are the same for both business models. Thus, administrative barriers, customer demand, lack of standardized M&V¹ practices and lack of trust in ESCO industry are the most important barriers. In order to overcome them, some actions such as seminars, conferences, trainings or

¹ Measurement and verification

a certification of EES are proposed in the report. Regarding the drivers, the increase in energy prices has been identified as the most relevant one. The last part of the report is focused on the certification of energy efficiency services in Spain. Throughout this chapter, the general framework for certification of products and services together with certifications in the energy sector such as ISOs are presented. However, there is no official certification of energy efficiency services in the Spanish market which may be one of the reasons for the lack of trust in the ESCO industry.

According to the survey, a quality assurance scheme applied to EES would have more added value in Spain than across All Countries. In this sense, over 50% of Spanish respondents would always implement a project with quality assurance and the remaining respondents would implement it at least in half of cases.

2 INTRODUCTION

2.1 Objective of the report

The objective of this report is to compile evidence to inform about the development of European and national quality criteria and the implementation of quality assurance schemes for Energy Efficiency Services (EES). The report has been developed as part of the "QualitEE – Quality Certification Frameworks for Energy Efficiency Services" project supported by the EU's Horizon 2020 programme. The QualitEE project aims to increase investment in EES and improve trust in service providers.

Information has been collected through a market survey in the form of an online questionnaire and personal interviews. In addition, literature review has been conducted in existing local and national publications and documents. An analysis has been carried out and conclusions formed to be presented in this report, as well as in the online database on the QualitEE project website.


This report aims to improve the market knowledge of stakeholders so that they can make better informed decisions based on evidence. The barriers and success factors for energy efficiency services, their quality determinants and as well as the related legal, political and institutional framework have been mapped. Lessons learned from existing certification frameworks will serve to establish strategies for the implementation of national quality assurance schemes.

2.2 Scope of the report and definitions

2.2.1 Energy Efficiency Services (EES)

The European standard EN 15900:2010 defines EES as an agreed task or tasks designed to lead to an energy efficiency improvement² and other agreed performance criteria. EES shall include an energy audit (identification and selection of actions, e.g. according to EN 16247) as well as the implementation of actions and the measurement and verification (M&V, e.g. according to IPMVP) of energy savings. A documented description of the proposed or agreed framework for the actions and the follow-up procedure shall also be provided – often referred to as an Investment Grade Proposal. The improvement of energy efficiency shall be measured and verified over a contractually defined period through contractually agreed methods (Amann S., Leutgöb K. et al. 2015).

This report focuses on the following two key types of energy efficiency services:

-  Energy Performance Contracting (EPC);

² According to the EED "energy efficiency improvement" means "an increase in energy efficiency as a result of technological, behavioural and/or economic changes".

Energy Supply Contracting (ESC).

2.2.2 Energy Performance Contracting (EPC)

According to the Energy Efficiency Directive, "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."

The energy efficiency measures described above may also be based on low or no up-front investment. EPC may also include additional services related to efficient energy supply.

Within the report, the focus will be on EPC projects where the above mentioned "contractually agreed level of energy efficiency improvement" is **guaranteed** by the EPC provider. The **guarantee of energy efficiency improvement** is the commitment of the service provider to achieve a quantified energy efficiency improvement (EN 15900:2010).

This is in line with the EED, Annex XIII which lists guaranteed savings among the minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications. Moreover, in Article 18 of the EED, Member States are required to promote the energy services market and access for SMEs to this market by, among other things, disseminating clear and easily accessible information on available energy service contracts and clauses that should be included in such contracts to **guarantee energy savings** as well as final customers' rights.

The European Code of Conduct for EPC (2014) defines that the EPC provider assumes the **contractually agreed performance risks of the project** throughout the duration of the EPC contract. These include the risks of not achieving contractually agreed savings as well as design risks, implementation risks and risks related to the operation of installed measures. If an EPC project fails to achieve the performance specified in the contract, the EPC provider is contractually obligated to compensate savings shortfalls that occurred over the life of the contract. The excess savings should be shared in a fair manner according to the methodology defined in the contract.

2.2.3 Energy Supply Contracting (ESC)

"An ESC is a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered". This definition is a simplified version of the IEA DSM Task Force 16 definition.

2.2.4 Other types of energy efficiency services

Although other types of energy efficiency services can be found in the Spanish market, they usually are one of the two contracts mentioned above and consequently have no significant quota. For that reason, this report will focus only on the EPC and ESC models.

2.2.5 Market actors

The main actors operating on the EES markets are the EES providers, clients and project facilitators.

Within the QualitEE project, we use the EED's definition of energy service provider:

- ✔ "An '**energy service provider**' is a natural or legal person who delivers energy services³ or other energy efficiency improvement measures in a final customer's facility or premises."

We use the commonly used term "ESCO" as an equivalent of energy service provider. We also use the above-listed definitions to define the following terms:

- ✔ "An '**EPC provider**' is an energy service provider who delivers energy services in the form of EPC."
- ✔ "An '**ESC provider**' is an energy service provider who delivers energy services in the form of ESC."
- ✔ "A '**Client**' is any natural or legal person to whom an energy service provider delivers energy services."
- ✔ "An energy service project '**Facilitator**' is an advisory company working on behalf of the client to procure and/or implement an energy service." In the QualitEE project we use the shorter term "facilitator" to denote an energy service project facilitator.

2.3 Sources of data and methodology

2.3.1 Sources of data

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

- ✔ the results of an EES survey conducted in Spain and across a further 14 European countries;
- ✔ a literature review (publications and studies, legislative documents, official statistics and databases) and the market knowledge of Creara's team based on 15 years of implementing EES projects and supporting EES market.

³ According to the EED: "An 'energy service' means 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."

2.3.2 Survey and interviews

To collect the data used in this document, the market actors have been approached in the following manner:

- ✔ an online questionnaire was distributed to the country's most relevant EES providers and facilitators;
- ✔ personal semi-structured interviews have been conducted with financial institutions and client organisations implementing EES projects.

The market and quality survey, which focused on energy efficiency services, gave the stakeholders an opportunity to provide their input and steer the development of quality assurance. The surveys and interviews contained questions about the EES market, barriers and success factors, EES quality determinants, minimum financial information requirements for financial institutions and certification frameworks, as well as EES-related legal, political and institutional frameworks. The answers were then analysed and the results are presented in this report in aggregated form.

There were 12 respondents to the online survey in Spain:

- ✔ Nine representatives of ESCOs operate the EPC market;
- ✔ Seven representatives of ESCOs operate the ESC market;
- ✔ Four representatives of EES facilitators, where one operates on the EPC market only, two operate on the ESC market only and one on both the EPC and ESC markets.

In addition, there are six respondents to the personal interviews:

- ✔ Three representatives of finance houses, which are mostly the main sources of bank credits for the EPC projects in Spain;
- ✔ Three EES clients.

Throughout this study the results from the online survey in Spain are compared with the results from the online survey across **All Countries** that responded. In total, there were 188 respondents to the online survey across **these countries**:

- ✔ Respondents operate in 15 European Countries; Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Italy, Latvia, the Netherlands, Portugal, Slovakia, Slovenia, Spain and the UK.
- ✔ Respondents include 109 representatives of ESCOs, where 53 of them operate on the EPC market only, and 11 operate on the ESC market only and 45 on both the EPC and ESC markets.
- ✔ Respondents include 79 representatives of EES facilitators, where 37 of them operate on the EPC market only, and 17 operate on the ESC market only and 25 on both the EPC and ESC markets.

Note - Full results from the QualitEE project's survey across 15 European countries - and trend analysis via comparison with previous surveys conducted in 2013 and 2015 by the Transparence project - can be explored through an interactive online navigation tool on the project website. (<https://qualitee.eu/market-research/>).

2.3.3 Literature and other sources of data

Apart from the surveys, the reports build on research from local and national literature (legislative documents, publications and studies, official statistics and databases) and the market knowledge of Creara' s team based on 15 years of implementing EES projects and supporting the EES market.

The key sources of information were national sources, such as:

- ✔ Publications by the Ministry of Energy;
- ✔ Publications by the Ministry of Economy;
- ✔ Publications by OMIE.

The report also builds on the data and information gathered primarily by the Transparens project and projects run in parallel (EPC+, GuarantEE, Trust EPC South). In addition, it used data from the Status Reports on Energy Service Companies Market in Europe and on Practices and Opportunities for EPC in the public sector in EU Member States, both by JRC.

3 LEGAL AND REGULATORY FRAMEWORKS

3.1 Key governmental institutions

In Spain, energy is competence of the Ministry of Energy, Tourism and Digital Agenda. Within this Ministry, energy competences are under the Secretariat of State of Energy.

Besides, there are different autonomous public bodies with energy competencies attached to the Ministry:

- ✔ **Institute for Restructuring of Coal Mining and Alternative Development of Mining Regions (IRMC):** manages the aid schemes for coal mining and the alternative development of mining areas.
- ✔ **Institute for Diversification and Energy Saving (IDAE):** it seeks the improvement of energy efficiency, renewable energies and other low carbon technologies. It is the national energy agency.
- ✔ **ENERAGEN:** its aim is strengthening the role of the Agencies and public organisms for Energy Management as well as serving as an instrument for the cooperation and coordination between them in Spain.
- ✔ **ENRESA:** responsible for radioactive wastes in Spain.
- ✔ **CORES:** guarantees the supply of oil products, LPG and natural gas in Spain.

3.2 Implementation of the EU Energy Efficiency Directive

Directive 2012/27/EU on energy efficiency (EED) establishes a common framework of measures for the promotion of energy efficiency within the EU to ensure the achievement of its 2020 20% headline target on energy efficiency.

Article 18 of the EED also imposes obligations on Member States to support the energy services market. In Spain, the obligations transposed so far are mentioned below, in chapter 3.6.

The more relevant Spanish law transposing the European Directive is the RD 56/2016, regarding energy audits, accreditation of service providers and energy auditors and promotion of energy supply efficiency. The Royal Decree establishes a regulatory framework that develops and promotes actions aimed at improving the energy efficiency of an organization, the promotion of energy savings and the reduction of emissions of greenhouse gases that contribute to the objectives of the Union on energy efficiency.

One of the most important obligations imposed by the RD 56/2016 for large enterprises is to carry out energy audits every four years. Even though there is no official data about how many

companies or facilities have been audited, the national association A3E published a market research⁴ with very interesting results:

- ✔ About 1,300 companies or **34% of large enterprises** in Spain have not complied with the obligation yet.
- ✔ **Only the 6%** of the companies audited were public companies, which indicates the lack of awareness by the Public Administration.
- ✔ Due to the publication of the RD and therefore the imposition of this obligation, **89% of energy services providers have increased their incomes by 17%**, and 59% of them have increased their staff.

3.3 National strategy documents

3.3.1 National Energy Efficiency Action Plan

The 2017-2020 National Energy Efficiency Action Plan meets the requirements established by the Directive 2012/27/EU on energy efficiency. The first National Energy Efficiency Action Plan was approved in 2014 and since then it has been revised every three years.

The Spanish Energy Efficiency Plan is structured in four different chapters:

- ✔ **Introduction.** Objectives and structure of the plan are presented.
- ✔ **Analysis of energy consumption and intensity in Spain**, and benchmarking with the rest of European countries.
- ✔ The third chapter explains the **energy efficiency targets** imposed by Article 7 of the Directive, and analyses the achievement of said targets.
- ✔ In the last chapter, **concrete measures implemented** in different sectors, such as buildings, public bodies or the industrial sector, are detailed as well as budgets allocated to the implementation of said measures.

The 2017-2020 Spanish Energy Efficiency Action Plan is available in the next link:

<https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive/national-energy-efficiency-action-plans>

3.3.2 Energy in Spain - Report

Every year, the report about the energy balance in Spain is updated by the Ministry of Energy, Tourism and Digital Agenda and the last available version is from 2015. This document overviews the international situation of the energy sector and focuses on some aspects of the national market, such as energy demand.

⁴ A3E, 2017. <http://www.asociacion3e.org/documento/las-auditorias-energeticas-realizadas-podrian-generar-inversiones-en-eficiencia-energetica-en-mas-de-1-200-grandes-empresas>

In the following chapters of the report, a comprehensive analysis of each of the energy sources is done. There is one chapter specifically dedicated to energy efficiency, cogeneration and renewable energies.

Regarding the energy efficiency field, there is a detailed study about primary energy (production, intensity, evolution, European benchmarking), as well as an exhaustive analysis with special focus on the industry and transportation sectors. Residential, tertiary and primary sectors are also studied in one common subchapter.

Energy in Spain Report is available in the next link:

<http://www.minetad.gob.es/energia/balances/Balances/Paginas/Balances.aspx>

3.4 Standardisation for energy efficiency services

Energy efficiency services are not widely standardised in Spain. No project implementation guidelines have been approved by any official body, so private entities execute projects under their own criterion.

A model document to be adopted exists, but in this aspect public and private sectors need to be studied separately:

- ✔ **If the EE service client is a public body**, then it is quite common to use the model contract designed by IDAE in cooperation with the Spanish Federation of Municipalities and Provinces (FEMP). Although it is not mandatory, the Public Administration usually asks for this contract model in the execution of private-public projects.

The proposal of the contract is available in Spanish in the next link:

http://www.idae.es/uploads/documentos/documentos_10704_Propuesta_modelo_contrato_serv_energ_07_59056bbe.pdf

- ✔ On the other hand, **if the EE service client is a private entity**, there is no contract model established. In this case, both parties negotiate and agree on terms and clauses to include in the contract. Nonetheless, ESCOs generally have their own contract model.

3.5 European Code of Conduct for EPC

The European Code of Conduct for EPC defines the basic values and principles that are considered fundamental for the successful preparation and implementation of EPC projects. The Code of Conduct has been developed within the Intelligent Energy Europe project Transparens in cooperation with EPC providers, clients and European ESCO associations, among others. The two organisations representing ESCOs at a European level – the European Association of Energy Service Companies (eu.esco) and the European Federation of Intelligent Energy Efficiency Services (EFIEES) – endorse the European Code of Conduct for EPC and support its use when implementing EPC projects and continue in administering and maintaining the Code of Conduct. By the end of October 2017, the Code of Conduct had 234

signatories across Europe. This includes 148 EPC providers, 13 national associations (with 160 members in total), two European associations of ESCOs and 70 facilitators and other signatories. The European administrators organise regular conference calls with national administrators to exchange information about regulatory developments and new projects.

It is expected that the European Code of Conduct for EPC will serve as a harmonised European quality standard of EPC projects, raise potential clients' confidence in the business model and thus lead to higher demand for EPC projects.

The list of the Code signatories is available online and promoted within eu.esco and EFIEES activities (press releases, articles, national and international events). EPC providers who become signatories of the EPC Code commit to conduct EPC projects in compliance with the EPC Code of Conduct. It is a voluntary pledge of the EPC providers and is not legally binding.





The Code has vast potential to support EPC market development, which can be exploited. For example, it has been used as a discussion guideline between client and EPC provider, guidance for the preparation of tender dossiers and contracts, and as a marketing tool. Within the QualitEE project, it is being used as a starting point for developing an energy service quality assurance scheme.

In Spain, the implementation of the Code of Conduct has been carried out by Escan, the Spanish partner in Transparens, within the framework of said project. According to its website, three associations and 19 companies (four EPC providers and 15 EPC facilitators) have signed and implemented the Code of Conduct in their business culture so far.

3.6 Support schemes

Article 18 of the EED imposes obligations on Member States to support the energy services market. In Spain, the following obligations have been transposed so far:

- ✔ Law 15/2012 established permanent tax mechanisms to send an adequate price signal to the final energy consumers, in order to encourage the rational and efficient energy use.
- ✔ Annual contribution to the National Energy Efficiency Fund.
- ✔ Plan to Promote Mobility with Alternative Energy Vehicles (Plan Movea).
- ✔ Efficient Vehicle Incentive Programs (Plan Pive).
- ✔ The Investment Fund for Diversification and Energy Saving (FIDAE).
- ✔ Aid Programme to Improve the Energy Efficiency of Existing Buildings (PAREER-CRECE).
- ✔ Program to Promote Industrial Competitiveness.
- ✔ Climate Projects Program of the Carbon Fund for a Sustainable Economy (fes-co2).
- ✔ Aid programme for the renovation of municipal street lighting.
- ✔ Aid programme for energy efficiency measures in SMEs and large industrial enterprises.

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-  Aid programme for modal shift and more efficient use of transport modes.
 -  Aid programme to improve energy efficiency in railway systems.
 -  Aid programme to improve energy efficiency in desalination plants.
 -  Communication Campaign.

4 ENERGY PERFORMANCE CONTRACTING MARKET

4.1 EPC market actors

There are several important actors in the EPC market in Spain which can be assembled in four main groups: EPC providers and facilitators, clients, financial institutions and decision makers.

4.1.1 EPC providers and facilitators

This group includes any agent working on the energy efficiency field.

- ✔ **EPC providers:** they are energy service providers who deliver energy services in the form of EPC. The EPC provider bears the commercial and technical implementation and operation risks and guarantees the outcome and all-inclusive cost of services for the duration of the contract. It is important to create long-term partnership between the provider and the customer based on their common goals. Providers should also offer training on the new measures implemented for the customer's operational staff.
- ✔ **EPC facilitators:** they are usually consulting companies that assist the client on the preparation. Traditionally organisations start by engaging an energy consultant to identify opportunities for energy savings, ranging from operating practices, to maintenance, control and equipment investment.
- ✔ **National Associations:** EPC providers and/or facilitators usually create these associations with the aim of creating lobbies and keeping up to date with all the news of the sector. One of the most important national associations in Spain is A3E (www.asociacion3e.org), who is a national third-part of the QualitEE project and aims to scale up investments in energy efficiency services.

4.1.2 Clients

Clients are those who are interested in developing EE measures under the EPC business model, usually owners or tenants of facilities/premises. Within the QualitEE project, six different segments where clients usually come from have been considered and they are grouped in public and private sectors.

- ✔ **Private sector – Offices:** only includes private offices.
- ✔ **Private sector – Retail / leisure:** includes every establishment related to perishable (such as supermarkets) and non-perishable foods (clothes, home, appliances, shopping centres and other). It also includes establishments such as libraries, theatres or sport centres.
- ✔ **Private sector – Industrial:** includes any type of factory where manufacturing processes are carried out.

- ✔ **Public sector – Municipalities:** includes public projects on a local scope, such as public lighting street or district heating.
- ✔ **Public sector – Health sector:** includes hospitals, primary health centres and others.
- ✔ **Public sector – Education:** includes schools, universities and others.
- ✔ **Other:** includes those projects not covered by the rest of categories.

4.1.3 Financial institutions

A third party that finances the EPC provider, the customer, or a combination of both. In Spain there are different types of financial institutions:

- ✔ **Generalist banking:** those commercial banks with specific areas for financing energy efficiency businesses. For example, Santander or BBVA banks.
- ✔ **Ethical banking:** banks concerned with the social and environmental impacts of its investments and loans. They are not only conditioned by maximizing their profits and speculation. Some of these banks are Triodos Bank, Fiare or Colonya Caixa Pollença.
- ✔ **Specialized financial entities:** other institutions specialized in financing energy efficiency services. One example is SI Capital.
- ✔ **Crowdfunding platforms:** In recent years, some crowdfunding platforms have been developed in Spain in order to finance sustainable investments. The main one is ECrowd!

4.1.4 Decision makers

In this group, all public bodies that make decisions and contribute to the adoption of laws and policies related to the energy efficiency field are included. Some of these public bodies are the Government, IDAE or regional energy agencies, among others.

4.2 EPC market developments

There are plenty of small and medium enterprises in Spain working on the energy sector. According to IDAE, there are currently 1,238 companies registered as ESCOs. Their activities include engineering, installation or assembling. According to JRC's report on Energy Service Companies, 93% of Spanish firms are SMEs with under 250 employees and annual revenues lower than EUR 50 million.

Over the last five years, distributors and installers of renewable technologies (solar thermal and biomass mainly) have become ESCOs, seeking to diversify their activities and become more competitive in the market.

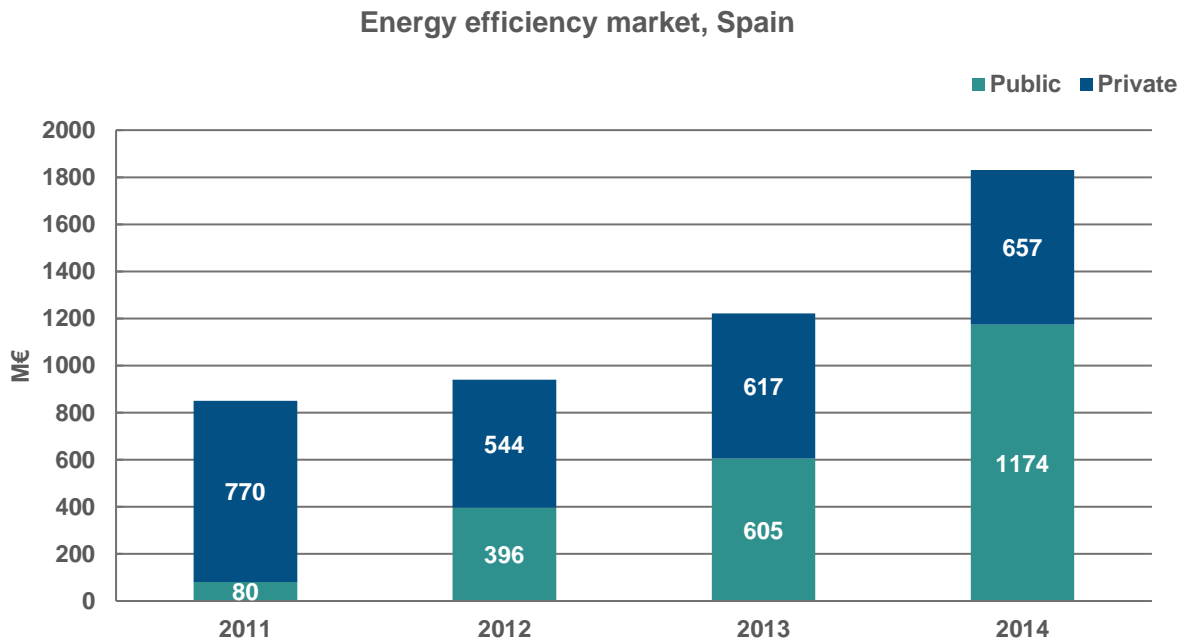
The remaining 7% companies are large enterprises, such as utilities and construction and multiservice companies. In 2012, 50% of market quota belonged to five of said companies since they have sufficient financial capacity to assume the investment needed in the long run.

In total, the sector may be worth almost one billion euros per year and is focused mostly on the public sector, which has grown in recent years and is expected to continue to do so.

The Energy Efficiency (EE) market in Spain was estimated for the Trust EPC South project as shown by

Figure 1. The information comes from a public database that compiles EE projects in the country; it includes energy performance contracts (EPC) in the public and private sector as well as the contracts developed in the industrial sector, but excludes energy supply contracts that do not develop other EE measures.

Figure 1. Estimation of the Energy Efficiency market volume

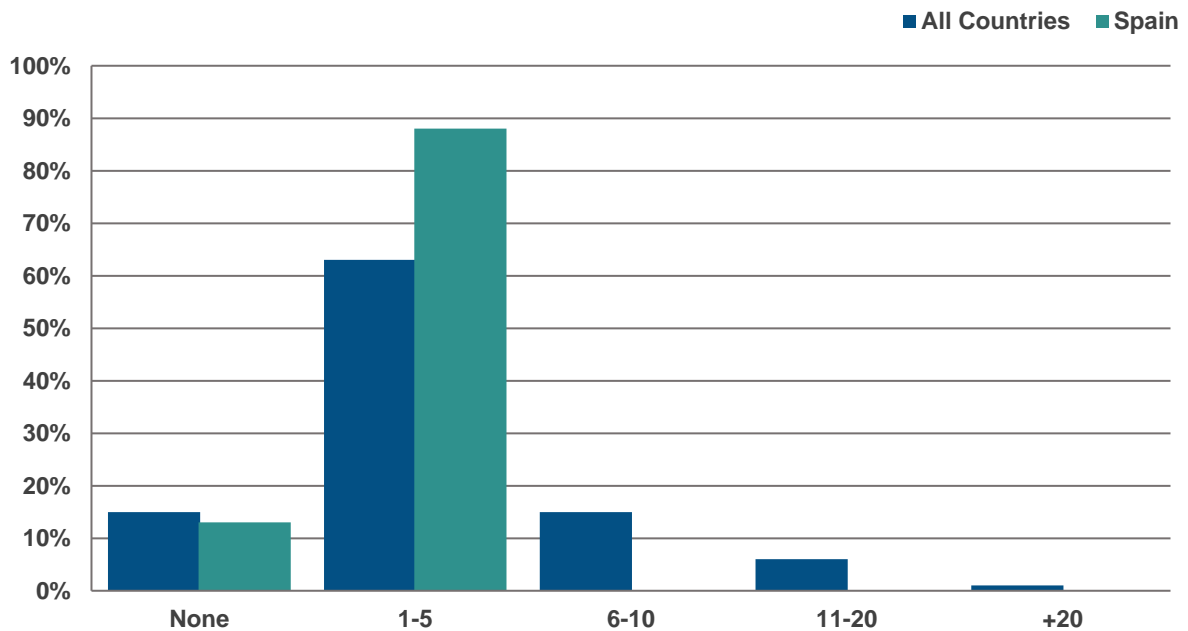


Source: Trust EPC South project

Within the QualitEE Project, a comprehensive survey at national level was conducted, where 12 EE services providers gave us their vision of the market. This survey was answered by 12 actors. Moreover, several financial institutions and customers of energy efficiency services were also interviewed to achieve a comprehensive analysis of the market.

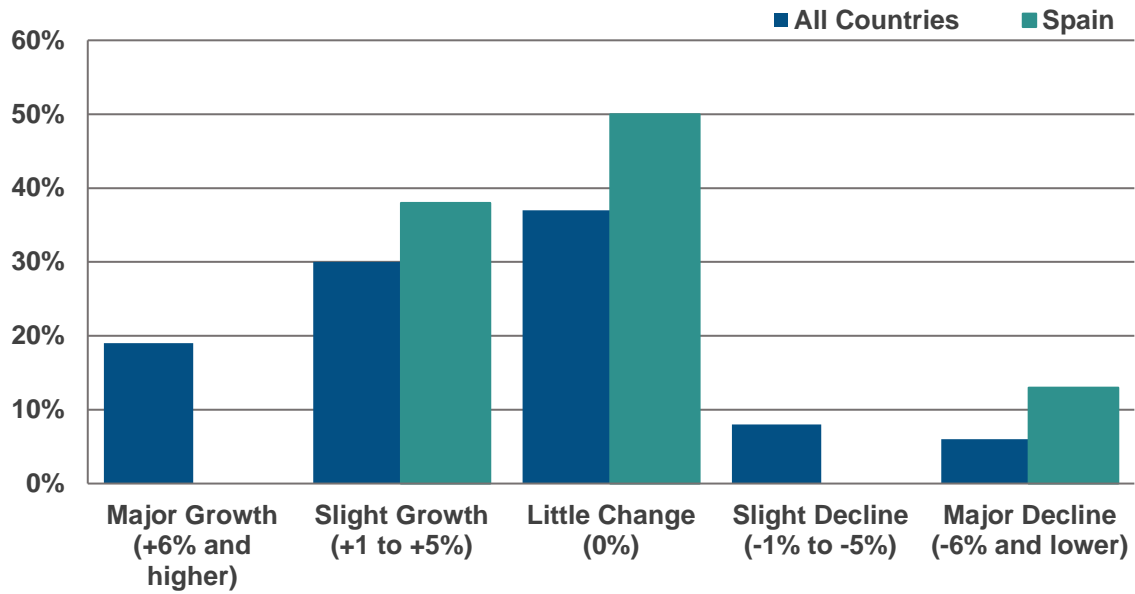
All the Spanish respondents were involved in either no EPC projects (13%) or one to five EPC projects (88 %) over the last 12 months. Similarly, 15% of respondents across All Countries in the survey carried out no EPC projects. However, according to the responses obtained from All Countries in the survey, over 20% of respondents were involved in six and more EPC projects.

Figure 2. How many EPC projects (that have reached Contract Signature) has your organization initiated / become involved with in the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



Half of respondents – EPC providers and facilitators – in Spain have not experienced significant change in EPC orders over the last year. Over 35% of respondents saw an increase in their orders, and the remaining 13% were exposed to a decline.

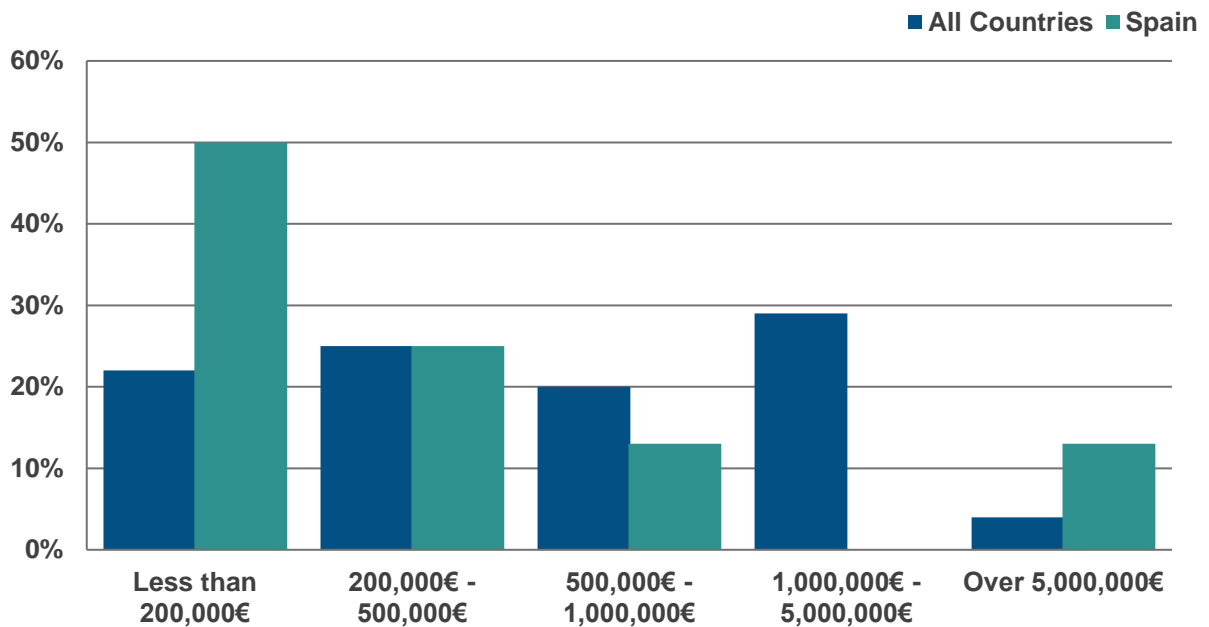
Figure 3. In the last 12 months, your EPC orders have seen (Percentage share of responses by providers and facilitators Sept 2017)



In Spain, 50% of respondents reported that the most common overall value of the EPC projects is lower than EUR 200,000 which is considerably higher than across the All Countries dataset (22%). Due to the lack of trust in ESCO industry, financial institutions commonly refuse to invest in significant projects. They usually prefer small projects which do not imply a high risk in case of something goes wrong.

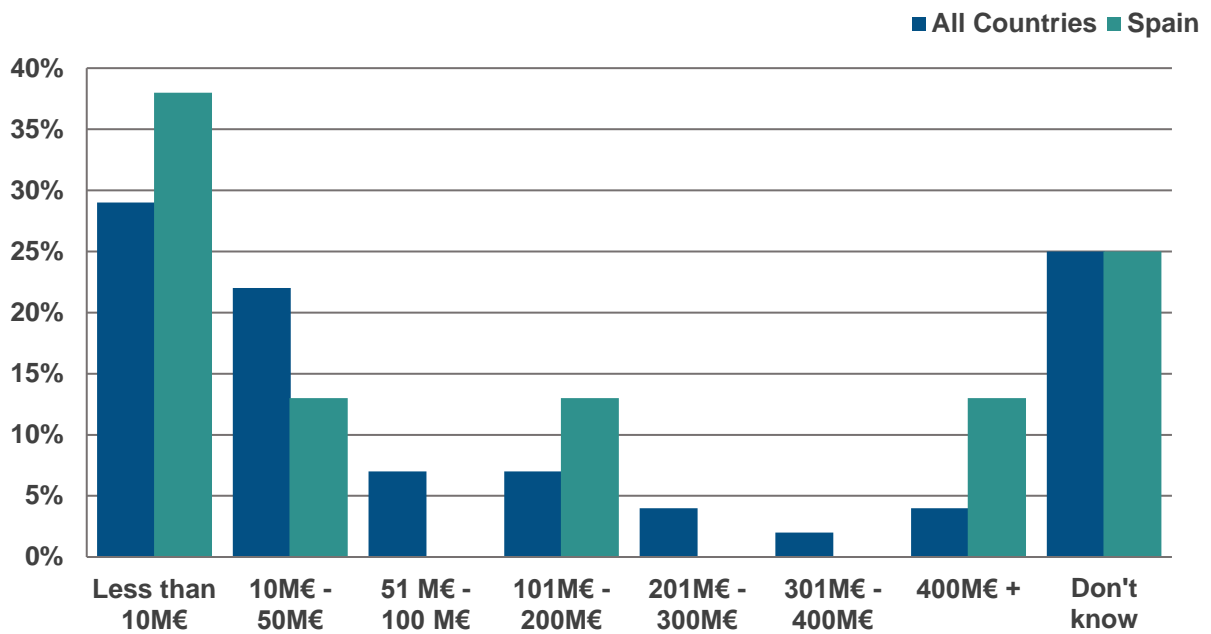
On the other hand, 13% of projects in Spain have a value over five million euros. These projects are usually performed on the facilities of big companies, so the client credit-worthiness is considered as not risky and financial institutions are willing to finance them.

Figure 4. What is the most common overall value (investment outlay) of the EPC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



Similarly to the situation across All Countries in the survey, around half of Spanish respondents think the EPC market generated less than EUR 50 million of revenue in Spain. However, 13% of respondents believe the revenues generated are over EUR 400 million, three times more than the answers obtained from respondents across All Countries.

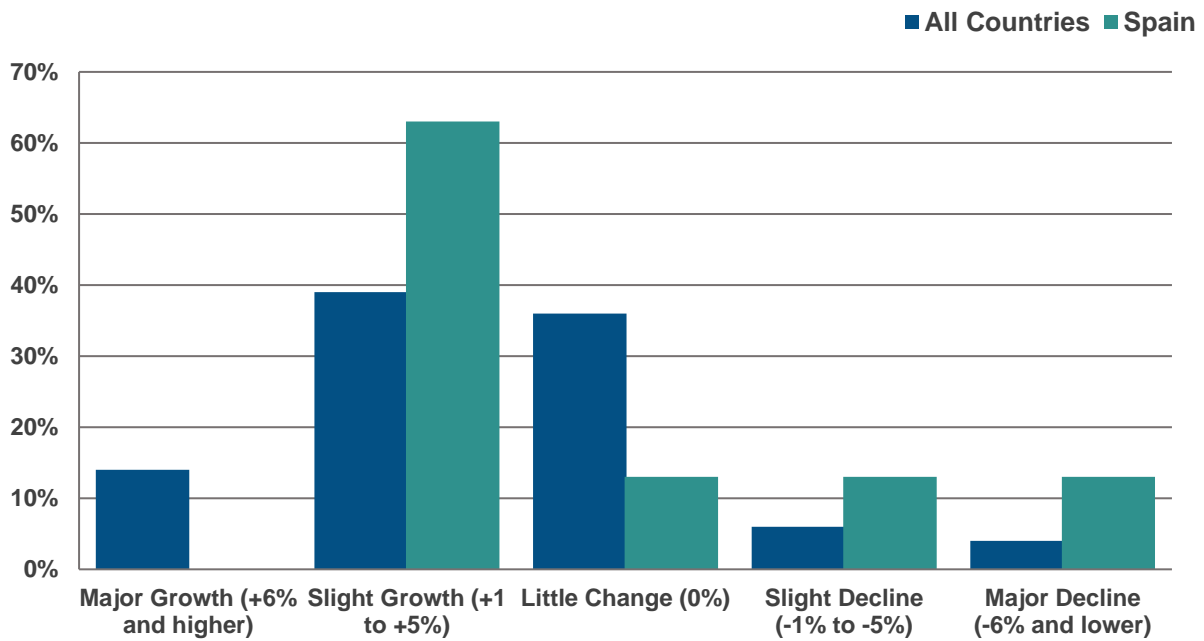
Figure 5. How much revenue do you think the EPC market in your country generated in 2016? (Percentage share of responses by providers and facilitators Sept 2017)



More than 60% of respondents consider that the Spanish EPC market has slightly grown in 2017, even though half of respondents did not experience any change in EPC orders according to Figure 3.

Spanish EPC providers and facilitators seem to be more pessimistic than the respondents across All Countries in the survey. In this sense, 26% of respondents think that EPC market is declining in Spain, which is higher than 10% according to the responses from the All Countries dataset.

Figure 6. Over the last 12 months, the market for EPC in your country has seen (percentage share of responses by providers and facilitators Sept 2017):

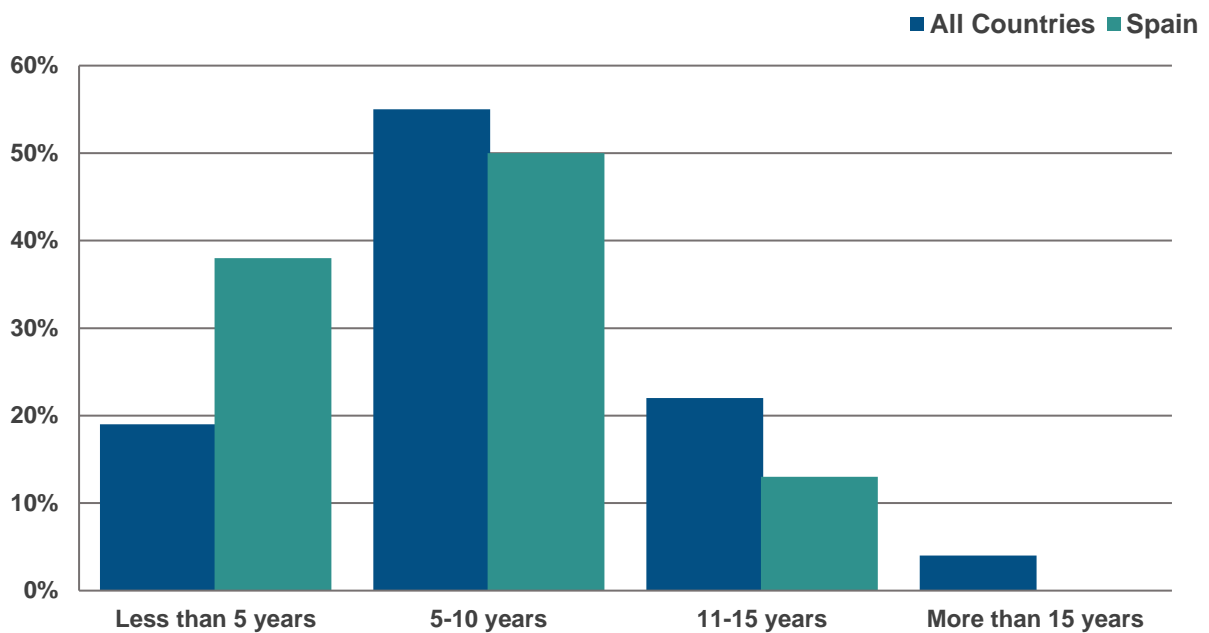


4.3 EPC business models

In Spain, 38% of respondents signed EPC contracts with a duration lower than five years, 20 points above the average of the All Countries dataset. Half of respondents signed five to 10-year contracts. According to the responses, there is no EPC contract longer than 15 years in Spain.

This is explained again by the lack of trust in the ESCO industry by financial institutions, and their unwillingness to finance long-term contracts. One of the financial institution interviewed stated that they consider that long-term EE projects are very highly risky operations, and are not willing to finance them. This also explains why a single EPC project with a duration over the 15 years has not been identified.

Figure 7. What is the most common duration of the Energy Performance Contracts you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



Respondents in Spain indicated that shared savings models are prevalent, with 75% of ESCOs using such model. Half of the Spanish respondents employed solely shared savings model, while quarter of Spanish respondents used solely the guaranteed savings model. This is in stark contrast to the general situation in All Countries in the survey, where 80% of respondents use guaranteed savings model. This is either in all the EPC projects (50%) or in some of the EPC projects they implement (30%).

The shared savings model is a good introductory business model in developing markets, while the guaranteed savings model usually functions properly in countries with a well-established banking structure, high familiarity with project financing and sufficient technical expertise.

Hence, regarding the responses it can be concluded that the Spanish market is currently in a developing phase for this type of services. Even though there is a well-established banking structure and high familiarity with project financing, there is not technical expertise within the financial sector to assess energy efficiency projects.

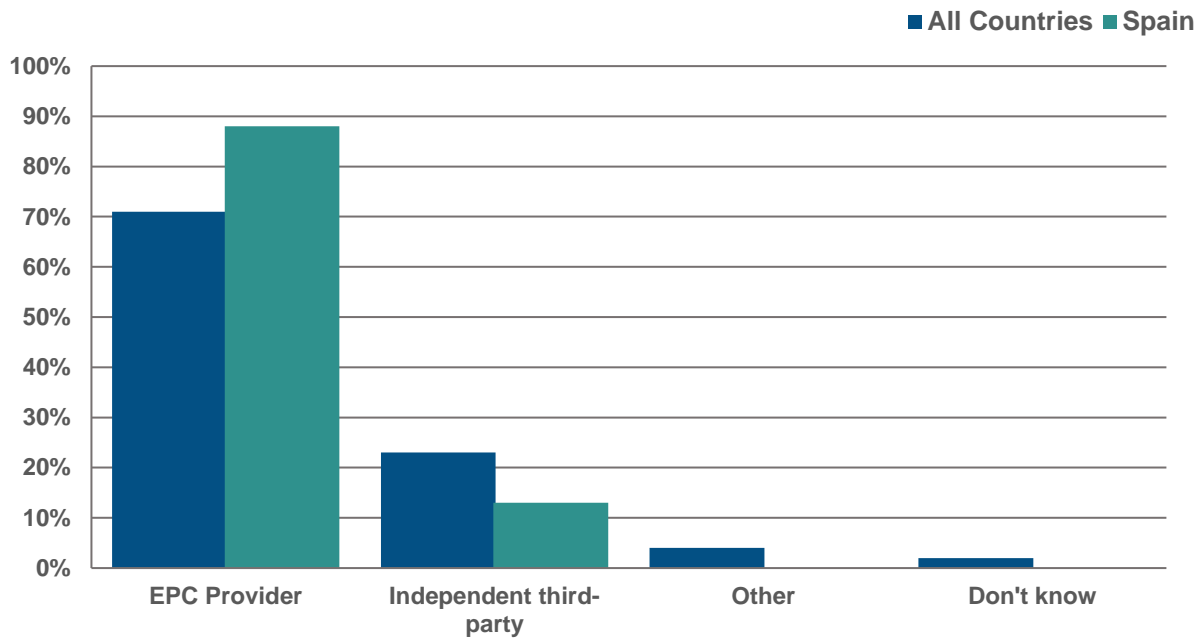
Figure 8. What type of energy savings model is offered in the EPC projects you are involved in? (percentage share of responses by providers and facilitators Sept 2017)



Note: in a shared savings model, the client pays the ESCO a pre-determined percentage of its achieved cost savings from the project

Most Spanish respondents highlighted that the EPC provider is typically responsible for energy savings performance analysis (often referred to as measurement & verification or M&V), which is almost 20 points above to the average across All Countries.

Figure 9. Who typically delivers the energy savings performance analysis in the EPC projects you are involved with? (percentage share of responses by providers and facilitators Sept 2017)

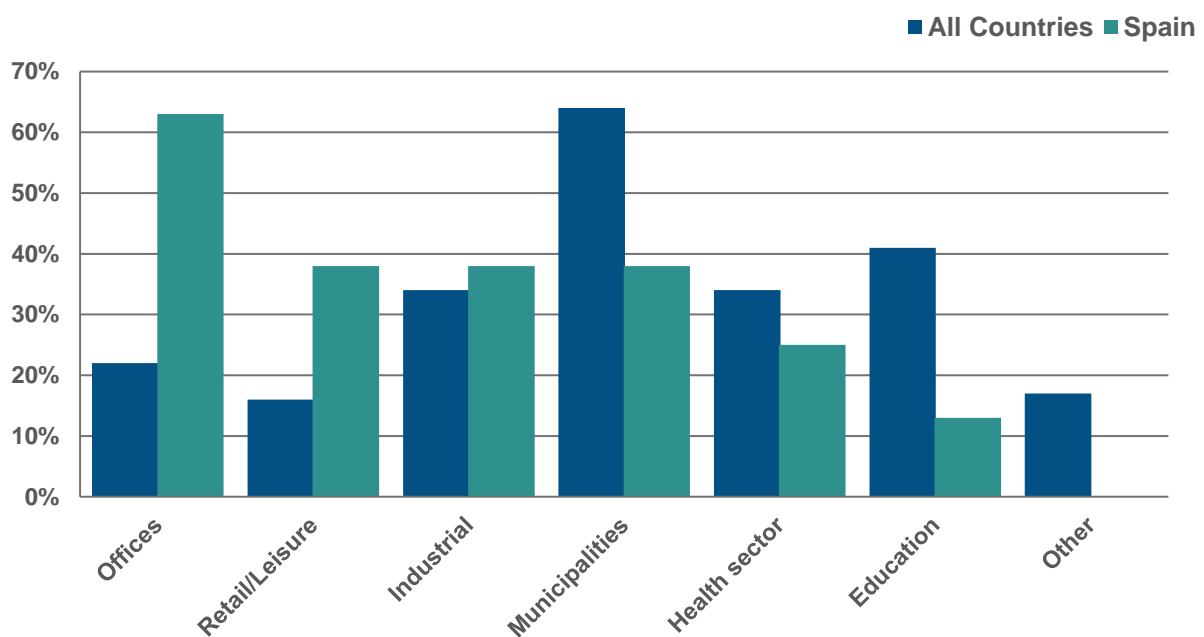


4.4 EPC market sectors

ESCOs have increased their activities on the public administration and private sector business niches in Spain in recent years.

Regarding the private sector (which includes offices, retail/leisure and industrial), the EPC contract model is preferred over other alternatives and its application is more relevant in Spain than across All Countries in the survey. Over 60% of respondents have performed EPC services in offices. On the other hand, the public sector (especially municipalities, but also health and education segments) does not have as much presence in the EPC Spanish client portfolio similar to the situation in All Countries, as reported by their responses.

Figure 10. Which sectors do your EPC clients generally come from? (Percentage share of responses by providers and facilitators Sept 2017)



Precisely ENERAGEN published in January 2016 a comprehensive research on the EPC projects tendering processes within the public sector from 2009 to 2014⁵. Most of the tenders during this period have municipal scope, as seen in the figure below. Tenders with regional scope are formed either by Autonomous Regions or by two or more municipalities grouped for the same public tender.

⁵ ENERAGEN, (01/2016), Las licitaciones de servicios energéticos (EPC) en el sector público.

<http://www.famp.es/export/sites/famp/.galleries/documentos-lab-eficiencia-energetica/DOCUMENTO-21.pdf>

Among the total of projects, 45% are dedicated to public lighting and all of these have a municipal scope. The other technologies tendered are renovation of buildings, both lighting and renovation of buildings and installation of biomass.

To sum up, the public-sector demand in Spain is low compared to the All Countries dataset and in line with the results obtained in the ENERAGEN research. Considering that a new UNE norm will be passed shortly as commented in the section 7.1.2, a growth of the public-sector demand is expected to happen in the next few years. This increase represents a business opportunity for market players.

Figure 11. Public EPC tendering processes from 2009 to 2014

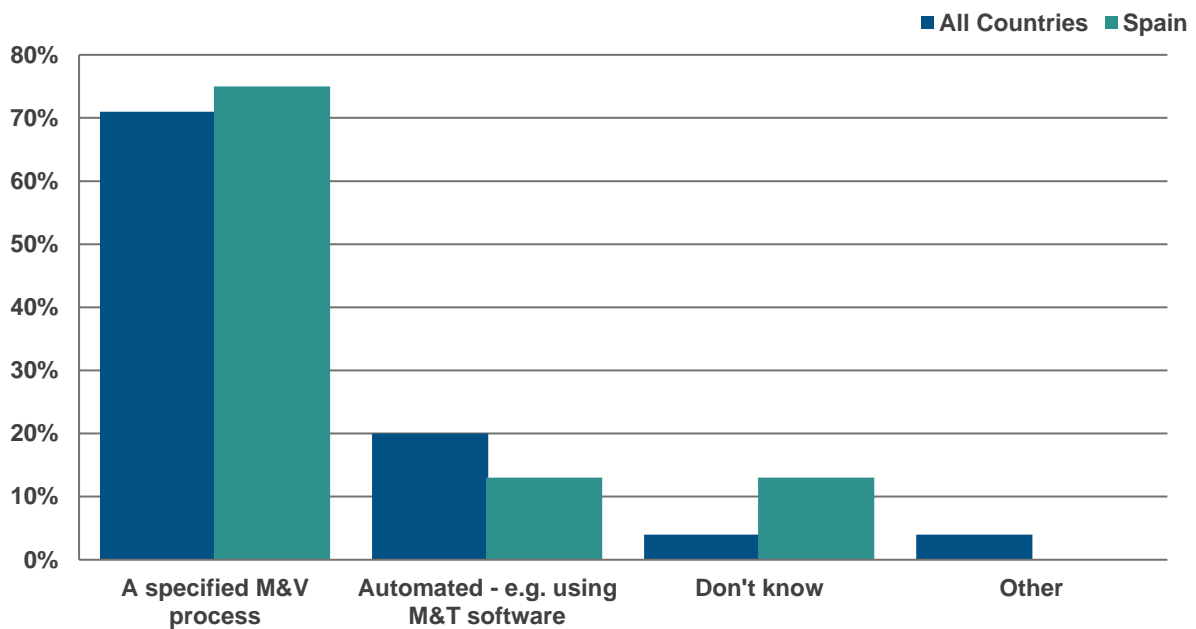


Source: ENERAGEN

4.5 EPC measurement & verification

A specified M&V process to measure and quantify energy savings is used by 75% of respondents. This percentage is in line with the dataset obtained from the responses given by All Countries surveyed. Surprisingly, over 10% of Spanish respondents don't know what system their company uses in the process of measurement and verification.

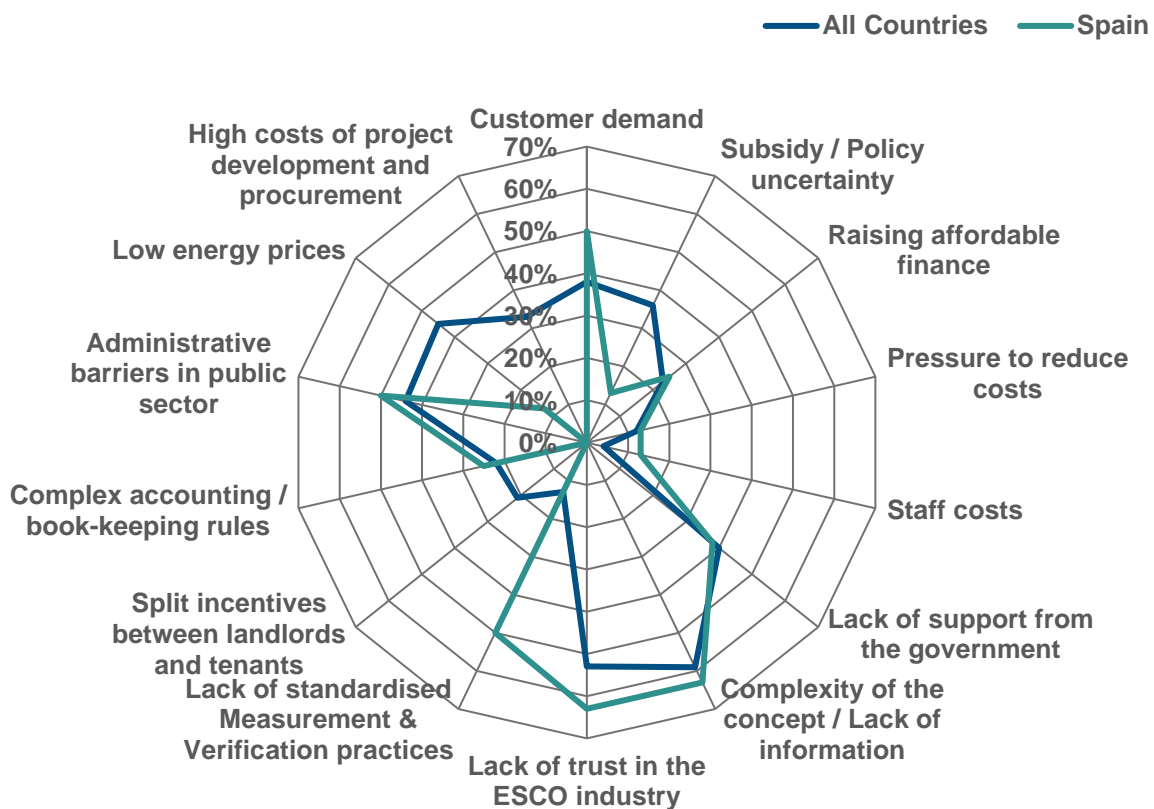
Figure 12. How is the energy saving performance of the EPC projects you are involved with typically measured and quantified? (Percentage share of responses by providers and facilitators Sept 2017)



4.6 EPC market barriers

Market barriers identified by QualitEE in the market research are presented below in figure 13. In general, the main barriers are associated with the existing lack of trust and information in the ESCO industry.

Figure 13. What are the main barriers to EPC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



The biggest difference between data from Spain and the All Countries dataset is the lack of standardised measurement and verification practices. While this topic is not considered as a relevant barrier in the rest of countries, half of the Spanish respondents have recognized it as such.

On the other hand, low energy prices are not contemplated as a barrier in Spain, in contrast to the answers given in All Countries. On the contrary, the severe energy cost increase experienced in the country over recent years is triggering the interest in the EPC business model for private customers.

Beside all the barriers presented in the survey template, long project development times also represent a challenge as reported in qualitative interviews carried out as part of this research.

Projects with a return on investment (commonly known as ROI) higher than two years are seen as very risky projects, and clients might not be willing to assume these costs.

4.6.1 Regulatory and administrative barriers

Administrative barriers in the public sector are recognized as relevant by half of the respondents in Spain.

- ✔ In general, Spain is highly inefficient in the process of decision-making, especially regarding municipalities. Furthermore, public procurement processes are lengthy and inefficient and the public accounting systems are not designed to incorporate energy cost savings.
- ✔ Another key barrier identified for the public sector is the financial constraint imposed to municipalities and other public bodies.

4.6.2 Structural barriers

There are some structural barriers in the Spanish market that restrain the increase of EPC.

- ✔ Lack of trust in the ESCO industry, which is perceived as highly technical and risky, with long term projects.
- ✔ Lack of information.
- ✔ The lack of trust and information cause the customer demand to remain low.
- ✔ Lack of standardised M&V practices.

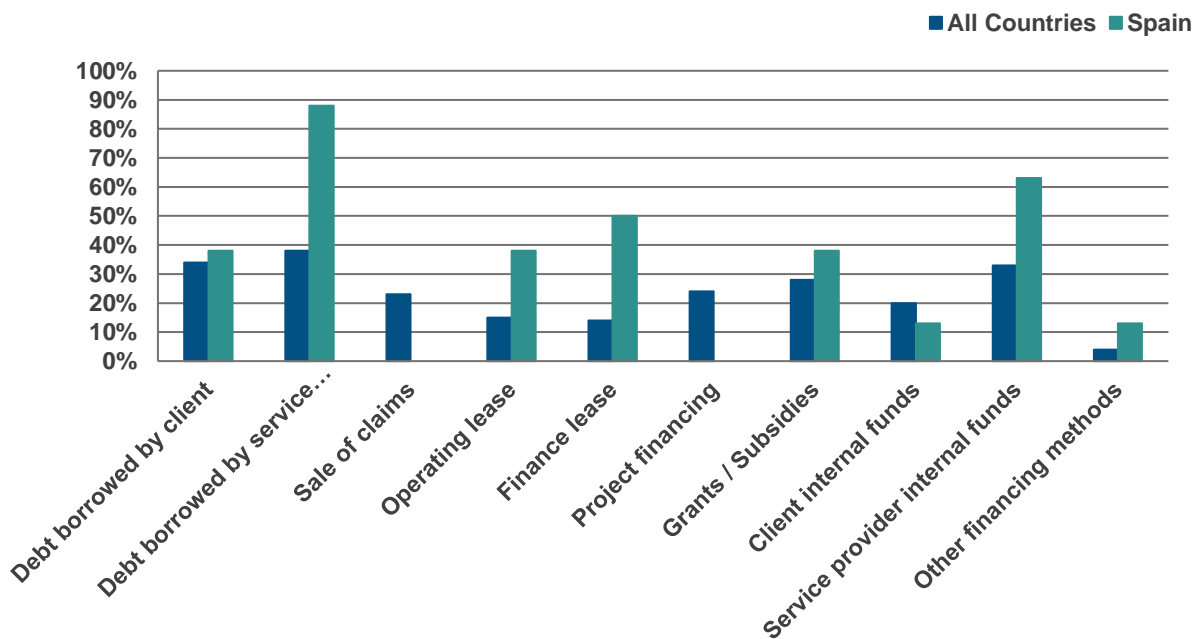
4.6.3 Financial barriers

Financial institutions have not developed any financing scheme adapted neither to ESCOs nor ESCO projects. Usually ESCOs deal with their own financing or borrow on-balance debt, which is unsustainable in the long-term.

4.7 EPC financing

As previously mentioned, the main EPC financing sources in Spain are borrowing debt and service provider own-financing. According to the survey, almost 90% of EPC provider respondents finance their projects by borrowing debt. This percentage is significantly higher - 50 points- than the percentage for the rest of countries surveyed.

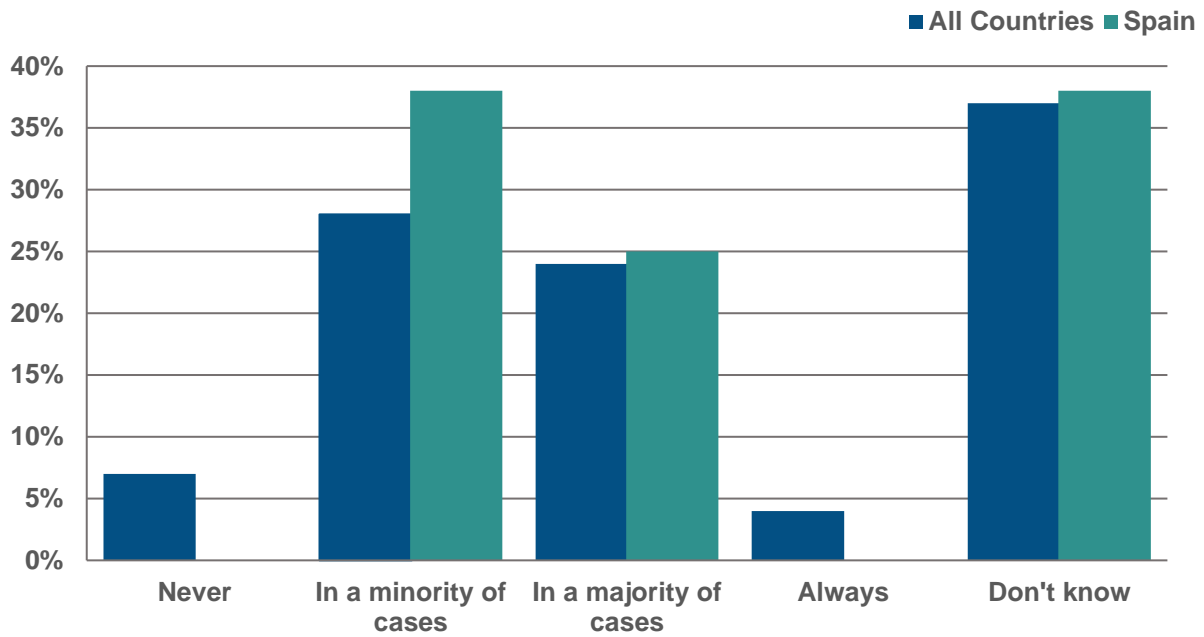
Figure 14. How are the EPC projects you are involved with financed?



On the other hand, over 60% of EPC provider respondents have financed their projects with internal funds. Again, this value almost doubles the average of the rest of the countries analysed. Another source of financing for EPC projects identified in Spain is the Special Vehicle Purpose or SPV, which is included in other financing methods. This figure is presented in more detail below.

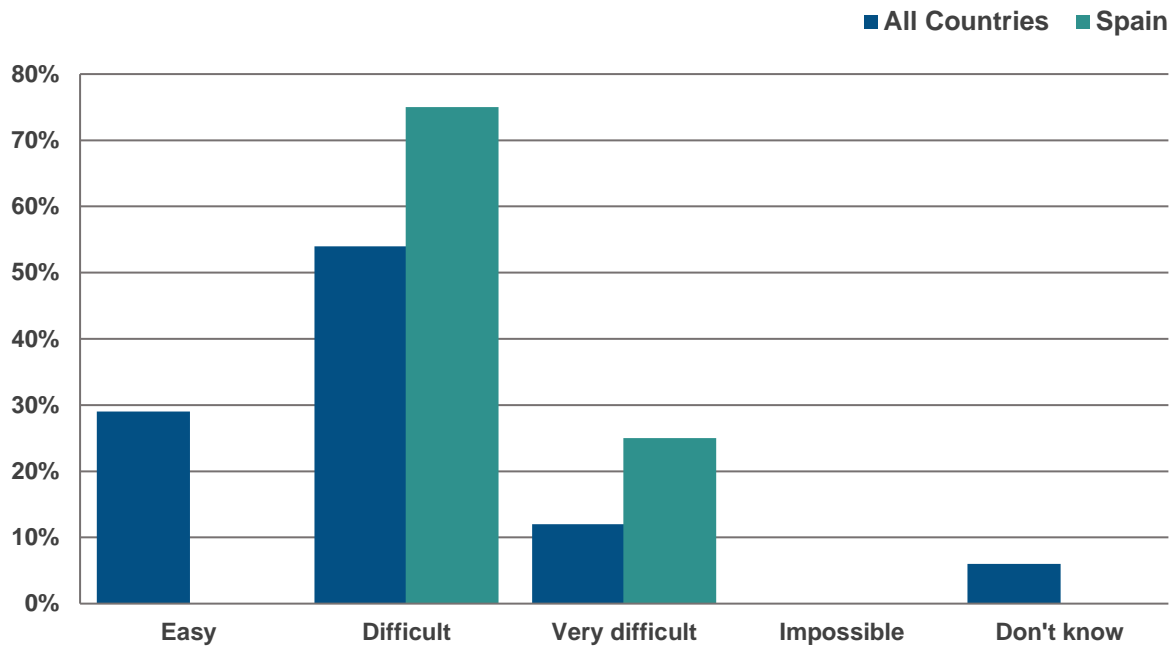
Although 63% of respondents recognize the possibility of using sale of claims as a source of financing for EPC projects, none stated to have financed their projects with it. Hence, we can conclude that EPC providers do not see the sale of claims as an effective financial method.

Figure 15. From your experiences, is the sale of claims (sale of receivables) accepted as the main collateral for EPC projects?



As previously mentioned, some financial barriers can be found in the Spanish EPC market. This issue is also reflected in the result of the survey, where all the respondents consider it difficult or very difficult to find viable finance for an EPC project.

Figure 16. Overall, do you consider that obtaining viable finance for an EPC project is:



Depending on the features of a specific project, different financing possibilities can be found in Spain:

4.7.1 ESCO financing

- ✔ Debt borrowed by the service provider: according to the survey, it is the most extended method in Spain. In this financing scheme, an ESCO assumes the risk of the project. Debt borrowed is more suitable for big companies as it is limited to the equity of the ESCO, contributing to the large market rate of medium and large companies previously pointed.
- ✔ Leasing is another way of financing and Both, operating and financial leasing, are used by 38% and 50% of the respondents respectively. The main difference between them is that while for operating leasing the lessee has the right to use an asset but it is accounted off-balance, in the financial leasing the asset is included on-balance.

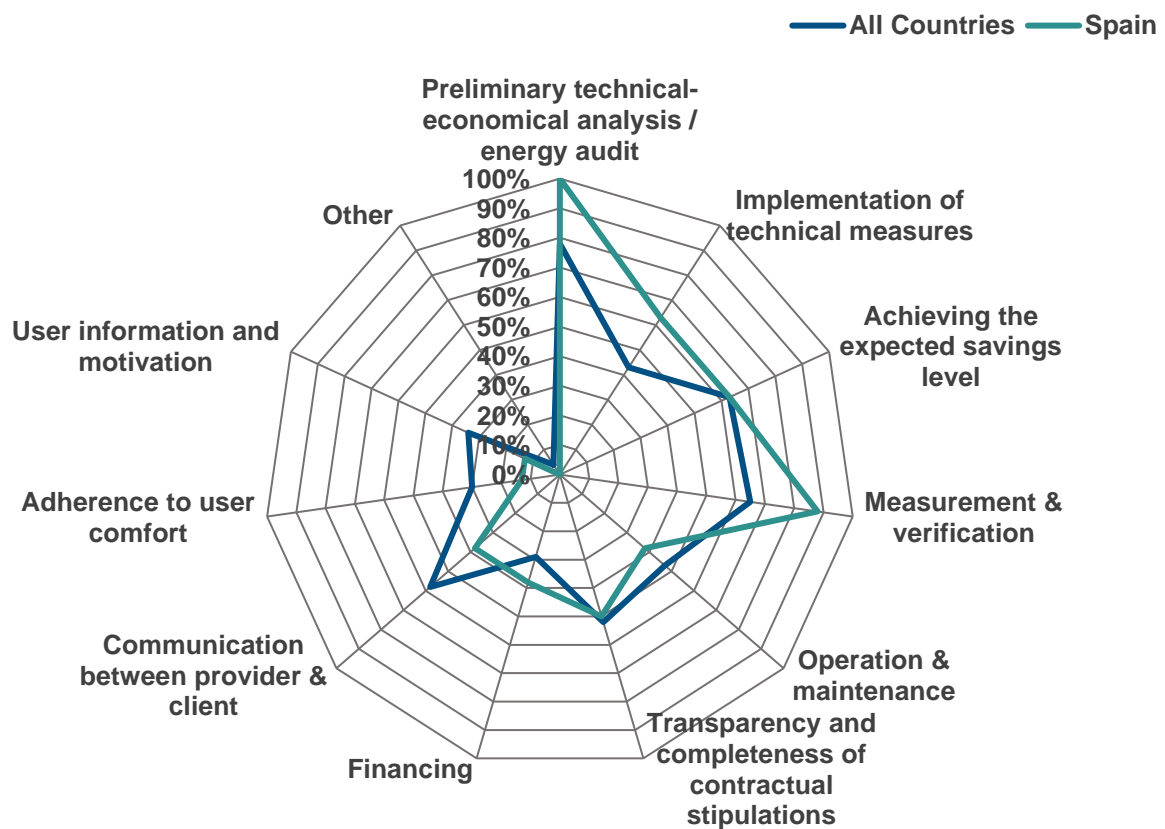
4.7.2 Special Purpose Vehicle (SPV)

✔ Other financing methods among which the Special Purpose Vehicle stands out are used by 13% of respondents. In this scheme, the ESCO is not properly financed. Instead, a newly-formed separate entity is set up for EE projects. This entity is usually created by the ESCO as well as other possible actors such as the customer, an energy utility, a public or international bank/funds, etc. The new company finances its projects isolating the risk.

4.8 EPC quality determinants

According to the answers from all the respondents, the most important determinant of quality in EPC projects is undoubtedly the preliminary technical-economic analysis and the energy audit required for any EE service. This issue, together with measurement and verification, are both by far the key quality aspects in Spain. The two processes imply an objective methodology of measurement in different stages of the project: before and after the implementation of energy efficiency measures.

Figure 17. What are the most important determinants of quality in EPC projects?

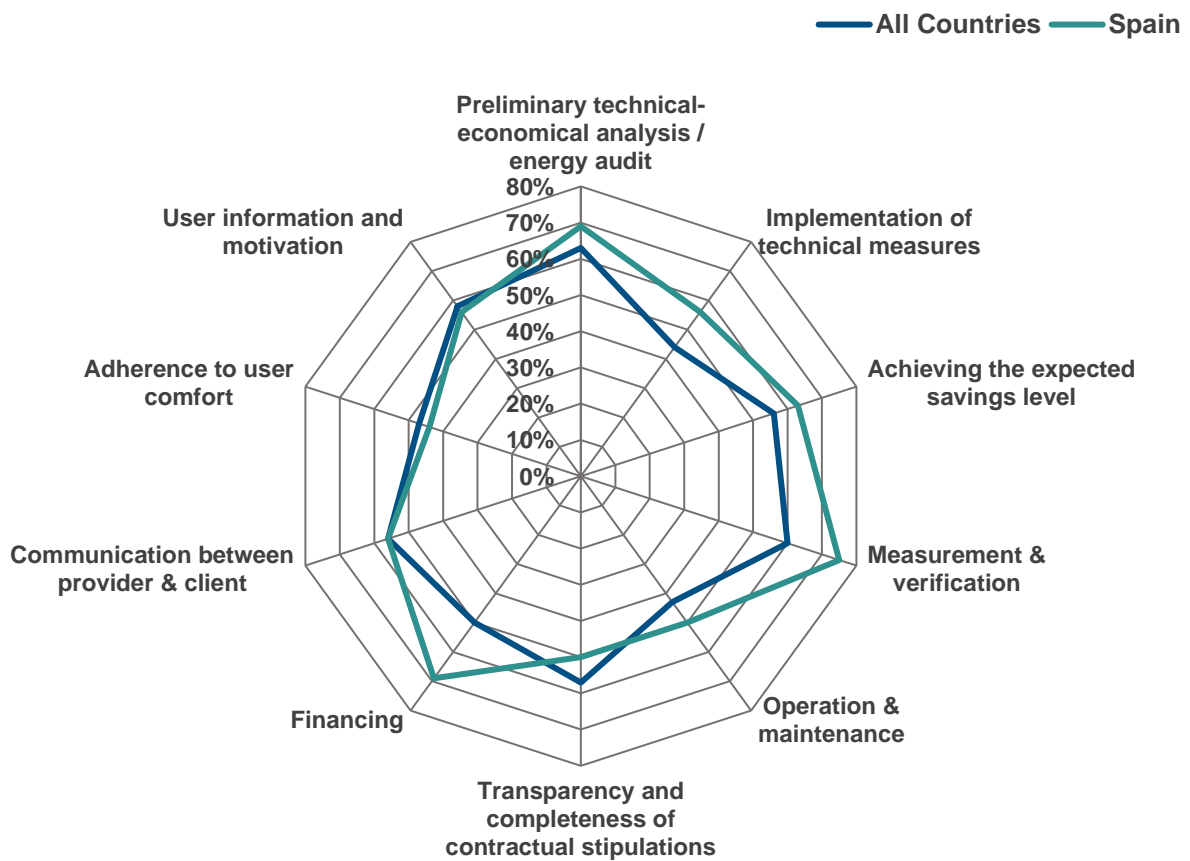


As reflected by figure 18, quality in EPC project preparation and implementation needs to be improved in almost all areas. In fact, quality of Spanish projects is lower compared to the All Countries dataset, according to the answers given by the respondents.

Seventy five percent of respondents agree that the quality in the process of measurement and verification needs to be improved. The preliminary technical-economic analysis and financing also need to be enhanced, according to the opinion of 69% of respondents.

If we compare figures 17 and 18 the two aspects considered as the most relevant to determine the quality of an EPC project in Spain need to be improved. Thereby, we can conclude that the lack of quality in EPC projects is likely an important barrier in providers and facilitators' opinion.

Figure 18. In which areas are quality improvement most needed in EPC project preparation and implementation? (Indicator based on rating scale as described in note below - Sept 2017)



Note: respondents were asked to rank each determinant using the following options 'not needed', 'needed', 'strongly needed' and 'don't know'. An indicator was created by assigning a weighting of 0%, 50% & 100% to 'not needed', 'needed' & 'strongly needed' respectively and dividing by the number of responses. Where 'don't know' was selected this was excluded from the calculation of the indicator.

5 ENERGY SUPPLY CONTRACTING MARKET

5.1 ESC market actors

The actors involved in the ESC market in Spain are:

5.1.1 ESC providers and facilitators

This group includes:

- ✔ **ESC providers:** they are energy providers. They usually are owners of renewable energy assets. They have energy sources and technical knowledge, but sometimes don't have a client portfolio.
- ✔ **ESC facilitators:** Facilitators usually have a broader knowledge of the market and put providers and clients in contact. They also can collaborate in the scheme by drafting the contract and giving technical advice to the client.

5.1.2 Clients

Clients are usually big companies that require large energy consumption or public bodies such as municipalities. Sometimes, they sign this type of contracts to establish fixed prices therefore avoiding the volatility of energy prices.

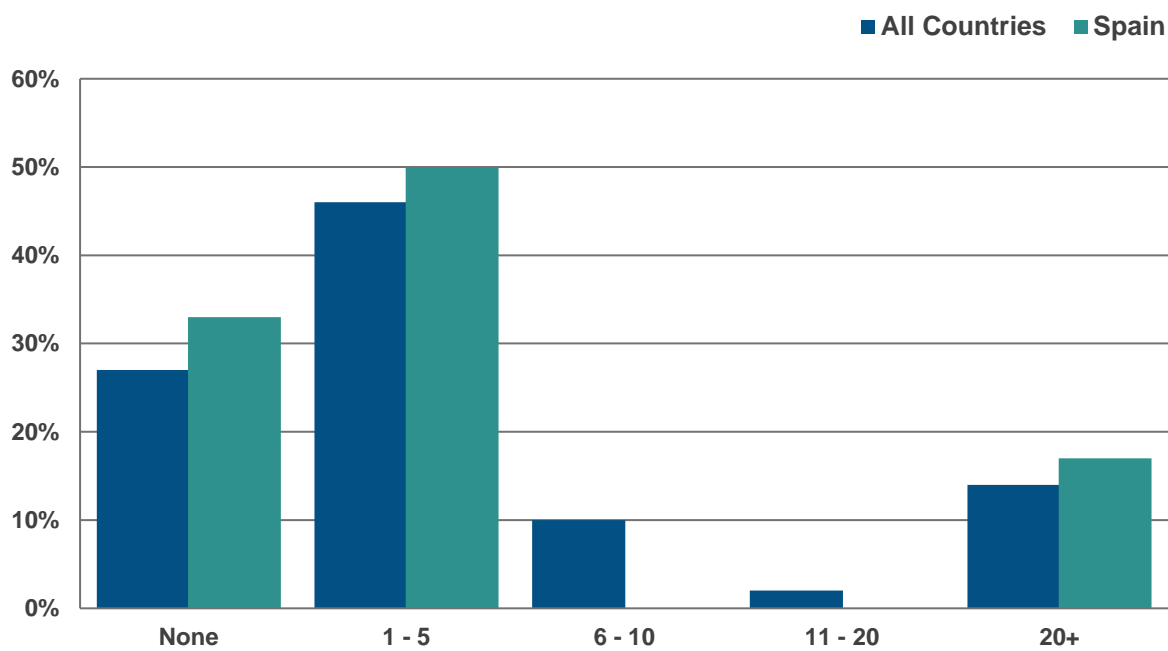
5.1.3 Financial institutions

These are third parties that finance ESC providers, customers, or a combination of both. There are no financial institutions specialized in financing Energy Supply Contracts in Spain. For more information, see 4.1.3 Financial institutions.

5.2 ESC market developments

Over 80% of Spanish respondents were involved in none or less than six ESC projects over the last year. On the other hand, 17% of respondents in Spain have signed at least 20 ESC contracts. This could mean that in Spain there are few large companies that do a lot of ESC projects, and several smaller ones that do just a few of these projects.

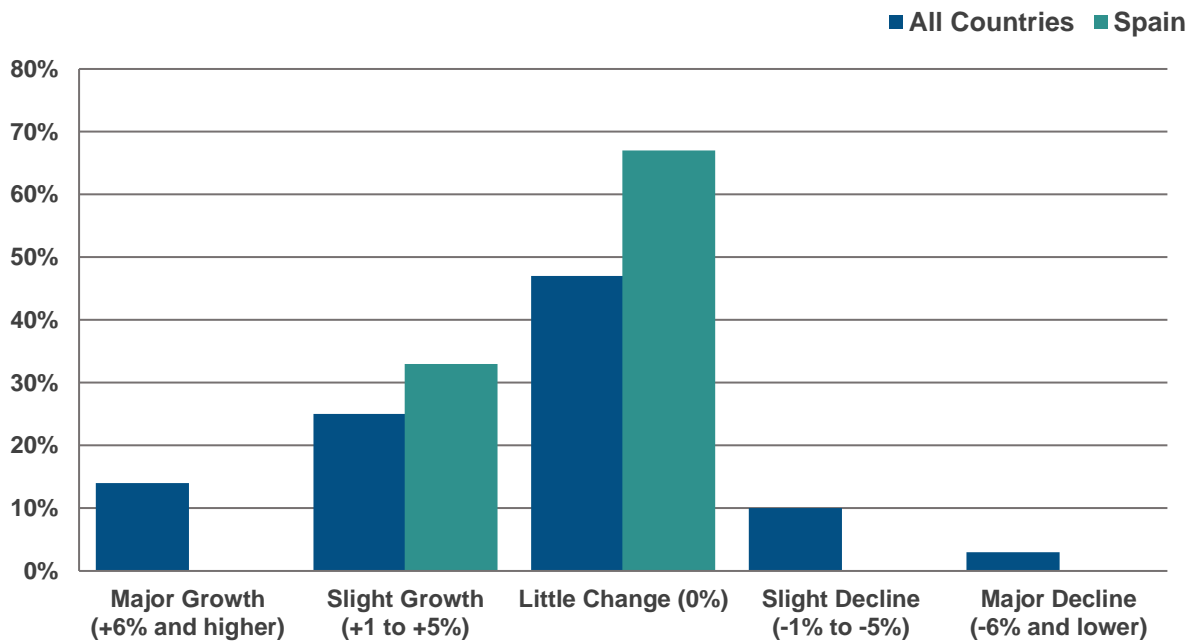
Figure 19. How many ESC projects (that have reached ESC Contract Signature) has your organization initiated / become involved with in the last 12 months?



According to figure 20, the Spanish ESC market has not significantly changed in the last year. Sixty seven percent of respondents perceived no changes, while the remaining 33% perceived a slight growth in their orders. Analysing figure 19 in combination with figure 20, the previously mentioned specialization process could be explained.

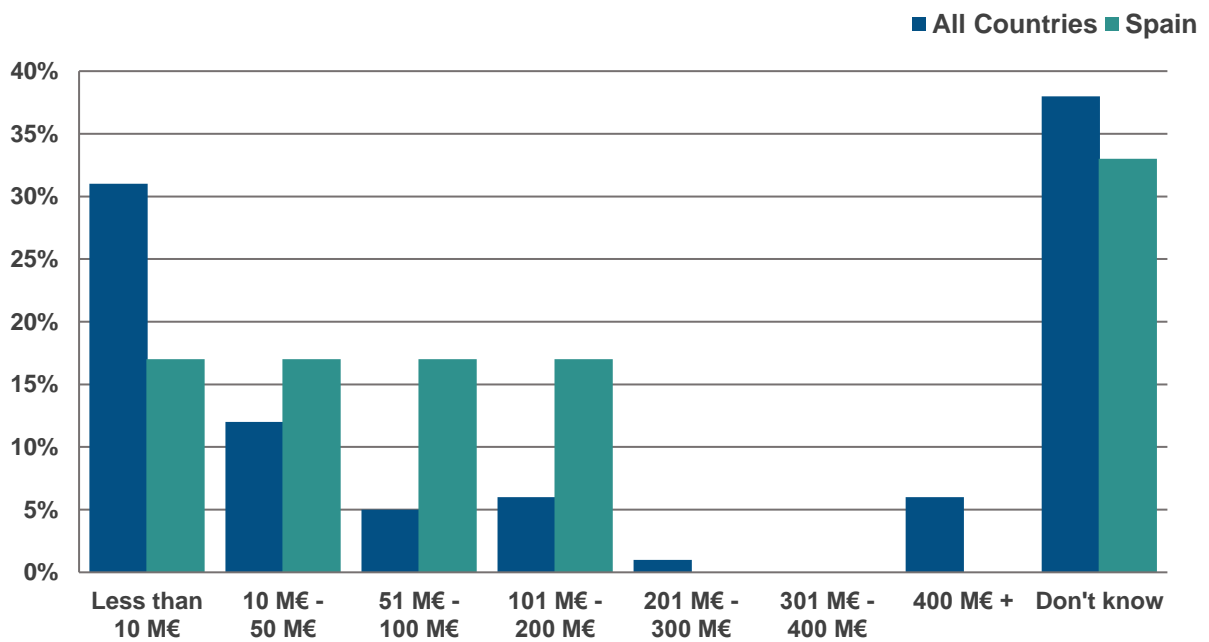
PPAs are expected to have a leading role in the evolution of the ESC market in coming years. With the aim of achieving 20% of renewable energy by 2020 imposed by the European Commission, Spain has auctioned over 8,000 MW in 2017 that should be built and generated by the end of 2019. The PPAs are called to be an important piece in this puzzle, to ensure a minimum profitability of a renewable plant that generates confidence to investors for financing.

Figure 20. In the last 12 months your ESC orders have seen:



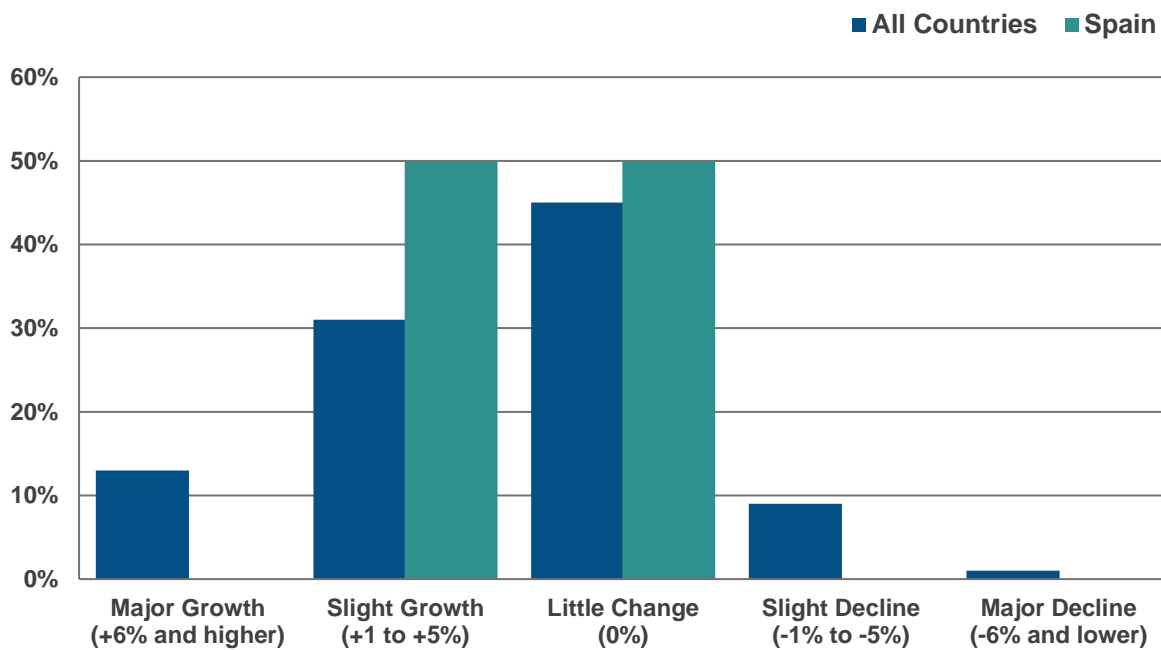
When questioned about total market revenue, significant answers were equally distributed among four options, however all of them considered it to be lower than EUR 200 million. The remaining Spanish respondents who could not estimate the market value is consistent with the responses obtained from other countries.

Figure 21. Roughly how much revenue do you think the ESC market in your country generated in 2016?



Half of Spanish respondents (50%) consider that the ESC market has seen a slight growth in Spain, while the other half believe that the market has been stable over the last 12 months. Compared to the All Countries dataset, the picture in the Spanish ESC market is somewhat more optimistic. While the 10% of respondents in All Countries have seen either a slight or major decline, no Spanish respondent has perceived a decline in the Spanish ESC market.

Figure 22. Over the last 12 months, the market for ESC in your country has seen:

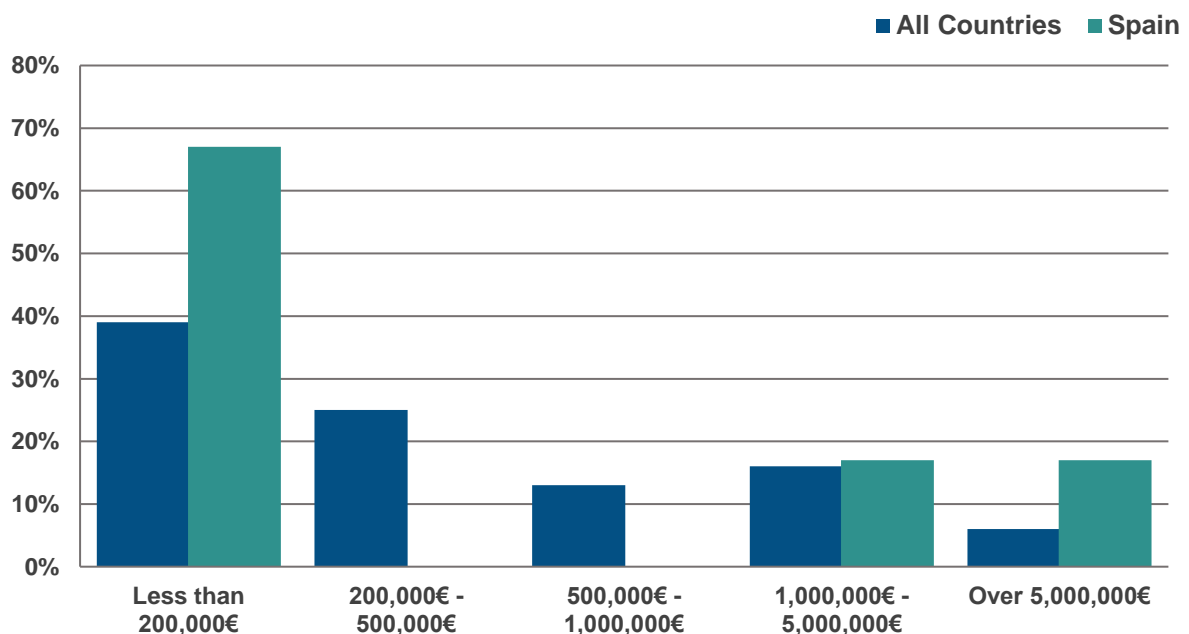


5.3 ESC business models

According to the survey, most of Spanish ESC projects have an investment lower than EUR 200,000. On the other hand, the percentage of Spanish projects with an investment over one million is relevant and 10 points above the European average.

One financial institution interviewed that usually finances projects with an investment outlay of EUR 100,000, did highlight that there is a future intention in financing larger projects -with a value up to EUR 500,000-.

Figure 23. What is the most common overall value (investment outlay) of the ESC projects you are involved in?



Regarding figure 24, answers from Spanish respondents were equally distributed among three different options. No respondent considered that payments per unit of energy delivered are always combined with payments per unit of energy saved.

Figure 24. In the ESC projects you are involved in, were payments per unit of energy delivered in combination with payments per unit of energy saved (from installed energy efficiency measures)?

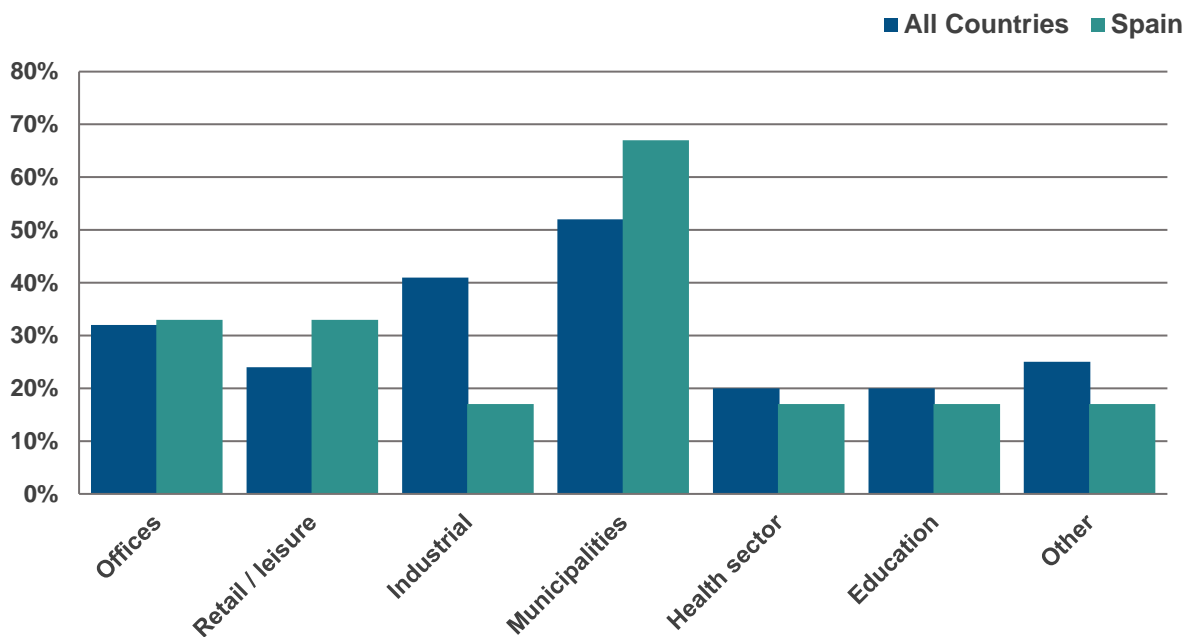


5.4 ESC market sectors

In the next figure, we can see that most ESC clients come from the public sector. In this sense, the main clients for 67% of respondents are municipalities, which is a higher value than the rest of countries surveyed. Offices and retail also have a significant presence (33%) in the client portfolio of the ESC providers in the survey.

Surprisingly, the industrial sector as an ESC client is significantly less important in Spain than across All Countries in the survey. Less than 20% of respondents declared to have industrial companies among their clients, which is much lower than the responses obtained from All Countries where 40% of clients come from the industrial sector. Considering the significant gap between Spain and the average of the rest of countries surveyed, an increase in the number of clients from the industrial sector in this may be expected.

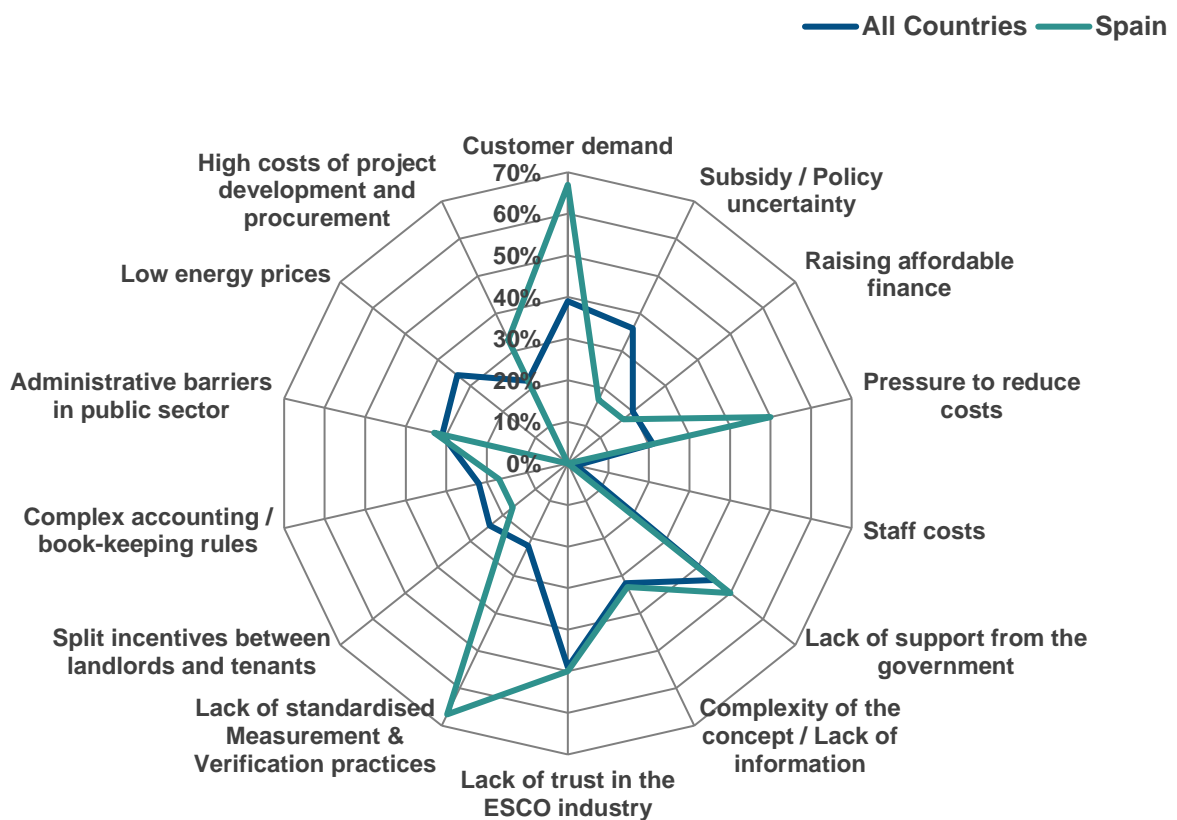
Figure 25. Which sectors do your ESC clients generally come from?



5.5 ESC market barriers

According to the survey, barriers in the ESC market are considerably higher in Spain than compared to the All Countries dataset, especially regarding customer demand and lack of standardised M&V practices. On the other hand, low energy prices are not considered a barrier in Spain, but rather a driver since the energy prices remain high.

Figure 26. Based on the activities of the last 12 months: what do you think are the main BARRIERS to the ESC business?



5.5.1 Regulatory and administrative barriers

Respondents have identified two main barriers for the ESC business regarding the public sector:

- Lack of support from the government: half of respondents consider the government does not support the development of the ESC market.

- ✔ Administrative barriers in the public sector: according to one third of the answers, there are important barriers in the public sector that impede the use of these type of contracts.

5.5.2 Structural barriers

The structural barriers are key barriers for the growth of energy supply contracts. All of them coincide with those of EPCs since they are related to the lack of the trust in the ESCO industry. There is, however, one exception: the pressure to reduce costs.

- ✔ Customer demand: reduced customer demand impedes the development of the market.
- ✔ Pressure to reduce costs: this barrier is probably explained by the important economic crisis faced by Spain over the last decade. Businesses are still sensitive to the consequences of the crisis and try to keep costs as low as possible.
- ✔ Lack of standardised M&V practices.
- ✔ Lack of trust in ESCO industry: the industry is perceived as risky and its full characteristics are unknown to many actors.

5.6 ESC financing

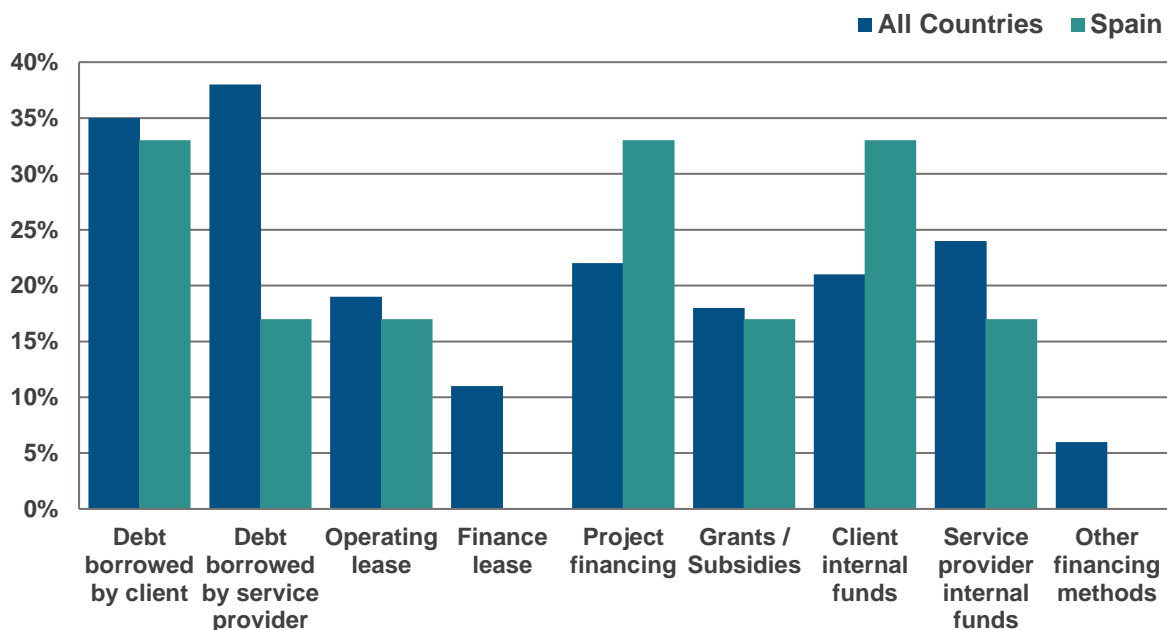
According to the survey, ESC projects are usually financed by the client in Spain. 33% of respondents confirm that their projects are financed by debt borrowed by client or by client internal funds. Project financing appears as another important way of financing in the country used by 33% of Spanish respondents.

All the interviews with clients corroborate that the main ESC financing source are client internal funds. The three institutions that were interviewed stated that they usually allocate a budget to carry out this type of services.

Contrary to the EPC financing, where debt borrowed by the EPC provider was used by almost 90% of respondents, only 17% of ESC provider interviewees borrowed debt. This value is much lower than across All Countries in the survey (38%). Another 17% of Spanish respondents finance their projects with internal funds, which coincides with the view of the financial institutions interviewed.

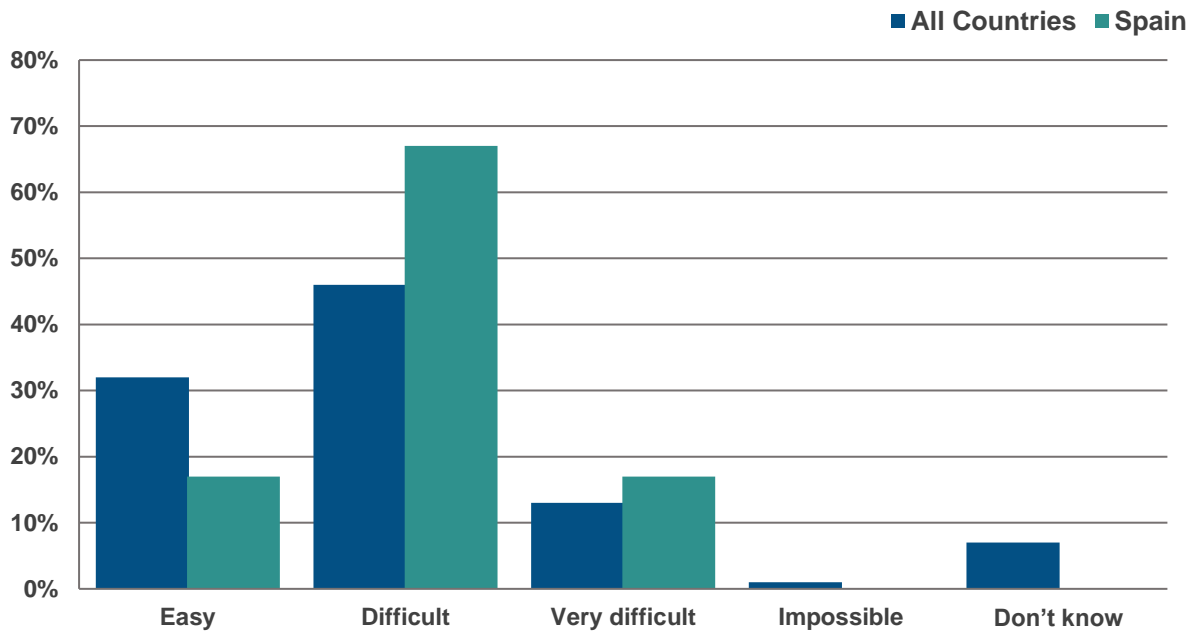
Financial institutions interviewed as part of the process highlighted the use of project financing via special purpose vehicles and structuring of service providers' internal funds in the ESC projects they had been part of.

Figure 27. How are the ESC projects you are involved with financed?



Most of Spanish respondents report that obtaining viable finance for an ESC project is rather difficult and only 17% of them think that they can obtain viable finance easily. The same percentage, however, consider obtaining viable financing very difficult.

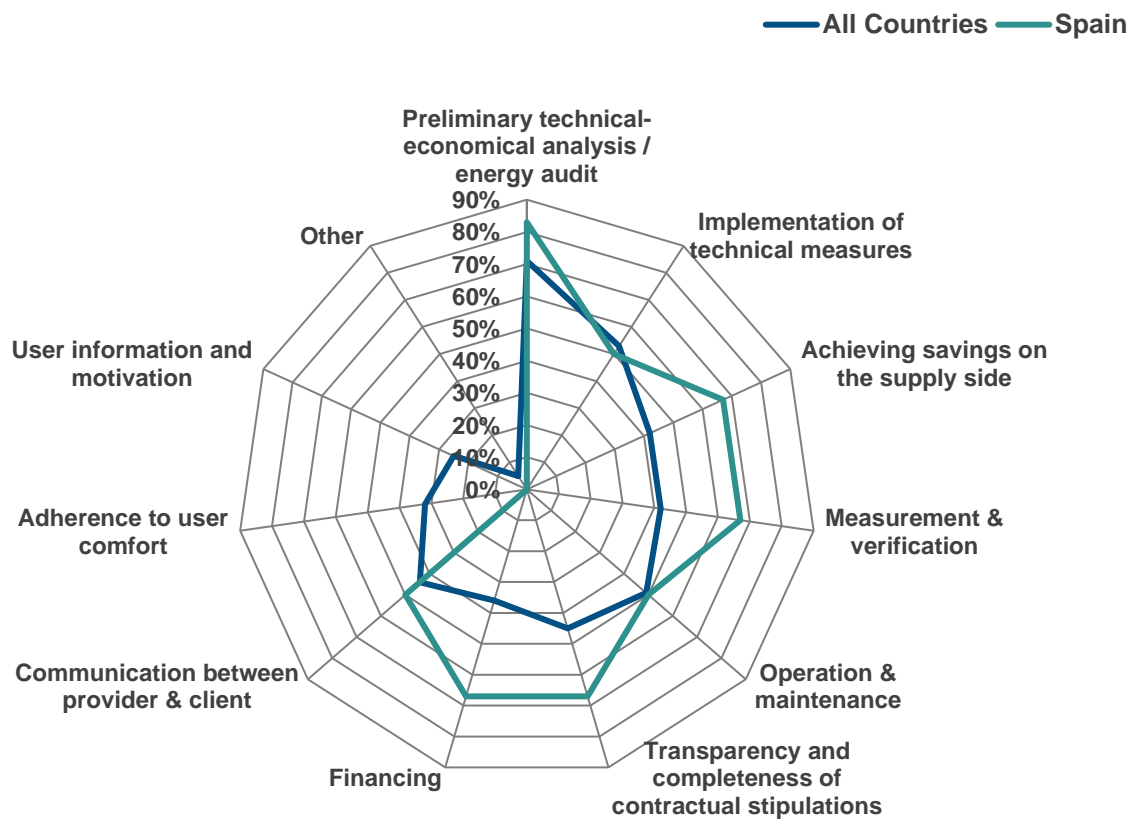
Figure 28. Overall, do you consider that obtaining viable finance for an ESC project is:



5.7 ESC quality determinants

According to the answers of the survey, we can conclude that the Spanish ESC market is more demanding than other European markets. To be considered as a quality service, a Spanish ESC project must fulfil a wider range of specifications than in the rest of European countries surveyed. On the other hand, some aspects related with the user (such as adherence to user’s comfort or user information) are not considered important in the quality of the service provided.

Figure 29. In your opinion what are the most important determinants of quality in ESC projects?



83% of respondents agree on the key determinant for an ESC to be considered as a quality service: the preliminary technical-economic analysis and energy audit. Albeit being a very high value, it is not far from the average of the rest of countries surveyed, which stands at 71%.

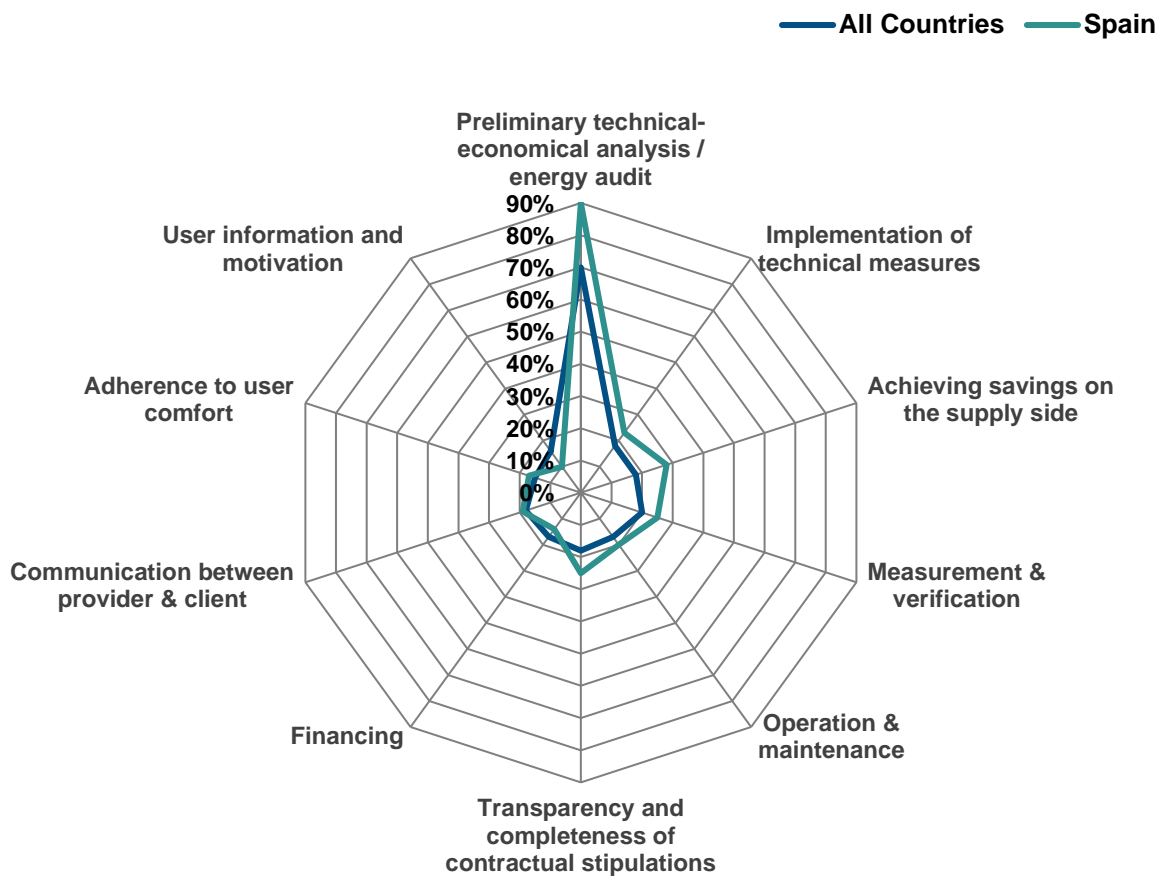
67% of respondents also consider as highly important determinants achieving savings on the supply side, the measurement and verification processes, transparency and completeness of contractual stipulations and financing.

These results must be analysed in combination with figure 30. Regarding where quality improvement is most needed, both in Spain and across Europe, technical-economic analysis / energy audit was the area identified.

As previously stated, 83% of Spanish respondents declared that the key quality determinants are the preliminary technical-economic analysis and the energy audit. However, 90% of the ESC provider interviewees think that this area needs to be improved.

On the other hand, the need to improve the previously mentioned analysis is probably related to the lack of trust and information in the sector and its low level of demand. These are two of the main barriers of ESCs.

Figure 30. In which areas are quality improvement most needed in ESC projects preparation and implementation? (Indicator based on rating scale as described in note below - Sept 2017)

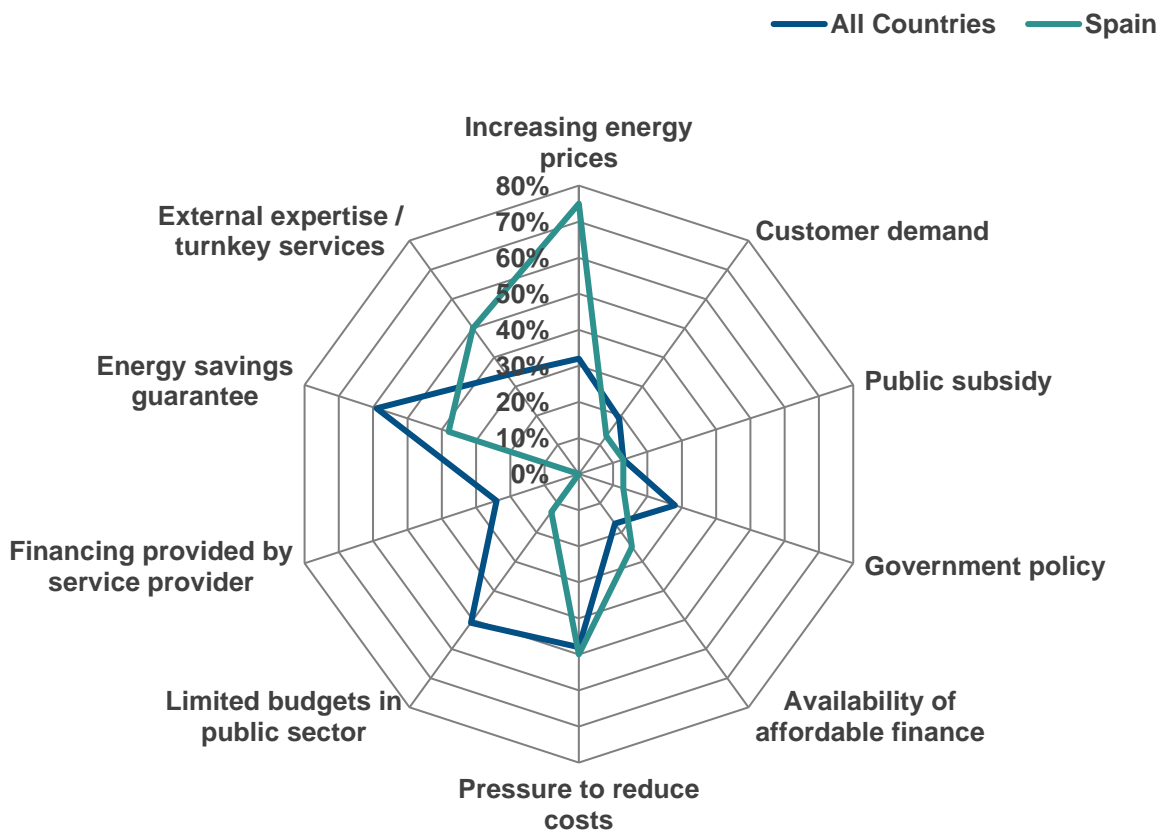


Note: respondents were asked to rank each determinant using the following options 'not needed', 'needed', 'strongly needed' and 'don't know'. An indicator was created by assigning a weighting of 0%, 50% & 100% to 'not needed', 'needed' & 'strongly needed' respectively and dividing by the number of responses. Where 'don't know' was selected this was excluded from the calculation of the indicator.

6 RECOMMENDATIONS TO SUPPORT MARKET DEVELOPMENTS

The survey results indicated that increasing energy prices is the main driver of the EPC business. 75% of Spanish respondents agree that the main driver of the EPC business is the increase of energy prices, which makes sense since Spain is one of the European countries with the highest electricity prices.

Figure 31. Based on the activities of the last 12 months: what do you think are the main DRIVERS of the EPC business?



According to OMIE (Operator of the Iberian Energy Market), Spain was in the fourth place in the ranking of most expensive countries from which to buy electricity, just behind Italy, the UK, and Portugal as of November 2017. The increase of the electricity prices in Spain stands at around 33% only in the last two years.

During that month, the average electricity price was about EUR 58/MWh, which is far more than countries such as the Netherlands (about EUR 46/MWh) and Romania (EUR 37/MWh) and it almost doubles the electricity price in Austria or Nord Pool (both about EUR 30/MWh).

Half of respondents also think that the pressure to reduce costs and the possibility of contracting external expertise are both other important drivers to consider. If we compare an EPC service versus an in-house solution, the EPC option has some advantages. In the first place, the EPC provider not only guarantees energy savings under the EPC contract, but also assumes the technical and financial risks. Moreover, ESCOs have expertise in maximizing energy savings and avoiding rebound effects. Ultimately, an EPC provider offers an added value which the in-house solution cannot compete with.

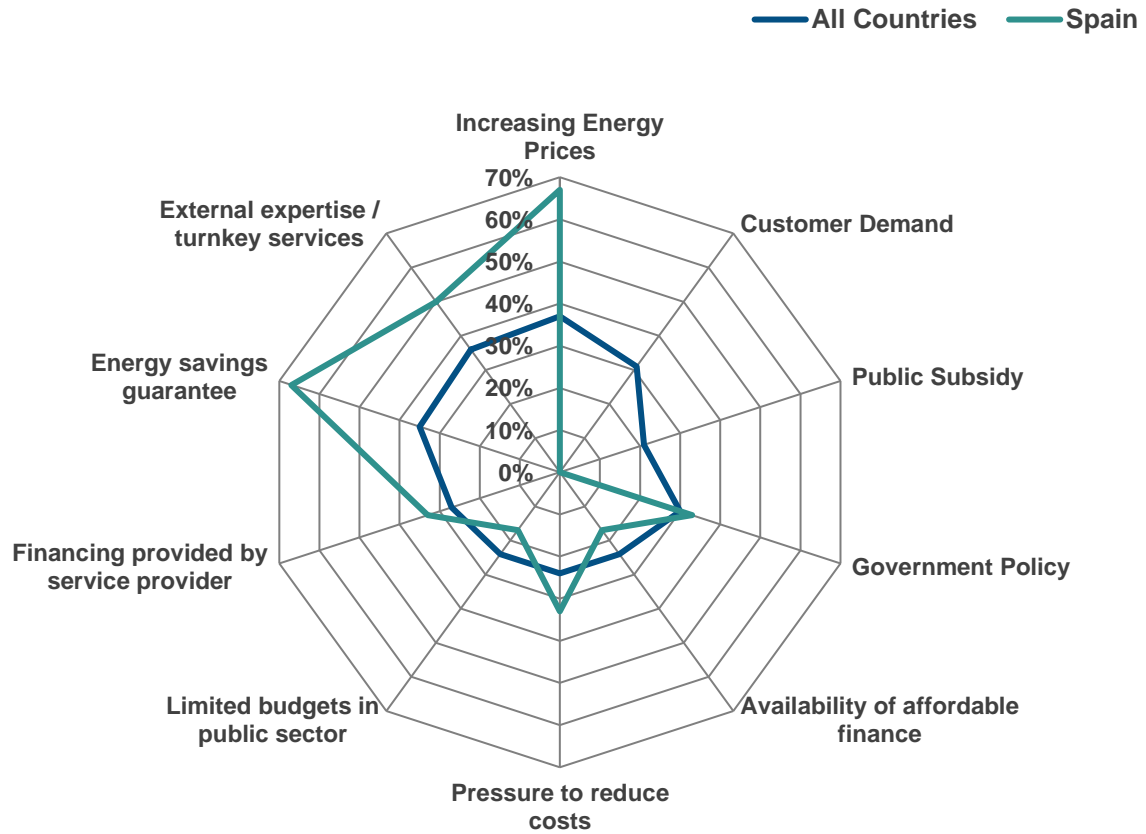
The biggest difference with other European countries' values, besides the increasing energy prices, is the limited budget in the public sector. Whereas in other European countries a limited budget is perceived as an important driver, only 13% of Spanish respondents felt that way about their market. We can therefore conclude that administrative barriers do not focus on budgets, but on decision-making processes.

Clients interviewed within this research consider pressure to reduce costs and energy savings guarantee as the main drivers of the EPC business. Two out of the three institutions interviewed also pointed Corporate Social Responsibility as another key aspect in the decision-making process, because their corporations want to keep an "eco-friendly" public image since there is growing concern in society regarding this matter.

Concerning the ESC business, the increase of energy prices appears again as one of the two most important drivers with the security of offering a guarantee in energy savings being perceived as the other major driver. Also, 50% of respondents think that contracting turnkey services is another important driver to consider. These three drivers are more important in the Spanish market than in All Countries in the survey.

On the other hand, not a single respondent considered customer demand and public subsidies as drivers for the ESC market. In fact, customer demand is contemplated as one of the main barriers for both, the EPC and the ESC schemes. Furthermore, the lack of support from the government is also recognized as a barrier for energy supply contracts.

Figure 32. Based on the activities of the last 12 months: what do you think are the main DRIVERS of the ESC business?



Activities listed in this chapter are meant to help overcome the barriers of EES market development in Spain identified in chapter seven and summarised in Table 1 below. The activities relate to individual stakeholders and are listed in Table 2 below. It is clear that these activities interrelate with each other and therefore must be dealt with together, not separately.

Table 1: Overview of key EES market barriers

Market barrier	EES affected
1 Administrative barriers in the public sector	EPC, ESC
2 Customer demand	EPC, ESC
3 Lack of standardised M&V practices	EPC, ESC
4 Lack of trust in ESCO industry	EPC, ESC
5 Lack of information	EPC
6 Financial barriers	EPC
7 Lack of support from the government	ESC
8 Pressure to reduce costs	ESC

Table 2: Overview of actions to overcome market barriers

Response to barriers	Actions	Who should act	Target groups	Description	
1	1, 2, 4, 5, 6, 8	Seminars, conferences, roundtables	EES facilitators, EES providers, APES (Association of Energy Service Providers)	EPC customers, decision makers, financial institutions, experts, media	The goal is to inform about the possibilities and benefits of the EPC/ESC methods
2	3, 4	Training for new EPC providers	APES, EPC facilitators	New EPC providers	The goal is to sustain the high quality of EPC projects and promote the use of the Code of Conduct for EPC
3	2, 4, 5	Implementation of the European Code of Conduct for EPC	APES, EPC providers	EPC providers, clients	The goal is to promote the implementation of a basic set of values and principles that are considered fundamental for the successful, professional and transparent implementation of EPC
4	2, 3, 4, 5	Promotion of best practices in EPC	APES, EPC providers	Potential clients, experts, media	This activity is an integral part of other dissemination activities
5	2, 3, 4, 6, 8	Certification of EES	APES, EES providers	EES providers, facilitators, financial institutions, clients	The goal is to sustain and guarantee the high quality of EES projects
6	1,7	Discussion, talks and networking	APES, EPC and ESC providers	Decision-makers (e. g. Ministry of Industry and Trade, Ministry of Finance, etc.)	The objective is to promote the energy efficiency method as one of the governmental strategic goals in energy and growth policy

6.1.1 Regulation and standardisation

- ✔ Removal of legislative and administrative barriers. Roundtables with decision makers will be organized to expose the administrative barriers in EE services contracting. We will also present some EE services and suggest public bodies to use these models on public buildings.
- ✔ Contract templates, procedures etc. Although there is a contract template created by IDAE for public bodies, this contract model is not mandatory. Besides, there is no specific procedures for the EE services contracting. With the support of different stakeholders, we will try to set these procedures together using contract templates.
- ✔ Since there is no certification on the quality of energy efficiency services, QualitEE will implement a certification and will establish a national promotion team to ensure market uptake.
- ✔ QualitEE consortium will implement the QualitEE certification on EE services through the standardisation of technical and financial measures, so trust in this type of services will be increased.

6.1.2 Financial instruments

- ✔ With the aim of overcoming financial barriers, we will organise roundtables with financial institutions and inform them about the possibilities and benefits of the EE services.

6.1.3 Information dissemination, education and networking

- ✔ The survey results indicated that “lack of information” and “complexity of the concept” are still key barriers, which indicates that further information dissemination and education activities are needed.
- ✔ QualitEE will organise workshops and conferences where different stakeholders such as EE services customers, decision makers, financial institutions and media, among others, will be invited.

7 CERTIFICATION OF ENERGY EFFICIENCY SERVICES

7.1.1 General framework for certification of products and services

In Spain, the National Accreditation Entity – ENAC – is the organisation designated by the Government to operate as the only National Accreditation Body, in application of Regulation (EC) No. 765/2008.

ENAC is a non-profit association and declared of public utility. Its structure and principles of operation guarantee that all its actions are based on the principles of impartiality, independence and transparency.

Regarding the certification of products and services, until 2017 AENOR and UNE together formed the Spanish Association for Standardization and Certification, which was split in those two entities with different functions:

- ✔ UNE is the most well-known certification organization in Spain. The Association for Standardization (UNE) is the body legally responsible for the development and dissemination of ISO technical standards in Spain. These rules indicate how a product or service should be according to security purposes and how it should respond to what the consumer expects from it.
- ✔ AENOR is a private commercial entity working in the field of conformity assessment and associated activities, such as the training or sale of publications.

Furthermore, there are other Spanish private entities working on the certification field. They usually develop their own quality standards, and certify that others meet those quality criteria.

7.1.2 Certification of products and services in the energy sector

In Spain, a public registry for Energy Services Companies (ESCOs) exists and it is managed by IDAE. Any company that wants to work on the energy sector should be registered in said registry. To access it, a responsible statement must be issued in which the owner of the company or its legal representative demonstrates that the enterprise meets the mandatory requirements.

Due to the lack of any certification within the energy sector, the Spanish association ANESE launched the first certification for ESCOs in 2015. ANESE offers two types of certificates: one for companies that have not yet implemented any project following the ESCO model, but are prepared to do so, called “ESE” (there are two companies registered as ESE) and another certificate for companies that can prove with evidence that they have worked following the

ESCO model. In this case, the certificated is called “ESE PLUS” (14 companies are certified as ESE PLUS”⁶.

After the ANESE certificate, AENOR launched in 2016 a certification for ESCOs in which it classifies them in different categories: auditing/consulting, exploiting and/or investment ESCOs. It also considers the previous experience and capabilities of the company such as turnover, number of technicians, total amount of contracts and regions of Spain where the company operates. So far, a total of 64 certifications have been conceived to a total of 32 companies⁷. This is the most extended certification in Spain, and it is getting more and more recognition among clients as well financial institutions.

Furthermore, UNE has published several rules related to the energy sector. The most important ones are:


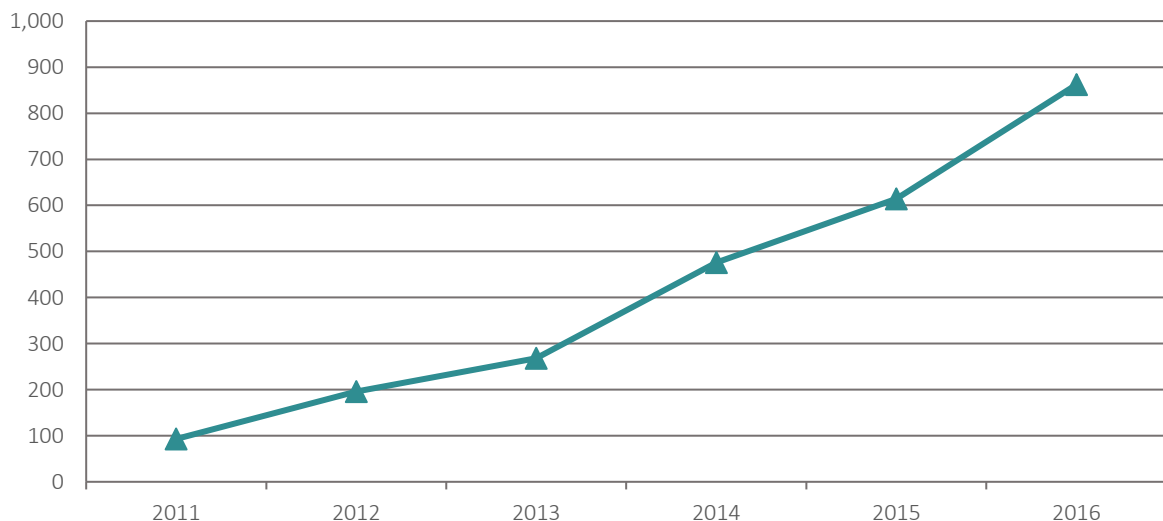
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UNE-EN ISO 50001:2011. Energy management systems - Requirements with guidance for use. This standard establishes the requirements that an Energy Management System must meet to make continuous and systematic improvements in the energy performance of organizations. This ISO norm is broadly extended in Spain, especially in recent years. Thus, Spain stood in the sixth position of the global ranking of “Number of sites covered by ISO 50001 certificates” in 2016, ahead of countries such as Austria, United States, Netherlands or Sweden⁸.

Figure 33. Evolution on the number of sites covered by ISO 50001 certificates



⁶List of companies certified by ANESE, <http://www.anese.es/empresas-clasificadas-como-empresas-de-servicios-energeticos/>

⁷List of certifications issued by AENOR: https://www.aenor.es/aenor/certificacion/mambiente/mab_pse_listado.asp#.Wt7n9S5uYdU

⁸ ISO 50001, data per country and sector- 2011 to 2016 <https://isotc.iso.org/livelink/livelink?func=ll&objId=18808772&objAction=browse&viewType=1>

- ✔ UNE-EN 16247-1:2012. Energy audit verification. A third party ensures that the energy audit has been carried out in compliance with the requirements established in the standard, giving confidence in its results.
- ✔ Collection of UNE standards about LED lamps. This collection contains the standards that specify the safety and electromagnetic compatibility requirements applicable to LED lamps.
- ✔ Besides, a new UNE norm will be published shortly, as a continuation to the previously mentioned AENOR certification, and based on the Real Decree 56/2016, which will accredit ESCOs as such based on specific criteria that must be met. It is expected that this new UNE norm will substitute the AENOR certification, due to its official nature. About 15 market representatives have participated in the creation of the UNE norm, getting the maximum consensus as possible in order to establish a quality assurance public framework for energy efficiency services through the certification of the service provider.

Moreover, all the transpositions of European Directives on energy efficiency must be considered. In this sense, energy labelling on electric products aims to scale up investments in energy-efficient products.

7.1.3 Certification of energy efficiency services

There is no official certification of energy efficiency services in Spain but some companies are developing their own certificates, especially under projects within the European Union's Horizon 2020 research and innovation programme framework. Some of these projects include:

- ✔ The Transparence project which was started in April 2013 and was completed in September 2015. The aim of this project was to increase the transparency and trustworthiness of EPCs throughout 20 European countries. To that end, the consortium published the European Code of Conduct for EPC in 2014 defining basic values and principles required in the implementation of EPC projects.
- ✔ EPC+ aims to drastically reduce transaction costs of energy services so that smaller investments and projects in SMEs become possible for companies offering energy services. In the framework of this project, each partner has developed energy service packages that suit the specific requirements of its country. These will include a standardized technical solution for a specific market sector, a model contract and, wherever possible, a financing solution.
- ✔ Trust EPC South is another European project whose purpose is to scale up investments in energy efficiency in the tertiary sector of southern European countries. The consortium of this project has developed the GREPCon service, which includes a technical and financial assessment and provides a standardized and independently verified approach to the identification and quantification of energy saving measures in tertiary sector buildings. The correct use of the service will issue an objective report certified by Bureau Veritas that will establish if the project is viable.
- ✔ Investor Confidence Project (ICP). Even though there is no Spanish representatives in this project, some companies in the country are certified by ICP. ICP has developed

standards on how energy efficiency projects should be developed, documented and measured.

Until the new UNE certificate is launched, the lack of any official energy efficiency services certification is probably one of the most important reasons for the lack of trust in the EPC/ESC service providers, as figure 34 shows.

According to the survey, 18% of Spanish respondents consider there is always a lack of trust in providers. This is higher than across All Countries in the survey, whose average value stays at four percent and it may be explained by the fact that lack of trust is perceived as one of the main barriers for both EPC and ESC services in the Spanish market.

Figure 34. In your experience, is there a lack of trust in EPC/ESC service providers?

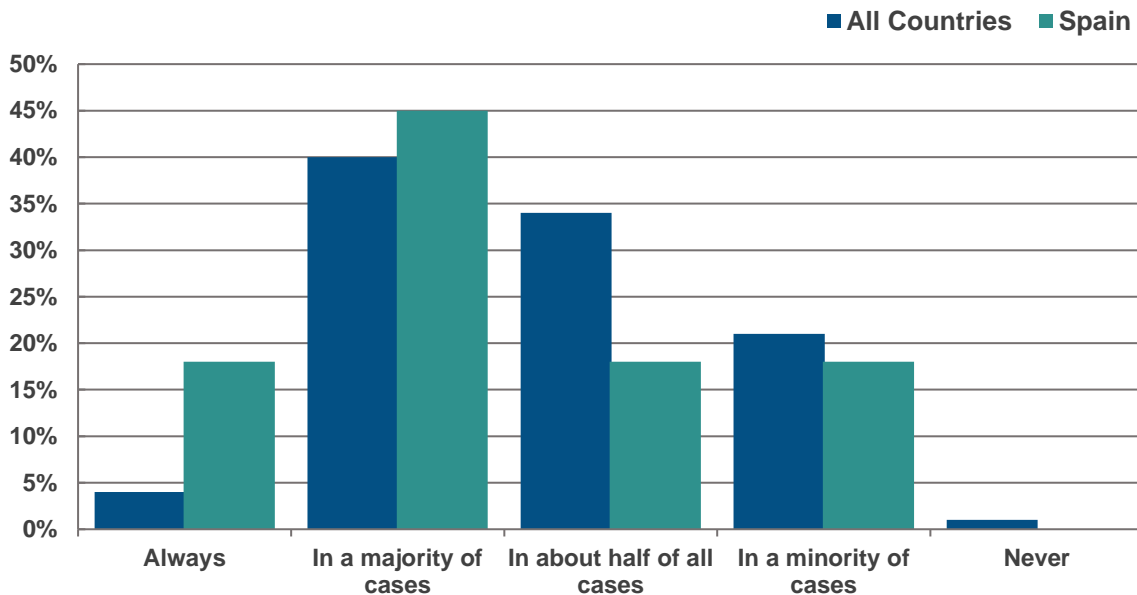
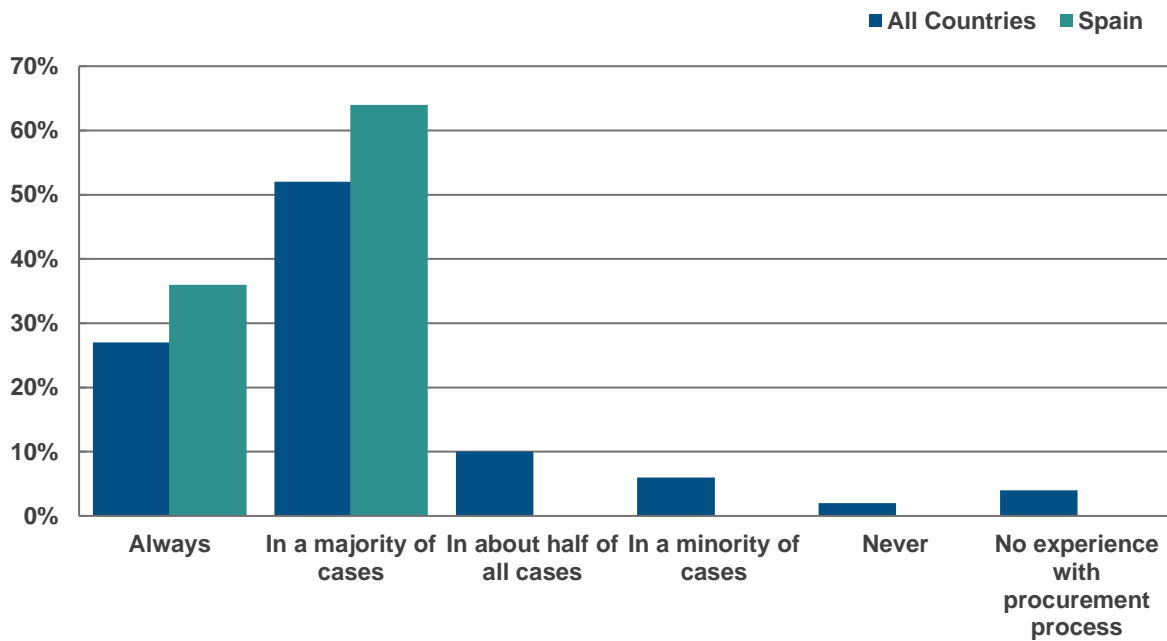


Figure 35 shows that all Spanish respondents believe that if procurement specifications are well defined in an EPC/ESC project, then the quality of the service is higher in the majority of cases. This will also facilitate the implementation process since the criteria are established and each actor will be aware of the actions they need to carry out. Furthermore, processes may become more transparent and easier to follow.

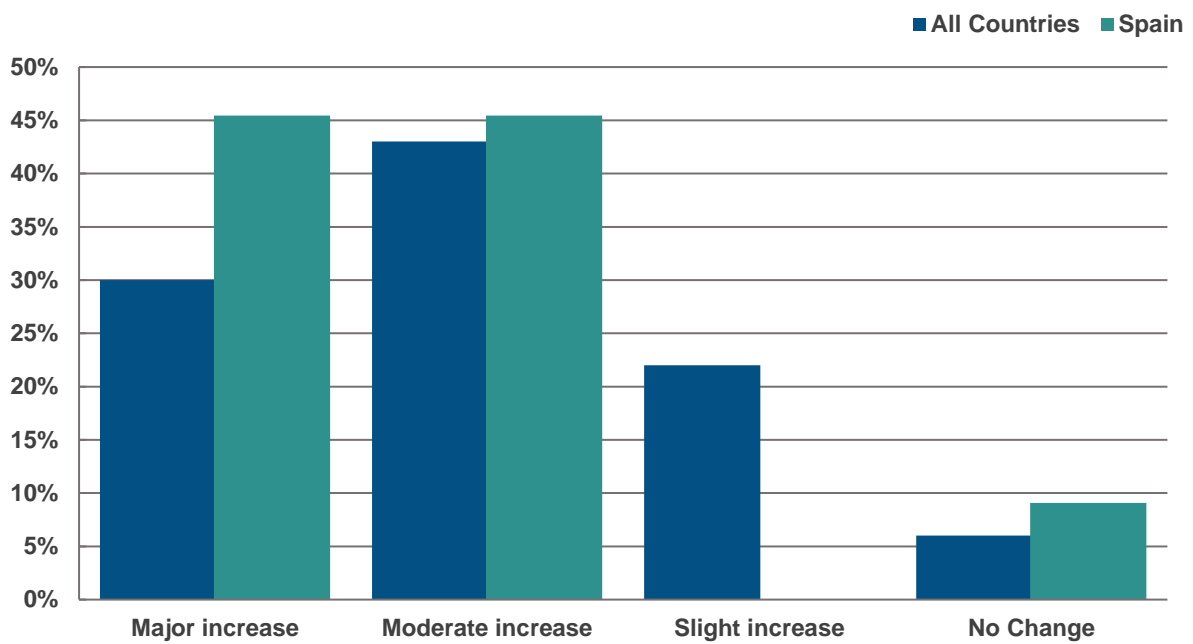
Figure 35. From your experiences, do well defined procurement specifications increase the quality level of EPC/ESC services?



Ninety percent of Spanish respondents consider that a quality assurance scheme would majorly or moderately increase client trust in EPC/ESC services and providers. Giving clients a guarantee that the services contracted will meet certain standards generates a sense of security that will act as not only a trust improver, but will also give dynamism to the market. The results obtained contrast with those given across All Countries, where the percentage was around 73%.

The fact that almost 10% of survey participants from Spain believe that a quality assurance scheme will have no effect on the trust of clients in the services presented may mean two things; the energy sector is seen as trustworthy and therefore a quality guarantee would not change the perception of clients or, the most likely scenario, there is an intrinsic level of distrust in the sector that cannot be changed with a quality assurance scheme.

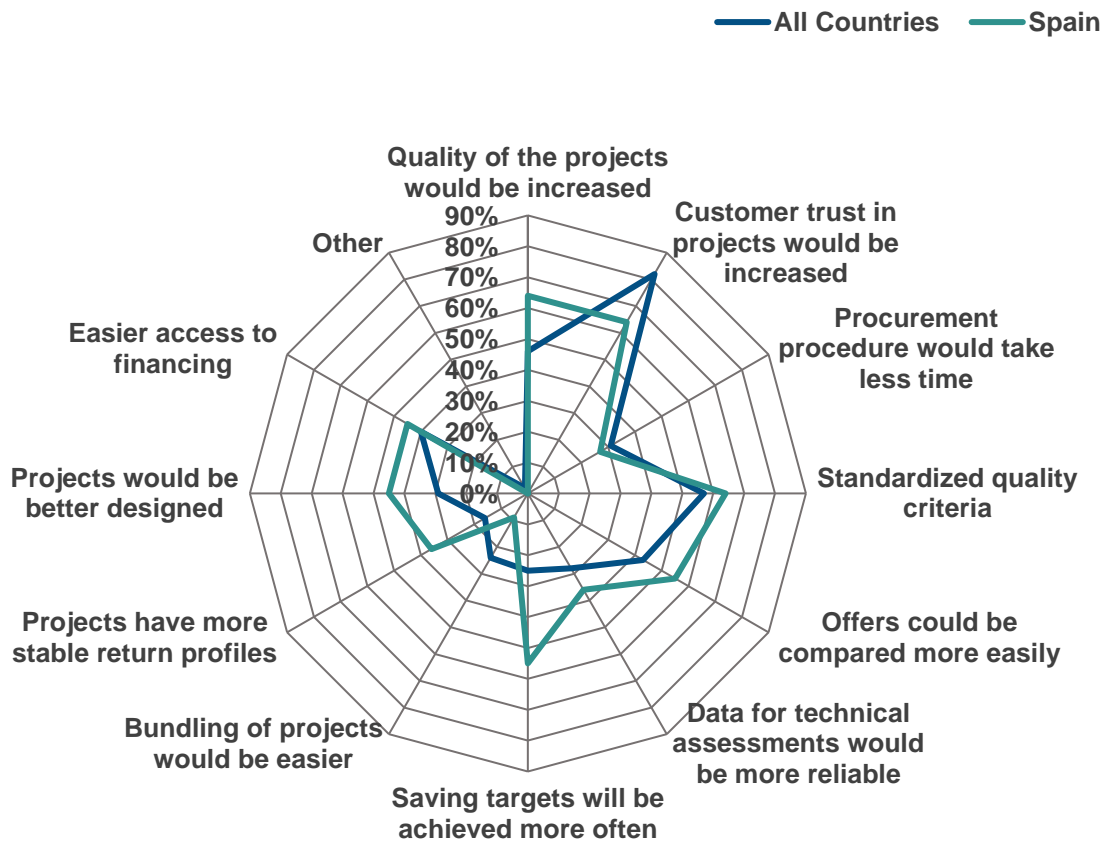
Figure 36. To what extent would a quality assurance scheme increase client trust in EPC/ESC services and providers?



In general, a quality assurance scheme would have more added value in Spain than in the All Countries dataset, according to figure 37.

Fields that would experience the most impact by the implementation of a quality assurance scheme would be the general quality of the projects, the increase in customer trust and the standardization of quality criteria.

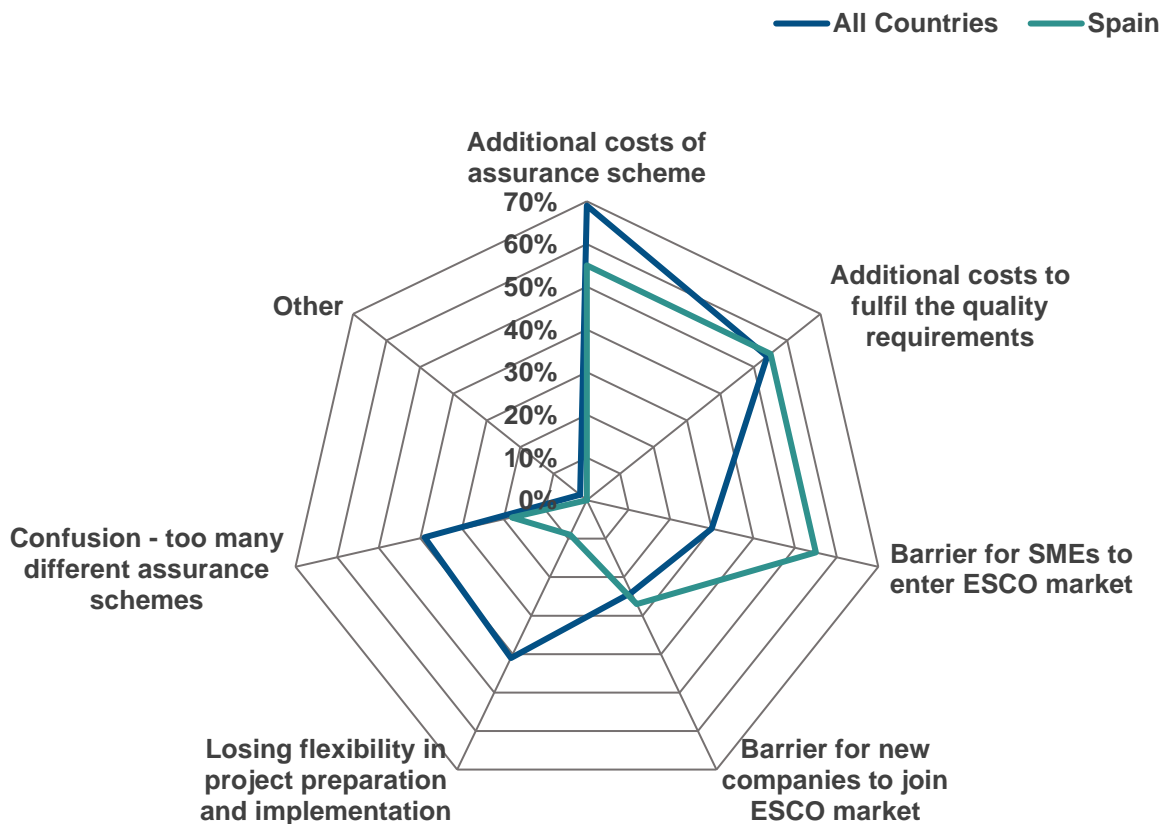
Figure 37. In your opinion, what would be the added value of a quality assurance scheme like this?



With an assurance scheme the quality of the projects would be increased since specific requirements would have to be met. Standardized quality criteria would also give added value to EPC/ESC services and providers, according to the responses obtained from Spanish survey participants.

Another added value of a quality assurance scheme is the increase in customer trust which, as mentioned throughout the report, acts as a barrier for the development of the market.

Figure 38. In your opinion, what drawbacks or barriers may be created by a quality assurance scheme like this?



Fifty five percent of EPC/ESC respondents agreed that a quality assurance scheme would create the following barriers in the Spanish market:

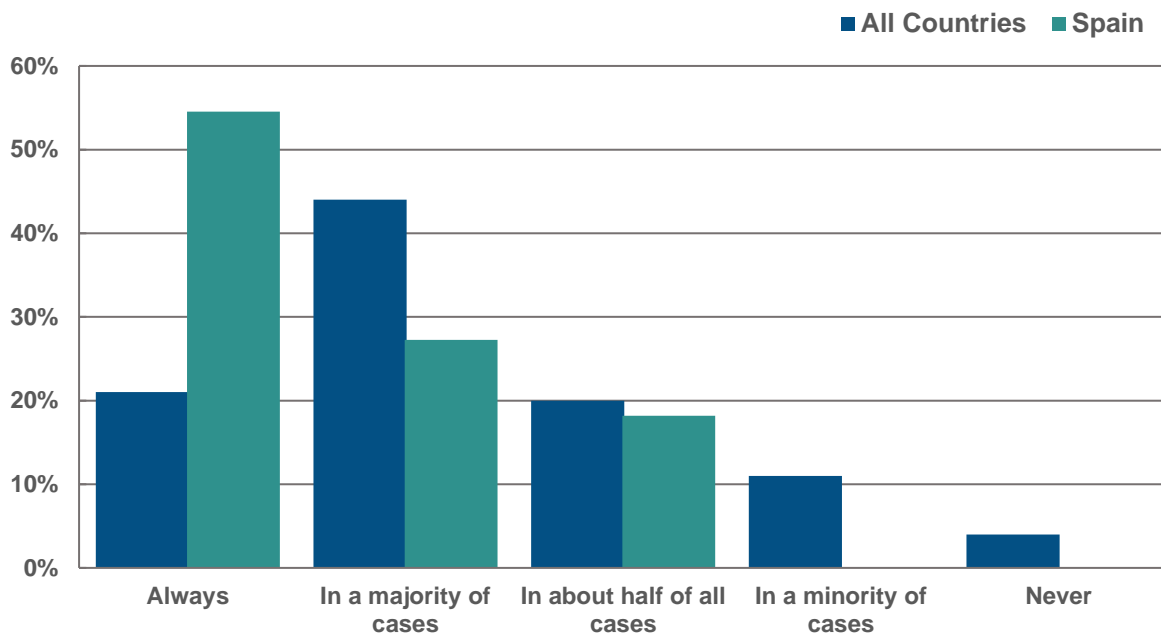
- ✔ Additional costs of assurance scheme. Although this would be one of the main barriers in the Spanish market, this value stands 15 points below the All Countries dataset.
- ✔ Additional costs to fulfil the quality requirements, similarly, to the view across All Countries in the survey.
- ✔ Barrier for SMEs to enter ESCO market. This barrier is more significant in Spain than in All Countries in the survey, probably due to the market structure in this country where the 99.7% of companies are considered small and medium enterprises.

Contrary to the view across All Countries in the survey, a quality assurance scheme would not create confusion nor affect the flexibility of a project in Spain.

Over 50% of Spanish respondents would always implement a project with a quality assurance scheme and the remaining respondents would implement it in at least half of the cases. A quality assurance scheme would have more acceptance in Spain than across All Countries in the survey, as reflected by the results obtained from the survey.

If we compare these results with those coming from the interviews, the need for a quality assurance scheme in Spain is clearly stated. According to financial institutions and clients' responses, they would always finance or implement a project with a quality label over a project without quality assurance.

Figure 39. Would you prefer implementing a project, which is subject to quality assurance over a project without quality assurance?

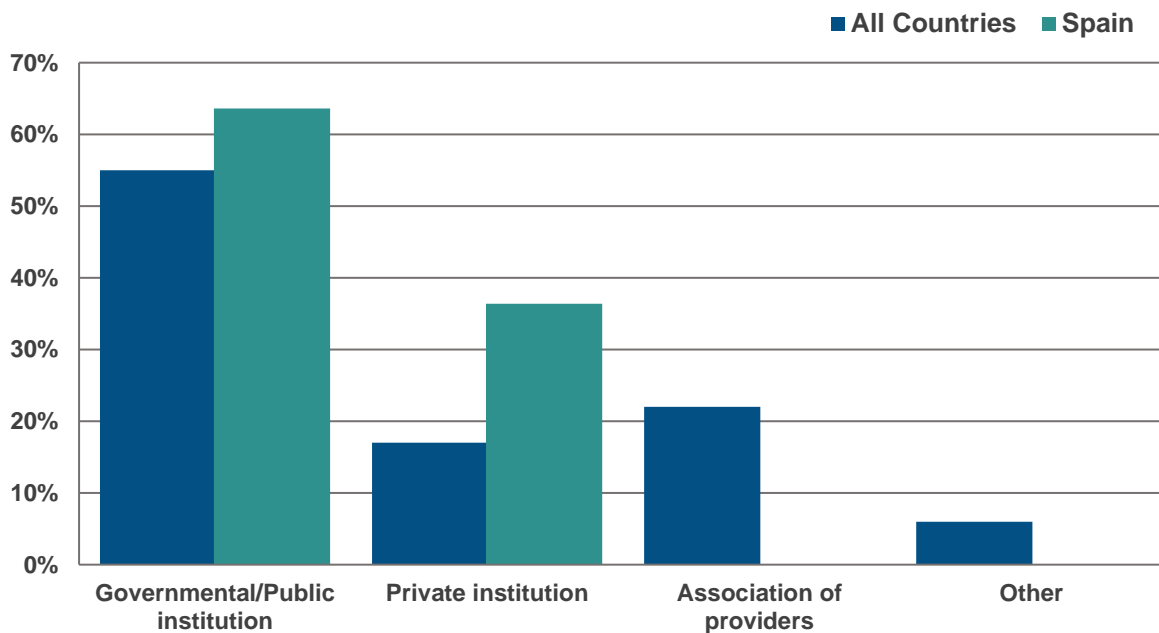


EPC/ESC providers only consider two different bodies to issue quality labels or certificates in Spain, being public institutions the preferred option. On the contrary, 35% of interviewees think a private institution would be better qualified to issue the certificates.

These preferences were also externalised by financial institutions and clients over the course of the interviews conducted. These two groups explained that public institutions are objective, transparent and not motivated by financial gains which would make the more appropriate bodies to carry out the task at hand.

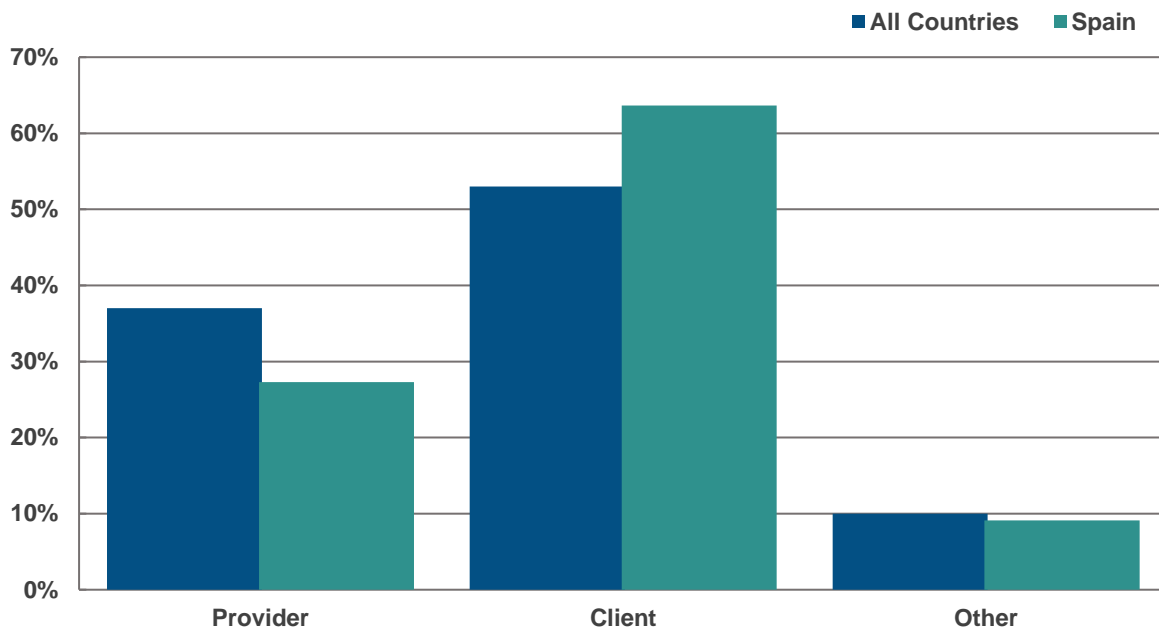
On the other hand, many of the interviewees suggested to create a public-private commission to issue a quality label. In their opinion, it could be an optimal solution to get the maximum consensus among stakeholders as possible.

Figure 40. Which would be the most respected body to issue a quality assurance label or certification for EPC/ESC services in your country?



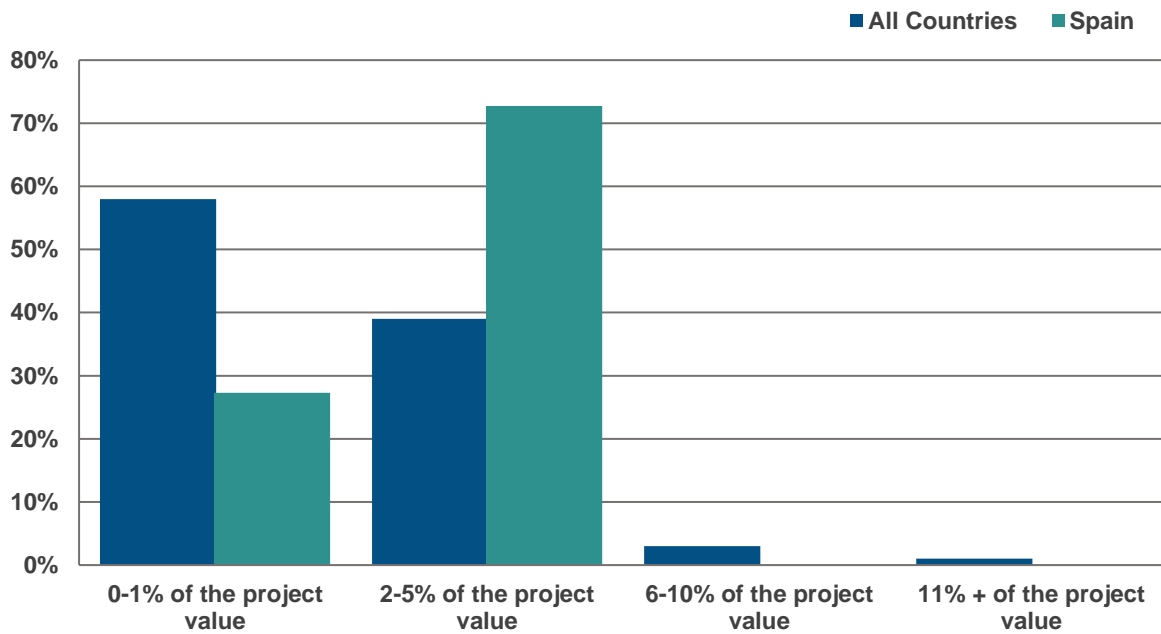
Regarding the payment of the scheme, over 60% of respondents think the client should pay for the quality assurance while 27% consider it is the provider who should be responsible for the payment of the quality assurance. The remaining nine percent think that another institution should assume the cost for a quality label and within these institutions, associations or the Government are included.

Figure 41. Who should pay for the quality assurance of EPC/ESC projects?



The clear message from respondents across both, All Countries and Spain in the survey, is that the fees for the quality assurance scheme should be as small as possible. However, there is a significant difference between Spain and the view across All Countries in the survey regarding what they consider to be a viable fee. While over 70% of Spanish respondents felt that fees should vary between two and five percent of the project value, most of respondents across All Countries agreed that the fee should not exceed 1% of the project value.

Figure 42. What would be a viable fee level for external quality assurance per EPC/ESC project?



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