



# COUNTRY REPORT ON THE ENERGY EFFICIENCY SERVICES MARKET AND QUALITY

Portugal



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## QualitEE Project

This document 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 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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## Disclaimer

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## Contents

<b>1</b>	<b>EXECUTIVE SUMMARY</b>	<b>8</b>
<b>2</b>	<b>INTRODUCTION</b>	<b>10</b>
2.1	Objective of the report	10
2.2	Scope of the report and definitions	10
2.2.1	<i>Energy Efficiency Services (EES)</i>	10
2.2.2	<i>Energy Performance Contracting (EPC)</i>	11
2.2.3	<i>Energy Supply Contracting (ESC)</i>	11
2.2.4	<i>Other types of energy efficiency services</i>	11
2.2.5	<i>Market actors</i>	12
2.3	Sources of data and methodology	12
2.3.1	<i>Sources of data</i>	12
2.3.2	<i>Survey and interviews</i>	13
2.3.3	<i>Literature and other sources of data</i>	14
<b>3</b>	<b>LEGAL AND REGULATORY FRAMEWORKS</b>	<b>15</b>
3.1	Key governmental institutions	15
3.2	Implementation of the EU Energy Efficiency Directive	15
3.3	National strategy documents	16
3.3.1	<i>National Energy Efficiency Action Plan</i>	16
3.3.2	<i>State Energy Document</i>	16
3.4	Standardisation for energy efficiency services	16
3.5	European Code of Conduct for EPC	17
3.6	Support schemes	18
<b>4</b>	<b>ENERGY PERFORMANCE CONTRACTING MARKET</b>	<b>20</b>
4.1	EPC market actors	20
4.1.1	<i>EPC providers and facilitators</i>	20

4.1.2	<i>Client</i>	20
4.1.3	<i>Financial institutions</i>	21
4.1.4	<i>Decision makers</i>	21
4.2	EPC market developments	21
4.3	EPC business models	28
4.4	EPC market sectors	31
4.5	EPC measurement & verification	32
4.6	EPC market barriers	33
4.6.1	<i>Regulatory and administrative barriers</i>	33
4.6.2	<i>Structural barriers</i>	33
4.6.3	<i>Financial barriers</i>	34
4.7	EPC financing	35
4.7.1	<i>ESCO financing</i>	37
4.7.2	<i>Client financing</i>	37
4.8	EPC quality determinants	38
<b>5</b>	<b>ENERGY SUPPLY CONTRACTING MARKET</b>	<b>41</b>
5.1	ESC market actors	41
5.1.1	<i>ESC providers and facilitators</i>	41
5.1.2	<i>Clients</i>	41
5.2	ESC market developments	42
5.3	ESC business models	46
5.4	ESC market sectors	48
5.5	ESC market barriers	49
5.5.1	<i>Regulatory and administrative barriers</i>	50
5.5.2	<i>Structural barriers</i>	50
5.5.3	<i>Financial barriers</i>	50
5.6	ESC financing	51

---

5.7	ESC quality determinants	53
<b>6</b>	<b>RECOMMENDATIONS TO SUPPORT MARKET DEVELOPMENTS</b>	<b>55</b>
6.1.1	<i>Regulation and standardisation</i>	59
6.1.2	<i>Financial instruments</i>	59
6.1.3	<i>Information dissemination, education and networking</i>	59
<b>7</b>	<b>CERTIFICATION OF ENERGY EFFICIENCY SERVICES</b>	<b>60</b>
7.1.1	<i>General framework for certification of products and services</i>	60
7.1.2	<i>Certification of products and services in the energy sector</i>	60
7.1.3	<i>Certification of energy efficiency services</i>	60
<b>8</b>	<b>REFERENCES</b>	<b>71</b>

## 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 <a href="http://www.evo-world.org">www.evo-world.org</a>

## 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 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 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.

This report analyses the energy efficiency services market in Portugal, with a focus on Energy Performance Contracting and Energy Supply Contracting, which are the most relevant EESs in the country.

Within the scope of said two services, the report aims to explain the main concepts associated to them, while trying to establish a clear picture of the current state of the EPC and ESC markets in Portugal, using the results of the survey and other national and international sources as its base.

The Portuguese EES market was dominated by about 12-15 providers for some years, but has slowly increased and according to the official database created by the General Directorate of Energy and Geology, there are now 132 accredited ESCOs in Portugal.

The legal framework for the public sector is established and legal barriers have been generally overcome but government actions to support diffusion of EPCs has been ineffective. There is also a lack of policy mechanisms to encourage the uptake of EPCs.

Energy Performance Contracting is not yet a fully implemented model in Portugal. Although it is gaining popularity because of an increase in demand for energy efficiency, EPCs are still not very common. According to the survey, 78% of respondents experienced little change in EPC orders over the last 12 months.

Looking at the private sector, 88% of EPC clients came from the retail and leisure and industrial sectors. Considering the public sector, most clients belonged to municipalities.



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The main barriers identified by Portuguese respondents were lack of trust in the ESCO market, complexity of the concept and lack of information. The main sector drivers were energy savings guarantee and availability of affordable finance.

The ESC market in Portugal has experienced a slight growth over the last few years but remains rather small on the supply, as well as the demand side.

The most important barriers in the ESC market, as cited by Portuguese survey respondents, are administrative barriers in the public sector, lack of trust in the ESCO industry, complexity of the concept and lack of information and lack of government support. The drivers were identified as external expertise and turnkey services, government policy, availability of finance and energy savings guarantee.

Although there is no energy efficiency services certification currently in Portugal, certain legal actions were taken to guarantee the optimal implementation of energy efficiency contracts such as Normative Order No. 15/2012.

## 2 INTRODUCTION

### 2.1 Objective of the report

The objective of this report is to compile evidence to inform 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 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 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 improvement<sup>1</sup> 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 of time through contractually agreed methods (Amann S., Leutgöb K. et al. 2015).

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

-  Energy Performance Contracting (EPC)

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<sup>1</sup> According to the EED "energy efficiency improvement" means "an increase in energy efficiency as a result of technological, behavioural and/or economic changes".

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## 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 as 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 of 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 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)

"ESC means 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

Even though other types of energy efficiency services exist in the Portuguese market, their presence in the market is limited, and for that reason this report will focus on EPCs and ESCs.

### 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**' means a natural or legal person who delivers energy services<sup>2</sup> 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**' means an energy service provider who delivers energy services in the form of EPC."
- ✔ "An '**ESC provider**' means an energy service provider who delivers energy services in the form of ESC."
- ✔ "A '**Client**' means any natural or legal person to whom an energy service provider delivers energy service."
- ✔ "An energy service project '**Facilitator**' means an advisory company working on behalf of the client to procure and/or implement an energy services." 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 a nationwide EES survey of the country's main actors within the EES market; and
- ✔ a literature review (publications and studies, legislative documents, official statistics and databases).

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<sup>2</sup> 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."

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### 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 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.

Throughout this study the results from the online survey in Portugal 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 **All 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/>).*

There were 10 respondents to the online survey in Portugal:

- ✔ 7 representatives of ESCOs, where most of them operate on both the EPC and ESC markets; these ESCOs are the most active members of the ESCO association APES with a 90% share on the Portuguese EPC market;
- ✔ 3 representatives of EES facilitators, two of them operating on both the EPC and ESC markets.

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

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

### 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 knowledge of Creara's team based on 15 years of experience.

The key sources of information were:

- ✔ Publications by the General Directorate of Energy and Geology
- ✔ Publications by the Ministry of Economy
- ✔ Publications by different organs of the European Union

The report also builds on the data and information gathered primarily by the Transparens project and other previous European projects (Trust EPC South) and projects run in parallel (EPC+). In addition, it used data from the Energy Service Companies in the EU and Practices and Opportunities for Energy Performance Contracting in the public sector in EU Member States reports by JRC as well as from Build Up, The European Portal for Energy Efficiency in Buildings.

## 3 LEGAL AND REGULATORY FRAMEWORKS

### 3.1 Key governmental institutions

The energy is competence of the **Ministry of Economy**. Within this Ministry, the energy competences are under the **Secretary of State of Energy**.

Another key governmental institution in the energy field is the **Direção-Geral de Energia e Geologia**. In the area of Energy Efficiency, some of the tasks designated to this body are to:

- ✔ Promote and cooperate in the elaboration of norms, regulations and technical specifications regarding the increase of efficiency in the use of energy;
- ✔ Promote energy efficiency and the diversification of the use of primary energy sources;
- ✔ Ensure compliance with current energy management legislation;
- ✔ Analyse and issue technical advice on programs and projects for the management and conservation of energy and diversification of energy sources;
- ✔ Proceed with the stimulus and framework of the Energy Agencies.

**ADENE** is the national Energy Agency, a private non-profit and public utility association whose mission is to develop activities of public interest in the area of energy, efficient use of water and energy efficiency in mobility.

**APE** (acronym of Associação Portuguesa da Energia) is a non-profit, non-governmental public service body in the energy and environment sectors. It is member of the World Energy Council, and aims to promote public debate on the development of the energy sector.

**APES Energia** (Portuguese Association of Energy Service Companies) promotes the development of the EES industry in Portugal through technological, regulatory and good practices, contributing to the increase of the competitiveness of Portugal by the efficient use of energy.

### 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 in order 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 Portugal, the following obligations have been transposed so far:

- ✔ Decree Law No. 68-A of 30 April 2015 establishes a framework on energy efficiency and cogeneration, transposing to national law Directive 2012/27/EU on energy efficiency.
- ✔ The Portuguese Energy Efficiency Action Plan (NEEAP) sets a target of 20% reduction of the national energy consumption

- ✔ The Energy Efficiency Programme in Public Administration (ECO.AP) aims to achieve a 20% improvement in energy efficiency in public services and bodies of Public Administration by 2020.

## 3.3 National strategy documents

### 3.3.1 National Energy Efficiency Action Plan

2017-2020 National Energy Efficiency Action Plan meets the requirement established by the Directive 2012/27/EU on energy efficiency.

In the first chapter of the Plan, national target on energy efficiency is presented according to the European Directive. In addition, some additional goals as a 25% reduction on primary energy is set.

Subsequently, the plan introduces energy efficiency measures to be carried out in Portugal. These measures are presented according to some specific articles of the EED and among them, there are some addressed to buildings and public buildings.

The 2017-2020 Portuguese Energy Efficiency Action Plan is available only in Portuguese on the next link:

[https://ec.europa.eu/energy/sites/ener/files/documents/pt\\_neeap\\_2017\\_pt.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/pt_neeap_2017_pt.pdf)

### 3.3.2 State Energy Document

The DGEG (Direção-Geral de Energia e Geologia) is the institution in charge of energy efficiency in Portugal and it publishes a yearly document about the energy sector in the country. The data included in the report “ENERGIA em Portugal” focuses on the evolution of the main sources of energy, the country’s energy balance as well as future and expected trends. The document also analyses the development of the country’s energy dependence.

The report is published yearly and the last available version is from 2015 (published in 2017) and can be found on the Directorates general website.

## 3.4 Standardisation for energy efficiency services

Under the scope of the standardisation for energy efficiency services, a model contract document was established in Portugal.

With the objective of boosting the implementation of energy efficiency measures in public buildings and equipment, Decree-Law no. 29/2011, of February 28, was published, which establishes the legal regime applicable to the training and execution of management contracts



of energy efficiency, between the Public Administration and ESCOs, therefore creating a legal framework.

Through the publication of Administrative Rule no. 60/2013, of February 5, standard specifications to be used for the execution of energy efficiency management contracts were made available to public and private entities, thus anticipating one of the obligations under Directive 2012/27 / EU on energy efficiency.

This allows public entities to acquire energy efficiency services from specialized companies in the sector, with the contract being remunerated depending on actual savings, and rewarding those companies in tender procedures that present greater know-how, reflected by the reductions in energy consumption. The specification of contract conditions is accessible in Portuguese through the next link:

[https://dre.pt/web/guest/pesquisa/-/search/919646/details/maximized?p\\_p\\_auth=PZlGu2i0](https://dre.pt/web/guest/pesquisa/-/search/919646/details/maximized?p_p_auth=PZlGu2i0)

Although this legal regime is only mandatory for public institutions, through interviews it was found that many clients from private entities require the use of this model document as well as the proper accreditation of ESCOs.

### 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 the 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 undertake to conduct EPC projects in compliance with the EPC Code of Conduct. It is a voluntary commitment 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 Portugal, the Institute of Systems and Robotics of the University of Coimbra, carried out the implementation of the Code of Conduct, and according to Transparens, 17 companies have signed and implemented the Code, 13 of which are ESCOS and four are facilitators.

### 3.6 Support schemes

PNAEE undertakes a set of policies aimed at promoting the efficient use of energy. These include:

- ✔ Energy Efficiency Fund (FEE), created by Decree-Law no. 50/2010 and regulated by Administrative Rule no. 26/2011 specifically to support and fund projects under PNAEE. Among others, the following projects have been implemented:
  - Efficient building: this instrument supports the installation of energy efficient windows and solar thermal systems in residential buildings.
  - SGCIE (Intensive Energy Consumption Management System): The beneficiaries of this measure are the operators of installations covered by the Rationalization Agreement for Energy Consumption (ARCE), within the scope of the SGCIE. This scheme aims to promote energy efficiency and energy consumption monitoring in energy-intensive facilities
  - CE.Estado (Energy Certification in the State): This measure covers operations that implement the technical analysis and creation of methodologies and tools leading to Energy and Indoor Air Quality Certification, of buildings and systems integrated in the ECO.AP programme (or of audits leading to the establishment of baselines for use in the ECO.AP programme).

PNAEE regularly publishes EE tenders on its Energy Efficiency Fund website for various sectors, but there are currently no tenders open.

- ✔ PPEC - Plan for the Promotion of Efficiency in the Use of Electric Energy, promoted by the Regulatory Entity of Energy Services (ERSE) within the PNAC framework. The plan's goal is to promote energy efficiency through financial support and it includes the implementation of policies in several sectors, including:
  - Trade and services.
  - Industry.
  - Private charities.
  - Municipalities and public institutions.
  - Schools and hospitals.

- ✔ Eco.Ap: The Energy Efficiency Program in Public Administration aims to achieve a 30% energy efficiency level in the agencies and services of the Public Administration by 2020, without increasing public expenditure and allowing the economy to stimulate the energy services sector.
- ✔ Fundo Português de Carbono (FPC): their mission is to propose, develop and monitor, public policies for the protection of the environment and sustainable development.
- ✔ Portugal 2020 and other EU financial instruments.

## 4 ENERGY PERFORMANCE CONTRACTING MARKET

### 4.1 EPC market actors

The main EPC market actors in Portugal are providers, facilitators, clients, associations and decision makers.

#### 4.1.1 EPC providers and facilitators

- ✔ **EPC providers:** an EPC provider is a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises. The EPC provider delivers all the services required to design and implement a comprehensive energy saving project and assumes the contractually agreed performance risks of the project. The EPC provider guarantees the achievement of the contractually agreed level of savings and is obliged to compensate savings shortfalls.
- ✔ **EPC facilitators:** an EPC facilitator will usually provide the customer with the necessary knowledge and experience as well as guidance to successfully implement an EPC project which will usually carry on throughout its complete duration. They act as intermediaries between the customer and ESCOs to build up a sustainable relationship. Their duties include the identification of opportunities, the assessment of suitability for the customer of the EPC, the valuation of savings expected from the EPC, as well as likely investments and support throughout the process.
- ✔ **National associations:** EPC providers and facilitators tend to create organizations with the goal of establishing lobbies that allow them to be in contact with all the updates that occur in the sector. One of the most important associations in Portugal is APES Energia (Portuguese Association of Energy Service Companies). Their mission is to promote the development of the EES industry in Portugal through technological, regulatory and good practices, contributing to the increase of Portugal's increase in competitiveness in efficient energy use.

#### 4.1.2 Client

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

Financial institutions are third parties in charge of financing EPC providers, customers or both.

#### 4.1.4 Decision makers

In this group, all the public entities in charge of decision making and that contribute to the adoption of laws and policies related to the energy efficiency field are included. In Portugal, these entities include the Portuguese Government, ADENE or the DGEG, which oversees energy efficiency in Portugal.

## 4.2 EPC market developments

The Portuguese EES market was dominated by about 12-15 providers for some years, including private ESCOs with financial capacity, private small ESCOs, joint ventures and large energy companies through their commercial divisions. In recent years, an emerging market of energy services has developed mostly due to an increase in demand of energy efficiency and energy services driven by the EC legislation.

This led the Portuguese Government to implement several energy policies focused on energy efficiency and although expectations were high, energy efficiency services are still not common in Portugal.

According to the official database established by DGEG, there are over 100 companies registered as certified auditing companies in Portugal. However, according to the National EPC market insight report published by Trust EPC South in January of 2016, no more than ten companies are EPC facilitators and three or four are EPC providers.

Energy Performance Contracting is still a market in development in Portugal. Although it is gaining popularity it is experiencing a slow increase and can therefore be considered a new business product meaning that players involved are still going through a learning process.

As of 2016 the number of ESCOs that can - and will - supply EPCs was unknown but interest was high, according to a JRC report. Around five to ten projects are implemented in a year with a value between EUR 100,000 and EUR 500,000, however they are usually pilot projects. Most

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projects are implemented in hotels, hospitals, leisure center sports, schools and public buildings.

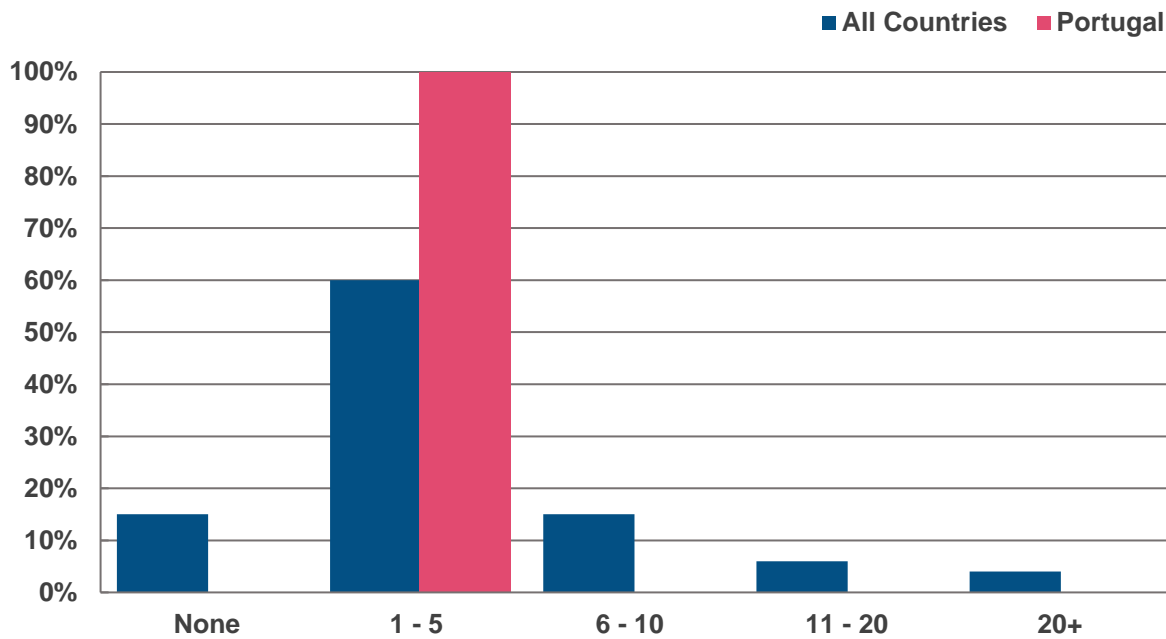
There is no market size available but estimations carried out by Trust EPC South estimated investment costs at EUR 215 million and the EPC market potential in the sector reaches EUR 630 million. The JRC's report, however, place the investment outlay roughly between EUR 10 and EUR 30 million based on the Transparence project's survey in 2013.

The text below outlines the state of play in relation to the Portuguese Energy Performance Contracting market, using a QualitEE survey dataset covering seven active service providers currently operating in the Portuguese market, as well as three key project facilitators. Moreover, three financial institutions and three customers of energy efficiency services were also interviewed in order to have the most comprehensive analysis of the market.

Figure 1 reflects the amount of EPC projects initiated by the respondents - EPC providers and facilitators – over the last 12 months. The answers received from Portuguese respondents reflect that 100% of them signed between one to five EPC contracts. While the majority (60%) of respondents across All Countries became also involved in between one to five EPC projects in the last year, about 15% became involved in between 6-15 EPC projects and another 15% did not get involved in any projects.

Portuguese numbers contrast significantly compared to the All Countries dataset, where the responses given were less homogeneous, and could lead to believe that there is more interest in EPC projects.

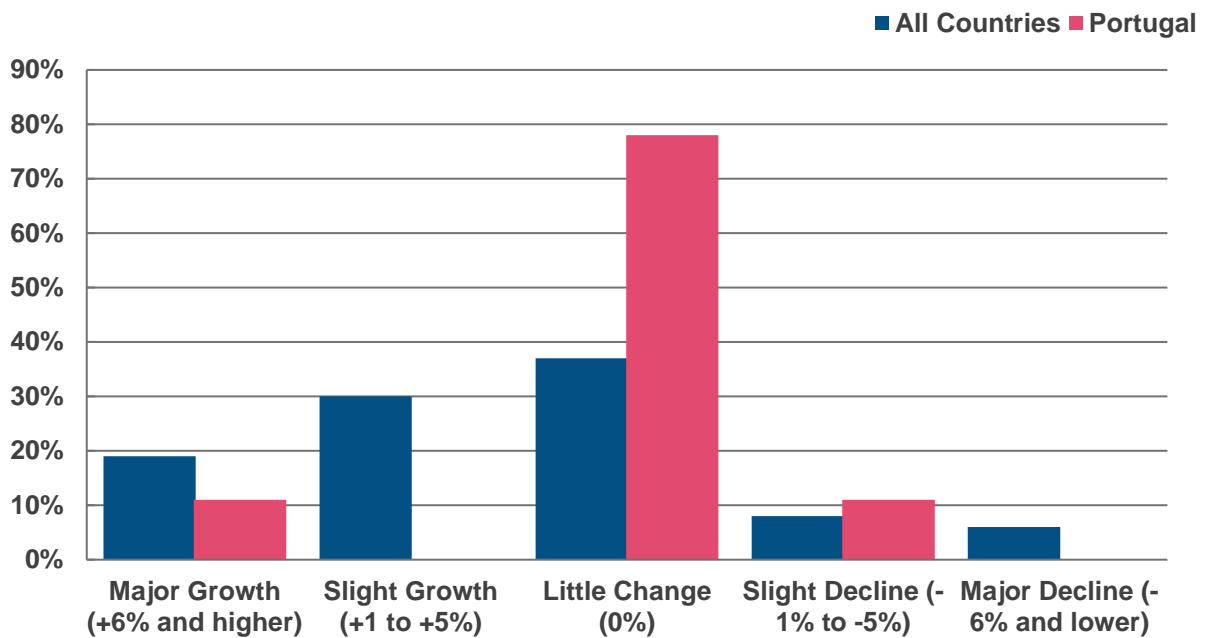
**Figure 1 How many EPC projects (that have reached Contract Signature) has your organization initiated / become involved with in the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)**



In Figure 2, one can observe the EPC orders received by the respondents over the last 12 months. As reflected by the graph, around 11% of Portuguese respondents experienced major growth (over 6%), compared to 19% for All Countries; 78% experienced little or no change; and another 11% were exposed to a decrease of up to 5% in the number of EPC orders received.

Although the major growth experienced by a few of the Portuguese respondents is of great significance, the fact that most of them experienced little change and some even a slight decline in EPC orders is not encouraging for the market. Moreover, the overall growth (including Slight and Major Growth) is lower than that of All Countries (49%).

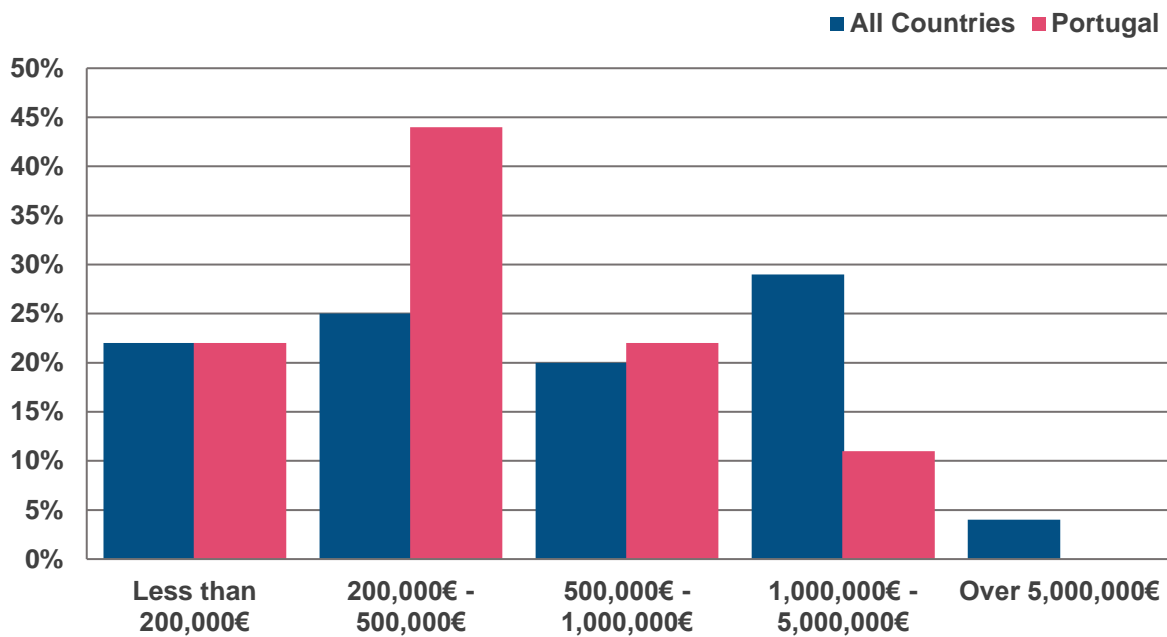
**Figure 2 In the last 12 months your EPC orders have seen (Percentage share of responses by providers and facilitators Sept 2017)**





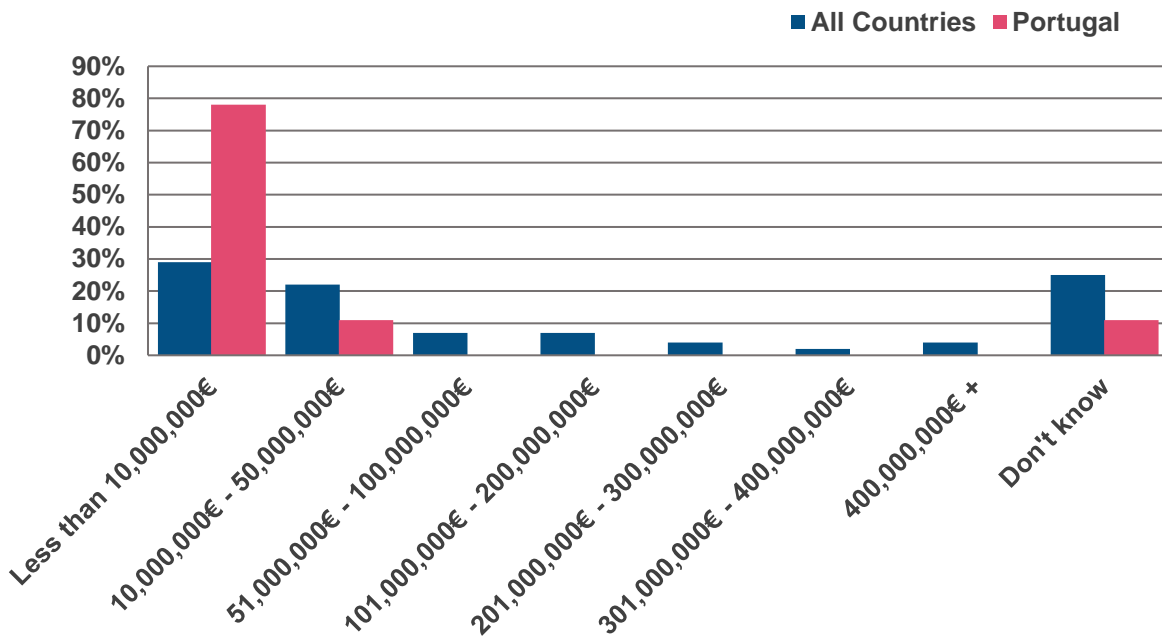
According to the survey, EPC providers and facilitators in Portugal are mainly involved in EPC projects worth between EUR 200,000 and EUR 500,000, considerably higher than reported across All Countries (25%). About 22% of Portuguese respondents reported to be involved in projects worth less than EUR 200,000; another 11% were involved in projects worth between EUR 1 and 5 million, which is considerably lower than for All Countries (28%). Moreover, in Portugal, none of the respondents were involved in an EPC with an overall value over EUR 5 million.

**Figure 3 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)**



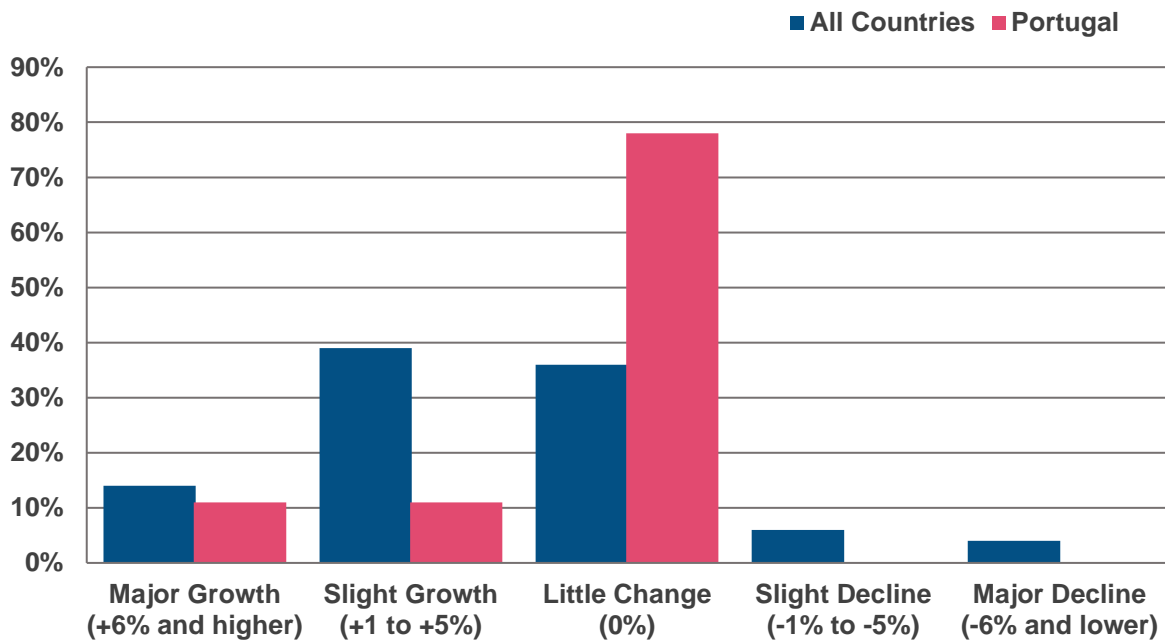
When the Portuguese respondents were asked to estimate overall revenue of the Portuguese EPC market in 2016 (Figure 4), a majority of respondents (78%) believed that the value was under EUR 10 million; 11% thought that the revenue was between EUR 10 and EUR 50 million and 11% of the respondents could not provide any estimate. The conclusion that could be drawn from this Figure is that the market is considered to be small, due to the high percentage of respondents that believe that the revenue generated by the market was under EUR 10 million. In contrast, only 30% of respondents across All Countries estimated such low volume of their national market in the survey. However, only a small fraction of these respondents believed the market to be of more than EUR 50 million.

**Figure 4. 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)**



According to 11% of respondents from Portugal, the Portuguese EPC market has seen a major growth over the last 12 months. Another 11% of Portuguese respondents thought that the market had experienced a slight growth of between 1% and 5%; and 78% felt that the market had been subject to little change. These numbers contrast with those received from All Countries, where responses were more divided between “slight growth” and “little change” (about 35-40% each) and give the impression of a pessimistic Portuguese market.

Figure 5. Over the last 12 months, the market for EPC in your country has seen:

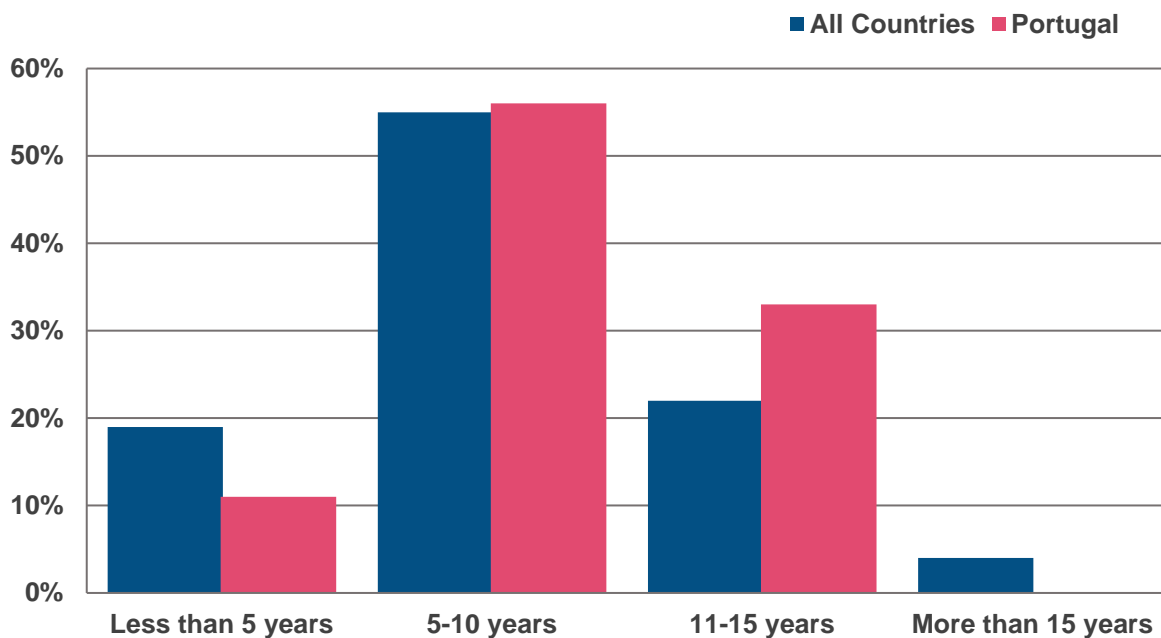


### 4.3 EPC business models

According to the market research carried out, 56% of Portuguese respondents, as well as those across All Countries, indicated that the most common duration of the EPCs they were involved in was between five and ten years.

In Portugal, 11% were under five years and 33% between 11 and 15 years. At the time of the survey, any of the Portuguese respondents was involved in an EPC project longer than 15 years, unlike a small fraction (4%) of All Countries. These results show that the majority of respondents' clients are ready to make Contracts at medium term.

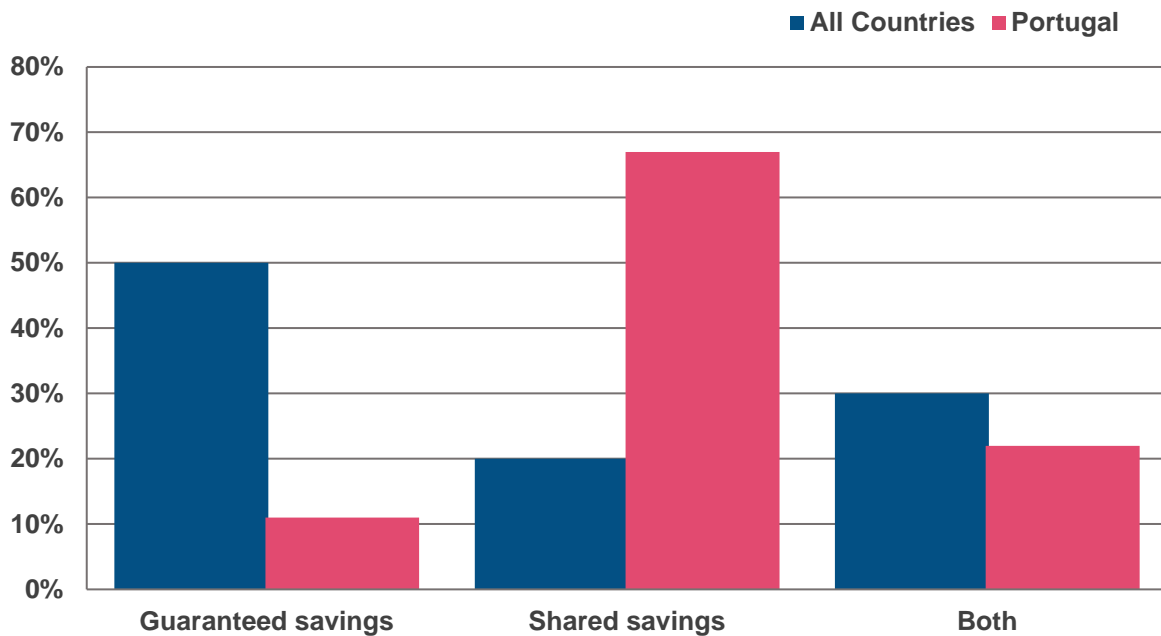
**Figure 6. What is the most common duration of the Energy Performance Contracts you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)**



The answers given by Portuguese respondents regarding energy savings models offered were far from similar to those given by All Countries surveyed. In the next figure, one can observe that in Portugal 11% of respondents offered guaranteed savings models, way below the 50% of All Countries, while 67% offered shared savings models and 22% offered both. In the All Countries dataset, the numbers were 20% and 30% respectively.

These results are to be expected since shared savings scheme is a good introductory model used mostly in countries where the market is developing, which is the case in Portugal, and the guaranteed savings model is more usual for countries with a well-established banking structure, with high familiarity with project financing and sufficient technical expertise.

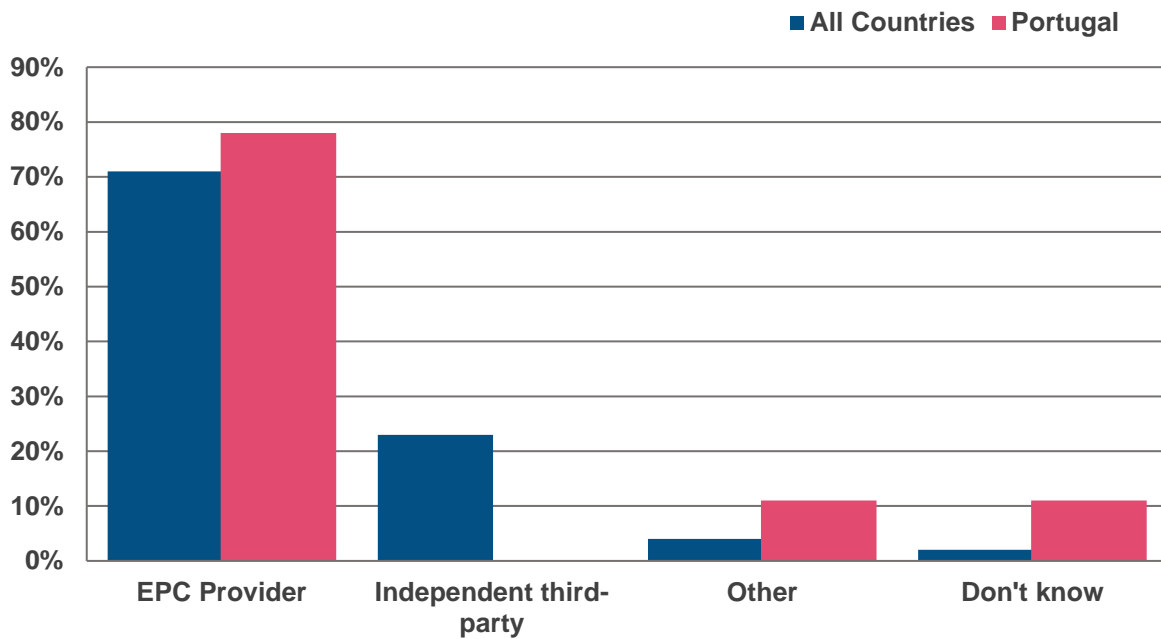
**Figure 7. What type of energy savings model is offered in the EPC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)**



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

In Portugal it is more common for EPC providers to deliver energy savings performance analysis in EPC projects (78%), similarly to what occurs in All Countries (70%). None of the Portuguese providers used independent third parties to carry out the performance analysis, contrary to the other countries surveyed where 23% of respondents stated that they energy savings performance analysis was delivered by independent third parties.

**Figure 8. Who typically delivers the energy savings performance analysis in the EPC projects you are involved with?**

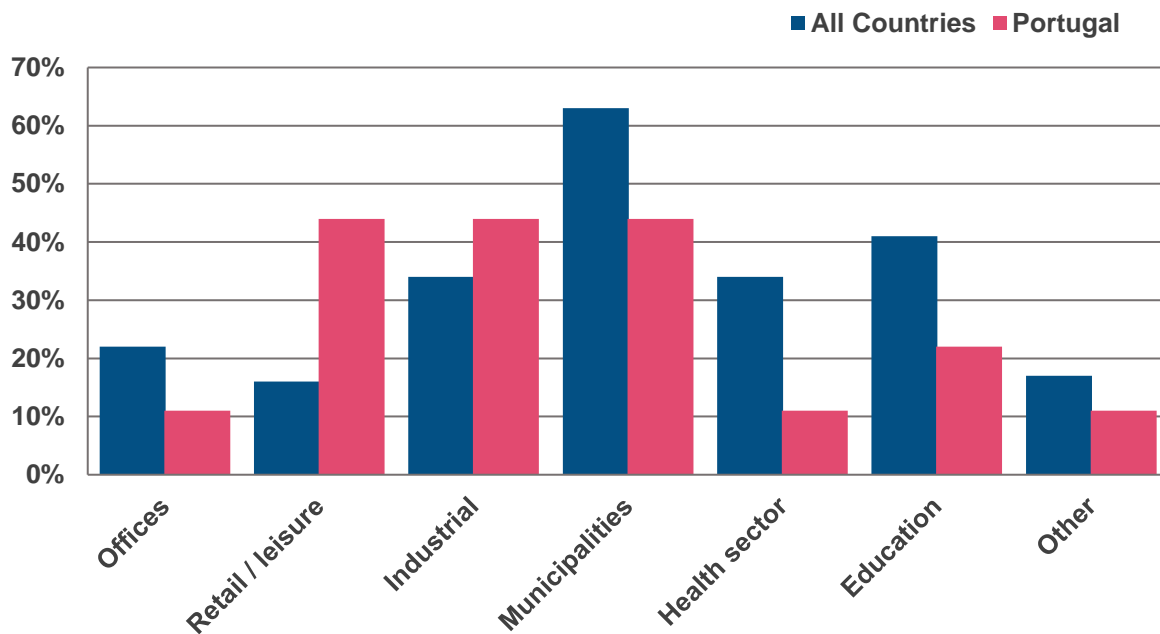


## 4.4 EPC market sectors

EPC clients in Portugal vary greatly between the public and private sector as well as within said sectors themselves. On the one hand, looking at the private sector, 88% of Portuguese respondents stated to have clients come from the retail and leisure and industrial sectors. In comparison, 50% of the clients from All Countries are from these sectors.

On the other hand, considering the public sector, most clients belonged to municipalities (43% for Portuguese respondents and 62% for All Countries). This presents the health and education sectors as market opportunities since they are underdeveloped.

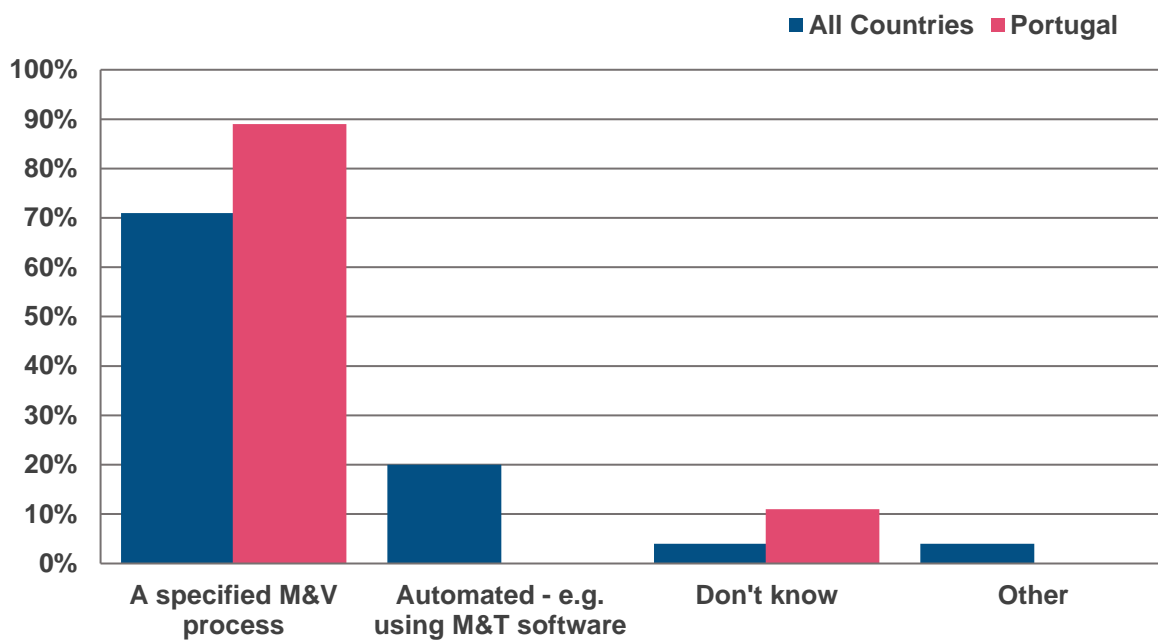
Figure 9. Which sectors do your EPC clients generally come from?



## 4.5 EPC measurement & verification

In Portugal, energy saving performance of EPC projects is principally measured through specified M&V processes (70%), as is generally the case in All Countries (89%). However, 11% of Portuguese respondents were unaware of the method used to carry out the task, which stands out.

Figure 10. How is the energy saving performance of the EPC projects you are involved with typically measured and quantified?





## 4.6 EPC market barriers

The most significant market barrier identified by the market is lack of trust in the ESCO market, as cited by 100% of Portuguese respondents, in contrast with the response obtained from the rest of Europe, where only 52% of respondents consider it a barrier. According to the country report on recommendations for action for development of EPC markets conducted by Transparens, this is to do with the fact that this business model is relatively new and complex, and the EPC market is virtually non-existent in the public sector.

Another relevant barrier, as cited by the respondents, is complexity of the concept and lack of information. According to the above mentioned Transparens report, this is because this new business model is not well accepted among potential customers and banks seem to misunderstand its concept.

On the contrary, raising affordable finance, split incentives between landlords and tenants and staff costs are not perceived as EPC market barriers by Portuguese respondents. Taking advantage of these responses may create incentives for actors to penetrate the market.

### 4.6.1 Regulatory and administrative barriers

Administrative barriers in the public sector are accounted as a handicap by 56% of the Portuguese respondents, and 44% of the respondents from other countries.

- ✔ General regulatory barriers: according to the Transparens Survey, the Portuguese Government has been delaying the diffusion of EPCs in the market, since policies have been very ineffective and there are no policy mechanisms available to encourage the uptake of EPCs, in particular public subsidy programs, soft/favourable loans and tax exemptions.
- ✔ Regulatory and administrative barriers in the public sector: the legal framework conditions for the establishment of EPCs in Portugal is no longer a barrier. Recent government and energy policies are targeted to promote energy efficiency and the ESCO business.

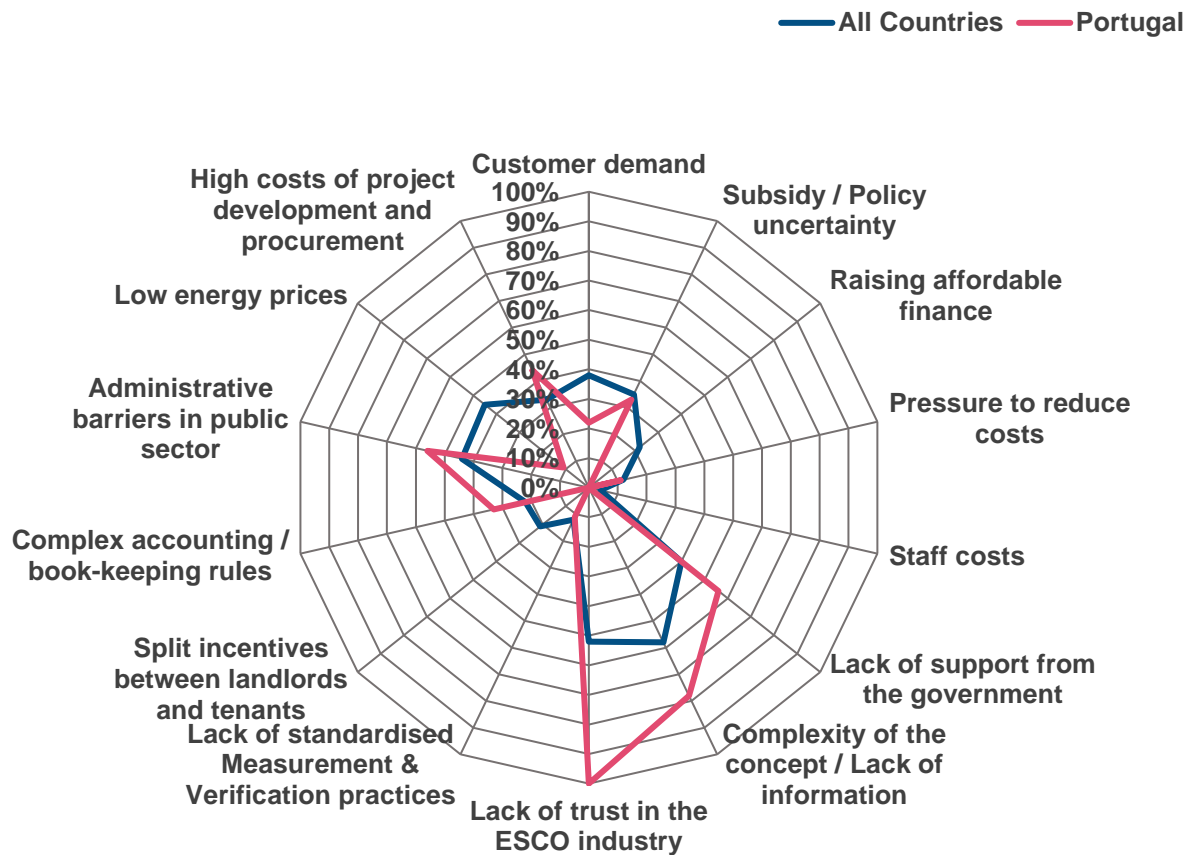
### 4.6.2 Structural barriers

The main structural barriers as perceived by the Portuguese respondents are as follows

- ✔ Complexity of the concept and lack of information prevent customers from engaging in EPCs.
- ✔ Lack of trust in the ESCO industry.
- ✔ Lack of information also acts as a barrier to the EPC market in Portugal due to the youth of the market.

EPC providers and facilitators across All Countries selected ‘Lack of trust in the ESCO industry’ and ‘Complexity of the concept / Lack of information’ as the top two barriers to EPC business, matching their Portuguese counterparts.

**Figure 11. Based on the activities of the last 12 months: what do you think are the main BARRIERS to the EPC business?**



### 4.6.3 Financial barriers

One of the main restrictions or limitations that ESCOs used to face in Portugal, as reported by Transparens, was access to financial instruments. Because of the financial crisis, the Portuguese Government and banks lacked the funds to support ESCOs and international banks were not interested in investing in Portugal because of the high risk it presented. However, and according to the responses obtained by the survey access to finance no longer presents a barrier.

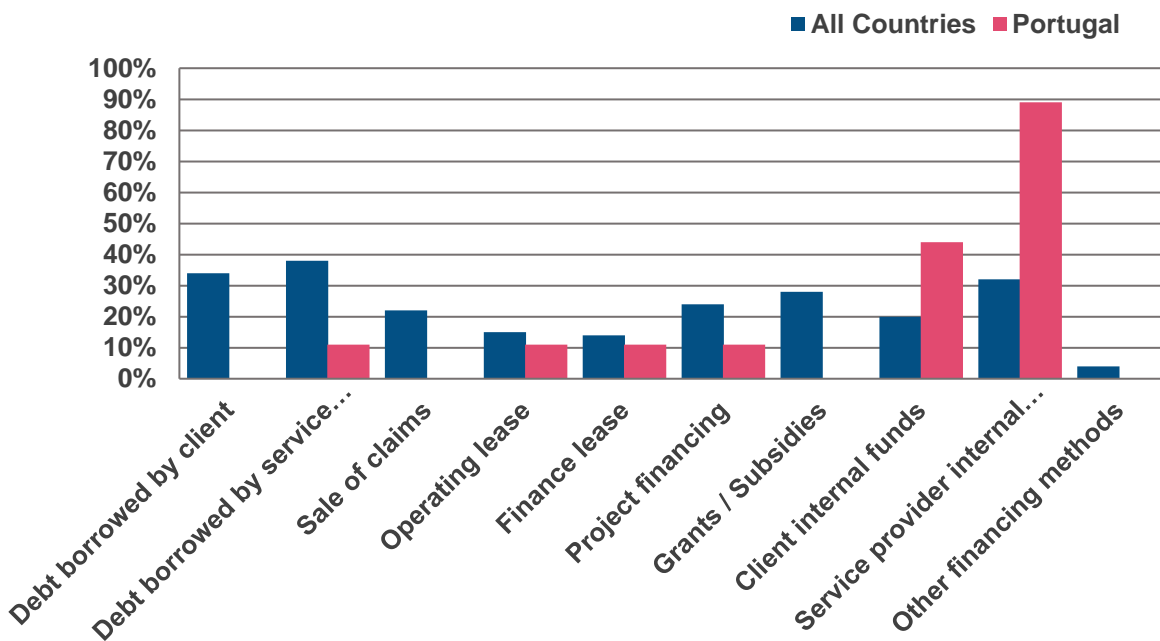
## 4.7 EPC financing

There is one source of financing that stands out in EPC projects in Portugal and it is the use of service provider internal funds, as reported by 89% of respondents and represented in Figure 12. This number is significantly higher than the 32% reported by respondents from other countries.

Although not as relevant, 44% of respondents did use client internal funds as their method of EPC financing, once again higher than the 20% reported by the rest of the countries surveyed.

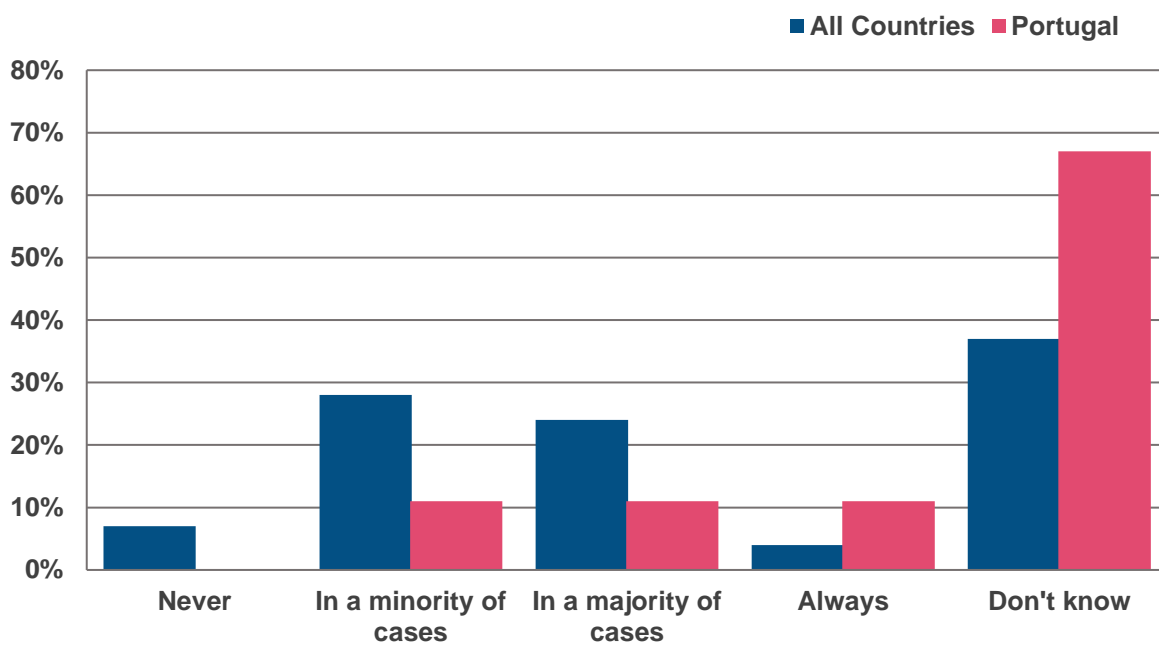
On the other hand, there were three methods of financing of little relevance to the respondents from Portugal: debt borrowed by client, sale of claims and grants/ subsidies.

Figure 12. How are the EPC projects you are involved with financed?



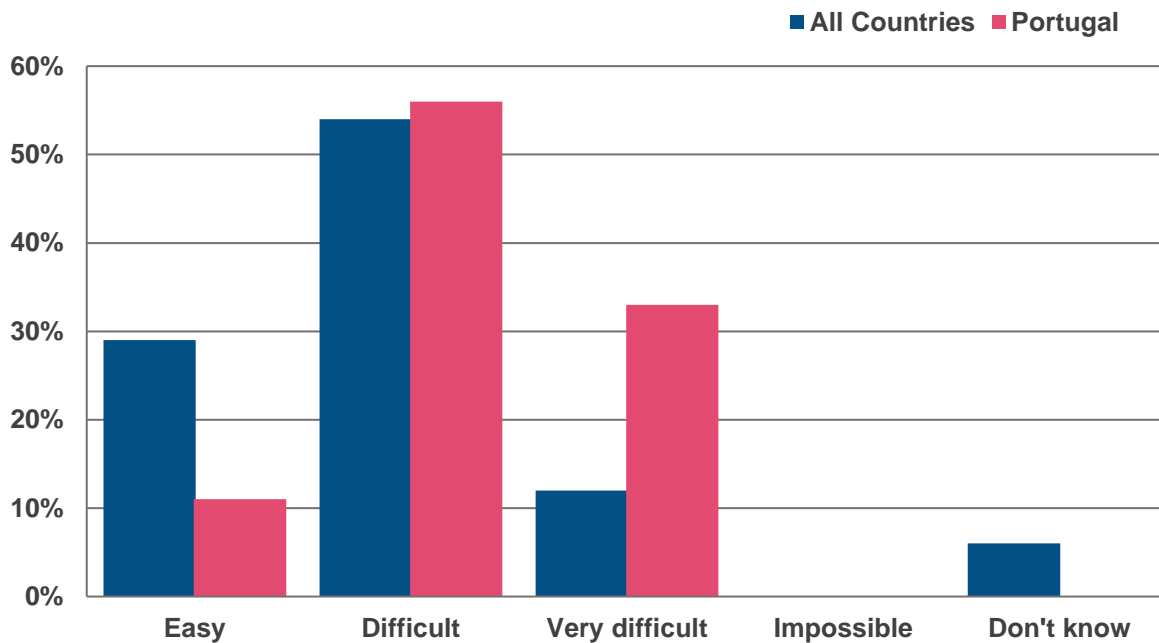
The fact that so many respondents from Portugal (67%) were unaware of whether or not the sale of claims is accepted as the main collateral for EPC projects stands out, especially because it differs greatly from the answers given by respondents from All Countries, where 37% were unaware. Only 4% of Portuguese respondents reported that the sale of claims was always accepted as collateral, which is considerably lower than across All Countries in the survey (11%).

**Figure 13. From your experiences, is the sale of claims (sale of receivables) accepted as the main collateral for EPC projects?**



Most respondents, both from Portugal (54%) and All Countries (56%), considered obtaining financing for EPC projects “difficult”. In the case of Portugal, a significant number of respondents (32%) went even further and assured that they found it “very difficult”. Access to financing methods is important to promote and increase EPC projects, and such results show one of the main barriers to the development of EPC projects.

Figure 14. Overall, do you consider that obtaining viable finance for an EPC project is:



#### 4.7.1 ESCO financing

- ✔ Service provider internal funds: in Portugal, this is the most extended method used to finance EPC projects, according to responses obtained by the survey. Through this method, the service provider assumes the risk.
- ✔ Client internal funds: financing through client internal funds is also one of the preferred methods in the country. Through it, the client uses its own funds to finance the project and increase energy efficiency in its premises.

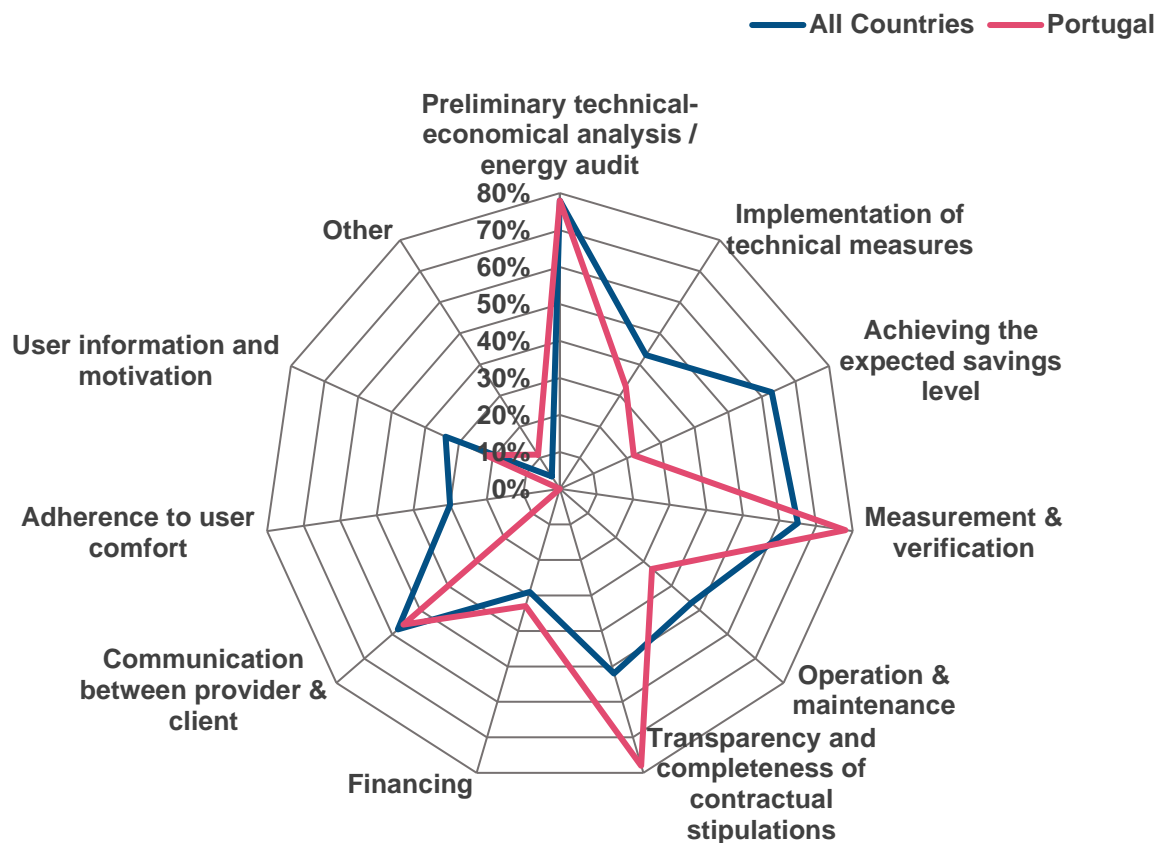
#### 4.7.2 Client financing

- ✔ Credit by the client: through this method of financing, the client and EES receiver carries the risk by using their funds to finance the project.

## 4.8 EPC quality determinants

The results obtained from the survey regarding determinants of quality in EPC projects presented both similarities and differences between the answers given by Portuguese respondents and those given by respondents from All Countries.

Figure 15. What are the most important determinants of quality in EPC projects?



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.

On the one hand, both groups consider preliminary technical-economic analysis as one of the main determinants of quality. Similar responses were also given when questioned about measurement and verification and transparency and completeness of contractual stipulations. In this sense, the establishment of a secure relationship between the parties involved is crucial to achieve the set goals.

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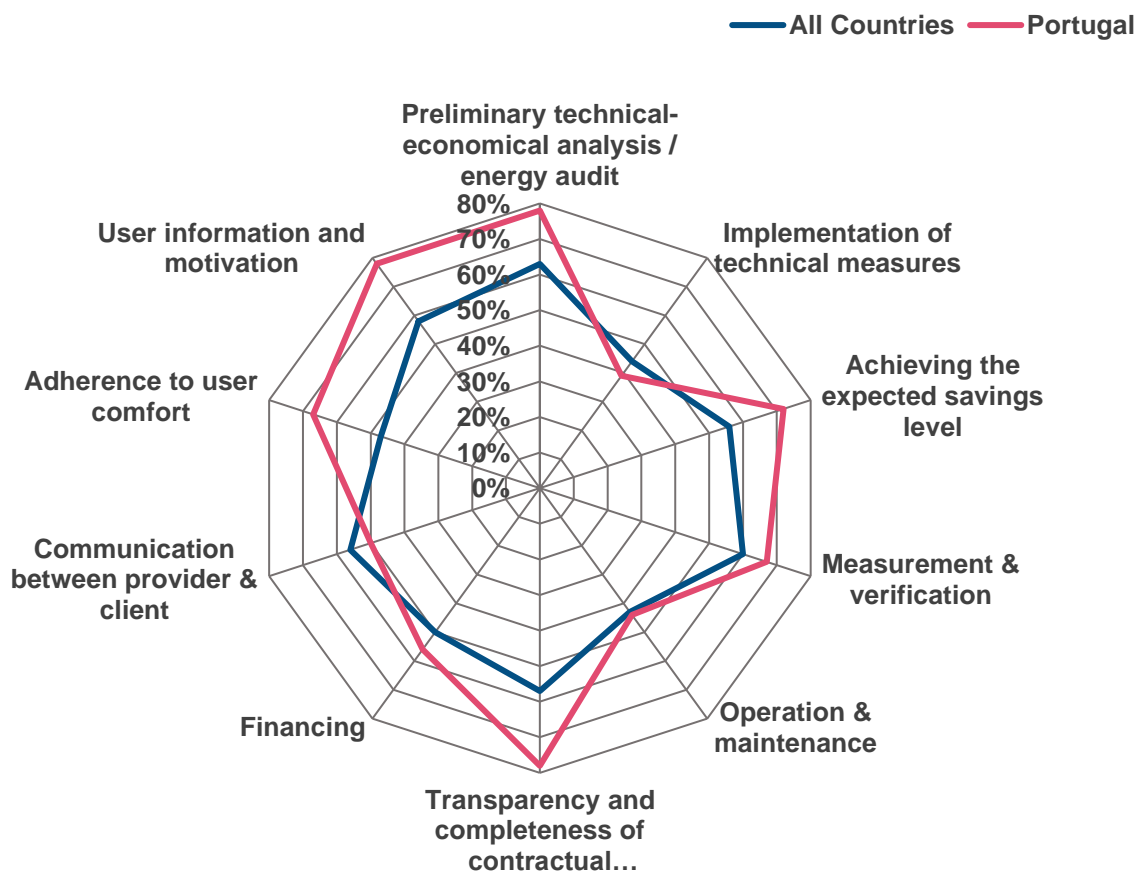
On the other hand, achieving the expected savings level was considered as an important determinant of quality by 63% of respondents from All Countries but only by 22% of respondents from Portugal, as reflected by Figure 15. Adherence to user comfort is another determinant that presented significant differences between the responses obtained. While no Portuguese respondents considered it to be of relevance, 30% of respondents from All Countries did. Preliminary technical-economic analysis presents another source of worry in the Portuguese EPC market, as it is considered as a determinant of quality, as reflected on Figure 15, but it also needs improvement, in accordance to the results obtained.

Although user information and motivation is not considered to be an important determinant of quality, it does need improvement according to 78% of the responses attained from Portuguese respondents.

In Portugal, and as reflected by Figure 16, all the areas on which respondents have been surveyed need some sort of quality improvement, more so than across All Countries.

As was the case regarding determinants of quality, in Portugal, transparency and completeness of contractual stipulations is considered to be one of the areas that need most improvement in EPC project preparation and implementation. This can lead to the conclusion that Portuguese EPCs present transparency issues, which may act as a barrier.

**Figure 16. In which areas are quality improvement most needed in EPC project preparation and implementation?**





## 5 ENERGY SUPPLY CONTRACTING MARKET

### 5.1 ESC market actors

Actors in the Portuguese ESC market are as follows:

#### 5.1.1 ESC providers and facilitators

- ✔ ESC providers: they provide the equipment, and the energy source necessary to implement energy efficiency and have resources and technical know-how but sometimes lack client portfolios.
- ✔ ESC facilitators: provide the necessary know-how and experience to support the client in all the necessary steps to develop and implement an ESC project successfully. They also act as a link between the provider and the client.

#### 5.1.2 Clients

The tendencies in Portugal, according to a report published by JRC, are public entities and private companies in large industries. Sometimes private-public partnerships are created to access these projects.

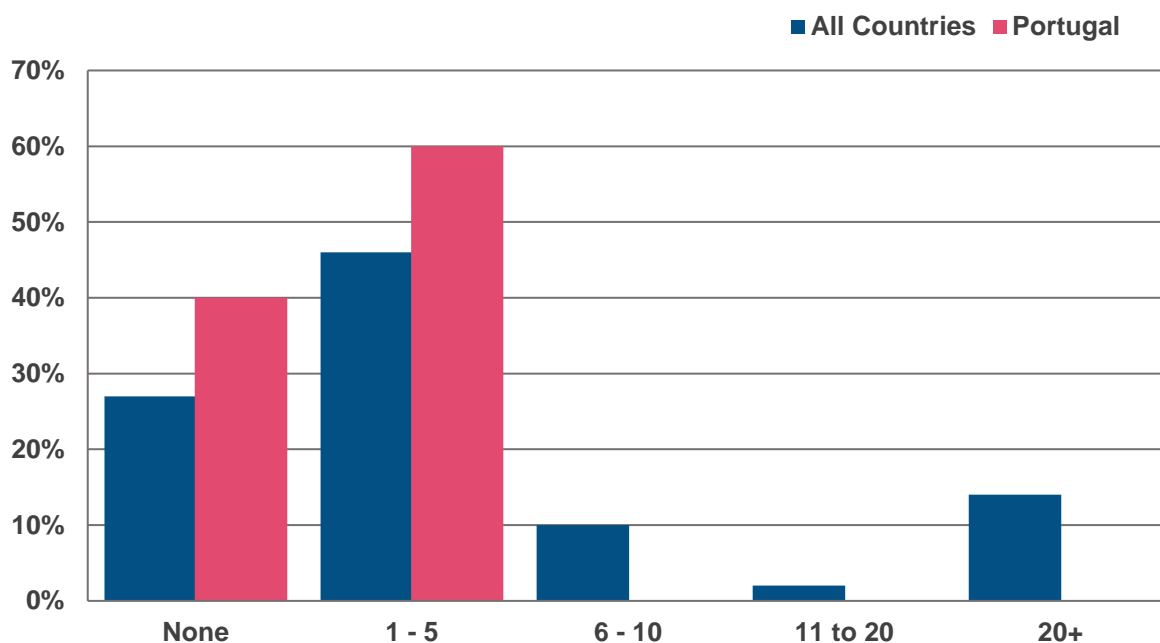
## 5.2 ESC market developments

The ESC market in Portugal has experienced a slight growth over the last few years according to data obtained and published by JRC. The market remains rather small, both on the supply as well as the demand side. Although there are over 100 potential ESCO contractors registered in the DGEG, only around 40 of them are qualified. Estimations conducted steer that number towards 15-20 and others even as low as 3-4 ESCOs.

The ECO.AP program estimated that it could be able to generate investments of about EUR 13,000 million until 2020, but it is unclear if this can be achieved. The current value of private sector contracts was estimated at around EUR 50 million, which contrasts with the responses obtained in Figure 19, where 80% of respondents assured that market revenue was under EUR 10 million, as well as data obtained for Figure 23, in which respondents stated that most clients came from municipalities.

As reflected by Figure 17, at the time of the survey, 60% of Portuguese respondents had reached between one and five ESCs over last 12 months, and 40% had reached none. This is a reflection of the limited size of the market, with room to grow. As a comparison, 13% of All Countries respondents had reached more than 20 ESC projects within the last 12 months.

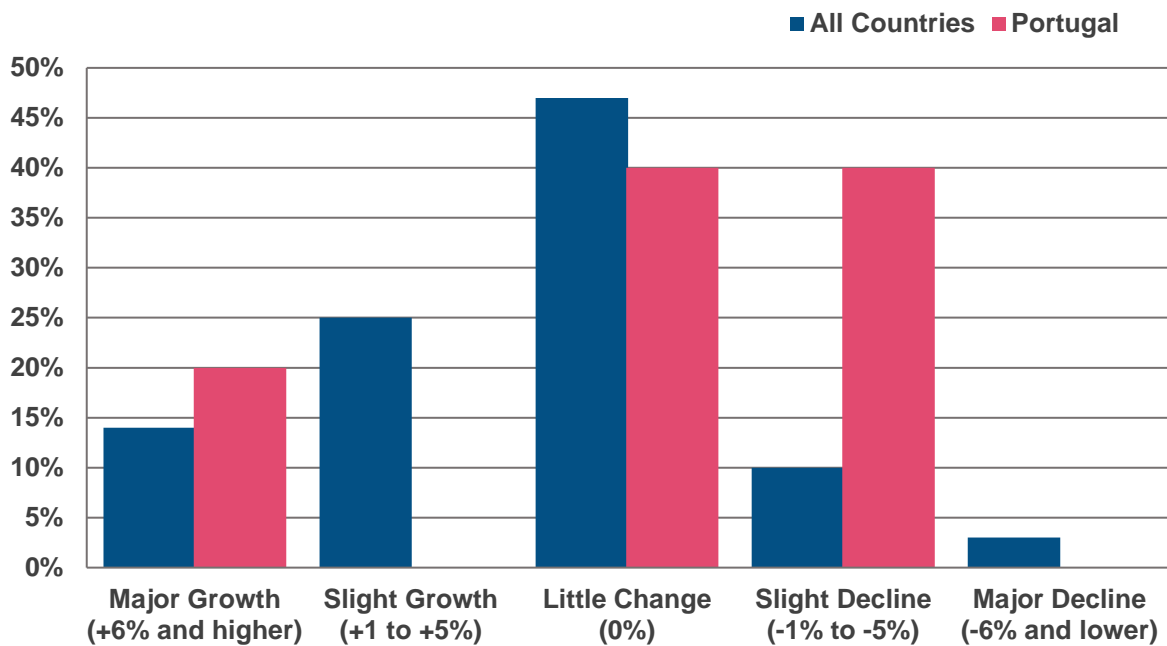
**Figure 17. How many ESC projects (that have reached ESC Contract Signature) has your organisation initiated / become involved within the last 12 months?**



Regarding ESC orders, 20% of Portuguese respondents had experienced major growth of 6% or more, which is encouraging especially if compared with the response received from the rest of countries, which was 14%.

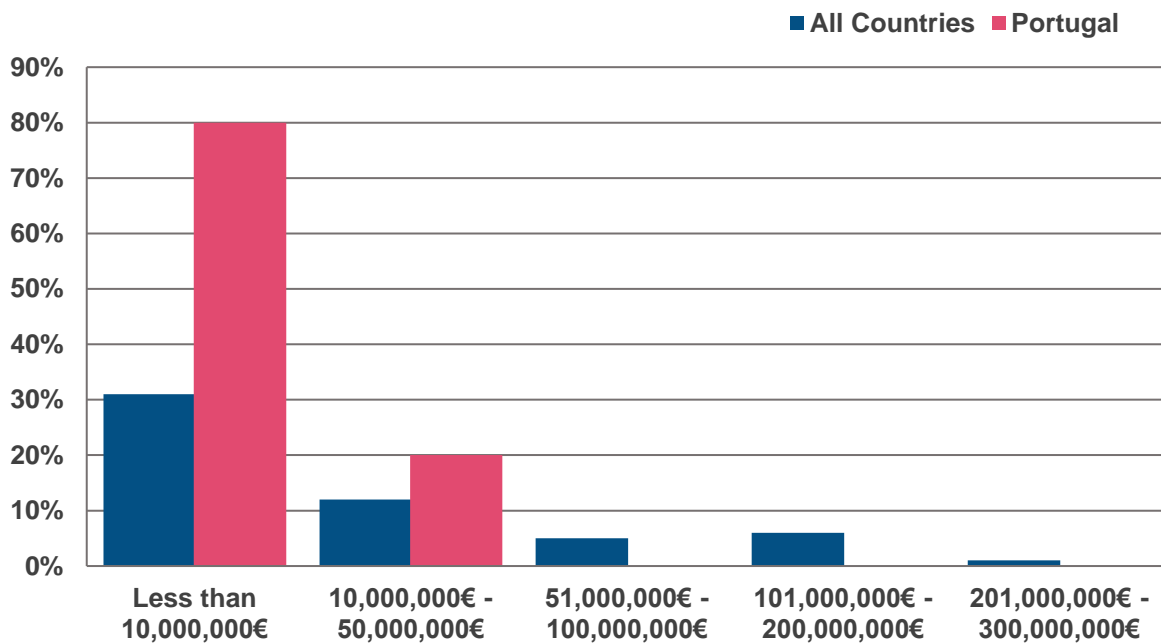
Although a portion of Portuguese respondents experienced major growth in ESC orders, those who experienced little change or a slight decline were far more significant, with a percentage of 40% in both cases as reflected by Figure 18. Once again this may reflect the lack of penetration of ESCs in the Portuguese market.

Figure 18. In the last 12 months, your ESC orders have seen:



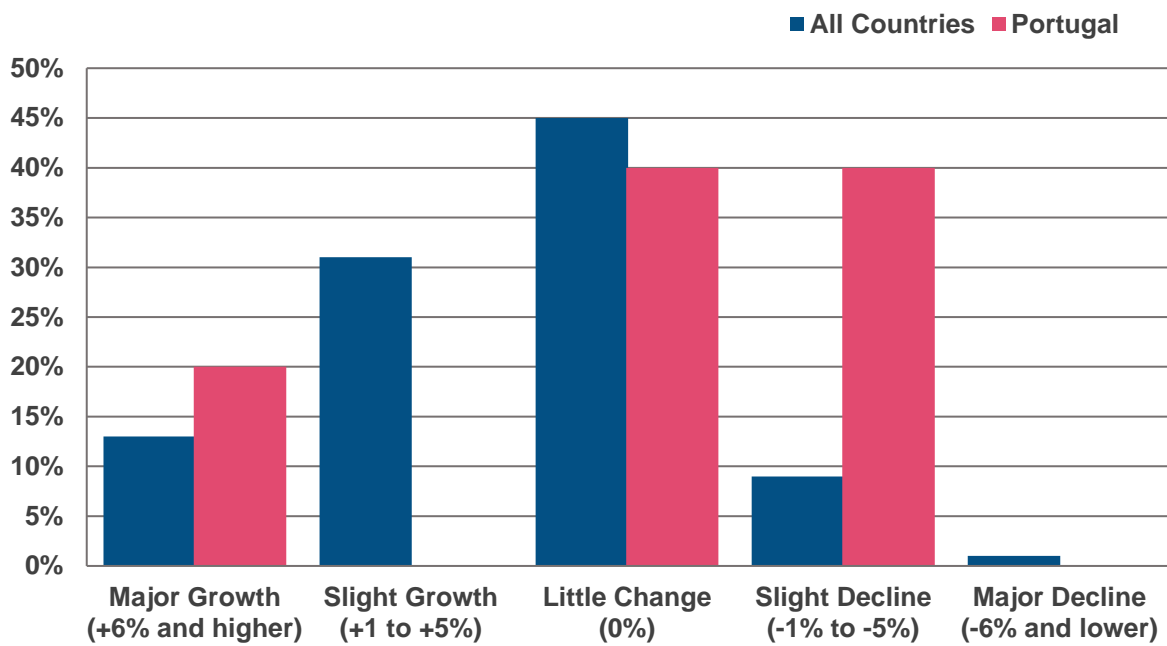
The ESC market in Portugal presents revenues under EUR 10 million according to 80% of the survey Portuguese respondents. This contrasts with the data obtained by JRC that estimated the current value of private contracts at EUR 50 million, response only given by 20% of Portuguese respondents. The responses differ from with those given by other countries, with percentages of 30% and 11% respectively.

**Figure 19. Roughly how much revenue do you think the ESC market in your country generated in 2016?**



Another relevant number is the one represented by Figure 20 in which 40% of respondents reported that the ESC market in Portugal had experienced a slight decline of between 1% and 5%, a proportion way higher than the 8% across All Countries. The same number of Portuguese respondents stated that it had experienced little or no change, almost as many as those from the rest of countries (45%). These results might act as evidence that respondents extrapolate their situation to the general state of the market; the market is small and there are few ESCOs in it.

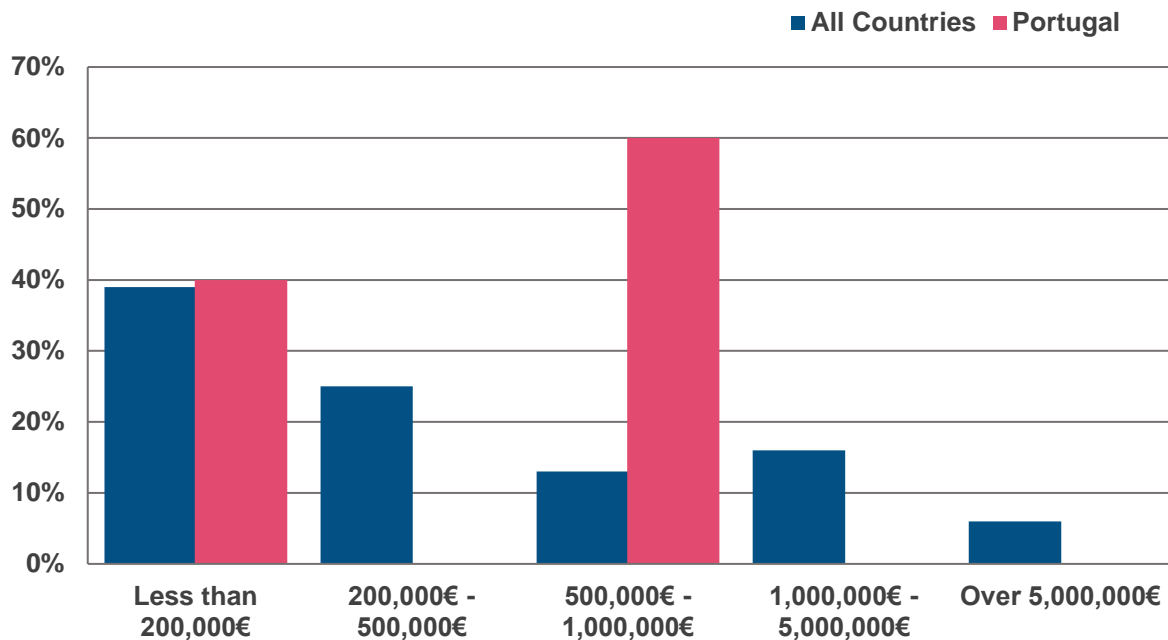
Figure 20. Over the last 12 months, the market for ESC in your country has seen:



### 5.3 ESC business models

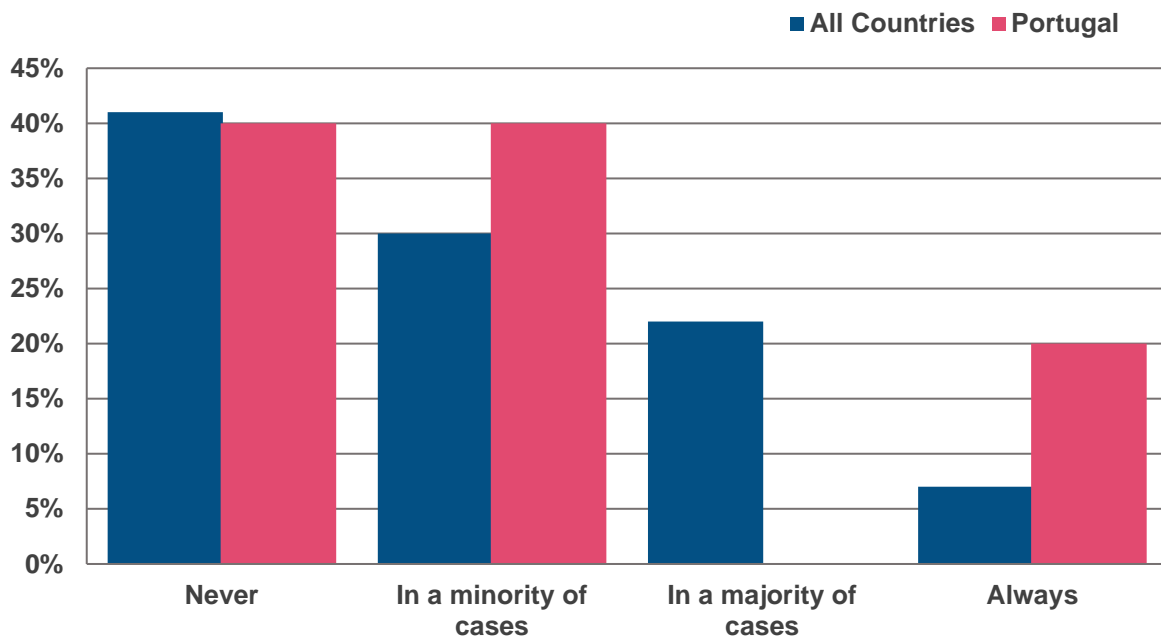
As represented by Figure 21, the overall value of 100% of ESC projects carried out by the respondents in Portugal are comprised within two margins; projects with a value under EUR 200,000 million and projects with a value between half a million and EUR 1 million. At the time of the survey there were no ESC projects valued over EUR 1 million. These values divert from the ones given by all other countries where 39% of projects had a value lower than EUR 200,000 and 6% had a value over EUR 5 million.

Figure 21. What is the most common overall value (investment outlay) of the ESC projects you are involved in?



In 40% of the ESC projects carried out by Portuguese respondents, payments per unit of energy were never delivered in combination with payments per unit of energy saved, which was consistent with the results across All Countries in the survey (41%). Also 40% of Portuguese respondents stated that payments were delivered in combination in a minority of cases. Another 20% reported that they were always delivered in combination, which is higher than across All Countries (7%).

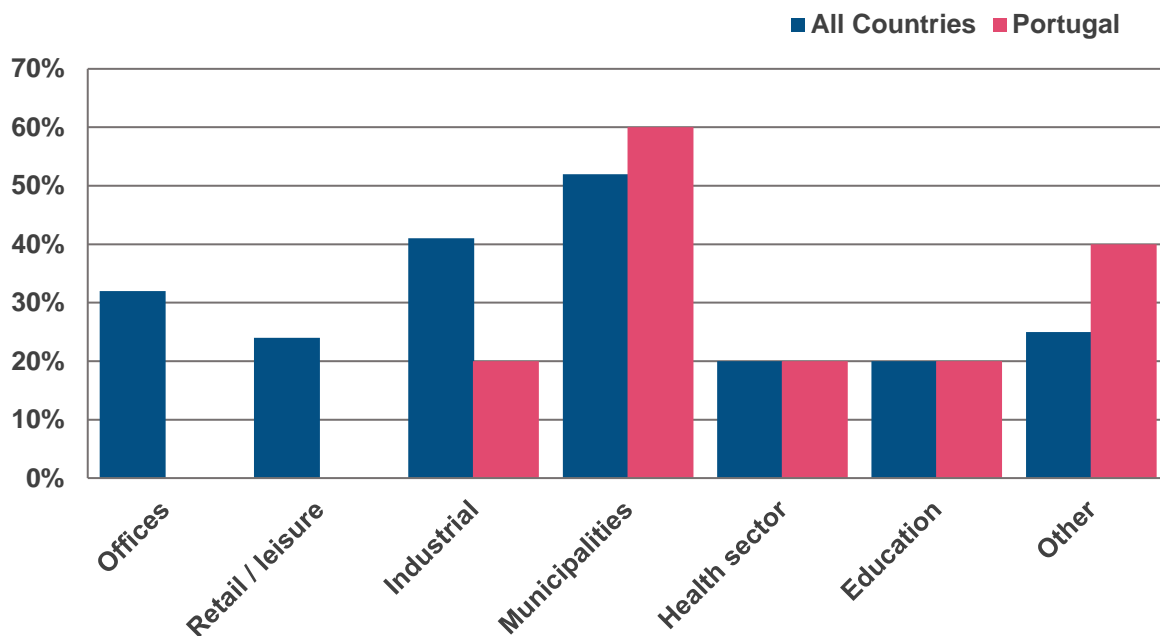
Figure 22. In the ESC projects you are involved in, were payments per unit of energy delivered in combination with payments per unit of energy saved (from installed energy efficiency measures)?



## 5.4 ESC market sectors

Figure 23 details the origin of ESC clients, which in Portugal come mostly from the public sector, with municipalities acting as the main customers followed by the health and education sectors. The figures obtained regarding the public sector in Portugal are similar to those given across All Countries. However, there is a significant difference in the number of clients coming from the private sector and more specifically the industrial sector, which could present a market opportunity. Exactly 20% of Portuguese respondents stated that their clients were coming from the industrial sector, which is considerably lower than across All Countries in the survey (41%).

Figure 23. Which sectors do your ESC clients generally come from?

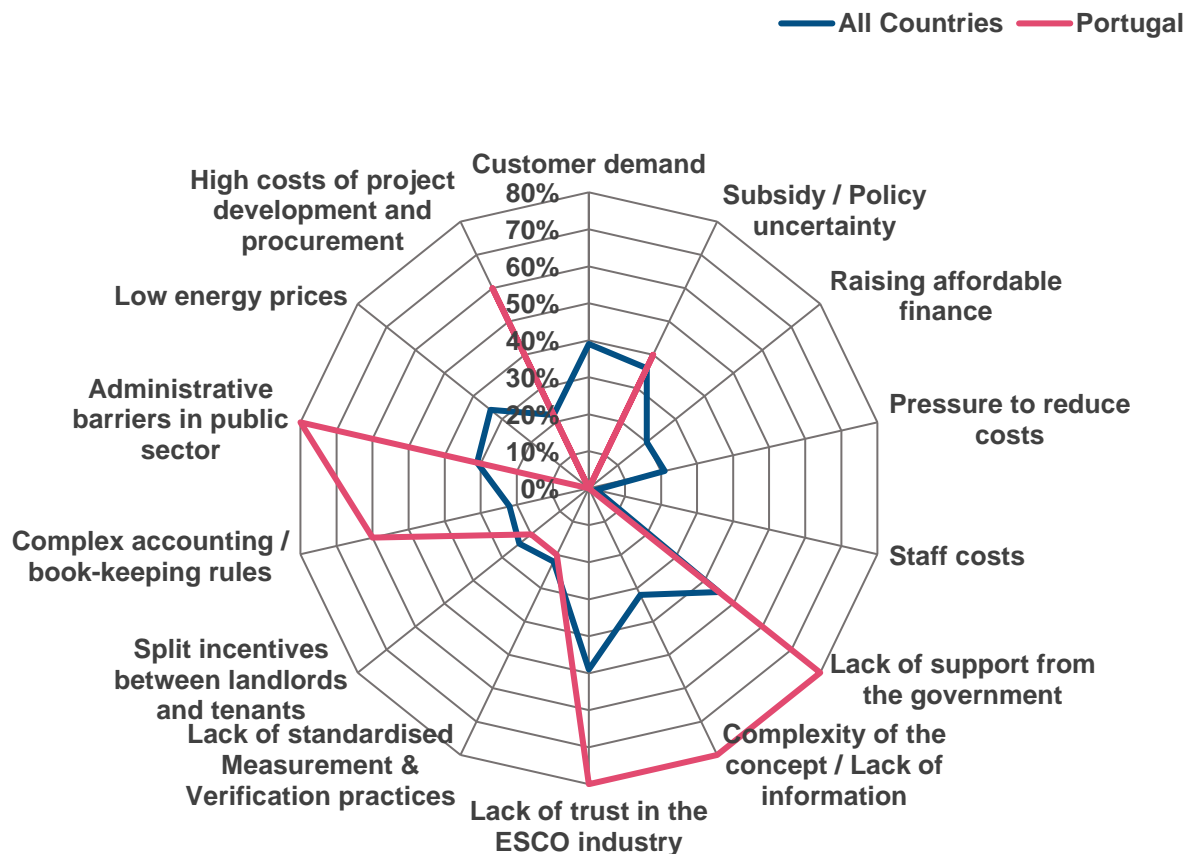




## 5.5 ESC market barriers

For All Countries in the survey, ‘Lack of trust in the ESCO industry’, ‘Lack of support from the government’ and ‘Customer demand’ were selected as the top three barriers. In Portugal, however, the reported ESC market barriers differ. As reflected by Figure 24, there are four barriers cited by 80% the respondents from Portugal; ‘Administrative barriers in the public sector’, ‘Lack of trust in the ESCO industry’, ‘Complexity of the concept/ lack of information’ and ‘Lack of government support’. Furthermore, there are two barriers identified by the Portuguese respondents with a response of 60%; complex accounting and book keeping rules and high costs of project development and procurement. On the other hand, five barriers were not seen as such by the respondents; ‘Customer demand’, ‘Raising affordable finance’, ‘Pressure to reduce costs’, ‘Staff costs’ and ‘Low energy prices’.

**Figure 24. 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 identified two main regulatory barriers with a focus on in the public sector

- ✔ Lack of government support: 100% of respondents considered lack of government to be a public sector barrier.
- ✔ Administrative barriers in the public sector: once again, 100% of respondents considered lack of government support to be a public sector barrier.

### 5.5.2 Structural barriers

Structural barriers present a blockade to the growth and extension of the ESC market since they prevent new players from penetrating the market. The most important ones in Portugal, as identified by the conducted market research, and coinciding with those in the EPC market, are:

- ✔ Lack of trust in the ESCO industry: pinpointed as one by 80% of the respondents in the survey.
- ✔ Complexity of the concept and lack of information: most respondents cited it as barrier that prevented them from entering the ESC market.

On the other hand, only 20% of respondents stated that they considered lack of standardized measurement and verification practices as a structural barrier in the ESC market.

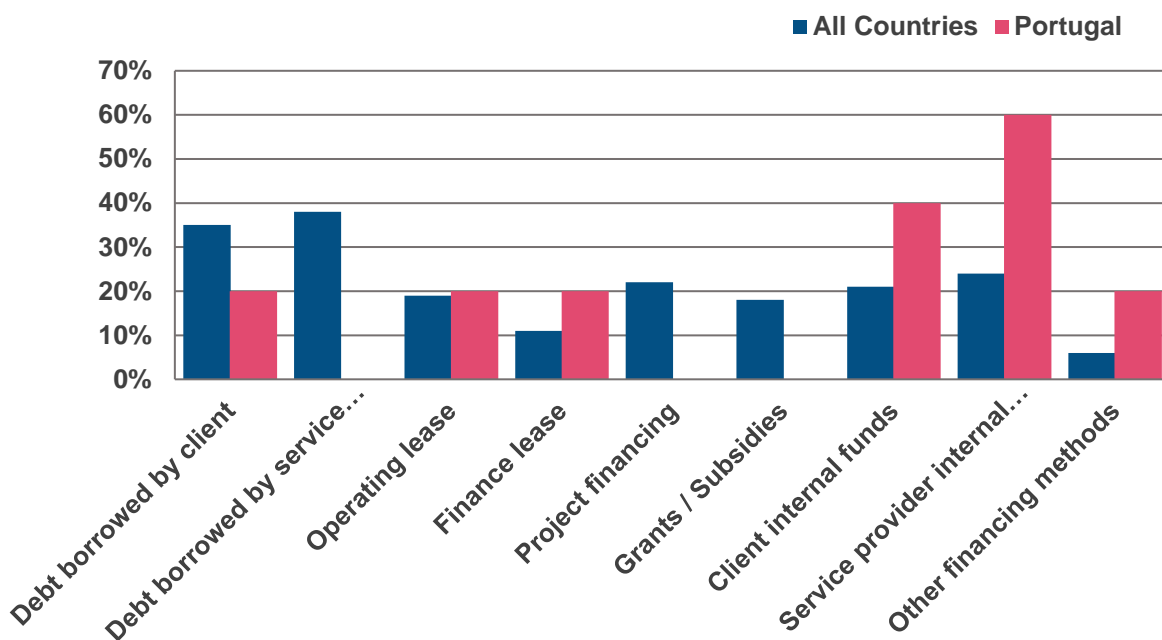
### 5.5.3 Financial barriers

As previously mentioned, although in past years access to finance was considered the main barrier in Portugal, the path to recovery in which the country finds itself has ameliorated how the issue is viewed by the respondents, who no longer consider it a barrier. It is important to mention, however, that ESC projects are usually financed by client and provider internal funds, and not so much by capital coming from the financial sector.

## 5.6 ESC financing

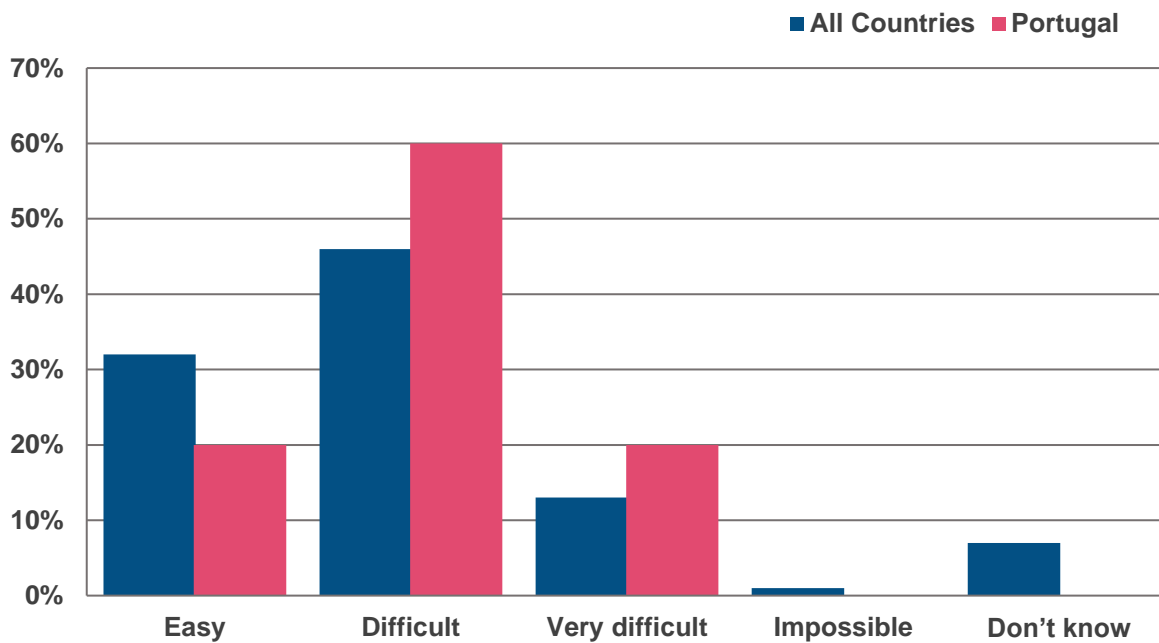
Figure 25 reflects that the most common financial method used in ESC projects in Portugal are service provider internal funds. Clients internal funds were also used to finance said projects by 40% of the respondents according to the survey. Less occurring, but still used financial methods include; debt borrowed by client, operating lease, finance lease and other financing methods. The tendency is different for the rest of countries, with principally financing by Debt borrowed by client (34%) and Debt borrowed by services (38%).

Figure 25. How are the ESC projects you are involved with financed?



As was the case with EPC projects, obtaining viable finance for ESC projects is perceived as difficult in Portugal (60%), but almost as many correspondents from All Countries perceived it difficult too (46%). According to the survey, 20% of Portuguese respondents went as far as to state that it was very difficult, but none of them considered it to be impossible. Only 20% considered obtaining viable finance for ESCs to be easy, which is lower than across All Countries in the survey (32%).

Figure 26. Overall, do you consider that obtaining viable finance for an ESC project is:

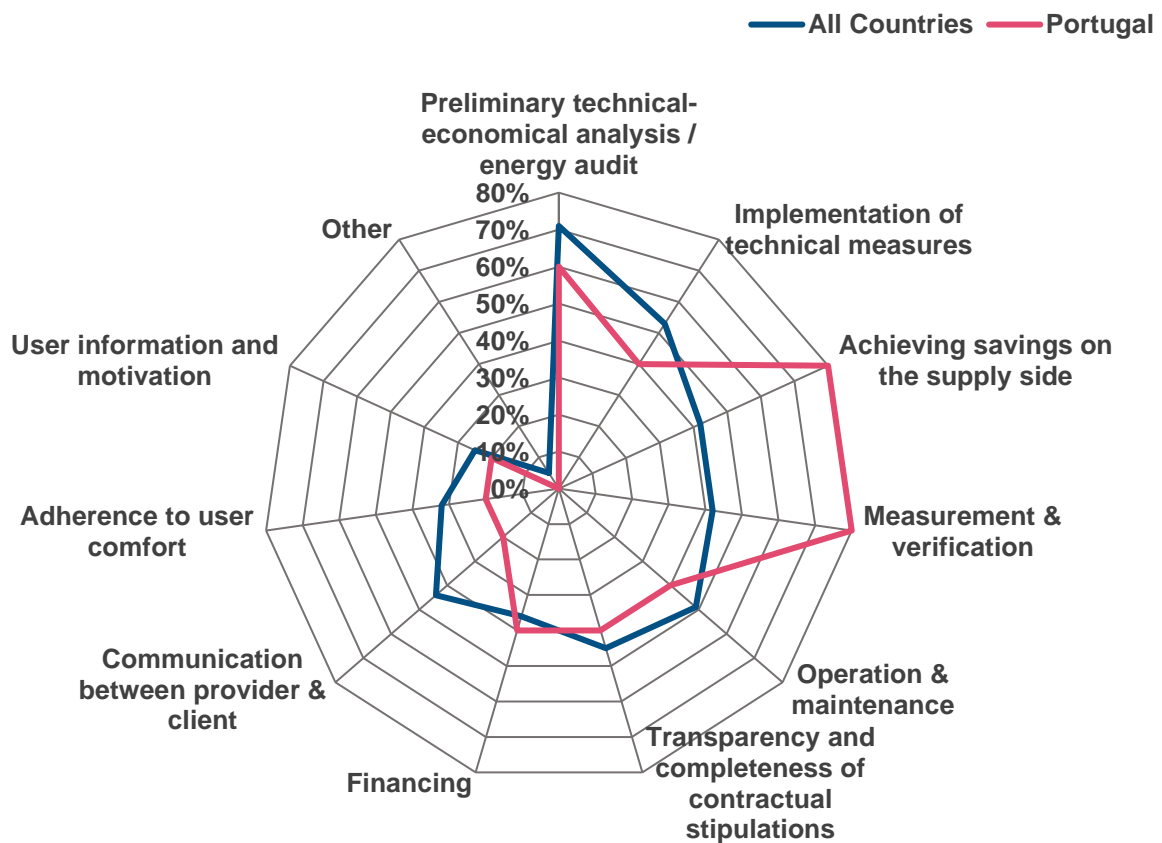


## 5.7 ESC quality determinants

Considering the responses given to the survey, three determinants stand out regarding quality in ESCs:

- ✔ Achieving savings in the supply side: keeping supply costs down is a quality determinant according to Portuguese respondents.
- ✔ Measurement and verification: 80% of survey respondents considered this to be a determinant of quality in ESC projects.
- ✔ Preliminary technical-economic analysis and energy audit: although the number of respondents that reported this to be a determinant was lower than the two mentioned above (60%), it is still of relevance.

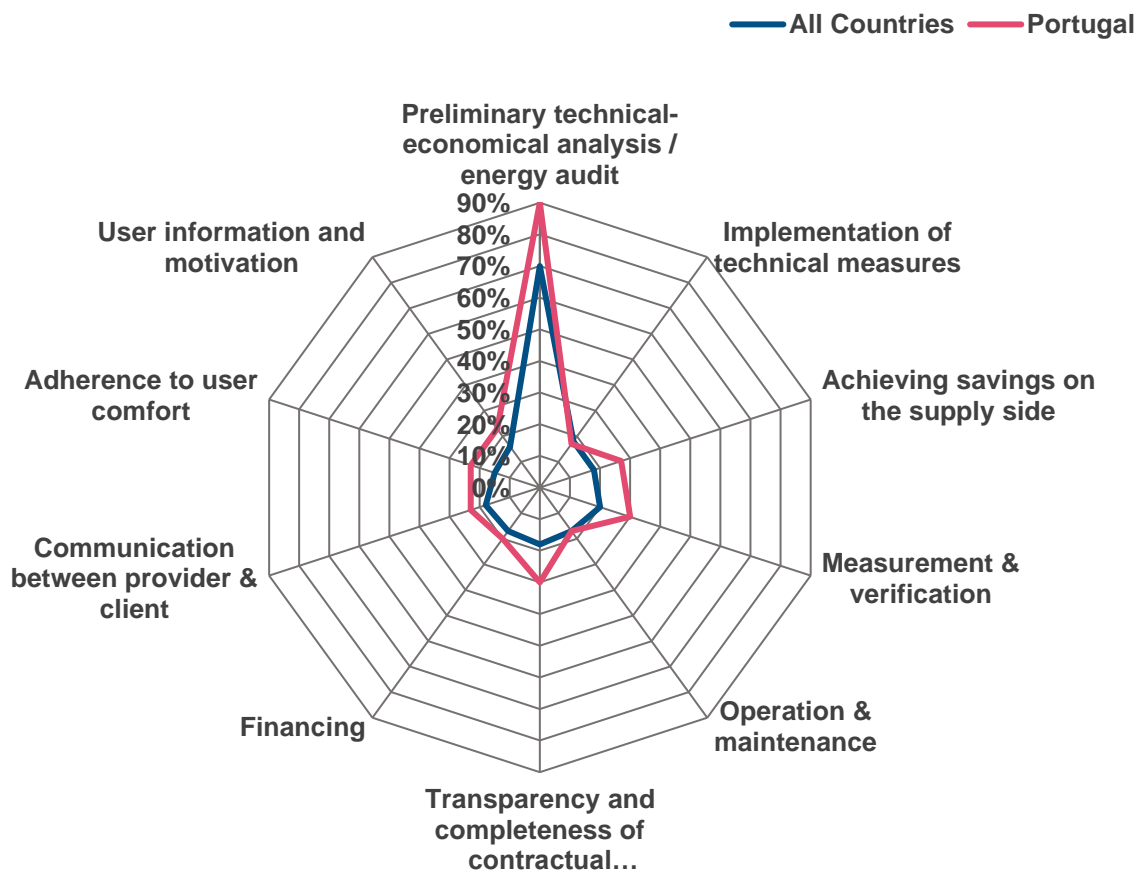
Figure 27. In your opinion what are the most important determinants of quality in ESC projects?



The least relevant determinants, according to the survey, were communication between provider and client, adherence to user comfort, and user information and motivation, all of which were perceived as such by 20% of respondents.

In general, the need for quality improvement was reported by a greater proportion of respondents in Portugal than across All Countries in the survey. One area that was highlighted among them is ‘Preliminary technical-economic analysis and energy audit’. 90% of Portuguese respondents considered this to be the case, 20 points above the answers stated among All Countries. On the contrary, ‘Implementation of technical measures’ and ‘Operation and maintenance’ need little improvement according to the survey.

**Figure 28. In which areas are quality improvement most needed in ESC project preparation and implementation? (Indicator based on rating scale as described in note below – Sept 2017)**

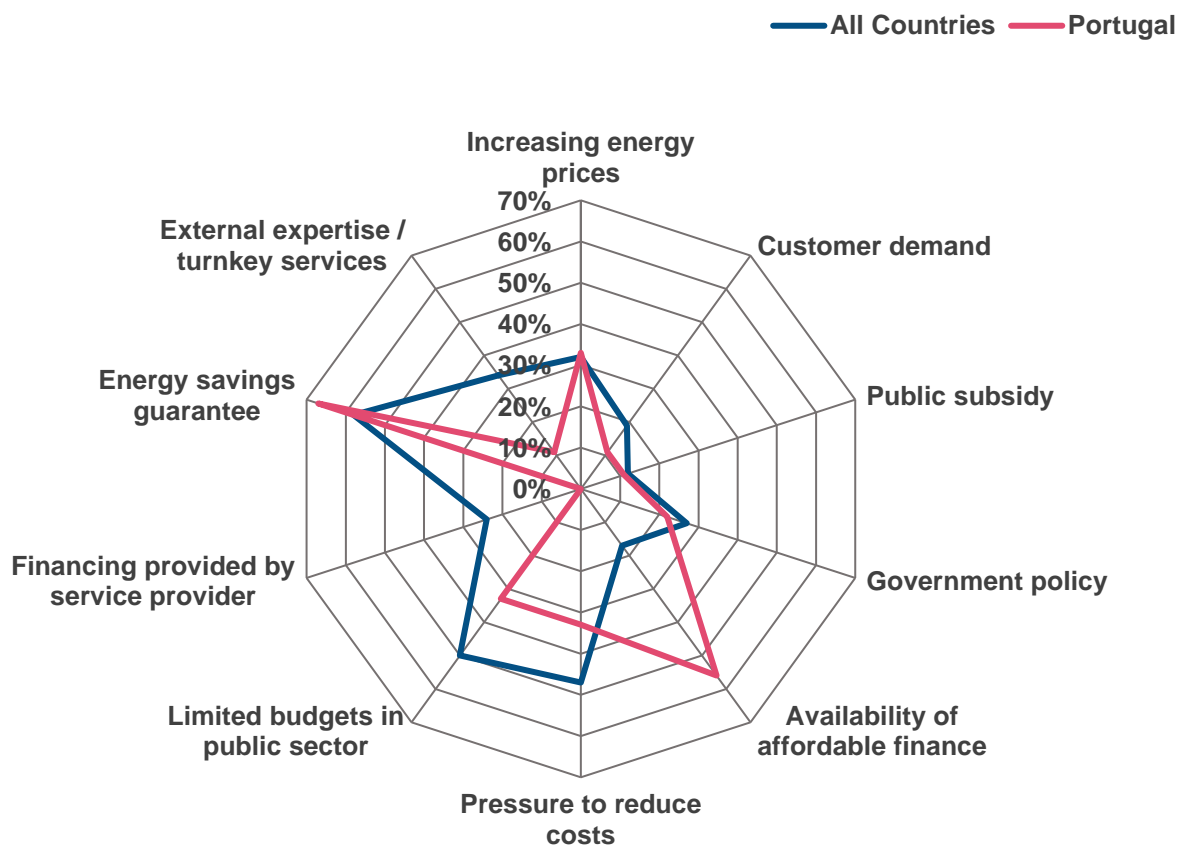


Note: respondents were asked to rank each determinant using the following options ‘not needed’, ‘needed’, ‘strongly needed’ and ‘don’t know’. An indicator was created by assigning a weighting of 0%, 50% & 100% to ‘not needed’, ‘needed’ & ‘strongly needed’ respectively and dividing by the number of responses.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

## 6 RECOMMENDATIONS TO SUPPORT MARKET DEVELOPMENTS

The main driver of the EPC business in Portugal, as identified through the survey, is energy savings guarantee. In the public sector, the Portuguese Government has set a goal to reduce energy consumption by 25% by 2020 and increase energy efficiency by 30% in the same year. Also, Portugal’s VAT on sold energy increased from 6% to 23%, which should facilitate a rational use of energy, which can be regarded as a force driving energy efficiency with large end-users, both in the public and private sectors. Energy savings guarantee was also considered the main driver of the EPC business across All Countries.

Figure 29. Based on the activities of the last 12 months: what do you think are the main DRIVERS of the EPC business?

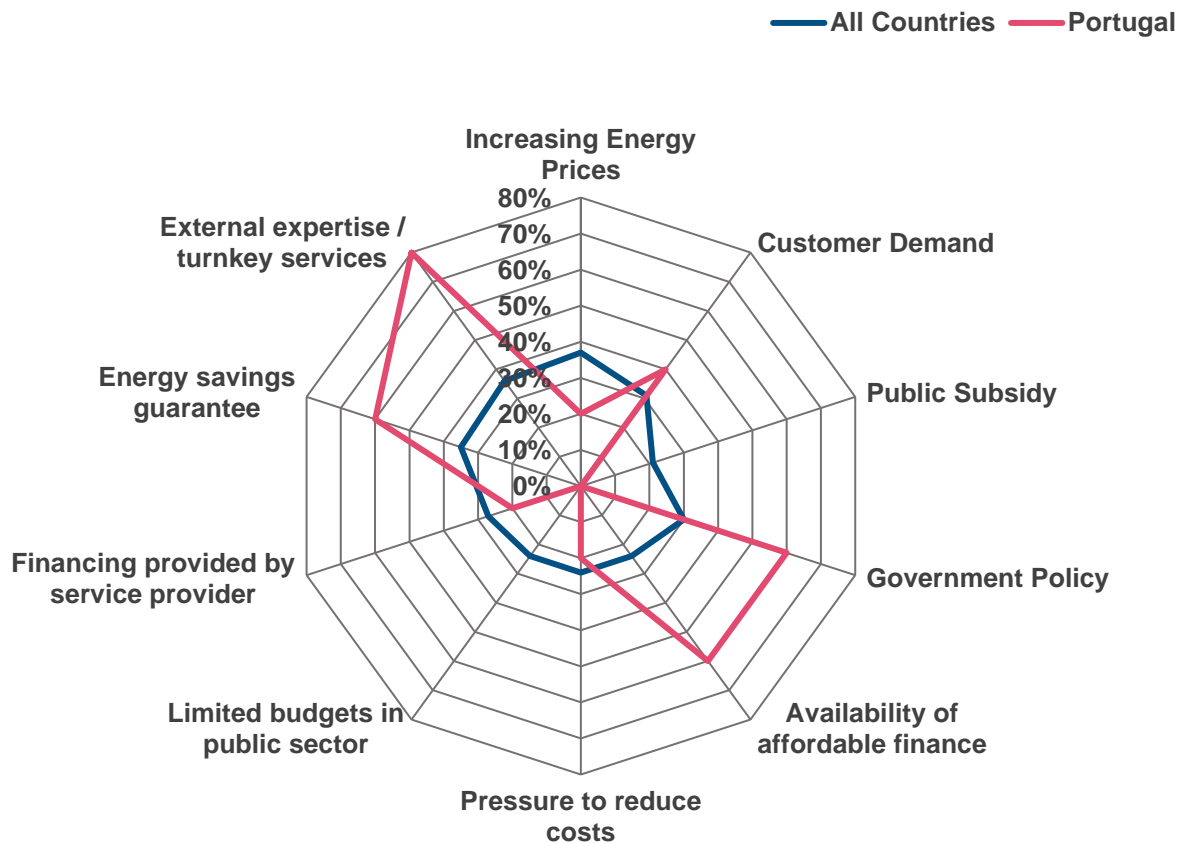


Availability of affordable finance is another relevant driver in the EPC business according to 56% of survey respondents from Portugal. Facilitating access to finance makes it easier for actors to enter the business, thus creating an incentive. The fact that Portugal is currently recuperating from a negative economic climate, as reflected by its economic growth going back to pre-crisis levels, may promote availability of affordable finance in the near future.

Other than energy savings, pressure to reduce costs was perceived as a main driver by 47% of All countries surveyed, while only 33% of the Portuguese respondents saw it as such.

The main driver for ESC business, as reported by the survey, is external expertise and turnkey services. In this case, this was stated by 80% of the Portuguese respondents, which is considerably higher than across All Countries in the survey (44%). Government policy, availability of finance and energy savings guarantee are another three of the main drivers with a 60% response.

**Figure 30. Based on the activities of the last 12 months: what do you think are the main DRIVERS of the ESC business?**





In general, the market drivers reported by Portuguese respondents differ significantly from those selected across All Countries in the survey (as shown by Figure 30). For example, no Portuguese respondents considered public subsidy or limited budgets in the public sector as drivers of the ESC business, but the values obtained for All Countries were 21% and 24%, respectively. For respondents across All Countries, the main driver for the business was increasing energy prices. While the general trend among All Countries steered towards a decrease in energy prices between the years 2015 and 2017, in countries like Germany, Belgium or Spain, this was not the case. In Portugal, energy prices in 2017 were the same as in 2015, however there was a 3% increase in the year 2016.

Activities listed in this chapter are meant to help overcome the barriers of EES market development in Portugal identified in chapters 4 and 5 and summarised in Table 1 below. The activities relate to individual stakeholders and are listed in the 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	Lack of trust in the ESCO industry	EPC, ESC
2	Complexity of the concept	EPC, ESC
3	Lack of information	EPC, ESC
4	Administrative barriers in the public sector	EPC, ESC
5	Lack of support from the government	ESC
6	High costs of project development and procurement	ESC
7	Complex accounting and book keeping rules	ESC

Table 2: Overview of actions to overcome market barriers

Response to barriers	Actions	Who should act	Target groups	Description	
1	1, 2, 3, 4, 6, 7	Seminars, conferences, roundtables	EPC facilitators, EPC providers, ADENE, APESE	EPC customers, decision makers, financial institutions, experts, media	The goal is to inform about the possibilities and benefits of the EPC method
2	1	Training for new EPC providers	ADENE, APESE, 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	1, 2, 3, 7	Implementation of the European Code of Conduct for EPC	ADENE, APESE, 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	1, 2, 3	Promotion of best practices in EPC	ADENE, APESE, EPC providers	Potential clients, experts, media	This activity is an integral part of other dissemination activities
5	1	Certification of EES	ADENE, APESE, EES providers	EES providers, facilitators, clients	The goal is to sustain and guarantee the high quality of EPC projects
6	4, 5	Discussion, talks and networking	ADENE, APESE, EPC and ESC providers	Decision-makers (e. g. Ministry of Industry and Trade, Ministry of Finance, etc.)	The objective is to promote the EPC 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: legal barriers have been generally overcome but government actions to support diffusion of EPCs have been ineffective. The promotion of actions carried out by the Government as well as the implementation of further policies would increment interest in the EES market.
- ✔ Contract templates, procedures etc: there is a contract template that is mandatory for public institutions and highly requested by private ones to conduct EES contracts. It would be beneficial to encourage making said templates mandatory for the private sector.
- ✔ Governmental strategy / Action plans to use EPC on public buildings etc: the establishment of Decree-Law No. 29/100 and Normative Order No. 15/2012 need to act as the bases of the action plans to use EPC on public buildings to be conducted by the Government. Taking advantage of the communication actions to be carried out by QualitEE could be highly beneficial.
- ✔ Certification: quality certification of energy efficiency services may become crucial for the development of EESs so its encouragement would increase trust in the sector in a majority of cases, as cited by 40% of Portuguese respondents.

### 6.1.2 Financial instruments

- ✔ Financial instruments to overcome barriers: utilizing the communication strategy to be carried out by QualitEE to inform financial institutions about the advantages of energy efficiency services could expand the availability of funds and reduce their reluctance to enter the market.
- ✔ Certification: encouraging the establishment a quality certification, with guidelines to be followed in financial and practical terms could decrease the existing lack of information that may act as a barrier for financial institutions.

### 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

IPAC is the Portuguese Institute of Accreditation. It is the Portuguese accreditation body established by Regulation (EC) No 765/2008.

IPAC is a member of the European accreditation infrastructure, the European cooperation for Accreditation (EA), as well as global accreditation structures like the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF).

IPAC accredits external agencies or entities to issue certificates in various fields. The most important ones in the energy sector are IPQ (ISO member), Bureau Veritas Certification Portugal, SGS ICS - Serviços Internacionais de Certificação and CERTIF.

### 7.1.2 Certification of products and services in the energy sector

DEGEG established an official database for the registry of certified auditing companies and ESCOs. In it companies are given a status (qualified or not qualified) and a level of qualification (level 1 or level 2). Currently, there are 132 companies registered in the database and all of them are cited as qualified.

At present, IPQ is the national organization that manages and promotes the development of the Portuguese System for Quality (SPQ), with its three sub-systems - Standardization, Metrology and Qualification. Therefore, IPQ is the Portuguese representative body in the quality field at international level and is in close co-operation with its European counterparts.

Within the SPQ framework, IPQ copes with the role of National Standardization Body (ONN), thus ensuring the co-ordination with European and International standardization bodies and supervises the activity of the Central Laboratory of Metrology.

The IPQ coordinates Sectorial Standardization Organizations (ONS) and Technical Commissions of Standardization (TC), being involved in the national normative activity about 3,600 experts. Under this scope, IPQ develops standards under the energy sector.

### 7.1.3 Certification of energy efficiency services

Although there is no energy efficiency services certification currently in Portugal, certain legal actions were taken to guarantee the optimal implementation of energy efficiency contracts. To ensure the quality of providers of energy efficiency services to the public sector, Normative Order No. 15/2012, of July 3, was launched, which establishes the qualification system for ESCOs, establishing differentiated requirements of technical and financial nature depending on the energy consumption of buildings or equipment.

This ensures that all energy efficiency management contracts are carried out with companies duly qualified for this purpose, having highly capable staff and adequate financial conditions to fulfil such contracts.

More information on the Qualification System of Energy Services Companies is available in Regulatory Order no. 15/2012, of July 3, which approves the Regulation of the Qualification System of Energy Service Companies.

ADENE has as its mission the development of activities of public interest in energy, efficient use of water and energy efficiency in mobility. For this reason, they oversee the issuing of energy efficiency certificates, which include the Building Energy Certification System and CLASS+.

ADENE manages the Building Energy Certification System (SCE), as part of its energy policy in the construction sector and is today the main tool for assessing the energy performance of buildings. Implemented in 2007 through the transposition of the European Energy Performance of Buildings Directive (EPBD), it has been able to monitor the legislative evolution of energy efficiency, together with the promotion of thermal comfort conditions and indoor air quality in buildings.

ADENE has also developed the new "CLASS +" brand (Class Plus) for voluntary energy labelling of products, highlighting the important contribution of this instrument to the increase of energy efficiency in private housing.

"CLASS +" is replacing the previous "SEEP" brand, marking a new stage for this tool to promote energy efficiency. With the slogan "Efficiency has Class", the new brand will distinguish products and equipment that influence energy consumption in buildings but are not covered by the European energy label. The European energy label establishes a framework for labelling and consumer information regarding energy consumption for energy-related products. This certificate is also adopted in Portugal.

On the other hand, there are European projects dedicated to market transformation in the energy sector in Europe, as is the case with ICP (Investor Confidence Project). ICP offers a standard documentation process for energy efficiency projects that is independently quality assured and awarded "Investor Ready Energy Efficiency" certification. Portugal is an active ICP participant where four pilot projects are currently being conducted.

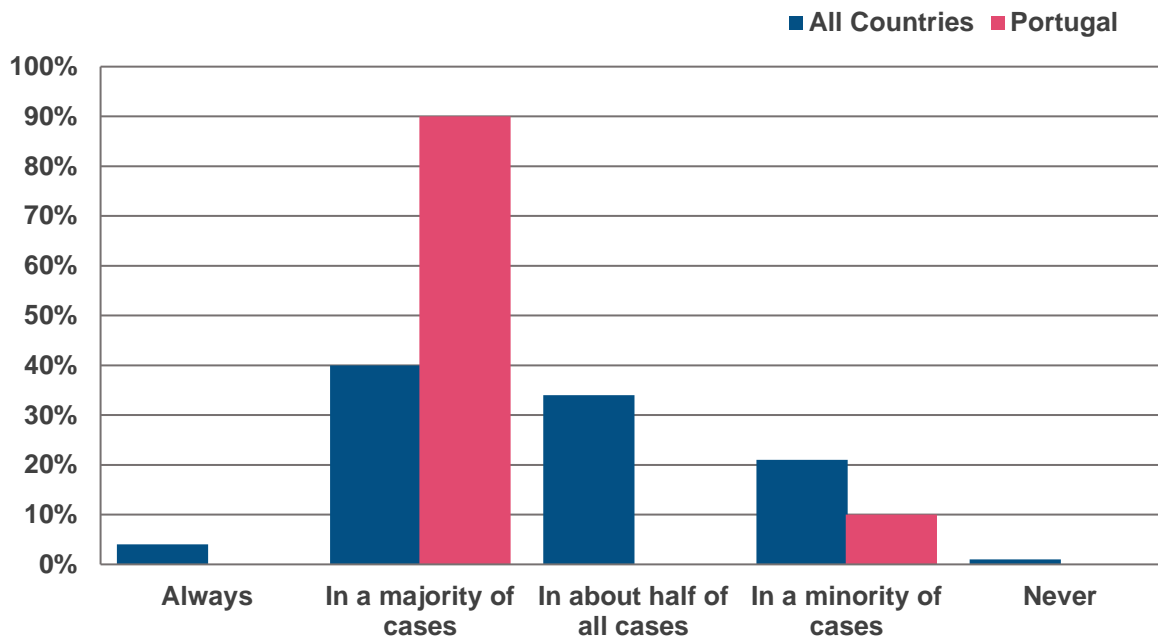
There are key differences between QualitEE and ICP Europe: QualitEE focusses on energy efficiency services, that have specific aspects of quality beyond energy efficiency projects in general, such as energy saving guarantees. QualitEE also aims to take a national approach to quality assurance. However, the interface and market appearance between ICP Europe and QualitEE should be carefully managed in Portugal to avoid confusion or the perception of duplication. A dialogue between the projects has already been established.

Trust EPC South is another European project. The purpose of this project 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 whether or not the project is viable.

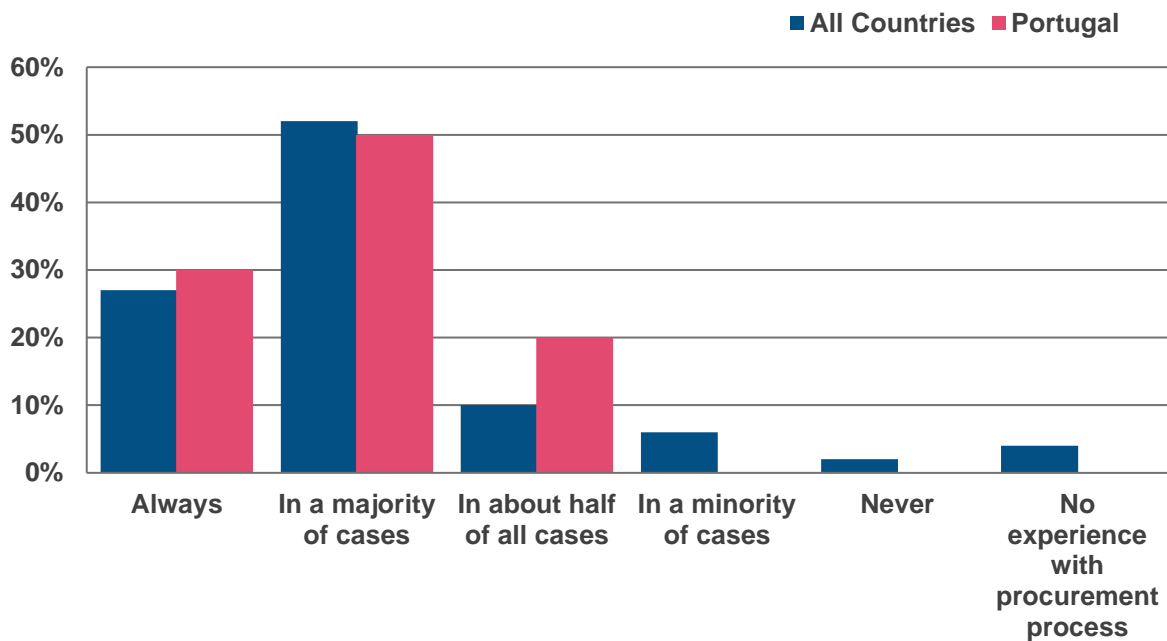
Figure 31 reflects the lack of trust in a majority of cases in EPC/ESC service providers, according to Portuguese respondents. This could be related to the fact that it is an emerging market in the country and for that reason knowledge about it is limited. Also, insufficient regulations and certifications could affect the perception of service providers. However, in the case of the rest of countries, the lack of trust is smaller (40% for the majority of cases).

**Figure 31. In your experience, is there a lack of trust in EPC/ESC service providers?**



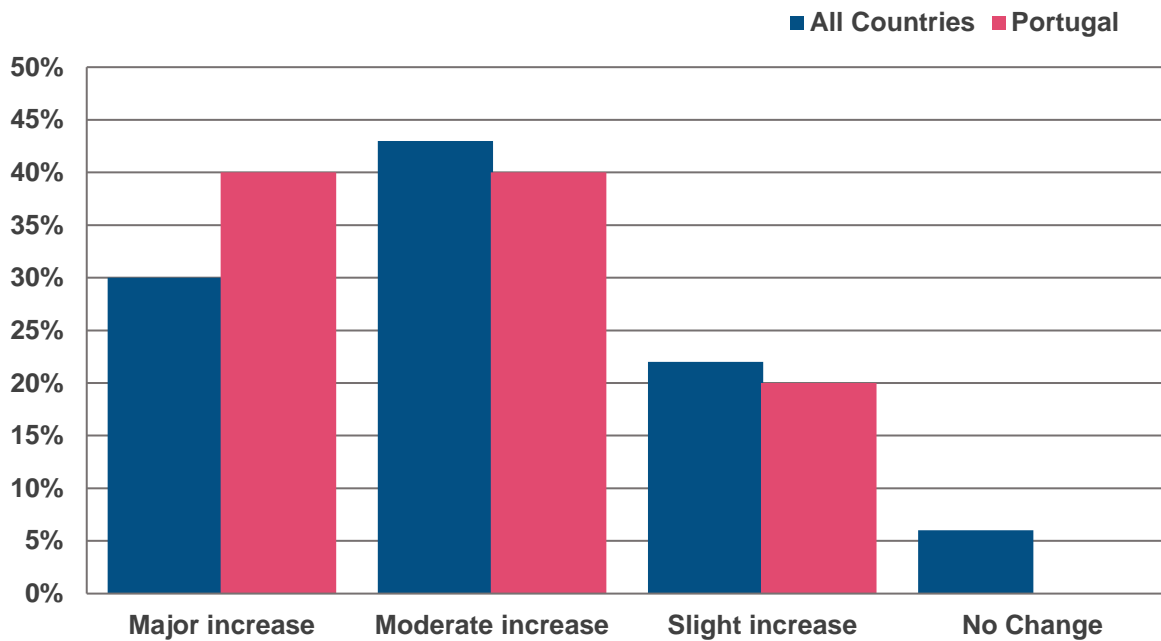
Similarly, to the view across All Countries in the survey, Portuguese respondents clearly supported the idea that well-defined procurement specifications increase the quality level of EPC/ESC services; whether they selected either ‘always’ (30%) or ‘in a majority of cases’ (50%). Also 20% of Portuguese respondents answered by in about half of the cases, which is 10 percent points higher than the answers obtained from All Countries.

**Figure 32. From your experiences, do well defined procurement specifications increase the quality level of EPC/ESC services?**



A quality assurance scheme would most likely increase client trust in EPC/ESC service providers in Portugal, as reflected by Figure 33. Only 20% of Portuguese respondents considered that it would only experience a slight increase and no respondents considered that it would experiment no change. The answers were in line with those obtained from All Countries and goes to show that a quality assurance scheme would mobilize and promote the market.

**Figure 33. To what extent would a quality assurance scheme increase client trust in EPC/ESC services and providers?**



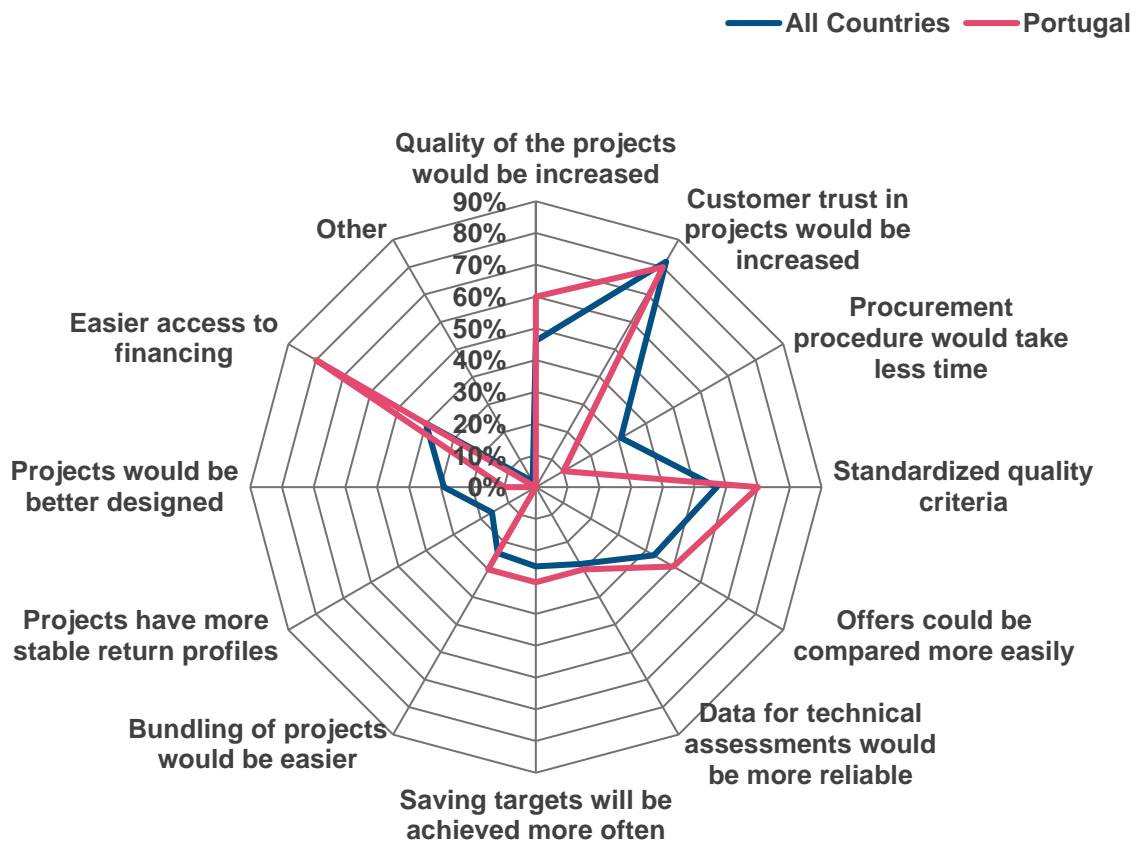


In Portugal, the most important effects of a quality assurance scheme would be an increase in customer trust in projects and easier access to finance, as shown by Figure 34. This is because a quality assurance scheme would provide a sense of security for financial institutions and investors as well as increase the availability of information about the market which would decrease the lack of trust in it.

Another important effect is the standardization of quality criteria, which would set the foundations to be followed fostering the development of the industry. This was also perceived as an outcome of a quality assurance scheme by 57% of respondents across All Countries in the survey.

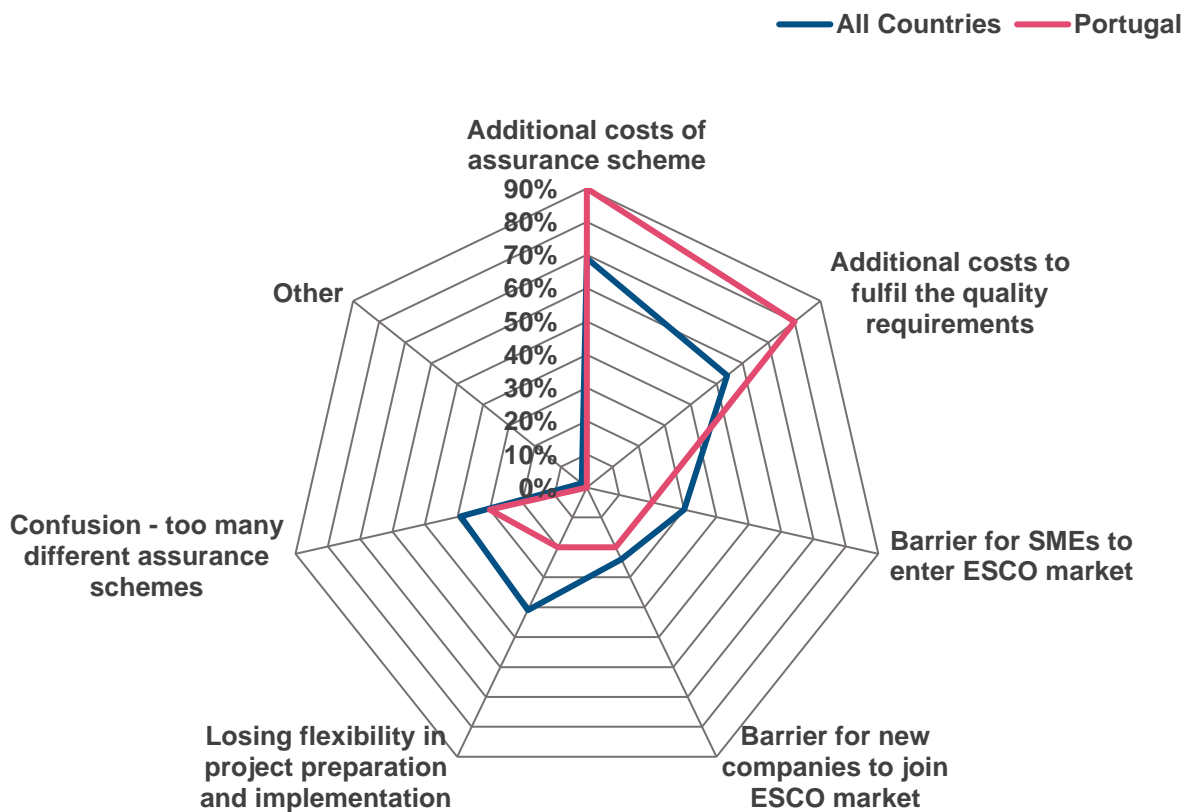
On the contrary, Portuguese respondents did not believe that a quality assurance scheme would make projects be better designed, have more stable return profiles or procurement procedures take less time.

**Figure 34. In your opinion, what would be the added value of a quality assurance scheme like this?**



Both Portuguese respondents (90%) and their European counterparts across All Countries (70%) identified additional costs as the main drawbacks to a quality assurance scheme. Also, Portuguese respondents (80%) and those among All Countries (55%) believe additional costs to fulfil the quality requirements would act as a barrier. The rest of barriers proposed are not viewed as highly relevant in Portugal nor across the All Countries dataset.

Figure 35. In your opinion, what drawbacks or barriers may be created by a quality assurance scheme like this?



In a majority of cases, all of the Portuguese respondents in the survey would prefer implementing a project subject to quality assurance, probably due to the fact that it would give them a sense of security. This tendency is different from the respondents across All Countries, who are more divided about the assurance cover (10-20% in a minority, half of the cases and always).

**Figure 36. Would you prefer implementing a project which is subject to quality assurance over a project without quality assurance?**

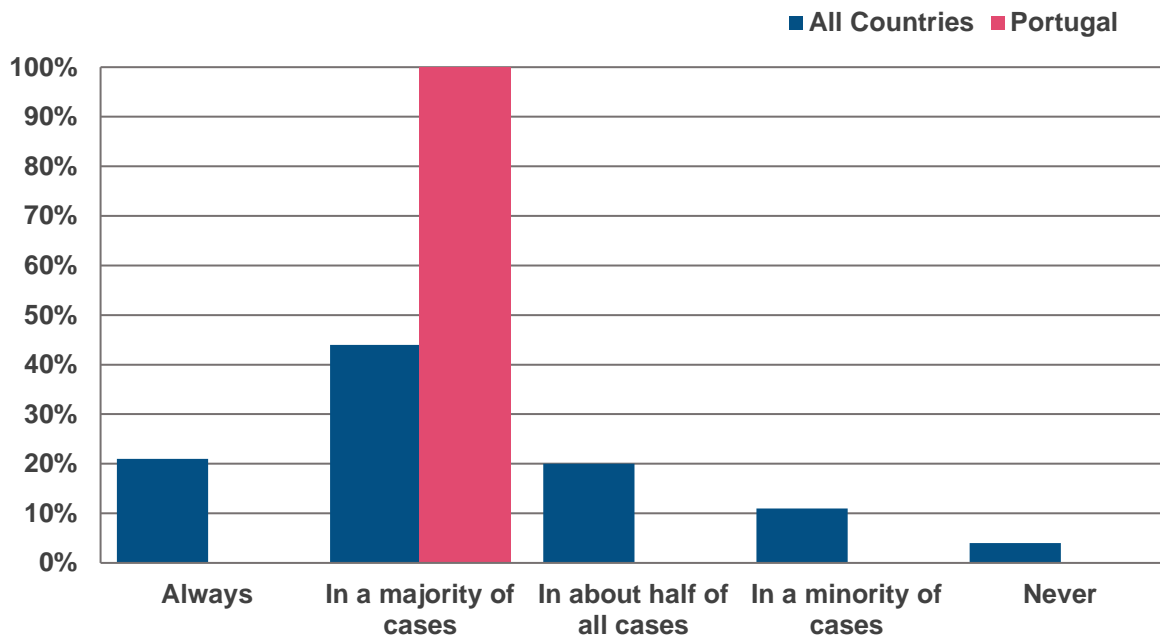
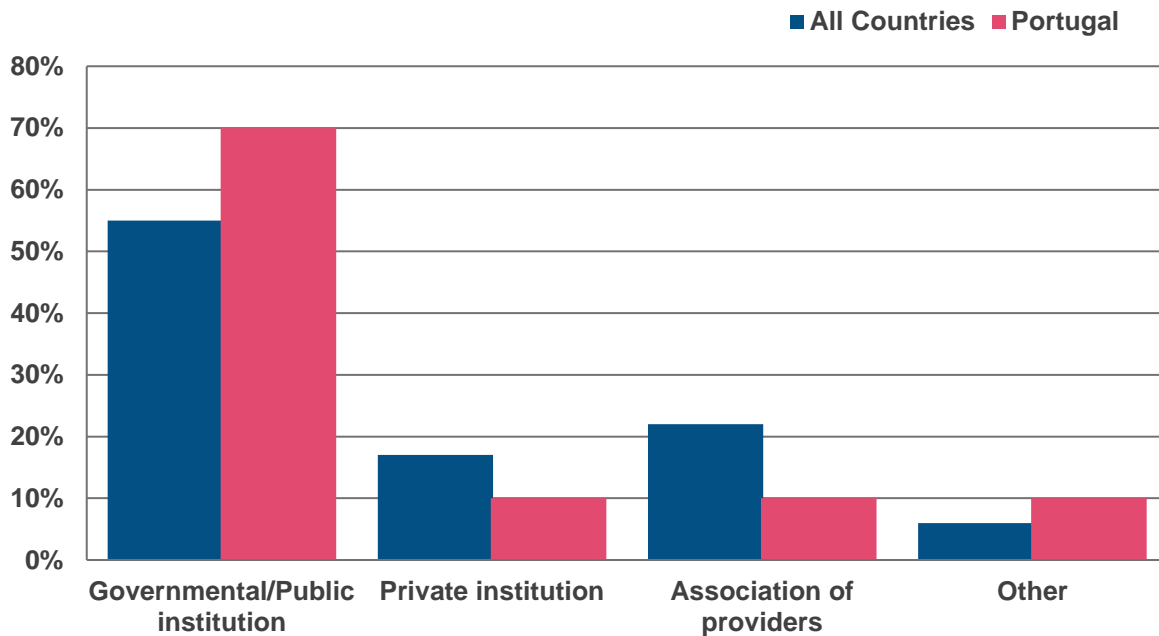


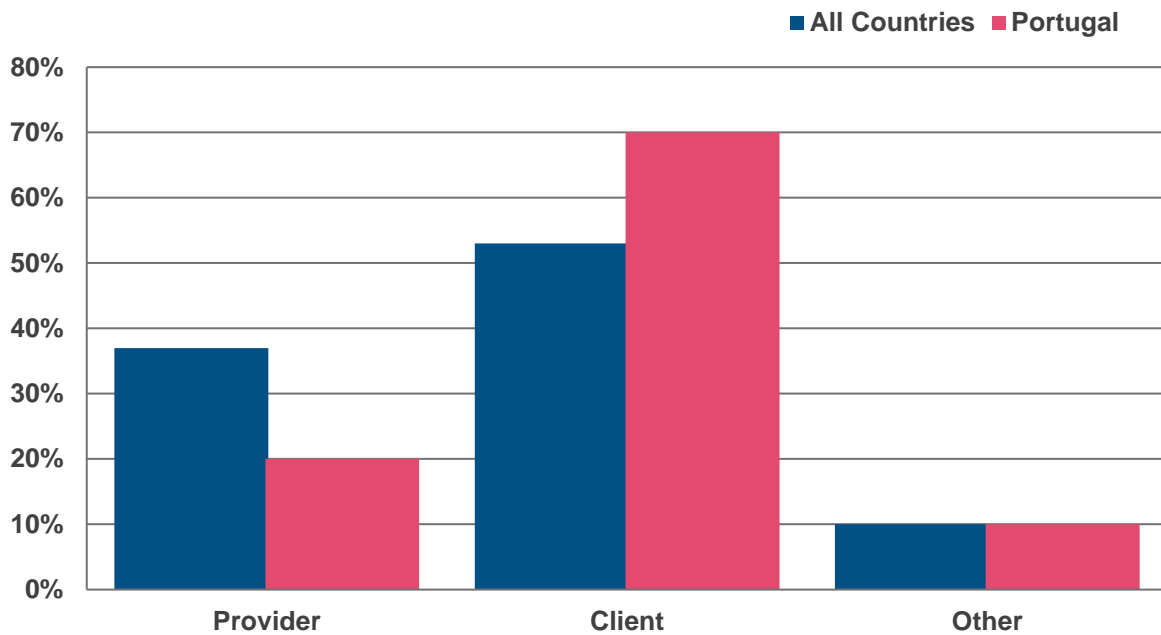
Figure 37 reflects that in Portugal and All Countries the most respected body to issue a quality assurance label or certification for EPC/ESC services would be a governmental or public institution (70% and 55% respectively). Ten percent of Portuguese respondents gave private institution, association of providers or other bodies as their answers. In the survey, over 20% of respondents from All Countries believe that the most respected body would be an association of providers, probably because that would allow them to set their own standards. Also 10% of Portuguese respondents would prefer “other” bodies, which include mixed agencies or commissions with public-private collaborations, to issue the assurance.

Figure 37. Which would be the most respected body to issue a quality assurance label or certification for EPC/ESC services in your country?



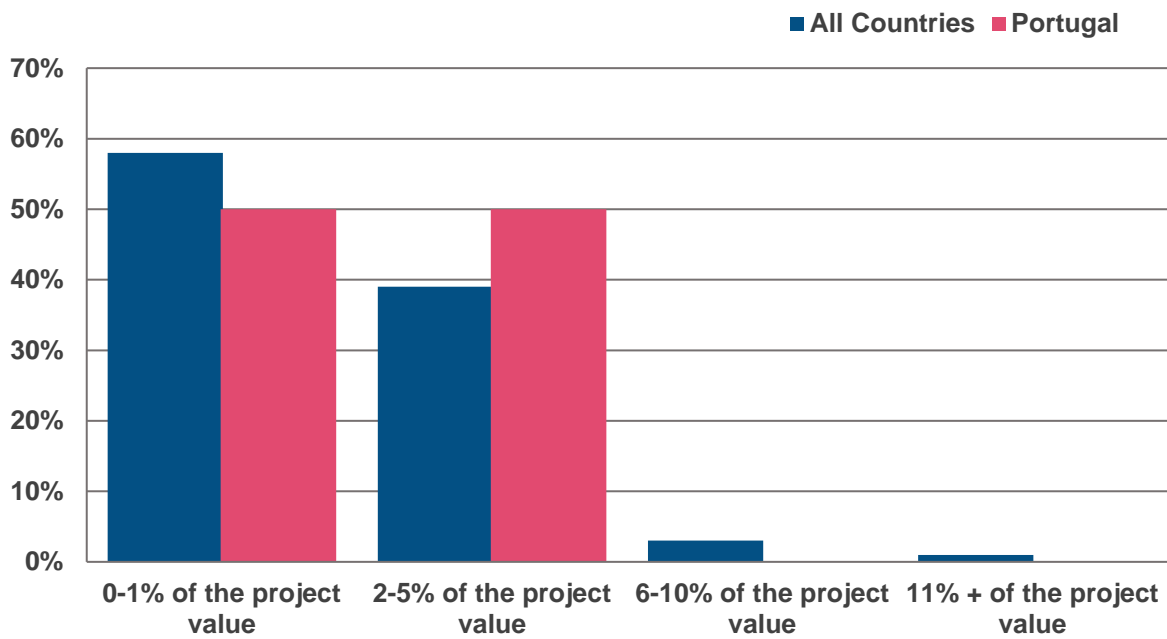
Exactly 70% of Portuguese respondents stated that the client should be responsible for the payment of the quality assurance scheme of EPC/ESC projects. This is 17% higher than reported by respondents from the All Countries dataset. Moreover, respondents from All Countries (37%) stated that the provider could also pay for it, compared to 20% of Portuguese counterparts. It shows an indecision regarding the payment of the quality assurance, less important in Portugal.

Figure 38. Who should pay for the quality assurance of EPC/ESC projects?



The fee level for external quality assurance per EPC/ESC project should be between 0% and 5% of the value of the project in accordance with 100% of Portuguese respondents and almost the entire group of providers and facilitators from All Countries surveyed. The clear message from respondents across All Countries in the survey -including Portugal-, is that the fees for the quality assurance scheme should be as small as possible.

Figure 39. What would be a viable fee level for external quality assurance per EPC/ESC project?



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