COUNTRY REPORT ON THE ENERGY EFFICIENCY SERVICES MARKET AND QUALITY

Greece

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QualitEE Project

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

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Definitions and glossary

Term	Definition
Client	means any natural or legal person to whom an energy service provider delivers energy service
Energy Efficiency Directive (EED)	means Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency
energy efficiency improvement*	means increase in energy efficiency as a result of technological, behavioral 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, behavioral 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 normalization for external conditions that affect energy consumption
energy service*	the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings
energy service provider*	means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises
energy*	means all forms of energy products, combustible fuels, heat, renewable energy, electricity, or any other form of energy, as defined in Article 2(d) of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics
EPC provider	means an energy service provider who delivers energy services in the form of Energy Performance Contracting
ESC provider	means an energy service provider who delivers energy services in the form of Energy Supply Contracting

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

Notes:
*Definitions according to the Energy Efficiency Directive
**Definition according the European standard EN 15900:2010
***Definition is a simplified version of IEA DSM Task Force 16 definition

1 EXECUTIVE SUMMARY

The objective of this report is to compile evidence to inform 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.

The main findings of the report, consist of the following:

- Energy Performance Contracting (EPC) and Energy Supply Contracting (ESC) services are the main types of Energy Efficiency Services (EES) provided by EES Providers. There are, of course, other types of services on offer in the market, but their market volume is extremely small.

- The national, legal framework for energy services has been harmonized with the European Directives 32/2006 and 27/2012 and is in use today and model contracts are available for download. However, there are currently no support schemes for EPC and ESC projects.

- Both the EPC and ESC markets are very small and are either stagnant or slightly changing. The main regulatory and administrative barriers concern the public sector and the regulatory framework for Public Tenders. The main structural barriers to the market consist of the complexity of the concepts, mistrust of EES providers and the lack of quality assurance certification. However, the most crucial barrier is the lack of access to finance.

- The main recommendations consist of: (1) amendments to the legislative and regulatory framework in order to overcome the existing problems of Public Tenders, (2) grants/subsidies to help implement demonstration and pilot projects, (3) the implementation of innovative financing tools to help EES providers in gaining access to affordable financing.

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[1] 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),

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

- Energy Supply Contracting (ESC),
- Of course, EPC and ESC are not the only types of energy efficiency services offered by Energy Service Providers in GREECE. Other types of EES, such as Operational Contracting and Integrated Performance Contracting (described shortly in Chapter 2.2.4) are also offered, although on an extremely limited scale.

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

In GREECE, the other energy efficiency services offered cover mostly:

- Operational Contracting is a type of EPC without major investments.
- Integrated Energy-Contracting (IEC) is a combination of energy efficiency measures with energy supply contracting typically with short-term "operational verification" rather than ongoing Measurement & Verification. (Note: In IEC, energy is typically provided by use of renewable energy sources.)

However, the market volume of these services is rather small and they will therefore NOT be a focus of the study.

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[2] 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] According to the EED: "An 'energy service' means the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings."

2.3 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) and the market knowledge of the authors based on 20 years of implementing EES projects and supporting the EES market.

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 organizations 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.

There were 11 respondents to the online survey in Greece:

- 7 representatives of ESCOs, where all of them operate on both the EPC and ESC market;,
- 4 representatives of EES facilitators, all of them operating on the EPC market only.

Throughout this study the results from the online survey in Greece 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 Transparense project - can be explored through an interactive online navigation tool on the project website. (https://qualitee.eu/market-research/).*
- In addition, there were 6 personal interviews conducted in **Greece** covering:
- 3 representatives of financial institutions, which are potential sources of bank credits for EPC projects in Greece,
- 2 EES clients,
- 1 EES provider answering on behalf of his potential 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 market knowledge of the authors based on 20 years of implementing EES projects and supporting the EES market.

The key sources of information were up-to-date national sources, such as:

- The Hellenic Registry of ESCOs (www.escoregistry.gr),
- Publications by the Ministry of Environment and Energy.

The report also builds on the data and information gathered primarily by the Transparense project and other previous European projects (EESI2020) and projects run in parallel (EPC+). In addition, it used data from the Status Report on Energy Service Companies Market in Europe by JRC.

3 LEGAL AND REGULATORY FRAMEWORKS

The ESCO market in Greece still remains negligible. In past years, various policy developments have been put in place, addressing some important barriers. These include Law 3899/2005 on Public Private Partnerships, Law 3855/2010 on the institutional framework for the provision of energy services, Ministerial Decision D6/13280/07.06.2011 on the Operation, Register, National Code of Conduct and related provisions for energy service providers and Law 4342/2015 for the transposition of European Directive 27/2012, which includes references to Energy Performance Contracting (EPC).

Law 3389/2005 on Public Private Partnerships (PPPs) has helped the public sector to overcome one of the long-standing barriers. Until then it was prohibited to employ a private body to operate and manage the building energy services infrastructure of public establishments. The new law allows multi-year concession contracting for the installation, operation and maintenance of energy efficient equipment in buildings (JRC, 2010).

In 2010, the Greek National Law 3855/2010"Measures to improve energy efficiency in end-use, energy services and other provisions" came into force, incorporating the EU Directive 2006/32/EC. It was published in the Official Gazette on June the 23rd, after a long administrative assessment period and the associated public consultation phase for one month (starting February 2010). It defines, inter alia, the policies, regulations and measures to develop the energy services market in Greece. It also specifies the content and principles of EPCs and allocates obligations and responsibilities arising from these contracts between energy services and clients. Additionally, provides a register where these companies can register if they meet certain criteria. However, some secondary legislative actions (MDs) are still pending in order to implement all the provisions set by this Law (CAESD, 2011). Article 8 of this law concerns energy efficiency measures in the public sector and outlines specific measures to improve the energy efficiency performance and energy savings in public buildings. Article 16 outlines the energy performance contracting framework for the establishment of a market for energy service companies (ESCOs) through Energy Performance Contracts (Energy Policies of IEA Countries, Greece, 2011).

The Ministerial Decision (MD) 13280/2011 "Energy service companies. Function, Registry, Code of Conduct and related provisions", aims to implement the existing legislative framework and fix all relevant issues related to the development and activation in the Greek market of Energy Service Companies. More specifically, this MD sets:

- the content of the Energy Service Companies Registry and is defined as the Agency responsible for keeping the register,
- the way of organizing the process, criteria and documents required for registration,
- issues related to updating, deleting and modifying entries, Register's data management and use,
- the conditions of establishment and operation of ESCOs, the criteria governing the performance of their work, activities that are incompatible with their work, the

administrative sanctions against them, the bodies that impose them, the relevant procedures,

- Code of Ethics of ESCOs on the principles and commitments that should be met by those registered ESCO businesses in order to achieve the proper operation and correct development of the market.

An ESCO registry has also been created at www.escoregistry.gr, managed by the Directorate of Energy Policy and Energy Efficiency of the Ministry of Environment, Energy and Climate Change. The registry contains data for 56 ESCOs, which are classified as natural or legal persons. For legal persons, three sub-categories exist: a) ESCOs which have implemented or are currently implementing projects with a total budget of at least €300,000 over the last five years, b) ESCOs which have implemented or are currently implementing projects with a total budget of at least €1,000,000 over the last five years, c) all other ESCO companies.

In 2015, Law 4342/FEK143A/9-11-2015 also introduced the definition of EPC, which is part of the EED transposition.

3.1 Key governmental institutions

The main governmental institution responsible for Energy Services is the Ministry of Environment, Energy and Climate Change as well as the Centre for Renewable Energy Sources and Energy Saving (CRES), which is the Greek national organization for Renewable Energy Sources (RES), Rational Use of Energy (RUE) and Energy Saving (ES). CRES has been appointed as the national co-ordination center in its area of activity.

CRES was founded in September 1987 by Presidential Decree 375/87. It is a public entity, supervised by the Ministry of Environment and Energy and has financial and administrative independence.

Its main goal is the research and promotion of RES/RUE/ES applications at a national and international level, as well as the support of related activities, taking into consideration the principles of sustainable development.

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 Greece, the requirements concerning energy services in the EED have been transposed into National Law through Law 4342/2015 and the updated National Energy Efficiency Action Plan.

3.3 National strategy documents

3.3.1 National Energy Efficiency Action Plan

According to the latest version of the National Energy Efficiency Action Plan (NEEAP – December 2017), the Ministry of Environment, Energy and Climate Change is responsible for the proper functioning of the energy services market and access to it for small and medium - sized enterprises. It identifies and makes publicly available on its website contact points through which end-users can receive information on energy services. In addition, where necessary, it shall take measures to remove regulatory and non-regulatory barrier for the implementation of projects with Energy Performance Contracting (EPC) and other energy efficiency services for the identification and implementation of energy saving projects.

Finally, it may establish an independent mediation mechanism for the handling of complaints and out-of-court settlement of disputes arising from the implementation of EPC as well as the issue of a Ministerial Decree to define the operating framework for independent intermediaries for the stimulation and development of the energy services market on the demand as well as the supply side.

In the context of this role, the Ministry of Environment, Energy and Climate Change, through a technical assistance program, has drawn up a roadmap for the further development of EPC in Greece. Through the study, the most important obstacles have been identified and solution proposed based on international experience. Furthermore, the potential role of an official mediator was analysed, as well as the role of independent intermediaries as critical actors for the further development of energy services.

In addition, in order to facilitate access to funding for energy service companies, a pre-standardized methodology for risk assessment when evaluating savings projects was developed. Furthermore, a capacity building program was organized for Financial Institutions and Energy Service Providers executives on techno-economic issues and evaluation of energy saving projects with EPC. Finally, to remove the regulatory and non-regulatory barriers that hinder the implementation of EPC in the public sector CRES implemented the project entitled "Support and monitoring of Pilot Services for the implementation of public energy efficiency improvement projects in Buildings from Energy Services Companies with EPC ", funded by the Operational Program Environment & Sustainable Development 2007-2013 (EPAPAA) which was presented in detail in the 3rd EEAP.

3.4 Standardization for energy efficiency services

3.4.1 Model documents

In September 2013, the Ministry of the Environment and Climate Change issued two model EPCs, in order to assist the protection of the Contracting Parties to meet at least those terms that will ensure transparent and beneficial cooperation for the desired result. One is a

performance guaranteed contract model and the other is a shared savings contract model. Both of these model documents are available on the ESCO Registry website (www.escoregistry.gr).

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 Transparense in cooperation with EPC providers, clients and European ESCO associations, among others. The two organizations 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 organize 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 Greece, the European Code of Conduct for EPC has been translated into Greek within the framework of the Transparense project and is available for use to all Greek Energy Service Providers. Currently, 11 Hellenic Energy Service Companies have signed the European Code of Conduct and have therefore committed to follow its obligations. However, as the signatories have not yet implemented any Energy Performance Contracts, conformance has yet to be verified.

Moreover, the National Code of Conduct of Ministerial Decision D6/13280/07.06.2011 “Operation, Register, and related provisions for energy service providers” which precedes the

publication of the European Code of Conduct of the TRANSPARENSE project if almost completely consistent with it. More specifically, it is consistent with eight (8) of the nine (9) guiding principles. The only guiding principle with which it is not consistent is Guiding Principle 7 “The EPC provider supports the Client in financing of EPC project” as the National Code of Conduct does not touch upon matters of financing.

3.6 Support schemes

Presently, in Greece, there is no available national support scheme for Energy Efficiency Services.

However, there are ongoing confidential, internal discussions within the Ministry of Energy and Environment regarding the establishment of an ESCO guarantee fund and/or revolving fund and/or subsidy scheme of financing interest rates for ESCOs.

4 ENERGY PERFORMANCE CONTRACTING MARKET

4.1 EPC market actors

The implementation of EPC projects in Greece remains extremely small. Although there is a voluntary ESCO registry and it currently numbers 56 ESCOs, this does not reflect the actual size of the EPC market. The ESCO registry is split into the following four (4) categories:

- Category A1 – Companies that have implemented or are currently implementing energy efficiency projects with Energy Performance Contracts with a total budget of at least € 300.000 in the last five years.
- Category A2 - Companies that have implemented or are currently implementing energy projects (energy efficiency and/or renewable energy) with a total budget of at least € 1.000.000 in the last five years. These need not be accompanied by an EPC contract.
- Category A3 – All the companies belonging to neither category A1 or A2.
- Category B – Natural persons that offer energy consultancy services.

As can be seen from the aforementioned sub-categories, only category A1 concerns documented EPC-related projects. As a matter of fact, there are currently no (zero) companies registered in category A1 (i.e. therefore with documented implemented EPC projects). There are 23 registered companies in category A2, 19 registered companies in category A3 and 14 natural persons registered in category B.

However, the Ministry of Energy and Environment is currently considering amending the minimal requirements for registry. This is expected to be issued within 2018 and the main aim is to ensure that only companies that actually provide EPC are contained therein and, therefore, that the registry displays more truthfully the actual EPC market.

The restricted size of the EPC market certainly applies to the private sector but also to the public sector where complex procurement laws significantly inhibit the publication of Public Tenders for EPC projects. One notable exception is the public tender and implementation in February 2017 of an EPC project (relighting) on the premises of the Centre for Renewable Energy Sources and Energy Saving (CRES). CRES, **in conformance with its institutional role as facilitator** for the implementation of energy efficiency and renewable energy projects, decided to self-finance a pilot activity within the framework of the HORIZON 2020 EPC+ project, in order to provide a pilot project for the public sector so as to promote and boost the energy services market.

Although there was an attempt to set up a national ESCO Association this has, until today, not proven possible as consent has not been achieved among its prospective members.

4.2 EPC market developments

The energy services market in Greece began to develop in the late 1990s with the implementation of a subsidized Third Party Financing pilot project. This consisted of the implementation of an energy efficiency project in a large dairy factory (Mevgal S.A.) in Koufalia, Greece. This project consisted of the installation of a steam boiler blowdown heat recovery system and a solar thermal system for preheating the steam boiler feedwater. This project was subsidized 50% by the Operation Programme for Competitiveness (EPAN) and the remaining budget was financed by CRES' own funds (44%) and by the Agricultural Bank of Greece (6%). The financed amount was paid back based on the measurement, by CRES, of the energy savings achieved.

Since then, there have been extremely few implemented EPC projects. Furthermore, the implemented project mainly concern small, internal lighting energy efficiency project with budgets < € 20.000. Two of these have been implemented in 2017 within the framework of the HORIZON 2020 EPC+ project.

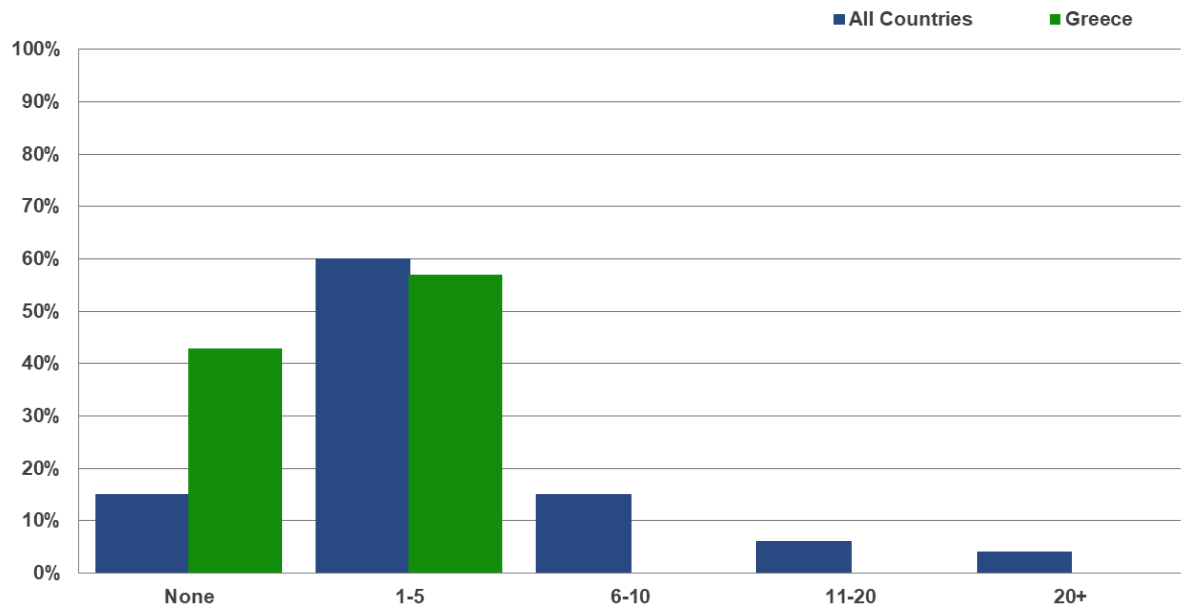
One must note that there have been several "Pay as You Save" projects implemented, particularly for indoor lighting (i.e. replacement of fluorescent luminaires with LED luminaires). However, these are not accompanied by an EPC contract and, therefore, offer no guarantee of energy savings.

According to the survey elaborated with the framework of the QualitEE project, the majority (57%) of the respondents - EPC providers and facilitators - were involved in one to five EPC projects in the last year, which is consistent with the range reported for the all EUROPEAN countries surveyed. However, an equally significant amount (43%) of the Greek EPC providers and facilitators were not involved in any project. This is consistent with the current status of the EPC market in which, in the last 12 months, only two EPC projects have been known to be implemented, even though many ESCOs have been striving to implement project. The main problem is the lack of access to financing, either by the client or the ESCO.

Clients either do not have access to financing due to the restricted financing available with reasonable interest rates (currently, a minimum 8% interest rate is being offered by commercial banks) or the hesitancy of the client to invest in energy efficiency and/or to use own funds for this purpose. The prolonged economic recession (since 2009) and imposed austerity measures have severely restricted the investment potential of companies who currently prefer to only look at very short-term investments until they ride out the storm of the recession.

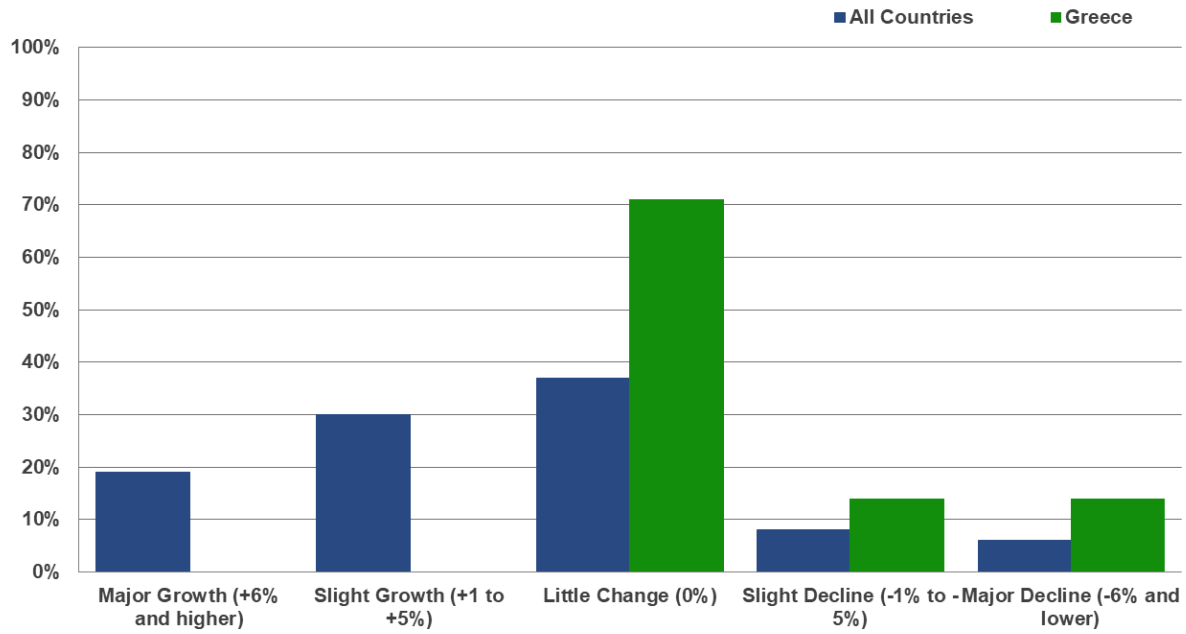
The small ESCO's currently existing in Greece have no access to financing mainly due to their small size but also due to the prohibitive interest rates being provided by the commercial banks. On the other hand, the larger ESCOs or multinationals that are prospective ESCOs who either have funds and/or access to financing are not willing to invest in such ventures until the country pulls itself out of the recession.

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



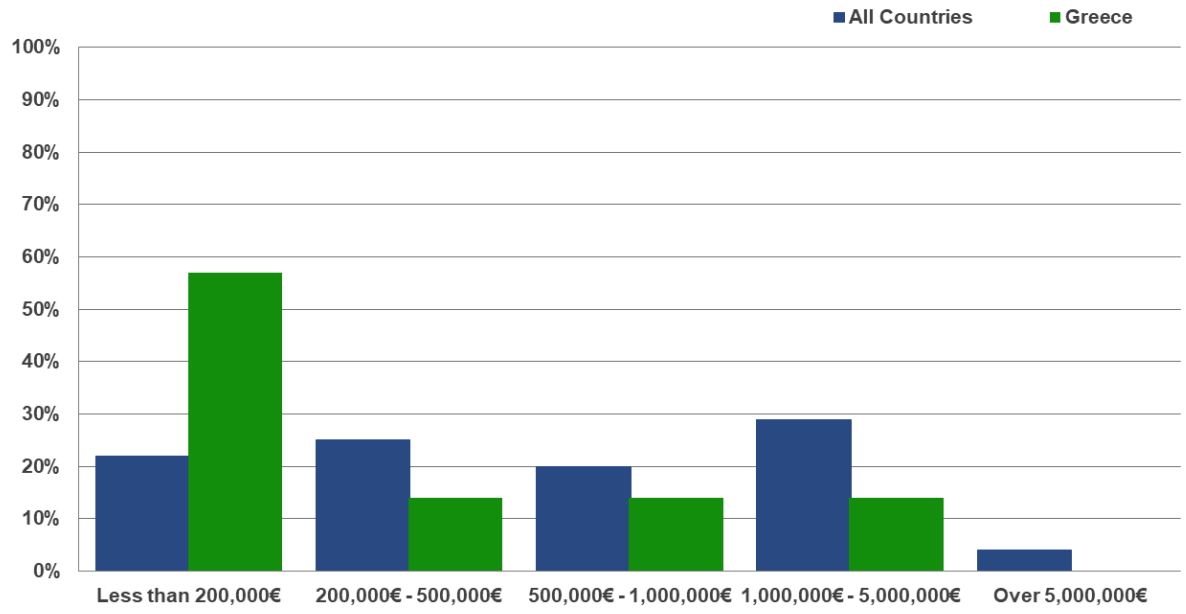
Together 71% of respondents – EPC providers and facilitators - in Greece experienced little change of EPC orders in the last 12 months whilst 29% of the cases, the number of orders actually declined. All of these values are considerably higher than the European countries surveyed. This is consistent with the status of the EPC market which has been virtually stagnant since the late 1990's, with only notable exceptions being EPC pilot projects implemented within the framework of EU projects. The main problem is the lack of access to financing, either by the client or the ESCO.

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



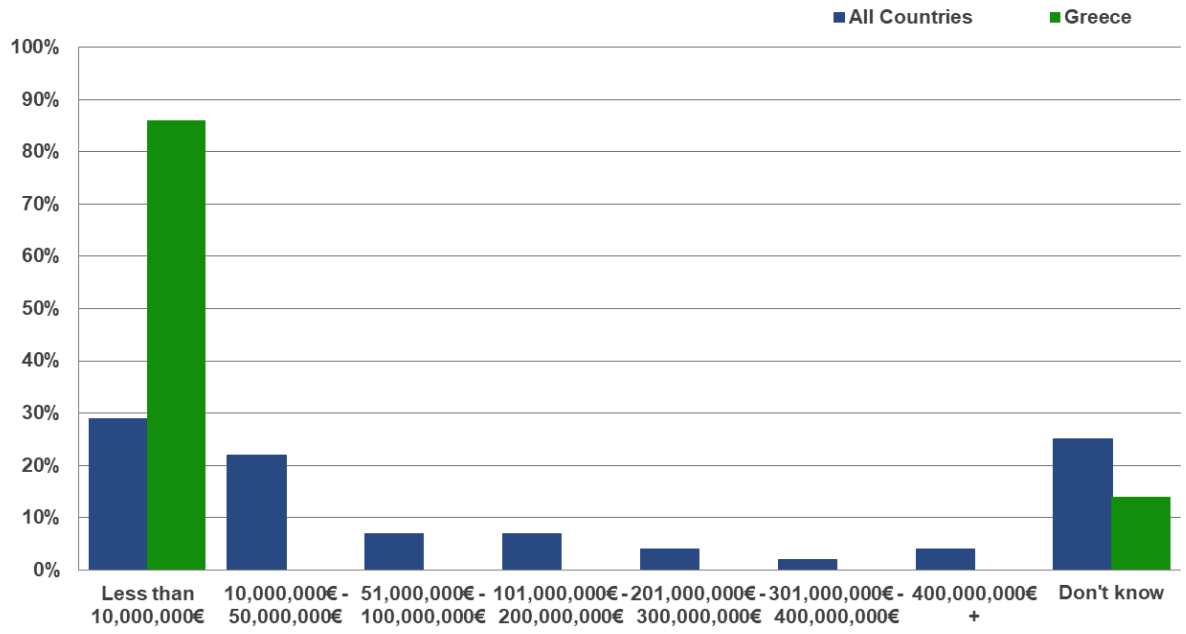
Approximately 57% of the implemented EPC projects in Greece encompass investments with a value less than 200,000 €, well above the range reported most often from all the countries involved in the survey where the value of the projects is more evenly split between all categories. Once again, this is consistent with the status of the EPC market which has been virtually stagnant since the late 1990's, with only notable exceptions being EPC pilot projects implemented within the framework of EU projects. The main problem is the lack of access to financing, either by the client or the ESCO, but also to the financial instability of the country and therefore, low confidence level among potential investors. Therefore, in the case of these pilot projects both the client and the ESCO tend to opt for low-risk projects with very small budgets.

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)



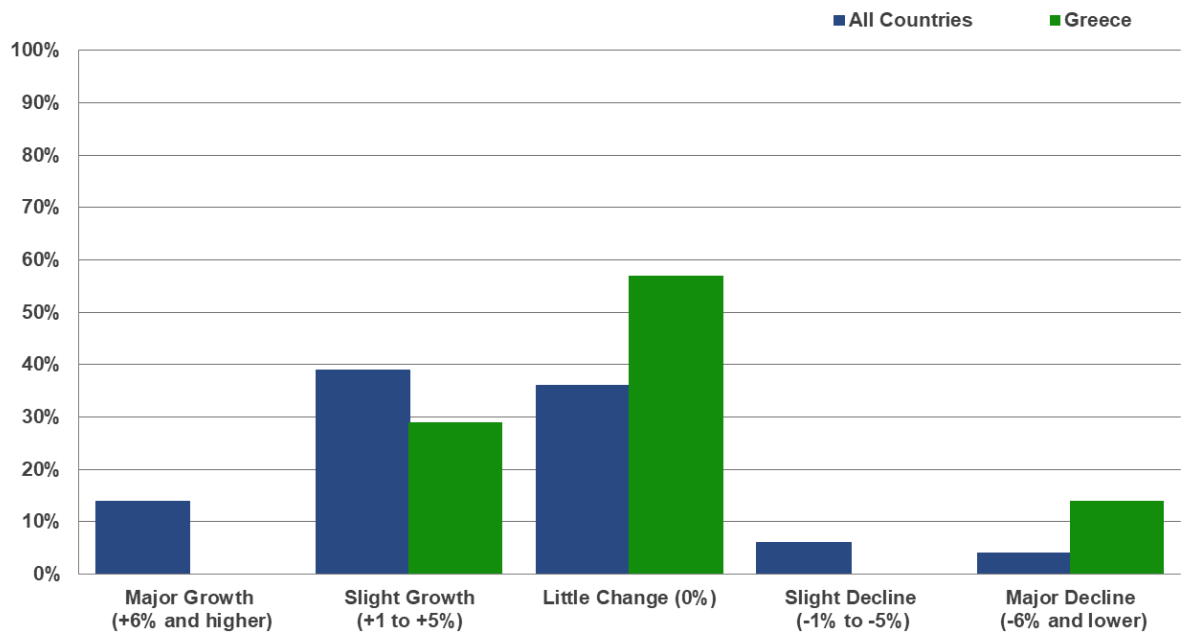
Approximately eighty six 86% of the Greek EPC providers and facilitators believe that the EPC market in Greece in 2016 was worth less than 10,000,000 € whilst the remaining percentage (14%) do not know. This is much higher than the amounts reported upon from all the countries involved in the survey. This is consistent with the status of the EPC market which has been virtually stagnant since the late 1990's, with only notable exceptions being EPC pilot projects implemented within the framework of EU projects.

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)



Based on the opinion of EPC providers and facilitators, the market or EPC services is stagnating or experiencing slight growth in Greece similarly to the development reported by the European respondents. Number of respondents who think the EPC market is declining is fairly small (10% for European respondents and 14% for Greece). The main reason is that status of the EPC market has been virtually stagnant since the late 1990's, with only notable exceptions being EPC pilot projects implemented within the framework of EU projects. Therefore, the assumption that things cannot get any worse, accompanied by the fact that the country is slowly but surely exiting its prolonged recession, tends to allow the respondents to have a more optimistic outlook for the forthcoming years.

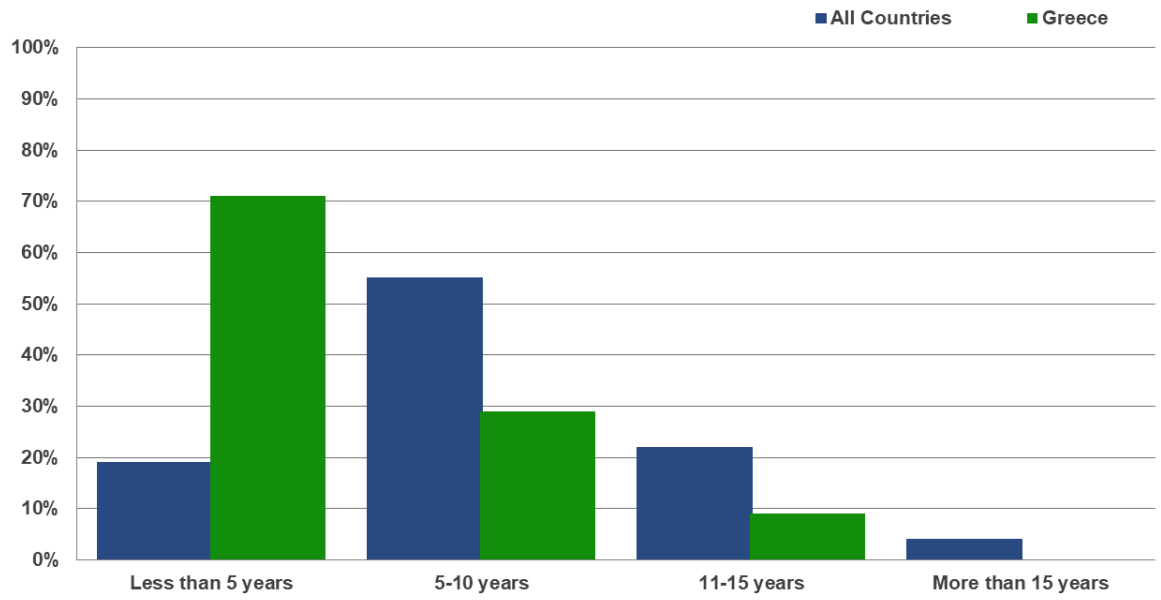
Figure 5 Over the last 12 months, the EPC market in your country has seen: (Percentage share of responses by providers and facilitators Sept 2017)



4.3 EPC business models

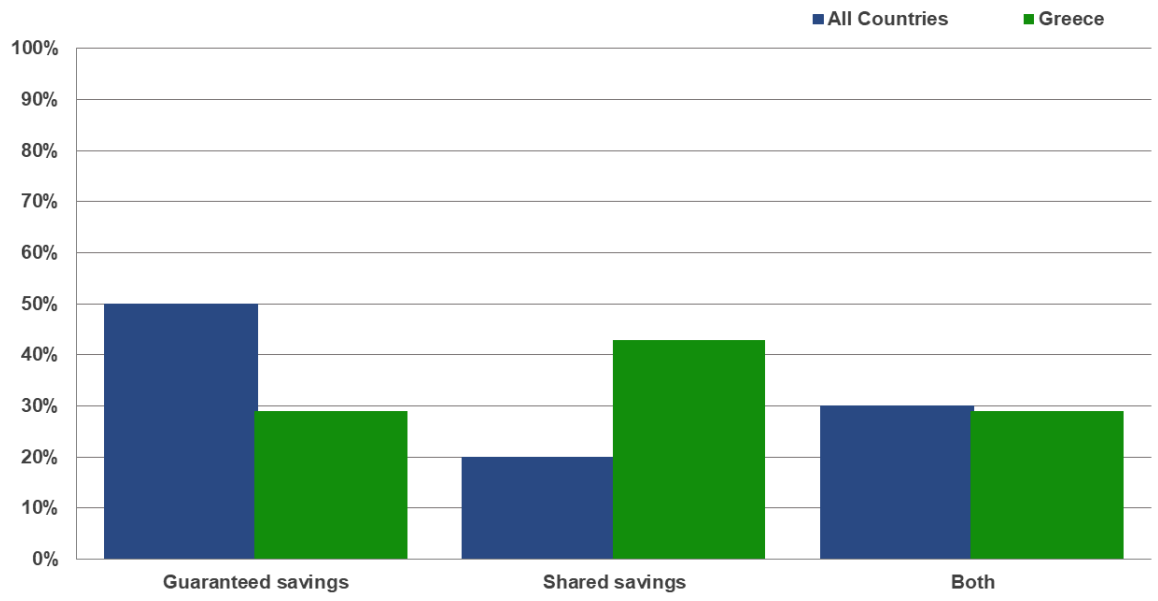
In Greece the most common duration of EPC project is less than 5 years (71% of all projects) whilst the remaining percentage (29%) concern projects between 5-10 years. No projects with duration greater than 10 years are available. This is in contrast with values reported by the respondents across All Countries in the survey (26%). This is mainly due to the lack of access to financing, either by the client or the ESCO, but also to the financial instability of the country and therefore, low confidence level among potential investors. Therefore, in the case of any prospective projects both the client and the ESCO tend to opt for low-risk projects with very small budgets, short payback periods and short durations.

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)



Answers from the respondents in Greece indicate that the shared savings model (43%) is preferred to the guaranteed savings model (29%). On the other hand, according to the European respondents across All Countries in the survey, it seems that the guaranteed savings model and the combination of the two models seem to be preferred. A possible reason for this is that the shared savings model is closer correlated to Third Party Financing when compared to the guaranteed savings model. As the main problem in Greece for the implementation of energy efficiency projects is their financing, it seems very reasonable that the EPC providers would offer what the market is demanding (i.e. Third Party Financing with shared savings).

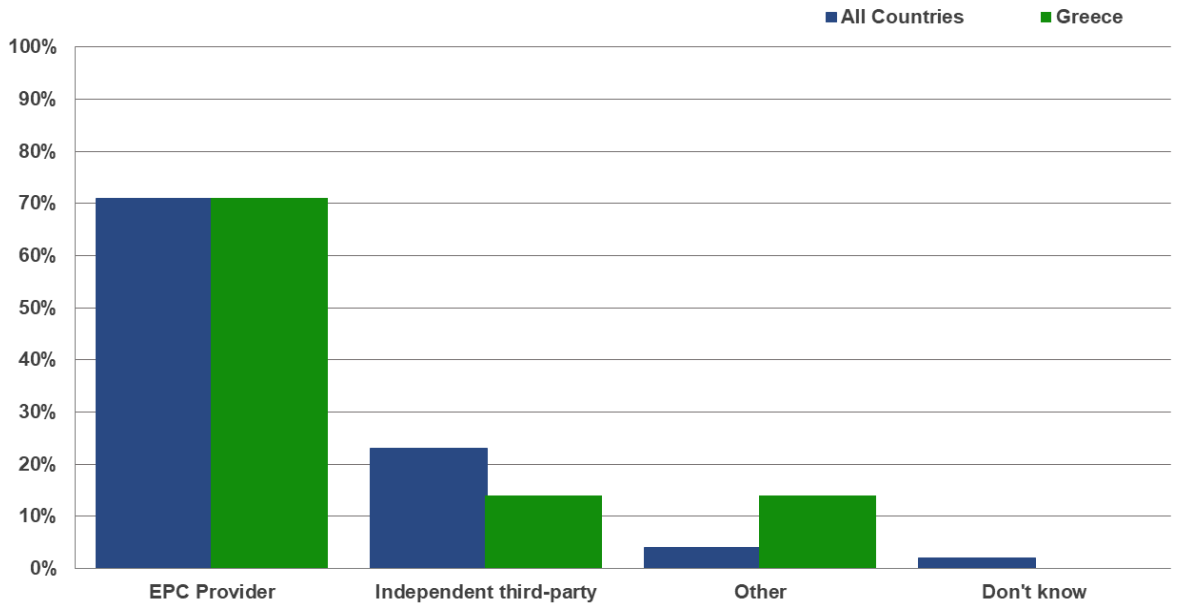
Figure 7 What type of energy savings model is offered in the EPC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



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

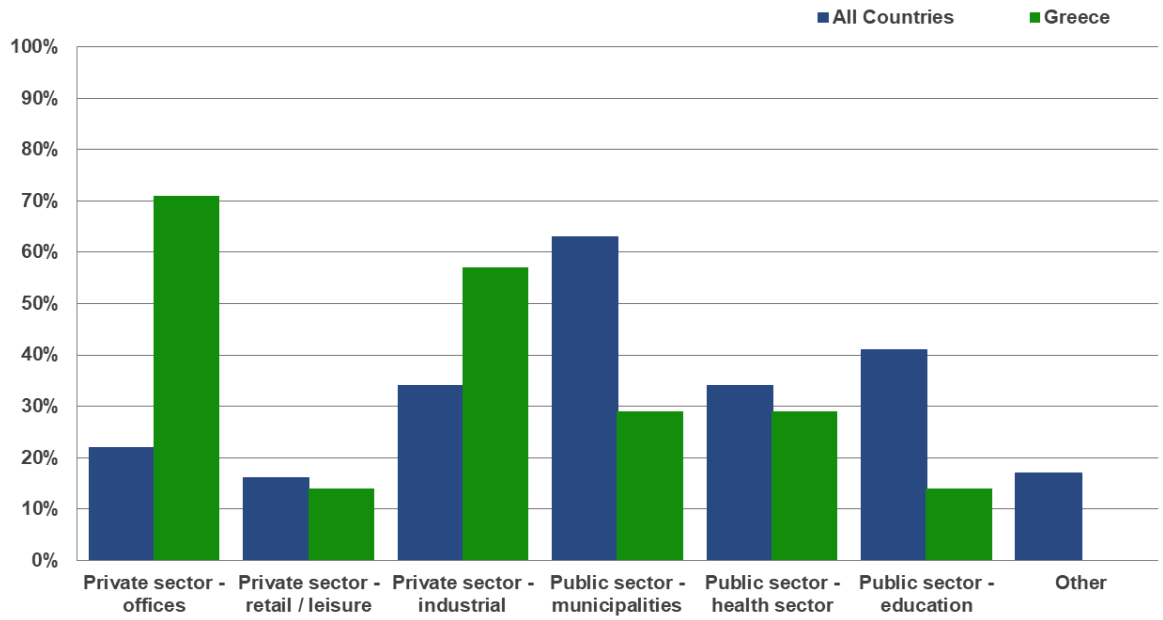
In Greece, energy savings performance analysis is in 71% of the cases delivered by the EPC provider. This is exactly the same as the answers of the respondents across All Countries in the survey. The main explanation for this is that the involvement of an independent third-part adds both complexity and cost to the EPC contract.

Figure 8 Who typically delivers the energy savings performance analysis in the EPC projects you are involved with? (Percentage share of responses by providers and facilitators Sept 2017)



For over 71% of EPC providers and facilitators in Greece, clients most frequently come from the private sector (offices, leisure and industry). In comparison with the respondents of the European countries involved in the survey, the dependence on the private sector is extremely high in Greece. The explanation for this is that complex public procurement laws significantly inhibit the publication of Public Tenders for EPC projects

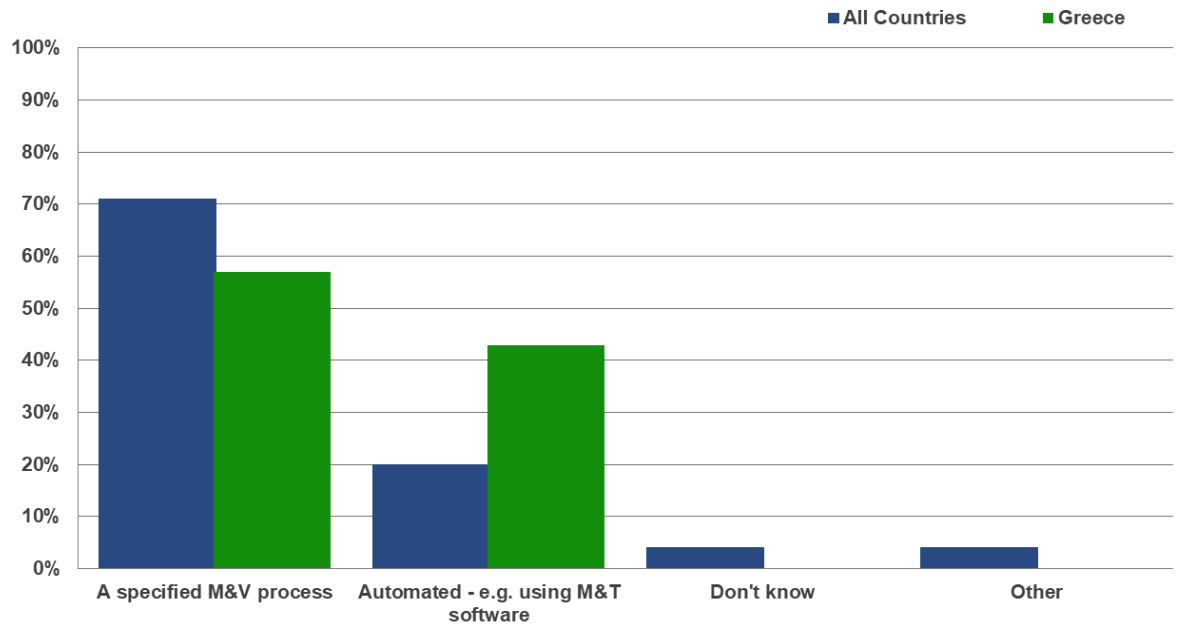
Figure 9 Which sectors do your EPC clients generally come from? (Percentage share of responses by providers and facilitators Sept 2017)



4.4 EPC measurement & verification

In terms of measurement of EPC project related energy savings, specified M&V process is the main tool in Greece, where 57% of EPC providers and facilitators stated this tool being the one they use compared to 71% of the European respondents across All Countries in the survey. Automated metering is more frequently used in Greece compared to the All Countries dataset (20% for the European respondents compared to 43% in Greece).

Figure 10 How is the energy saving performance of the EPC projects you are involved with typically measured and quantified? (Percentage share of responses by providers and facilitators Sept 2017)



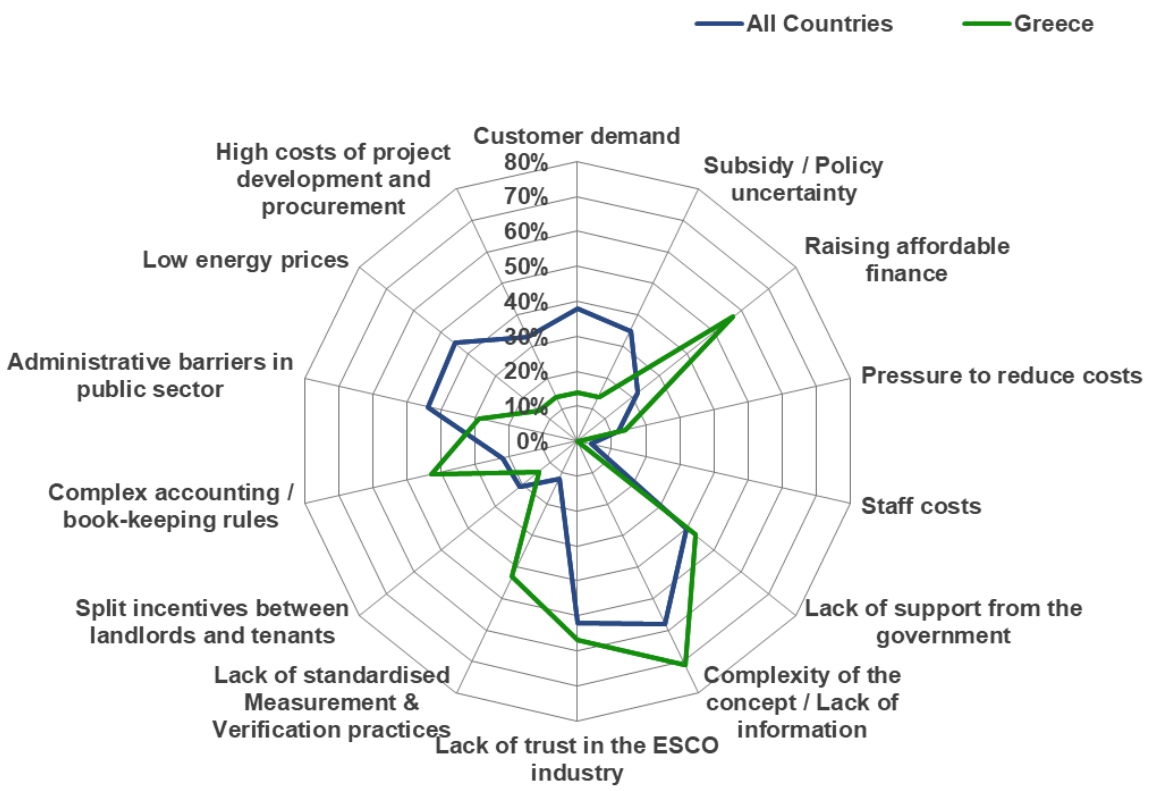
4.5 EPC market barriers

In general, within the European Union, the main market barriers for the EPC market include: (1) Customer demand, (2) Subsidy/policy uncertainty, (3) Raising affordable financing, (4) Low operational costs, (5) High staff costs for EPC providers, (6) Lack of support from the government, (7) Complexity of the concept, (8) Lack of trust in the ESCO industry, (9) Lack of standardized measurement and verification processes, (10) Split incentives between landlords and tenants, (11) Complex accounting and book-keeping rules, (12) Administrative barriers in the public sector, (13) low energy prices and (14) high costs of project development and procurement.

Greek EPC providers and facilitators identified the raising of affordable finance (57%), the complexity of the EPC concept (71%) and the lack of trust in the ESCO industry (57%) as the most serious barriers to EPC business. Other notable barriers include lack of support from the government (43%), lack of standardized M&V practices and complex accounting and book-keeping rules (43%). The least important barriers include staff costs (14%), low energy costs (14%) and high costs of project development (14%).

According to the European respondents across All Countries in the survey, the main barriers consist of the complexity of the EPC concept (58%), the lack of trust in the ESCO industry (52%) and the low energy prices (42%). The least important barriers include staff costs (4%) and the pressure to reduce costs (12%).

Figure 11 What are the main barriers to EPC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



4.5.1 Regulatory and administrative barriers

In Greece the Legal and Institutional Framework for the operation of ESCOs exists. It is upheld by:

- Law 3855/2010 on the institutional framework for the provision of energy services

- Ministerial Decision D6/13280/07.06.2011 on the Operation, Register, Code of Conduct and related provisions for energy service providers,
- Law 4342/2015 for the transposition of European Directive 27/2012, which includes references to Energy Performance Contracting (EPC).

In the private sector there is no regulatory and administrative barrier for the implementation of EPC projects. However, in the public sector there is currently great difficulty in implementing EPC projects mainly due to the complexity of the regulatory framework for Public Tenders, which is not particularly suited to take into account EPC contracting methods. Therefore, even though Law 4342/2015 specifically refers to and provides for the possibility to publish Tenders with Energy Performance Contracting (EPC) methods, the actual drafting of such a Tender is extremely problematic in order for it to be in accordance with the Public Tender Regulation framework. Modifications to the Law are deemed necessary in order to overcome these barriers.

4.5.2 Structural barriers

In Greece, the main structural barriers to the implementation of EPC contracts is the complexity of the concept, mistrust of the ESCOs and of the quality of their services.

Although there is a national ESCO registry, registration is purely voluntary and the sub-categorization of ESCOs within the registry is based on the budget of implemented energy efficiency projects with or without documentation of EPC contracting. Therefore, the client cannot evaluate whether the ESCO registered in the ESCO registry is either experienced enough in EPC or offers the minimum quality of services required.

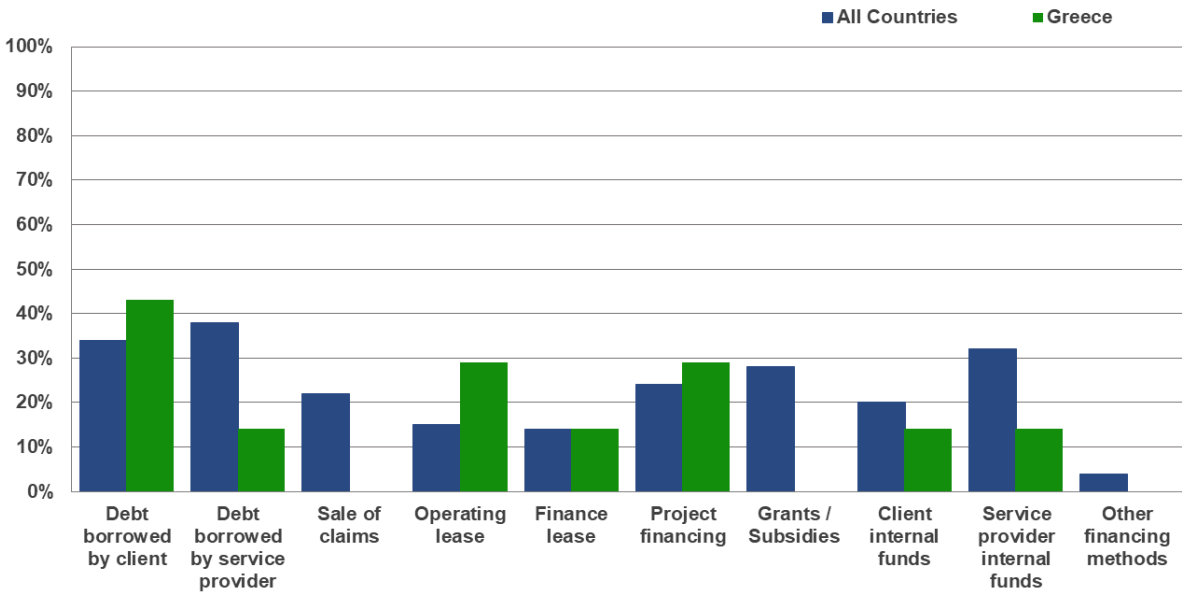
4.5.3 Financial barriers

In Greece, the financial crisis that started in 2010 resulted in six continuous years of recession, a reduction of 25% of Greece's GDP, unemployment figures constantly exceeding 20% and the enforcement of capital controls by the country's financial institutions. As a result of this, the country's economy has been significantly destabilized and its monetary liquidity severely reduced. Therefore, the financing of any type of investment is extremely difficult due to low trust of investors and financial institutions.

4.6 EPC financing

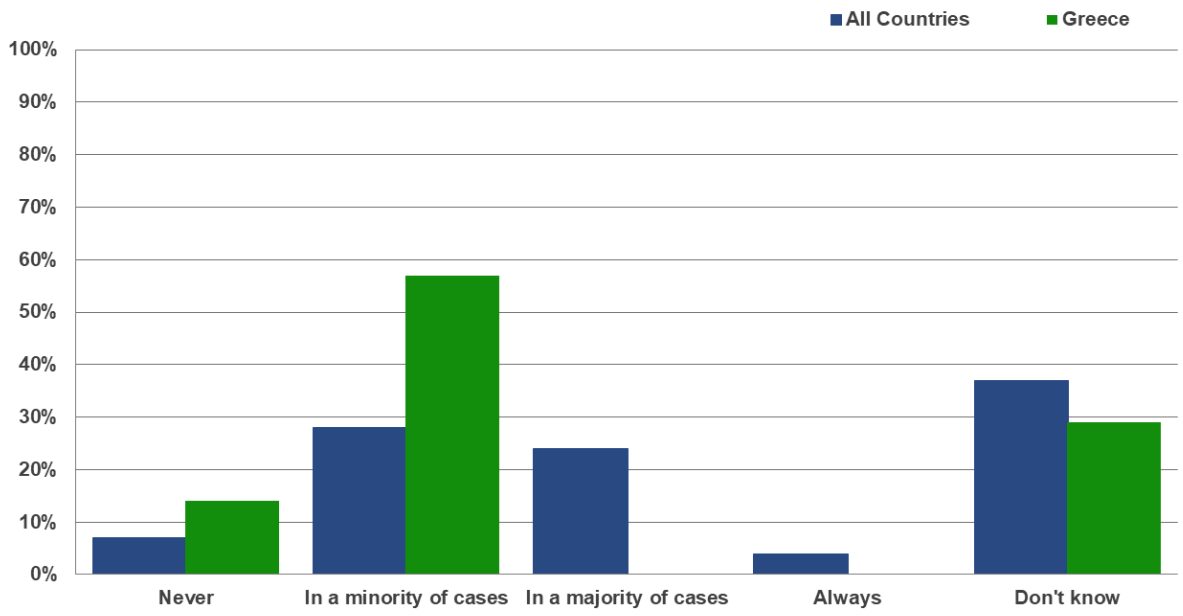
By far the most significant tool for financing EPC projects in Greece is debt borrowed by clients (41%) followed by operating leases (29%). In the case of the respondents of all the countries involved in the survey, debts are a much more common way as they represent top 2 ways of financing while grants and subsidies stand as third option. The explanation is that the small ESCO's currently existing in Greece have no access to financing mainly due to their small size but also due to the prohibitive interest rates being provided by the commercial banks. On the other hand, the larger ESCOs or multinationals that are prospective ESCOs who either have funds and/or access to financing are not willing to invest in such ventures until the country pulls itself out of the recession. Therefore, the preferred option for the implementation of such projects is the financing by the client or the provision of operating leases, a solution that most commercial banks seem to prefer due to its smaller risk.

Figure 12 How are the EPC projects you are involved with financed? (Percentage share of responses by providers and facilitators Sept 2017)



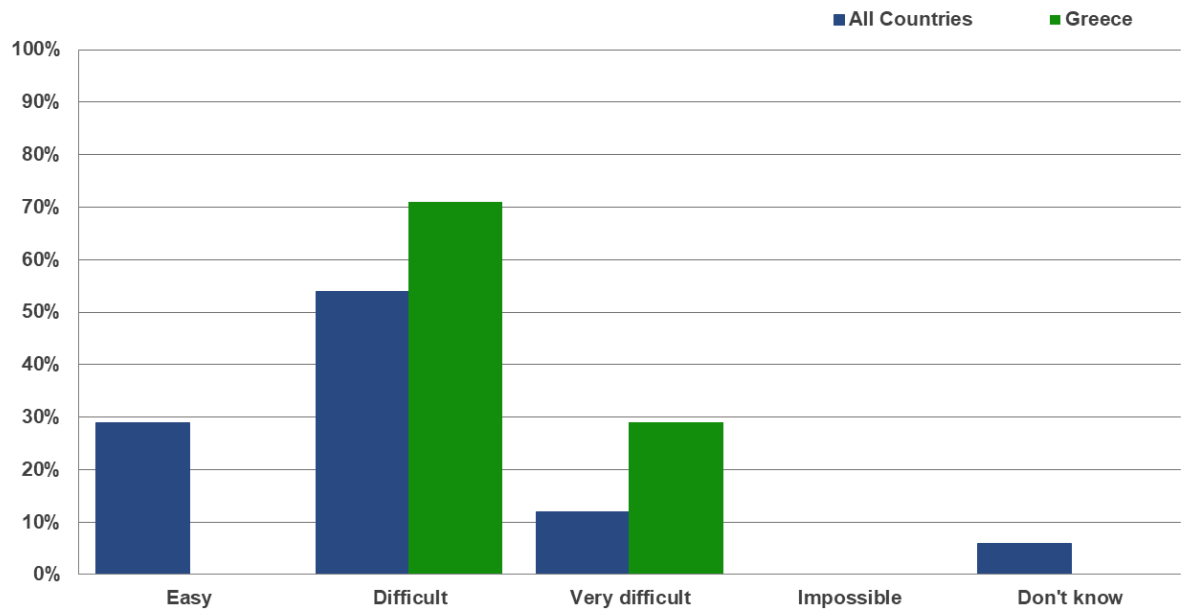
In contrast to the respondents across All Countries, in Greece the sale of claims is generally not accepted as main collateral in EPC projects. As a matter of fact, about 57% of the Greek respondents confirmed, that only in a minority of their projects is such an arrangement accepted when compared to the 28% of the European respondents. It is noteworthy that 37% of European respondents and 29% of the Greek respondents also did not know, which indicates that they do not use such a solution as collateral. In Greece, this can be explained by the existing reluctance of the financial institutions to accept such collateral, which they deem to be "high-risk".

Figure 13 From your experiences, is the sale of claims (sale of receivables) accepted as the main collateral for EPC projects? (Percentage share of responses by providers and facilitators Sept 2017)



Responses of Greek EPC providers and facilitators show that obtaining financing for EPC project is difficult (71%) or very difficult (29%). Consistent with this and the status of access to financing in Greece, no one (0%) answered that it is easy to obtain viable financing. The view across All Countries is slightly different as 54% of respondents claim that it is difficult and 12% that it is very difficult, but 29% of them claim that it is easy.

Figure 14 Do you consider that obtaining viable finance for an EPC project is easy? (Percentage share of responses by providers and facilitators Sept 2017)



4.6.1 ESCO financing

Financing options in Greece for EPC projects are extremely difficult as the market liquidity is currently severely restricted. Descriptions of the financing options that are available are discussed in further detail below:

- Simple credit of ESCO – This is an option available to most ESCOs. However, the substantial collateral requested by the financial institutions and also the fact that such credit would significantly burden the ESCO's balance sheet, thereby making it very difficult for the ESCO to obtain any further credit in any of their future activities, makes this option very unattractive for ESCOs.
- Sale of claims – Financial institutions in Greece, although willing to discuss this financing option on a theoretical basis, are currently reluctant to discuss any such project with a budget less than 1.000.000 €. As the vast majority of potential private clients in Greece are SME's (> 99% of the private enterprises) this budget range is usually never attainable with energy efficiency actions. In the public sector, the

publication of a Public Tender with a Service Contract which could be implemented by an ESCO and financed with a Sale of Claims, presents legal problems that the public authorities are trying to overcome.

- **Leasing** – This is an option available to most ESCOs. However, it mainly caters to large installations with a small number of equipment that need to be installed (e.g. cogeneration units > 100 kWe) for which there is very limited demand in Greece.
- **Escrow Account** – This is an option currently being developed by some financial institutions, which would help them overcome the problem related to the significant collateral demanded by them when supplying an EES provider with simple credit. However, it is not such a lucrative option for EES providers as it basically concerns the transfer of the financial risk from the financial institution to the EES provider (the technical risk can be overcome by insuring the investment).

4.6.2 Client financing

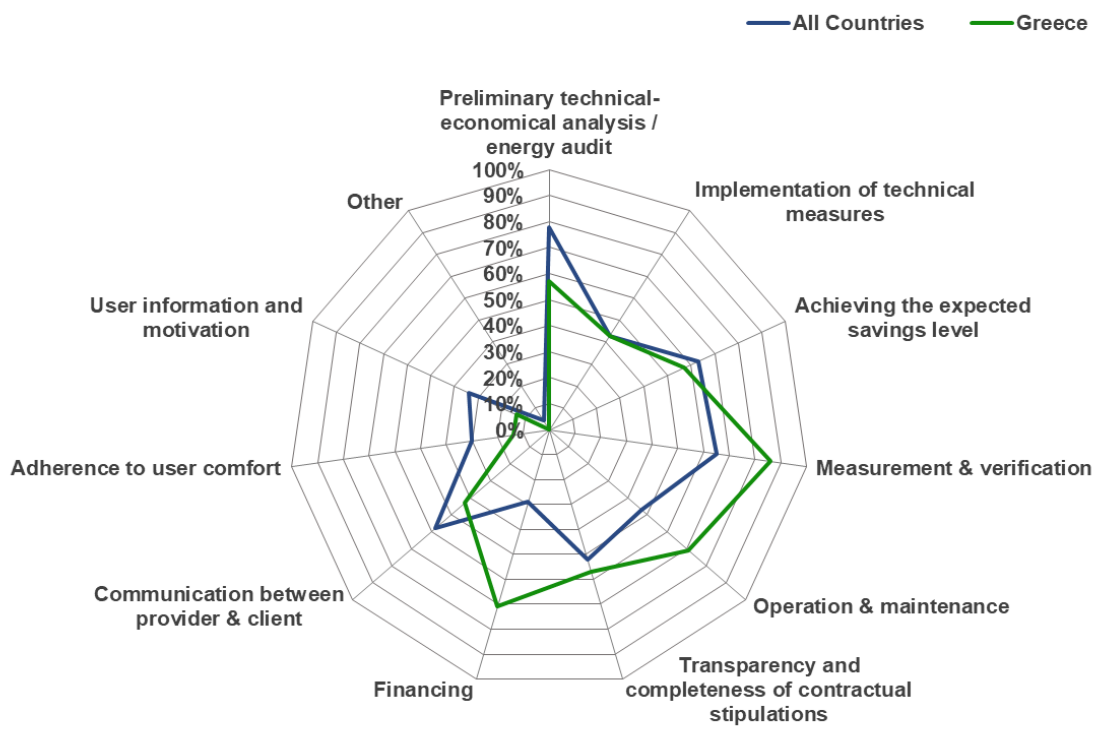
- Client financing (with own funds, public grants or simple credit), is probably the most realistic option for ESCOs for the implementation of projects with EPC.

4.7 EPC quality determinants

As described in Chapter 4.5.2, the quality of energy services is of particular interest in the Greek market for both the supply and demand side.

Greek respondents agree with respondents across All Countries in the survey on the identification of major determinants of EPC projects quality: preliminary technical economical analysis and energy audit (78% All Countries – 57% Greece), monitoring and verification (65% All Countries – 86% Greece) and achieving the expected savings (63% All Countries – 57% Greece) are deemed the most important determinants. Only in the case of financing is there a significant variance of opinion (27% All Countries – 71% Greece).

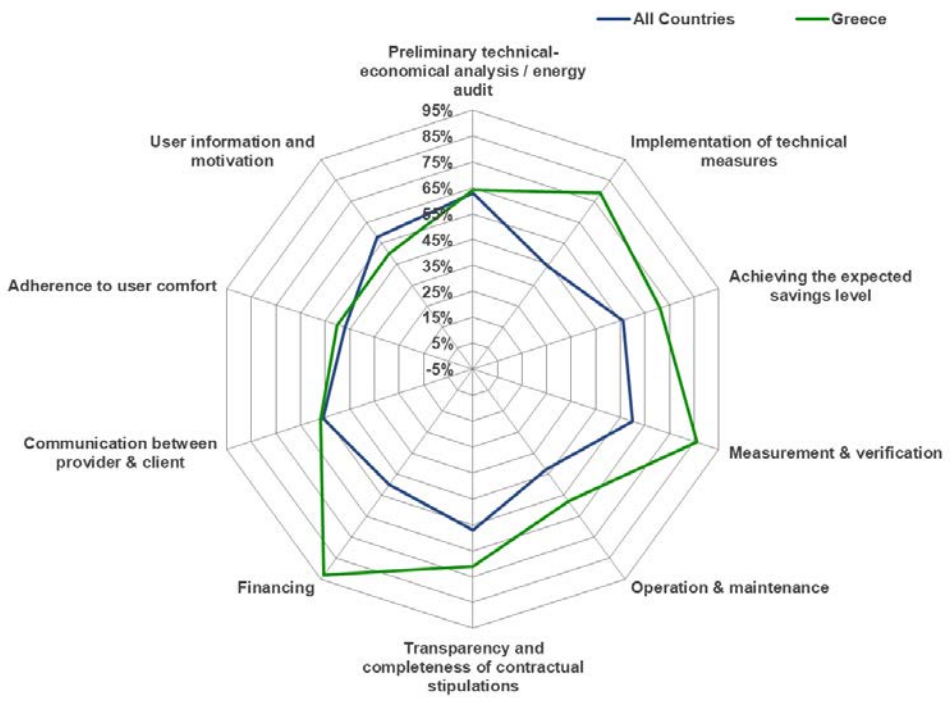
Figure 15 What are the most important determinants of quality in EPC projects? (Percentage share of responses by providers and facilitators Sept 2017)



Greek EPC providers and facilitators see more needs for improvement of EPC projects in the areas of financing (93%), measurement and verification (86%) and also in the achievement of

the savings themselves (71%). On the contrary, respondents across All Countries in the survey see more needs for improvement of EPC projects in the areas of preliminary technical economical analysis and energy audit (63%), measurement and verification (60%) and also in the user motivation and information (58%).

Figure 16 In which areas are quality improvement most needed in EPC project preparation and implementation? (Indicator based on rating scale as described in note below - Sept 2017)



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

5 ENERGY SUPPLY CONTRACTING MARKET

5.1 ESC market actors

The ESC market in Greece remains extremely small and is almost the same as the EPC market. As a matter of fact, most of the ESC providers are also EPC providers.

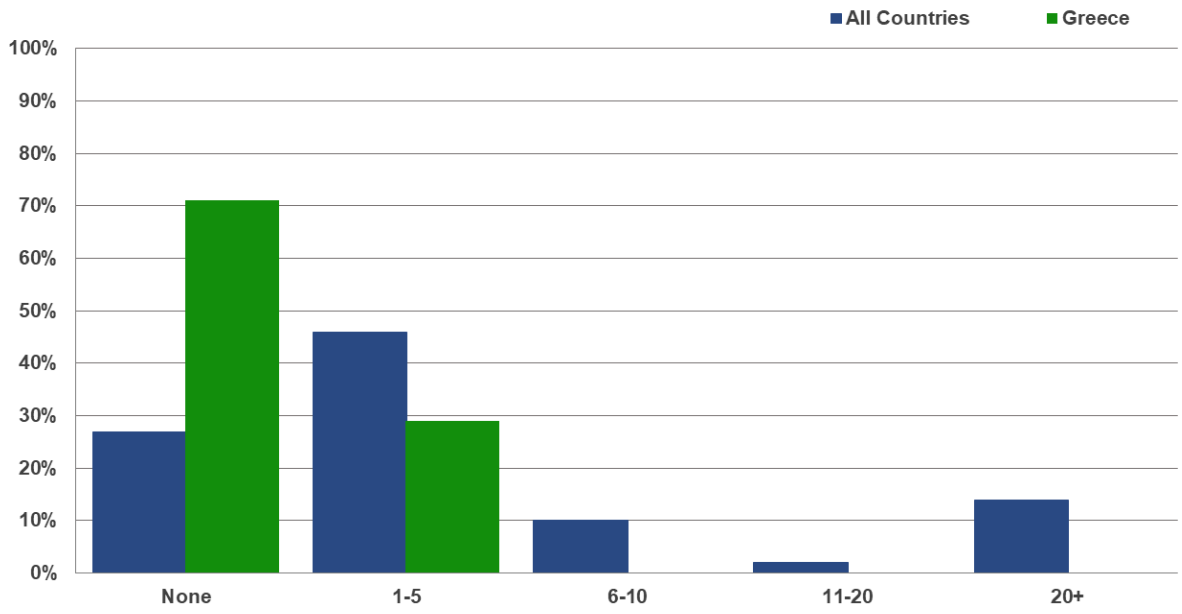
5.2 ESC market developments

The energy services market in Greece began to develop in the late 1990s with the implementation of a subsidized Third Party Financing pilot project. This consisted of the implementation of an energy supply project in a large wine factory (Achaia Clauss S.A.) in Patras, Greece. This project consisted of a solar thermal system for the hot water requirements of the industry. This project was subsidized 50% by the European VALUE programme and the remaining budget was financed by the supplier of the solar thermal system. The financed amount was paid back based on the measurement, by CRES, of the energy supply achieved.

Since then, there have been extremely few implemented ESC projects. One must note that, following the issue of Ministerial Decrees FEK 1547/05.05.2017 and FEK 3583/30.12.2014 which institutionalized the implementation of PV virtual net-metering and PV net-metering respectively, there seems to be an increased interest in the provision of such services.

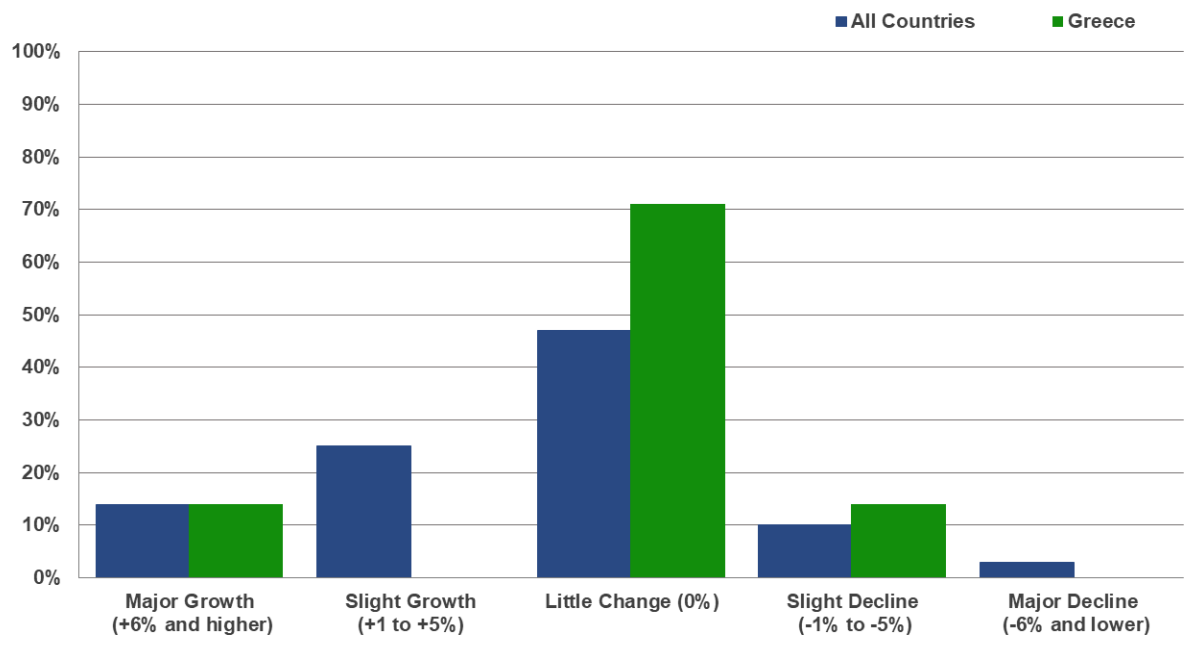
In Greece, the majority of the EPC facilitators and providers (71%) involved in the survey did not participate in any projects whilst the remaining 29% were only involved in a small number of ESC projects (1 – 5). On the other hand, only 27% of respondents across All Countries in the survey had never participated in any projects.

Figure 17 How many ESC projects (that have reached contract signature) has your organisation initiated / become involved with in the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



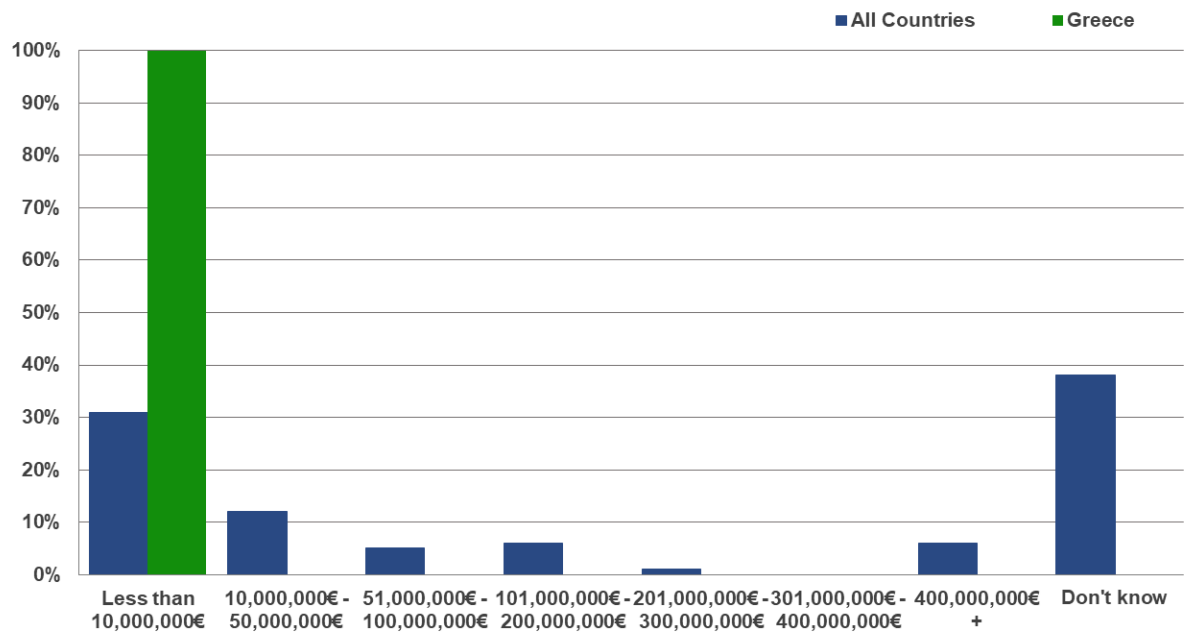
Most of the Greek respondents reported that they have experienced little change in their ESC orders influx in last 12 months (71%), which corresponds also with the experiences of the respondents across All Countries in the survey, who mainly reported stagnation of ESC orders in their respective countries. Similarly to the All Countries dataset, 14% of Greek respondents noticed a growth larger than 6%. In addition, 14% of Greek respondents noticed a decline between 1 and 5%.

Figure 18 In the last 12 months your ESC orders have seen: (Percentage share of responses by providers and facilitators Sept 2017)



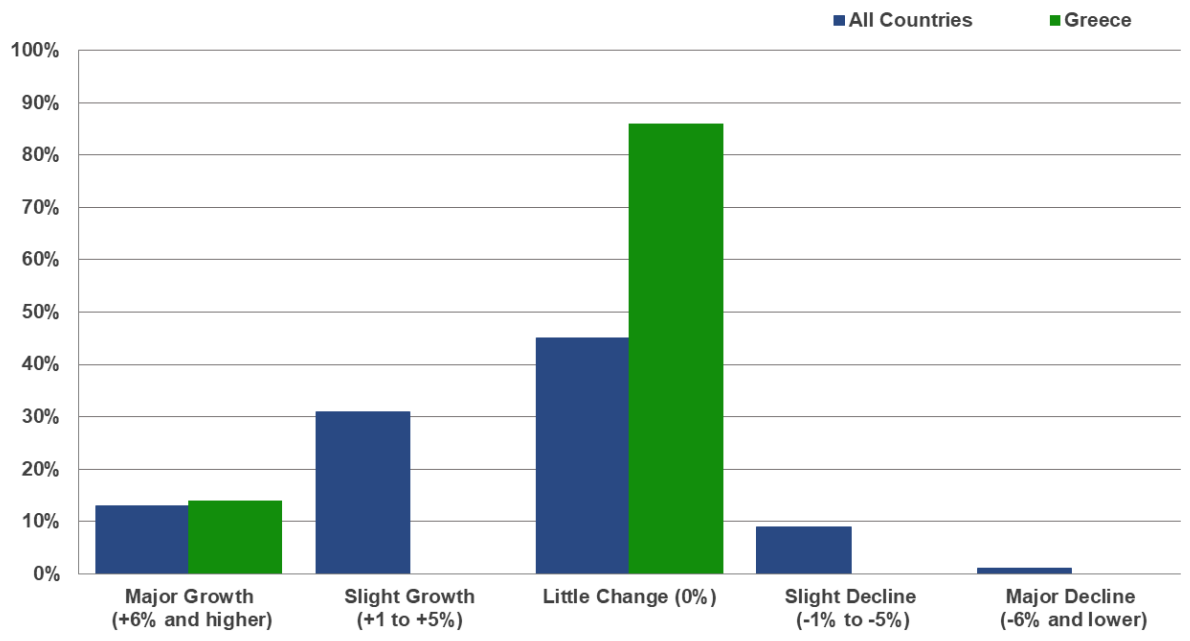
The Greek EPC providers and facilitators (100%) deemed that less than 10,000,000€ was generated in the national ESC market in 2016 The estimated market revenue (2016) most frequently reported across the All Countries dataset (by 31% of respondents) did not exceed 10,000,000€.

Figure 19 How much revenue do you think the ESC market in your country generated in 2016? (Percentage share of responses by providers and facilitators Sept 2017)



Among Greek respondents, the prevailing opinion (86%) was that the ESC market experienced little change in the last 12 months. The remaining EPC providers and facilitators (14%) considered the Greek market to be experiencing major growth. In contrast, the respondents across All Countries in the survey expressed greater trust in their markets when 13% of them considered their respective national market to be growing by more than 6% and most of the rest of the respondents (76%) reported either slight grown or at least stagnation.

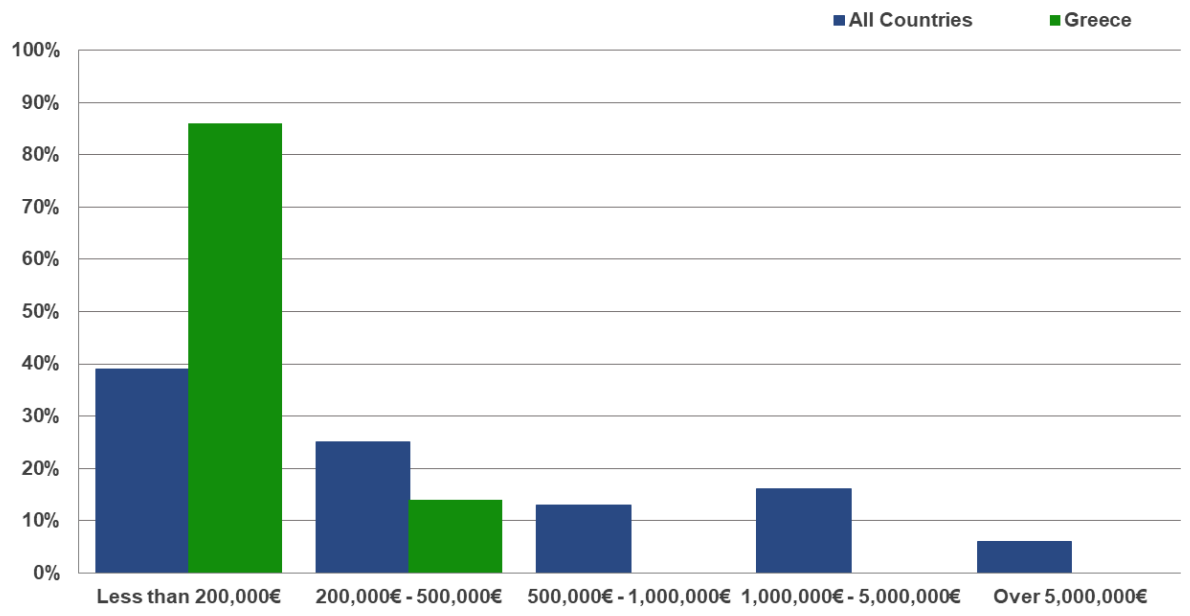
Figure 20 Over the last 12 months, the market for ESC in your country has seen: (Percentage share of responses by providers and facilitators Sept 2017)



5.3 ESC business models

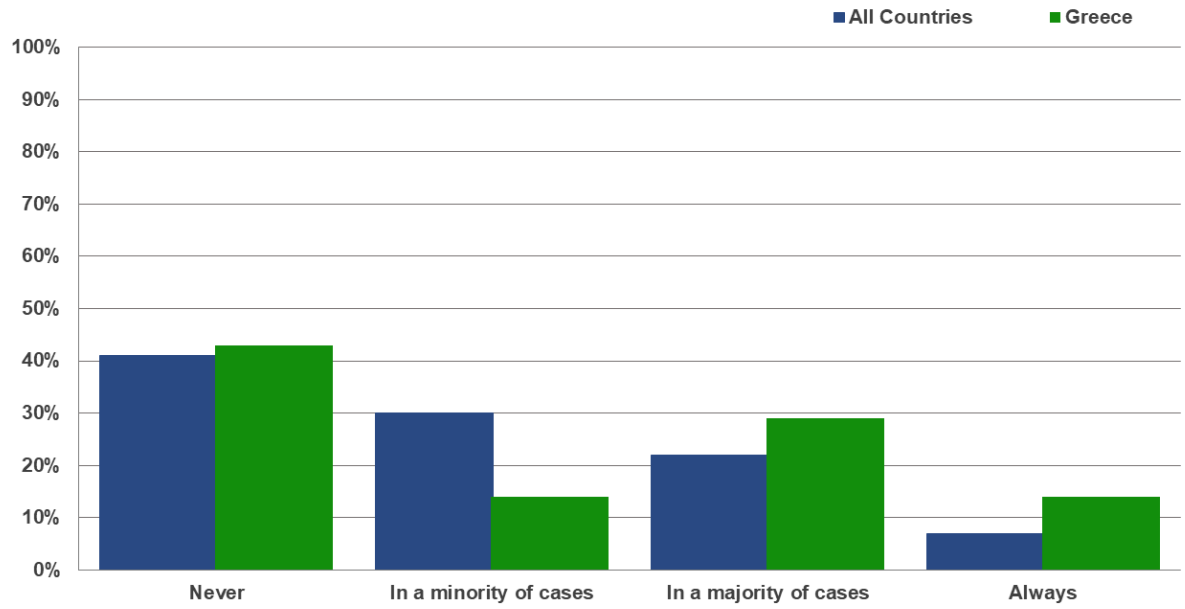
The vast majority of ESC projects in Greece (86%) are focused in the smallest category (measured by value of total investments) where the value of project does not exceed 200,000 €. The remaining 14% of Greek ESC projects are in the category between 200,000 and 500,000 €. In the case of ESC projects across All Countries in the survey, these are more evenly spread between all categories, some of them (6%) even exceeding value of 5,000,000 €. Still, most of ESC projects (39%) across All Countries are of smaller scale under 200,000 €.

Figure 21 What is the most common overall value (investment outlay) of the ESC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



According to Greek respondents, the majority of payments per unit of energy delivered were never made in combination with energy saved (43%) or only made in minority of cases (14%), whilst 29% stated that this was done in the majority of the cases and 14% that the payments were always made in combination with energy saved. This is slightly different than the picture across All Countries in the survey where majority of payments per unit of energy delivered were reported as never made in combination with energy saved (41%) or only made in minority of cases (30%), whilst 22% stated that this was done in the majority of the cases and 7% that the payments were always made in combination with energy saved.

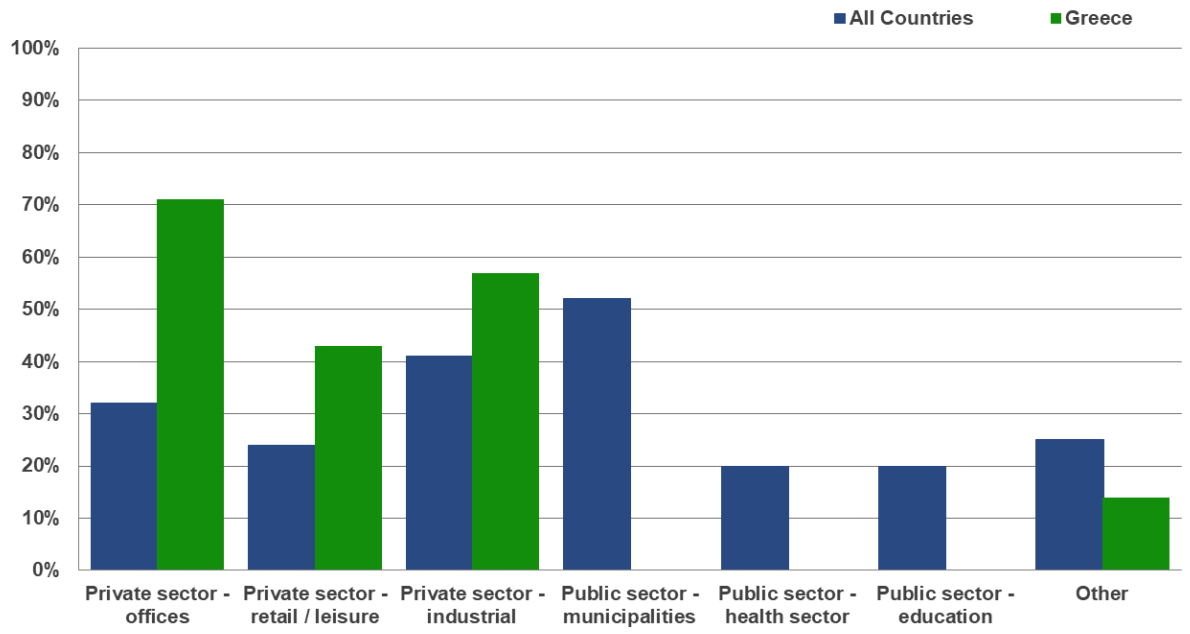
Figure 22 In the ESC projects you are involved in, were payments per unit of energy delivered in combination with payments per unit of energy saved (from installed energy efficiency measures)? (Percentage share of responses by providers and facilitators Sept 2017)



5.4 ESC market sectors

The main source of clients for Greek ESC projects is the private sector. Notably, no respondent claimed to have a public sector client. Concerning ESC clients across All Countries in the survey, they are almost evenly spread among all sectors with the private sphere being more significant than public.

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

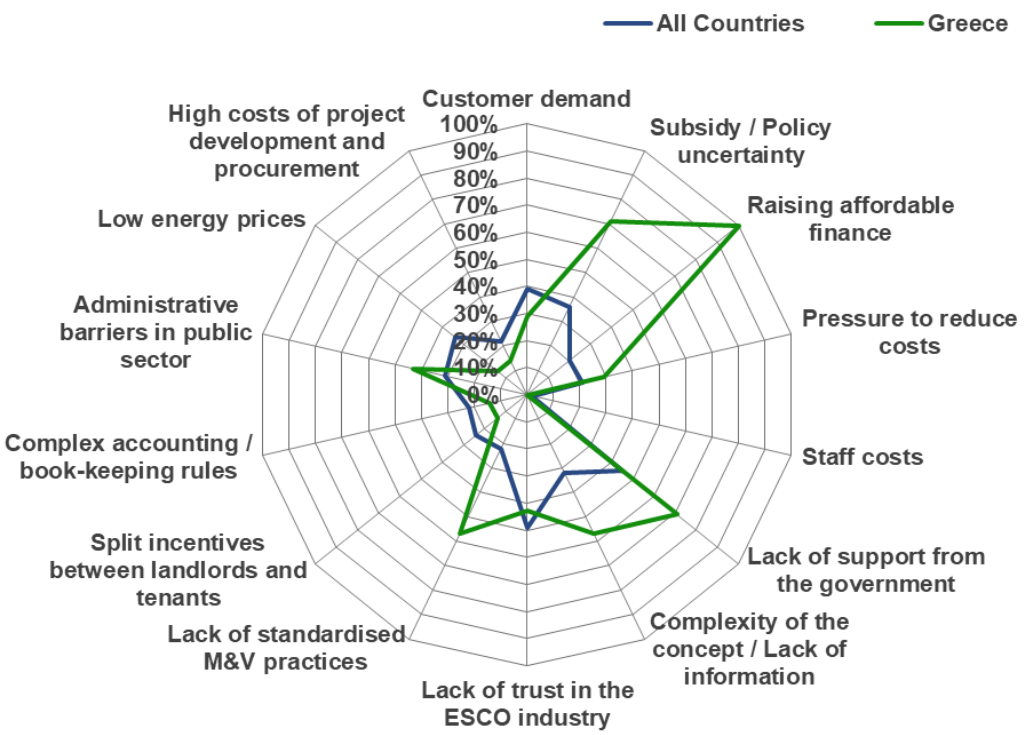


5.5 ESC market barriers

Greek EPC providers and facilitators that responded to the survey clearly identified three major barriers to the ESC: (1) Raising affordable finance (100%), (2) Subsidy/policy uncertainty (71%) and (3) lack of support from the government (71%). The least important barrier was deemed to be that of staff costs (0%).

This differs to the picture across All Countries in the survey, where respondents identified the following major barriers to the ESC: (1) Lack of trust in ESCOs (49%), (2) lack of support from the government (45%) and lack of customer demand (39%). As in Greece, the least important barrier was deemed to be that of staff costs (2%).

Figure 24 What are the main barriers to the ESC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



5.5.1 Regulatory and administrative barriers

In Greece the Legal and Institutional Framework for the operation of ESCOs exists. It is upheld by:

- Law 3855/2010 on the institutional framework for the provision of energy services,
- Ministerial Decision D6/13280/07.06.2011 on the Operation, Register, Code of Conduct and related provisions for energy service providers,

- Law 4342/2015 for the transposition of European Directive 27/2012, which includes references to Energy Performance Contracting (EPC).

In the private sector, there is no regulatory and administrative barrier for the implementation of ESC projects. However, in the public sector there is currently great difficulty in implementing EPC projects mainly due to the complexity of the regulatory framework for Public Tenders, which is not particularly suited to take into account both EPC and ESC contracting methods. Therefore, even though Law 4342/2015 specifically refers to and provides for the possibility to publish Tenders with Energy Performance Contracting (EPC) methods, the new Public Procurement Law 4412/2016 makes no specific mention to it. Therefore, the Public Authorities are extremely reluctant to adopt a new type of Tender unless they receive specific instructions (i.e. the issue of a Ministerial Decree or a Circular) for the actual drafting and monitoring of such a Tender.

5.5.2 Structural barriers

In Greece, the main structural barriers to the implementation of ESC contracts is the complexity of the concept, mistrust of the ESCOs and of the quality of their services.

Although there is a national ESCO registry, registration is purely voluntary and the sub-categorization of ESCOs within the registry is based on the budget of implemented energy efficiency projects with or without documentation of EPC contracting. Therefore, the client cannot evaluate whether the ESCO registered in the ESCO registry is either experienced enough in EPC or offers the minimum quality of services required.

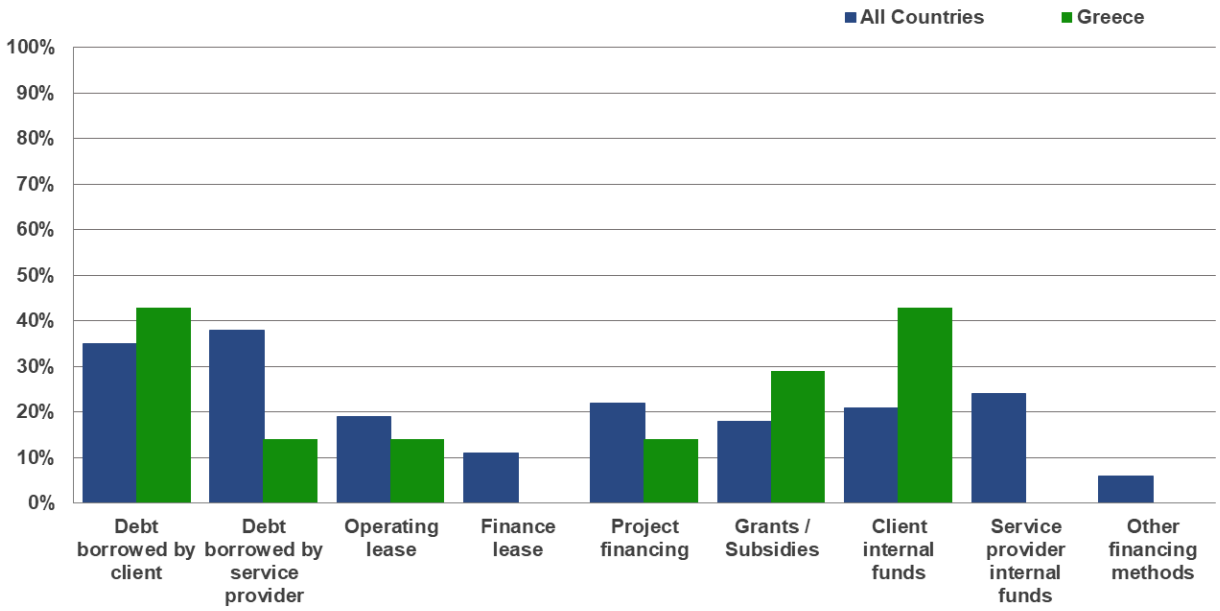
5.5.3 Financial barriers

In Greece, the financial crisis that started in 2010 resulted in 6 continuous years of recession, a reduction of 25% of Greece's GDP, unemployment figures constantly exceeding 20% and the enforcement of capital controls by the country's financial institutions. As a result of this, the country's economy has been significantly destabilized and its monetary liquidity severely reduced. Therefore, the financing of any type of investment is extremely difficult due to low trust of investors and financial institutions.

5.6 ESC financing

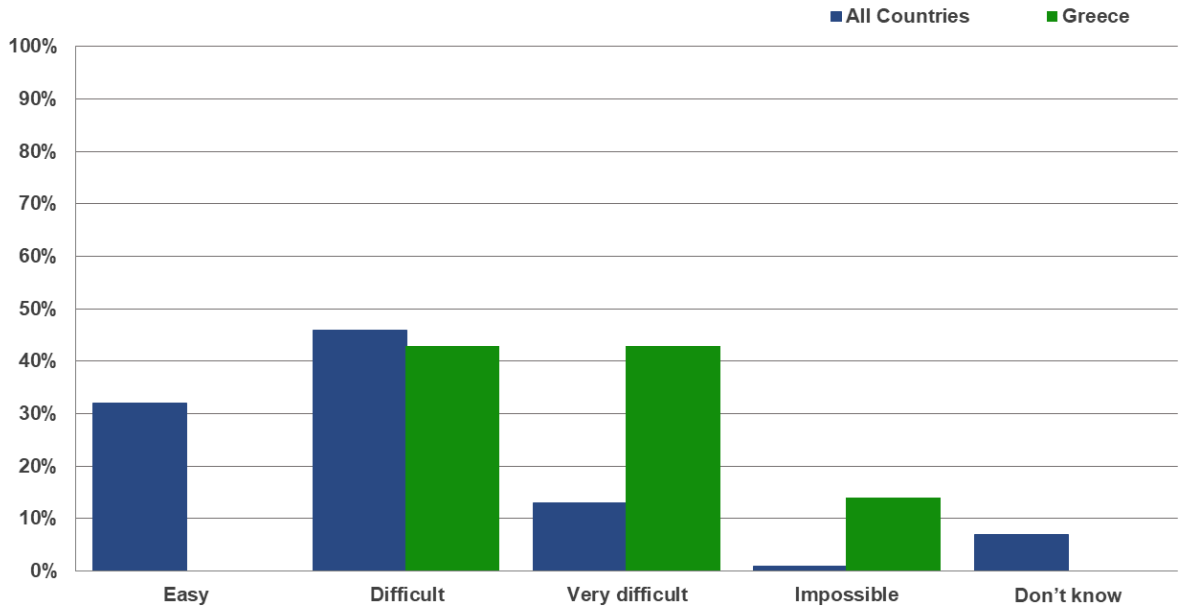
Client internal funds (43%), debt borrowed by the client (43%) and grant/subsidies (29%) seem to be the major source of financing of ESC projects in Greece., On the other hand, across All Countries in the survey, , debt borrowed by the service provider (38%), debt borrowed by the client (35%) and energy service provider own funds (24%) was reported as the most common source of financing.

Figure 25 How are the ESC projects you are involved with financed? (Percentage share of responses by providers and facilitators Sept 2017)



Among Greek ESC providers and facilitators, there is rather a strong opinion on the difficulty of obtaining viable financing for ESC projects as 43% of them consider it difficult, 43% deems it to be very difficult and 14% consider it impossible. Similarly, European respondents across All Countries in the survey also find it either difficult (46%) or very difficult (13%) to get ESC projects financed but 32% of them stated that they found it to be easy.

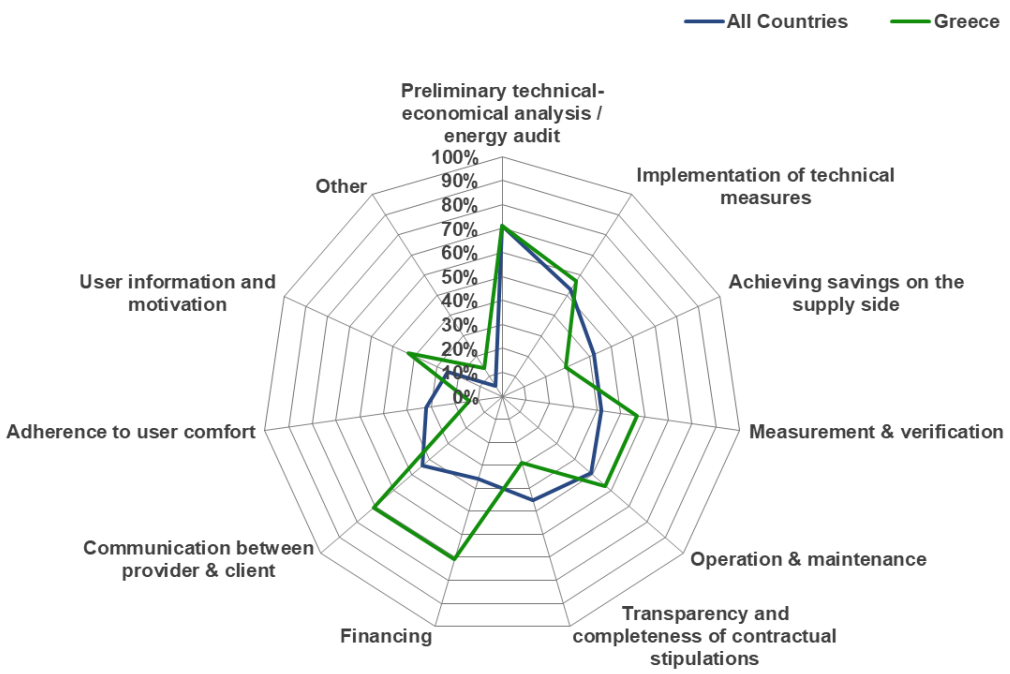
Figure 26 Overall, do you consider that obtaining viable finance for an ESC project is: (Percentage share of responses by providers and facilitators Sept 2017)



5.7 ESC quality determinants

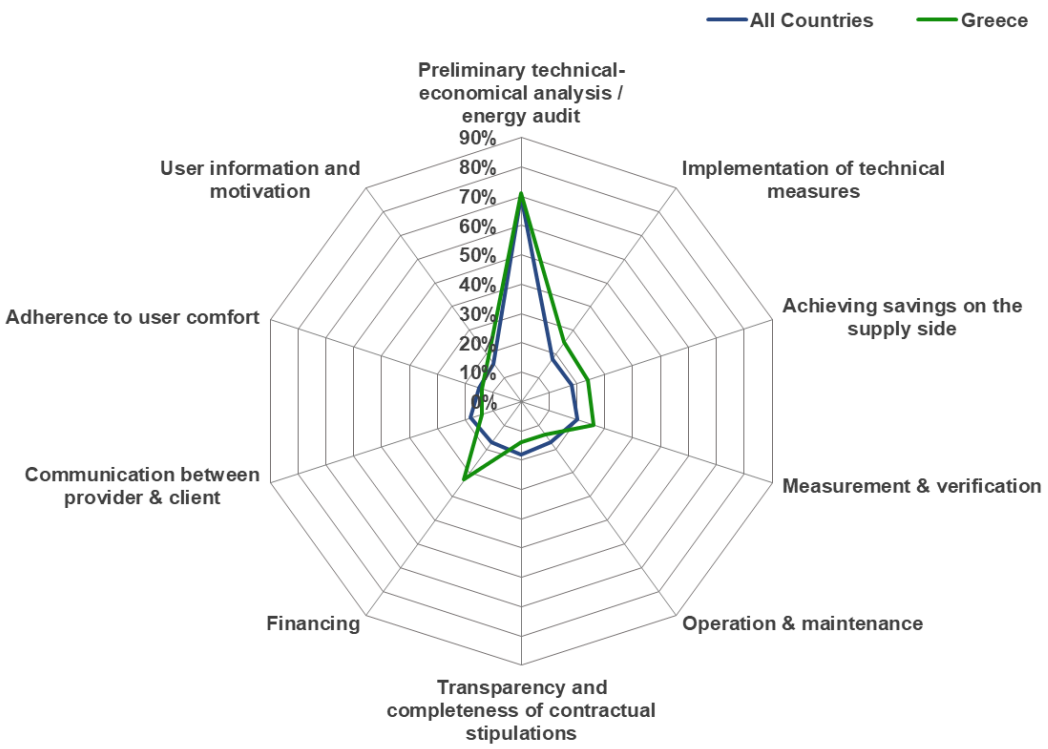
In the identification of major determinants of ESC projects quality, respondents from Greece deem that the most important determinants are the preliminary technical economical analysis and energy audit (71%), financing (71%) and communication with the client (57%). The least important determinant is considered to be user comfort (14%). On the other hand, according to the European respondents across All Countries in the survey, the most important determinants are the preliminary technical economical analysis and energy audit (71%), implementation of the project (53%). The least important determinant is considered to be user information and motivation (32%).

Figure 27 In your opinion what are the most important determinants of quality in ESC projects? (Percentage share of responses by providers and facilitators Sept 2017)



Both the Greek and European ESC providers and facilitators of the survey see more needs for improvement of ESC projects in the areas of the preliminary technical economical analysis and energy audit financing (71% Greece – 70% All Countries in the survey), measurement and verification (26% Greece – 20% All Countries) and also implementation of the projects themselves (25% Greece – 18% All Countries).

Figure 28 In which areas are quality improvement most needed in ESC project preparation and implementation? (Percentage share of responses by providers and facilitators Sept 2017)



6 OTHER ENERGY EFFICIENCY SERVICES

Other types of EES, such as Operational Contracting and Integrated Performance Contracting are not currently offered commercially in Greece. However, most of the energy service providers are willing to consider the provision of such types of services if there is a specific demand from a customer.

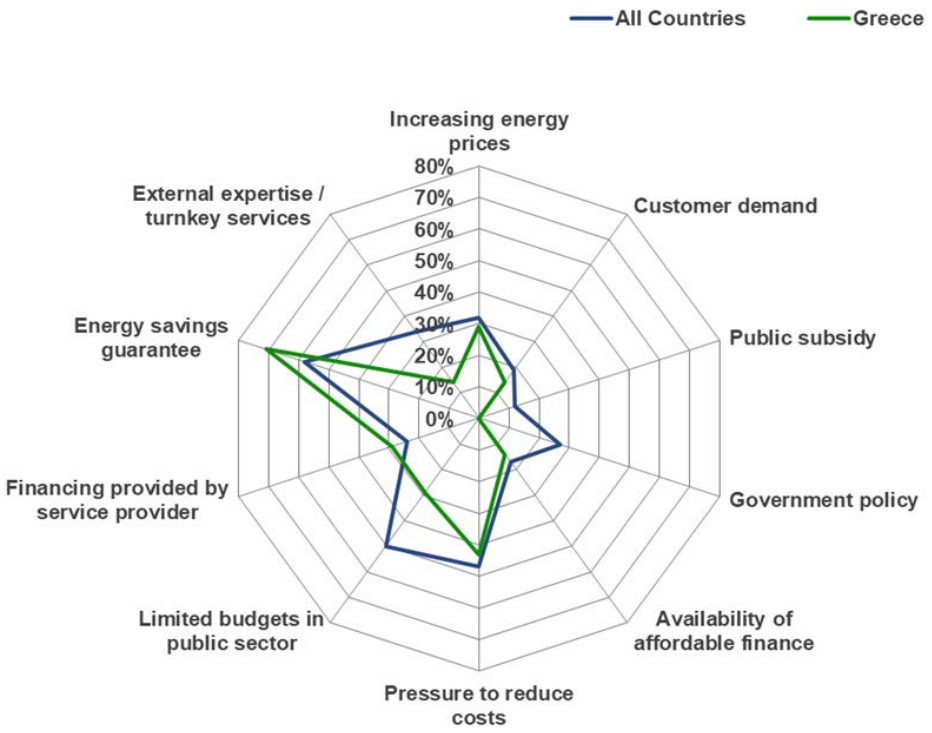
7 RECOMMENDATIONS TO SUPPORT MARKET DEVELOPMENTS

In Greece, the economic recession that resulted from the financial crisis that started in 2010 brought about a reduction of approximately 25% of Greece's GDP, unemployment figures exceeding 20% and the enforcement of capital controls by the country's financial institutions in 2015. As a result of this, the country's economy has been significantly destabilized and its monetary liquidity severely reduced. Therefore, the financing of any type of investment is extremely difficult due to low trust of investors and financial institutions.

All of the aforementioned were both drivers and barriers to the growth of the EPC market. They were drivers as limited budget in the public sector, pressure to reduce costs and the need to have guaranteed energy savings were all factors that facilitate EPC markets. On the other hand, the lack of financing and reduced monetary liquidity of the financial market are severe deterrents to the EPC market as they increase the difficulty of obtaining financing for EPC and ESC projects. Furthermore, the complexity of EPC contracts, the mistrust of Energy Efficiency Service Providers and the lack of quality assessment schemes are also delaying factors in the growth of both the EPC and ESC market.

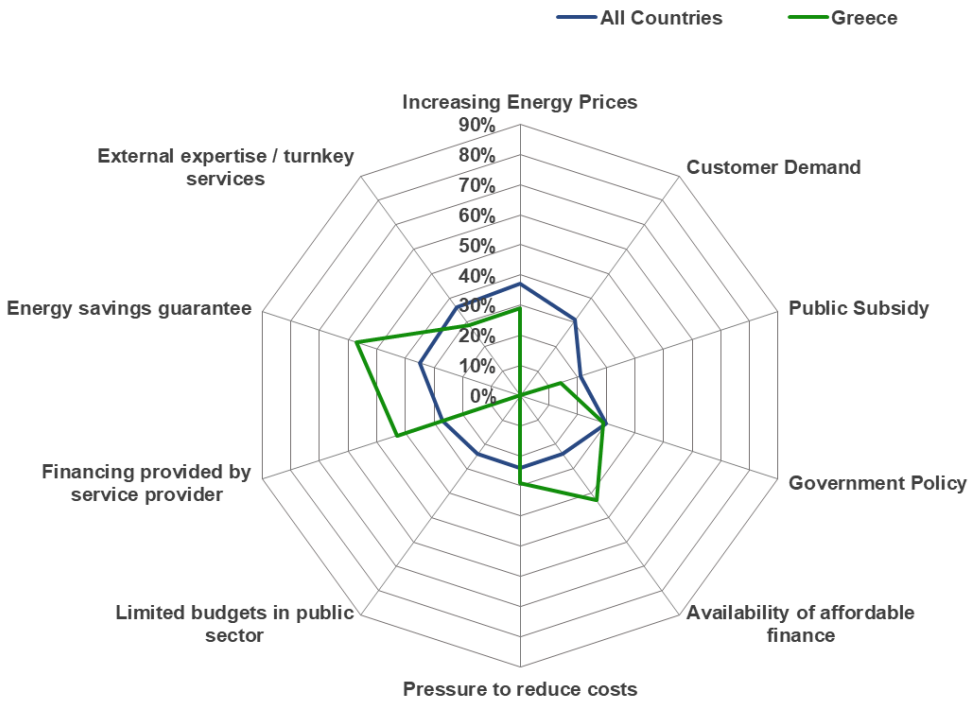
Greek respondents agreed with their European counterparts across All Countries in the survey that main drivers of the EPC business are the guarantee of energy savings (71% Greece – 58% Europe) and the pressure to reduce costs (43% Greece – 47% Europe). On the other hand, external expertise/turnkey services (14% Greece – 31% All Countries) is one of the drivers that European respondents identified and Greeks did not.

Figure 29 What are the main drivers of the EPC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



Greek respondents to the survey identified the guarantee of energy savings (57%), affordable financing (43%) and financing provided by the energy service providers (43%) as the main drivers of the EPC market. European respondents across All Countries in the survey also identified the guarantee of energy savings (35%) as an important driver, but deemed the energy prices (37%) and provided external expertise (36%) as more important.

Figure 30 What are the main drivers of the ESC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



Activities listed in this chapter are meant to help overcome the barriers of EES market development in Greece identified in chapters 5 and summarized 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	Complexity of concept/lack of information	EPC, ESC
2	Mistrust of the ESCO industry	EPC, ESC
3	Raising affordable financing	EPC, ESC
4	Standardization of monitoring and verification	EPC
5	Lack of Support from the Government	EPC, 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	Seminars, conferences, roundtables	EPC and ESC facilitators, EPC and ESC providers	EPC and ESC customers, decision makers, financial institutions, experts, media	The goal is to inform about the possibilities and benefits of the EPC and ESC method
2	1,4	Training for new EPC providers	EPC and ESC facilitators	New EPC and ESC providers	The goal is to sustain the high quality of EPC projects and promote the use of the Code of Conduct for EPC
3	1,2,4	Implementation of the European Code of Conduct for EPC	EPC and ESC providers	EPC providers (existing and potential), 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	1,2,4	Promotion of best practices in EPC and ESC	EPC and ESC providers	Potential clients, experts, media	This activity is an integral part of other dissemination activities
5	1,2,4	Certification of EES	EES providers	EES providers, facilitators, clients	The goal is to sustain and guarantee the high quality of EPC projects
6	54	Discussion, talks and networking	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

7.1.1 Regulation and standardization

Concerning regulation and standardization, in order to support the further development of the EPC market, the following actions are recommended:

- **Removal of legislative and administrative barriers** –
  - In the public sector, the main problems concern the drafting of Public Tenders for EPC projects in order for them to be in accordance with the Public Tender Regulation framework. In order to overcome this barrier, legislative amendments and administrative circular documents are deemed necessary that will specify and clarify all the necessary procedures.
  - In both the public and private sector, changing the status of the National ESCO registry from voluntary to mandatory would also help to increase trust in the quality of the ESCOs and their services. However, before this is done, the existing registration criteria must also be accordingly modified.
- **Public Tender templates** – For EPC projects in the public sector, the publication of a model Tender, or template, for each type of Public Tender (e.g. Procurement, Service and Works), would also be extremely useful.
- **Governmental strategy / Action plans to use EPC on public buildings** – The implementation of demonstration projects in the public sector, for both EPC and ESC, would provide a significant reference point and aid to all public authorities currently contemplating the implementation of such projects.
- **Certification - quality assurance system** – The first important step towards the implementation of a national certification – quality assurance system, would be to adapt the registration criteria of the national ESCO registry so as to ensure that the energy services offered by the registered ESCOs comply with a minimum set of quality requirements.
- **Third-Party Assessment** – The institutionalization of a national, independent, Third-Party Assessment Body for the assessment of EPC projects and the monitoring and verifications scheme proposed therein would significantly help in overcoming the lack of trust of EES providers.

7.1.2 Financial instruments

Concerning financial instrument, in order to support the further development of the EPC market, the following actions are recommended:

- **Public Grants** – Due to the low maturity of the ESCO market in Greece and the severe difficulty in accessing financing for EPC projects, the use of public grants for financing of the preparation of the EPC projects would be extremely beneficial as these would decrease the payback periods of the investment, thereby rendering the securing of finance for the remaining budget much easier.
- **Preferential credit interest rates** – As with public grants, a subsidization of credit interest rates for the implementation of demonstration and pilot projects would be

extremely beneficial as these would decrease the payback periods of the investment, thereby rendering the securing of finance for the remaining budget much easier.

- **Guarantee Fund** – The establishment of a Guarantee Fund for EPC projects would significantly enhance the EPC market by providing the financial institutions with the necessary collateral (via the Guarantee Fund) for supplying the necessary credit to either the client or the EES provider.
- **Revolving Fund** - The establishment of a Revolving Fund for EPC projects would significantly enhance the EPC market by providing the EES provider with the necessary source of financing (via the Revolving Fund) for the financing of such projects.
- **ESCROW account** – The establishment and use of ESCROW accounts by Greek financial institutions would help them overcome the problem related to the significant collateral demanded by financial institutions when supplying an ESCO with simple credit.

7.1.3 Information dissemination, education and networking

By information dissemination, education and networking, the goal is to inform about the possibilities and benefits of the EPC and ESC methods, promote these methods as one of the governmental strategic goals in energy and growth policy, thereby reducing the lack of trust towards EES providers.

8 CERTIFICATION OF ENERGY EFFICIENCY SERVICES

8.1.1 General framework for certification of products and services

In Greece, the use of quality standards has increased significantly over the last decade. Indicatively, today, when compared to previous years the implementation of the EN ISO 9001 standard by private enterprises has increased significantly.

Furthermore, the issue of the European Regulation for the Energy Labelling of products (in compliance with European Directive 30/2010) and Eco-Design (in compliance with European Directive 125/2009) has enforced the use of energy efficient and environmentally friendly products available in the market.

8.1.2 Certification of services in the energy sector

In the energy sector Greece, the following certification schemes are currently being used, in a lesser or greater degree, by private enterprises:

- EN ISO 50001 “Energy Management”,
- EN ISO 140001 “Environmental Management”,
- EN 15900 “Energy Efficiency Services. Definitions and Requirements”,
- EN 16212 “Energy Efficiency and Savings Calculations”.

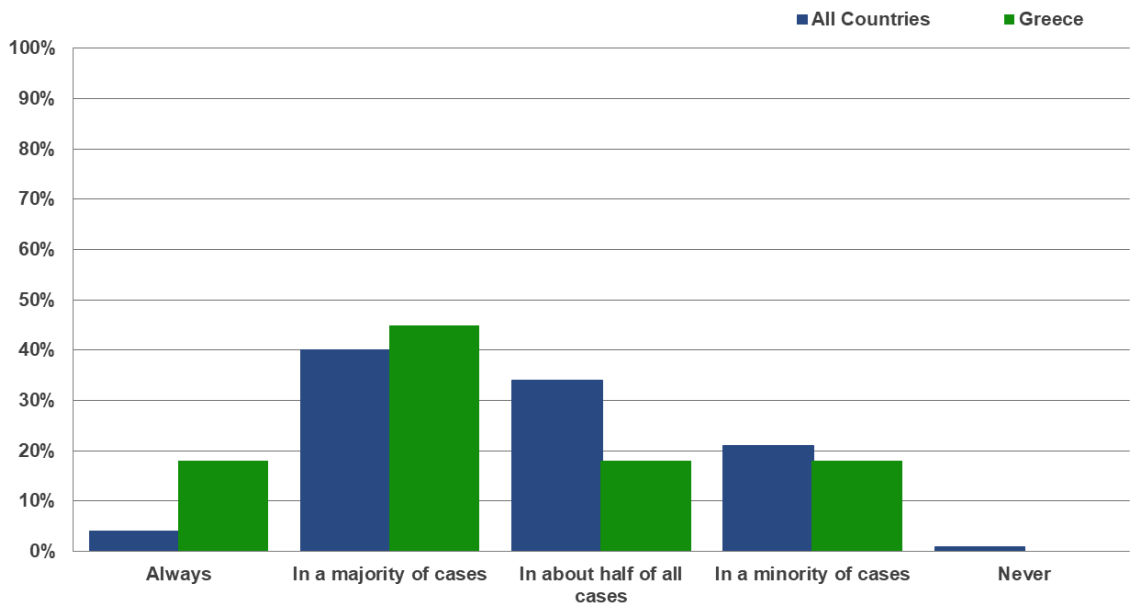
Furthermore, in compliance with European Directive 27/2012, all large enterprises have to implement mandatory energy audits. In Greece, these are implemented by certified energy auditors (according to Law 4342/2015).

8.1.3 Certification of energy efficiency services

In Greece, there is currently no national EES certification scheme. The only existing certification scheme is the European-wide private initiative of the Investor Confidence Project http://www.eeperformance.org/. Furthermore, there are no planned activities for a national EES certification scheme. What has been done or been planned until now in the area of EES certification.

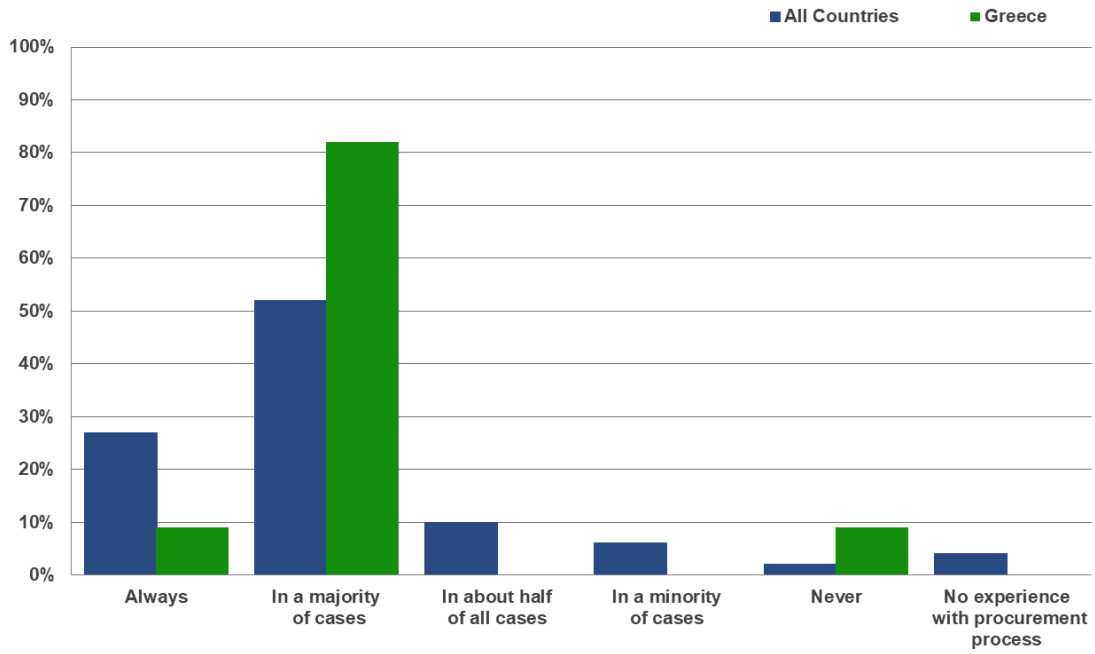
Responses indicate that there is overally less trust in EPC/ESC service providers in Greece than across All Countries in the survey. Approximately 45% of the Greek respondents stated that in the majority of cases they met with a lack of trust and only a small share of them (18%) encountered trust during the majority of their projects. This is consistent with the results across All Countries in the survey, where 40% of respondents noted lack of trust in EPS/ESC services in the majority of cases.

Figure 31 In your experience, is there a lack of trust in EPC/ESC service providers? (Percentage share of responses by providers and facilitators Sept 2017)



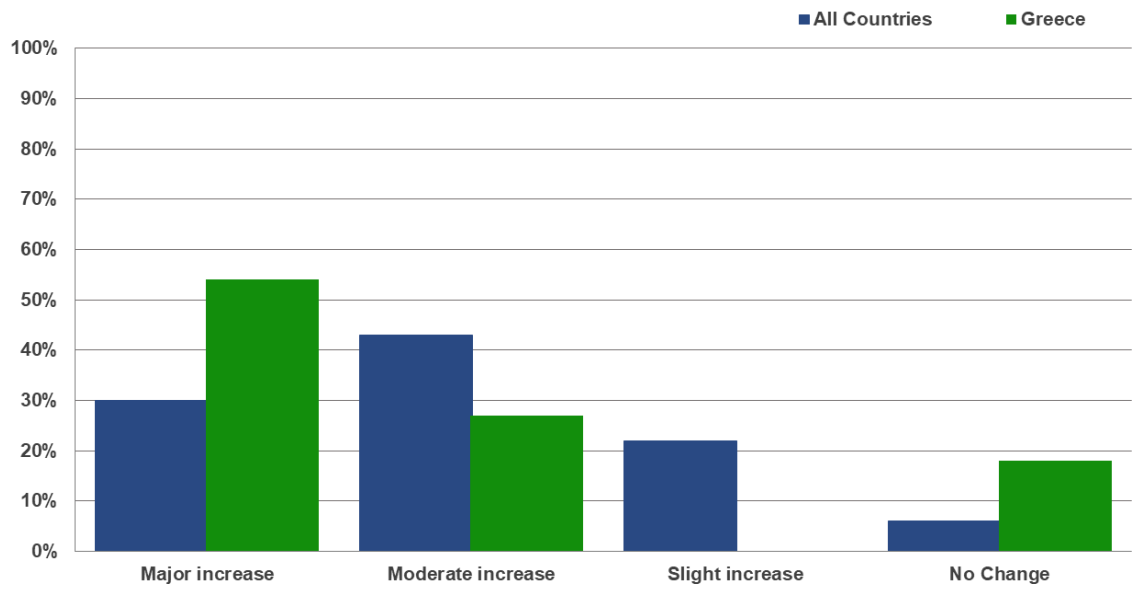
Greek respondents to the survey clearly supported the idea that well-defined procurement specifications increase the quality level of services as 82% of them stated that it is helpful in the majority of cases. Even greater support was indicated by the respondents across All Countries in the survey as 82% of them declared procurement specifications to be helpful in all or at least in majority of projects.

Figure 32 From your experiences, do well defined procurement specifications increase the quality level of EPC/ESC services? (Percentage share of responses by providers and facilitators Sept 2017)



Both Greek and European respondents across All Countries in the survey are aligned in their opinion concerning how much would a quality assurance scheme increase the trust of a client in EPC/ESC services and providers. The biggest share of the respondents (slightly above 40% in the case of respondents across All Countries and 27% in the case of the Greek respondents) think that the impact would be a moderate enhancement of trust whilst 54% of the Greek respondents deem that there would be a major increase in trust.

Figure 33 To what extent would a quality assurance scheme increase client trust in EPC/ESC services and providers? (Percentage share of responses by providers and facilitators Sept 2017)

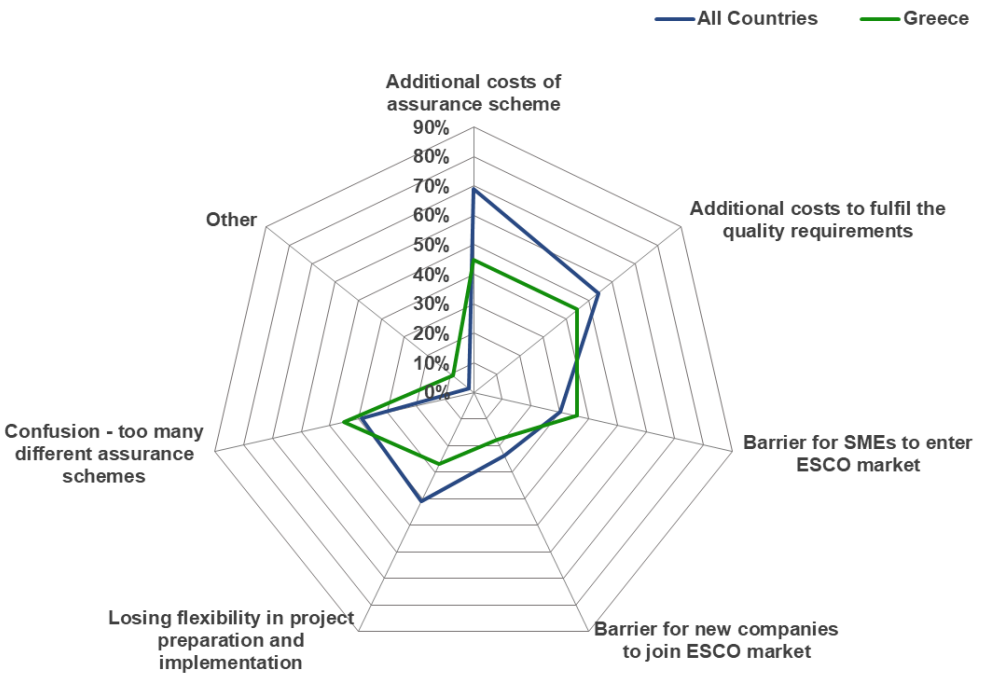


The majority of respondents in Greece and across All Countries in the survey agreed that the main benefits of quality assurance scheme would be an increase in customer trust (82% for both datasets) and standardised quality criteria providing a benchmark for quality in the industry (73% Greece – 57% All Countries).

Figure 34 In your opinion, what would be the added value of a quality assurance scheme like this? (Percentage share of responses by providers and facilitators Sept 2017)

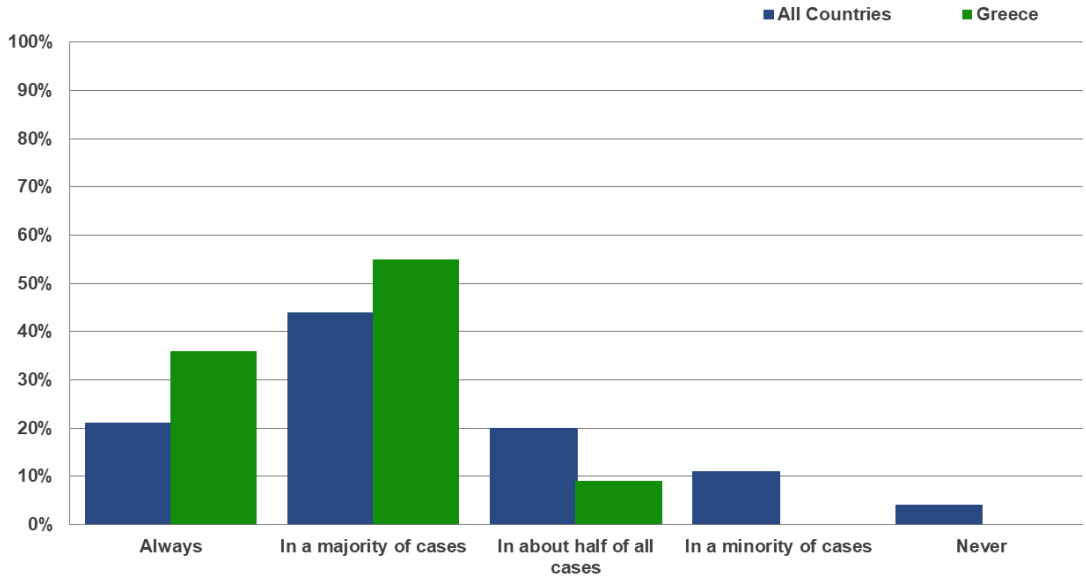
Both Greek respondents and their European counterparts across All Countries identified additional costs as the main drawbacks to a quality assurance scheme. Such costs may prevent new companies (especially SME) to enter ESCO market. But it needs to be emphasized that besides cost-related concerns, not many of the energy service providers and facilitators expressed particular concerns regarding remaining issues.

Figure 35 In your opinion, what drawbacks or barriers may be created by a quality assurance scheme like this? (Percentage share of responses by providers and facilitators Sept 2017)



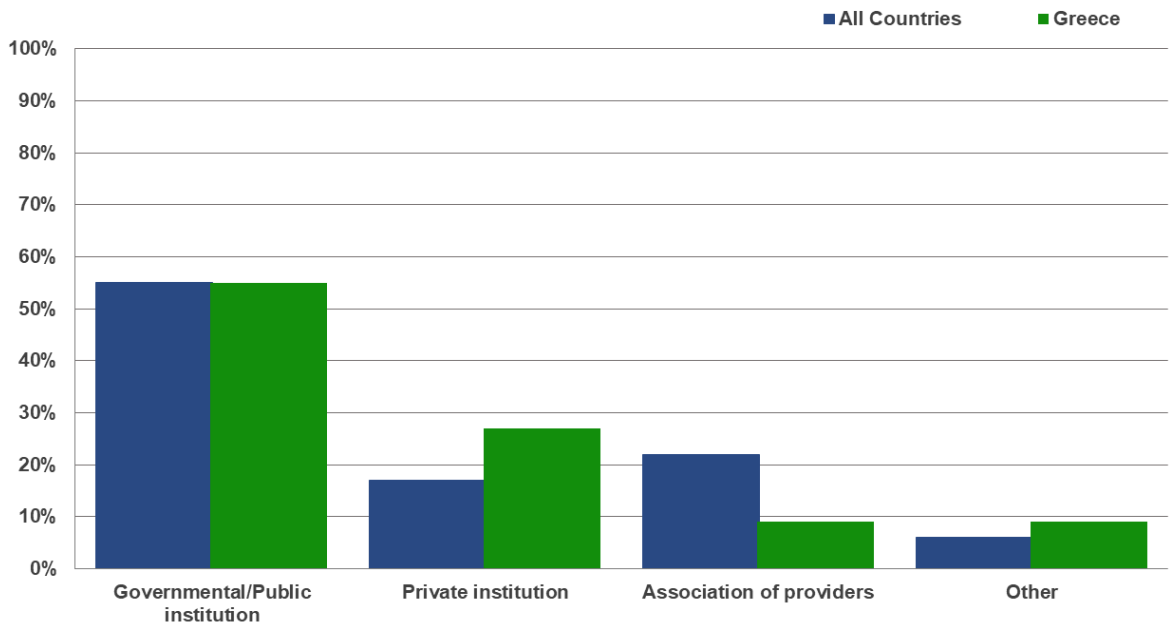
Similarly, to the view across All Countries in the survey, Greek respondents generally indicated their support for the implementation of quality assurance schemes by stating that always or at least in the majority of the cases they would prefer projects which include such features.

Figure 36 Would you prefer implementing a project, which is subject to quality assurance over a project without quality assurance? (Percentage share of responses by providers and facilitators Sept 2017)



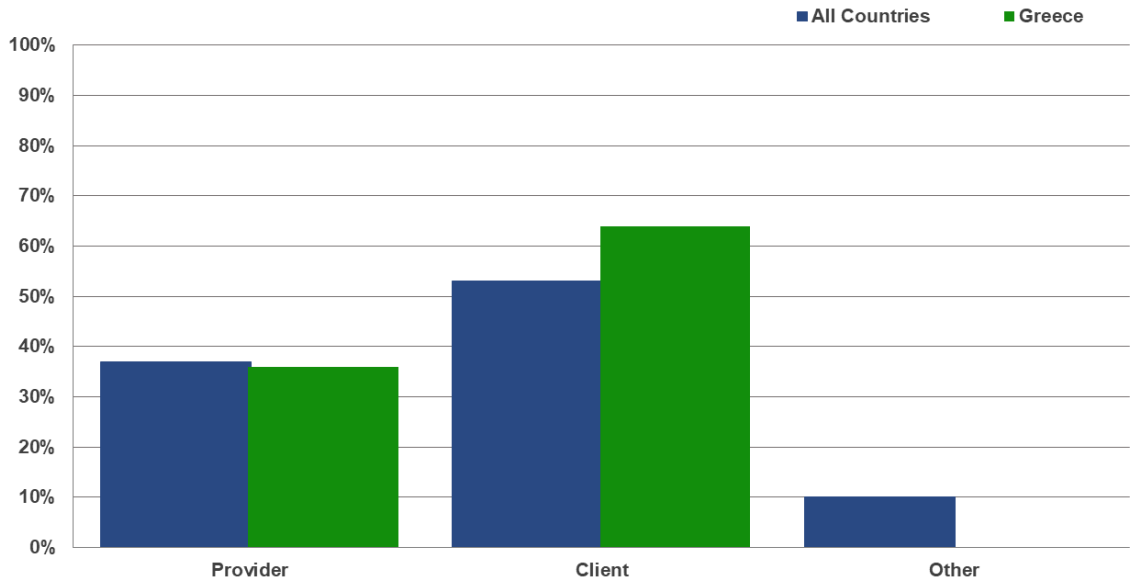
Both respondents in Greece and across All Countries in the survey (55% in both cases) clearly identified governmental/public institutions as being the most respected bodies to issue quality assurance certification for energy efficiency services. Support for private institutions (17% All Countries - 27 % Greece) or associations of providers (22% All Countries - 9 % Greece) to issue certification was considerably lower.

Figure 37 Which would be the most respected body to issue a quality assurance label or certification for EPC/ESC services in your country? (Percentage share of responses by providers and facilitators Sept 2017)



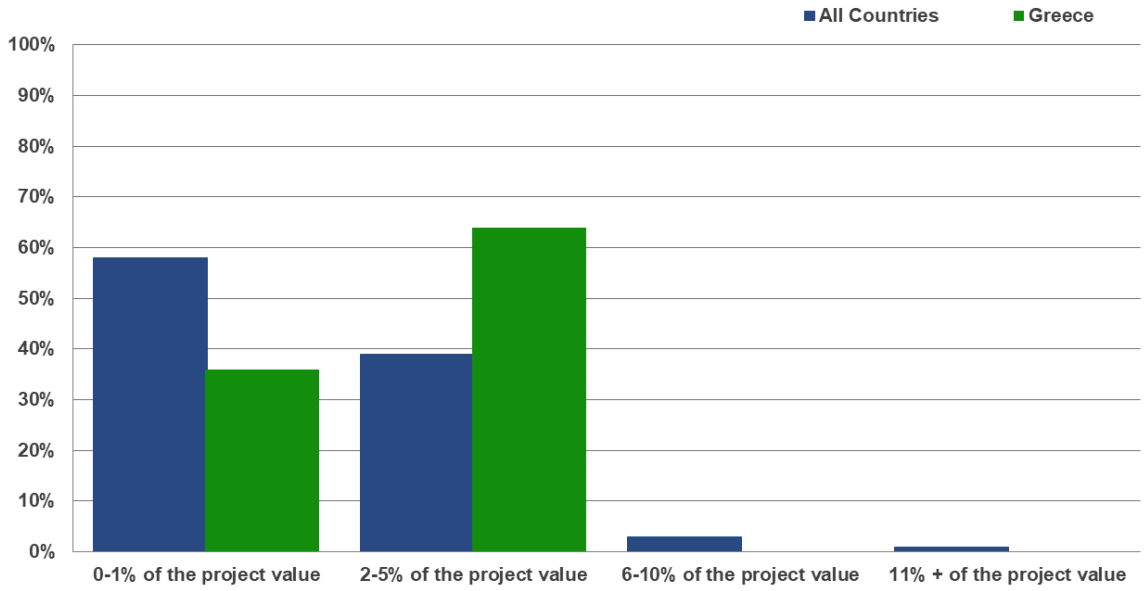
The majority of respondents in Greece (63%) and across All Countries in the survey (53%) agreed that the cost for quality assurance should be met by the client. The option that the provider should pay is less popular, however nearly 40% of respondents from both groups prefer this arrangement.

Figure 38 Who should pay for the quality assurance of EPC/ESC projects? (Percentage share of responses by providers and facilitators Sept 2017)



The clear message from respondents across All Countries in the survey and to some lesser extent Greek respondents is that the fees for quality assurance should be as small as possible. The majority (63%) of the Greek respondents to the survey agreed that a viable fee for quality assurance should be between 2-5% of the value of a particular project whilst around 37% of all respondents think it should be somewhat lower – between 0 and 1%. Only a very small share of respondents in Greece and across All Countries in the survey think the fee should be higher than 6% or even 11%.

Figure 39 What would be a viable fee level for external quality assurance per EPC/ESC project? (Percentage share of responses by providers and facilitators Sept 2017)


All Countries
Greece
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0-1% of the project value
2-5% of the project value
6-10% of the project value
11% + of the project value

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