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

PORTUGAL

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Abbreviations

APESEnergia (Associação Portuguesa de Empresas de Serviços de Energia; Association of Energy Service Companies)
EED (Energy Efficiency Directive)
EPC (Energy performance Contracting)
ESCO (Energy Services Companies)
ECO.AP (Programme for Energy Efficiency in the Public Buildings)
NEEAP (National Energy Efficiency Action Plans)
PPEC (Plan for the Promotion of Energy Efficiency)
SMEs (Small and Medium Enterprises)
DGEG (Directorate General of Energy and Geology)

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1 Summary

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

The report is building on the data and information gathered by two other similar projects, the European Energy Service Initiative[1] (EESI) and the ChangeBest project[2]. It is also intended as a continuation on the work of the European Commission's Joint Research Centre – Institute for Energy, and more particularly on its 2010 Status Report on Energy Service Companies Market in Europe[3].

This report provides an overview of the EPC market evolution in Portugal. There was a significant advance regarding the legal framework and regulatory factors to promote and foster the diffusion of energy services, especially in the public sector. The legal tools are now in place: the structure for a new public contracting scheme was created (DL 29/2011) and the architecture of the process was defined (RCM 67/2012) and finally the contract draft to be followed by all public institutions was published (Portaria 60/2013). In the public sector Portugal has provided a strong regulatory framework for ESCO development. At the same time the government sought ways to help with the financing of ESCOs. An Energy Efficiency Fund (EEF), managed by the national Energy Agency, was launched but the amounts available with this instrument are very modest and thus very insufficient. The flow of resources for the EEF needs to be re-thought, as mentioned in the previous section. However, although the efforts, the EPC market in Portugal is underdeveloped, far from its promised potential, and is facing several constrains that are hindering the diffusion of Energy Services Contracts. The promising ECO.AP is not attractive, especially for ESCOs and for the financial sector, and at the moment there are no successful financing models being applied in Portugal. The present financial crisis and the need to cut expenses are avoiding investments to be carried out.
Indeed, the main constraint ESCOs are facing nowadays in Portugal is the financing structure. The economic crisis does affect the ESCO business. On one side the national banks lack funds and on the other side, international banks are not interested to be associated to the Portuguese risk. Moreover, Portuguese financing institutions also need to have a better knowledge about the financing typologies and contracts, as well as about the technologies to be installed, in order to facilitate more adequate financing contracts.

[1] http://www.european-energy-service-initiative.net/eu/toolbox/national-reports.html
[2] http://www.changebest.eu/index.php?option=com_content&view=article&id=43&Itemid=10&lang=en
[3] http://iet.jrc.ec.europa.eu/energyefficiency/sites/energyefficiency/files/escos-market-in-europe_status-report-2010.pdf

2 Introduction

2.1 Methodology

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

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

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

The survey was sent to about 100 email addresses, among ESCOs, in particular the ones that are members of the Portuguese ESCO Association APESEnergia, to the agents and consultants involved and or interested in EPCs (a kind of facilitators), to energy managers of public buildings (that are potential customers for EPCs), to industry associations, to utilities with an ESCO business department and to banks. In total, 22 questionnaires were received. However, only 14 answers could be considered valid:

- Seven answers were from ESCOs that are affiliates of the APESEnergia, which may represent about 70% share on the EPC Portuguese market.
- 3 answers from banks that, in principle, have financing mechanisms for energy efficiency projects.

Once the survey responses had been obtained, additional information was gathered by the authors in order to present a thorough and up-to-date picture of the state of the EPC market in Portugal. Therefore thee report is not only based on the information obtained with the survey, but also on the information gathered by the authors in the internet, papers, news in magazines, stakeholders interviews, etc.

2.2 What is Energy Performance Contracting

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

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

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

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

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

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

2.3 Definition of EPC and EPC provider

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

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

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

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

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

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

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

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

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

3 The EPC market in Portugal: an introduction

The Portuguese EESs market was dominated by about 12-15 providers, for some years, including private ESCOs with financial capacity, private small ESCOs, public and public-private joint ventures, and large energy companies through their commercial divisions. (e.g. Galp Energia, EDP, Endesa and Union Fenosa). There were several consulting companies offering mainly technical solutions/equipment together with the energy services, as well as consultancy studies and technical support. For some years there were very few ESCOs operating in the market mostly involved in energy and environmental auditing, in the preparation of rationalization plans and in the design and maintenance of different types of plant energy systems.

In more recent years, the demand for energy efficiency and energy services driven by the EC legislation, namely the European directives like ESD, EPBD and Renewable Directives, the Kyoto Protocol, the national regulations, and the need to increase companies competitiveness by reducing the energy costs, lead to the development of an emerging market of energy services, as well as the creation of energy consulting companies and some R&D activity towards the development of technical solutions. Following Directive 2006/32/EC, the Portuguese Government demonstrated some enthusiasm in the implementation of several energy policies towards energy efficiency, putting strong emphasis on energy in the political agenda, and the "National Energy Efficiency Plan – Efficient Portugal 2015", sets out the grounds for the improvement of energy efficiency. The Portuguese Energy Efficiency Action Plan had an important role in what concerns the deployment of energy services market, and the public sector should lead this process as a role model on energy savings and efficiency measures. Thus, during the period 2010-2013, the Portuguese Energy Policy has strongly supported the development of commercially viable and competitive market for EPCs, as a main mechanism to achieve the objectives of energy efficiency improvement. In 2011, when the law to promote energy efficiency in the public sector and the diploma to legislate ESCO activity was ratified (DL nº 2/2011 and nº 29/2011) and the ECO-AP programme aiming at promoting energy efficiency in the public buildings was launched, the number of ESCOs has increased significantly, and more than 100 companies, including utilities, suppliers, consulting companies (including several SMEs), etc., have registered as ESCO companies, in the national registry database (DGEG), with the expectation of participating in the public procurement of energy services, in the scope of the ECO.AP. The ECO.AP provided a strong regulatory framework for ESCO development in other sectors than the public, and some companies are using this framework to start their EE projects.

The Fund for Energy Efficiency, launched in May 2010, with the objective to support measures and programmes foreseen in the NEEA, also created some expectation among the ESCO business. This fund should constitute a funding mechanism to leverage ESCO projects associated with the ECO.AP programme. However, the funds available were limited and the flow of funding is not working properly or is not effective. Therefore, there is a need for

allocating financial resources to the Fund for Energy Efficiency and to increase the flow of funding. According to some national experts, the Fund for Energy Efficiency should be a combination of different financing sources, from public / government funding, private funds, European funds, etc., like the successful example of the Green Investment Bank in the UK.

Although the expectation was high at that time, energy services in Portugal are still not very common (the private sector has a few successful EPC cases, in buildings and industry, namely in the hotel and leisure sector, in Hospitals and Industry). The EPC market in Portugal is underdeveloped, far from its promised potential and one question remains: what polices and processes are needed to foster the diffusion of EPCs in Portugal? [Carlos Capelo, 2011]. The legal framework conditions in Portugal are established, the ECO.AP is an interesting programme and the potential for energy services in the public buildings is high, but financing is missing and the ESCOs cannot finance the public building sector (Change Best Workshop, 31 May 2012). According to MMatias (email 14 October 2013), *"the main reason why ECO-AP has not started yet is the finance availability for ESCOs, since the framework defines that should be the ESCO to invest 100%"*.

According to the survey carried out in Transparense, over the last 3 years the market for EPCs saw a little change for 40% of respondents, a slight growth for 50%, a major growth for 1% and a major decline for another 1%. Concerning the number of ESCOS currently active in the market, responses were highly heterogeneous, ranging from 4 to 50 ESCOs! This wide range variation in the replies can be related to the number of ESCOS with capacity to offer energy services that are registered and qualified to participate in the ECO.AP tender, which is around 40, and also with the number of ESCOs that are indeed establishing EPCs. According to the official database established by the Directorate General of Energy, the pool of contractors is more than 100 ESCOs, but not all received the accreditation[7] to participate in the Public tender and others have already given up due to the long time that is taking to put the programme running properly. The ECO.AP programme has been launched for almost three years, and no EPC has been established yet. Currently, the number of ESCOs that actually are operating in the market is much lower, and is estimated to be 15-20, mainly Utilities, international ESCOs and International sister companies (equipment providers and big consultancy companies). Traditionally, most frequent contracts were the supply contracting and BOOT contracts, mainly in the CHP sector in large industries and large hospitals, particularly through the establishing of public-private partnerships, hotels, schools, swimming pools and shopping centres. In the more recent years, following the political will to promote energy services in Portugal, the establishment of EPCs is gaining popularity, and the market for EPCs is emerging slowly, mainly in hotels, hospitals, leisure centre sports, schools and public buildings, but also contracts with industry. The EPC model

[7] To foster market confidence, a qualification framework for ESCOs has been introduced with the Eco.AP. There is an approaval system with strict financial and technical benchmarking. There are two different layers of projects, with different requisites to accomodate small and larger ESCOs, but all have the technical and financial stucture to make long term energy performance contracts.

can either be a shared savings model or a guaranteed savings model according to the survey (October 2013), and the clients can be public or private business.

The more recent estimate available for the turnover of ESCOs in Portugal is in the range €10-30 million per year [ESCO Report 2010, Bertoldi]. The Eco.Ap programme estimated that the programme could be able to create an industrial and service cluster generating investments of about 13 000 million euros until 2020. However there are no reliable sources for this market estimation. According to Miguel Feliz [News from Countries, 2013], the private sector has probably around €50 M in actual contracts - mainly in industry. Based on the survey respondents (Transparense Survey, Sept/Oct 2013), the investment outlay of EPCs projects established in the last 3 years is roughly estimated to be around 10 million euros, (total of 20 -30 projects, between 100 000€ and 500 000€ each) (Source: Own estimate).

The EES market is more developed in the industrial sector, particularly co-generation projects in large industries, and in large hospitals. ESCO Projects can also be found in hotels and large shopping centres with EESs available for lighting and for co-generation. Some new energy efficiency services appeared in the market in recent years, especially in the area of lighting (public lighting and buildings), renewable energies and HVAC, but these are still in an early stage of development.

To summarise, the EES market is not well developed in Portugal, and the market for EPCs is emerging only now, mainly driven by the obligations established by legislation and the supportive legal framework. The potential for energy services is high, especially in the public sector. The private sector has a few successful cases, in buildings and industry, namely in the hotel & leisure sector and in partnership with industry associations.

The results of the Transparency survey, in terms of EPC projects by building types, are presented below. It should be noted that 7 replies, among the 11 received, are members of APESEnergia and therefore representative of the actual situation in Portugal (APESE had 7 founder members, and now has 3 new comers). The Association may represent more than 70% of the total ESCO business in last three years.

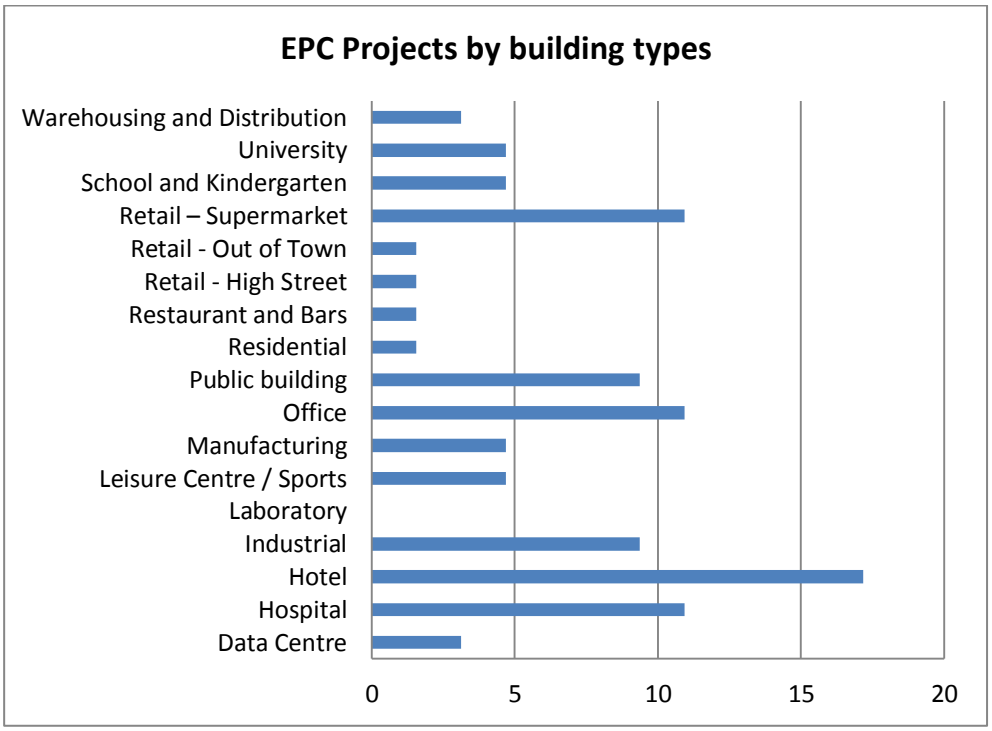

Figure 1 EPC projects by building types

Source: Transparense Survey, October 2013

4 Legislative framework

In the last 3 years, Portugal advanced significantly regarding the legal framework and regulatory factors to promote and foster the diffusion of energy services. The legal framework conditions necessary for the development of ESCO business in Portugal are in place with the recent diploma about Energy Efficiency Services and Energy Service Companies that was enacted on 28 February 2011 DL nº29/2011. This diploma regulates the Energy Service Companies activities and the legal framework for establishing Energy Performance Contracts. In addition, in the scope of the Portuguese NEEAP, the ECO-AP programme was launched, with the aim of promoting energy efficiency, in particular through programs to reduce the consumption and the promotion of changing behaviour by means of reducing energy consumption in the public buildings. With this legislation the public sector commits itself to reduce by 30% the consumption in its installations and to promote the use of efficient public lighting. The priority is to promote the development of Energy Services Companies, supporting the creation of an energy services market. It is expected that this programme will boost the ESCO activity in the near future considerably.

The legislation is in place as well as the regulation which allows the application of the legislation. The diplomas for establishing EPCs and financing models are now available.

Moreover, to foster market confidence, an accreditation and certification system for ESCOs has filtered the ESCOs to guarantee that only ESCOs with a good financial situation would be eligible to apply for the public tender of the Eco-Ap. Programme. The competition is open, and there is already a pool of public buildings identified, but financing and delays in the public regulation tender is postponing the diffusion of EPCs in the market. To sum up, all the legal tools are now in place: the structure for a new public contracting scheme was created (DL 29/2011) and the architecture of the process was defined (RCM 67/2012) and finally the contract draft to be followed by all public institutions was published (Portaria 60/2013). In the public sector Portugal has provided a strong regulatory framework for ESCO development. At the same time the government sought ways to help with the financing of ESCOs. An Energy Efficiency Fund (EEF), managed by the national Energy Agency, was launched but the amounts available with this instrument are very modest and thus very insufficient. The flow of resources for the EEF needs to be re-thought, as mentioned in the previous section.

Indeed, the main constraint ESCOs are facing nowadays in Portugal is the financing structure. The economic crisis does affect the ESCO business. On one side the national banks lack funds and on the other side, international banks are not interested to be associated to the Portuguese risk. Moreover, Portuguese financing institutions also need to have a better knowledge about the financing typologies and contracts, as well as about the technologies to be installed, in order to facilitate more adequate financing contracts.

In parallel with these developments, some ESCOs joined efforts and create an ESCO Association with the objective to help and support the ESCO companies. Its name is APESEnergia. So far, the association has 10 members: 2 major utilities, for electricity and natural gas in Portugal, 2 international private ESCO, small private ESCOs and more recently, three international sister companies joined APESEnergia. However, it can affiliate other type of companies such as specialized companies in project financing, public-private joint ventures, energy consulting companies, equipment suppliers, installers, energy auditors, lawyers, architects, etc.

There is hope that this effort based in the public sector will also benefit the private sector. The legal framework conditions, the minimum requirements for operation, inspection and accreditation of the ESCO business and the establishment of EPCs are in place and the potential for improvements is high Now, it is time to move forward. However, to accelerate the diffusion of EPCs in Portugal, it is necessary that the decision makers are consciousness, have the knowledge and trust about the advantages of establishing EPC contracts, and especially there is a need to establish/create a financing mechanism that joint efforts from the Portuguese government, EU funds and commercial banks to develop long term financing solutions for Energy Efficiency projects. The Fund for Energy Efficiency already exists but it

needs to be provided with mutual guarantee funds involving various types of institutions (commercial banks funds + European funds + Private funds+ income from fees, etc.). There is a need for a Task Force, involving financing institutions, credit organizations, but also consultants and technical experts.

5 Identified Barriers

In 2011, under the scope of the Change Best project, ISR-UC identified the main barriers to energy services in general, including EPCs. By the end of 2012, under the IEE call, a survey showed that the main constraint ESCOs were facing by that time in Portugal was the EPC financing. The economic crisis has been affecting ESCO business. On one side the national banks lacked funds and on the other side, international banks were not interested to be associated to the Portuguese risk. Moreover, the survey in 2012, indicated Portuguese financing institutions needed to have a better knowledge about the financing typologies and contracts, as well as about the technologies to be installed, in order to facilitate more adequate leasing contracts, similar to micro-project finance. To summarise, lack of financing resources, mistrust from the potential customers, lack of credibility of EES providers and reluctance to long term contracts were among the main barriers for EPC in Portugal. This situation has not changed significantly since then, and after one year, the Transparense survey (October 2013) identifies more or less the same problems as of 2012, as it can be seen in Figure 2, being the financing the most problematic area for the diffusion of EPCs in Portugal.

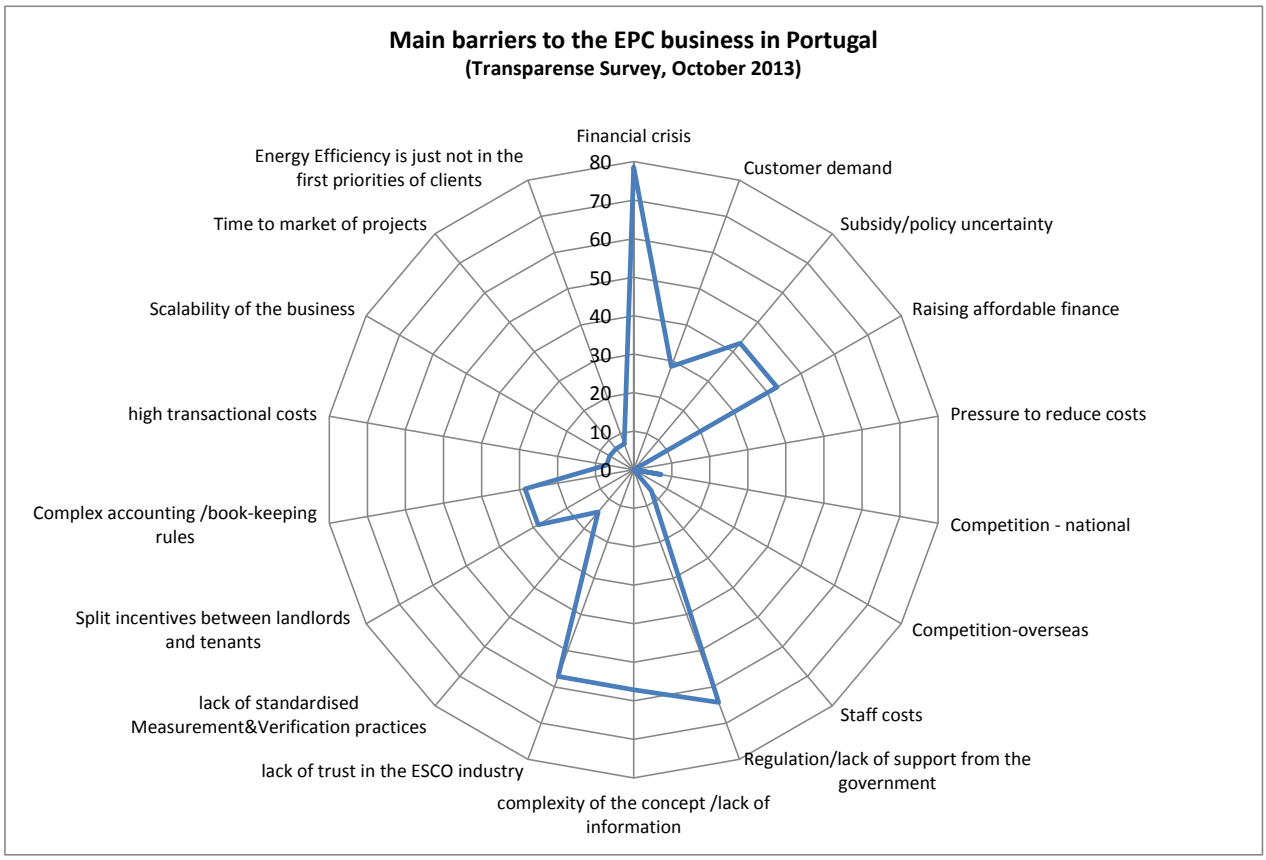

Figure 2 Main barriers to the EPC business in Portugal

[SOURCE: Transparense survey, October 2013]

5.1 Regulatory and administrative barriers

The legal barriers identified in the early 2011, when the Change Best project started, have been overcome. The legal framework conditions necessary for the development of ESCO business in Portugal are in place but the government´s action in supporting the diffusion of EPCs in the country has been very ineffective, and there is a lack of policy mechanisms to encourage the uptake of EPCs. The options have been under discussion for the last 36 months, but government changes, the economic crisis and range of priorities, have delayed this process significantly.

5.1.1 General regulatory barriers

According to the Transparense Survey (October 2013), the Portuguese Government has been delaying the diffusion of EPCs in the market, since policies have been very ineffective and there are no policy mechanisms available to encourage the uptake of EPCs, in particular public subsidy programs, soft/favourable loans and tax exemptions. Some work has been

done regarding the standardised contract frameworks (for the ECO.AP), dissemination of information and requirements on energy savings, but these are not enough, and more has to be done to promote the uptake of EPCs. Some respondents even mentioned public subsidies programmes being available but very ineffective to promote EPCs.

5.1.2 Regulatory and administrative barriers in the public sector

The legal framework conditions for the establishment of EPCs in Portugal is no longer a barrier. Recent governments and energy policies are targeted to promote energy efficiency and the ESCO business, by imposing reduction targets in the public buildings (target to achieve 30% energy efficiency improvement in public buildings and public lighting by 2020). There was a great advance regarding legislation to promote and facilitate the ESCO business in Portugal and the procurement rules for public authorities, which traditionally were not geared towards these kinds of contracts, have been revised and changed to accommodate EPC contracts. A diploma regulating the activities of energy service companies and legal conditions were defined for establishing EPCs. Standardised Contract frameworks have been developed for the ECO.AP.

However, although there is a strong political will towards developing the ESCO business, and the plans of the Government for launching ESCO contracts (10M€ in 2013, 20M€ in 2014 and 30M€ in 2015), all in the scope of the ECO.AP programme, the first public tender is delayed and so far, none has been launched. There is however a pool of buildings identified for the first public call tender which have a high potential for energy savings.

5.2 Structural barriers

According to the Transparense Survey, customer demand was not mentioned as a significant barrier: only 1/3 of the ESCOs responding the survey mentioned it. But complexity of the concept and lack of information was ranked as important barrier, together with lack of trust in the ESCO industry, both by ESCOs and Banks. Previous studies, surveys, expert interviews (Change Best, interviews with experts, media opinion articles, papers, etc.) showed similar results. While by the time of the Change Best, the tendering issues in the public sector were mentioned as an important barrier, at present the public procurement of new energy projects is assumed the main driver for the growth in the EPC market in Portugal [Capelo, 2011] and, according to the Transparence Survey, the government policy is also well ranked in the drivers for EPCs.

MFeliz identified the lack of expertise in the public services, either to launch contracts or to supervise them as being the second most important barrier for ESCOs, being the financial crisis and the lack of financing available from banks in Portugal, the main barrier. This perspective is corroborated by the Transparense Survey as well as with recent telephone

interviews (Oct 2013) carried out to important key players. Other important structural barriers are:

- lack of knowledge about EPC model: most of the EPCs targets are not aware about this business model, and many market agents who claim to sell EPCs, are indeed only selling other services like energy audits.
- lack of trained personnel on EPCs: There are very few companies with staff who has received some training on EPCs.
- distrust about the EPC model: this new business model is not well accepted among potential customers and also the banks seem to misunderstand its concept.
- there is a lack of engineering staff working in the Bank, with the ability to assess these projects, and therefore funds are not released for such projects. This barrier is obviously related to the lack of financing.

5.3 Financial barriers

The main constraint ESCOs are facing nowadays in Portugal is financing. The economic crisis does affect ESCO business. On one side the national banks lack funds and on the other side, international banks are not interested to be associated to the Portuguese risk. Moreover, Portuguese financing institutions also need to have a better knowledge about the financing typologies and contracts, as well as about the technologies to be installed, in order to facilitate more adequate leasing contracts, similar to micro-project finance. There is also a need for different formats for guaranteed savings (adjusted guaranteed savings) contracts to fit the ESCOs in order they can assume part of the risk. To summarise, lack of financing resources, mistrust from the potential customers, lack of credibility of EES providers and reluctance to long term contracts are among the main barriers for EPC in Portugal. There is still the myth that ESCOs are banks, EPCs are too complex, and the customers are reluctant to understand the announced savings.

6 Success factors

There are some projects/experiences with very good finance indicators and based in known technologies from industrial projects to building refurbishments, installation of energy efficiency measures and renewables in hospitals, schools, universities, supermarkets and others. Hotel Corinthia in Lisbon is the first example of a large EPC in a hotel for an energetic refurbishment. Several improvements have been carried out, in particular, lighting system, the motors and equipment, the HVAC system, as well as promotion of energy saving practices among employees and guests. In this contract model, the ESCO provides all the funding needed for the project implementation, which will be fully paid by the energy savings verification process, defined in the EPC. Other successful examples could be indicated, in areas like hospitals, hotels, Universities, etc.

The energy policies established by the government targeting the public sector, were an important incentive for ESCO development, in particular the reduction target established for public buildings (30% energy efficiency improvement by 2020) and the launch of the Eco.Ap programme.

According to the survey (Oct 2013) the government policies to support the development of EPCs in Portugal is Ineffective or Very Ineffective, for all respondents but two, for whom there are no policies at all. Nonetheless, regarding the government policies to support the wider energy efficiency sector, 30% of the respondents mentioned they are effective. This is probably a result of the successful PPEC programme, Plan for the promotion of Energy Efficiency, which has quite a lot of visibility, as well as some energy efficiency measures under the FEE (efficient windows and solar thermal installation), supporting some measures of the NEEAP.

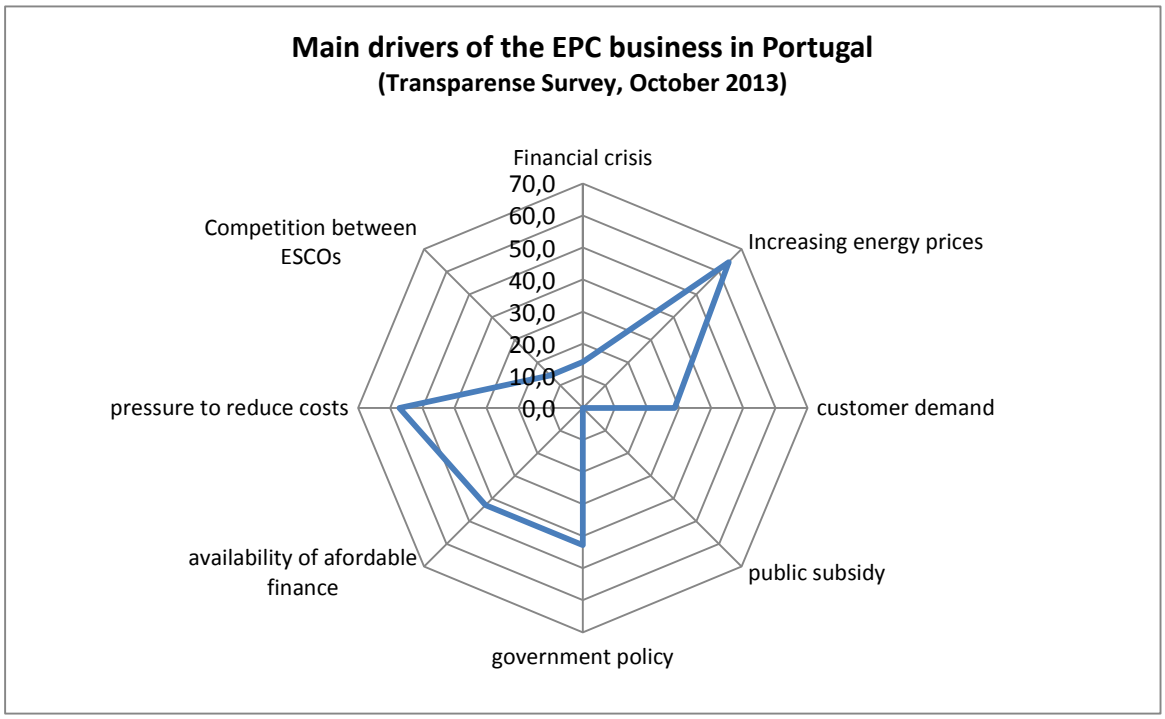

Figure 3: Main drivers for EPC business in Portugal

(Source Transparense Survey, October 2013).

6.1 Successful regulatory models

The ECO.AP programme launch the basis to establish a regulatory framework for EPCs in Portugal. The legislation created a structure for a new public contracting scheme (DL 29/2011), defined the architecture of the process (RCM 67/2012) and the contract draft to be followed by all public institutions was published (Resolution 60/2013).

Some dissemination activities have been organised by the government through the national energy agency, to help with financing and educating clients and the Portuguese banks to know more about EPCs, with the aim of increasing the flow of funding for energy and ESCO related projects. In addition, to foster market confidence, a new definition of ESCOs was created and a certification system was developed.

There is an ESCO Association in Portugal (APESEnergia) since April 2011, that practice networking in order to define strategies for the ESCO sector. It has joined together up the 10 ESCO companies operating in Portugal. These companies have been establishing bilateral partnerships or value added partnerships, in order to guarantee financing for some projects and meeting competencies and sharing know how.

One should keep in mind that the ESCO market in Portugal is in an early stage. It is practically non-existent in the public-sector (government owned) and there are some, few, successful examples in the private sector, particularly in Hotels, Industry and Hospitals. The legal framework conditions are created and in place, but lack of funding, affordable financing and lack of available money as well as lack of expertise in the public sector to launch the contracts and to supervise them are the main barriers.

Although networking was not a common practice because of competitive issues and cultural issues, more recently, following the launch of the ECO.AP program (Program for Energy Efficiency in Public Buildings, which objective is the promotion of energy efficiency, in particular through programs to reduce the consumption and the promotion of changing behaviour by means of reducing energy consumption in the public buildings), several ESCO companies established partnerships in order to have the technical and financial capacity to participate in the public procurement (the rules for participating require companies to have certain technical quality and financial structure to establish long term performance contracts).

6.2 Successful structural models

The Corinthia EPC is a good model that was established with very good results. A complex energy renovation of the building was carried out. Three intervention areas, which are responsible for 75% of the energy consumption of a typical European Hotel, such as the lighting system, the HVAC and the water heating, are responsible for 22% savings (final energy) achieved. The EPC was established between the Hotel and Galp Energia, the largest natural gas utility in Portugal, but the support of technical experts from ISQ was crucial for the implementation of the project. Another technical arrangement that was crucial for the success of the project was the installation of an energy management system, that allow an independent energy use monitoring of various equipment's, making it easier to identify and eliminate the system inefficiencies and define new measures to improve the global performance. A best practices manual and specific training for operating personnel was also very positive, together with promoting energy savings amongst employees and guests. In this contract, Galp Energia, through its energy services division, provided all funding for implementation of the project which will be fully paid by the energy savings verification process defined in the EPC.

Another successful example was the pilot developed under the Change Best project, by taking advantage of the public subsidy scheme available by that time, which enabled the savings to pay off the investment faster.

6.3 Successful financing models

There are no successful financing models being applied in Portugal. The present financial crisis and the need to cut expenses are avoiding investments to be carried out. The Fund for Energy Efficiency was thought to finance ESCO projects, but it would be essential that this fund had the proper tools and mechanisms to finance the ECO.AP programme.

Based on the survey replies, these are the mechanisms necessary to encourage the uptake of EPCs in Portugal.

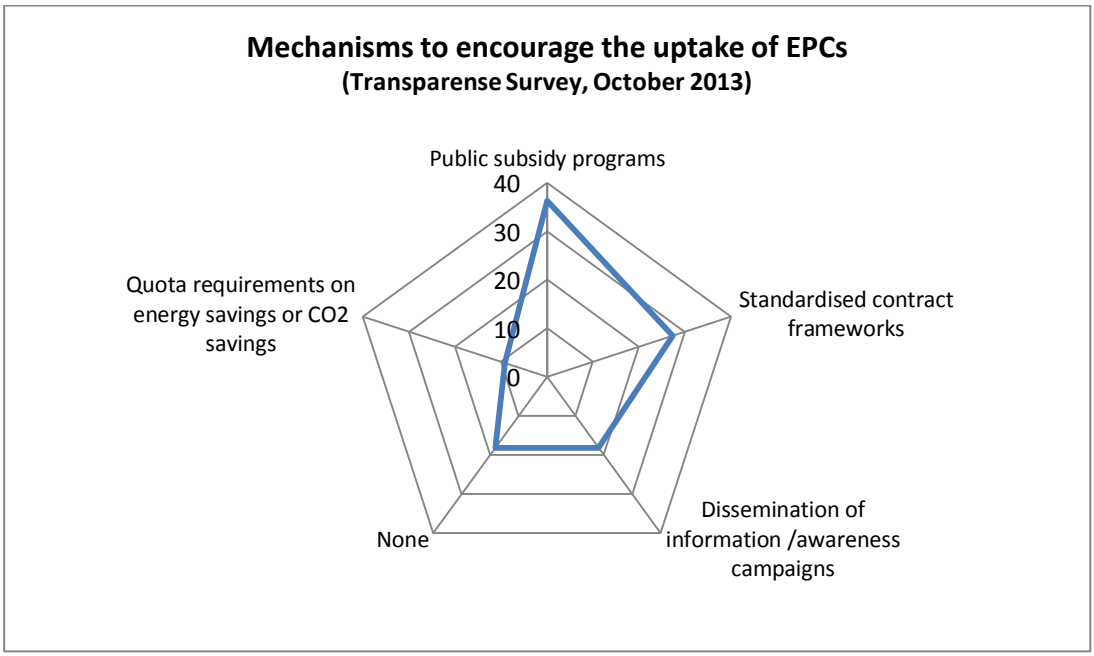

Figure 4: Mechanisms to encourage the uptake of EPCs in Portugal

(Source Transparense Survey, October 2013).

Definitions and glossary

Term	Definition
energy efficiency (EE)	means the ratio of output of performance, service, goods or energy, to input of energy (as defined by EED)
energy efficiency improvement	means increase in energy efficiency as a result of technological, behavioural and/or economic changes (as defined in EN 15900:2010)
energy management system	means a set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective (as defined by EED)
energy savings	means an amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, whilst ensuring normalisation for external conditions that affect energy consumption (as defined by EED)
final energy consumption	means all energy supplied to industry, transport, households, services and agriculture. It excludes deliveries to the energy transformation sector and the energy industries themselves (as defined by EED)
guarantee of energy efficiency improvement	means commitment of the service provider to achieve a quantified energy efficiency improvement (as defined in EN 15900:2010)
energy performance contracting (EPC)	means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings (as defined by EED)
EPC provider	means a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises
energy service provider /energy service company (ESCO)	means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises (as defined by EED)

energy service (ES)	the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings (as defined by EED)

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