

D4.7 EXECUTIVE SUMMARY OF NATIONAL ROADMAP PORTUGAL

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PROJECT SUMMARY

Achieving the European Union's 2020 **energy efficiency** targets and at the same time reducing its dependency on energy imports is a huge task that requires **innovative approaches and tools** – such as the ones **Trust EPC South** wants to provide.

The Trust EPC South project aims to **unleash the tertiary sector market potential for energy efficiency investments in Southern Europe** by developing a new investment assessment instrument backed by an established building rating methodology (Green Rating™). Such instrument shall support energy service companies (EPC providers and facilitators), financing institutions and tertiary market actors thanks to the application of a standardised methodology to the investment assessment and decision processes, ultimately allowing to reduce barriers to energy efficiency investments.

Trust EPC South, a project **financed by the European Union's Horizon 2020 programme**, will pursue its ambitious objectives in **Portugal, Spain, France, Italy, Croatia and Greece**. The project consortium, led by the Spanish firm CREARA, is composed by interdisciplinary experts representing the participating countries and by the international non-profit organisation Green Rating Alliance. The partners are united by the common intent to **stimulate investments in the target markets**, which are offering great opportunities for energy efficiency as well as energy performance contracting.

SCOPE

The purpose of this document is to guide and overcome existing market barriers and encourage the implementation and development of the market for energy efficiency and renewable energy through energy performance contracts with special focus in the tertiary sector. It intends to name the existing barriers in the market and to identify potential solutions and implementation stages, as well as to define the planning of each relevant action to reach the expected market potential. This document represents the first phase to accelerate the development of energy performance contracts in Portugal.

In order to comply with the intended objectives, this roadmap is dedicated to several sectors that participate in the promotion of EPCs, namely:

- Tertiary sector entities;
- Energy service companies;
- Financing entities;
- Energy agencies and municipalities;
- Decision Makers;
- Public entities that regulate the energy directives.

A collaborative methodology was used based on several activities and results obtained, namely, interviews and meetings with relevant entities of the sector, events targeted to general and specific target audience, participation in events related to energy, national research and development of technical-financial analysis tool and implementation of pilots within the scope of the project.

Involving all these top agents from the sectors identified above, it may be possible to create trust in the national market and foster the implementation of Energy Performance Contracts in Portugal. Thus, will address mechanisms to overcome political, legal and financial barriers as well as the action plan.

STATE OF THE ART

An Energy Performance Contract (EPC) is a contractual agreement between the beneficiary (or customer) and the Energy Services Company (ESCO), in which the investments (equipment, installation and operation services) are paid, as contractually agreed, related to improvements in energy efficiency and other criteria, such as financial savings.

Tertiary sector consumed 22 TWh, representing 13% of final energy consumption in Portugal. Within the subcategories of the tertiary sector, offices, retail and education segments have higher energy consumption. However, hospitality segment shows an increasing trend on energy consumption. Although these can be identified as high potential segments, hospitality, education and health stand out as the most interesting for EPC implementation.

Table 1: Energy consumption and share of building stock for each segment of the tertiary sector in Portugal¹

Segment	Surface in millions m ²	Share in building stock	Overall energy consumption in GWh
Offices	27,02	26,30%	6.403,86
Education	21,57	20,99%	5.110,91
Health and social work	7,55	7,35%	1.789,67
Hospitality	13,03	12,68%	3.087,49
Sports buildings	4,32	4,20%	1.022,67
Retail	29,26	28,18%	6.9343,68
Total	102,74	100%	24.349,29

The EPC market is in the development phase and although the concept of *Third Party Financing* has already existed in Portugal since 1990, it only began to be promoted in 2005/2008 by some Energy Services Companies. Although more than 100 companies are registered in the official database established by DGEG, Directorate General of Energy and Geology (mainly to meet the requirements of the Eco.AP program, the energy efficiency program for public buildings), no more than 10 companies are facilitators with the technical capability to develop engineering projects in their various fields, and only 3 or 4 companies are effectively Energy Service Companies with the technical and financial capability to implement EPCs in all economic sectors.

Although EPCs are under development, they have gradually gained some popularity in the market, particularly with contracts implemented in the hospitals, hotels, commercial buildings and sports sectors.

Amid 5 and 10 EPC projects should be implemented by year in Portugal and these should have investment values that range between 100.000€ and 500.000€ each.

¹ BuildingsData, year 2008, <http://www.buildingsdata.eu/country-factsheets>

Despite the market size is not available, an internal study was made taking into account the potential energy savings of 4.2 TWh. The estimated investment costs reach 215 million € and the EPC market potential in the sector reach's 630 million €.

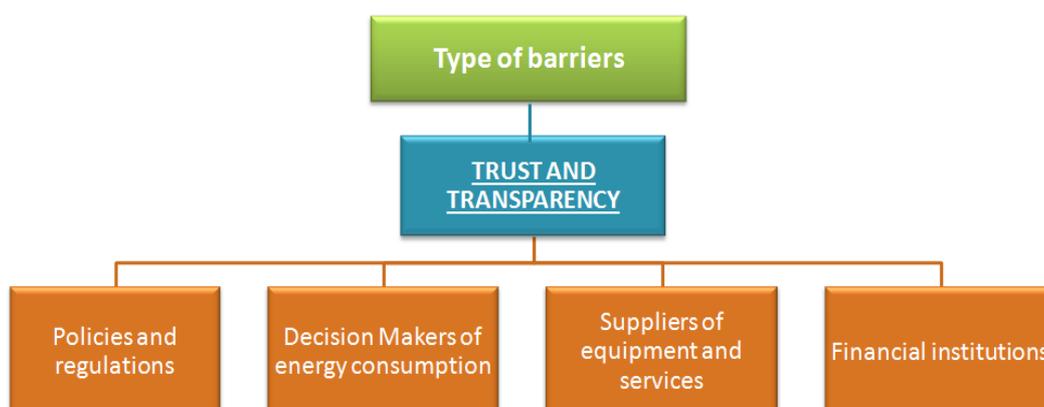
The National Action Plan for Energy Efficiency aims at promoting the implementation of energy efficiency projects and setting targets for 2020, with an average expected economy for the services sector of 4.19 TWh by 2020.

Through interviews with Energy Service Companies, Financial Institutions, Tertiary Sector Entities, as well as through the National Discussion Platform and training events, it was possible to identify the existing barriers in the market and to create the corresponding action plan. The suggestions focus on the following measures: financial, regulatory, technical, knowledge and others.

MARKET BARRIERS

- **Policies and regulations:** The policies are poorly orientated and the existing regulation is poorly applied;
- **Decision makers of energy consumers:** With some exceptions (where energy is an important factor), the decision makers do not prioritise the EE or RES projects because they have more concerns linked with production and because they do not have the appropriate skills to evaluate these projects;
- **Equipment suppliers:** Most companies in this market have lack of adequate skills and therefore there is an inherent lack of trust in them;
- **Credit Entities:** Lack of adequate financial products.

Figure 1: Main barriers to investment in EPC, in Portugal



Considering that, the non-financial barriers are overcome; the financial barriers are quite significant:

- **Availability of funds:** The use of own capital has other priorities;
- **Information:** Lack of adequate technical communication between clients and credit entities;
- **Costs of development:** The costs of development and engineering may undermine other projects, especially those of low investment;
- **Management and evaluation risks:** Financial entities are not orientated towards the technical evaluation of these projects;
- **Lack of skills:** Lack of appropriate knowledge and skills on various levels.

Figure 2: Types of barriers to financing in EPC projects in Portugal

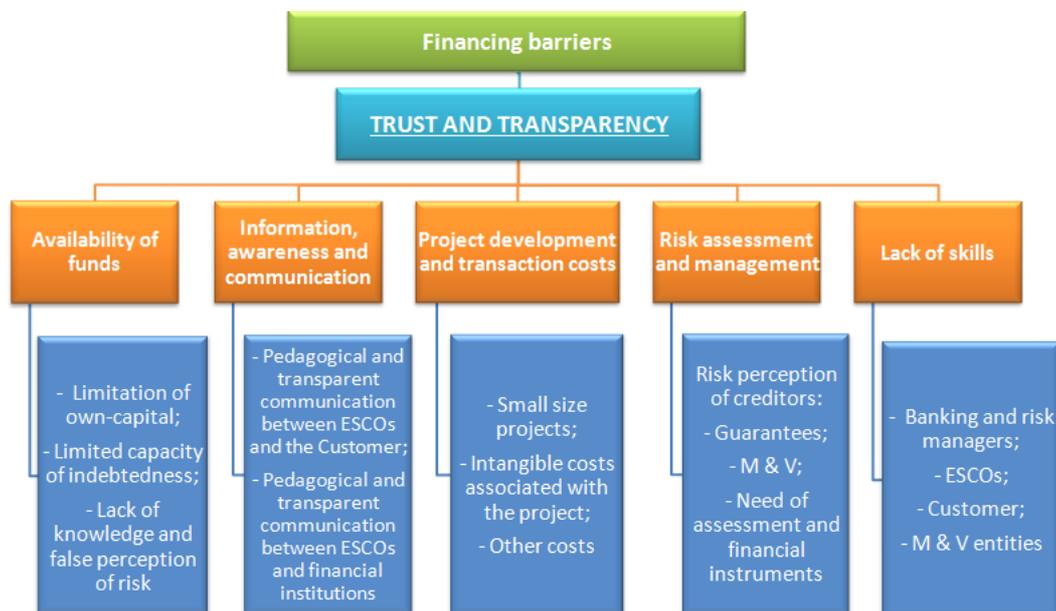


Table 2: Identified market barriers and potential solution

Barrier	Potential solution
Policy and regulation	Create support mechanisms for the contracts and create standardization guidelines for the procedures
Lack of information	Increase awareness (information and training actions for all the stakeholders); Dissemination of pilot or flag projects at national level
Credit entities	Promote technical training actions for Financial Institutions; Create attractive financing mechanisms; Creation of direct investment funds related to financing EE/RES projects; Creation of alternative financial support such as insurance schemes, combination of loans and fiscal measures, or a guarantee fund
Lack of trust from the Client regarding the EE/RES to be implemented	Real implementation of solutions and demonstration of cases/projects already developed that comply all contract's conditions
Contract complexity	Create a standardize contract in order to reduce the negotiation time and the understanding by final users; Involving the Client in the first step of the implementation work/studies
Lack of specialized EPC evaluation tool	Implementation of an accredited evaluation tool at EU level, would be beneficial in project risk assessment in terms of compensating the risk associated to EPC projects; Introduction of an (inter)nationally recognized savings verification body to compensate part of the risks perceived in the EPC projects

KEY RECOMMENDATIONS

In order to foster the Energy Performance Contracts market in Portugal, it is present a key recommendation list that could allow the implementation of this type of contract and increase the number of energy efficiency and renewable projects, not only in the tertiary sector but in all sectors of activity, whether public or private.

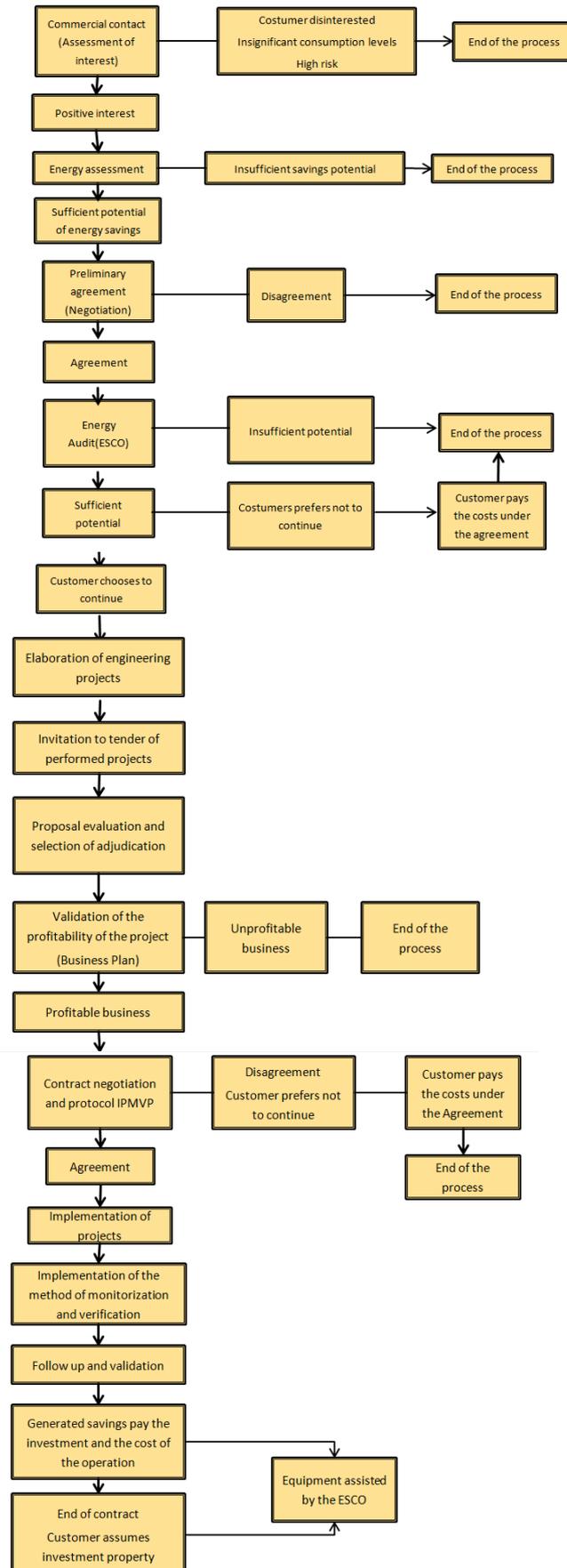
Table 3: Roadblocks and strategy

Roadblock description	Strategy
Legal	
<ul style="list-style-type: none"> - Portugal had to change the feed-in tariffs and there were no longer incentives for the implementation of renewable energy. The political parties have justified it on changing priorities in crisis and external financial decisions. Regulatory milestones for energy have created an environment of instability that has led to the shifting of investments. Banks and financial institutions consider that the new financing model falls on national subsidies, which pose a greater risk as they can be revised accordingly. - Politicians use energy efficiency and renewable energy as a political campaign; - Lack of contractual guidelines and rules of procedure; - Contract preparation is often time-consuming (up to 6 months or even longer), complex and involves considerable risks of breaking deals. 	<ul style="list-style-type: none"> - Portugal must reinforce the need for policy changes to support the implementation of renewable energies, such as tax incentives for investments (tax credits, reduced VAT, others); - All political parties must agree and intensify a common scheme; - Independently of the political party, there must be a political commitment and common consensus in order to create a confident atmosphere; - Establishment of a National and European Economic Interest Group; - Harmonization of the standard contract clauses with the National Legal Order; - Creation of a specific legal regime for financing by third parties. If, from the legal practice point of view, questions arise and difficult to solve, the legislature will always have the option of legally establish the contract; - Legislation should regulate only what is essential to the contract, with the remainder in private autonomy area; - It should be regulated, namely, concerning the consequences of the customer's failure of the energy saving.
Credibility	
<ul style="list-style-type: none"> - More than 100 ESCOs, created to respond to critical energy efficiency challenges and energy services, are listed in the national database of the National Directorate of Energy and Geology but not all have the technical and financial structure needed to respond to projects in the energy fields. In fact, some companies that infer that they have the capability to implement EPCs, only have in their internal business the energy audits know-how. On the other hand, aggressive commercial actions such as presenting to municipalities, private clients, financial institutions, a huge internal rate of return or an unrealistic project life cycle / energy savings may lead to a lack of trust in the EPC concept and the implementation of this type of contracts; - ESCOs are often the entities that set the baseline for monitoring the economic savings and financial institutions may feel some mistrust in this process / 	<ul style="list-style-type: none"> - Creation of an accreditation system similar to the ESCO qualification framework, created with ECO.Ap, to ensure technical knowledge and good financial standing; - ESCOs should be conservative in stipulating the IRR and the level of energy savings; - Defining the baseline is vital to the EPC success. If entities do not have the technical capacity, they must hire trained external professionals; - The use of a clear Monitoring and Verification plan, such as IPMVP, is essential to assure customers that the estimated savings have been achieved. This is a key element of an EPC success. The ESCO is responsibility for the Operation and Maintenance; - Local Energy Agencies can be involved in the process, providing clear information to municipalities; - The organization of training activities and actions for employees of financial institutions (training courses,

Roadblock description	Strategy
<p>methodology. This point may also affect municipalities that do not have the experience to supervise contracts;</p> <ul style="list-style-type: none"> - Some public authorities and private clients define, in their public procurement, too ambitious and difficult savings levels to achieve; - The EPC model is not well understood by customers and is not communicated in the best way. The concept remains somewhat unknown (typologies, contracts, technologies) and municipalities, banks and financial institutions do not have employees with adequate technical knowledge to carry out the evaluation of this type of projects; - Financial institutions do not understand the energy savings as a safe source and are reluctant to take long-term investments (contracts over 12 years old). For this reason, it is very difficult for ESCOs to achieve favourable financial conditions that reduce liquidity and, consequently, prevent ESCOs from financing more projects; - Lack of trust about the EPC concept; - Some clients start implementing measures independently and without technical support; - The coordination of subcontracted multidisciplinary skills is complex and sometimes involves conflicting interests. Equipment and systems suppliers do not always promote meaningful dialogue with consultants, as well as sometimes have a poor assistance policy; - The weak importance given to energy in the global context of business life. 	<p>information sessions, seminars, flag projects, guidelines, others). The same can be applied and replicated for the remaining sectors of activity;</p> <ul style="list-style-type: none"> - EPC viability demonstration through pilot projects; - Allow the direct contact between managers of financial institutions and the people in charge of other projects already implemented; - Creation of an effective European / National network for EPCs; - Establish a third party finance companies network that also includes financial institutions and energy companies, as well as provide the combined involvement of engineering / consulting companies, equipment suppliers and builders and, finally, energy users; - Promote ESCO joint ventures at Community level when major projects or a series of similar projects are under scrutiny, in order to spread the risk among several companies; - The dissemination, implementation and monitoring of energy audits as a key element for its correct execution and, consequently, the dynamization of energy conservation measures application leading to the implementation of energy projects.
Financial	
<ul style="list-style-type: none"> - Financial risk of private entities; - Public institutions have a low budget for investments and difficulties to access financing with favourable financial conditions; - Some public and private entities have debts with energy suppliers and this aspect is incompatible with EPCs; - The National Energy Efficiency Fund has limited funds available and the funding flow is not effective; - Banks prefer project finance, which makes it difficult for ESCOs to get projects that reach the banks' assumptions; - High process costs; - High interest rates; - The fact that projects are difficult to interpret by banks imposes high and incomprehensible risk premiums, rising to a high level of interest rates; - In cases where the company has indebtedness capacity, the financing by third parties loses competitiveness in comparison to the other financing options available in the market; - In a recessive economic context, investors tend, naturally, to retract and compress their activity. If on the one hand this situation may facilitate the entry of third- 	<ul style="list-style-type: none"> - The Government should create and support interesting funding mechanisms and tax incentives (tax credits, reduced VAT, others) for investment in energy efficiency and renewable energy projects based on EPCs; - The Government should encourage the use of EU funds to increase national energy efficiency. National authorities should use the funds and increase the quality of energy in their buildings; - The National Energy Efficiency Fund should have a mix of different sources of funding (public banks, investment funds, national and European funds). This point could allocate more financial resources to the funds; - Explore the complementarity of available financing options; - Convince financial institutions to increase their involvement in EPC operations; - A good degree of solvency of the company receiving the investment project is fundamental to the decision of the third party financier; - Possibility of accelerated depreciation rates during the contract period or that depreciation not incurred during the contract period can be considered as costs for the

Roadblock description	Strategy
<p>party financiers, on the other hand a recessive context may also hinder the development of new investment projects.</p>	<p>financial year, the tax loss would be an incentive to invest in energy efficiency and rational energy use;</p> <ul style="list-style-type: none"> - Dissemination to financial institutions of the advantages of third party financing and the use of rational energy use, in order to provide these entities with an added know-how, giving them greater sensitivity for the analysis of this type of investment projects.
Administrative	
<ul style="list-style-type: none"> - Neither ECO.Ap nor public procurement legislation allows public entities to take financial risk. ESCO has no guarantee that the Government will pay them and the financial institution has fewer guarantees for payment; - Municipalities mobilization is sometimes a difficult step. Due to internal issues, the internal team is not committed to participate in the project development and not provide data in a timely manner; - Although the Government has created a new position (Energy Manager) for the public sector, which is responsible for the building energy management and the contact point with the ESCO, some Municipalities do not have financial resources to recruit this Energy Manager; - Constant changes of the technical responsible for the development and implementation of the project, which can cause delays in the project. Due to the long duration of contracts, this point may also lead to changes in previous negotiation decisions; - Accounting systems are not fully prepared for EPCs and do not allow the economy to be retained by the financial entities. 	<ul style="list-style-type: none"> - Review the entire ECO.Ap structure and include a specific clause for the guarantees payment by the Government; - The responsible technicians for the implementation of the project are a focal point and should be kept in the first line of information on any change in procedure or project; - Where there are changes in the technical staff, the content of EPC must be explained again to ensure the transparency of the process and that all parties are really involved; - Before the tenders for EPCs, there should be clarification sessions with ESCOs and financial institutions; - Creation of mechanisms to guarantee the savings payment to the ESCO; - Clear interpretation on EPC accounting system.

Figure 3: Proposed EPC methodology



ACTION PLAN

Measure	Activity	Implementing Organization	Priority level	Financing mechanisms	Timeline					
					S1 2018	S2 2018	S1 2019	S2 2019	S1 2020	S2 2020
Financial	Creation of attractive financing mechanisms	Ministry of Economy, Finance and Environment	+++	National/European						
	Creation of dedicated investment funds	Ministry of Economy, Finance and Environment	+++	National/European						
	Creation of guarantee fund	Ministry of Economy, Finance and Environment	++	National						
	Creation of insurance schemes, combination of loans and fiscal measures	Ministry of Economy, Finance and Environment	+	National						
Legal	Creation of procedure guidelines	Ministry of Environment, DGE and ADENE	+++	National						

Measure	Activity	Implementing Organization	Priority level	Financing mechanisms	Timeline					
					S1 2018	S2 2018	S1 2019	S2 2019	S1 2020	S2 2020
	Hiring support Mechanisms	Ministry of Environment, DGEG and ADENE	++	National						
	Improvement of ECO.Ap	Ministry of Environment and ADENE	+++	National						
	Creation of standard contracts by project type	Ministry of Environment	+	National						
Technical	Assurance savings methodology, fixed energy costs	Ministry of Environment, DGEG and ADENE	++	National						
	Technical training actions targeted to clients	Ministry of the Environment, ADENE or another assigned entity	+++	National/European						
	Appointment of projects validation identities	Ministry of Environment and DGEG	+	National						

Measure	Activity	Implementing Organization	Priority level	Financing mechanisms	Timeline					
					S1 2018	S2 2018	S1 2019	S2 2019	S1 2020	S2 2020
	Creation of technical partnerships	Ministry of Environment and DGE	++	National						
Knowledge	Creation of action plans	Ministry of the Environment, ADENE or another assigned entity	+++	National/European						
	Technical and financial trainings	Ministry of the Environment or another assigned entity	+++	National/European						
	Dissemination of flag projects	ADENE or another assigned entity	+++	National/European						
Others	Implementation and training of EU-recognized technical and financial tools	Ministry of the Environment or another assigned entity	++	National/European						
	Real demonstration of implemented solutions	ADENE, DGE or another assigned entity	+++	National/European						

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