



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

BULGARIA



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Report on identified barriers and success factors for EPC implementation in Bulgaria



Contents

ABBREVIATIONS	2
LIST OF FIGURES	2
1 SUMMARY	3
2 INTRODUCTION	3
2.1 Methodology	3
2.2 What is Energy Performance Contracting.....	4
2.3 Definition of EPC and EPC provider	5
3 THE EPC MARKET IN BULGARIA: AN INTRODUCTION	6
4 LEGISLATIVE FRAMEWORK.....	8
5 IDENTIFIED BARRIERS.....	9
5.1 Regulatory and administrative barriers.....	10
5.1.1 General regulatory barriers.....	10
5.1.2 Regulatory and administrative barriers in the public sector.....	11
5.2 Structural barriers	12
5.3 Financial barriers	12
6 SUCCESS FACTORS	12
6.1 Successful regulatory models	14
6.2 Successful structural models	14
6.3 Successful financing models	14
DEFINITIONS AND GLOSSARY.....	16
REFERENCES.....	17

Report on identified barriers and success factors for EPC implementation in Bulgaria



Abbreviations

EE	Energy Efficiency
EEEF	European Energy Efficiency Fund
EEl	Energy Efficiency Improvement
EEM	Energy efficiency Measures
EERSF	Energy Efficiency and Renewable Sources Fund
EES	Energy Efficiency Services
EPC	Energy Performance Contract
ESCO	Energy Service Company
EU	European Union

List of Figures

Figure 1: Main barriers to the EPC business in Bulgaria

Figure 2: Main drivers of the EPC business in Bulgaria

Figure 3: ESCO portfolio guarantee

Report on identified barriers and success factors for EPC implementation in Bulgaria



1 Summary

The present report aims at providing an overview of the existing EPC market in Bulgaria. 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 Initiative¹ (EESI) and the ChangeBest project². 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 Europe³.

Furthermore, the report is built on a survey about EPC in Bulgaria (Transparense Survey, 2013), in which 9 Bulgarian stakeholders (including 7 ESCOs) took part.

In the country, despite of the large energy efficiency potential, the ESCO market is at an initial stage of development and is limited mainly to the public buildings. There are about 12 companies that have signed EPC and the typical project duration is 5-8 years and the project size – 0.3-0.5 million EUR.

The main stimuli for EPC are the established procedure for EPC projects in public buildings and the available ESCO portfolio guarantees. The main barriers are: low energy prices; funds and funding programmes exclude EPC and ESCOs; low capacity in the public sector to initiate EPC tenders; banks are not familiar with and willing to finance EPC; private consumers are not much aware of EPC and do not trust ESCOs.

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)

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://publications.jrc.ec.europa.eu/repository/bitstream/111111111/15108/1/jrc59863%20real%20final%20esco%20report%202010.pdf>

Report on identified barriers and success factors for EPC implementation in Bulgaria



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 the following Bulgarian stakeholders:

- 12 companies that have signed EPC (only few are pure ESCOs, while most of them have other main focus of activities, but have signed at least one EPC).
- 5 financial institutions (4 banks and EERSF - the Bulgarian Energy Efficiency and Renewable Sources Fund)
- 2 EPC experts
- The Sustainable Energy Development Agency - the national authority in charge of energy efficiency and energy services policy implementation.

Responses were received by:

- 7 companies that have signed EPC, of which 6 completed the survey online. It must be noted that some of these companies have not initiated EPC in the last 24 months (but earlier) and a large part of the questionnaire has been automatically skipped.
- 1 financial institution – EERSF, which supported 29 EPC (relatively large share of all EPC in the last years). Other financial institutions responded that they have not completed the survey, because they have not financed EPC.
- The Sustainable Energy Development Agency.

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 Bulgaria.

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.

Report on identified barriers and success factors for EPC implementation in Bulgaria



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 Transparensense project we use the EU wide definition provided by the Energy Efficiency Directive⁴ (EED):

“**energy performance contracting**’ means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and

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.

Report on identified barriers and success factors for EPC implementation in Bulgaria



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 Transparensense 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 provider⁵. This is in line with the EED, as in its Annex XIII, guaranteed savings⁶ 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 Transparensense, 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 Transparensense texts, we use the commonly used term “ESCO” as equivalent of the energy service provider.

3 The EPC market in Bulgaria: an introduction

The national policy framework neither provides serious barriers nor substantial stimuli to EPC. The main direct stimuli are limited to the establishment of the Energy Efficiency and Renewable Sources Fund (EERSF) that provides ESCO portfolio guarantees and the introduction of a regulation that establishes a standardized procedure for EPC in public buildings. Several energy efficiency policies of the country, e.g. the energy efficiency targets of energy suppliers, mandatory energy audits, etc., provide indirect stimuli for EPC market development.

In Bulgaria, the EPC market started its development in the late 1990s, but the number of contracts was negligible until 2006. The market expanded sharply in 2007 due to the

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.“

Report on identified barriers and success factors for EPC implementation in Bulgaria



activities of one large company. In 2007 and 2008 the annual EPC of this company exceeded 5 million EUR annually (ChangeBest, 2009). However after 2008, the survey results and interviews with experts indicate decrease of the EPC market size and this can mainly be attributed to the financial crisis.

Based on the literature review and interviews with experts, 12 companies that have signed at least one EPC (not necessarily during the last years) have been identified in the country. These companies largely vary in size and specialization. There are several small companies (less than 10 employees) with a main specialization in energy audits, a couple of medium-sized equipment supply companies, and several large ones (several hundreds or thousands employees) that offer a wide variety of energy services, including energy supply. Only one of these companies is international.

In the last couple of years, increased EPC market competition can be observed. On one hand, new EPC providers have emerged, on the other hand, the dominant EPC provider is less active in this market in the last years.

The vast majority (over 90%) of the contracts are in the public sector. Several ESCOs expressed their preference to public clients, due to their high (compared to the private ones) financial reliability. Most of these contracts concern full renovation of buildings (mainly hospitals, schools, kindergartens, administrative buildings), while others - fuel switch from oil or electricity to biomass or natural gas. Finally, some EPCs in the public sector are related to introduction of more efficient lighting, sometimes combined with improved lighting management.

The survey results show that the most typical duration of EPC contracts is 5-8 years (less for fuel switch projects) and the most typical project size is 0.3 – 0.5 million EUR, although project size largely varies among companies (e.g. for some it is typically below 0.2 million EUR and for others – above 1 million EUR). All survey respondents that realize full building renovation (the most common EPC measure) indicated that usually the annual energy savings are in the range 31% - 50%.

Although the national EPC market is at an early stage of development, it has huge potential, due to the high energy intensity of the economy (the highest in EU) and the ambitious energy efficiency policies. It can be expected that the number of EES (including EPC) providers and the market size will grow quickly in the coming years and the need of both the standardization of EPC and collaboration among EPC providers (e.g. via establishment of an association) will be pressing.

Report on identified barriers and success factors for EPC implementation in Bulgaria



4 Legislative framework

The EPC legal framework has been developed in 2009 and slightly updated in the following years. The legal framework is included in two pieces of legislation: the Energy Efficiency Act (2013) and Regulation 16-347 (2009).

Some of the most interesting texts of the Energy Efficiency Act (2013) are as follows:

- According to Art.48(1), EPC can be implemented in either buildings or industrial systems (public lighting is not mentioned).
- According to Art.48(3), the contractors implementing EPC (e.g. ESCOs) are not allowed to carry out the energy audit and/or energy certification of the building or industrial system that is subject to the contract.
- According to Art. 49(1) EPC can be signed only after the energy audit and certification of the building / industrial system has been completed.
- According to Art. 49(4) the contractors implementing EPC finance the energy efficiency measures by using either their own funds or funds from a third party. Customer's financing is therefore not allowed.

Regulation 16-347 (2009) determines the amount and payment of planned funds under EPC leading to energy savings in public buildings. The budgets of the public clients for EPC payments must be budgeted in advance. The funds related to budgeted EPC payments are provided by the State budget for both buildings owned by the State and buildings owned by municipalities that carry out activities delegated by the State. According to the Regulation, the payments of the public client to EPC provider cannot exceed the difference between the normalized energy consumption before the implementation of the energy efficiency measures (EEM) and the actual consumption after the EEM.

The Bulgarian Energy Efficiency and Renewable Fund (EERSF) is a national fund established by the Energy Efficiency Act. One of its products is ESCO portfolio guarantee and the procedure is as follows: EERSF signs a framework agreement with the ESCO to issue a guarantee for a pre-approved portfolio of projects; ESCO wins a tender for a project; EERSF approves the project and adds it to the project portfolio; EERSF guarantees that it will cover up to 5% of the defaults of the delayed payments of this portfolio. With this guarantee, the ESCO gets better interest rates on its debt with commercial banks and secures 5% failsafe trigger that will prevent cash flow disruptions and will reduce the risk of the clients (EERSF, 2013).

A policy indirectly supporting EPC market is the energy efficiency obligations imposed to energy traders (Energy Efficiency Act, 2013).

Report on identified barriers and success factors for EPC implementation in Bulgaria



Several recent EU funded projects have supported the development of the ESCO market in Bulgaria, namely the IEE projects:

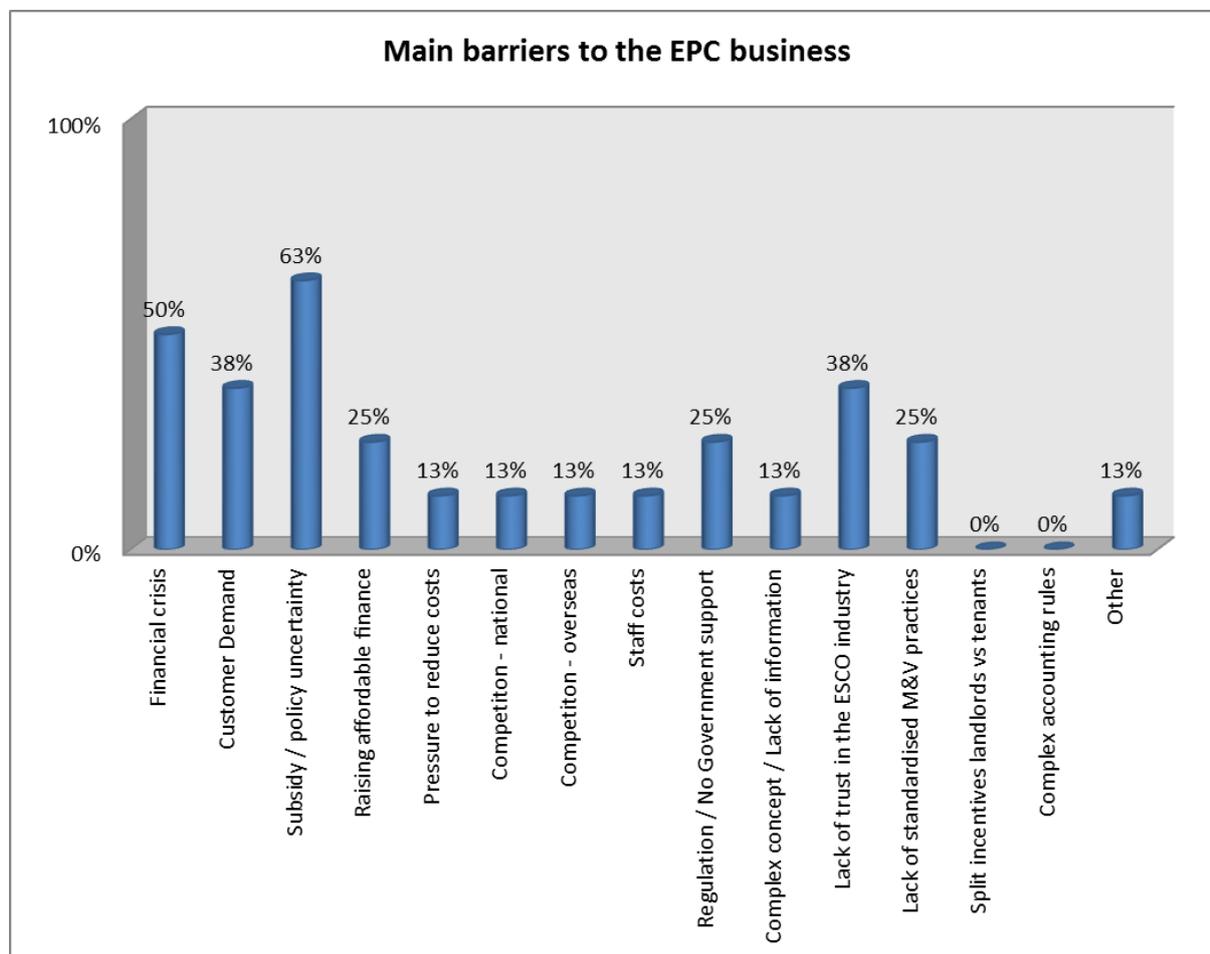
- ChangeBest project helped EES providers to develop business plans and marketing strategies for innovative EES;
- ESOLi project developed a guidance promoting EPC in the field of intelligent street (public) lighting (BSERC, 2012);
- PERMANENT project provided training to governments, energy consumers, EES providers, and financiers on various energy efficiency topics, including EPC (Kamburov P., 2010).
- FRESH project provided policy recommendations for public authorities on EPC in residential buildings in Bulgaria (FRESH Consortium, 2012)
- Concerted Action projects CA-ESD (2008-2011) and CA-EED (2011-2016) facilitate the exchange of experiences among Member States in relation to the harmonization of the national legislations with these directives (ESD and EED).

5 Identified Barriers

In the survey carried out within this project, respondents were asked to specify the main barriers to EPC business. Figure 1 summarizes the share of respondents who specified each barrier.

Report on identified barriers and success factors for EPC implementation in Bulgaria

Figure 1: Main barriers to the EPC business



Source: Transparense survey, 2013.

The figure shows that the most frequently quoted barriers are: uncertainty in the subsidy availability and the policy in general (63% of respondents); financial crisis (50%); customer demand (38%); Lack of trust in ESCO industry (38%).

5.1 Regulatory and administrative barriers

5.1.1 General regulatory barriers

The unpredictable national policy is a major barrier (see Fig.1), as it makes companies (e.g. EPC potential clients) more cautious when planning longer term investments. A recent example is the Government policy to reduce the energy (especially electricity) prices, despite the increasing energy costs. The resulting groundlessly low energy tariffs, which are the lowest in EU and substantially below EU average, decrease the profitability of on-going EPC and discourage future EEI investments.

Report on identified barriers and success factors for EPC implementation in Bulgaria



All surveyed organizations (Transparensense survey, 2013) indicated that the Bulgarian policy in EPC area is either “inefficient” (as indicated by most respondents) or “very inefficient”. The attitude towards the energy efficiency policy in general is somewhat more positive – the majority define this policy as “inefficient”, but a couple consider it “efficient”.

In Bulgaria, there are no possibilities to obtain grants related to any EPC phase (preparation, investments, verification, etc.). There are several public funds and programmes providing different forms of financing, such as grants, soft loans, and guarantees, for energy efficiency improvements (EEI) in different sectors (industry, buildings, and lighting) and types of ownership (public and private), the main one being the EU Structural and Cohesion Funds. However, none of these funding opportunities (except for EERSF mentioned above) is open to ESCOs – they are neither eligible for funding nor the projects can be realized by using EPC. This positions ESCOs in a disadvantageous position.

As mentioned in section 4, the national legislation prevents ESCOs from carrying out the energy audit and/or energy certification of the building or industrial system that is subject to the contract. This prohibition has been introduced recently to prevent intentional distortion (bias) of the audit results. This requirement, however, may result in additional work (e.g. a second energy audit of the same building/system) by the ESCO, if there is no trust in the audit results.

The lack of networking and cooperation among ESCOs is a barrier to better representation of this sector in the policy making process (lobbying) and establishment of potential partnerships. However, currently it does not seem feasible to organize such cooperation in a structured way (e.g. to establish an association), because of the low transparency and lack of trust in the market.

5.1.2 Regulatory and administrative barriers in the public sector

As mentioned in section 4, the Regulation (2009) concerns only EPC in public buildings. This is a serious barrier from financial and budgeting points of view to implement EPC in public lighting systems. On the other hand, these systems proved to offer attractive opportunities for EPC (BSERC, 2012). While the Regulation provides a standardized procedure and requirements to EPC in public buildings, there are no such for the other public sectors.

Additionally, EPC in the public sector is hindered by the lack of capacity in public bodies to prepare tender dossiers for EPC and carry out the evaluation. Training materials for public bodies have been developed within EU-funded projects, but they need to be further disseminated.

Report on identified barriers and success factors for EPC implementation in Bulgaria



5.2 Structural barriers

One of the major barriers to EPC, especially in the private sector, is the lack of trust in ESCOs. This barrier is interrelated to two other barriers - lack of standardized M&V practices and lack of customer demand (see Fig. 1). These call for standardization, either in a regulatory manner or by establishment of a voluntary agreement (e.g. Code of Conduct).

Standardization of M&V practices is available only in the building renovation projects.

The high level of EPC transaction costs (tender procedure, determination of baseline, M&V, etc.) compared to simple contracts is an important obstacle in some sectors.

5.3 Financial barriers

The survey (Transparense survey, 2013) results indicate that the access to financing from banks is a serious problem for ESCOs. According to the respondents, only few banks are ready to finance EPC and the financing conditions are quite unfavourable. One of the reasons for this problem is the high amount of required financing – typically from several hundreds of thousands to several millions euro.

Banks are not prepared to finance projects on the basis of receivables from EPC (project financing), meaning that only ESCOs able to provide substantial collateral have the capability to raise finance. This problem, highlighted in previous studies (e.g. Kamburov, 2010), is still actual.

While some of the larger companies have financed the EPC projects with own funds, this is not an option for most of the EPC providers and they need to rely on external financing. The options for the external financing are limited, due to the lack of available grants for ESCOs (mentioned above) and restrictive regulations not allowing customer's financing in the public sector.

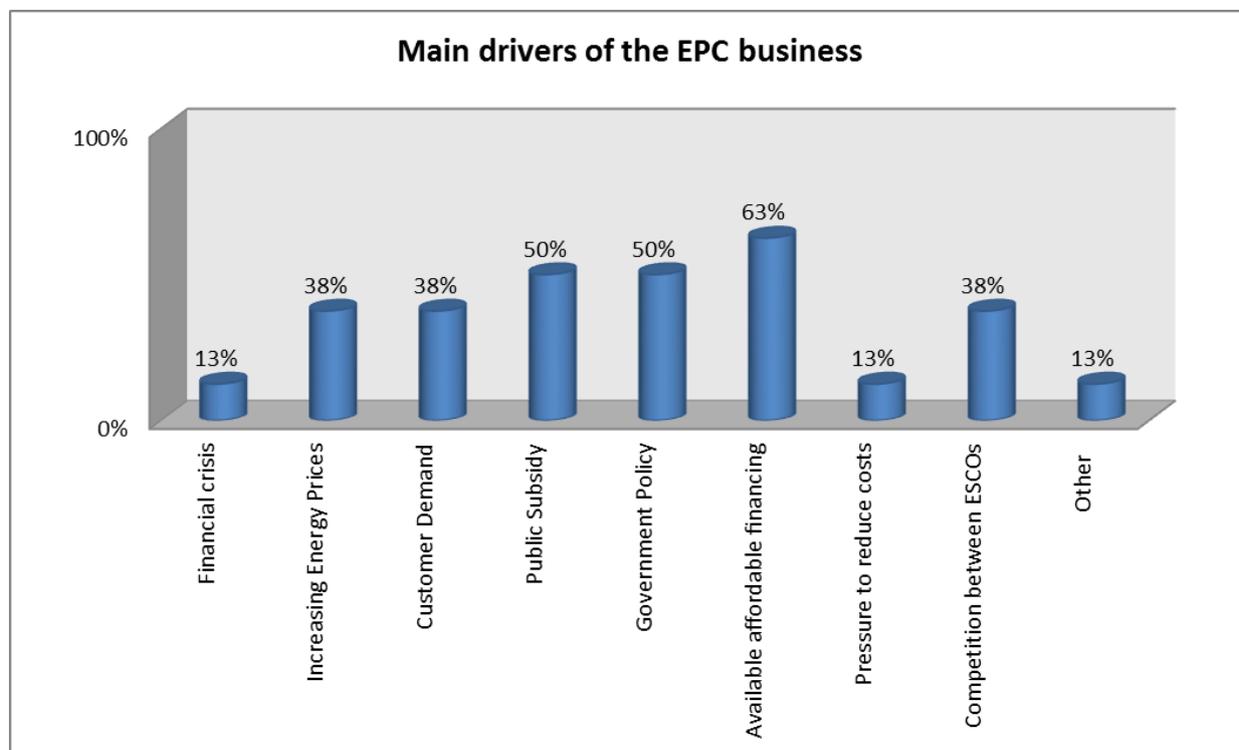
It is known that in some EU Member States there is an accounting and statistical barrier to EPC related to the increase of the public debt when public entities sign EPC. Although this problem is applicable to Bulgaria, it is not perceived as barrier to EPC, probably due to the relatively small project size.

6 Success factors

In the project survey, respondents were asked to specify the main drivers of EPC business. Figure 2 summarizes the share of respondents who specified each barrier.

Report on identified barriers and success factors for EPC implementation in Bulgaria

Figure 2: Main drivers of the EPC business



Source: Transparense survey, 2013.

Many respondents consider the available affordable financing, available public subsidy, and the supportive government policy as the main stimuli for EPC market development. Other important drivers are the high energy prices, customer demand, and increased competition between ESCOs.

Furthermore, financial institutions were asked to rate the importance of several factors for the success of EPC (Transparense survey, 2013). According to the experience of EERSF, which is arguably the financial institution with the most extensive experience in supporting EPC in Bulgaria, the *most crucial* factors are as follows:

- Business prospects of the Client / ESCO
- Financial condition & creditworthiness of the Client / ESCO
- Audit of the project

The factors, rated as *very important* are:

- Size and track record of the ESCO
- History and ownership of the Client / ESCO
- Accuracy of the savings verification

Report on identified barriers and success factors for EPC implementation in Bulgaria

- ROI / internal rate of return

The factors marked as averagely important are the following:

- Length of the project
- Sector / Branch in which the client operates

Finally, the factors with no importance are:

- Type of equipment to be installed
- The Client / ESCO's tax status
- Type of the offered transaction.

6.1 Successful regulatory models

No examples of successful regulatory models have been identified.

6.2 Successful structural models

No examples of successful structural models have been identified.

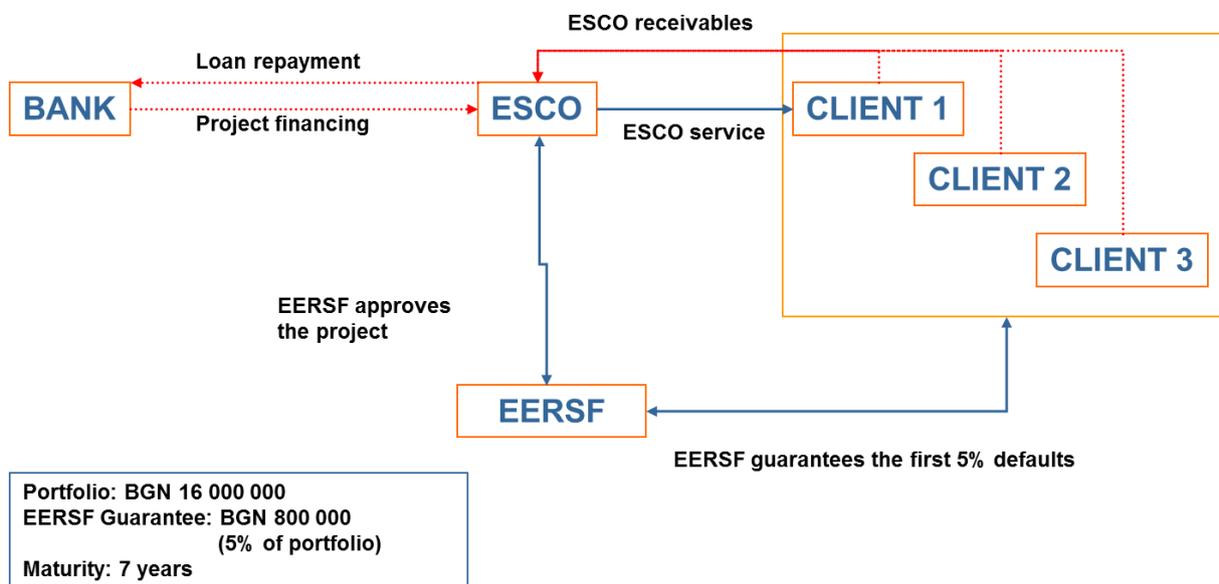
6.3 Successful financing models

The Bulgarian Energy Efficiency and Renewable Fund (EERSF) was established through the Energy Efficiency Act in 2004. Its initial capitalization is entirely with grant funds, its major donors being: the Global Environment Facility through IBRD (the World Bank) - USD 10 million; the Government of Austria - Euro 1.5 million; the Government of Bulgaria - Euro 1.5 million and several private Bulgarian companies. The fund is a public-private partnership with independent management and self-sustaining capacity (EERSF, 2013).

Among the other financial products, the Fund offers portfolio guarantee for ESCOs. Through this innovative product, the Fund guarantees the first 5% of defaults in the portfolio of projects. In that way, by undertaking some risk, EERSF helps ESCOs to guarantee the receivables from their clients. This guarantee is an instrument of average financial risk and un-collateralized, thus appropriate also for new ESCOs. A small guarantee covers large number of projects (e.g. guarantee for 0.8 million euro can cover 16 million euro portfolio). The operation of this guarantee is illustrated in Figure 3.

Report on identified barriers and success factors for EPC implementation in Bulgaria

Figure 3: ESCO portfolio guarantee



Source: EERSF

As of 1st September 2013 EERSF provided ESCO portfolio guarantees for 29 projects with total project size of about 8.5 M EUR, where EERSF financing amounts to about 0.3 M EUR (EERSF, 2013).

Report on identified barriers and success factors for EPC implementation in Bulgaria



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)

Report on identified barriers and success factors for EPC implementation in Bulgaria



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