



# European Construction Sector Observatory

Policy fact sheet

**Greece**

Energy Service Company (ESCO) Agreement for  
energy efficiency measures in public buildings

Thematic objective 3

November 2019

## In a nutshell

Implementing body	Centre for Renewable Energy Resources and Saving (CRES)
Key features & objectives	The Energy Service Companies (ESCO) Agreement aims to upgrade public buildings, contributing to the achievement of the energy efficiency targets by 2020, as well as to develop the ESCO market and the use of Energy Performance Contracting (EPC) in Greece.
Implementation date	Since 2012
Targeted beneficiaries	Owners of public buildings
Targeted sub-sectors	Energy Service Companies (ESCOs)
Budget (EUR)	749,999 <sup>1</sup>
Good practice	★ ★ ☆ ☆ ☆
Transferability	★ ★ ☆ ☆ ☆

European buildings are responsible for approximately 40% of energy consumption and 36% of CO<sub>2</sub> emissions, making them the largest single energy consumer in Europe<sup>2</sup>. In Greece, buildings account for approximately 36% of the country's total energy consumption<sup>3</sup>.

The Directive 2012/27/EU<sup>4</sup> on energy efficiency, which amended the previous Directive 2006/32/EC<sup>5</sup>, was put in place to support the EU's energy goals. In particular, it encourages Member States to use energy service companies (ESCOs) and energy performance contracting (EPC), where appropriate, to finance renovations and implement plans to improve energy efficiency. The key role of an EPC in driving energy efficiency investments is also recognised in the European Commission's Communication on Clean Energy for All Europeans<sup>6</sup>.

EU legislation defines an ESCO as a natural or legal person that provides energy services and/or other energy efficiency improvement measures in a user's facility or premises and accepts some degree of financial risk in so doing<sup>7</sup>. An EPC is a contractual arrangement between the beneficiaries and the provider of an energy efficiency improvement measure, whereby investments (work, supply or service) are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings<sup>8</sup>.

Greek Law 3855/2010 on 'Measures on the improvement of energy end-use efficiency and energy services'<sup>9</sup> sets out the energy savings national targets, which were adjusted with Directive 2012/27/EC by the Law 4342/2015<sup>10</sup>. It further defines measures and actions to be implemented to meet energy goals. Last, this piece of legislation also establishes the institutional and financial framework needed to achieve energy savings and develop the energy services market. The Greek National Smart Specialisation Strategy<sup>11</sup> establishes the improvement of energy efficiency in buildings as one of the main priority areas.

It is in this context, aware of the energy challenges that the country is facing, that the Greek Ministry of Environment, Energy and Climate Change reached an agreement with the Centre for Renewable Energy Resources and Saving (CRES)<sup>12</sup> to support energy efficiency measures in public buildings.

**CRES acts as the national coordination centre for renewable energy resources, the rational use of energy and energy savings.**

The ESCO Agreement aims to support energy performance upgrades to public buildings and contribute to the achievement of energy efficiency targets for 2020. In addition, the agreement intends to develop the ESCO market and the use of EPCs in Greece.

As no measurable indicators are in place to assess the impact of the implemented projects (e.g. energy savings, number of EPC projects implemented,

competitiveness indicators, etc.), the overall results of the ESCO agreement cannot be measured.

The Greek ESCO market has remained stagnant. This analysis shows that this is mainly due to the economic situation and the lack of financing from

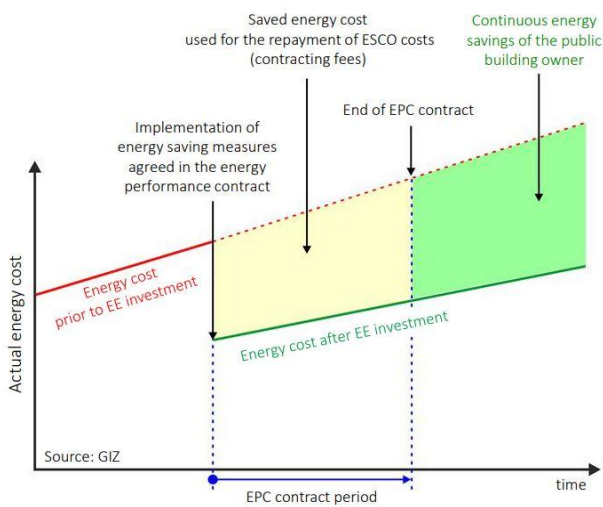
the private sector. To reverse this situation and boost the Greek market, further policy efforts are foreseen (e.g. the creation of an ESCO association), as well as pilot projects and the involvement of financial instruments, such as JESSICA<sup>13</sup> or ELENA<sup>14</sup>.

# 1.

## General description

Energy Performance Contracting is an innovative service provided by ESCOs to building owners, who transfer the economic and technical risk of the investment in energy efficiency improvements to the service provider. As illustrated in Figure 1, ESCOs accept some degree of risk<sup>15</sup> for achieving improved energy efficiency in a user’s facility. This is because the payment for the services is based – in whole or in part – on the achievement of energy efficiency improvements. An EPC is therefore a mechanism of ‘creative financing’, which allows for the funding of energy upgrades from cost reductions<sup>16</sup>.

Figure 1: EPC contracting



Source: GIZ

Source: EIHP, EPC in public buildings sector, 2016<sup>17</sup>

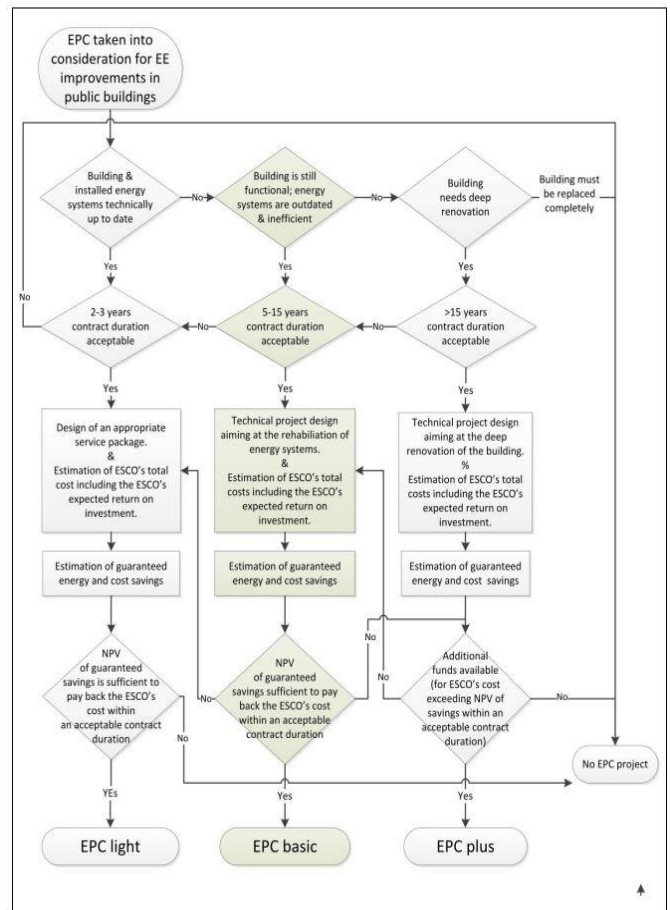
There are three main EPC business models<sup>18</sup>, as illustrated in Figure 2:

- EPC basic: energy efficiency improvements are achieved through technical energy conservation measures (e.g. installation of meters and controls to optimise energy systems and/or provision of user-targeted training);
- EPC light: energy efficiency improvements are achieved through energy management measures with little or no investment in

technical facilities (e.g. rehabilitation or replacement of energy systems);

- EPC plus: energy efficiency improvements are achieved through comprehensive structural measures on the building shell (e.g. deep renovation, including the building envelope, roof, basements, etc.).

Figure 2: Comparative overview of the three main EPC business models



Source: EIHP, ENP in public buildings sector, 2016<sup>19</sup>

On financing options, although there are various alternatives, the most common are<sup>20</sup>:

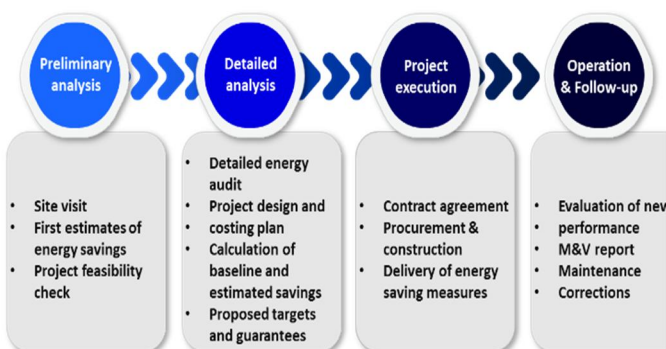
- ESCO financing: the ESCO finances energy efficiency improvements through its own capital or equipment lease;
- Energy-user financing: the customer finances energy efficiency improvements with his/her internal funds backed by an energy savings guarantee provided by the ESCO;
- Debt financing: the financing comes from a third-party (TPF), from which the ESCO or the customer borrow the money. In the latter case, the customer is backed by an energy savings guarantee agreement with the ESCO.

**Services offered by ESCOs include energy analysis and audits, energy management, project design and implementation, maintenance and operation, monitoring and (preliminary) evaluation of savings, property/facility management, energy and/or equipment supply, and the provision of services (heating, lighting, etc.).<sup>21</sup>**

The main goal is to upgrade buildings and make them more energy efficient. Services usually focus on: heating, ventilation and air conditioning (HVAC) systems; combined heat and power (CHP) plant; lighting systems; hot water systems; building management systems; external shading, solar control systems; boilers and chillers; insulation of the building envelope; roofing; windows; and street-lighting<sup>22</sup>.

Although the details of an EPC project are established in each contract, the Figure 3 provides a general overview of the phases of a project under the EPC model.

Figure 3: Phases of a project under the EPC model



Source: Own elaboration from the Energy Service Companies in the EU study<sup>23</sup>

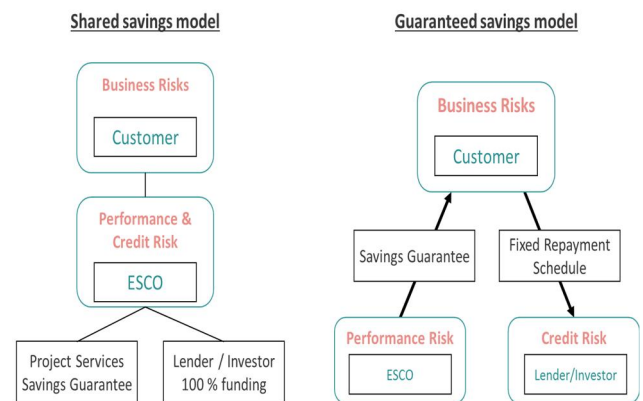
## Energy Service Companies (ESCO) Agreement for energy efficiency measures in public buildings

In Greece, ESCOs can voluntarily register in the official ESCO registry<sup>24</sup>, managed by the Directorate of Energy Policy and Energy Efficiency of the Ministry of Environment, Energy and Climate Change. Currently, 43 ESCOs are registered<sup>25</sup>, classified as:

- ESCOs which have implemented / are implementing projects with total budget of at least EUR 300,000 over the last five years;
- ESCOs which have implemented / are implementing projects with total budget of at least EUR 1 million over the last five years;
- All other ESCO companies.

Figure 4 illustrates the difference between the two model examples of contracts that are provided for on the ESCO registry website: the shared savings contract<sup>26</sup> and the guaranteed savings contract<sup>27</sup>.

Figure 4: Contract models on the ESCO registry



Source: Based on information on the JRC website<sup>28</sup>

## 2.

## Achieved or expected results

After the signature of the ESCO Agreement for energy efficiency measures in public buildings between the Greek Ministry of Environment, Energy and Climate Change and the Centre for Renewable Energy Resources and Saving, the former launched a programme to support and monitor the pilot implementation of energy efficiency improvement projects in public buildings by ESCOs<sup>29</sup>.

The programme ran between 2012 and 2015. It oversaw the implementation of five pilot ESCO projects in public buildings using the EPC model. The main objectives of the pilot programme were to:

- Identify and standardise technical, procedural and regulatory framework conditions for the effective implementation of EPC projects in public buildings;
- Ensure that ESCOs have access to energy efficiency programmes for public buildings and make use of Third-Party Financing (TPF);
- Disseminate the results of the project to raise awareness and promote the development of the ESCO market.

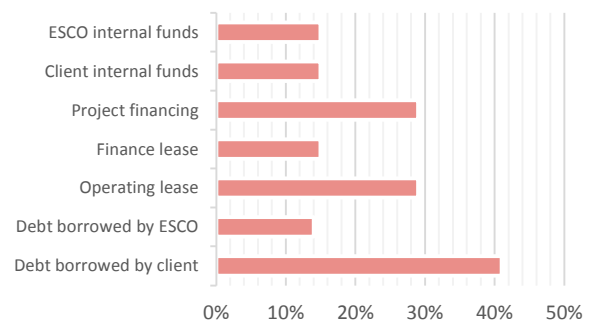
The total budget of EUR 749,999 was funded through the Business Programme Environment & Sustainable Development 2007-2013. The estimated investment cost of energy saving measures was set at EUR 3.4 million. The expected results of the projects consisted of:

- Estimated annual energy savings of 5.184 MWh;
- A total saving rate of 23%, with an average payback period of 5.1 years;
- Jobs created equivalent to 38 person-years; and
- Annual economic benefit of public bodies of EUR 674,000<sup>30</sup>.

Figure 5 provides an overview of the financing sources for ESCO projects implemented in Greece. The majority of the financing is sourced from debt

borrowed by the client, followed by operating leases and project financing.

Figure 5: Sources of financing ESCO projects



Source: International Energy Agency<sup>31</sup>

EPC projects are using SMEs for the development of the local job market<sup>32</sup>. Over a hundred businesses have submitted their application forms to the ESCO registry, while around 200 have begun the process of submission without having their applications completed<sup>33</sup>. However, this does not mean that the Greek ESCO market is growing.

**Despite strong policy efforts, the ESCO market in Greece remains stagnant, with very few projects implemented due to the numerous barriers for its development.**

**Only one EPC provider has succeeded in carrying out a few projects (no more than 10) in the municipal street lighting sector and in public hospitals. The size of the projects was limited – below EUR 200,000<sup>34</sup>. This helped avoiding implementation delays due to bureaucracy (e.g. environmental approval, spatial planning, etc.).**

By contrast, the average EU ESCO market has steadily risen over recent decades. In fact, European ESCOs were a EUR 41 billion industry in 2014, much higher than the corresponding figures in the USA and China<sup>35</sup>. More specifically, the total EU market was estimated to have generated EUR 2.4 billion in

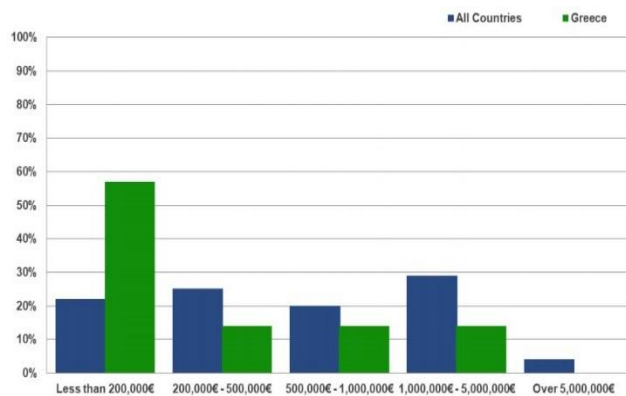
revenue in 2015, with a forecast of growth up to EUR 2.8 billion by 2024<sup>36</sup>.

Last, there was an attempt to set up a national ESCO association in Greece to boost the ESCO market; however, the potential members have not yet come to an agreement<sup>37</sup>.

To paint a general picture of the current state of the ESCO market in Greece, a survey targeting Greek ESCOs was conducted between September 2016 and September 2017. The main findings are the following:

- 4 out of 10 respondents were not involved in any EPC project, over 25 percentage points higher than the EU average;
- Investments in 57% of the implemented EPC projects in Greece were below EUR 200,000. In contrast, the EU average value is more evenly split between the different categories, as shown in Figure 6;

Figure 6: Most common overall value (investment outlay) of the EPC projects



Source: QualitEE project<sup>38</sup>

- Based on the opinion of the majority of ESCOs (86%), the EPC market is stagnating or experiencing a slight growth in Greece, similar to the development reported by European respondents;
- In Greece, the most common duration of EPC projects is less than 5 years (7 out of 10 projects), whereas the EU average duration of EPC projects is between 5 and 10 years (over 50% of projects);
- While the shared savings model is applied in 43% of projects in Greece, the guaranteed savings model is preferred in 29% of projects. The combination of both models is chosen in 3 out of 10 projects;
- In Greece, energy savings performance analysis is in 71% of the cases delivered by the ESCO, as in the rest of EU countries;
- The private sector represents 71% of ESCOs' clients, showing the extremely high dependence on the private sector that Greece has compared to the EU average;
- All Greek EPC providers and facilitators show that obtaining financing for an EPC project is either difficult (71%) or very difficult (29%).

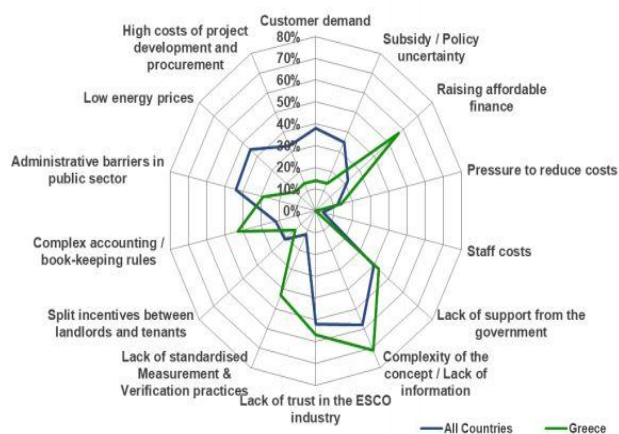
## 3.

## Perspectives and lessons learned

Lessons learned from the implementation of energy efficiency measures by ESCOs in public buildings are related to the main barriers to the development of energy performance contracting in Greece. As Figure 7 illustrates, the three main barriers identified by Greek ESCOs are:

1. Lack of information on EPC, as well as the complexity of the concept;
2. Access to finance;
3. Lack of trust in the ESCO industry.

Figure 7: Main barriers to EPC business in Greece



Source: QualitEE project survey<sup>39</sup>

Regarding the lack of information on EPCs and the role of ESCOs, it is difficult for owners of public buildings / end users to understand how energy performance contracting works. In addition, EPC development in Greece is hindered by the absence of positive examples and success stories; complex tendering procedures; and non-transparent decision-making processes in municipalities<sup>40</sup>.

The main obstacles for raising affordable finance are:

- Limited access of ESCOs to bank loans and their high costs;

- Lack of public funding to support energy efficiency measures;
- Restrictive regulations concerning financial cooperation between public authorities and the private sector.

According to the Director of Joule Assets Europe, it will be very difficult for EU countries to achieve their energy goals if they do not provide financing solutions for small ESCOs and incentivise energy efficiency projects<sup>41</sup>.

Last but not least, there is also a general lack of trust in the ESCO industry. To give two examples, the lack of experience in the calculation of baseline consumption and the lack of attractive best-practice examples in the country are two inhibiting factors. The lack of trust in the ESCO industry, which is also related to the willingness of banks to provide loans for energy performing contracting, is a common concern that is echoed by industry. For instance, the CEO of a Greek ESCO reported that banks are reluctant to provide finance to small companies (and small projects), as the risks entailed in such transactions are higher than for large companies<sup>42</sup>.



## 4.

## Conclusion and recommendations

Energy efficiency improvements are one of the key pillars of sustainable energy policy and a crucial element for mitigating climate change. ESCOs can play a critical role in improving energy efficiency at market level as they have the necessary know-how to unlock energy saving potential in the market. Indeed, their uniqueness lies in the fact that they assume the performance risks by linking their compensation to the performance of their implemented measures, helping them to pursue savings-oriented solutions. In addition, the value of the global ESCO market grew by 8% to EUR 25.8 billion in 2017 (2% more than in the previous year), offering business opportunities for companies, including for SMEs<sup>43</sup>.

To overcome the barriers for the development of energy performance contracting in Greece, especially in public buildings, the following measures are recommended:

- **Information and awareness:** although awareness of EPCs is rising throughout Europe<sup>44</sup>, more effort is needed to inform public administrations and consumers about the potential benefits of EPCs. This could be achieved through the promotion of inter-municipal cooperation and/or pooling of public buildings in EPC projects, or by setting up an association of ESCOs / competence centres to promote EPCs as a business model<sup>45</sup>;
- **Access to finance:** subsidies, tax incentives and grants should be used and included in the financial concept for an EPC project to facilitate access to finance for the implementation of energy efficiency measures in public buildings. The use of EPCs in the public sector has been limited, mainly because ESCOs do not have the financial means to implement projects with long payback periods<sup>46</sup>;

- **Lack of trust in the ESCO industry:** the development of simplified measurement and verification methods, as well as key performance indicators, would help to improve trust in the ESCO industry. In addition, capacity development of local facilitators is essential for the development of local capacities for EPCs in public buildings<sup>47</sup>.

Overall, the ESCO Agreement for energy efficiency measures in public buildings is not be considered to be a good practice measure. On a scale of 1 (low) to 5 (high) stars, this measure is rated at 2 stars. There are a number of reasons to support this scoring, of which two are particularly important. First, the ESCO market in Greece continues to be underdeveloped due to the long recession that affected the country in the last decade, with very few projects implemented and an unclear number of active ESCOs. Second, the economic situation in Greece has created unfavourable conditions for the growth of the ESCO market.

On transferability, the measure also only scores 2 stars, on a scale of 1 (low) to 5 (high) stars. This score is based purely on the unsuccessful implementation of ESCOs and EPCs in Greece thus far, and because of the many current barriers to the success that have been encountered. ESCOs and EPC are in principle a very transferable measure, evidenced by their adoption and success in many EU countries.

**Stronger policy efforts are needed in Greece to boost energy performance contracting, as well as the widespread dissemination of information about energy-efficiency projects and the services offered by ESCOs to improve understanding about the way ESCOs offer their services and the benefits of EPCs.**

On the other hand, and in light of the current economic situation of Greece, the market uptake of

EPC could be achieved by promoting the EPC light business model. With its low investment needs and short contract duration, this model imposes a relatively small economic and technical risk for both public building owners and ESCOs<sup>48</sup>. In addition, the use of financial instruments such as JESSICA (Joint European Support for Sustainable Investment in City Areas) or ELENA (European Local Energy Assistance) would help to boost sustainable urban development and the ESCO market.

As no measurable indicators are in place to assess the impact of the implemented projects (e.g. energy savings, number of EPC projects implemented, competitiveness indicators, etc.), the overall results of the ESCO agreement cannot be measured. In addition, the results of successful projects are difficult to share among EU countries, becoming a limitation for scaling up best practices related to energy performance contracting.

# Endnotes

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