ENERGY SERVICES AND THE RENOVATION WAVE

OPPORTUNITIES FOR A GREEN ECONOMIC RECOVERY IN EUROPE

10 YEARS BPIE

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EXECUTIVE SUMMARY

Building renovation is a primary measure for Covid-19 recovery packages to promote economic stimulus, while also creating a positive environmental and climate effect [1]. An energy efficient building improves the comfort and well-being of its occupants: this is currently even more evident after months spent in lockdown at home, or in nursing homes or hospitals.

Given that the EU recovery initiative must deliver economic stimulus while aligning investment with the objectives of the European Green Deal, now is the time to implement measures that result in energy savings while providing business opportunities. The business model of energy service companies (ESCOs) can play a key role now in providing energy savings solutions to be paid back over long-term energy performance contracts (EPCs) [2].

This paper introduces how EPCs work to deliver energy savings and presents the key stakeholders involved. It provides an overview of relevant legislation effecting EPC implementation in the EU, and discusses the main barriers to mainstreaming EPC use (e.g. contract complexity and lack of trust in the industry), as well as the primary opportunities and drivers (e.g. savings guarantees and pressure to reduce costs). Further, the paper discusses development of the energy services market, which varies throughout the EU. Some Member States, such as Austria, Germany and the Netherlands have well-established, mature markets. The picture includes developing markets, such as Denmark and Portugal, and embryonic markets, for example, Greece and Poland.

The paper recommends actions for EPCs to contribute to the environmental and economic goals in the European Commission economic response, a Recovery Plan for Europe [3], and the Renovation Wave, including the following:

- Member States should use their national recovery and resilience plans to earmark funds for qualified ESCOs (to administer EPCs).
- Member States should utilise InvestEU funds to provide guarantees for ESCOs, in line with InvestEU programme objectives of de-risking projects by providing guarantees to help leverage private finance, thus boosting building renovations.
- The Renovation Wave should put an emphasis on the importance of EPCs as a key tool to contribute to the necessary renovations, starting with the need to implement provisions across existing legislation. This includes:
  - o Reinforcing Article 18 of the Energy Efficiency Directive as the main legal tool to support refurbishments through ESCOs,
  - o Emphasising the possibility of using EPCs as a key tool to finance public building renovations.
- In the Renovation Wave, the European Commission should commit to support local authorities to unlock the local energy services market, including through specific technical assistance to aggregate residential renovations through EPCs.

INTRODUCTION

Building renovation has been identified as a primary measure to include in Covid-19 recovery packages to promote economic stimulus, while creating a positive environmental and climate effect [1]: building renovations not only have the potential to massively reduce greenhouse gas emissions, but they can also provide better living conditions to citizens while supporting the recovery of the economy in a sector that is both labour intensive and locally anchored. Investing in buildings means investing in people, and this is currently even more evident to citizens and policymakers after months spent in lockdown at home, or in nursing homes or hospitals.

Major building systems, such as schools or shopping malls, have experienced emergency shutdowns and extended vacancy [2]. Buildings must adapt and building owners must prepare to run their buildings in new ways in the event of recurring shutdown periods or higher health standards required as a result of the pandemic. Remote operation in the event of lockdowns, as well as energy efficiency measures, including upgrading ventilation systems, and increased indoor comfort will be of paramount importance.

However, the upfront cost of renovation remains a significant barrier to energy efficiency work. Energy service companies (ESCOs) can play a key role in providing energy savings solutions to be paid back over long-term energy performance contracts (EPCs)[1] [2]. The energy service market can provide viable solutions to renovate buildings and deliver such benefits, acting as a vehicle for Member States to administer new funds to pay for interventions or address challenging markets (e.g. multifamily housing and public buildings), as ESCOs have experience in a variety of sectors.

The maturity of the ESCO market is, however, very different across Europe; this means that opportunities to mainstream.

The global ESCO market

There are many ways to assess the size and value of the ESCO market, including the number of energy performance contracts, contract size and market revenue. Calculating the size of the ESCO market varies between EU countries, as some Member States have different methodologies for what is included. Globally, the ESCO market was estimated at US$30.9 billion in 2018 [4].

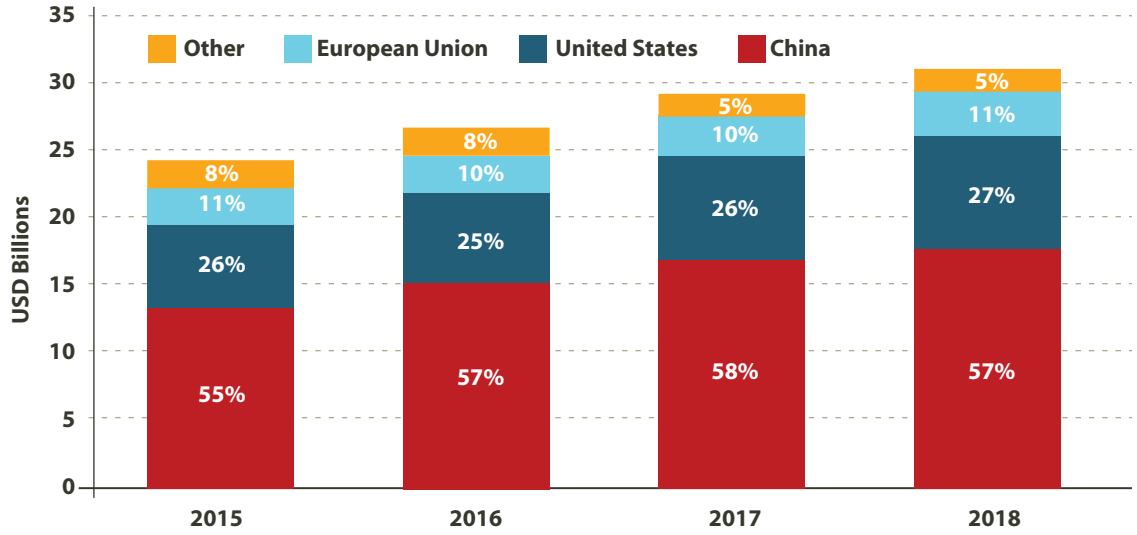
In terms of ESCO market revenue, Europe is the third largest market at approximately €3 billion, after China (US$16.4 billion) and the US (US$8.3 billion), and the second oldest, after the US [5]. The EU ESCO market has experienced solid yet modest growth over the past 20 years, largely driven by the public sector.

In China over the past five years, there has been a set of aggressive government incentives and policies put in place to facilitate ESCO market growth (e.g. tax incentives and dedicated funds for ESCOs). These measures have recently been removed to allow the market to operate independently, which will test whether the market can function successfully without such government intervention.

In the US, 85% of the ESCO market is in the public sector [6]. Government contracting has long driven the US market, with many projects in municipalities, universities, schools and hospitals. There are several national support measures in place; for example, through the US Department of Energy, the Federal Energy Management Program (FEMP) provides assistance, training, legal advice and model contracts for federal EPC projects.

[1] Throughout the paper the acronym EPC will be used for energy performance contracting. This is the commonly used abbreviation in the EU, but should not be confused with the same acronym associated with energy performance certificates. To this end, we suggest a new acronym be introduced at the EU level for energy performance contracting (e.g. ESPC, as used in the United States).

Figure 1 - Global ESCO revenue, 2018 [4]



The European total market value has grown 11%, from US$2.7 billion in 2015 to US$3 billion in 2018 [6]; however, it has not experienced the market traction the US or China have experienced, as these markets have strong public sector engagement and financial support with local and national governments engaging in EPCs. Similar to the US, the majority of ESCO projects in Europe occur in the non-residential buildings sector and largely take place in public sector projects (government buildings, schools, hospitals, etc.) [5].

Despite differences in market maturity or government legislation, ESCO markets have the same key players (beneficiaries, ESCOs, financial providers, etc.) and core delivery mechanisms.

Key players:

Beneficiary/end-user

The client/end-user, typically the property owner, is the one receiving and benefiting from the energy services. EPCs can engage a wide variety of clients, from the private to the public sector, and from individual homeowners to industrial sites, commercial buildings or municipalities.

Energy Service Companies

ESCOs design, install and in some cases finance energy efficiency projects through a contractual agreement with the energy-using customer, usually using an EPC. A variety of entities qualify as ESCOs including utilities, equipment installers, energy suppliers, construction or engineering firms, to name a few of the most common types.

Financial provider

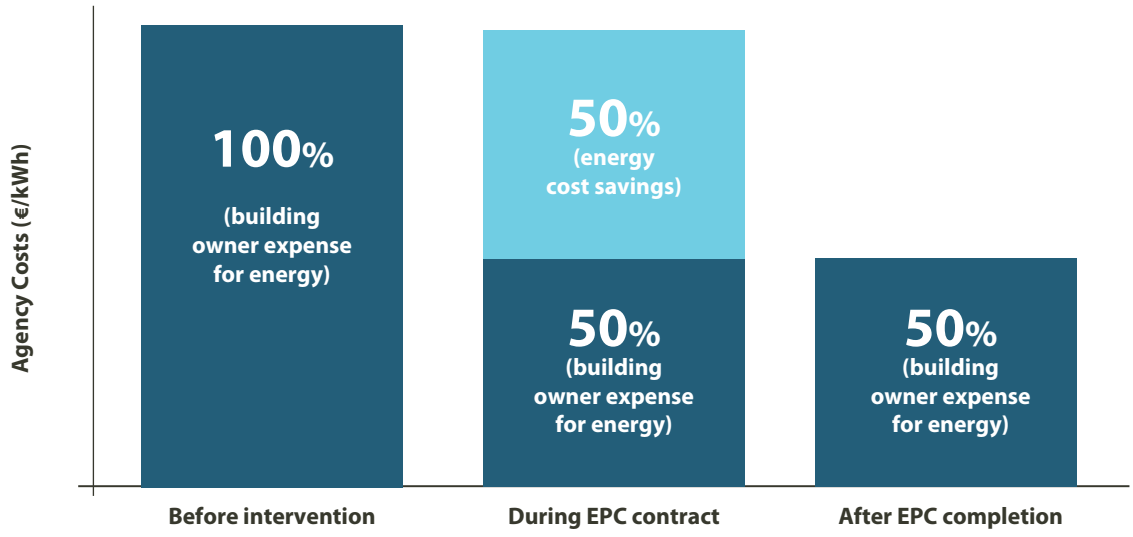
The financier of the project can be a third-party financial institution, such as a development or commercial bank, the ESCO itself, or in some cases the client's funds, for example for large real estate companies upgrading the building stock. In an EPC contract, the financier is linked to the project cash flow, therefore, depending on contract specifics, often takes on operational risk.

ENERGY PERFORMANCE CONTRACTING: AN OVERVIEW

EPCs are one of the main mechanisms to deliver energy savings with third-party financing. They are therefore considered a key instrument in the energy transition, in conjunction with other measures, as they offer a viable financing mechanism to address the barrier of providing upfront financing for building renovations [7]. EPCs are a contractual agreement between an end-user and energy service provider (typically an ESCO or technology provider) with an agreed financing term and repayment agreement and energy savings guarantee. EPCs can cover a wide range of energy-saving measures, including but not limited to boiler and chiller systems, lighting, HVAC, roofing, insulation, windows and building management systems, as well as deep renovation including multiple measures. EPCs can also cover deep renovations. For example, in Austria, the Red Cross undertook a deep renovation using an EPC (guaranteed savings) with a 15-year contract. Overall investment was €520,000 (financed partially by the building owner and partially via energy savings), and had a savings guarantee of 50% [8].

Under an EPC arrangement, an external organisation (typically an ESCO) implements a project to deliver energy savings, or a renewable energy project, and uses the stream of income from the expense reduction, or the renewable energy produced, to repay the whole or part of the costs of the project, including the costs of the investment. In other words, cost savings from energy upgrades are used to repay the initial investment in the energy upgrades. Depending on the type of contract (discussed in more detail below), the initial investment can come directly from the client's own funds, the ESCO's own funds, or a bank loan taken out by the ESCO or client.

Figure 2 - Energy savings during EPC implementation (BPIE)



Under an EPC, if the project does not achieve the agreed savings, the ESCO will not get paid. This transfers the performance risk from the end-user to the ESCO, as the ESCO is held accountable for its initially determined guarantee. An active EPC model (which incorporates demand-side response) will add transparency to the risk sharing of EPC projects (see section below).

Energy contracting models

The two main EPC models are **shared savings** and **guaranteed savings**. Both models are used throughout Europe, although in established markets with a well-defined banking structure, guaranteed savings account for the majority of the market. This is largely because in a guaranteed savings model, financial risk depends on the creditworthiness of the end-user, so it is more developed in markets (namely the EU and the US) with more established organisations with favourable credit, as financial institutions are generally more comfortable lending to established companies with good credit.

Figure 3 - Guaranteed savings model [4]

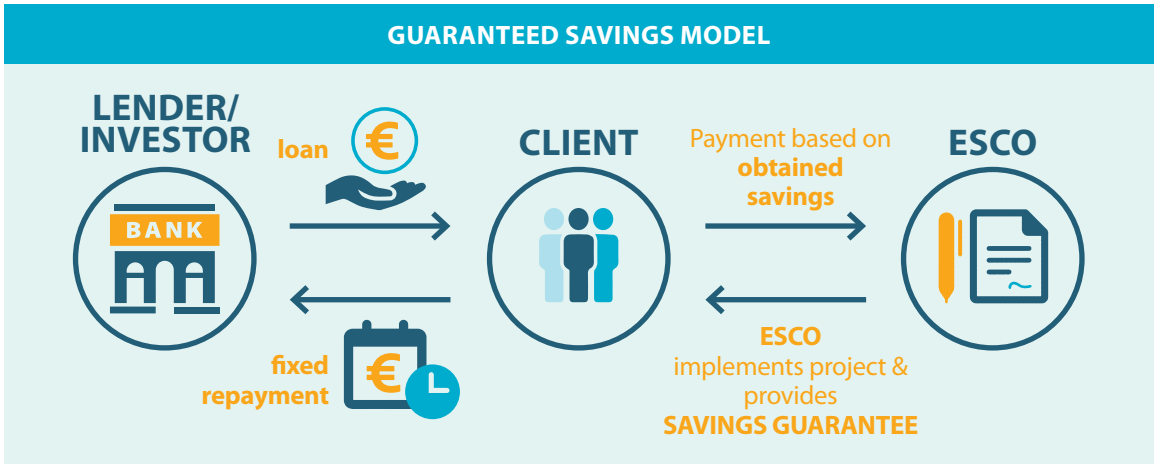
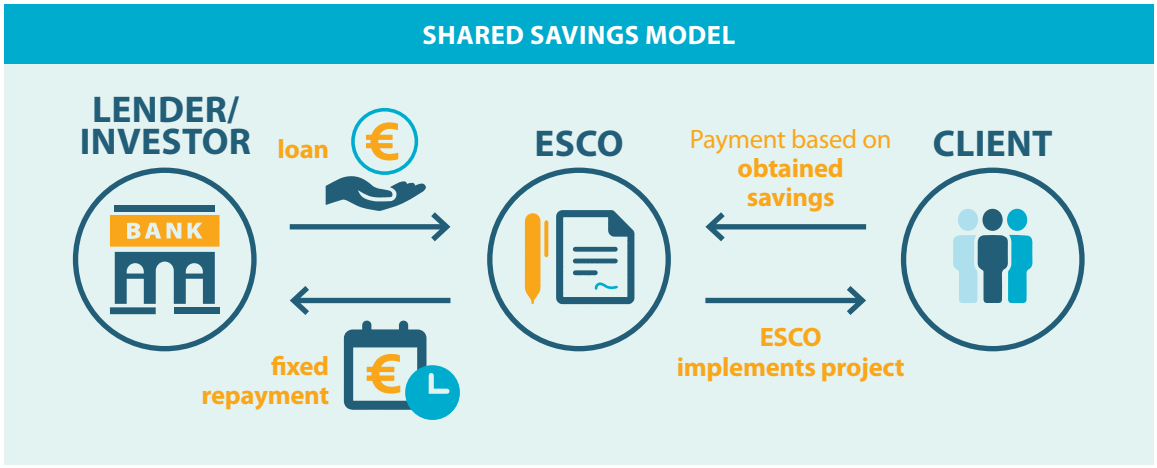


Figure 4 - Shared savings model [4]



One key difference between the different types of contracts is in who is financially responsible. In the case of a shared savings model (Figure 4), the ESCO secures the loan, whereas in a guaranteed savings model (Figure 3), the client secures the loan.

Risk and financial liability play a large role selecting between the two types of contracts. For instance, under a shared savings contract, the ESCO assumes more of the financial risk as they are the one taking out the loan, whereas under a guaranteed savings contract, the client assumes more financial risk in the event the project does not deliver. However, there are emerging models and pilots offering energy savings insurance to de-risk the assumed technical and/or credit risk associated with EPCs [6].

Active energy performance contracting

Active energy performance contracts (Active-EPCs) are an emerging form of energy performance contracting [9]. These incorporate demand response into the contracting process, whereas a traditional EPC does not account for such flexibility.

Figure 5 - Active-Energy Performance Contracting
Note: blue is business as usual scenario, orange is new business model.

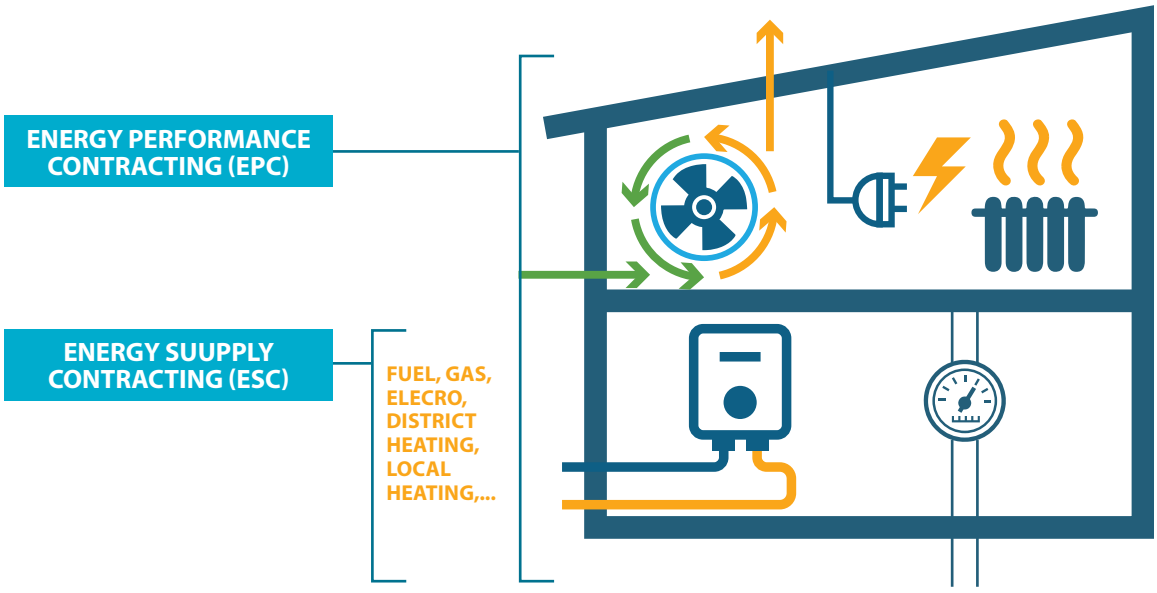
Active-EPCs enable adjusting use or operation processes (e.g. running appliances at off-peak hours) or on-site energy production to further energy and cost savings. The process can be manual or automatic and is aided by smart meters and energy management systems. Active-EPCs provide benefits on a scale beyond just the end-user, such as reduced investment in peak generation, reduced emissions, and providing transparency in energy usage figures.

ENERGY SUPPLY CONTRACTING

Energy supply contracting (ESC) is another way of delivering energy savings. Under energy supply contracting, the ESCO is not only responsible for upgrades to equipment, but also for supplying the energy – as the name implies. **ESC includes reduction of supply costs, whereas EPCs generally focus on demand-side reductions.**

The ESC business model includes all components of the energy services, from upgrades to the purchasing and delivery of fuel. This form of contracting is most common for heating and cooling services (combined heat and power – CHP) and renewable energy projects. The advantages of energy supply contracting are optimised operation costs and security of energy supply, in addition to energy savings on the supply side.

Figure 6 - Energy Performance Contracting vs Energy Supply Contracting [10]



Energy supply contracting is relatively popular throughout Europe. For example, the French "chauffage" contract (the national version of energy supply contracting) has been provided by big energy providers with large cash flows for over 60 years. The energy companies have developed highly standardised contracts to implement chauffage contracts, making it easier to engage in such contracting [11].

In Germany, ESC dominates the energy savings contracting market, accounting for 85% of the market (however, EPCs are gaining traction nationally) [7]. The German market is driven by the public sector. Specifically, the country is well suited for ESC since it has a largely decentralised heating system and the government promotes CHP [11]. Like the French situation, there is an established template for ESC to aid implementation.

Below is a comparison table of the three main forms of energy contracting: EPC – guaranteed savings, EPC – shared savings, and energy supply contracting. This provides a brief overview of the key differences between services offered and what is covered under which type of contract.

Table 1 - Key characteristics of EPCs and ESCs compared - adapted from JRC, 2017 [11]

	EPC – Guaranteed savings	EPC – Shared savings	Energy supply contracting
% of EU market [12]	**50%**	**20%**	**30%**
Key elements	Energy savings measures with o**ngoing monitoring and verification** services and provision of energy savings guarantee. **Based on energy saved.**	Energy savings measures to provide cost savings **associated with the overall energy bill.** **Based on cost of energy saved.**	Efficient supply of energy (heat, electricity, etc.) is contracted, measured and delivered.
Guarantees	**Yes** – ESCO guarantees performance based on **energy saved throughout contract**.	**Typically not** – The ESCO may guarantee a minimum performance.	**Does not assume any risk** but may include incentives related to energy use reduction on the supply side.
Payment	Derived from energy savings achieved in **constant prices of the base yea**r.	Payment linked to the achieved **change in energy expenses**.	Payment of a **fixed rate/tariff**, normally without performance requirements.
Advantages	Lenders/banks are more prepared to handle customers credit risk than an ESCO.	Can serve customers who do not have access to financing.	More inclusive and can cover a wider set of services and timeframes.
Disadvantages	Generally requires well-established banking structure (because it requires customers to take the credit risk).	High debt ratio, barriers for small companies.	Usually does not assume any risk (disadvantage for the end-user)

THE EUROPEAN ESCO MARKET

There have been several key developments in EU-level legislation regarding the ESCO market in the past 10 years (discussed below); however, implementation and maturity still vary greatly by country.

EU legislation

The primary legislation regarding EPCs and the ESCO market in Europe is the Energy Efficiency Directive (2012/27/EU), which in 2012 set provisions to support the development of the energy services market across the EU. It helped the market develop by providing certainty through establishing definitions for energy services, energy service providers and energy performance contracting, and by requiring Member States to provide model EPCs to increase clarity, transparency and usability of these types of contracts [13]..

Table 2 - Relevant energy service market definitions according to the EED

Energy service	The physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings.	**Art 2.7**
Energy service provider	A natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises.	**Art 2.24**
Energy performance contracting	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.	**Art 2.27**

Barriers

In line with Article 18 of the EED on energy services, Member States have the responsibility to put in place a supportive regulatory and enabling framework for the creation of a well-functioning energy service market at the national level and to facilitate access for SMEs to this market. This includes, for example, providing clear and easily accessible information on available energy service contracts and on the financial instruments that can be used in support of these.

Additionally, Member States are also required to support the public sector in using energy services for buildings renovations, including by providing model contracts for EPCs that integrate, as a minimum, some key specifications, such as a clear list of measures and guaranteed level of savings to be achieved (see EED Article XIII providing the minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications). In the same vein, Article 19 of the 2012 EED also requires Member States to take appropriate measures to remove regulatory and non-regulatory barriers to energy efficiency, including those that prevent public bodies from using EPCs and other third-party financing mechanisms on a long-term contractual basis.

One of the key barriers for public authorities to enter into EPCs has for a long time been the fact that the Eurostat rules on public debt and deficit considered investments in energy efficiency under energy service contracts on their balance sheet [14]; these were also considered as deficits in the national accounts even if organised under ESCOs.

In 2017, the European Commission issued a Eurostat guidance note addressing the recording of EPCs in government accounts [15]. The guidance note clarified that public authorities could account EPCs off their balance sheet as "the EPC-contractor bears the majority of the risks and rewards associated with the use of the EPC asset." Similarly, it clarified that the use of EPCs by public authorities should not have an impact "on the net lending/net borrowing or the (Maastricht) debt of government". This clarification aimed to stimulate investment in the ESCO market, enabling more engagement in EPC projects at once (see Croatian example). Prior to the clarification it was difficult for many public sector bodies to engage in EPCs; the revised treatment now allows public authorities to renovate their buildings with investment that originates from the private sector more easily [7] [16].

Figure 7 - Main barriers of the EPC market
(QualitEE Survey of 15 EU member countries)

Complexity of the concept/ lack of information	**55%**
Lack of trust in the ESCO system	42%
Administrative barriers in the public sector	42%
High costs of project development and procurement	39%
Customer demand	37%
Low energy prices	36%
Subsidy / policy uncertainty	35%
Lack of support from the governement	32%
Raising affordable finance	29%

Opportunities/Drivers

Measures to stimulate the ESCO market vary depending on the level of market development. However, one of the main drivers for all markets are energy savings guarantees, i.e. the warranty that the renovations will deliver the expected amount of savings. This shifts the associated financial and technical risks from the end-user to the party responsible for the refurbishment, such as an ESCO or financial institution, which is more able to manage it. Under an EPC, the performance risk lies with the ESCO, so if the project does not achieve the agreed savings the ESCO is held accountable for the initially determined guarantee. In offering a savings guarantee, the ESCO is alleviating that risk to the client, as well as demonstrating confidence in their solutions to deliver results.

EPCs are one of the main mechanisms to deliver energy savings thanks to third-party financing, crucial in a period of economic crisis where upfront financing is even more than usual a barrier. They are therefore a key instrument to keep financing the energy transition in a moment of economic downturn. This is particularly true for local authorities that may face budget cuts or need to direct their limited budget to other priorities.

Furthermore, ESCOs can relieve the client from many project-related burdens and offer turnkey services, ranging from addressing energy audits, to operation and maintenance, as well as to monitoring and verification of the results achieved [12].

Finally, another key driver is the presence of strong national policy aimed at supporting ESCOs. While the Energy Efficiency Directive [17] set some requirements for EPCs, countries with stronger national legislation going beyond the directive's minimum requirements have more flourishing ESCO markets.

Figure 8 - Main drivers of the EPC market
(QualitEE Survey of 15 EU member countries)

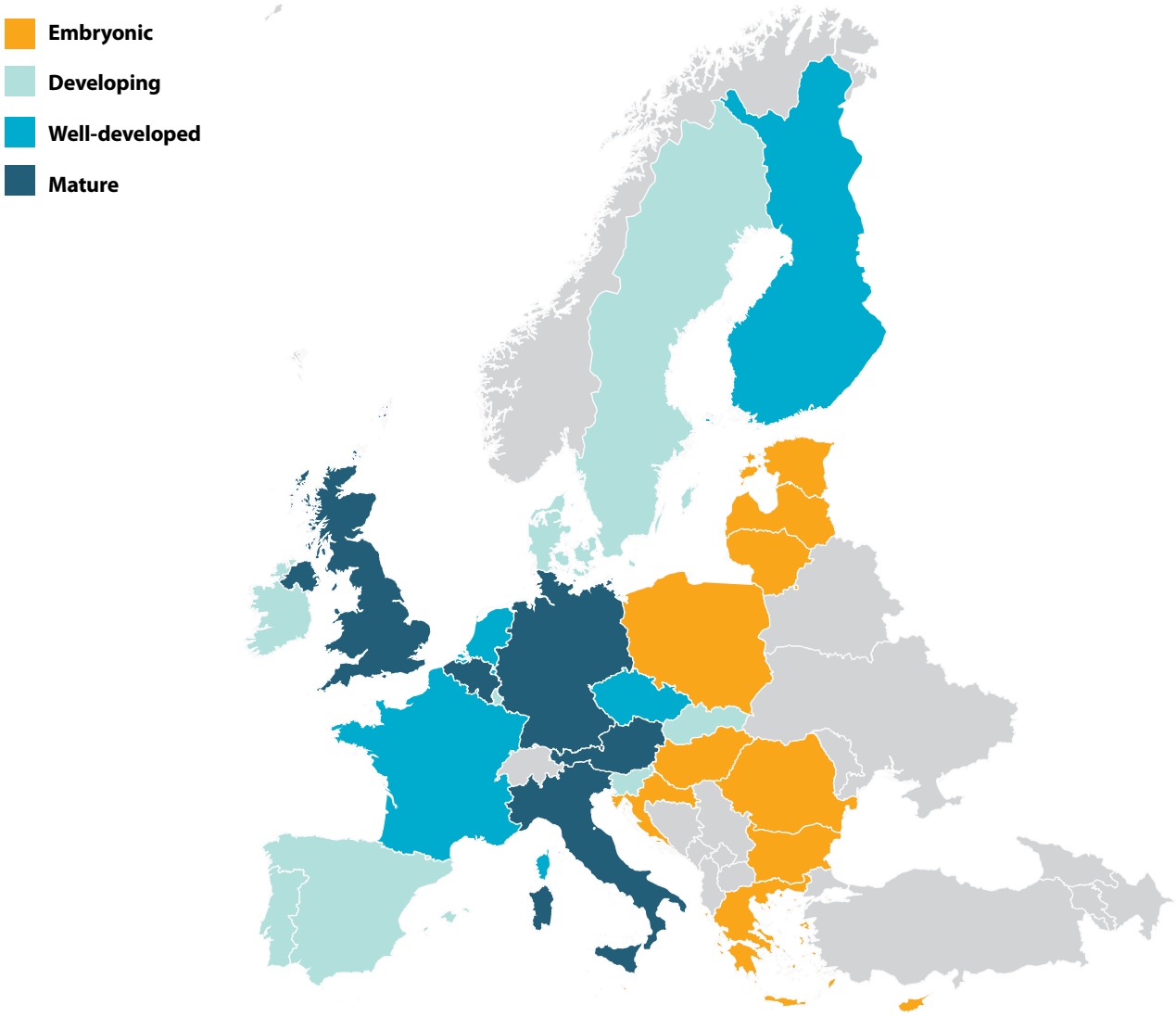
Energy savings guarantee	**66%**
Pressure to recude cost	40%
External expertise/ turnkey services	40%
Increasing energy prices	40%
Limited budgets in public sector	38%
Financing provided by service provider	34%
Government policy	32%
customer demand	25%
Availability of affordable finance	19%
Public subsidy	13%

COUNTRY SNAP SHOTS

The Joint Research Centre (JRC) of the European Commission regularly does a survey of the ESCO markets in EU countries. The survey is based on selected indicators to measure market maturity. The indicators include (1) presence of a national association, (2) facilitators,[2] (3) demand-drive, (4) quality labels,[3] and (5) monitoring and verification [7].

While this is not a comprehensive set of indicators of a strong ESCO market, these five criteria aim to capture some of the core components to facilitate and spur EPC deployment on the national level, in addition to the measures outlined in Article 18 of the EED.

Figure 9 - ESCO market development across the EU (adapted from JRC 2019) [7]



The following section provides a brief description of the EPC market development in one country from each of the above categories.

[2] Facilitators include companies (public or private) or associations responsible for providing trainings, information and general representation of market actors.

[3] These can be minimum requirements for products or services, determined either nationally or on the EU level.

Belgium

According to the JRC study, the Belgian market has recently become one of the more mature markets in the EU [8]. The presence of a well-established national ESCO association, the Belgian Association of Energy Services Companies (BELESCO) plays a large role in providing information and dissemination services on the national level, as well as EPC guidance and information on finding the right ESCOs. The majority of these efforts have occurred in the past five years, and helped to further grow the national market [12].

Overall, like most other European markets, the majority of EPCs in Belgium are carried out in the public sector with municipalities, followed by educational facilities. However a large share of EPCs in Belgium are in the industrial sector and private offices [17].

Belgium has well implemented Article 18 of the EED, including dissemination efforts on available guaranteed energy savings contracts, information on best practices for EPCs, review and removal of some conflicting regulatory barriers effecting the market, establishing one-stop-shops to facilitate market development [8].

In addition, the government has clearly outlined the ESCO market as a staple of delivering energy savings (in particular by means of EPCs), already since its 2014 Energy Efficiency Action Plan [18]. Regional governments as well have prioritized EPCs, providing support mechanisms to facilitate the market. For example, the Province of Flemish Brabant has created a "helpdesk facility" to promote EPCs [12], in adherence with Article 18.

Belgium has been identified as having strong enabling framework suitable for active energy performance contracting, as recent legislation was introduced enabling participation of new energy sources (including demand side flexibility) in the market [19].

Finland

The primary market for EPCs in Finland is the public sector, primarily educational facilities, followed by municipal offices and private commercial buildings. Since Finland has a well-established energy auditing system, there are already many qualified service providers nationally, helping the facilitation of the market [7].

The JRC conducted a survey gauging the levels of implementation of the most relevant criteria of Article 18 and while Finland falls in the "Developed" category of the JRC review overall, in regards to Article 18 implementation it is among the most advanced in the EU [7]. There are overall five levels of implementation of Article 18 measures (1 – not implemented, 2 – partially implemented with limited or no success, 3 – implemented, but success is either not reported or limited, 4 – implemented and considered mostly successful, and 5 – successfully implemented). Finland reports either full success or mostly successful in all categories, including quality labelling, access to a list of certified providers, providing best practices and information services.

An important element to note in the Finnish example is that while there is no officially dedicated ESCO association, there is an established network of qualified energy auditors and ESCOs overseen by Motiva, the national sustainable development company. Motiva takes on many of

the responsibilities of an ESCO association, supporting and promoting energy services, providing information on funding, and providing model contracts. In addition, Motiva hosts an ESCO project register. This is an important factor for transparency and serves as a tool for EPC facilitators to showcase or reference successful projects [7].

Spain

While currently categorised as a developing market, the Spanish ESCO market has a lot of the enabling factors to become a well-developed market [7]. Spain's ESCO market has a high volume of projects in the private sector, specifically in office buildings.

Article 18 is well implemented. Nationally, there are three major national associations overseeing the Spanish ESCO market and implementing facilitating measures. Spain has national examples of model contracts, clear information dissemination and has made strides in removing regulatory barriers identified in the ESCO market and with energy performance contracting.

Two of the identified remaining barriers in the country are (1) falling energy prices and (2) setbacks with changing government and associated government priorities (for example, a group had been assembled by the government to address the new Eurostat guidelines, but these efforts were suspended with the change of government [7]).

Croatia

The EPC market in Croatia has grown steadily in the past five years, despite still being considered an "embryonic" market. The growth has largely been driven by the use of available EU grants to drive renovation in the public sector, as is relatively common in embryonic markets. In particular, there have been several successful hospital and school projects driving the market and proving EPC success.

The 2014 Energy Efficiency Act (OG 127/2014), stipulating verification and measurement requirements in the country, as well as the 2015 grant programme, Environmental Protection and Energy Efficiency Fund (EPEEF), which provides funding for public sector projects engaging ESCOs, helped to start major EPC usage in the country [21].

The Križine Split Hospital project in 2015 was one of the first major successes using the ESCO model, partially financed by the National Energy Efficiency Fund. The project saved over 8,000,000 kWh/year (an overall 56% reduction in energy consumption) and approximately €6 million [22]. This was followed by over 50 EPC contracts negotiated in 2016, and a renewal of the public buildings programme to 2020 [7] [21].

Initially, the public sector was not able to engage in EPC contracts, given that "capital expenditure incurred in the context of EPCs would have to be recorded in government accounts", creating a high debt ratio for the government [21]. The 2017 Eurostat clarification (discussed above) enabled EPCs to be recorded off-balance sheet, further enabling the market. While policy support is helping grow the market (the government has recently created a standardised contract [23]), challenges remain as the market is largely dependent on European grant funding (see recommendations).

RECOMMENDATIONS TO MAINSTREAM ENERGY SERVICES ACROSS THE EU

Mainstreaming the EPC market across the EU is both beneficial for decarbonising the building stock and to help EU economic recovery after the Covid-19 pandemic. For this reason, the **European Economic Recovery Plan** and the **Renovation Wave**, expected in September 2020, should be used to trigger the EPC market in the EU as a powerful existing tool to deliver investment at scale in building renovations.

EPCs can play an important role in conjunction with stimulus money. Research from the US shows that federal grant money for building resiliency combined with EPC projects can leverage large private sector investment: modelling shows that US$22 billion in public funds could leverage US$88 billion of private sector investment (combined with energy cost savings), delivering US$110 billion in economic activity – activating investment by a factor of five [24][25]. While the same exact scale of effect cannot be predicted in the EU, it gives a good indication of the role that EPCs can play in leveraging additional private investment in the EU.

EU Economic Recovery

The recent European Commission economic recovery package, including the Multiannual Financial Framework (MFF) and Next Generation EU, recognises that building renovations are critical green investments to help the EU economic recovery. There is a strong opportunity to use EPCs to achieve these goals, particularly through the national recovery and resilience plans that Member States are expected to submit to the European Commission. However, the great majority of Member States are late in submitting their long-term renovation strategies (LTRS) and this could hamper the targeting of these funds to the right priorities and objectives, which should have already been identified in the LTRS.

The recommendations below indicate promising ways to support the development of the ESCO market in the EU by taking the opportunity of the additional financing and guarantees available in the context of the EU economic recovery plan

- Energy performance contracting is a useful instrument to pay back services over time, shielding the end-user from credit or performance risk [24], especially if combined with stimulus money geared toward building upgrades to alleviate capital costs for the end-user [26]. **Member States should make full use of the possibility in their national recovery and resilience plans by earmarking funds for qualified ESCOs** (to administer EPCs). In addition, in those plans the financial support should be channelled, as a priority, to projects that have a longer payback periods, such as for deep renovations, as EPCs are a proven mechanism for delivering deep retrofits over a longer period. Not only will this lead to a decarbonisation of the building stock in line with the European Green Deal's objectives in the long run, but it will contribute to short-term job creation and economic recovery.
- Member States could use this time of lower occupancy in buildings [27] to carry out potential upgrades, to renovate part of their building stock, as is the case in Denmark [28]. As certain public buildings, such as schools, could undergo renovations to ensure for example social distancing, this should also be an occasion to carry out energy efficiency upgrades. Member States could take advantage of the recovery and resilience funds to plan and use EPCs as a way to cover capital costs or renovation costs of these buildings, to be paid back in savings over time.
- One of the key purposes of the InvestEU programme is to de-risk projects by providing EU budget guarantees to help leverage private finance. For that reason, **InvestEU is perfectly placed to**

provide guarantees for ESCOs and therefore boost building renovations utilising EPCs. As the InvestEU programme is project driven, the implementing partners, such as national promotional and development banks, must prioritise these types of projects and the InvestEU Advisory Hub should provide well-tailored project development advice to facilitate them.

The Renovation Wave

The Renovation Wave should put an accent on the importance of EPCs as a key tool to deliver the necessary renovations, starting from the need to implement existing provisions across different legislation (e.g. the Energy Efficiency Directive). The Renovation Wave should also provide an assessment of eventual gaps and opportunities to mainstream EPCs further, including support for local authorities to use them for their renovation projects. The recommendations below highlight how the Renovation Wave initiative could support the development of the ESCO market in the EU.

- The Renovation Wave should reinforce the EED Article 18 as the main legal tool to support refurbishments through ESCOs. On one side, strong implementation of Article 18 is the prerequisite to ensure the development of the ESCO market at the national level; on the other side, the review of the EED expected in June 2021 is the occasion to strengthen this key provision further. For example, a revised article could require every Member State to set up a public body that oversees ESCO functioning, is responsible for accrediting qualified ESCOs and supports the creation of standardised contracts to apply EPCs in the residential sector. Additionally, a revision could include provisions for minimum qualifications of service providers to ensure quality installation in the renovation process, or mandated measurement and verification procedures.

- The Renovation Wave should highlight that in the implementation of the **Energy Savings Obligation under the EED Article 7**, EPCs should be **preferred as the vehicle for delivering savings** for building renovations, including public buildings, as the resulting energy savings are already guaranteed.

- As the revision of the Eurostat guidance note has clarified that public authorities can account EPCs off their balance sheet, **the Renovation Wave should promote energy services as the key tool to renovate their buildings and emphasise the possibility of using EPCs for public building renovations**, including those with a long payback periods. If the use of EPCs becomes mainstream for the renovation of public buildings, this will also help unlock the energy service market for residential buildings thanks to increased trust of the ESCO model, reinforced know-how and better understanding of the tool in public administrations.

- Since the complex and time-consuming procedure for procuring an EPC are still a barrier, technical assistance should be granted to help local authorities, especially for smaller projects. For example, via renewed InvestEU funding in the European Investment Advisory Hub with earmarked funds for climate-aligned projects, such as energy efficiency projects.

- The Renovation Wave is expected to analyse barriers to building renovations and provide solutions to address them. A key barrier is that renovation projects, especially residential, are small and must be aggregated. ESCOs can be a useful vehicle to aggregate renovation projects, especially through standardised contracts, when local public authorities contribute to their setting-up. For example, local authorities can play a crucial role by creating a pipeline of residential projects and facilitating the aggregation of renovation opportunities, especially by organising renovations at the district level, so that ESCOs can be called to provide their services to local communities. **In the Renovation Wave, the European Commission should look at how the different governance levels can contribute to building renovations and propose support to local authorities to unlock the local energy services market, including through specific technical assistance to aggregate residential renovations through EPCs**. This includes ways of making the market more transparent, for instance by tracking project data (e.g. the De-risking Energy Efficiency Platform).

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