



# Qualit

DRIVING INVESTMENT IN ENERGY  
EFFICIENCY SERVICES THROUGH  
QUALITY ASSURANCE

**FINAL REPORT**

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## QualitEE Project

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## Disclaimer

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## Definitions and glossary

Term	Definition
Client	Means any natural or legal person to whom an energy service provider delivers energy service
Energy Efficiency Directive (EED)	Means Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency
Energy efficiency improvement (EEI) *	Means increase in energy efficiency as a result of technological, behavioural and/or economic changes
Energy efficiency (EE) *	Means the ratio of output of performance, service, goods or energy, to input of energy
Energy efficiency service (EES) **	Means an agreed task or tasks designed to lead to an energy efficiency improvement and other agreed performance criteria
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
Energy supply contracting *** (ESC)	Means a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered
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
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
Energy efficiency service provider (EES provider) *	Means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises, sometimes also referred to as ESCO – energy service company
Energy*	Means all forms of energy products, combustible fuels, heat, renewable energy, electricity, or any other form of energy, as defined in Article 2(d) of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics
EPC provider	Means an energy service provider who delivers energy services in the form of Energy Performance Contracting
ESC provider	Means an energy service provider who delivers energy services in the form of Energy Supply Contracting
Facilitator (energy service project facilitator)	Means an advisory company working on behalf of the client to procure and/or implement an energy service project
Financial institutions (FI)	Financial institutions active in financing energy efficiency or renewable energy projects

<b>Financial quality criteria (FQC)</b>	Financial quality criteria developed in the QualitEE project; help to select EES projects eligible for external financing
<b>IPMVP (The International Performance Measurement and Verification Protocol)</b>	Is the widely referenced framework for "measuring" energy or water savings, which is available at <a href="http://www.evo-world.org">www.evo-world.org</a>
<b>National discussion platforms (NDP)</b>	Means meetings of national promotion teams, public and private clients, financial Institutions, ESPs, standardization and CB, policymakers, in order to obtain commitment from market actors and to establish a common understanding why a national certification framework for energy efficiency services is needed.
<b>National promotion teams (NPT)</b>	Means meetings of energy efficiency associations, financial institutions, accredited certification bodies and public authorities in order to seek a broad consensus among their national markets and decide on the suitable BM to be applied.
<b>Quality criteria (QC)</b>	Quality criteria developed in the QualitEE project; technical, economic, communicational, and other criteria, which allow a comprehensive evaluation of the quality of energy efficiency services
<b>Quality assurance schemes (QAS)</b>	Means quality assurance schemes for energy efficiency services.
<b>Savings</b>	Means energy savings and/or related financial savings; the financial savings include the costs of energy provision and can also include other operational costs, such as the costs of maintenance and workforce

## Notes:

\*Definitions according to the Energy Efficiency Directive

\*\*Definition according the European standard EN 15900:2010

\*\*\*Definition is a simplified version of IEA DSM Task Force 16 definition

# 1 BACKGROUND

## 1.1 Starting Point

Although investors and financial institutions are increasingly looking for sustainable investment opportunities, they are often reluctant to invest in energy efficiency services due to a number of remaining barriers:

- ✔ As energy efficiency improvements are intangible, many EES projects are perceived as complex and granular. In turn, projects struggle with an unfavourable ratio between perceived project revenue and transaction cost.
- ✔ Most EES projects are small, while bundling a number of small projects to one larger project appears to be connected with many difficulties and elevated complexity.
- ✔ EES projects are “brain-driven”, i.e. a considerable share of the project value does not relate to the value of the invested assets, but rather on the know-how behind the optimal application of the assets.
- ✔ Finally, the cash flow of EES projects comes from cost savings and is not generated through sales on the market. Therefore, as compared to renewable electricity projects where the cash flow is generated through sales on the electricity markets the risks for investors client are more pronounced in EES projects.

Fragmentation and heterogeneity of the energy efficiency service markets make it difficult for clients to differ between “good quality” and “bad quality” services. Therefore, current discussions underline that standardisation of energy efficiency services is necessary to boost demand and access competitive capital from financial markets.

Already the **EU-project Transparens**, which has been implemented in the years 2013 to 2015, came to the conclusion that there exist two main barriers for investments in energy efficiency services: (1) low trust in energy service providers and (2) high complexity of energy efficiency services. These barriers lead to a reduced market demand for energy efficiency services as well as to difficulties in attracting capital. As a consequence, the Transparens project implemented a first important step towards the definition of common values for energy performance contracting – the so-called Code of Conduct. These values aim to increase of trust of investors and financial institutions in energy service providers and their services. The Code was welcomed by market players in more than 20 EU countries. At the end of September 2015, the Code had more than 200 signatories across Europe.

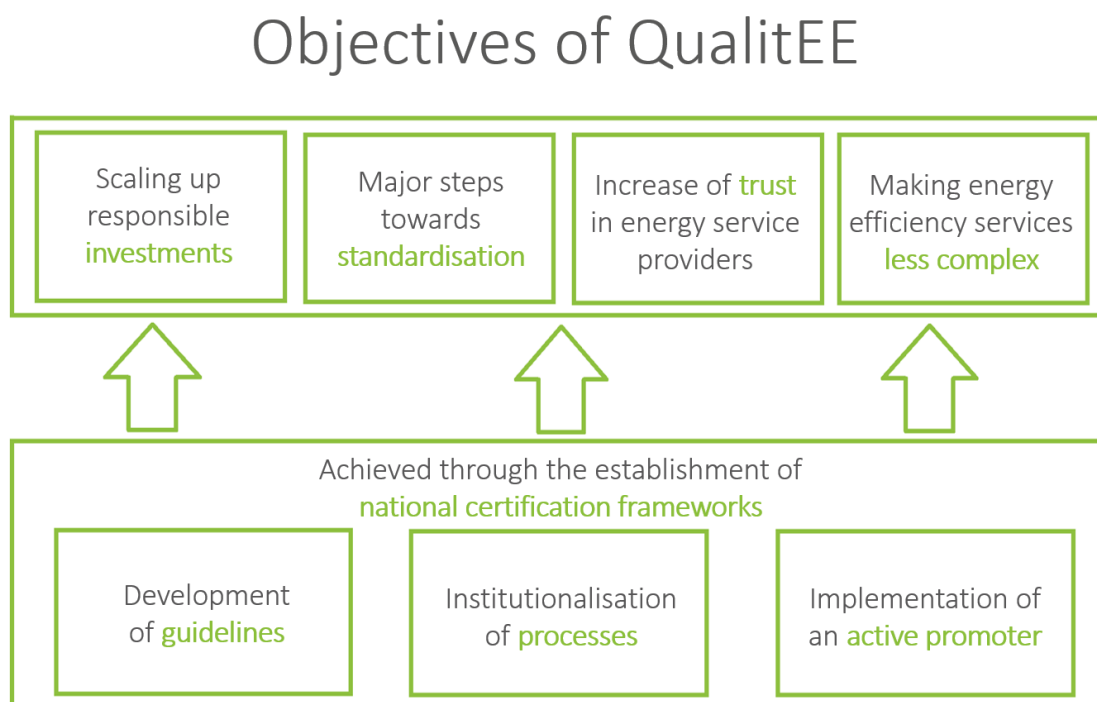
As a successor project, the QualitEE project picked up the thread from the Transparens-project.

## 1.2 Main directions of the QualitEE project

The overall objectives of the QualitEE project were to **scale up responsible investment** in energy efficiency services in the building sector, **increase the trust** of clients and financial institutions in energy service providers, thereby **reducing the complexity of energy efficiency services** as well as taking major steps towards **standardisation**. In order to achieve these main objectives **national certification frameworks** for energy efficiency services were implemented.



Figure 1: Objectives achievement of the QualitEE project (e7)



## 2 THE DEVELOPMENT OF THE EES MARKET - SURVEYS & MARKET REPORTS

The **QualitEE market surveys** provided an important overview of the development of the national Energy Performance Contracting (EPC) and Energy Supply Contracting (ESC) markets and served as source of data for the **Country reports on the EES market and quality** development for each of 15 researched EU countries: Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Italy, Latvia, the Netherlands, Portugal, Slovakia, Slovenia, Spain and the UK.

In addition, the **Report on European Energy Efficiency services markets and quality** (Szomolanyióva, Keegan; 2018) analysed and summarised the results of EES market surveys, QualitEE country reports and literature review. It has compiled evidence to inform about the development of European & national quality criteria and the implementation of quality assurance schemes for energy efficiency services (EES).

Information has been collected through a market survey in the form of an online questionnaire for relevant EES providers and facilitators and personal interviews with financial institutions and clients. In 2017, the survey was completed by 188 respondents across 15 EU countries surveyed (109 providers and 79 facilitators of energy efficiency services) and in 2019, it was completed by 173 respondents (97 providers and 76 facilitators) operating in energy performance contracting and/or energy supply contracting markets. In 2017, there were 79 personal interviews conducted with clients and financial

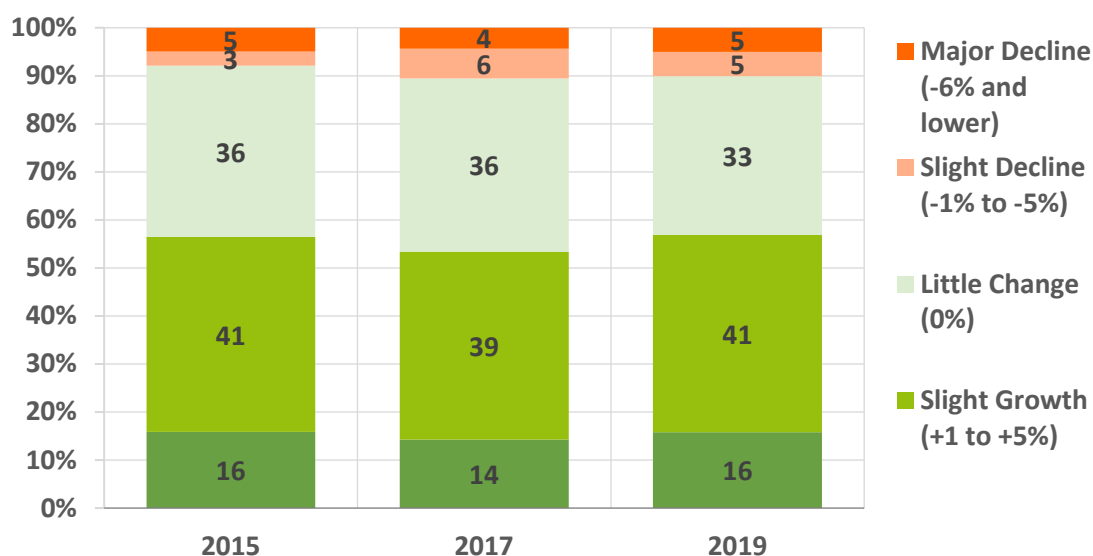
institutions across 13 EU countries<sup>1</sup> in the survey and six personal interviews with representatives of institutions on the EU level.

The interactive online presentation of the results (<https://qualitee.eu/market-research/>) gives the opportunity to review responses relating to EPC and ESC separately, and to compare results from different countries. It offers a comprehensive European database on EES and provides free information source for the EES market players supporting them in taking better informed investment decisions.

## 2.1 EPC markets

The developments of the European EPC markets in 2019 provides a rather positive view. Majority (57%) of all respondents reported that their national EPC market had seen growth over the last 12 months, with 16% of respondents describing major growth (of 6% and higher) and 41% of respondents describing slight growth (of 1% to 5%). While 10% of respondents are witnessing a decline, 33% reported no change whatsoever. These results are more positive than those from the survey carried out in 2017, where only 39% of respondents described slight growth and only 14% reported major growth. On the other hand, the growth is reported by an identical share of respondents as in the 2015 Transparensen survey ([www.transparensen.eu](http://www.transparensen.eu)).

Figure 2: Development of the national EPC markets (Percentage share of responses by providers and facilitators Sept 2019 and Sept 2017 and 2015)



Note: 2015 data is from the Transparensen project

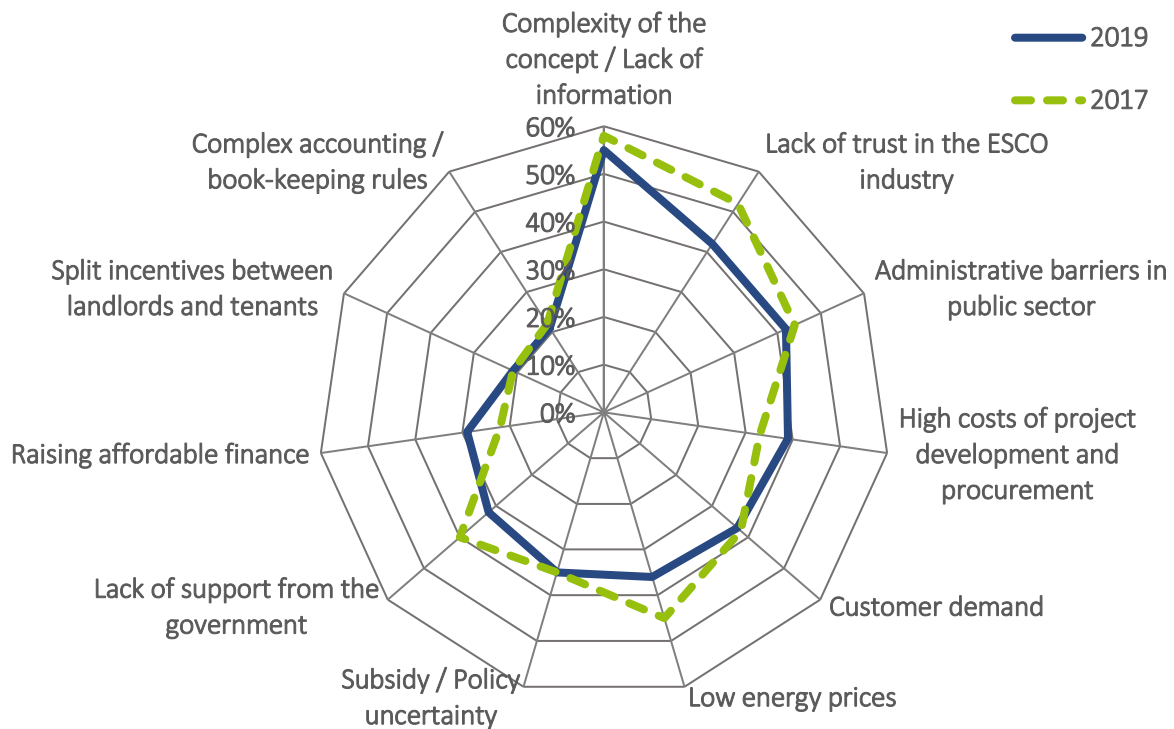
### 2.1.1 Barriers to the EPC business

The most significant barriers to EPC business revealed in the survey are: **complexity of the concept / lack of information** identified by 55% of the respondents followed by **lack of trust in the EES provider industry** and **administrative barriers in public sector** both identified by 42% of the respondents. In some countries the administrative barriers are perceived by a much higher share of respondents to play a

<sup>1</sup> Respondents were interviewed in 13 EU countries: Austria, Belgium, Bulgaria, Czech Republic, Germany, Greece, Italy, Latvia, Portugal, Slovakia, Slovenia, Spain and the UK. Netherlands and France were involved only in the online survey.

significant role (Greece – 80%, Portugal – 71%, Czech Republic – 67%). Some interesting changes can be observed as in the previous 2017 survey, a higher share of respondents (52%) identified the lack of trust as the main barrier.

Figure 3: Barriers to the EPC market (Percentage share of responses by providers and facilitators Sept 2019 and Sept 2017)

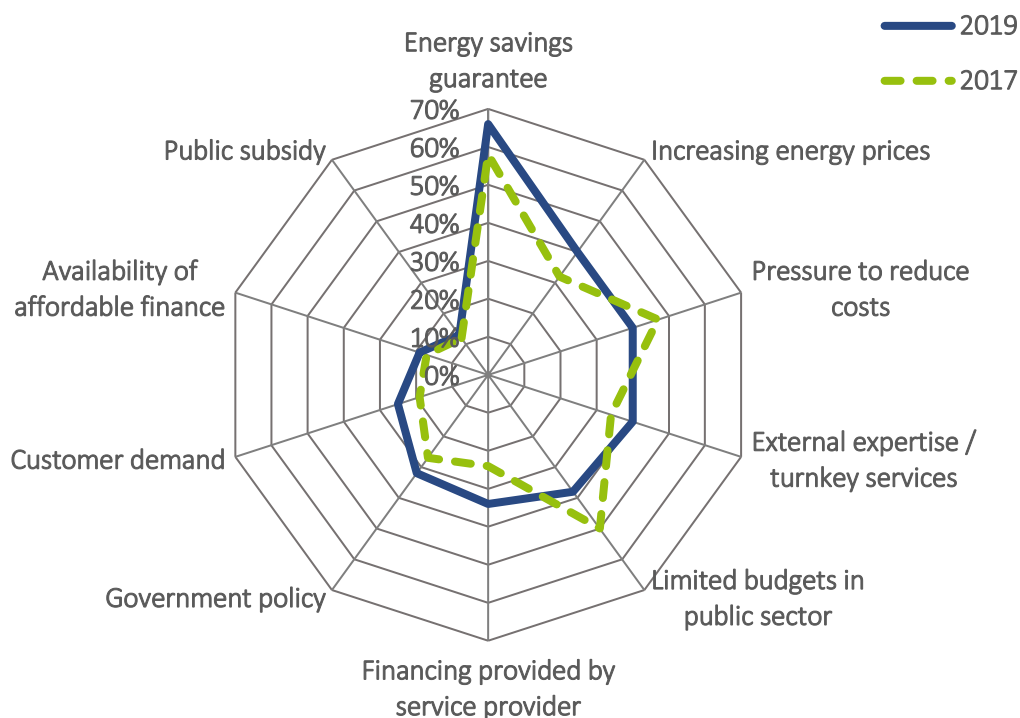


### 2.1.2 Drivers of the EPC business

As far as the **main drivers of the EPC business** are concerned, clearly the most substantial aspect is the **energy savings guarantee** identified by 66% of respondents. **Other key drivers** that were identified by 40% of respondents are **pressure to reduce the costs, increasing energy prices and external expertise/turnkey service**. While in 2017, limited budgets in public sector was identified as the leading driver by half respondents, in 2019, its share dropped to 38% of responses. Pressure to reduce costs was also less significant in 2019 (47% in 2017 vs. 40% in 2019).

Based on the survey it can be concluded that **the public sector drives EPC markets** as the majority of EPC providers and facilitators (65%) report that their clients are most frequently municipalities.

Figure 4: EPC market drivers (Percentage share of responses by providers and facilitators Sept 2019 and Sept 2017)



### 2.1.3 EPC business models

The **most common initial investment outlay for EPC projects** reported by 62% providers and facilitators across all surveyed countries is **less than EUR 1 million**, while 32% of them selected the range from EUR 1 million to EUR 5 million.

The **most common EPC contract length is 5 to 10 years** as reported by half of the respondents. The typical contract length duration between 11 and 15 years was reported by more than quarter of respondents (26%). **The situation varies across the countries in the survey.** In Slovenia, Netherlands, Latvia and Belgium, most of the contracts last longer than 10 years, while Greece is the only country where majority of contracts last less than 5 years. An interesting situation was identified in Latvia, where projects typically last up to 5 years or – on the contrary - they are longer than 10 years. This split is attributed to the fact that typical EPCs are either implemented in the lighting sector with short paybacks, or focus on deep building renovations with long paybacks (Kamenders et al., 2018).

**Usage of different business models also varies widely among the countries.** In Bulgaria, the Czech Republic, Latvia, Slovakia, the UK, the shared savings model was not solely in use for any respondents.

Figure 5: The most common investment outlay reported (Percentage share of responses by providers and facilitators Sept 2019)

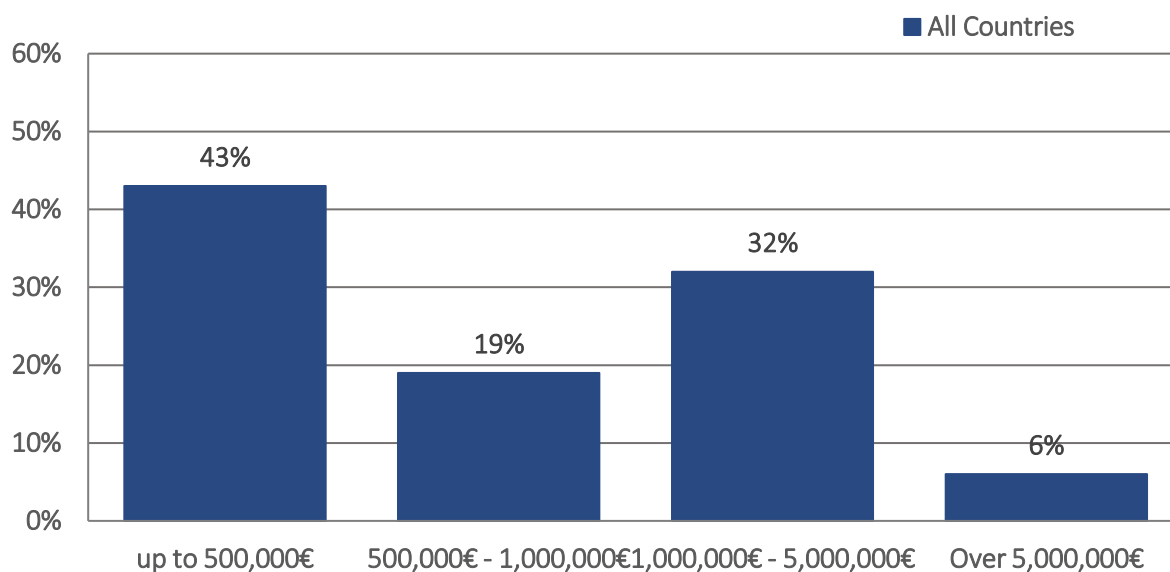


Figure 6: Typical duration of EPC contract (Share of responses by providers & facilitators Sept 2019)

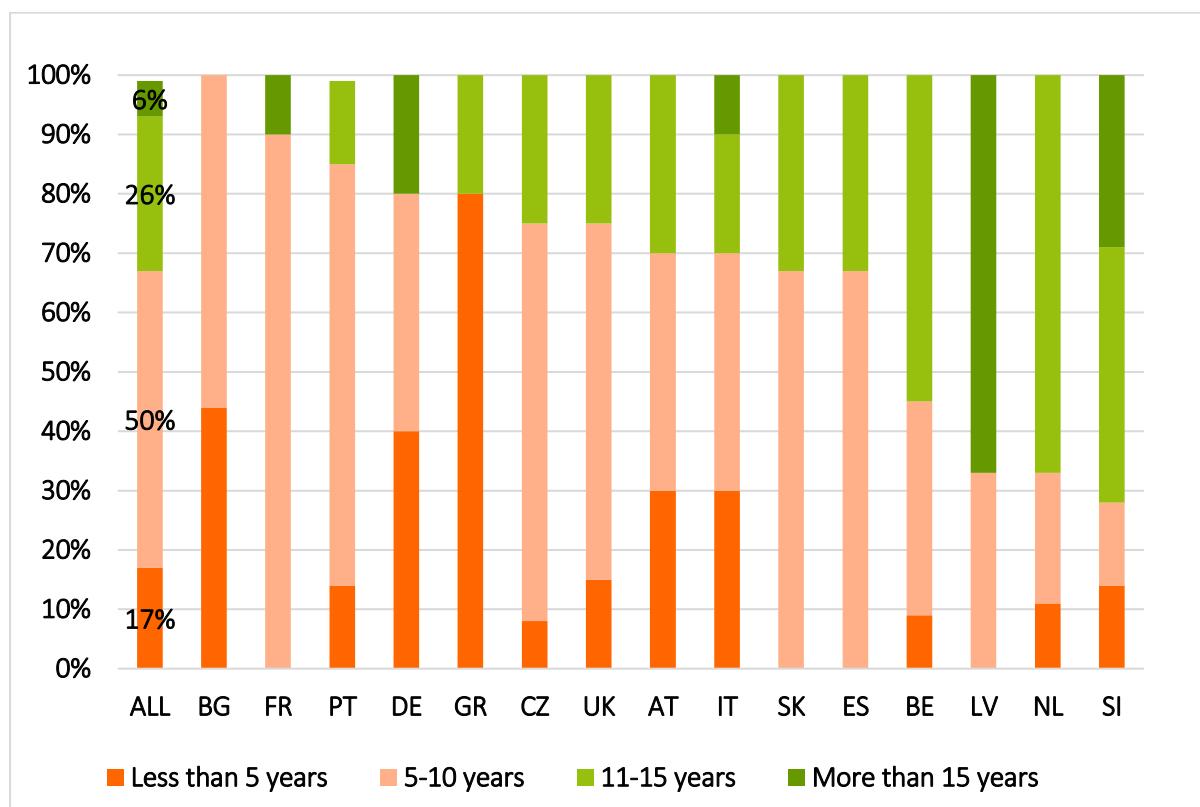
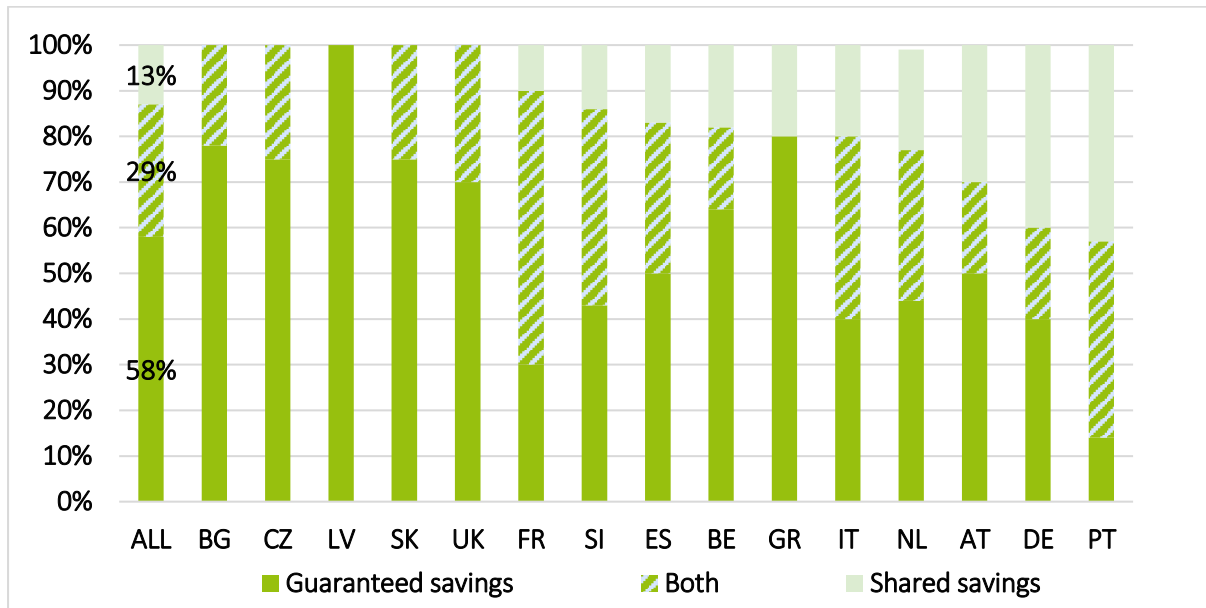


Figure 7: EPC business models used by providers and facilitators (Percentage share of responses by providers and facilitators Sept 2019)

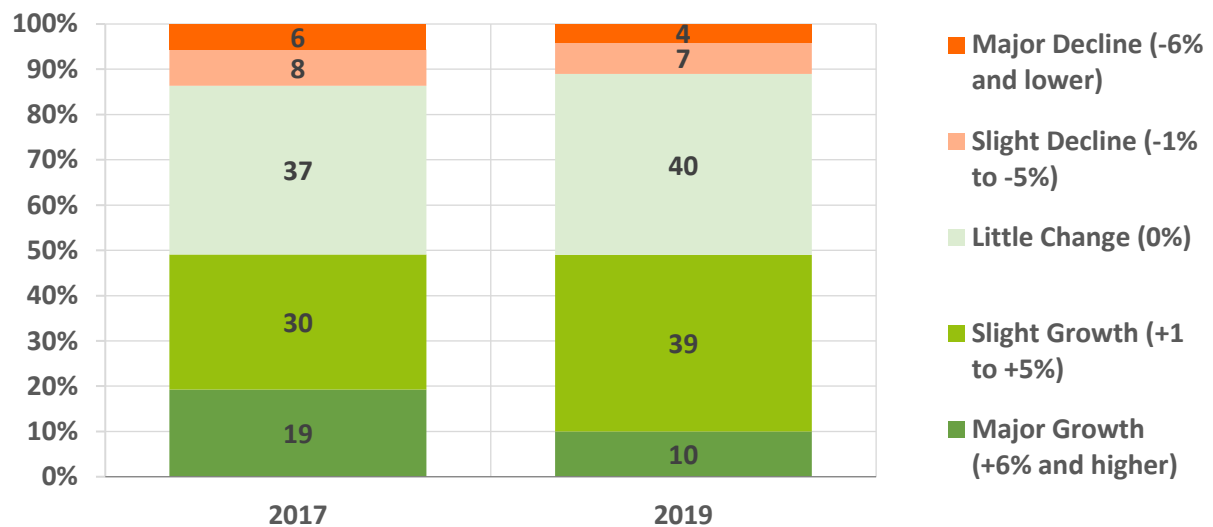


Note: In a shared savings model, the client pays the ESS provider a pre-determined percentage of its achieved cost savings from the project

## 2.2 ESC markets

In 2019, the energy supply contracting (ESC) market growth across all surveyed countries has been reported to be slower than in the case of EPC market. Almost half (49%) of all respondents reported that their national EPC market had seen growth over the 12 months, with 10% of respondents describing major growth and 39% of respondents describing slight growth. Though the situation is very similar to 2017 results, major growth of the ESC markets was reported less frequently in 2019.

Figure 8: Development of the national ESC markets (Percentage share of responses by providers and facilitators Sept 2019)

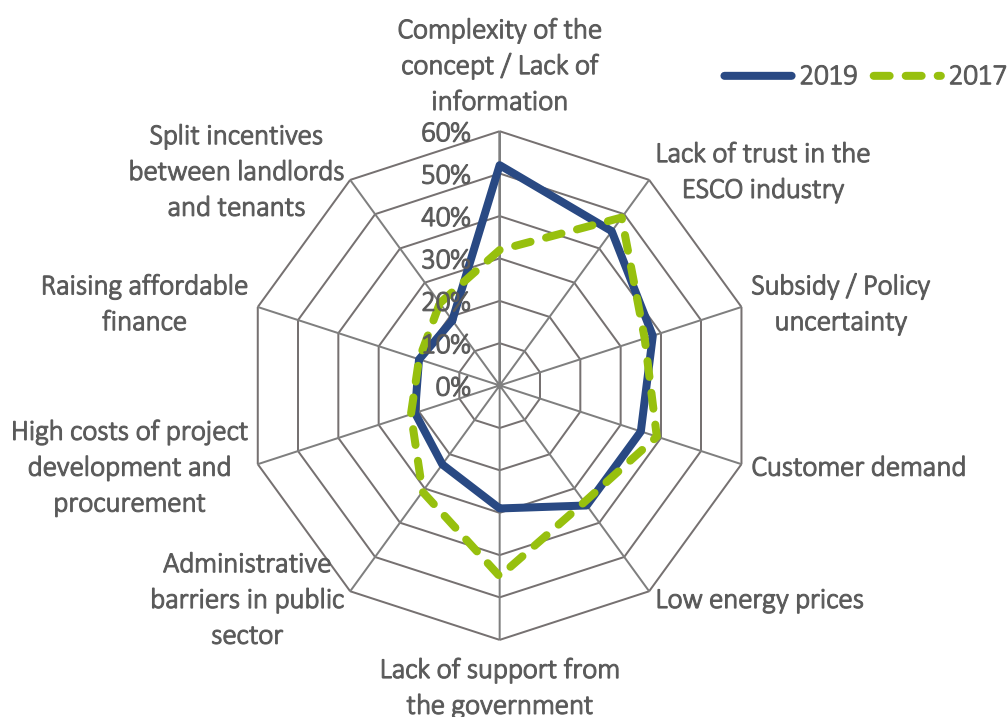


### 2.2.1 Barriers to the ESC business

ESC providers and facilitators identified **complexity of the concept/Lack of information** (52%) and **lack of trust into EES provider industry** (45%) as the **top two barriers to the ESC market**. In 2017 the lack of trust into EES provider industry played slightly more significant role (49%) then in 2019, but on the contrary the complexity of the concept/lack of information was reported as a significant barrier only by 32% of respondents.

In contrast to the picture on the EPC market, where the administrative barriers were reported by almost half of the respondents, on the ESC market these barriers were perceived as significant only by about 23% of respondents. In comparison to the case of EPC, the process of preparing and implementing ESC projects is usually less complex and does not include an energy saving guarantee, so these projects are struggling less with complex administrative and accounting rules in the public sector.

Figure 9: Barriers to the ESC market (Percentage share of responses by providers and facilitators Sept 2019 and Sept 2017)<sup>2</sup>

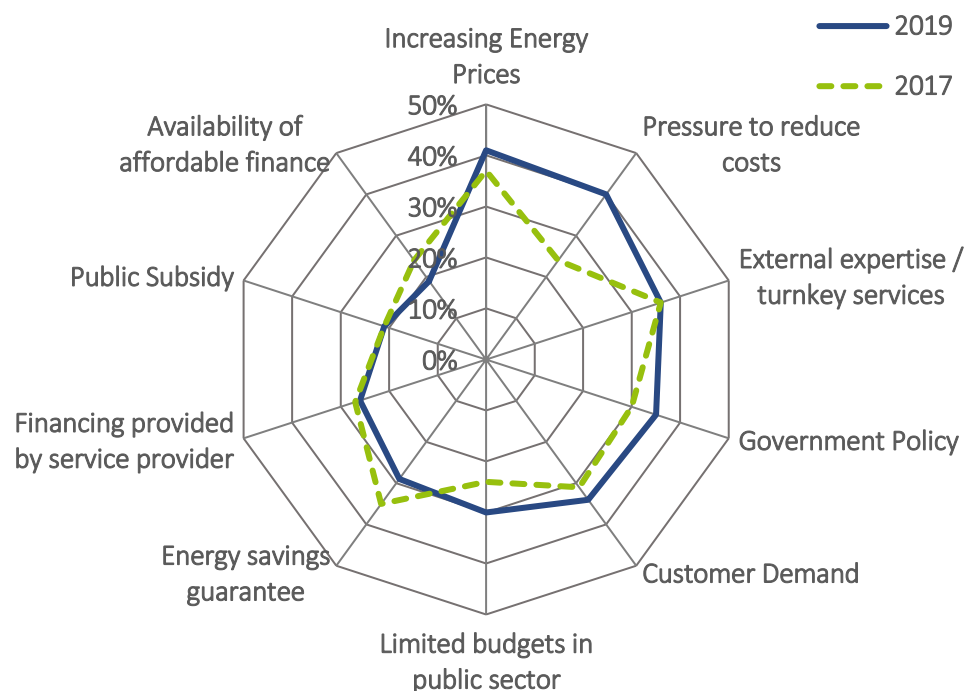


<sup>2</sup> Respondents may have selected multiple answers. The chart shows the proportion of respondents selecting each answer out of overall respondents to the question. Results therefore do not sum to 100%

### 2.2.2 Drivers of the ESC business

Similarly, to the EPC market, respondents agreed that **pressure to reduce costs and increasing energy prices** were the most significant drivers of ESC business.

Figure 10: ESC market drivers (Percentage share of responses by providers and facilitators Sept 2019 and Sept 2017)



### 2.2.3 ESC business models

ESC projects tend to have a lower value than EPC projects. The majority of providers and facilitators agreed the **most common overall value of the ESC projects** they are involved in is **below EUR 500,000**.

Almost all respondents had ESC clients from both the public and private sector, so **there is a higher share of ESC projects in the private sector than for EPC projects**.

## 2.3 Market quality

### 2.3.1 Quality determinants

While the 'preliminary analysis' for the EPC projects was highlighted in the survey as the key quality determinant, 'quality improvement' was reported to be needed also in all other areas of project preparation and implementation. The 'preliminary technical-economic analysis' (energy audit) was reported as major quality determinant by 79% of respondents, followed by 'achieving the expected level of savings' and 'measurement & verification of savings' identified by about 65% of respondents.

There was broad agreement amongst all surveyed groups (ESC providers and facilitators, clients and financial institutions) that the **areas of ESC projects which need the most attention** when it comes to the quality are the 'preliminary technical-economic analysis / energy audit' and the 'implementation of technical measures'.



### 2.3.2 Quality assurance to face the market barriers

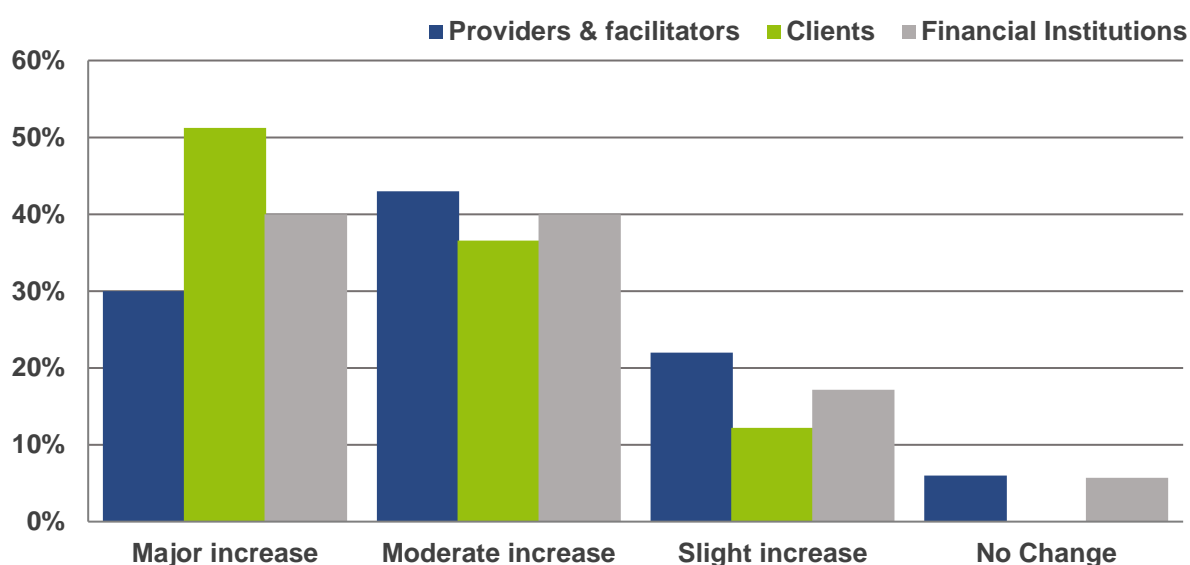
When looking at the EPC and ESC market development across 15 EU countries, there are some important similarities, which can lead to general recommendations on how to support the market growth and thus achieve higher savings of energy and greenhouse gas emissions. As ‘complexity of the concept / lack of information’ and ‘lack of trust in the ESS provider industry’ were identified by the respondents as top market barriers, **more information and higher quality of services would potentially increase the trust on the client side and thus also demand. In addition, EPC market would largely benefit from the removal of the administrative barriers.**

Majority of providers and facilitators in the online survey indicated a significant lack of trust in EPC/ESC service providers as 78% of them identified a lack of trust in at least about half of cases.

The QualitEE country reports prepared for 15 European countries **recommended to develop and implement quality assurance systems to overcome the apparent lack of trust in service providers and low customer demand.** Quality assurance for EES services and providers would offer a tool to the clients to distinguish good quality projects. Implementation of quality assurance systems for EPC were supported also by the Article 18 of the Energy Efficiency Directive (EED) that requires member states to encourage the development of quality labels and making publicly available a list of available energy service providers that are qualified and/or certified along with their qualifications and/or certifications.

Obtaining quality assurance is often expected to give providers a competitive advantage on the market. As can be seen from the graph below, overall, all groups of respondents (providers and facilitators, clients and representatives of financial institutions) agreed that the implementation of a quality assurance scheme would result in increase of trust in EPC/ESC services and providers. However, the surveys showed (Szomolanyi, Keegan; 2018) that the **expectations from quality assurance scheme differed** among the market actors. While the **providers and facilitators primarily expected an increase in customer trust**, **clients and financial institutions forecasted an increase in the quality of projects.**

Figure 11: To what extent would a quality assurance scheme increase client trust in EPC/ESC services and providers? (Percentage share of responses by providers and facilitators; clients and financial institutions Sept 2017)



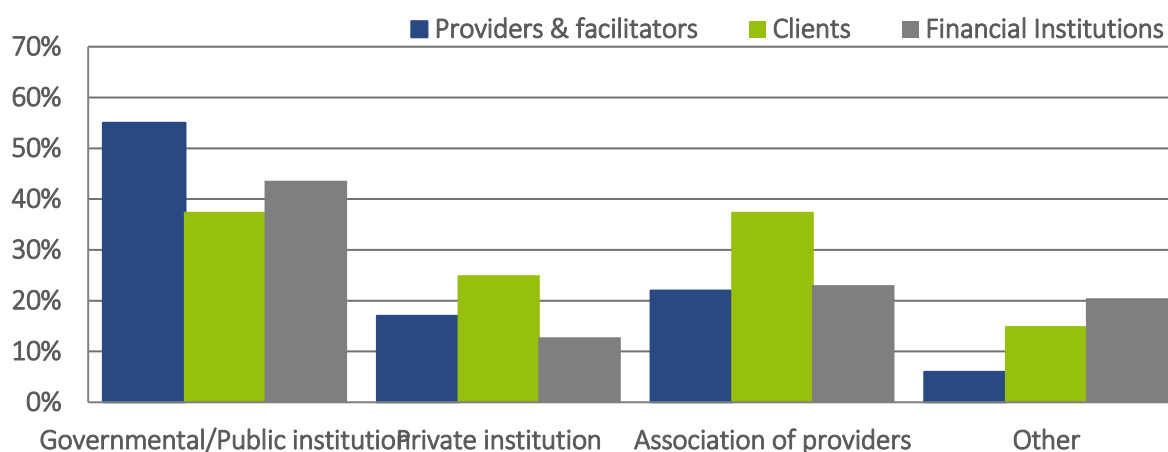
### 2.3.3 Desirable design of quality assurance system

The QualitEE survey also aimed to investigate what would be the attributes of a quality assurance system preferred by most of the market actors. While **providers and facilitators and financial institutions clearly identified governmental/public institutions as being the most respected bodies** to issue quality assurance certification for EES, **the preference of clients is split between governmental/public institutions and association of providers**. The majority of EPC providers and facilitators agreed that the **cost for quality assurance should be met by the client** and a **viable fee for quality assurance would be up to 1% of the value of a particular project**. A review of voluntary building certification schemes used in Europe by Triple E Consulting (2014) showed reliability, cost and international acceptance are key factors influencing choice of the scheme.

All surveyed market groups indicated a **strong preference to implementing projects that are subject to quality assurance**. However, while a clear majority of clients (88%) and financial institutions (89%) reported that they would always, or in a majority cases prefer implementing a project with quality assurance, such preference was displayed by lower number of providers and facilitators (65%). (Szomolanyiova, Keegan; 2018)

Quality criteria developed within quality assurance schemes can be used in the procurement process to select the best quality projects. Survey respondents supported the idea that **well-defined procurement specifications increase the quality level of services**. (Szomolanyiova, Keegan; 2018)




Figure 12: The most respected body to issue a quality assurance label or certification for EPC/ESC service (Percentage share of responses by providers and facilitators; clients and financial institutions<sup>3</sup> Sept 2017)



<sup>3</sup> Providers and facilitators in the survey operate in 15 EU countries; Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Italy, Latvia, the Netherlands, Portugal, Slovakia, Slovenia, Spain and the UK (All Countries). Financial institutions and clients were interviewed across all the above listed countries with exception of France and the Netherlands.

## 3 TOOLS FOR CLIENTS, ENERGY SERVICE PROVIDERS AND FINANCIAL INSTITUTIONS

The QualitEE project developed tools for clients and EES providers and financial institutions. The following three tools are described in this chapter (for additional tools see chapter 7, Publications from the QualitEE Project:):

-  Guidelines of European Technical Quality Criteria for Energy Efficiency Services
-  Financial Guidelines for Energy Efficiency Services
-  Procurement Handbook for Energy Efficiency Services

### 3.1 Guidelines of European Technical Quality Criteria

The main aim of the **Guidelines of European Technical Quality Criteria for Energy Efficiency Services** is to **establish a common understanding** between service providers, clients and financial institutions for the assessment of the quality and thus of risks of energy efficiency projects. They respond to the urgent market need for standardisation of energy efficiency services (EES) and define the most relevant quality aspects of energy efficiency projects in a very transparent way.

The guidelines **define and operationalise technical, economic, communicational, and other criteria**, which allow a **comprehensive evaluation of the quality** of energy efficiency services. The criteria set is partly based on “preliminary quality criteria for energy efficiency services” developed for the Austrian market within the Transparens project.

#### 3.1.1 Checklist for project quality

Each energy efficiency service project consists of more or less the same project phases. In each phase, specific framework conditions and key activities secure the success of the project. The technical guidelines shall **serve as a checklist of relevant aspects for the whole project life cycle** as shown in Figure 13.

Figure 13: Project phases of an energy efficiency service



#### *Project Identification until Procurement Procedure*

The most important phase for a successful project, is the preparation phase until the contract with the service provider is signed. During this phase, the guidelines **support all stakeholders (client, service provider, financial institution)** in handling the tasks from their position in order to achieve a high-quality project.

The guidelines are **publicly available, transparent and prepared by independent experts**. This ensures for all stakeholders that the quality criteria are based on scientific expertise and that no one-sided advantages arise from them. The guidelines provide all participants with a **common communication basis** on which the framework conditions for the respective project are established.

For the individual stakeholders, the guidelines have the following benefits in the project preparation phase in particular:

#### Client

- Possibility of incorporating the quality criteria into tender processes for the procurement of energy efficiency services
- Support in finding financing possibilities

#### Provider

- EES providers can integrate the quality criteria into their own product/service offer and in their service contracts which supports their marketing activities
- Support in providing financial information about projects to financial institutions
- Support in finding financing possibilities

#### Financial Institutions

- Receiving relevant information about energy efficiency projects
- Better understanding the value of energy efficiency projects

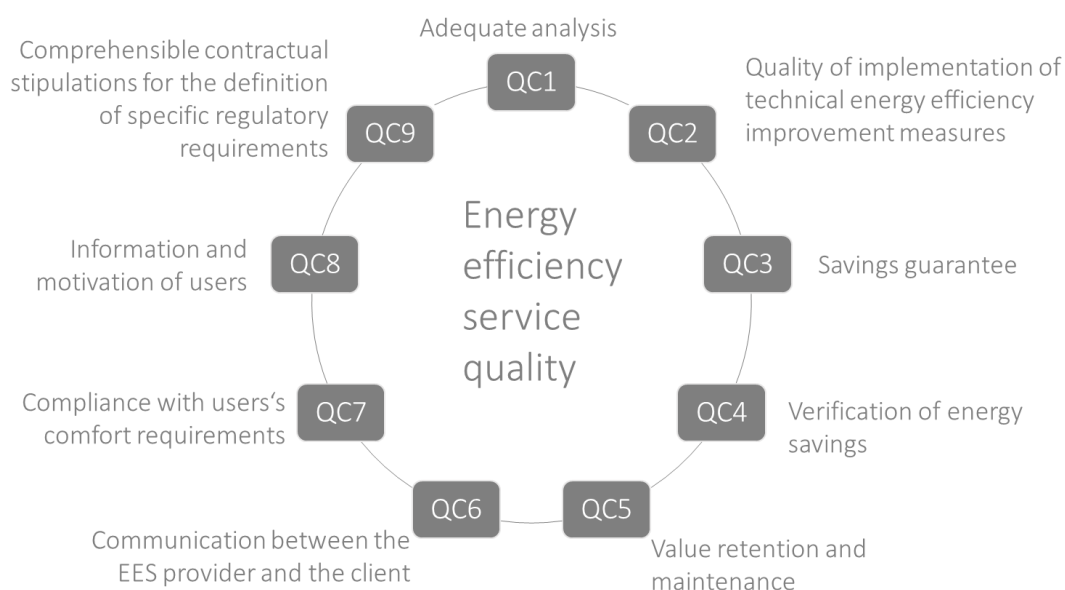
### *Phase after contract signature: Installation of measures and guaranteed operation*

During the contract period, clients can check the fulfilment of the agreed criteria, which are integrated into the contract. **Each criterion is easily measurable and evaluable.** The transparency provided by these criteria facilitates communication between the parties involved if discrepancies arise during the project.

### 3.1.2 Categories of Quality Criteria

The quality criteria (QC) are categorised into nine relevant topics, which secure the quality of energy efficiency services due to the whole service process from project identification to the contract expiration of the contract.

Figure 14: Categories of Quality Criteria



### QC1 Adequate analysis

A key element for a successful project is a **detailed analysis of the project potential**. If the analysis is too rough, the risks are very high that the measures are not selected and implemented in an optimized way for the project and the provider miscalculates his services.

**Table 1: Criteria of category QC1 Adequate analysis**

QC 1	Adequate analysis
AC 1-1	Agreement on the process of energy analysis pursuant to EN 16247-1
AC 1-2	Adequate data collection and analysis
AC 1-3	Adequacy of the derivation of recommended energy efficiency improvement (EEI) measures

### QC2 Quality of implementation of technical energy efficiency improvement measures

The trouble-free running of a project depends on the **quality of the implementation of the technology**. With the quality criteria “QC2 Quality of implementation of technical energy efficiency improvement measures”, this implementation is prepared, checked and accepted.

**Table 2: Criteria of category QC2 Quality of implementation of technical energy efficiency improvement measures**

QC 2	Quality of implementation of technical energy efficiency improvement measures
AC 2-1	Performance of services in accordance with applicable standards, statutes and official permits
AC 2-2	On-schedule delivery
AC 2-3	Commissioning of services and documentation of services rendered
AC 2-4	Induction of users or operating personnel
AC 2-5	Ensuring the functionality of newly installed facilities after the end of the Contract

### QC3 Savings guarantee

The savings guarantee is a core element of energy efficiency services. “QC3 Savings guarantee” delivers criteria for the **common definition of the saving guarantee** in the specific contracts.

**Table 3: Criteria of category QC3 Savings guarantee**

QC 3	Savings guarantee
AC 3-1	Dependency of remuneration on adherence with the savings guarantee
AC 3-2	Guaranteed savings achieved (only applicable to saving guarantee type 1)
AC 3-3	Adequate intervals for the verification of compliance with guarantee promise

### QC4 Verification of energy savings

A **clear definition of the remuneration model** in the contract is important for the satisfaction of the different parties involved (client, provider and financial institution). As the remuneration is often based on the achievements on the energy savings, it is therefore important to have a common agreement on how the savings are measured, calculated and verified.

**Table 4: Criteria of category QC4 Verification of energy savings**

QC 4	Verification of energy savings
AC 4-1	Application of a standardized method for the calculation of energy-savings
AC 4-2	Selection of the most appropriate approach to the verification of energy savings
AC 4-3	Clear definition of the baseline (reference consumption)
AC 4-4	Clear definition of the basis of adjustment of the energy savings calculation
AC 4-5	Transparency and agreement of M&V processes and related responsibilities

### QC5 Value retention and maintenance

During the contract period, failures on the system can occur. Depending on a **clear strategy on maintenance, troubleshooting and responsibilities**, the user satisfaction of the service can be guaranteed.

**Table 5: Criteria of category QC5 Value retention and maintenance**

QC 5	Value-retention and maintenance
AC 5-1	Compliance with the required system availability
AC 5-2	Rapid troubleshooting in case of malfunctions of technical systems
AC 5-3	Functionality of facility at the end of the Contract
AC 5-4	Clear definition of responsibilities of the service provider with respect to maintenance and repair

### QC6 Communication between the EES provider and the client

As in every project and relationship, the **communication is a core element for the success** of the project. Within an energy efficiency service, the criterion “QC6 Communication between the EES provider and the client” defines, which communication elements should be defined.

**Table 6: Criteria of category QC6 Communication between the EES provider and the client**

QC 6	Communication between the EES provider and the client
AC 6-1	Disclosure of contact persons
AC 6-2	Agreement on accessibility of data and data exchange (in both directions)
AC 6-3	Capturing and continual updating of all EEI measures taken by the EES provider
AC 6-4	Organisational measures for committing internal operating personnel

### *QC7 Compliance with user's comfort requirements*

Early energy efficiency projects were often criticized for reducing the comfort conditions for users in order to generate higher energy savings. To prevent this from happening on the one hand, and to enable providers to prove that the agreed comfort conditions are being met on the other hand, **it is important to agree the desired comfort conditions contractually.**

**Table 7: Criteria of category QC7 Compliance with user's comfort requirements**

QC 7	Compliance with users' comfort requirements
AC 7-1	Definition of users' requirements (including regular review)
AC 7-2	Regular verification of compliance with physical comfort parameters
AC 7-3	Assessment of users' satisfaction

### *QC8 Information and motivation of users*

The energy consumption also depends on the behaviour of the users. Therefore, it makes sense to **motivate the users to save energy.**

**Table 8: Criteria of category QC8 information and motivation of users**

QC 8	Information and motivation of users
AC 8-1	Development of a concept for the motivation of users
AC 8-2	Establishment of a suggestion scheme for clients to improve energy efficiency
AC 8-3	Provision of action-oriented information on the subject of energy efficiency

### *QC9 Comprehensible contractual stipulations for the definition of specific regulatory requirements*

Several contractual stipulations secure a trouble-free interaction between client and service provider during contract period, occurring troubles and contract end. In "QC9" **various important aspects to be clarified in the contract** are listed, so that they are not forgotten.

**Table 9: Criteria of category QC9 Comprehensible contractual stipulations for the definition of specific regulatory requirements**

QC 9	Comprehensible contractual stipulations for the definition of specific regulatory requirements
AC 9-1	Ownership transfer
AC 9-2	Handling of energy price risk
AC 9-3	Insurances
AC 9-4	Exit regulations
AC 9-5	Legal succession
AC 9-6	Unhindered access rights and right of access

AC 9-7	Permissibility of different types of financing (Cession, Leasing, Forfeiting)
AC 9-8	Regulation on intellectual property rights

### 3.1.3 Structure of Quality Criteria

All quality criteria are precisely described, measurable and verifiable. They are all structured in the same way as shown in table 10.

Table 10: Structure of Quality Criteria

Quality Criterion	Proof	Assessment	Comment
<p>Which specific aspect of the energy efficiency service is being assessed?</p> <p>What is the ideal requirement for this specific aspect?</p>	<p>What evidence should the assessor look for to assess the criterion.</p>	<p>How should the assessor decide whether the evidence collected demonstrates the criterion has been achieved?</p> <p>This could be pass/fail presence of the evidence or there may be a set of quality statements to assess against in a rating scale.</p>	<p>Supporting comments to assist the assessor in coming to their conclusion.</p>

## 3.2 Financial Guidelines

Generally, the financial guidelines intend to **facilitate the communication between financial institutions, energy service providers and clients of EES projects**. Financial quality criteria (FQC) shall help to select EES projects eligible for external financing.

In practical terms, it is expected that the main target group of the guidelines will be promoters and sponsors of EES projects – i.e. energy service providers and clients – since FIs have proven routines of project appraisal, which slightly differ from each other and which are not easily changed. **The FQC help the project sponsors to pre-assess the bankability of EES projects from the perspective of FIs**. Energy service providers are requested to provide the necessary information in a form that can be processed by FIs. Clients will directly benefit from the application of FQC as high quality of the EES project is not only relevant for the financing but also for the economic performance of the project.

Furthermore, practical experience shows that the **development of an attractive refinancing cycle through instruments such as cession or forfeiting has become an important driver for the development of EES markets** in several European countries. Therefore, we expect that the FQC are specifically relevant for the preparation of EES projects in a way that they **can be more easily refinanced through the sale of future receivables**. By refinancing the projects, the initial financiers – either the energy service provider or the client – can clear their balance sheets, thus gaining flexibility for financing of new projects. Furthermore, **refinancing of projects can be used as a vehicle to bundle a number of smaller projects to a larger package** in order to reach the thresholds and enable the involvement of larger investment funds.



### 3.2.1 Financing instruments

In general, for EES projects the same financing instruments are available as for any other investment (cf. Bleyl-Androschin/Schinnerl 2010), primarily as follows:

- ✔ **Credit financing:** Generally used, but limits of creditworthiness on the side of EES provider as well as on the side of EES client
  - Deterioration of balance-sheet-based credit ratios
  - Competition of investments
- ✔ **Leasing financing:** Applicable only for parts of the project
  - Leasable goods: Legal framework for transfer of ownership applies
  - EES are brain-driven: Hardware is sometimes only a smaller part of the total investment
- ✔ **Project financing:** Practically impossible, EES projects are too small and project bundling is difficult in practice
- ✔ **Cession:** Frequently used; in some countries important instrument to refinance and collateralise EES investments (e.g. CZ, A), but projects need to be prepared accordingly
- ✔ **Forfeiting:** Sometimes used, but projects need to be prepared accordingly

### 3.2.2 Expectations related to financing instruments

From the **client's perspective**, the following dimensions have to be considered for the selection of an appropriate financing instrument for energy efficiency projects:

- ✔ Cost of financing (interest rates, fees, extend of financing, subsidies, ...)
- ✔ Legal aspects (conditions of contract, flexibility, property aspects, ownership, ...)
- ✔ Collateral/Securities (cash flows, equity, assets, land register, personal liability, ...)
- ✔ Taxation
- ✔ Balance sheet & accounting aspects
- ✔ Management expenditures/Transaction cost

There is no general rule for the selection of financing instruments for different types of energy efficiency service projects; in fact the degree of freedom in “selecting” a financing instrument will be limited by the situation of the EES provider, the client (e.g. limitations in creditworthiness) and/or the project type (e.g. small project volume).

From the **perspective of financial institutions** these elements are of utmost relevance in order to assess the value and risk of energy efficiency projects:

- ✔ Is the cash flow generated through energy savings sufficient and predictable enough to cover the required repayment – in other words, how big is the performance risk?
- ✔ What are the risks associated with potential failure or bankruptcy of the EES provider?
- ✔ What are the risks associated with potential failure or bankruptcy of the client where the EES project is implemented? For example, risks associated with private clients (tertiary sector, industry) may be very different from those with public clients (state, municipality).

- ✔ To which degree can the technical equipment (assets) be used for (additional) collateralization?
- ✔ In addition, for some types of EES projects non-energy benefits (e.g. increased asset value, increased productivity, increased health and well-being) might be created and could be taken into consideration as well when assessing the bankability of EES projects (IEA 2014, Energy Efficiency Financial Institutions Group 2017, Bleyl et al. 2017).

### 3.2.3 Financial Quality Criteria

Depending on the expectations of the FIs, the FQC are structured in five categories:

- ✔ FQC 1: Quality of cash flow prediction
- ✔ FQC 2: Incentive structure for cash flow generation
- ✔ FQC 3: Exploitation of cash flows
- ✔ FQC 4: Value and exploitation of assets (technical equipment)
- ✔ FQC 5: Non-energy benefits of EES projects

#### *FQC 1: Quality of cash flow prediction*

The main source for repayment of any financing of EES projects is the cash flow generated by agreed and (many times) guaranteed savings. Therefore, it is of utmost relevance for financing institutions to have confidence that cash-flows from the EES project will be generated at a sufficient level regardless of changing framework conditions.

What sometimes is difficult to understand is the fact that savings cannot be measured directly and that an increase in energy efficiency does not necessarily lead to energy savings in absolute terms. **Energy savings in the context of EES projects are usually defined as the reduction of energy consumption compared to an agreed baseline of energy consumption.** This baseline defines the amount of energy used in case no EES project would have been implemented. The definition of the baseline is crucial for the prediction of energy savings - and of cash flows. It also includes adjustment factors that have to be considered in case of changing framework conditions like ambient temperature, production level, occupancy etc.

Finally, a **measurement and verification (M&V) concept** should be available as the methodological basis for the calculation of energy savings after the implementation of the project.

**Table 11: Assessment criteria and verification process for FQC 1 Cash Flow Prediction**

AC	Cash Flow Prediction
1-1	Measurement and Verification (M&V) Plan
1-2	Clear definition of the baseline used for the calculation of energy savings and M&V
1-3	Scenarios for worst, real and best case for cash flows
1-4	Application of best available technology

### ***FQC 2: Incentive structure for cash flow generation***

A bankable EES project has to be structured in a way that the **EES provider as well as the EES client have strong incentives to achieve the promised energy savings** and thus to generate the project cash flows required for repayment.

At the side of the EES provider this is mainly connected with an incentivising contractual stipulation regarding the savings guarantee. But in many cases, also the client has to contribute to the success of the project by fulfilling his obligations to cooperate. Altogether, a well-balanced risk sharing between the EES provider and the client is critical for cash flow generation. In general, each party should carry those risks that they can handle best.

**Table 12: Assessment criteria and verification process for FQC 2 Incentive Structure for Cash Flow Generation**

AC	Incentive Structure for Cash Flow Generation
2-1	Overall risk sharing approach
2-2	Dependency of remuneration of EES provider on adherence with the savings guarantee
2-3	Incentivising stipulations at the client's side
2-4	Safeguarding of cash flows in case of equipment failure

### ***FQC 3: Exploitation of cash flows***

Even if an EES is implemented successfully and generates envisaged cash flows, loan repayment may be endangered if the project needs to be restructured because one of the contractual parties (EES provider or EES client) passes through economic difficulties and eventually goes bankrupt. Furthermore, restructuring of an EES contract may also be necessary in cases, where the client sells the facilities in which an EES project has been implemented, or in cases of legal succession.

**Table 13: Assessment criteria and verification process for FQC 3 Exploitation of Cash Flows**

AC	Exploitation of Cash Flows
3-1	Preventive approach regarding exit-strategies
3-2	Replacement of EES provider
3-3	Right of the EES provider to refinance through cession
3-4	Limiting stipulation regarding termination of contract by EES client
3-5	Cash flow exploitation in case of sale of facility

### ***FQC 4: Value and exploitation of assets (technical equipment)***

In EES projects, newly installed technical equipment can be used as collateral. However, in the case of bankruptcy of the borrower or other causes that result in the termination of operation of the project, **exploitation of assets depends on the following conditions:**

- ✔ **Technical exploitation:** assets can be technically removed
- ✔ **Economic exploitation:** assets can be sold for a reasonable price (either to removing them or to use them by new clients in unchanged premises)
- ✔ **Legal exploitation:** ownership of remaining assets (e.g. in many countries for assets that are permanently connected to a building ownership automatically passes over to the building owner)

Table 14: Assessment criteria and verification process for FQC 4 Value and Exploitation of Assets

AC	Value and Exploitation of Assets (Technical Equipment)
4-1	Value of technical equipment for removable parts is defined in the project documentation.
4-2	Technical equipment (or at least major parts) can be used for different processes and branches of the client.
4-3	Contract defines ownership of technical equipment for the case of changed legal structures of the client or the EES provider

### *FQC 5: Non-energy benefits of EES projects*

EES projects do not only increase energy efficiency with reduced energy costs (compared to the baseline), **in most cases these projects have additional (non-energy) benefits that represent a value to the EES client or other stakeholders** and therefore may be considered for the financial assessment as well (cf. IEA 2014; Bleyl et al. 2017). The most important non-energy benefits from a client's perspective are:

- ✔ Increased work productivity
- ✔ Reduced outages of production
- ✔ CO<sub>2</sub>-savings
- ✔ Efficient water supply and savings of water resources
- ✔ Rental premium
- ✔ Sales premium
- ✔ Reduced dependency on energy tariffs
- ✔ Sustainability image
- ✔ Societal benefits

Table 15: Assessment criteria and verification process for FQC 5 Multiple Benefits of EE Project

AC	Multiple Benefits of EE Project
5-1	List of non-energy benefits is available and classified
5-2	Quantification and monetarisation of non-energy benefits

### 3.3 Procurement handbook for clients

The procurement handbook for energy efficiency services (EES) provides guidance to encourage the application of quality criteria within the procurement phase of a project and thus increases the quality of the projects. QualitEE's market survey respondents supported the idea that well-defined procurement specifications increase the quality level of services.

The handbook aims to improve the knowledge of stakeholders both on the demand side of EES, including public and private clients and facilitators, as well as the energy services providers on the supply side of EES. It provides both general background information and detailed advice on the application of quality criteria in Energy Performance Contracting (EPC) and Energy Supply Contracting (ESC) procurement. It describes how the technical quality criteria listed in Guidelines of European Technical Quality Criteria (Leutgöb et al. 2019) for EES can be used as technical specifications or award criteria and how they can be evaluated.

The handbook offers an interesting overview on approaches to the procurement of energy efficiency services (EES) in several EU member states, as well as covering the relevant legislation and recommended procurement procedures, evaluation criteria and methodology.

First, the handbook introduces the reader into the EU public procurement legislative framework applicable for the procurement of energy services and selection of the procurement procedure. The handbook also specifies the role of project facilitators and list the benefits resulting from their involvement. The following section explains how the most economically advantageous tender (MEAT) can be selected through different approaches, not only based on price comparison. It also describes how three types of criteria are to be used to choose the successful tender. The following two sections show in detail how evaluation of tenders in competitive procedure with negotiation can be conducted with the application of the technical quality criteria in the different phases of the EPC and ESC procurement. An overview of the procurement procedures of the EES services in seven EU countries is provided, illustrating various approaches currently applied. Moreover, the last chapters offer detailed descriptions of procedures applied for EPC in the Czech Republic and ESC in Bulgaria.

#### 3.3.1 Procurement procedures allowing for negotiation

For public organisations, an EES provider is selected in accordance with the procurement requirements of national legislation, which should be consistent with EU public procurement directives. The basic legislative framework for the procurement of energy services is set by Directive 2014/24/EU on public procurement and Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors. Therefore, when preparing a specific project, it is necessary to pay attention to the valid national public procurement rules.

In general, according to the Directive 2014/24/EU on public procurement, member states shall ensure that contracting entities can apply open or restricted procedures, competitive procedures with negotiation (CPN), competitive dialogues (CD), or innovation partnerships.

Based on experience acquired in several developed markets, it is recommended that EPC and ESC procurement is implemented using a procedure where a negotiation or a dialogue between contracting authority and tenderers is allowed. This is allowed in two procedures defined under Directive 2014/25/EU; a competitive procedure with negotiation (CPN) and a competitive dialogue (CD). EPC and ESC projects are typically characterised by the fact that various technical solutions can be proposed to meet the stipulated requirements (as permitted in a CPN), or even different approaches to the whole

project, which the contracting authority may not have defined at the time of the procurement (as permitted in a CD).

When preparing complex energy efficiency service projects, in particular EPC projects, CPN has proven to be effective. A CPN permits the required degree of flexibility, while at the same time being less organisationally demanding than a CD. While a CD may be applied to EPC and ESC projects, it often demands higher levels of administration and higher management costs for both the client and the supplier when compared to a CPN.

### 3.3.2 Involvement of project facilitators

**It is highly recommended for clients to use the services of a project facilitator** when implementing an EPC or ESC project as most of the issues must be dealt with by someone with comprehensive technical, economic, financial, legal expertise. In case of EPC, around two thirds of procurement matters require technical energy expertise. Public organisations usually lack the capacity to be trained in these matters (especially for EPC) and it is not generally efficient to train personnel if the organisation implements only one project every 15 - 20 years, which is a typical frequency.

### 3.3.3 Use of criteria in EPC and ESC procurement

Following the selection of candidates, which comply with the exclusion grounds and the selection criteria, contracting authorities must choose the best tender on the basis of the technical specifications and award criteria. While the **technical specifications are assessed on a pass/fail basis, award criteria are weighted and scored** so that tenders offering higher quality services can be given more marks.

Currently in EU member states, **all contracts must be awarded** by the contracting authorities **to the most economically advantageous tender (MEAT)**. The application of this criterion can be done through three different approaches, all of which involve an economic element: **price only; cost only** (using a cost-effectiveness approach, such as life-cycle costing) **or best price-quality ratio**.

### 3.3.4 Best price quality ratio

For both EPC and ESC projects, **it is recommended** that the evaluation method should use the **best price-quality ratio approach**. The **MEAT criteria should be based on cost** and can also include other aspects within a 'best price quality ratio' (quality of tender, organisation, qualification and experience of staff, delivery conditions).

When using the best price-quality ratio, the award criteria will generally be scored using a system that assigns weightings to the different criteria. Detailed award criteria and their weighting should be indicated in the procurement documents through a clear evaluation methodology.

### 3.3.5 Evaluation in EPC procurement

For EPC projects, many of the **technical specifications should be stipulated as minimum requirements** to ensure the procuring authority receives a high-quality service. Such specifications can be formulated using the European technical quality criteria.

There are various ways to evaluate award criteria and the method selected may result in a different tenderer being successful. These methods are described and compared in the handbook:

### *Evaluation methodology with individual weighting of investments and guaranteed savings*

If the EPC contract stipulates that the customer must pay a purchase price for the equipment required to fulfil the contract (including design and installation, sometimes also including energy management services and M&V cost), a typical approach would be to calculate the net present value (NPV) of price and guaranteed savings over the whole contract period and to select the least cost offer. Experience from the Czech Republic shows, however, that this approach may put those tenderers who propose measures that offer higher energy savings but also higher investments at a disadvantage, whereas tenders that do not upgrade some of the installed technology (e.g. the obsolete boiler) and only focus on investments with lower costs (“cherry-picking”) achieve better results in the NPV evaluation.

To combat this issue an alternative method was developed where an NPV was calculated for a period longer than the contract length. However, this had the unintended consequence that tenderers would promise much higher savings after the end of the contract. As the savings beyond the end of the contract are not guaranteed, the tenderer carries no risk for over-promising them.

As a result, another method is now applied in the Czech Republic, where both investments and savings are given individual weightings and the weighting for the savings is always higher. At the same time, there is a requirement for the investment to pay back within the contract term. The contract length is specified in the tender dossier.

**Table 16 Weighting of award criteria for EPC – individual weighting of investments and guaranteed savings (example from the Czech Republic)**

Award criterion	Weighting range Minimum – Maximum
Price	30% - 45%
Level of contracted guaranteed savings	40% - 55%
Quality of the tender	10% - 25%
- where the major component of quality is the assessment of attainability of guaranteed savings	8% - 20%

### *Evaluation methodology limiting economic assessment to the level guaranteed energy savings offered*

In Austria or Germany an approach is frequently used where the remuneration of the EES provider is exclusively linked to the savings achieved, i.e. the investments implemented by the provider are not paid directly, but indirectly through a savings-related payment. In this case, the economic evaluation of tenders only needs to take into account the level of guaranteed savings. The higher the guaranteed savings, the higher the economic benefit in monetary terms for the client. Therefore, the level of guaranteed savings becomes the guiding criteria with the majority weighting in the tender scoring which is usually complemented by a list of “qualitative” criteria, such as: technical quality of proposed investment measures, quality of products proposed for installation, quality of user comfort measures proposed by the tenderer, quality of maintenance concept etc. The list of qualitative measures can be adapted to the specific requirements of the client, whereas total weighting of these criteria is always considerably lower than the weighting given to the level of guaranteed savings (see the table below).

Table 17 Weighting of award criteria for EPC – economic assessment limited to the level of guaranteed energy savings offered (example from Austria)

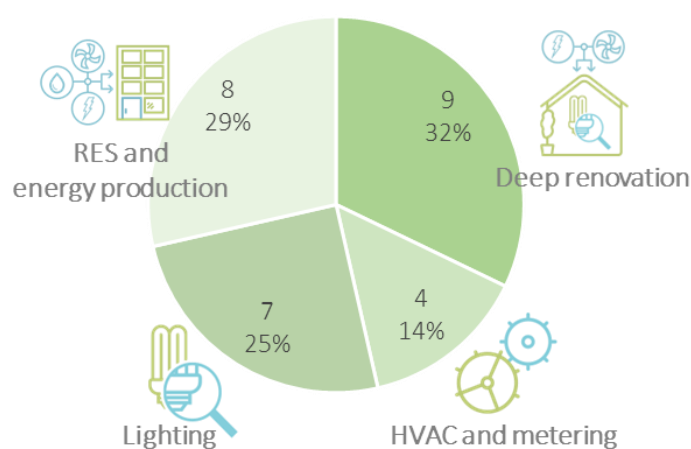
Award criterion	Weighting range
	Minimum – Maximum
Level of contracted guaranteed savings	60% - 90%
Set of qualitative criteria (e.g. technical quality of investment measures, product quality, user comfort measures, maintenance concept)	10% - 40%

## 3.4 Feedback from stakeholders and pilot projects

### 3.4.1 Application in pilot projects

In 11 European countries 28 pilot projects were carried out in the private, public and industry sector. The pilot projects included both energy efficiency measures in buildings and the installation of renewable energy sources. Figure 15 shows the categories of EE measures implemented during the QualitEE project.

Figure 15: Categories of energy efficiency measures (Ekodoma)



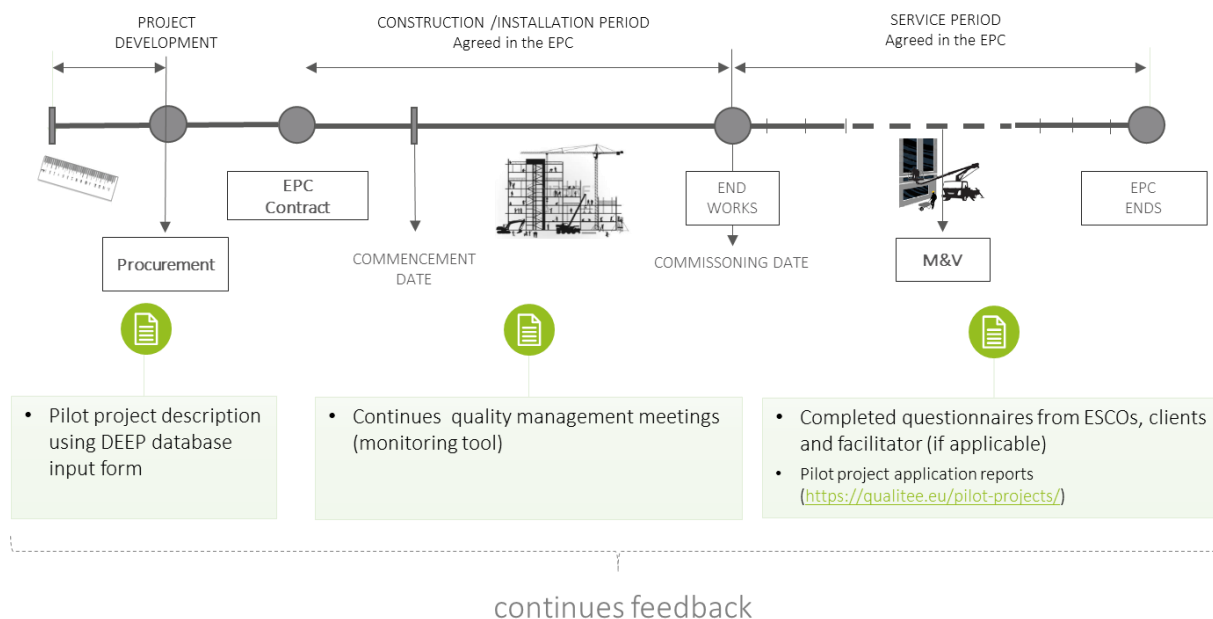
The observed pilot projects were in different stages of progress. 19 out of 28 pilot projects were in operation before the monitoring and validation phase. Three pilot projects were procuring an energy service provider, one pilot project was in the contract agreement phase and five pilot projects were implementing energy efficiency measures.

Estimated investments in energy efficiency measures were **33 million EUR**, which approximately led to **50 GWh annual primary energy savings** and **10 000 annual tonnes of CO<sub>2</sub> savings**.

During the project activities, technical quality criteria were incorporated into tenders and service contracts and feedback from clients, energy service providers and facilitators in qualitative and quantitative manner. Along with the testing of the QC, energy service providers and clients were supported in developing their projects giving continuous feedback (see Figure 16).



Figure 16: Continuous feedback



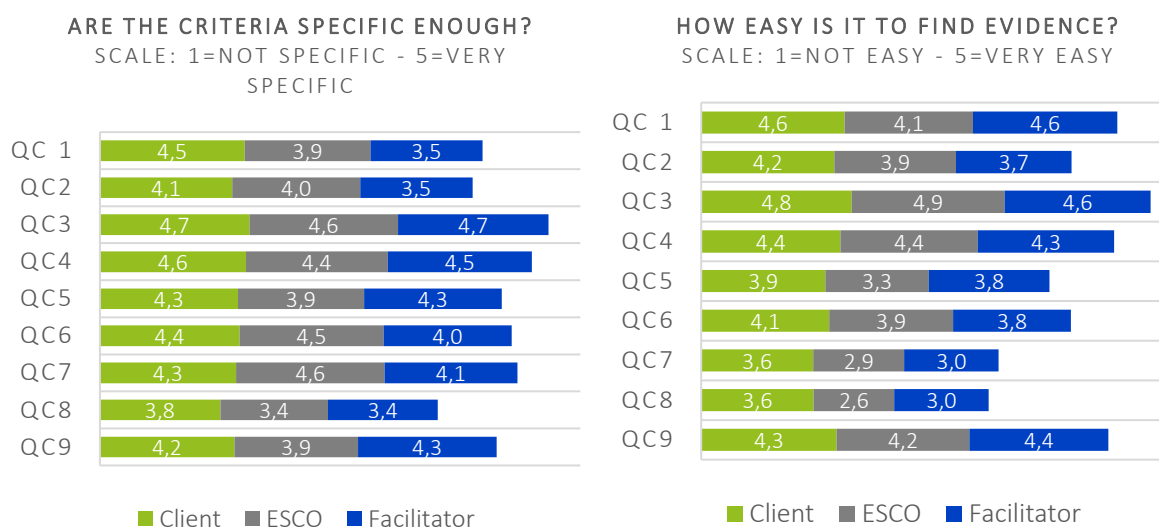
All nine quality criteria impact categories have been analysed. Feedback was provided by 12 energy service providers, 15 facilitators and 12 clients. The main questions studied were on the importance of each QC, about the possibilities to assess and provide evidence (specific requirements in contracts and/or requirements in procurement documents), the time and resources needed to evaluate the QC, how many criteria were used and whether some should be removed or added.

The first question asked, was to evaluate how important the particular criterion is. Respondents evaluated which three criteria were the most important and ranked them. **The three criteria considered by the respondents to be most important were:**

1. QC3 Savings guarantee
2. QC4 Savings verification
3. QC2 Implementation

Participants were also asked to evaluate each QC by rating them according to **how specific they were described**. The criterion rated most specific was QC3 Savings guarantee (4.7) followed by QC4 Savings verification (4.5). QC3 Savings guarantee was rated as the most specific one of the criteria by all the parties - clients, energy service providers and facilitators. See Figure 17.

Figure 17: Feedback evaluation



Feedback was also collected with the aim to evaluate the **ease of the availability of evidence** – documents, references in the contract, measured data etc. – to assess a specific criterion. QC3 Savings guarantee (4.7) was listed as the easiest criterion to find evidence for, followed by QC1 Adequate analysis (4.3), QC4 Savings verification (4.2) and QC9 Contract (4.2). The lowest rated criteria were QC8 Motivation of users and QC7 Comfort (2.9). See Figure 17.

All the quality criteria have been applied in the pilot projects. Barriers and success factors for the application of criteria differed between countries and projects. One of the key barriers mentioned by several respondents was the large number of criteria to evaluate. **EES are usually a new topic for clients** and the personnel has not the motivation to spend excessive time on studying the concept and criteria. The complexity of the criteria and the time required to evaluate their conformity is also a considerable barrier.

The success factor was that the criteria helped the participants who were not so experienced in carrying out such projects. **The criteria can be used as a tool to explain the process, help understand what is important for a successful project, what problems to expect and how to ensure from them.**

The quality criteria are extremely useful as a checklist. In particular, they are very good during contract negotiations to show the client that certain issues are being dealt with in the project - even if not always contractually fixed. In this phase of project acquisition, the criteria catalogue is also useful in order not to forget important topics.

### *Pilot project examples*

The pilot projects differed both in terms of the amount of investment made and the energy efficiency measures / technologies used. Table 18 summarizes the information on the technologies and solutions used.

Table 18: Energy efficacy measures applied

Type of energy efficacy measures applied	Number of projects
Deep renovations of buildings, with the goal to achieve significant energy saving results, and include such measures as: insulation of external walls and roof, replacement of windows and doors, reconstruction of the heating system, installation of ventilation system, modernisation of lightning system, water saving and other measures	8 projects
Few specific energy efficiency measures, as for example: Installation of more efficient equipment, energy efficiency measures for district heat supply system, optimization of building control and other measures	8 projects
Lighting renovation	7 projects
Installation of renewable energy sources (RES), including PV systems and ground heat pumps	3 projects
Combination of different of the energy efficiency measures RES	1 project
A project that combines deep renovation of a building and installation of RES.	1 project

### Pilot project in the Czech Republic - Czech Technical University in Prague

The Czech Technical University is the oldest technical university in the Czech Republic and is based in the capital city Prague. The dormitories and cafeterias belonging to this university are in ten different locations in the city. A total of 35 buildings spread over nine locations were selected for the EPC project.

The EPC contract with the Czech Technical University in Prague was signed in August 2019, while the installation of some energy-saving measures began in December 2019 (especially lighting and windows replacement). At the end of QualitEE (June 2020) the design for some buildings was being finalized. All measures should have been installed until December 2020 and measurement should start in January 2021.

Energy savings were to be achieved by building modifications, repair or replacement of windows, roof insulation, and other technical measures.

#### Energy Consumption Data

Energy Consumption BEFORE intervention (actual) [kWh/a]	Energy Consumption AFTER intervention (actual) [kWh/a]	Value of planned EE investment [EUR]
55 328 286	41 006 439	8 600 000



#### Overview:

Retrofit of 131 000 m<sup>2</sup> in 9 dormitory building complexes of the Czech Technical University in Prague

#### GHG savings:

4 223 tCO<sub>2</sub>/year

#### Primary energy savings:

14 321 847 kWh/year

### *Business case description / economic parameters*

- ✔ Contract duration: 11 years
- ✔ Business model: EPC
- ✔ Expected investment: 8.6 mil., EUR. If a subsidy from the State Environmental Fund will be received it will cover up to 30% of eligible costs.

### *Stakeholders / companies involved*

- ✔ Client: The Service Facilities Administration of the Czech Technical University in Prague
- ✔ Energy service provider: ENESA Ltd.
- ✔ Facilitator: SEVEEn – The Energy Efficiency Center, z.u.

## Pilot project in the UK - South Cambridgeshire Hall

South Cambridgeshire District Council has declared a climate emergency and is therefore looking to play a leading role in the transition to net zero carbon by 2050. The ambition of this project is to go as far as possible to reducing the Council's flagship building's carbon footprint to zero within reasonable economic limits. Key items in the project such as the solar PV carports provides material amounts of renewable generation whilst the ground source heat pump makes a considerable impact in transitioning away from natural gas heating, which is critical to the decarbonisation of heat. Municipal administration building with aim to use renewable electricity from PV, renewable heat from ground source heat pump, efficiency measures and EV charging.



### *Energy Consumption Data*

Energy Consumption BEFORE intervention (actual) [kWh/a]	Energy Consumption AFTER intervention (expected) [kWh/a]	Value of planned EE investment [EUR]
1 457 527	630 196	2 088 951

### *Business case description/economic parameters*

- ✔ 16-year Energy Performance Contract (correct at time of business case approval).
- ✔ EUR 2 088 951 (£1.9m) CAPEX

### *Stakeholders/companies involved*

- ✔ Client - South Cambridgeshire District Council
- ✔ Energy service provider – Bouygues Energies & Services
- ✔ Facilitator – RE:FIT / Local Partnerships

#### **Overview:**

PV car ports, EV charging, ground source heat pump & various efficiency measures for municipal offices in Cambridgeshire.

#### **Annual carbon savings:**

171 tCO<sub>2</sub> emissions per year

#### **Annual energy savings:**

827 331 kWh/year (57% energy savings)

#### **Renewable generation:**

498 600 kWh (Heat)  
111 204 kWh (Electricity)

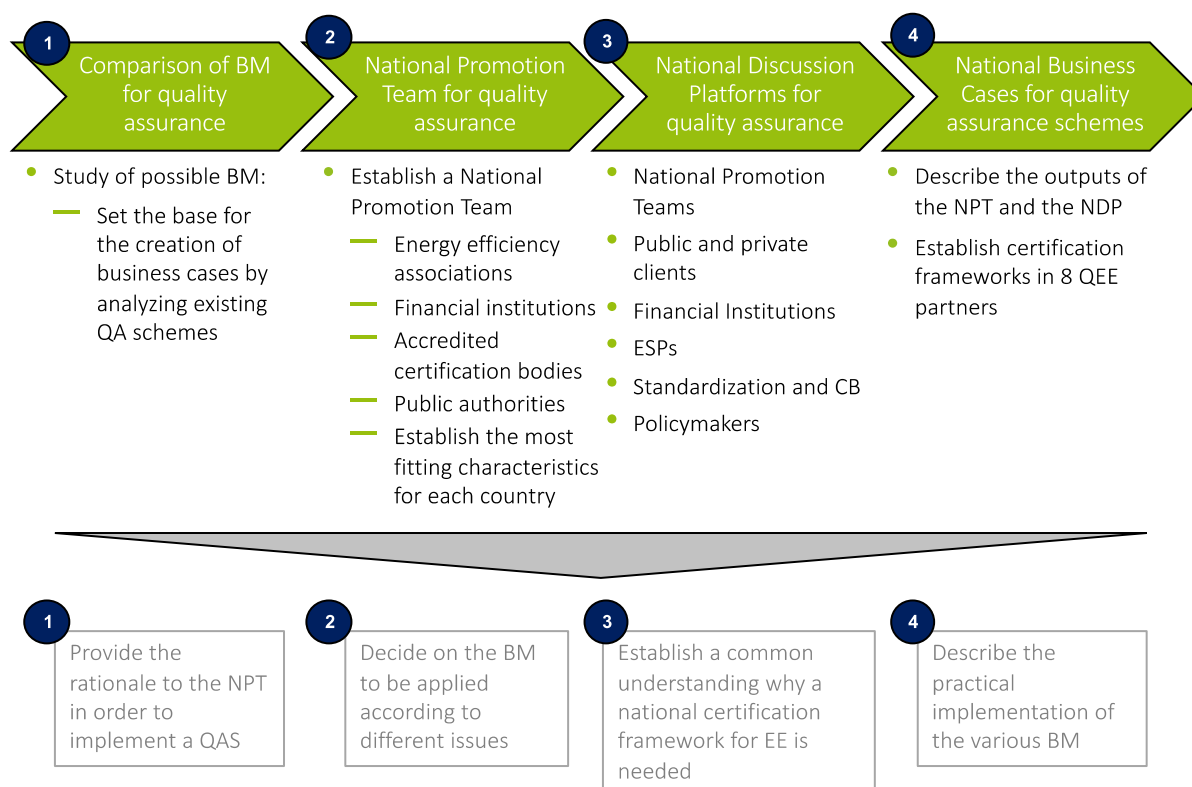
#### **Annual primary energy savings:**

1 126 292kWh/year

## 4 NATIONAL QUALITY ASSURANCE SCHEMES

### 4.1 Implementation process






The rationale for the implementation of National Quality Assurance Schemes (QAS) across QualitEE partner countries is depicted in the table below. Through the process executed in different nations, existing business models were analysed, stakeholders were involved through the creation of National Promotion Teams (NPTs) and National Discussion Platforms (NDPs) and the practical implementation was decided on in all countries.



#### 4.1.1 Austria

In order to raise awareness of quality among service providers and customers and thus increase confidence in EES, the DECA quality label was launched in Austria in 2017. The DECA quality label is one of the first quality labels for energy efficiency services on the market and it is used in the QualitEE project as an example for the development of further labels in Europe.

The development of the quality criteria took place in a working group, which was part of the Horizon 2020 project Transparens - the predecessor of QualitEE. A questionnaire was given to the members of the group with the following questions:

-  Which Energy Efficiency Services do we know?
-  Of which elements / activities do they consist?
-  Which appropriate quality criteria can be found for the elements of the value chain?
-  With which assessment criteria can these quality criteria be verified?
-  Which test criteria do you need to prove that the evaluation criteria are met?

### 4.1.2 Belgium

Given the fact that the Belgian energy efficiency market is relatively small, and also taking into account that Belgium is a federal country where part of the energy and climate policy domains have been transferred to the regions (Wallonia, Brussels, Flanders), it was deemed relevant to investigate the possibilities of one certification scheme covering the entire Belgian market. Therefore, during the research, it was strived to have national stakeholders on board.

To do so, information was obtained from 3 sources:

- ✔ A survey which was conducted by Factor4 in 2018 in the Belgian energy service provider arena with support from BELESCO1 the Belgian energy service provider association;
- ✔ Meetings with the National Promotion Team, hosted by Factor4 in the course of the QualitEE project;
- ✔ Dialogue with the Belgian Construction Certification Association (BCCA). BCCA is a private agency that was founded in 1992 by SECO (Technical Control Bureau for Construction) and BBRI (Belgian Building Research Institute) as a certification body for the construction sector. BCCA was established to implement quality in the construction sector.

### 4.1.3 Bulgaria

The national market needs and opportunities to establish a Quality Assurance Scheme were studied within different QualitEE activities – an EES market survey, National Promotion Team meetings, National Discussion Platform meetings, bilateral discussions with experts, feedback from training courses, etc. Some of the key conclusions were as follows:

- ✔ Improvement of EES quality is crucial for the market development, as the lack of client trust is the main barrier.
- ✔ Both EES providers and clients expressed interest in both the Quality Criteria and the Quality Assurance Scheme. Private financial institutions were generally not interested, as they have to follow their own project assessment procedures, while public financial institutions expressed moderate interest.
- ✔ In the beginning an EES Quality Assurance Scheme needs to be very simple, not very demanding, and a no-cost one (or low-cost one, as a last resort). In that way, it would easily become popular and considered by all market actors. Later, in parallel with the market development and the increasing need of some EES providers to differentiate their services from the competition, the QAS could become more demanding, more complex, and more expensive.
- ✔ An introduction of mandatory requirements for EES providers and development of a list of eligible EES providers is not feasible at this stage of market development, because it may limit the supply of EES.
- ✔ The government cannot take a formal role in the administration of QAS, but would support all good initiatives through promotion and other relevant activities.
- ✔ The Alliance for Energy Efficiency – the national association of the EES providers – is very motivated to support the development, promotion, and administration of QAS initiatives.

#### 4.1.4 Czech Republic

The process followed in the Czech Republic was developed after conducting discussions with the relevant stakeholders during the National Promotion Team meetings and National Discussion Platform workshops, trainings and other meetings related to the EES (mostly EPC) market. In the last stage of design development, it was fine tuned in co-operation with the Ministry of Industry and Trade (MIT) to fit the institutional framework in the Czech Republic.

The presented system sets specific methodological procedures and quality parameters for the preparation and implementation of EPC projects while defining the minimum requirements imposed on EPC providers. The system is set up so that the certification of EPC providers is preceded by the certification of individual EPC projects, which is a prerequisite for the certification of EPC providers.

Though it was planned to get the certification schemes on the agenda of the council of the MIT early in 2020, the council has been overwhelmed by other urgent issues. Since the declaration of the state of emergency on March 13th, 2020, the situation worsened considerably as now the priority of the MIT is to deal with the adverse impacts of the emergency state on the economy.

#### 4.1.5 Germany

Germany has a well-developed EES market. One of the reasons is the fact that various government institutions have dealt with the topic intensively since the early 90ies. Different service providers have been emerged which provide EPC and ESC models. A large proportion of EPC and ESC is offered by energy service providers or municipal utilities. Nevertheless, standardized quality assurance schemes on a national level do not exist in general for the German market. The establishing of an institutionalised quality certificate is associated with high costs which are not expected to be regained by the added value of the certificate itself. Survey results and several meetings with energy service providers and other relevant stakeholders have shown, that there is not much demand for a national certification framework of EPC or ESC products.

Therefore, the idea is to implement a quality assurance scheme based on a label which can be awarded after a voluntary inspection of the respective EPC and ESC service of a service provider. This label should increase transparency of contracts. It is expected that this transparency will lead to an increase of trust and quality level of the contracts, which will subsequently lead to an increase of the value and competitive ability of the EPC product in the market.

#### 4.1.6 Greece

2020 is the first year in which it seems that Greece has realistic aspirations for continuous economic growth in the next few years. A very important factor is the complete removal of capital controls in September 2019. Compared to 2017 and 2018 the energy services market outlook seems to be improving as access to financing from both the public sector (i.e. low interest loans to municipal authorities and public authorities, subsidies etc.) and the private sector (i.e. financial institution increasing interest in energy efficiency projects) seems to be becoming more readily available. Moreover, the government is currently planning to introduce measures for the facilitation of EPC. However, lack of trust in energy service providers is still very evident.

In 2020, the energy services market in Greece seems to be more active. This is evident in both the increased number of EPC projects (even though the implemented projects concern budgets lower than 10.000 €) and the number of energy service providers registered. Conducting the different required

meetings (NDPs, NPTs, bilateral meetings, etc.) it was concluded that the best option for Greece was to include some of the QualitEE criteria in the requirements for the energy service providers.

#### 4.1.7 Latvia

The preparation of national technical criteria has been organized in several interactions together with the Ministry of Economics, ALTUM (national financial institution), energy service providers, energy auditors and project developers. At the beginning of the QualitEE project, the most attention was paid to quality criteria to be applied at the project level, as it was believed that demand for such QA could be higher. However, after the feedback from the main stakeholders, interest from the Ministry of Economics and considering energy efficiency directive requirements it was decided to focus on QA system at the company level.

Due to the very limited number of projects in the market certification, institutions did not see the need to set up a new certification system which could pose a risk that certification of each individual project will be too expensive and this would create additional barriers to market development.

Because of the fact that the energy service provider market is still developing in the country, after conducting NPTs, NDPs as well as bilateral meetings with relevant stakeholders, and also taking into account the results obtained after carrying out national surveys, it was decided that the best option for Latvia was to include some of the QualitEE criteria in the national energy service provider registry.

#### 4.1.8 Slovakia

In Slovakia, the general concept of the assurance scheme was discussed with all relevant stakeholders. The concept and principle of the planned quality assurance scheme were introduced also to banks and financing institutions. Results of consultations with these counterparts showed, that the initial expectations were very optimistic and that the financing institutions will be not able to reflect the certification within their decision-making process in significant extent. This is a consequence of the actual practice of the banks where the standard assessment of credit risk of the final debtor plays crucial role in the decision-making process and the quality of the project has only negligible impact on it.

This meant that any quality assessment would have only minor, if any, impact on the improvement of access to financing for energy services providers. And as the improvement and streamlining of financing was the most important reason for consideration of quality assurance scheme establishment, the interest of the energy services providers to participate in such scheme and to allocate significant resources (through the Association of Energy Services Providers) into its development almost vanished.

Following this development combined with the actual situation on the Slovak energy services market where quality of implemented projects was never an issue or barrier for the market development, a consensus was reached among relevant stakeholders, that there is not a market potential for development of complex quality assurance scheme. Consequently, a discussion on alternative ways for improvement of quality of the energy services provided was started.

#### 4.1.9 Slovenia

In order to fulfil provisions of the Article 16 of Energy Efficiency Directive regarding the availability of qualification, accreditation and certification scheme, the Ministry of Infrastructure registered energy efficiency (EE) service providers with the record of realized energy performance contracting (EPC)



projects<sup>1</sup> with guaranteed energy savings. The list of registered EE service providers is informative and aims to improve the availability of information on EPC providers to interested customers.

Aiming to upgrade technical competence, objectivity and reliability of EE services, a proposal for future national quality assurance (QA) scheme has been designed in the framework of the QualitEE project and in cooperation with the Ministry of Infrastructure, national promotion team (NPT) members and throughout national discussion platform (NDP) events.

#### 4.1.10 Spain

The quality assurance scheme situation in Spain was analyzed, and two certificates were identified: An Energy Savings Company (energy service provider) label granted by ANESE and an UNE Standard. Because the market is still rather small, an additional assurance scheme would oversaturate the market, so it was decided that the best option would be to include the quality criteria created in the QualitEE project in the existing UNE Standard. This idea was presented to representatives of the committee that designed the Standard, who believed the criteria could be fitting, however no concrete plans have been made as to how to proceed for their implementation, and plans have been halted because of the COVID-19 crisis.

Promoted by the sector itself, the UNE 216701 Standard aims to contribute to the deployment of energy services in Spain, improving transparency and reliability in their procurement. It defines a classification of energy service providers (ESP) that allows for their differentiation and the choice of the most appropriate type for the customer's needs. It is also based on the applicable legislation, taking the same definitions and making the different figures currently existing in the regulations compatible.

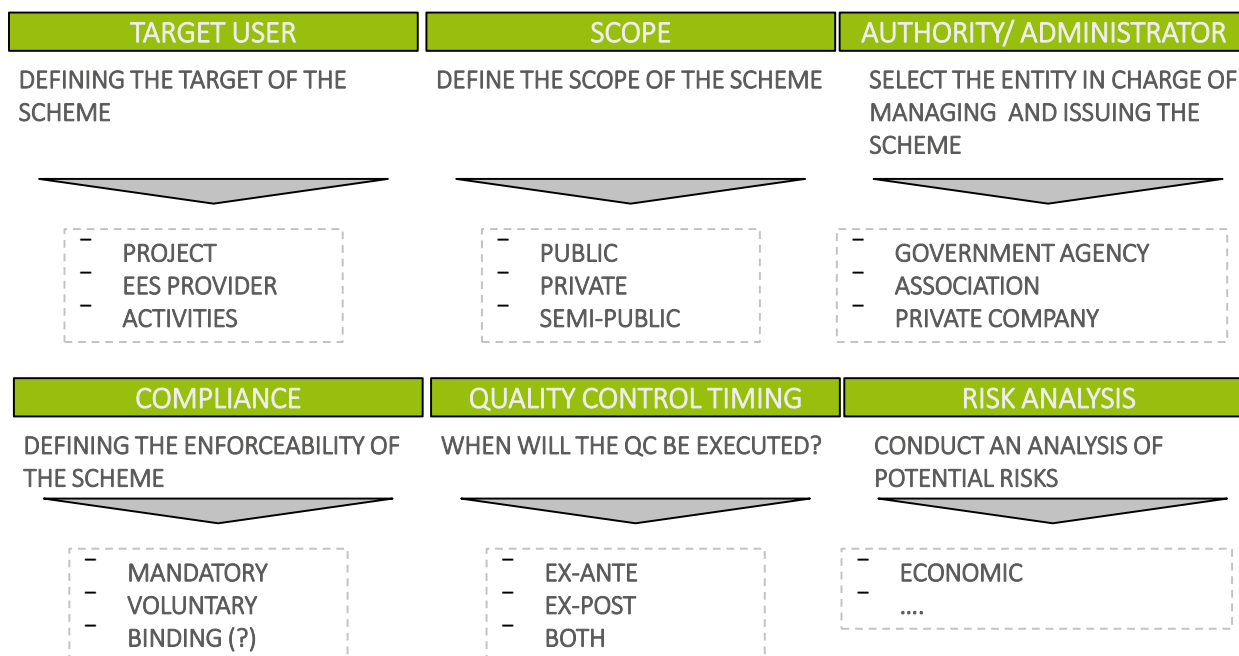
#### 4.1.11 United Kingdom

In the earlier stages of the QualitEE project market consultation was carried out in the United Kingdom through an online survey of Energy Performance Contracting (EPC) providers and facilitators, interviews of EPC clients and financiers, and via consultation of a group of interested stakeholders. This group includes the Energy Services and Technology Association and its ESC Energy Services Contracting specialist group (Trade Association), Amber Infrastructure (Financial Institution), the Scottish Futures Trust (Public Body), TUV Nord (Certification Body) and the Department for Business, Energy and Industrial Strategy (Government Body – observational capacity only).

The results of the survey - completed by 32 UK based EPC providers and facilitators indicate that well-established barriers to EPC business – namely lack of trust, complexity and high project development costs – are still prevalent in the UK. It is thought that a national quality assurance scheme for EPC may help to address these issues by increasing consumer trust and driving standardisation (expected to reduce complexity and project development cost). The survey identified support for this; 67% of UK EPC provider and facilitator respondents indicated that a quality assurance scheme would achieve a 'major' or 'moderate' increase in consumer trust and most (56%) stated a preference for implementing quality assurance in the 'majority' or all of their projects.

## 4.2 Description of national quality assurance schemes to be implemented

The image below depicts the range of options to be considered when designing a Quality Assurance Scheme. In the next sections, they are defined for each of the QualitEE partner countries.



### 4.2.1 Austria

In order to raise awareness of quality among service providers and customers and thus increase confidence in EES, the DECA1 quality label was launched in Austria in 2017. The Deca platform developed the quality criteria which are the foundation of the DECA quality label within the QualitEE project.

The basis for the use of the quality label is the voluntary “self-declaration with plausibility check”. This means that the energy service provider registers at DECA’s website and signs the self- commitment, declaring that all the energy services provided with the DECA-quality label meets the label criteria.

The labelling is free of charge for members of DECA (membership EUR270 –2,570 depending on the size of the company) and 125 €/year for non-members. Under the Austrian business model, it is not the service provider but the service itself that gets the quality label. Once the project is concluded or after certain time (yearly if a longer project is concerned, the client should verify compliance of the criteria and fill-out a verification protocol provided by DECA. If reasonable doubt arises, the client can assign a DECA member to check if the established criteria have been met. If a self-committed company has not met the standards DECA can revoke the company’s registration. The energy service provider must sign a commitment to use the DECA quality label which needs to be renewed every year.

Depending on the type of EE service provided, the requirements to receive the DECA quality label are different. Concretely, there are 9 quality criteria for 7 EE services. For each EEDL, only the quality criteria relevant to it are applied. These quality criteria are then concretised by assessment criteria. The assessment criteria are verifiable facts that must be provided for the fulfilment of a quality criterion.

The quality label defines standards concerning service elements and process flow of high-quality EES and provides the framework necessary for compliance and verification.

The main benefit for the clients is higher security and trust. These standards can improve information availability to reduce the energy service providers' or client's diligence costs and ensure quicker decision making, as well as quality check of the service. EES providers benefit from enhancing their services, hence using the seal to demonstrate the fulfilment of high-quality requirements of the services that they offer.

The marketing strategy for the DECA quality label focuses primarily on clients and energy service providers which aligns with the main objective: increasing confidence in EEDL and raise awareness of its quality with the DECA quality label among services providers and customers. In March 2020, there are 14 currently self-registered companies and 25 projects with a quality stamp.

The current main drawbacks are that clients very often do not see the additional value of a quality label and that revenues are not sufficient to cover the costs for marketing and management of the DECA quality label.

#### 4.2.2 Belgium

As mentioned earlier, the strategy followed in Belgium involved conducting surveys and contacting the most relevant stakeholders in the sector. As a result of the process, it was concluded that the Belgian market was still at an early stage and a quality assurance scheme would not be beneficial. Nonetheless, the bases for the creation of a QAS were set, and are described below.

Taking into account the survey outcome, as well the suggestions made during the NPT- meetings, partners were able to depict the following main traits of a potential certification approach that seemed to match the Belgian EES market:

- ✔ A hybrid certification approach, consisting in 2 complementary levels of certification:
  - audit at the level of an energy service provider, followed by an
  - audit at project level
- ✔ Certification by a private certification body
- ✔ Certification by a certification body that is operational at national Belgian level. The audits would be conducted by independent professionals hired by the national certification body.

One of the NPT members, the Belgian Construction Certification Association (BCCA) matches the 2nd and the 3rd requirement and was willing to further investigate the certification approach as described in the 1st bullet, as well as the corresponding business case and its economic viability.

With respect to the hybrid certification approach, various combinations, audit frequencies and audit stages (ex-ante, ex-post) might be envisaged. A non-exhaustive list of options is provided underneath:

- ✔ One certification audit of the energy service provider, at a frequency to be defined (e.g. once a year), complemented by an audit of a selection of past projects (ex-post). Both audits would take place at the same time. The selection projects would be made by the auditor.
- ✔ One certification audit of the energy service provider, at a frequency to be defined (e.g. once a year), complemented by an audit of one specific project at the request of the energy service provider (ex-ante). These 2 audits do not necessarily coincide.

- ✔ One certification audit of the energy service provider, at a frequency to be defined (e.g. once a year), complemented by an audit of one specific project at the request of the energy service provider (ex-post). These 2 audits do not necessarily coincide.

### **Business case**

BCCA's investigation of the business case of setting up an EES certification scheme in Belgium was based on the following estimates and assumptions:

- ✔ The certification scheme will be based on the principles of auditing processes rather than results.
- ✔ A hybrid certification approach will be adopted, which was described supra under (a.): One certification audit of the energy service provider, once a year, complemented by an audit of a selection of past projects (ex-post). These project audits take place at the same time of the energy service provider audit. The selection of past projects is made by the auditor.
- ✔ The cost for running an EES certification scheme, based on the hybrid certification approach described above, is estimated to be € 50 000 per year. This figure is estimated by BCCA based on similar certification schemes in Belgium which are currently managed by BCCA.
- ✔ The scheme is voluntary.
- ✔ 13 energy service providers were active on the Belgian EES market in 2018 (cf. information from BELESCO).
- ✔ The majority of the energy service providers which are active on the Belgian market (let's assume 10), is commercially interested in being certified.
- ✔ The certification frequency is once a year.
- ✔ There is currently no indication that a certification system of EES would be subsidized by the federal nor the regional authorities. Hence, the scheme should be financially self-reliant. A simplified calculation, based on these figures, shows that each certification audit would have to cost approximately € 5 000 in order to be viable. If the number of energy service providers, which are interested in being certified, would increase in the future, the price per audit may decrease to a certain extent.

At operational level, BCCA stresses that a certification system managed by BCCA can only be successful if it is actively supported by relevant branch organizations. BCCA also strongly recommends that the certification audits are conducted by (subcontracted) professionals that are truly acquainted with the subject to be certified. In a small market this may sometimes represent an organizational bottleneck, as there is a risk of having a conflict of interest: the professionals involved in the certification process might at the same time be involved in actual energy efficiency projects. This risk is deemed manageable, however, by establishing appropriate procedures for allocating auditors.

### **4.2.3 Bulgaria**

In Bulgaria, the EES market is not well developed. There are about 10 operating EES providers, of which only 3 - 4 EPC providers. During the last years, there are 3 – 6 new EPC projects per year, typically small, as demonstrated in the QualitEE market surveys in 2017 and 2019. Most EESs are implemented in the public sector, but there is notable trend of increase of private sector clients.

The national market needs and opportunities to establish quality assurance of EES were studied within different QualitEE activities - EES market survey, National Promotion Team meetings, National

Discussion Platform meetings, bilateral discussions with experts, feedback from training courses, etc. As a result of the discussions, the following particular quality assurance solutions were identified for the country:

- ✔ Development of EES model contract(s) for the private sector and complete tender dossier(s) for the public sector, considering the quality criteria.
- ✔ Key quality criteria to be integrated in the “Project Fiche” template that clients fill-in to indicate their interest in EES projects (more details are available below in this chapter).
- ✔ Introduction of a labelling scheme, based on a self-declaration of the EES provider, managed by the Alliance for Energy Efficiency (AEE). The idea was that the scheme is almost identical to the DECA Quality Label in Austria, but with several simplifications: (i) removal of less important sub-criteria; (ii) less frequent feedback by the EES provider and client; (iii) checks in case of disputes between client and EES provider to be made by AEE; (iv) initially the participation of EES providers to be free of charge for both AEE members and non-members.

While the above solutions 1. and 2. have progressed significantly, solution 3. faced criticism: Public sector clients, being the main EES client segment, cannot consider the label in any way. The label availability cannot be mentioned, neither in the selection criteria nor in the award criteria, because the EU and the national legislation do not allow a reference to a specific national scheme.

A new European standard on EPC is initiated by CEN in 2019. It will probably include some of the quality criteria of QualitEE project. When that standard becomes operational (in 2021 or 2022) it would be difficult for a national label that provides a much lower level of QA to compete with it. An EU standard, unlike a national one, can be part of public procurement selection and award criteria.

As a result, the implementation of the labelling scheme was abandoned, at least within QualitEE project duration. Instead, an alternative solution was identified and welcomed by all stakeholders:

- ✔ The technical quality criteria and possibly the financial quality criteria to become Annexes to the EPC Code of Conduct in Bulgaria, so that the basic (quality) values and principles in the Code and complemented by a detailed guidance how they can be implemented and checked in practice. Clients and EES providers to be encouraged to refer to the respective Annex (or to a part of it) in the EES tender dossier / contract. The implementation of solutions 1, 2, and 4, described above, has either been completed or progressed.

The Alliance for Energy Efficiency (AEE) – the association of the EES providers in Bulgaria – decided to act as market for EES projects (a project hub). Potential clients fill in a so called “Project fiche to collect offers” – a questionnaire accessible through AEE website that clients use to express their interest in projects. The questionnaire is received by AEE members.

Each interested EES provider then directly approaches the client to collect additional data and to send an offer. There are 3 questionnaires – for buildings, industrial systems, and street lighting. Each contains information about the project, such as type of energy service required, desired energy efficiency measures, current fuel, type and key characteristics of the site, energy audit report. The last part of the questionnaire, developed within QualitEE, concerns the quality requirements of the clients, namely:

- ✔ The EES provider has signed the European EPC Code of Conduct;
- ✔ The project is based on an energy audit or another evaluation methodology according to the national legislation;
- ✔ The EES provider explains the difference between the baseline and the actual energy consumption and its effect on the project cash flows;

- ✔ The EES provider offers and coordinates a plan for M&V according to IPMVP, ISO 50015:2014, or another methodology complying with the Bulgarian legislation;
- ✔ The EES provider to clarify and coordinate the obligations related to the operation and maintenance of the equipment, as well as to provide the necessary training. Only EES providers that (commit to) comply with all criteria specified by the client are expected to approach the client with an offer, as the client would most likely disregard the non-compliant providers. Criteria 1 and 3 can be checked / implemented during the first contact with the client, while criteria 4 and 5 need to be included as requirements in the EES contract. There are different options for the check / implementation of Criterion 2, depending on the party (client or EES provider) responsible to arrange the audit. The “project fiche” initiative became operational in mid-2019. At the moment it serves mainly to establish the first contact between the client and EES provider. A potential next step is to track the signed contracts and obtain feedback from clients.

#### 4.2.4 Czech Republic

The implementation of certification systems will lead to a transparent system of classification of EPC projects and EPC providers as well as the standardization of basic parameters for providing energy services. The certification system will be applied as follows:

- ✔ As a marketing to promote energy savings market.
- ✔ As a tool for guaranteeing the quality of services provided by certified suppliers for customers, especially for customers who do not yet have experience in EPC-type energy services (meeting the requirements of Act 406/2000).
- ✔ It enables the use of the EPC provider certificate as partial proof of technical qualification in a tender procedure, to the extent stated on the certificate (documents not older than 3 months, e.g. the business register record, must be submitted by the supplier during the tender procedure).
- ✔ It will help expand the market through state-certified projects and state-certified suppliers, bringing an additional amount of energy savings to be counted towards Article 7 of the 2012/27/EU Energy Efficiency Directive.

The first step to evaluate EPC projects will be to verify whether the project meets the legal requirements set out in Section 10e (1) of Act 406/2000 for an energy service contract. The project being certified must pass at least the first period of evaluation of energy savings in order to assess the quality of the project, the complexity of the contract, as well as the actual level of energy savings achieved and the fulfilment of contractual parameters. EPC projects can only be evaluated during the lifetime of the project, not before the approval of the first annual M&V report.

The certification of EPC providers is based on professional and high-quality certification of a required number of EPC projects. In order to be certified, an energy service company must demonstrate that it can implement EPC projects in such a way that all project quality requirements are met.

The remaining requirements for EPC providers can be assessed as part of the administrative process by verifying that the EPC provider meets the requirements for company experience and staff quality and qualification.

The certification should be available to all qualified companies, including small and medium-sized enterprises. Therefore, after consultation with stakeholders, a scheme independent from international

standards has been chosen for certification of EPC projects and EPC providers, for simplicity and possible lower costs reasons. This means that the role of the Accreditation Body will be played by the Authorization Body, who authorizes Certification Bodies to carry out Implementation of the QualitEE Business Model in the Czech Republic certifications independently of the international standards ČSN EN ISO/IEC 17065:2013 and MPA 40-01-16.

The structure of organizations with three key roles is crucial to the functioning of the certification system:

- ✔ Authorization body that authorizes the certification body and designates the certification scheme owner;
- ✔ Certification body that certifies EPC projects and/or EPC providers;
- ✔ Certification scheme owner that sets the criteria, requirements, and technical rules of certification;
- ✔ Certificate holder – the organization that receives the given certificate.

#### 4.2.5 Germany

Germany has a well-developed EES market. One of the reasons is the fact that various government institutions have dealt with the topic intensively since the early 90ies. Different service providers have been emerged which provide EPC and ESC models. A large proportion of EPC and ESC is offered by energy service providers or municipal utilities.

Nevertheless, standardized quality assurance schemes on a national level do not exist in general for the German market. The establishing of an institutionalised quality certificate is associated with high costs which are not expected to be regained by the added value of the certificate itself. Survey results and several meetings with energy service providers and other relevant stakeholders have shown, that there is not much demand for a national certification framework of EPC or ESC products.

Therefore, the idea is to implement a quality assurance scheme based on a label which can be awarded after a voluntary inspection of the respective EPC and ESC service of a service provider. This label should increase transparency of contracts. It is expected that this transparency will lead to an increase of trust and quality level of the contracts, which will subsequently lead to an increase of the value and competitive ability of the EPC product in the market.

##### *Potential scheme*

Within the QualitEE project a set of quality criteria has been developed and adapted to a standardized quality check of contracts for energy efficiency services (EES), with the focus on energy supply contracting (ESC) and energy performance contracting (EPC). With these criteria EPC providers can check their business contracts on a voluntary basis with the aim to increase the QualitEE level of their services and therefore to position themselves better in the market.

The compliance with the criteria will be checked in existing service contracts used by the clients (energy service providers) and will be evaluated ex-ante. The overall check of the contract against the criteria will be carried out by an external body.

After the external body analysed the level of compliance between the existing EPC contract and the Quality assessment criteria, a subsequent gap analysis will take place in order to identify potential improvements of the contract.

After a feedback loop with the energy service provider and the review of documents/contracts further recommendations will be provided. If the client decides to implement necessary improvements to the contract an independent label can be provided. To reach this level, a certain number of defined criteria must be covered in the contract. The main aim is to focus on contracting contracts of energy service providers, which are willing to improve their contracts to increase transparency, trust, and the quality level of the energy service.

#### 4.2.6 Greece

In 2020, the energy services market in Greece seems to be more active than in previous years, as per the results obtained in the surveys conducted in the scope of the QualitEE project. This is evident in both the increased number of EPC projects and the number of energy service providers registered. The existing Ministerial Decree for the national energy service provider registry has gone one step forward towards increasing trust in energy service providers in Greece. However, it still has the following shortcomings:

- ✔ The ex-ante evaluation criteria for the conformance of the EPC submitted by the companies wishing to register in category A of the registry are quite general and subject to interpretation by the evaluators, making the process difficult
- ✔ Even though the submission of both progress report and documentation of EPC projects is mentioned, there are no ex-post evaluation criteria available to the evaluators. Furthermore, the evaluation of these submitted documents is also not mentioned and it is therefore not clear whether this is a prerequisite for a company to be able to continue being registered.
- ✔ There is no publicly available detailed information about the EPC contracts implemented by the registered companies which would help a potential client to find out more about them and their range and type of activities. All that is available is the category and contact details of the companies.

Due to the immaturity of the energy services market in Greece:

- ✔ A quality assurance scheme for energy services is still considered to be premature. In order to not throttle the market with new schemes and requirements it is important to proceed slowly and the first step should be to introduce a new quality assurance scheme for the energy service providers.
- ✔ The market is still not ready for a private label. There is neither interest from clients for such a label nor from energy service providers. Accredited certification bodies also expressed their reluctance to start activities for the introduction of a certification scheme for such a label as they deem the market to be too small for it to be of interest to them. Last but not least, there is no credible and trustworthy organization willing to undertake the responsibility of such an endeavour. A national energy service provider association would be the ideal candidate, but there is currently no such association in Greece.
- ✔ It was almost unanimously decided that the first step should be to provide the Ministry of Energy and Environment with detailed and concrete proposal for the amendment of the current Ministerial Decree of the energy service provider registry and to introduce the QualitEE evaluation technical criteria within. The Ministry officials welcomed the initiative and promised to consider the proposals made and pursue all the necessary actions needed.
- ✔ The labelling of energy services is something that could follow after the further maturity of the market.



The proposed amendments to the existing Ministerial Decree are the following:

- ✔ The adoption of all the 9 technical evaluation criteria of the QualitEE project for the ex- ante and ex-post evaluation of all EPC projects submitted to the Ministry of Energy and Environment for the energy service provider registry. More specifically:
  - For the ex-ante evaluation of EPC projects, all energy service providers shall submit signed copies of both the energy audit and EPC. The Ministry officials will use the QualitEE ex-ante criteria for their evaluation.
  - For the ex-post evaluation of the EPC projects, all energy service providers shall submit signed copies of annual progress reports, commissioning reports and completion reports. The Ministry officials will use the QualitEE ex-post criteria for their evaluation.
- ✔ The categorization of energy service providers should be modified. The proposed modifications are:
  - Category A++: The energy service providers that have EPC contracts and comply with all 9 technical criteria.
  - Category A+: The energy service providers that have EPC contracts and comply with 8 of the 9 technical criteria. 7 of the technical criteria (QC1-6, and QC9) are mandatory for registration in categories A and above. QC 8 and 9 are voluntary.
  - Category A: The energy service providers that have EPC contracts and comply with the mandatory technical criteria.
  - Category B: The energy service providers that do not have EPC contracts. The reason that the 7 mandatory criteria are considered to be the absolute minimum to register in the Category A, is that these criteria were considered to be essential elements of an EPC and therefore one could not consider an energy service provider that does not fulfil at least these criteria. Categories A+ and A++ were chosen as incentives for Category A class energy service providers to upgrade to a higher category by offering services that EPC's do not usually offer.

Category B remains the same as it was in the previous Ministerial Decree.

- ✔ The energy service provider registry should contain the publicly available information for the EPC contracts submitted by each of the registered energy service providers. The proposed quality assurance scheme can significantly impact the energy services market in Greece. The main positive impacts from its implementation are the following:
  - ✔ The energy service provider registry will certify that the energy service providers registered in it are able to provide energy services of a minimum threshold quality for each of the categories A and above.
  - ✔ The quality of services provided by the providers registered in the energy service provider registry will be monitored continuously and not only during registration.
  - ✔ The public will be able to access updated information concerning the energy services with EPC that the energy service providers registered in the energy service provider registry provide.

As a result of the aforementioned, it is expected that trust in the energy services market will increase and this will provide the necessary stimulus for both the private sector and public sector to start implementing more projects with EPC. In parallel with the above, solutions to the restricted access to financing for EPC projects should also be sought in order to completely liberate the market and to witness a significant stimulation of the market.

#### 4.2.7 Latvia

Based on requirements of the Energy Efficiency Directive, in 2019 the Ministry of Economy invited energy service providers to register on a list of energy efficiency service providers. This list is informative and aims to improve the availability of information and facilitate the energy service provider market development. During the QualitEE project, several bilateral meetings with representatives from the Ministry of Economics, ALTUM (national development bank), energy service providers, national promotion team (NPT) and national discussion platform (NDP) meetings have been organized to introduce the quality criteria and to discuss the possible application of them. Beside policy makers energy service providers (working in building, industry and lighting sectors), energy auditors working with big companies and big energy consumers and energy utility companies have been involved as well.

Currently, the registration of energy service providers takes place in accordance with the evaluation of the energy service provider contract (ex-ante evaluation based on submitted EPC contract). Energy service providers should fulfil quality criteria to be eligible to be registered as an energy service provider. The listed energy service providers must provide a copy of the energy efficiency service contract to Ministry of Economy where the contract is evaluated. As well, energy service providers should notify Ministry of Economics about the fulfilment of EPC contract and each year the energy service providers should report on number of projects and energy savings achieved. In the EPC contract energy savings should be guaranteed, measurement and verification procedure of savings, the energy efficiency service costs shall be covered with a part of the financial value of the energy efficiency improvement or energy savings that have arisen from the provision of the energy efficiency services.

Considering the fact that the energy service provider market in Latvia is poorly developed, the proposed certification criteria include only a part of the QualitEE technical criteria, which would be recommended to use when starting the development of the system. In the future, energy service provider certification can be created similarly to the register of construction companies and supplemented with additional requirements.

The requirements for an energy service provider can be divided into two major parts:

- ✔ Basic requirements for the energy service provider;
- ✔ Additional requirements for the energy service provider based on the experience of its services and employees in energy efficiency projects. At present, the inspection is possible according to the model contract submitted by the energy service provider, which they have used or intend to use. In the future, with the development of the energy service provider market, the proposed criteria could be applied on the basis of the experience of energy service providers which would not be useful to determine a present, given the small number of EES projects.

The energy service providers register shall set out a set of basic requirements for cooperation between energy service providers and customers, project preparation and project implementation, in order to achieve the best possible results and sustainability while maximizing the energy and cost savings achieved through energy efficiency improvement measures. An energy service provider, like any other company, can have basic requirements regarding the absence of violations and tax debts.

Ex-ante evaluation based on submitted EPC contract. The energy service provider should fulfil quality criteria to be eligible to be registered as an energy service provider. The listed energy service provider must provide a copy of the energy efficiency service contract to Ministry of Economy. To be registered as an energy service provider should submit:

- ✔ Copy of EPC contract;
- ✔ Assurances that energy service provider will notify Ministry of Economics about the fulfilment of EPC contract

As possible responsible bodies, the Ministry of Economics, the Latvian National Accreditation Bureau, ALTUM and the State Bureau of Construction Control have been proposed to potentially grant the label. So far while the market is underdeveloped the main responsible institution to assure that the quality criteria is met is the Ministry of Economics. It is proposed that in a future if there will be more energy service providers the certification could be organized by the State Bureau of Construction Control who are also responsible for certification of energy auditors. In the long run, EPC service providers could have a very similar scheme to the certification scheme for energy auditing in industry. Companies allowed to do energy audits are certified by the Latvian National Accreditation Bureau. However, at the moment we are not sure that it is possible in the framework of this project as a new LVS ISO standard is needed describing all the procedures.

#### 4.2.8 Slovakia

Great expectations were related to the idea of developing complex quality assurance scheme for energy services in Slovakia. These were linked mostly to the possibility of improved access to financing by energy services providers implementing certified projects. The general concept of the assurance scheme was discussed with all relevant stakeholders.

The concept and principle of the planned quality assurance scheme were introduced also to banks and financing institutions. Results of consultations with these counterparts showed, that the initial expectations were very optimistic and that the financing institutions will be not able to reflect the certification within their decision-making process in significant extent. This is a consequence of the actual practice of the banks where the standard assessment of credit risk of the final debtor plays crucial role in the decision-making process and the quality of the project has only negligible impact on it.

This means that any quality assessment would have only minor, if any, impact on the improvement of access to financing for energy services providers. And as the improvement and streamlining of financing was the most important reason for consideration of quality assurance scheme establishment, the interest of the energy services providers to participate in such scheme and to allocate significant resources (through the Association of Energy Services Providers) into its development almost vanished.

Following this development combined with the actual situation on the Slovak energy services market where quality of implemented projects was never an issue or barrier for the market development (on the contrary, the energy efficiency projects implemented through energy services are in general considered of higher quality compared to projects implemented in standard ways), a consensus was reached among relevant stakeholders, that there is not a market potential for development of complex quality assurance scheme. Consequently, a discussion on alternative ways for improvement of quality of the energy services provided was started.

As an alternative it was decided that incorporation of selected quality criteria into the European Code of Conduct for EPC in Slovakia should be the most effective approach for improvement of quality of the energy services in Slovakia in actual situation. This decision means, that there will be no real business model of quality assurance scheme as the demand for this type of product does not exist on the market. Instead, the so far successful voluntary commitments declared by signature of the European Code of Conduct for EPC in Slovakia will be extended by introduction of selected quality criteria into the text of the code of conduct.

Implementation of the developed approach for improvement of the quality of energy services in Slovakia will start immediately after approval of the wording of the Extended European Code of Conduct for EPC in Slovakia by the code national administrator – the Association of Energy Services Providers – APES-SK ([www.apes-sk.eu](http://www.apes-sk.eu)). The decision to extend the actual wording of the European Code of Conduct for EPC in Slovakia by including selected quality criteria developed within the QualitEE project was already approved by the general assembly of the association held on February 24th, 2020. It is expected that the updated wording of the code of conduct will be approved until end of May 2020.

Practical implementation of the model will consist mostly in communication and awareness campaign focused on two primary target groups: 1/ Clients – public and private organizations that intend to implement energy efficiency projects and 2/ Energy services providers and facilitators – private companies that could be interested to make voluntary commitment to delivery their services in line with the Extended European Code of Conduct for EPC in Slovakia.

The communication campaign will start with official announcement about extension of the European Code of Conduct for EPC in Slovakia together with introduction of the first signatories. The main target of the campaign will be increasing knowledge of the energy services market participants especially on the side of possible clients. This will be reached mainly by explanation of the individual quality criteria introduced through the Extended European Code of Conduct for EPC in Slovakia.

Additional broader support will be ensured through partnerships with relevant public bodies and professional associations. It is expected that the broad awareness of the market participants on the supply as well as demand side will lead to standardization of implementation of energy services projects in line with the QualitEE quality criteria in wider scale.

#### 4.2.9 Slovenia

The quality assurance scheme business case was prepared following three basic principles:

- ✔ A quality assurance scheme should improve trust in EE services and client satisfaction through standardisation of EE services quality by:
  - Introducing assessment criteria covering whole value chain i.e. service development, implementation, savings guarantee, performance measurement and verification, energy management, operations and maintenance, communication, environmental conditions, behaviour change, and contractual terms.
  - Ensuring competence training programmes to EE services providers and facilitators and make publicly available information on the QA scheme.
- ✔ An administrative and procedural activities should be part of existing national ESC/EPC programmes and QA criteria included in related public procurement and financing.
- ✔ A quality assurance scheme should contribute to the further development of the EE services market enabling EE service providers voluntary entrances and not imposing on them any additional cost hindering the market growth.

The quality assurance scheme is going to be implemented in two phases:

1st PHASE. In the first phase of the quality assurance scheme procurement:

- ✔ The Ministry of Infrastructure will nominate a body responsible for developing and implementing the quality assurance scheme, the Public Buildings Energy Renovation Project Office (PO). Th PO will define a quality assurance scheme implementation plan. The plan will

define objectives, roles and responsibilities, coordinate with EE/EPC/ESC public programmes, and define tasks and the schedule.

- ✔ The PO will prepare quality assurance technical guidelines for quality criteria and their assessment, to be approved by the Ministry for Infrastructure. The mandatory quality criteria will be incorporated in EE/EPC/ESC recommended standard service contracts and public tendering procedures. The EE/EPC/ESC public projects quality assurance check will be performed in a standardized manner throughout procurement, implementation and operation phases, so ex-ante and ex- post results will become qualitative assessments.
- ✔ The PO will design a quality assurance training programme for EE services providers and facilitators comprising training curricula and tutorials. The quality assurance trainings are going to be performed at least twice per year during the first two years of the quality assurance scheme implementation.
- ✔ The Ministry for Infrastructure will keep the register of qualified EE/EPC/ESC services providers and trained facilitators with the log of qualified EE projects. The quality assurance qualified EE/EPC/ESC services applicant determinations will be made based on applicant's expertise, experience, qualification and capacity approved by the public projects quality assurance check and quality assurance training qualification.
- ✔ The Ministry for Infrastructure will make publicly available and promote the quality assurance scheme, and to provide information on the quality of the EE services and projects.

2nd PHASE. In the second phase of the quality assurance scheme procurement, the Ministry of Infrastructure will assess the EE services market developments in terms of quality assurance and evaluate the quality assurance scheme implementation, functionality and adequacy related to the market needs and its feed-back. Based on this analysis the Ministry of Infrastructure will decide if the self-regulatory EE services providers qualification framework should be redesigned and legal framework set in the Energy Efficiency Act, for the purpose of ensuring the quality of EE services provided to clients.

Through the quality assessment process, a quality assurance scheme managing body shall evaluate an EE providers' compliance with the requirements of quality criteria approved by the ministry in charge for energy and should not approve the registration of the EE provider as the qualified one until compliance can be determined. Compliance with quality criterion will be checked for various assessment areas, based on a set of requirements and assessments of compliance. During the first phase of the quality assurance scheme implementation, the evaluation of compliance will be based on the ex-ante assessment of quality evidence collected via EE services tenders and contracts. The quality compliance once approved can be challenged in the case of the quality assurance scheme re-design in the second phase of quality assurance scheme implementation introducing ex-post evaluation.

#### 4.2.10 Spain

In Spain, as complexity and lack of trust in the energy service providers industry are identified as the main market barriers, providing better information and higher quality services could be expected to increase customer confidence and demand. Furthermore, 100% of respondents to the project find it difficult or very difficult to obtain viable funding, 63% of respondents believe that there is always, or most of the time, mistrust of energy efficiency service providers and 90% of respondents find that a quality assurance scheme would increase customer confidence in energy service providers.

According to a study conducted by the Spanish National Association of Energy Services Companies (ANESE) in Spain, energy services as a whole make up a market that was estimated to have grown from

1.17 billion euros in 2015 to 1.18 billion euros in 2018. While 60% of energy service providers declared a turnover of less than 2.5 million euros, 20% invoiced more than 10 million euros. Furthermore, over the period 2015-2018, the number of SMEs billing between 5 and 10 million euros increased by 6%, while the number of SMEs billing between 2.5 and 5 million euros decreased by another 6%. Lastly, energy service providers provide an average saving of 30%, reaching average economic savings of 242000 euros per project and avoiding a total of 64,300 tons of CO<sub>2</sub>. All in all, the market has room to grow, while still showing signs of lagging behind due to the barriers faced.

In Spain, there are two certificates which classify energy service providers; an UNE standard and an ANESE label. Because the energy service providers market in Spain is still relatively small, the success of said certification has been limited, with under 100 companies certified. Because of this, it was soon realized that there was no room for an additional scheme such as QualitEE's.


ANESE launched the first certified classification of energy service providers in the country. This classification responds, on the one hand, to the lack of regulation and to the absence of an official registry; and on the other, it has the purpose of providing the client with an understanding of the energy service providers model.

The ANESE label is aimed at companies that offer energy services following the savings guarantee model and want accreditation to demonstrate their experience, training, technological possibilities and technical potential. Through this certificate they can distinguish themselves through an accreditation that assures their professionalism.

The second existing certification in Spain is the UNE 216701:2018 Standard. The objective of the new UNE 216701:2018 Standard is to establish a typology of energy service providers according to the types of actions they perform. In addition, the standard includes minimum requirements for technical capacity and experience that will allow customers to be sure of the quality and good performance that they have had to expect from the energy service provider in the absence of an agreed reference framework.

This Standard, which replaces EA 0055, complements the legislation in force, contained in Directive 2012/27/EU and its transposition into RD 56/2016, which regulates the figure of the provider of energy services, further developing this key figure for achieving energy efficiency objectives. The initiative was promoted by the sector itself and was developed in a working group in which a total of 14 sector associations representing different actors related to the energy services market participated. The standard was drawn up by the Spanish Standards Association, UNE, with the joint participation of numerous associations in the sector, and has been promoted by AMI (Association of Integral Maintenance and Energy Services Companies); ADHAC (Association of Heating and Cooling Network Companies); ATECYR (Spanish Technical Association of Air Conditioning and Refrigeration) and A3E (Association of Energy Efficiency Companies).

The definitions on which the standard is based have been taken from the different legislative texts that are applicable in order to favour their complementarity. In addition, the same energy service provider may belong to several of the established types of energy service providers (ESP). It establishes three types of energy service providers according to their types of action:

-  The audit and consulting ESP, includes energy service providers that carry out energy audits, consulting, engineering or energy efficiency projects that must be carried out in accordance with existing technical standards (UNE-EN ISO 50001 [1], UNE-EN ISO 16247 [2], etc.)

- ✔ The operating ESP, which groups together providers of energy services that provide maintenance, operation or control tasks for any type of energy-consuming facility, building or industry
- ✔ The investment PSE, which comprises providers of energy services that perform the energy services of an energy service provider as defined in Royal Decree Law 6/2010 [3], i.e., that include investment in works, supplies or intangibles and link payment for these services to the energy savings achieved.

As mentioned earlier, the Spanish market is oversaturated with certification schemes. The proposition made in the scope of the QualitEE project is for the QualitEE technical criteria to be added to the UNE Standard 216701:2018 in later revisions, as the ultimate goal of the scheme is to include a quality aspect which would be covered by the QualitEE technical criteria. It is important to highlight that this process is still at a very early stage, and the certification is still a work in progress.

#### 4.2.11 United Kingdom

Following initial discussion amongst key national stakeholders, an initial proposal of a business model for a UK quality assurance scheme for EPC was developed. The following gives an overview:

- ✔ The EPC quality assurance scheme would be administrated by the Energy Services and Technology Association (ESTA).
- ✔ ESTA would maintain a public register of accredited EPC provider companies, each of which meets minimum requirements that demonstrate their capability to deliver EPC projects. Accredited providers will be issued with a quality label that can be used to promote their accreditation to clients and prospects.
- ✔ EPC providers must register basic details of all their EPC projects. One project per annum will be selected at random by the scheme administrator for an independent audit. Ideally, these projects would be past the first savings reconciliation point. In order for the EPC provider to maintain its accreditation, the project must successfully pass this audit.
- ✔ Three grades of accreditation would be given dependent on the results of the latest project audit:
  - Gold label – the audited project has reached first savings reconciliation point and guaranteed savings have been achieved/exceeded.
  - Silver label – no project is available that has reached first savings reconciliation point or there is one, but guaranteed savings have not been achieved.
  - Bronze label – no projects are available for audit.
- ✔ EPC provider companies would pay registration and audit fees that would fully cover the costs of scheme administration.
- ✔ ESTA would publish quality criteria for EPC providers and EPC projects to be based on criteria defined at a European level by the QualitEE project (Leutgöb et al 2018). ESTA would appoint a panel of experts to regularly review and update the criteria as required.
- ✔ ESTA would appoint a panel of specialist independent auditors able to carry out company capability and project audits.
- ✔ Where EPC providers are accredited as Project Developers by the Investor Confidence Project (ICP) they will have a lighter touch company capability audit and accordingly reduced registration fees. Also, if their audited project has received Investor Ready Energy Efficiency

TM (IREE) certification, the project audit will be lighter touch and associated fees would be reduced accordingly.

A key area of discussion leading to the initial proposal was around the target group and target object for the quality assurance scheme; should it be a project or provider focussed accreditation. Once the initial proposal settled on the target group and object being focussed around EPC providers and their projects, consultation was then concentrated on EPC providers. Bilateral meetings with providers have been, and continue to be carried out to present the scheme proposal and solicit feedback on whether they would use the scheme, where they see the benefits and any areas for improvement.

A summary of the feedback received to date is outlined below:

- ✔ All EPC providers consulted indicated an interest in using the scheme and felt they could justify the costs of the scheme.
- ✔ The key benefit they identified was that their capability and project delivery experience would be highlighted to clients on a platform led by a nationally recognised trade association, supported by independent auditing. This provides an opportunity for them to distinguish their service against less experienced providers. There was also interest in how the scheme promotion/events could open up interest among new clients, especially in the private sector.
- ✔ Most providers reacted strongly to the proposal of bronze, silver and gold gradings. It was highlighted that a bronze or silver award would, in some ways, be worse than nothing. It was suggested that this be removed, and the scheme be streamlined to those that have passed both capability and project audits, without any grading system.
- ✔ There was also a general reaction to the idea that one project is selected at random for audit. Whilst most agreed that a system to avoid 'cherry picking' was a good idea in principle, there was also a risk that an uncharacteristically bad project was selected. There was also a concern that clients of selected projects might not be amenable to their project being audited.

It is envisaged that a revised proposal for the scheme will address the latter points by streamlining the scheme to a simple pass or fail grading system and allowing EPC providers to elect the project for audit.

### *Quality Criteria Assessment*

Other than being subjected to many of the European Quality Criteria designed by the QualitEE project, the energy service provider will also be evaluated up front for company capability using the following headline criteria:

- ✔ Demonstrated use of performance guarantees/gain shares.
- ✔ Adequate financial standing/project insurance arrangements.
- ✔ Team capability, organisation & qualifications for EPC.
- ✔ Demonstrated experience in all key steps of EPC – following the project quality criteria.
- ✔ Appropriate public, products & professional insurances.

Evaluation of compliance

Energy service providers will be evaluated for company capability and a sample project in each 2-year maintenance period.

- ✔ **Company Capability:** To streamline the process the energy service provider will be required to complete a questionnaire and provide relevant supporting evidence. ESTA will appoint an



independent auditor to assess their submission against the criteria. This process is expected to take 1-day of auditing time.

- Sample Project Audit:** The UK scheme will focus on projects in operation and past the first savings verification point. This allows the auditor to review all aspects of the project in one audit process to minimise costs. The energy service provider will select the project for auditing. To streamline the process, the energy service provider will be required to complete a questionnaire and provide relevant supporting evidence. ESTA will appoint an independent auditor to assess their submission against the criteria. The scope of work for this aspect has been evaluated by EEVS through testing of the audit process in two pilot projects. This identified that the audit process requires around 3 days if relevant project documentation can be provided in an organised fashion. A checklist of relevant project documentation has been developed. It was also defined through consultation that the scope of audit should include a site visit to assess the quality of work and that the most time consuming aspects – such as the detailed assessment of energy savings projections (for proportionality, realistic assumptions and representativeness) can be limited to a sample rather than a comprehensive audit.

#### 4.2.12 Conclusion

The tables below summarizes the approach chosen by each of the partner countries when designing their Quality Assurance Schemes.

<b>NATIONAL STANDARDS</b>	<ul style="list-style-type: none"> <li>Integrates quality criteria into existing standards published by the national standards body</li> </ul>	
<b>GOVERNMENT SCHEME</b>	<ul style="list-style-type: none"> <li>Uses the national adaptation of the quality criteria as the basis for a scheme led EPC projects are individually certified past the first savings verification point, and service providers are certified based on achieving 2 or 3 certified projects dependent on value</li> </ul>	
<b>TRADE ASSOCIATION SCHEME</b>	<ul style="list-style-type: none"> <li>The UK scheme uses sample project verification past the first savings verification point to accredit service providers.</li> <li>The established DECA scheme in Austria offers a project level label for providers that commit to deliver services in line with the QC.</li> </ul>	
<b>ESCO REGISTRY</b>	<ul style="list-style-type: none"> <li>All EU countries were required to establish ESCO registries under the EED. The quality criteria are incorporated into the process for appointing ESCOs to these registries.</li> </ul>	
<b>CODE OF CONDUCT</b>	<ul style="list-style-type: none"> <li>The quality criteria have been included as an extension of the European code of conduct for Energy Performance Contracting, which has been signed by service providers in these countries.</li> </ul>	
<b>EXCEPTIONS</b>	<ul style="list-style-type: none"> <li>In Germany it was found there was no demand in the market for certification, so ASEW has opted instead to use the QC to offer a contract checking service</li> <li>In Belgium it was found that the market was not yet sufficiently mature to accept a scheme, although useful groundwork has been prepared for the future</li> </ul>	

	COUNTRY	TARGET		SCOPE		AUTHORITY			TYPE	
		PROJECT	EES PROV	PUBLIC	PRIVATE	GOVERNMENT	ASSOCIAT.	COMPANY	VOLUNT.	COMPULS.
1.	AUSTRIA	●			●		●		●	
2.	BULGARIA		●		●		NA		●	
3.	CZECH REPUBLIC	●	●	●		●			●	
4.	GREECE		●	●		●			●	
5.	LATVIA		●	●		●			●	
6.	SLOVAKIA		●		●		●		●	
7.	SLOVENIA		●	●		●			●	
8.	SPAIN		●		●			●	●	
9.	UNITED KINGDOM		●		●		●		●	
10.	GERMANY	NA								
9.	BELGIUM	NA								

## 5 WHAT DID WE LEARN?

Without doubt, it is difficult to choose the most important lessons learned from a more than three years' project. Since the EES business is a local business with local characteristics, the lessons learned are – to a certain degree – different in the countries that participated in the QualitEE project, some of which have been already presented in the earlier chapters. Nevertheless, it is possible to draw a number of conclusions that are appropriate at the EU-level and that should thus be considered for any kind of follow-up activities.

### *Traceable quality is a push factor for EES market growth*

Although the market survey revealed that the development of EES markets is rather positive across Europe, still large energy efficiency potentials remain untapped – and lack of trust of clients in EES as an integrated service has been identified as one of the main barriers. In this context, quality assurance becomes essential for building trust in service providers and in overcoming low customer demand. Quality assurance schemes for EES services on the one hand and EES providers on the other hand offer a tool to the clients to distinguish good quality projects. Therefore, there is a clear expectation of all market participants that quality assurance schemes would positively influence the development of EES markets.

### *Quality in EES projects can be clearly defined*

Although EES markets are quite heterogeneous across Europe, it became obvious that there exists a common understanding of the main elements that define “quality” in any kind of EES project. Obviously not all of these elements are equally important for each market segment and in all countries, but the

overall definition of a “good” EES project is very stable and can be well described by the Technical Quality Criteria as defined in the QualitEE project.

The usefulness of the Technical Quality Criteria has been confirmed in a large number of pilot applications, as they help to shape the relationship between the EES provider and the EES client, thus reducing transaction cost and the risk of project failure.

On the one hand, the criteria help the client to specify his needs, to define the requirements when procuring energy efficiency services, and to assess the service quality during and after the EES project based on project documentation. On the other hand, the EES provider benefits from an easier definition and description of his own services and from clear guidelines for internal quality management and continuous quality improvement. Furthermore, the provider may use the service quality as an USP to differentiate from competitors.

### *Reliable and verifiable quality criteria are useful for financing of EES projects*

Reliable and verifiable quality criteria address another important barrier to the growth of EES markets: The access to attractive financing sources. The market study revealed that in most EU countries – although not in all of them – the access to financing is difficult or very difficult for most EES providers. In this context, quality criteria build a bridge between the project developers – i.e., usually the EES provider – and the financing institution. It is important, however, to understand that financing institutions are not interested so much in the technical quality of a project but rather in those factors that influence the risk of non-repayment of the credited amount. The Financial Quality Criteria that have been developed in the frame of the QualitEE project were perceived by market stakeholders as “common sense approach” to evaluate the financial sustainability of EES projects without requiring a full technical due diligence.

### *Heterogeneous quality assurance schemes reflect local peculiarities of EES business*

Whereas it was possible to develop technical and financial criteria sets that could be harmonised to a large extent across Europe, the Quality Assurance Schemes that were initiated through the QualitEE project differentiated a lot. The heterogeneity of the quality assurance schemes reflects the fact that EES business is a local one, and although closely related there exist local peculiarities that decide upon the development of quality assurance schemes. None of the schemes has been developed from scratch, but they all used different “windows of opportunity” as starting points. In some cases, the windows of opportunities consisted in the need of member countries to comply with the EED, in other cases the ongoing development of national standards or a strong involvement of governmental authorities became decisive driving forces.

### *Quality assurance schemes for EES require public support*

The success of quality assurance schemes for EES depends on a bundle of influencing factors. The perceived cost compared to the additional benefit attributed to quality assurance is clearly a limiting factor. Furthermore, the awareness level of the scheme plays a crucial role, and given the fragmentation of EES markets it is a difficult and also costly task to increase awareness levels and to disseminate the quality assurance option at the side of *potential future* EES clients.

Therefore, we conclude that a certain public support is required in the starting phase to ensure that quality assurance schemes arrive at the markets. The public support may consist of a wide range of different support measures: The scheme may be disseminated with public support (e.g. as part of a public programme); quality assurance may become a prerequisite of public tenders; or a public authority

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may take over sponsorship for a quality assurance scheme, etc. Irrespective of how the public support is finally arranged, it is of crucial importance at least for the starting years of the scheme. The countries where the QualitEE team was not able to bring forward a quality assurance scheme clearly demonstrate that an exclusively market-based approach has limited chance of succeeding.

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Note:

\* For translations of the training modules 1 – 4 into national languages (English, German, Czech, Bulgarian, Spanish, Slovakian, Slovenian, Latvian, Greek and French) select the respective country website on <https://qualitee.eu/>